

APPENDIX P
LOCAL TRANSPORTATION STUDY

Tierra Norte Residential Development Plan
Southside of N. River Rd btw Ave Descanso and Calle Montecito
City of Oceanside
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Local Transportation Study

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Executive Summary

Tierra Norte Residential Development Plan

This Local Transportation Study (LTS) determines if there are measurable transportation impacts based on the City of Oceanside local impact thresholds. A separate Vehicle Miles Traveled (VMT) analysis is provided under separate cover to satisfy the California Environmental Quality Act (CEQA) requirements. This report provides a non-CEQA analysis as required by the City of Oceanside.

The project located at 4617 and 4665 N. River Rd is a General Plan Amendment (GPA) and rezone from light industrial uses to residential on two parcels totaling 25.6 acres. The application includes a Planned Block Development Plan for a future residential development of up to 400 dwelling units; therefore, a site plan is not available at this step of the application process.

Pedestrian, Bicycle, Transit, and Traffic study elements were analyzed based on the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020 (“Traffic Guidelines”).

The multi-modal analysis covered pedestrian, bicycle, and transit elements. A sidewalk does not exist along the project frontage on N. River Road; therefore, the project applicant will construct a sidewalk along the project frontage. No bicycle nor transit deficiencies were documented; therefore, no changes are proposed.

The traffic analysis included the analysis of AM peak hour, PM peak hour, and daily traffic volumes. The project at 400 dwelling units is calculated to generate 3,200 daily trips, 256 AM peak hour trips (51 inbound and 205 outbound), and 320 PM peak hour trips (224 inbound and 96 outbound) based on SANDAG traffic generation rates. Eight scenarios were analyzed, which included Existing, Existing plus Project, Near Term (nine cumulative projects), Near Term plus Project, Horizon Year 2035 Master Transportation Plan (MTP with Pala Road extension, Melrose extension, various segments expanded to 6 lanes, and Rancho Del Oro interchange), Horizon Year 2035 MTP plus Project, Horizon Year 2035 Alternative (reflects the current roadway network as it does not incorporate any proposed new roadways nor expanded roadways and is the same as the existing roadway network), and Horizon Year 2035 Alt plus Project. The City’s Traffic Guidelines define how a project’s non-CEQA transportation impact on the roadway system is considered to justify the need for roadway improvements that should be considered on a case-by-case basis. The project owner/permittee will be responsible for the following:

- 1) Construction of a complete and operating traffic signal along with fiber communication at the future project entrance on N. River Rd that will align with Riverview Way.
- 2) Construction of new sidewalks along the project frontage on N. River Rd to match existing sidewalks.
- 3) Mitigation at 11 off-site roadway locations. The timing and final mitigation will be determined when a final site plan has been submitted along with a new LTS. The impacted transportation locations based on 400 units are shown in **Table E-1**.

TABLE E-1: PROJECT TRANSPORTATION IMPACTS WITH 400 DWELLING UNITS

	Existing + Project	Near Term + Project	Horizon Year 2035 MTP + Project	Horizon Year 2035 Alt + Project
Intersections				
T-1 (Int #2): Douglas Dr/ Mission Ave	No Impact	No Impact	Transportation Impact*	Transportation Impact*
T-2 (Int #9): N. River/ Riverview	Transportation Impact**	Transportation Impact**	Transportation Impact**	Transportation Impact**
T-3 (Int #12): N. River Rd/ College Blvd	Transportation Impact*	Transportation Impact*	Transportation Impact*	Transportation Impact*
T-4 (Int #16): SR-76/ College Blvd	Transportation Impact*	Transportation Impact*	Transportation Impact*	Transportation Impact*
Segments				
T-5 (Seg #1): Douglas (N. River to Rainier)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-6 (Seg #2): Douglas (Rainier to Pala)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-7 (Seg #3): Douglas (Pala to El Camino Real)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-8 (Seg #4): Douglas (El Camino Real to Mission)	No Impact	Transportation Impact*	No Impact	Transportation Impact*
T-9 (Seg #12): College (N. River to Buchanon)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-10 (Seg #13): College (Buchanon to Adams)	Transportation Impact*	Transportation Impact**	No Impact	Transportation Impact*
T-11 (Seg #14): College (Adams to Via Cupeno)	No Impact	No Impact	No Impact	Transportation Impact*
Total Transportation Impacts:	8	9	4	11

Notes: MTP: Master Transportation Plan. Alt: Alternative. Int: Intersection. Transportation impact if project traffic is calculated to exceed the allowable thresholds under LOS E or F conditions. *The timing and final mitigation will be determined when a final site plan has been submitted along with a new LTS. ** Project owner/permittee to install traffic signal with fiber communitation.

1.0 Introduction

This Local Transportation Study (LTS) determines if there are measurable transportation impacts based on the City of Oceanside local impact thresholds. A separate Vehicle Miles Traveled (VMT) analysis is provided under separate cover to satisfy the California Environmental Quality Act (CEQA) requirements. This report provides a non-CEQA analysis based on the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020.

The project is a General Plan Amendment (GPA) and rezone from light industrial uses to residential on two parcels for a total of 25.6 acres (Kawano parcel 9.7 acres and Nagata parcel 15.9 acres). The project is located at 4617 and 4665 N. River Rd in Oceanside, California. The application includes a Planned Block Development Plan which would establish development criteria and allow for future residential development of up to 400 dwelling units. Therefore, a site plan is not available for the project site at this step of the application process. A maximum of 400 dwelling units is proposed for a density of 15.6 units per acre (400 units / 25.6 acres).

The project area encompasses two parcels that are located on the south side of North River Road generally between Avenida Descanso and Calle Montecito. The site has historically been used for agricultural, packing, and shipping uses. The regional location of the project is shown in **Figure 1** with an aerial reference shown in **Figure 2**.

This report describes the existing roadway network in the vicinity of the project and includes a review of existing and proposed activities for weekday peak and daily traffic conditions when the project is completed. This study includes the following chapters:

- 1.0 Introduction
- 2.0 Alternative Transportation Analysis
- 3.0 Traffic Analysis

Figure 1: Project Location

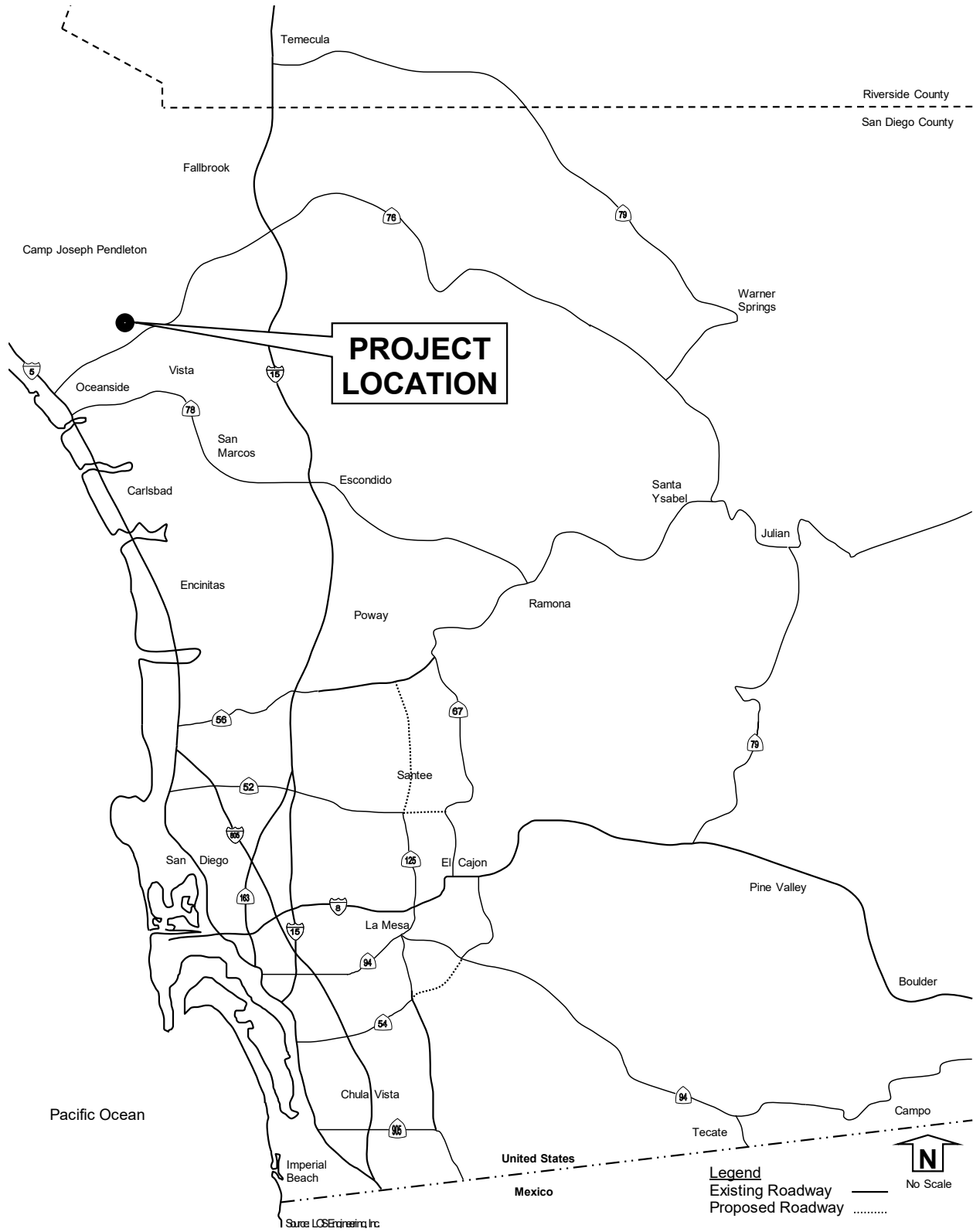


Figure 2: Aerial of Project Site



2.0 Alternative Transportation Analysis

The following transportation modes were analyzed based on criteria outlined in the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020:

- 1) Pedestrian: Documentation of pedestrian infrastructure available including any opportunities or deficiencies such as path obstructions or missing sidewalk from the project access points extending ½ mile walking distance or to the nearest intersection with a classified roadway/connection with a Class I path.
- 2) Bicycle: Documentation of bicycle infrastructure available including any opportunities or deficiencies such as bike lanes, bike buffers, or bike boxes from the project access points extending in each direction to the nearest intersection with a classified roadway or connection with a Class I path.
- 3) Transit: Identification of transit stops or routes existing within ½ mile walking distance of each pedestrian project access point.

2.1 Pedestrian

The pedestrian analysis consists of documenting pedestrian infrastructure available including any opportunities or deficiencies such as path obstructions or missing sidewalk from the project access points extending to the nearest intersection with a classified roadway or to a connection with a Class I path.

North River Dr from Douglas Dr to roughly the driveway of the City of Oceanside Fire Department Station #5 has either non-contiguous or contiguous sidewalks on both sides of the street, except along the project frontage and along the north side of the street from Calle Montecito to the fire station. There were no major sidewalk obstructions observed along this segment.

The project will construct sidewalks along the project frontage adjacent to the public streets. The pedestrian infrastructure from the project access points extending to the nearest intersection with a classified roadway or ½ mile walking distance did not have any deficiencies, path obstructions, or missing sidewalk segments for the study area on the same street side as the project. However, there is a missing sidewalk on the north side of N. River Road between Calle Montecito and Redondo Dr. The pedestrian elements are shown in **Figure 3**.

Figure 3: Pedestrian Elements



Source: Google Maps

2.2 Bicycle

The bicycle analysis consists of documenting bicycle infrastructure available including any opportunities or deficiencies such as bike lanes, bike buffers, or bike boxes from the project access points extending in each direction to the nearest intersection with a classified roadway or connection with a Class I path.

North River Dr from Douglas Dr to roughly the driveway of the City of Oceanside Fire Department Station #5 has an existing Class 2 bike lane shown in the *City of Oceanside Bicycle Master Plan 2017 Update*.

Excerpts from the *City of Oceanside Bicycle Master Plan 2017 Update* are included in **Appendix A**. The bicycle elements study area is shown in **Figure 4**.

Figure 4: Bicycle Elements



Source: Google Maps

2.3 Transit

The transit analysis includes identifying the closest transit routes and stops to the project. If the stops are within ½ mile walking distance of the project access, the condition of the closest stop amenities are described. North County Transit District (NCTD) lists Bus Routes 303 within ½ mile walking distance from the project access. Bus stops near the project site are located on N River Rd by Avenida Descanso, and on N River Rd by Calle Montecito.

The closest bus stop west of the project site is located on N River Rd at Avenida Descanso. The westbound bus stop is located on the north side of N River Rd and to the west of Avenida Descanso. The eastbound bus stop is located on the south side of N River Rd east of Avenida Descanso. Both bus stops include a bench. Both bus stops are in good condition.

The closest bus stop east project site is located on N River Rd at Calle Montecito. The westbound bus stop is located on the north side of N River Rd west of Calle Montecito. The eastbound bus stop is located on the south side of N River Rd east of Calle Montecito. Both bus stops include a bench. Both bus stops are in good condition.

No transit improvements are proposed as part of this project. A summary of the service times is shown in **Table 1** for weekdays and **Table 2** for weekend days. The noted bus schedules are included in **Appendix B**.

TABLE 1: WEEKDAY BUS SERVICE OPERATIONS AND FREQUENCY

Bus Route	Weekday (Mon-Fri) Service Operations (Off-Peak Service Frequency Range)	7-9 AM Peak Hour Service Frequency	4-6 PM Peak Hour Service Frequency
Route 303	≈ 4:30 AM to ≈ 11:00 PM (≈ 15-30 minutes)	15 minutes	15 minutes

Notes: Above service times are summaries, thus please refer to Appendix D for exact service details.

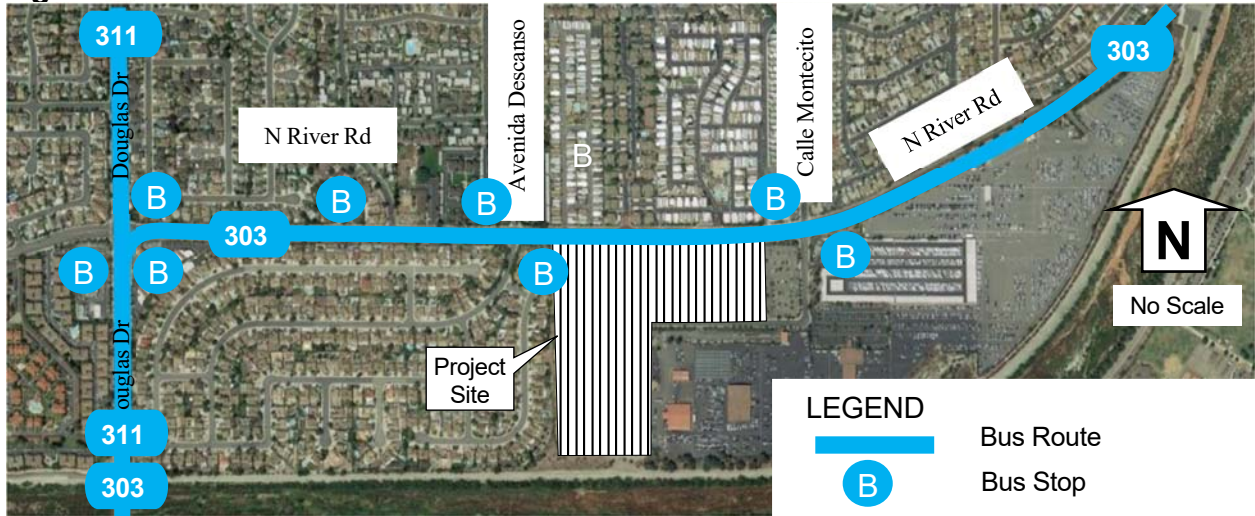
TABLE 2: WEEKEND BUS SERVICE OPERATIONS AND FREQUENCY

Bus Route	Saturday Service Operations (Service Frequency Range)	Sunday Service Operations (Service Frequency Range)
Route 303	≈ 6:00 AM to ≈ 11:00 PM (≈ 20-30 min.)	≈ 6:00 AM to ≈ 11:00 PM (≈ 20-30 min.)

Notes: Above service times are summaries, thus please refer to Appendix D for exact service details.

The nearby transit routes and bus stops are shown in **Figure 5**.

Figure 5: Transit Elements



Source: Google Maps

3.0 Traffic Analysis

The Local Transportation Study includes the analysis of specific study scenarios, methodology for the analysis of roadway operations, and determination of potential off-site improvements. Details for each of these parameters are include herein.

3.1 Study Area and Scenario Criteria

The project study area was determined by the limits or extent of where 50 peak hour project trips would travel to or from the site, which is based on the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020. Additionally, the study area can be identified by City staff.

For this project, the following intersections were analyzed as part of this study:

- 1) Douglas Dr/SR-76 (Signalized)
- 2) Douglas Dr/Mission Avenue (Signalized)
- 3) Douglas Dr/El Camino Real (Signalized)
- 4) Douglas Dr/Pala Road (Signalized)
- 5) Douglas Dr/Rainier Way (Signalized)
- 6) N. River Road/Douglas Drive (Signalized)
- 7) N. River Road/Avenida Descanso (Signalized)
- 8) N. River Road/Westwinds Mobile Home Park (Un-Signalized)
- 9) N. River Road/Riverview Way (Un-Signalized)
- 10) N. River Road/Calle Montecito (Signalized)
- 11) N. River Road/Redondo Drive (Signalized)
- 12) N. River Road/College Blvd (Signalized)
- 13) College Blvd/Buchanon Park (Un-Signalized)
- 14) College Blvd/Adams St (Signalized)
- 15) College Blvd/Via Cupeno (Signalized)
- 16) College Blvd/SR-76 (Signalized)
- 17) N. River Road/Vandergrift Blvd (Signalized)

The following street/expressway segments were analyzed as part of this study:

- 1) Douglas Drive from N. River Rd to Rainier Way
- 2) Douglas Drive from Rainier Way to Pala Rd
- 3) Douglas Drive from Pala Rd to El Camino Real
- 4) Douglas Drive from El Camino Real to Mission Ave
- 5) Douglas Drive from Mission Ave to SR-76
- 6) N. River Rd from Douglas to Avenida Descanso
- 7) N. River Rd from Avenida Descanso to Riverview Way
- 8) N. River Rd from Riverview Way to Calle Montecito
- 9) N. River Rd from Calle Montecito to Redondo
- 10) N. River Rd from Redondo to College
- 11) N. River Rd from College to Vandergrift
- 12) College Blvd from N. River Rd to Buchanon Park
- 13) College Blvd from Buchanon Park to Adams St
- 14) College Blvd from Adams St to Via Cupeno

- 15) College Blvd from Via Cupeno to SR-76
- 16) SR-76 from Foussat Rd to Douglas Dr
- 17) SR-76 from Douglas Dr to Rancho Del Oro Dr
- 18) SR-76 from Frazee Rd to College Blvd
- 19) SR-76 from College Blvd to N. Santa Fe Ave

The number of scenarios to be analyzed is typically based on the size of the project, the number of cumulative projects and whether the project conforms to current zoning. For this project, the following scenarios were included:

- 1) Existing Conditions
- 2) Existing plus Project Conditions
- 3) Near Term (Existing + Cumulative) Conditions
- 4) Near Term (Existing + Cumulative) plus Project Conditions
- 5) Horizon Year 2035 Base Master Transportation Roadway Plan Conditions
- 6) Horizon Year 2035 Base Master Transportation Roadway Plan plus project Conditions
- 7) Horizon Year 2035 Alternative Conditions
- 8) Horizon Year 2035 Alternative plus project Conditions

3.2 Traffic Analysis Criteria

The traffic analyses prepared for this study were based on the *Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections, street segments, and freeway segments were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The LOS criteria for each roadway component are described below.

3.2.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 6th Ed HCM using existing signal timing data. This process defines LOS in terms of **average control delay** per vehicle measured in seconds. LOS at the intersections were calculated using the computer software program Synchro 10 (Trafficware Corporation). The 6th Ed HCM LOS for the range of delay by seconds for un-signalized and signalized intersections is described in **Table 3**.

TABLE 3: INTERSECTION LEVEL OF SERVICE DEFINITIONS (6TH EDITION HCM)

Level of Service	Un-Signalized (TWSC and AWSC) Control Delay (sec/veh where $v/c \leq 1$)	Signalized Control Delay (sec/veh where $v/c \leq 1$)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

TWSC: Two Way Stop Control. AWSC: All Way Stop Control. Source: 6th Edition HCM (exhibit 20-2 for two way stop control, exhibit 21-8 for all way stop control, and exhibit 19-8 for signalized intersections).

3.2.2 Street Segments

The street segments were analyzed based on the functional classification of the roadway using the City of Oceanside *Average Daily Vehicle Trips* capacity lookup table. The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 4**.

TABLE 4: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF OCEANSIDE)

Circulation Element Road Classification	Lanes	LOS A	LOS B	LOS C	LOS D	LOS E
Expressway	6	<30,000	<42,000	<60,000	<70,000	<80,000
Expressway	4	<25,000	<35,000	<50,000	<55,000	<60,000
Prime Arterial	6	<25,000	<35,000	<50,000	<55,000	<60,000
6-Lane Major Arterial	6	<20,000	<28,000	<40,000	<45,000	<50,000
5-Lane Major Arterial	5	<17,500	<24,500	<35,000	<40,000	<45,000
4-Lane Major Arterial	4	<15,000	<21,000	<30,000	<35,000	<40,000
Secondary Collector with TWLTL	4	<10,000	<14,000	<20,000	<25,000	<30,000
Secondary Collector no TWLTL	4	<9,000	<13,000	<18,000	<22,000	<25,000
Collector – Commercial Fronting	2	<5,000	<7,000	<10,000	<13,000	<15,000
Collector – Residential Fronting	2	<4,000	<5,500	<7,500	<9,000	<10,000
Local Street	2	na	na	<2,200*	na	na

Source: City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020. * City of Oceanside General Plan *Circulation Element*, September 2012 applied.

3.2.3 Transportation Impact Thresholds and Need for Roadway Improvements

A project Owner/Permittee may be required to provide an off-site improvement if the project traffic exceeds the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, August 2020 (“Traffic Guidelines”) defined thresholds as shown in **Table 5** (excerpts included in **Appendix C**).

TABLE 5: DETERMINATION OF THE NEED FOR ROADWAY IMPROVEMENTS

Level of Service with Project	Allowable Increase Due to Project Effect				
	Freeways	Roadway Segments		Intersections	Ramp Metering
	V/C	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
E & F	0.01	0.02	1	2	2*

Source: City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment* (August 2020), page 25.

A project effect is considered a non-CEQA transportation impact based on the City’s Traffic Guidelines. The Traffic Guidelines define how a project’s non-CEQA transportation impact on the roadway system is considered to justify the need for roadway improvements that should be considered as follows on a case-by-case basis:

- 1) Improvements should be consistent with the General Plan.
- 2) Improvements for transit, bike and pedestrian facilities should be given priority in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG.
- 3) Projects in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG, that are consistent with the General Plan at the time of project application, should not be denied due to the inability to provide roadway improvements (i.e., existing right of way is constrained, etc.)

3.3 Existing Conditions

This section describes the study area street system, existing daily roadway and peak hour intersection traffic volumes and existing LOS results.

3.3.1 Existing Street System

In the vicinity of the project, the following roadways were analyzed as part of this study, which are described below. The roadway classification was obtained from the City of Oceanside General Plan *Circulation Element*, September 2012 (excerpts included in **Appendix D**).

SR-76 is classified as an *Expressway* in the vicinity of the project and is currently built as a divided roadway with two travel lanes in each direction.

Douglas Drive is classified as a 4 lane *Major Arterial* from SR-76 to Mission Avenue, as a 4 lane *Secondary Collector* from Mission Avenue to El Camino Real, and as a 4 lane *Major Arterial* from El Camino Real to N. River Road. Douglas Drive is currently built as a 4 lane roadway with a raised median and intermittent left turn lanes from SR-76 to Mission Avenue, with a center Two Way Left Turn Lane (TWLTL) from Mission Avenue to El Camino Real, with a raised median and intermittent left turn lanes from El Camino Real to Pala Road, with painted center median (two sets of double yellow lines) from Pala Road to Rainier Way, and with a raised median and intermittent left turn lanes from Rainier Way to North River Road. The posted speed limit is generally 40 MPH from SR-76 to El Camino Real and generally 50 MPH north of El Camino Real.

North River Road is classified as a 4 lane *Major Arterial* from Douglas Drive to College Boulevard and as a 5 lane *Major Arterial* from College Boulevard to Vandergrift Boulevard. The majority of North River Road between Douglas Drive and College Boulevard is built as a 4 lane divided roadway. Some portions do not have a raised center median. From College Boulevard to Vandergrift Boulevard, N. River Road is built as a 5 lane divided roadway (3 northbound and 2 southbound lanes). The posted speed limit is 45 MPH with no parking signs posted on both sides of the roadway. Bike lanes are provided on both sides of the roadway.

College Boulevard is classified as a 4 lane *Major Arterial* from North River Road to Adams Street, as a 6 lane *Major Arterial* from Adams Street to SR-76, and as a 4 lane *Major Arterial* from SR-76 to Mesa Drive. College Boulevard is currently built as a 4 lane roadway with a raised median from North River Road to Buchanon Park, as a 4 lane roadway with painted center median (two sets of double yellow lines) from Buchanon Park to Adams Street, as a 6 lane roadway with a raised median from Adams Street to SR-76, as a 5 lane roadway (3 southbound lanes and 2 northbound lanes) with a raised median and intermittent turn lanes from SR-76 to Frazee Road, and as a 4 lane roadway with a raised median from Frazee Road to Mesa Drive. Bike lanes are provided on both sides of the roadway. The posted speed limit is generally 40 MPH from North River Road to Buchanon Park, 45 MPH between Adams Street and Via Cuperno, and 50 MPH from SR-76 to Mesa Drive.

3.3.2 Existing Traffic Volumes and LOS Analyses

Existing 7-9 AM and 4-6 PM peak hour traffic volumes and signal timing data are included in **Appendix E**, which included the following intersections with the date of collection noted below:

- 1) Douglas Dr/SR-76 (Thur, 9/20/18)
- 2) Douglas Dr/Mission Avenue (Thur, 9/20/18)
- 3) Douglas Dr/El Camino Real (Thur, 9/20/18)
- 4) Douglas Dr/Pala Road (Thur, 9/20/18)
- 5) Douglas Dr/Rainier Way (Thur, 9/20/18)
- 6) N. River Road/Douglas Drive (Thur, 9/20/18)
- 7) N. River Road/Avenida Descanso (Thur, 9/20/18)
- 8) N. River Road/Westwinds Mobile Home Park (Thur, 9/20/18)
- 9) N. River Road/Riverview Way (Thur, 9/20/18)
- 10) N. River Road/Calle Montecito (Thur, 9/20/186)
- 11) N. River Road/Redondo Drive (Thur, 9/20/18)
- 12) N. River Road/College Blvd (Thur, 9/20/18)
- 13) College Blvd/River Park (Thur, 9/20/18)
- 14) College Blvd/Adams St (Thur, 9/20/18)
- 15) College Blvd/Via Cupeno (Thur, 9/20/18)
- 16) College Blvd/SR-76 (Thur, 9/20/18)
- 17) College Blvd/Vandergrift Blvd (Thur, 9/20/18)

Existing daily traffic volumes are also included in **Appendix B**, which included the following segments with the date of collection noted below:

- 1) Douglas Drive from N. River Rd to Rainier Way (Thur, 9/20/18)
- 2) Douglas Drive from Rainier Way to Pala Rd (Thur, 9/20/18)
- 3) Douglas Drive from Pala Rd to El Camino Real (Thur, 9/20/18)
- 4) Douglas Drive from El Camino Real to Mission Ave (Thur, 12/13/18)
- 5) Douglas Drive from Mission Ave to SR-76 (Thur, 9/20/18)
- 6) N. River Rd from Douglas to Avenida Descanso (Thur, 9/20/18)
- 7) N. River Rd from Avenida Descanso to Riverview Way (Thur, 9/20/18)
- 8) N. River Rd from Riverview Way to Calle Montecito (Thur, 9/20/18)
- 9) N. River Rd from Calle Montecito to Redondo (Thur, 9/20/18)
- 10) N. River Rd from Redondo to College (Thur, 9/20/18)
- 11) N. River Rd from College to Vandergrift (Thur, 9/20/18)
- 12) College from N. River Rd to Buchanon Park (Thur, 9/20/18)
- 13) College from Buchanon Park to Adams St (Thur, 9/20/18)
- 14) College from Adams St to Via Cupeno (Thur, 9/20/18)
- 15) College from Via Cupeno to SR-76 (Thur, 9/20/18)
- 16) SR-76 from Foussat Rd to Douglas Dr (Caltrans 2017)
- 17) SR-76 from Douglas Dr to Rancho Del Oro Dr (Caltrans 2017)
- 18) SR-76 from Frazee Rd to College Blvd (Caltrans 2017)
- 19) SR-76 from College Blvd to N. Santa Fe Ave (Caltrans 2017)

The existing roadway conditions are shown in **Figure 6**, which also includes reference locations for the study intersections and segments. Existing AM, PM, and daily volumes are shown on **Figure 7**.

Figure 6: Existing Roadway Conditions

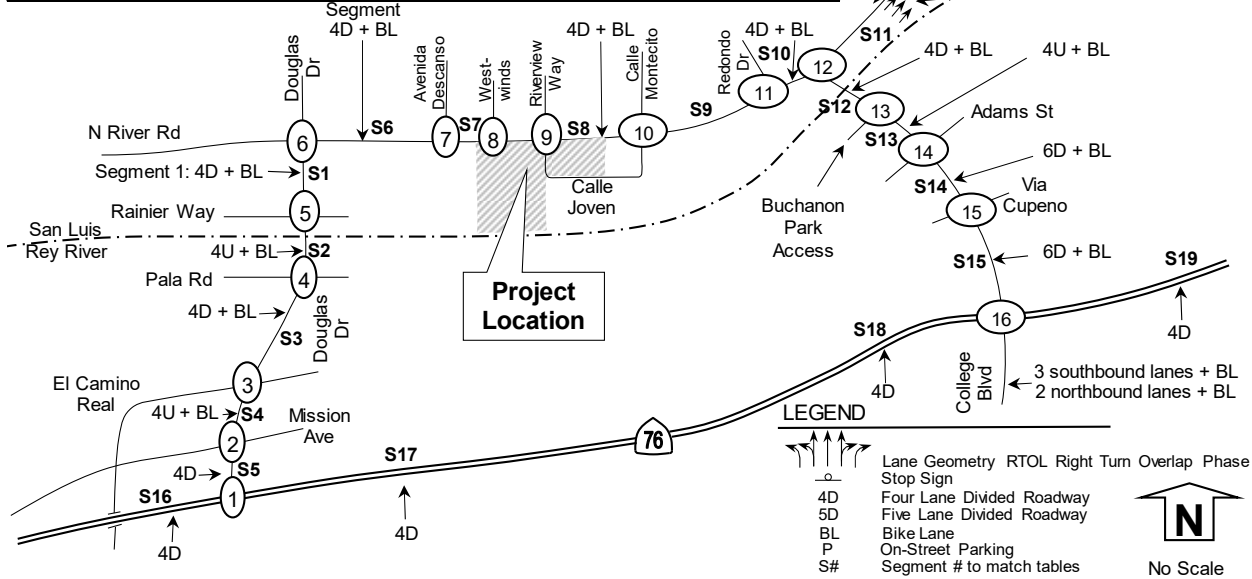
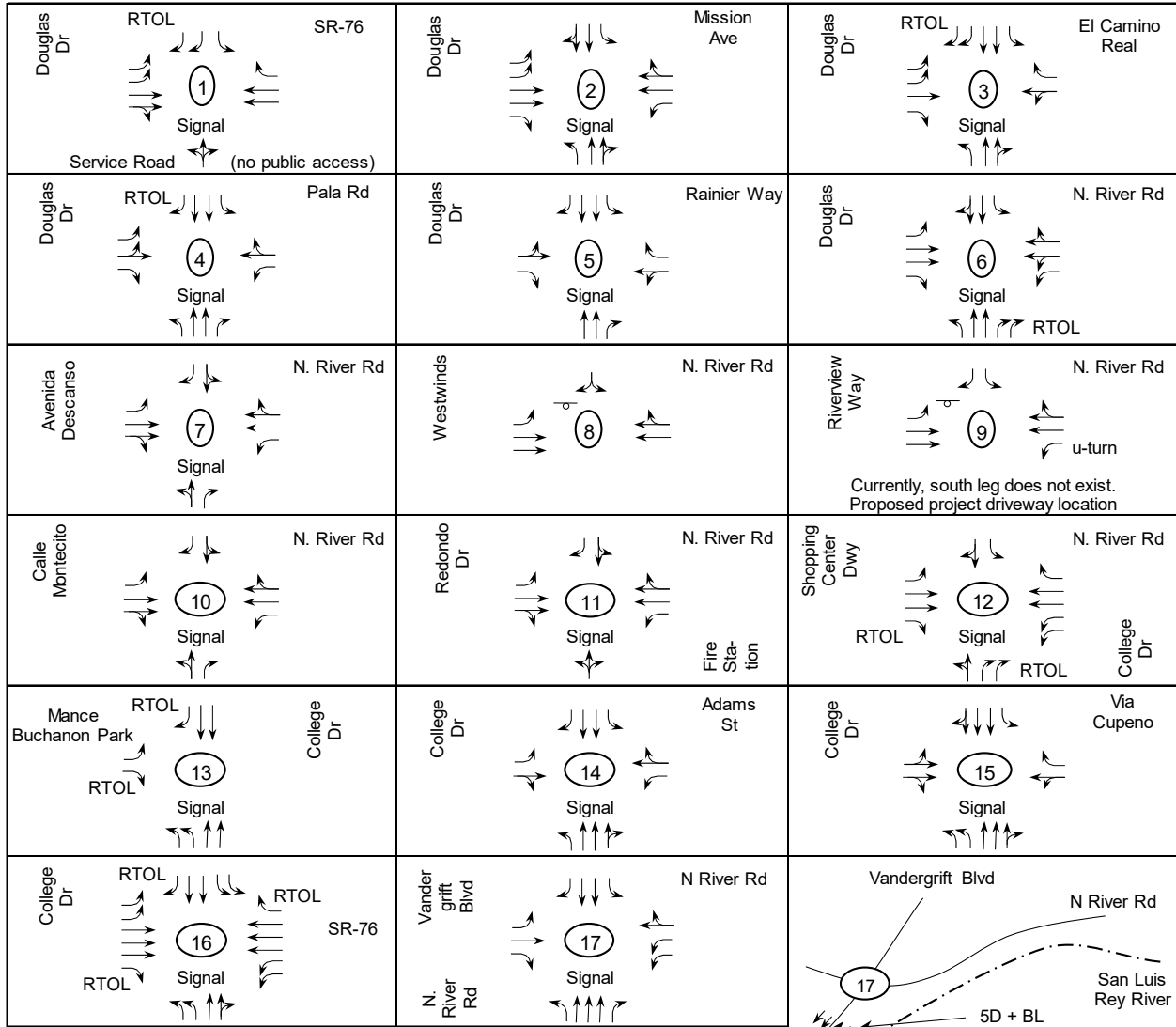
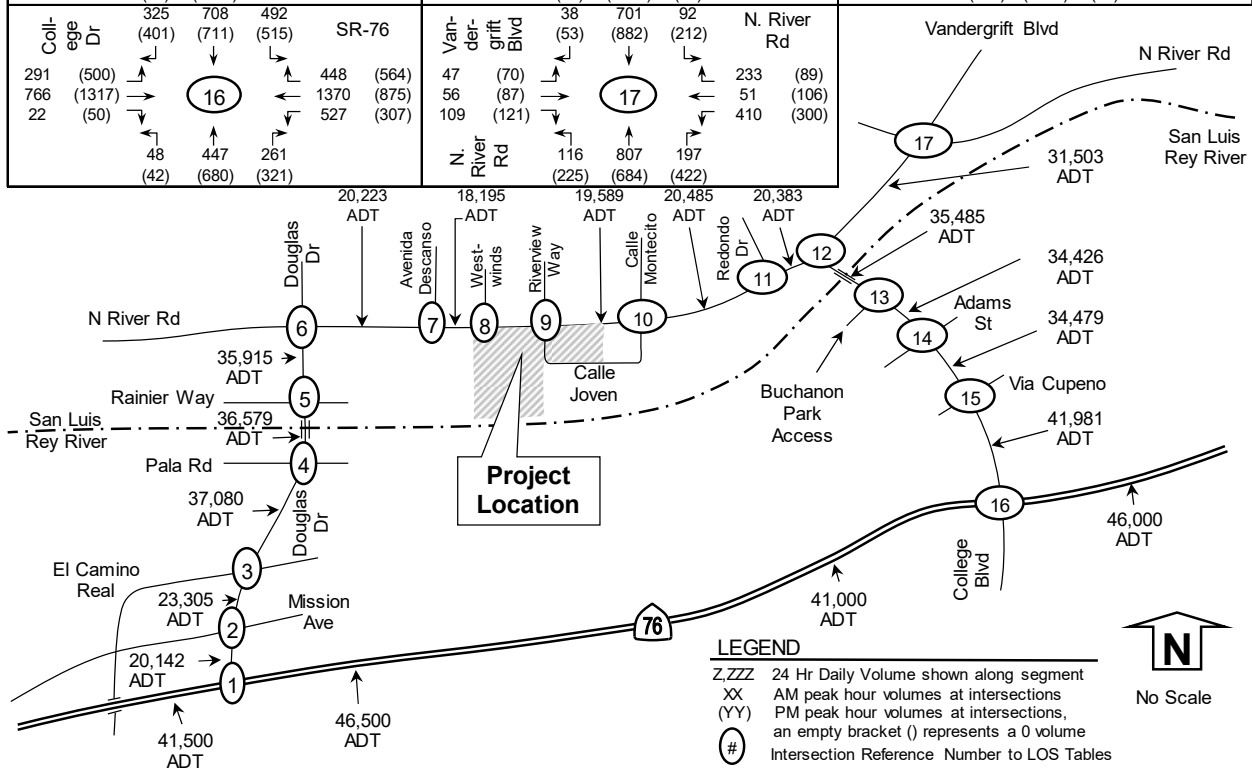


Figure 7: Existing Volumes

<p>Douglas Dr</p> <p>490 (346)</p> <p>239 (502)</p> <p>870 (1617)</p> <p>247 (287)</p> <p>205 (252)</p> <p>1761 (1034)</p> <p>SR-76</p> <p>1</p>	<p>Douglas Dr</p> <p>71 (46)</p> <p>66 (227)</p> <p>258 (609)</p> <p>62 (148)</p> <p>676 (469)</p> <p>291 (555)</p> <p>111 (165)</p> <p>378 (292)</p> <p>9 (23)</p> <p>2</p> <p>Mission Ave</p> <p>318 (361)</p> <p>430 (332)</p> <p>47 (60)</p> <p>3</p>	<p>Douglas Dr</p> <p>1085 (604)</p> <p>321 (979)</p> <p>17 (63)</p> <p>36 (55)</p> <p>1042 (675)</p> <p>549 (955)</p> <p>40 (79)</p> <p>8 (7)</p> <p>1</p> <p>El Camino Real</p> <p>1 (10)</p> <p>33 (25)</p> <p>69 (53)</p>
<p>Douglas Dr</p> <p>67 (100)</p> <p>66 (94)</p> <p>3 (1)</p> <p>92 (89)</p> <p>1875 (1189)</p> <p>15 (21)</p> <p>24 (24)</p> <p>2 (3)</p> <p>9 (7)</p> <p>Pala Rd</p> <p>4</p>	<p>Douglas Dr</p> <p>37 (73)</p> <p>15 (8)</p> <p>2 (2)</p> <p>109 (73)</p> <p>1787 (1135)</p> <p>2 (4)</p> <p>6 (4)</p> <p>4 (2)</p> <p>67 (41)</p> <p>Rainier Way</p> <p>5</p>	<p>Douglas Dr</p> <p>9 (46)</p> <p>53 (38)</p> <p>94 (94)</p> <p>186 (67)</p> <p>703 (571)</p> <p>18 (39)</p> <p>21 (40)</p> <p>47 (64)</p> <p>882 (520)</p> <p>N. River Rd</p> <p>6</p>
<p>Avenida Descanso</p> <p>104 (71)</p> <p>51 (113)</p> <p>420 (795)</p> <p>5 (12)</p> <p>12 (4)</p> <p>2 (2)</p> <p>111 (81)</p> <p>44 (85)</p> <p>785 (565)</p> <p>18 (25)</p> <p>N. River Rd</p> <p>7</p>	<p>Westwinds</p> <p>26 (13)</p> <p>12 (21)</p> <p>547 (902)</p> <p>9 (3)</p> <p>7 (15)</p> <p>853 (656)</p> <p>N. River Rd</p> <p>8</p>	<p>Riverview Way</p> <p>40 (8)</p> <p>22 (25)</p> <p>537 (873)</p> <p>0 (0)</p> <p>0 (0)</p> <p>0 (0)</p> <p>15 (19)</p> <p>N. River Rd</p> <p>9</p>
<p>Calle Montecito</p> <p>105 (59)</p> <p>49 (126)</p> <p>486 (721)</p> <p>27 (10)</p> <p>1 (1)</p> <p>196 (135)</p> <p>98 (183)</p> <p>669 (584)</p> <p>32 (8)</p> <p>N. River Rd</p> <p>10</p>	<p>Redondo Dr</p> <p>112 (79)</p> <p>33 (103)</p> <p>675 (796)</p> <p>0 (0)</p> <p>0 (0)</p> <p>0 (0)</p> <p>83 (49)</p> <p>N. River Rd</p> <p>11</p>	<p>Shopping Center Dwy</p> <p>9 (2)</p> <p>14 (23)</p> <p>212 (392)</p> <p>547 (445)</p> <p>49 (39)</p> <p>25 (23)</p> <p>70 (58)</p> <p>479 (364)</p> <p>949 (955)</p> <p>N. River Rd</p> <p>12</p>
<p>Mance Buchanan Park</p> <p>74 (55)</p> <p>50 (28)</p> <p>27 (79)</p> <p>1456 (1310)</p> <p>26 (95)</p> <p>1207 (1425)</p> <p>1 (1)</p> <p>8 (32)</p> <p>College Dr</p> <p>13</p>	<p>College Dr</p> <p>204 (116)</p> <p>174 (147)</p> <p>12 (20)</p> <p>87 (70)</p> <p>1266 (1270)</p> <p>16 (40)</p> <p>40 (30)</p> <p>17 (10)</p> <p>76 (46)</p> <p>Adams St</p> <p>14</p>	<p>College Dr</p> <p>52 (112)</p> <p>47 (260)</p> <p>1 (9)</p> <p>35 (175)</p> <p>1362 (1156)</p> <p>1 (2)</p> <p>5 (10)</p> <p>133 (62)</p> <p>Via Cupeno</p> <p>15</p>
<p>College Dr</p> <p>325 (401)</p> <p>291 (500)</p> <p>766 (1317)</p> <p>22 (50)</p> <p>708 (711)</p> <p>492 (515)</p> <p>448 (564)</p> <p>1370 (875)</p> <p>527 (307)</p> <p>SR-76</p> <p>16</p>	<p>Vandergrift Blvd</p> <p>38 (53)</p> <p>47 (70)</p> <p>56 (87)</p> <p>109 (121)</p> <p>701 (882)</p> <p>92 (212)</p> <p>233 (89)</p> <p>51 (106)</p> <p>410 (300)</p> <p>N. River Rd</p> <p>17</p>	<p>Vandergrift Blvd</p> <p>31,503 ADT</p> <p>35,485 ADT</p> <p>34,426 ADT</p> <p>34,479 ADT</p> <p>41,981 ADT</p> <p>46,000 ADT</p>



The LOS calculated for the intersections and segments are shown in **Tables 6 and 7**, respectively. Existing intersection LOS worksheets are included in **Appendix F**.

TABLE 6: EXISTING INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Existing	
			Delay ²	LOS ³
1) Douglas Dr at SR-76 (S)	All	AM	40.0	D
	All	PM	23.4	C
2) Douglas Dr at Mission Ave (S)	All	AM	32.6	C
	All	PM	40.6	D
3) Douglas Dr at El Camino Real (S)	All	AM	18.7	B
	All	PM	34.8	C
4) Douglas Dr at Pala Rd (S)	All	AM	26.0	C
	All	PM	21.1	C
5) Douglas Dr at Rainier Way (S)	All	AM	29.0	C
	All	PM	17.8	B
6) Douglas Dr at N. River Rd (S)	All	AM	39.0	D
	All	PM	24.5	C
7) N. River Rd at Avenida Descanso (S)	All	AM	40.5	D
	All	PM	12.2	B
8) N. River Rd at Westwinds (U)	SB LR	AM	17.0	C
	SB LR	PM	14.3	B
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A
	SB LR	AM	20.3	C
	NB LR	PM	0.0	A
	SB LR	PM	31.5	D
10) N. River Rd at Calle Montecito (S)	All	AM	19.3	B
	All	PM	19.0	B
11) N. River Rd at Redondo Dr (S)	All	AM	9.8	A
	All	PM	10.4	B
12) N. River Rd at College Blvd (S)	All	AM	46.4	D
	All	PM	51.5	D
13) College Blvd at Buchanon Park (S)	All	AM	7.9	A
	All	PM	8.9	A
14) College Blvd at Adams St (S)	All	AM	17.1	B
	All	PM	16.2	B
15) College Blvd at Via Cupeno (S)	All	AM	20.4	C
	All	PM	28.4	C
16) College Blvd at SR-76 (S)	All	AM	60.4	E
	All	PM	81.7	F
17) N. River Rd at Vandergrift Blvd (S)	All	AM	22.7	C
	All	PM	29.6	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.
Bold LOS indicates unacceptable LOS.

TABLE 7: EXISTING SEGMENT LEVEL OF SERVICE

Segment	Classification (as built)	Existing			
		Daily Volume	LOS E Capacity	V/C	LOS
Douglas Drive					
1) N. River Rd to Rainier Way	4 Ln Major (4D)	35,915	40,000	0.90	E
2) Rainier Way to Pala Rd	4 Ln Major (4U)	36,579	40,000	0.91	E
3) Pala Rd to El Camino Real	4 Ln Major (4D)	37,080	40,000	0.93	E
4) El Camino Real to Mission Ave	4 Ln Secondary (4U)	23,305	30,000	0.78	D
5) Mission Ave to SR-76	4 Ln Major (4D)	20,142	40,000	0.50	B
North River Road					
6) Douglas Dr to Avenida Descanso	4 Ln Major (4D)	20,223	40,000	0.51	B
7) Avenida Descanso to Riverview Way	4 Ln Major (4U)	18,195	40,000	0.45	B
8) Riverview Way to Calle Montecito	4 Ln Major (4D)	19,589	40,000	0.49	B
9) Calle Montecito to Redondo Dr	4 Ln Major (4D)	20,485	40,000	0.51	B
10) Redondo Dr to College Blvd	4 Ln Major (4D)	20,383	40,000	0.51	B
11) College Blvd to Vandergrift Blvd	5 Ln Major (5D)	31,503	45,000	0.70	C
College Blvd					
12) N. River Rd to Buchanon Park	4 Ln Major (4D)	35,485	40,000	0.89	E
13) Buchanon Park to Adams St	4 Ln Major (4U)	34,426	40,000	0.86	D
14) Adams St to Via Cupeno	6 Ln Major (6D)	34,479	50,000	0.69	C
15) Via Cupeno to SR-76	6 Ln Major (6D)	41,981	50,000	0.84	D
SR-76					
16) Foussat Rd to Douglas Dr	4 Ln Expressway (4D)	41,500	60,000	0.69	C
17) Douglas Dr to Rancho Del Oro	4 Ln Expressway (4D)	46,500	60,000	0.78	C
18) Frazee Rd to College Blvd	4 Ln Expressway (4D)	41,000	60,000	0.68	C
19) College Blvd to N. Santa Fe	4 Ln Expressway (4D)	46,000	60,000	0.77	C

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Bold LOS indicates unacceptable LOS.

Under Existing conditions, the following study elements are calculated to operate at LOS E/F:

- 1) Intersection #16. SR-76/College Blvd
- 2) Segment #1: Douglas Drive from N. River Rd to Rainier Way
- 3) Segment #2: Douglas Drive Rainier Way to Pala Rd
- 4) Segment #3: Douglas Drive from Pala Rd to El Camino Real
- 5) Segment #12: College Blvd from N. River Rd to Buchanon Park

3.4 Project Traffic Generation

The project is a Plan Block Development Plan that will require a General Plan Amendment and rezone from light industrial uses to residential on two parcels for a total of 25.6 acres (Kawano parcel 9.7 acres and Nagata parcel 15.9 acres). A maximum of 400 dwelling units is proposed for a density of 15.6 units per acre (400 units / 25.6 acres).

The site has historically been used for agricultural, packing, and shipping uses. A trip credit was not applied because the previous uses were not in operation when off-site traffic data was collected.

The project traffic generation was calculated using SANDAG trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. Based on the project acreage of 25.6 acres and proposed 400 dwelling units, the density is 15.6 units per acre. The SANDAG trip rate is 8 daily trips per dwelling unit for densities between 6 and 20 units per acre.

Using SANDAG traffic generation rates, the project is calculated to generate 3,200 daily trips, 256 AM peak hour trips (51 inbound and 205 outbound), and 320 PM peak hour trips (224 inbound and 96 outbound) as shown in **Table 8**.

TABLE 8: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units	ADT	%	Split	AM			PM		
						IN	OUT	%	Split	IN	OUT
Residential (density 6-20 du/ac)	8 /DU	400 DU	3,200	8%	0.2 0.8	51	205	10%	0.7 0.3	224	96
Peak hour totals:						256			320		

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002. ADT-Average Daily Traffic.

The final product may have a mix of small lot single family and multi-family units; therefore, the trip generation levels (ADT, AM & PM) as analyzed within this report will define the upper limit of traffic that can be generated by the final project type and unit count.

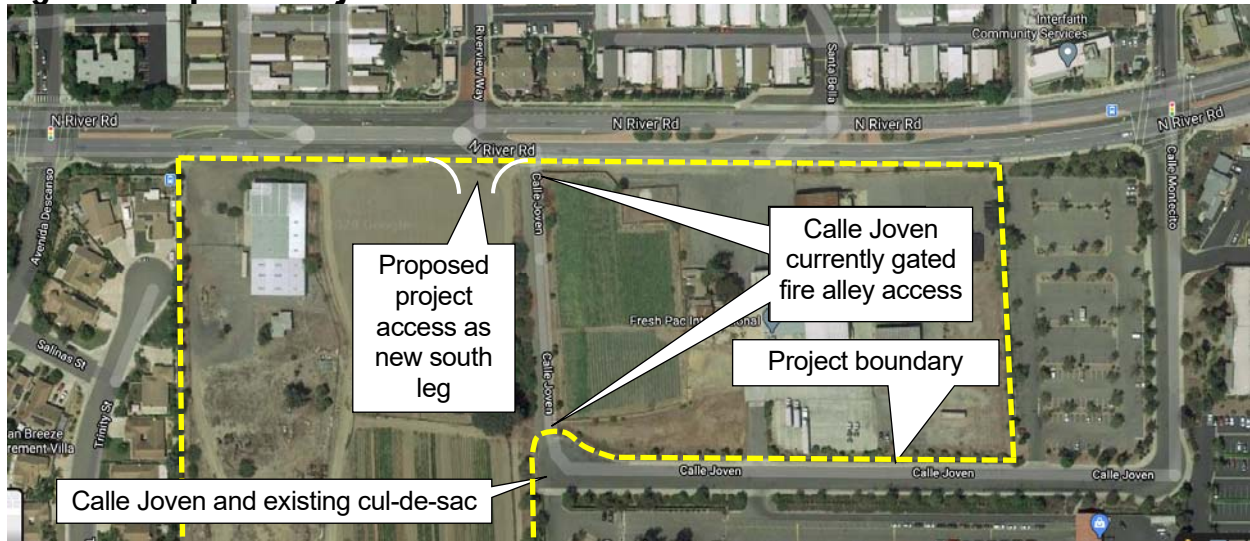
The proposed rezone will replace the existing industrial use with a proposed residential use. The existing industrial zoning could generate a range of traffic based on the type of industrial use. SANDAG trip rates document a range of 200 ADT/acre for an Industrial/Business Park (commercial included) to 90 ADT/acre for an Industrial/Business Park (no commercial). For the project site of 25.6 acres, the industrial trips could range from 5,120 ADT (Industrial/Business Park with commercial) to 2,304 ADT (Industrial/Business Park without commercial). The existing land use has the potential to generate more traffic than the proposed residential land use. However, this is a ground to plan analysis; therefore, a trip credit was not applied for the potential industrial land uses.

3.5 Project Access

Primary project access is proposed by constructing a south leg at the intersection of N. River Road/ Riverview Way. The project applicant proposed to signalize this intersection based on Signal Warrant Condition B “Interruption of Continuous Traffic”, which is satisfied with the addition of project traffic. Signal warrant calculations for the project driveway and lane configurations are described within Section 3.16.2 of this report.

A portion of the southern project boundary borders Calle Joven. A secondary access is anticipated to connect with Calle Joven; however, a site design is not completed, thus the internal circulation and connection with Calle Joven has yet to be determined. There is currently a gated fire access alley labeled Calle Joven immediately east of Riverview Way that will be addressed in the final site design. The proposed project access, Calle Joven, and the gated fire access alley are shown in **Figure 8**.

Figure 8: Proposed Project Access



Source: Google Maps

3.6 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network based on a San Diego Association of Governments (SANDAG) Series 12 Select Zone Assignment (SZA) that was reviewed and adjusted by City staff. A copy of the SZA is included in **Appendix G**. The project distribution shown in **Figure 9**. The project assignment is shown in **Figure 10**.

Figure 9: Project Distribution

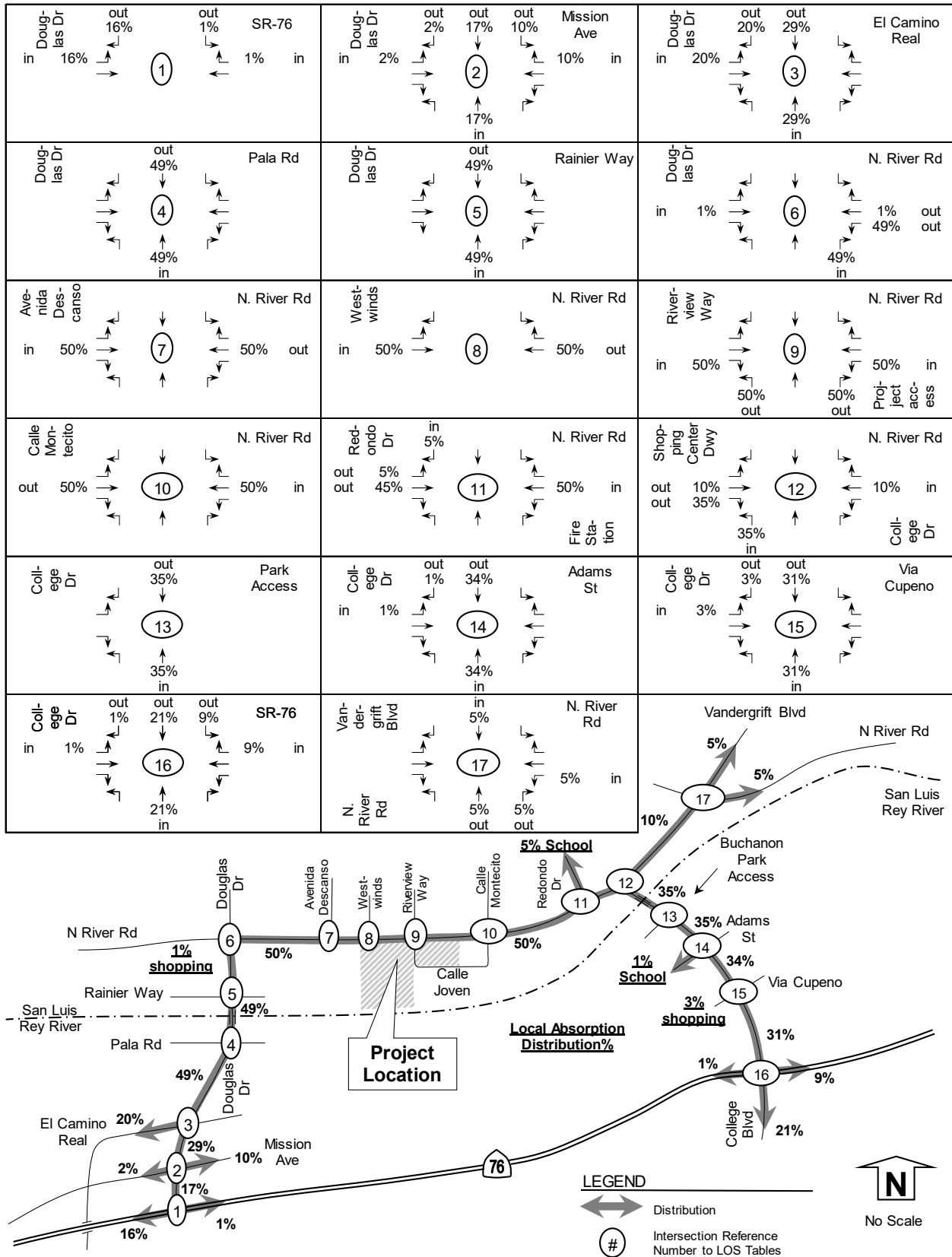
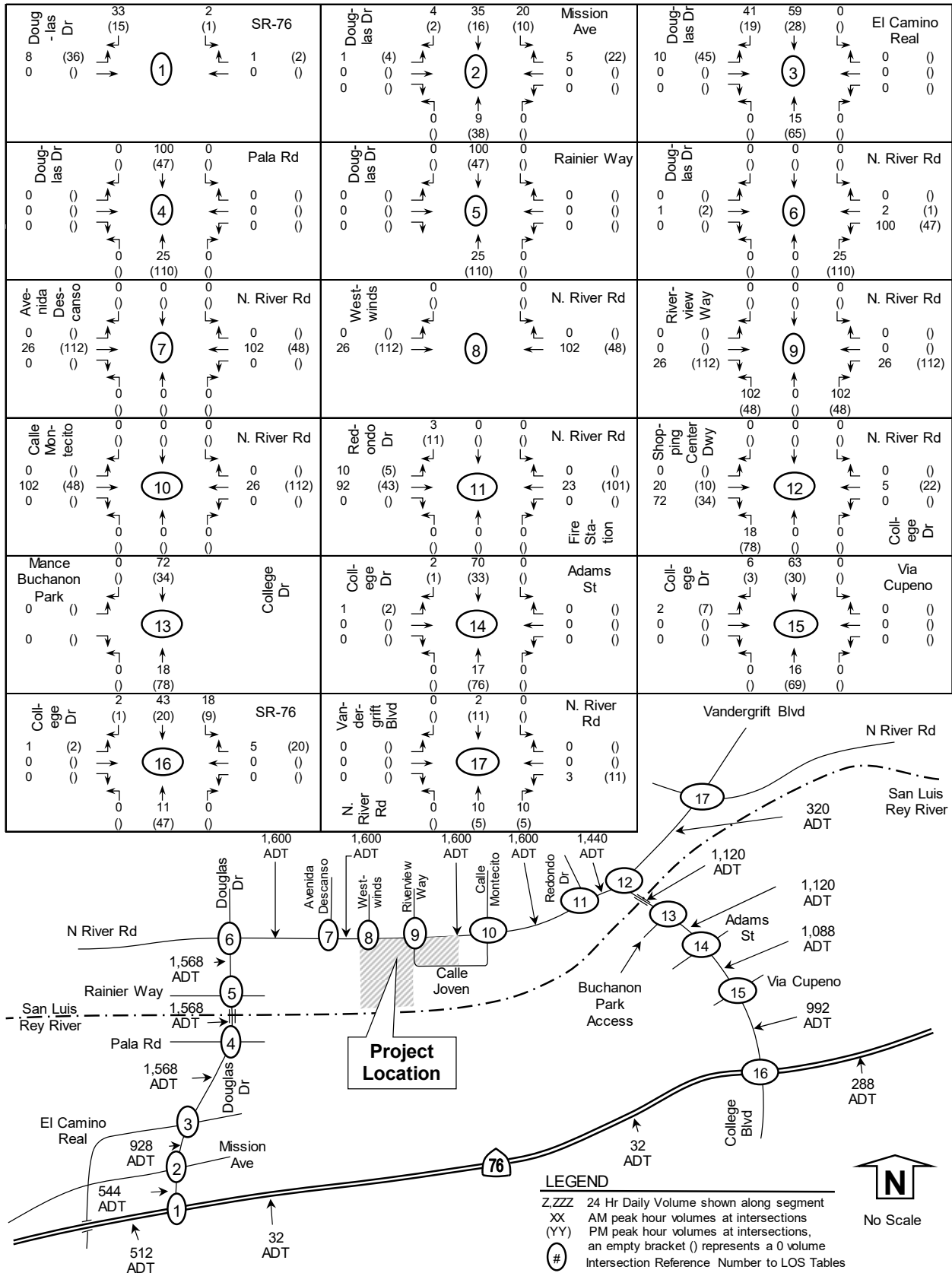


Figure 10: Project Volumes



3.7 Existing plus Project Conditions

This scenario analyzes the addition of project traffic onto the existing background traffic for AM, PM and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario of existing with project is shown in **Figure 11**. The intersection LOS calculated with the addition of project traffic is shown in **Table 9** with segment LOS shown in **Table 10**. Intersection LOS worksheets are included in **Appendix H**.

TABLE 9: EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Existing		Existing + Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact? ⁵
1) Douglas Dr at SR-76 (S)	All	AM	40.0	D	40.5	D	0.5	No
	All	PM	23.4	C	24.5	C	1.1	No
2) Douglas Dr at Mission Ave (S)	All	AM	32.6	C	34.4	C	1.8	No
	All	PM	40.6	D	45.0	D	4.4	No
3) Douglas Dr at El Camino Real (S)	All	AM	18.7	B	19.3	B	0.6	No
	All	PM	34.8	C	39.7	D	4.9	No
4) Douglas Dr at Pala Rd (S)	All	AM	26.0	C	34.2	C	8.2	No
	All	PM	21.1	C	24.4	C	3.3	No
5) Douglas Dr at Rainier Way (S)	All	AM	29.0	C	37.1	D	8.1	No
	All	PM	17.8	B	23.8	C	6.0	No
6) Douglas Dr at N. River Rd (S)	All	AM	39.0	D	42.0	D	3.0	No
	All	PM	24.5	C	25.1	C	0.6	No
7) N. River Rd at Avenida Descanso (S)	All	AM	40.5	D	42.7	D	2.2	No
	All	PM	12.2	B	12.2	B	0.0	No
8) N. River Rd at Westwinds (U)	SB LR	AM	17.0	C	19.2	C	2.2	No
	SB LR	PM	14.3	B	15.4	C	1.1	No
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A	11.2	B	11.2	No
	SB LR	AM	20.3	C	24.6	C	4.3	No
	NB LR	PM	0.0	A	13.2	B	13.2	No
	SB LR	PM	31.5	D	67.2	F	35.7	Yes
10) N. River Rd at Calle Montecito (S)	All	AM	19.3	B	19.4	C	0.1	No
	All	PM	19.0	B	20.2	C	1.2	No
11) N. River Rd at Redondo Dr (S)	All	AM	9.8	A	9.9	A	0.1	No
	All	PM	10.4	B	10.6	B	0.2	No
12) N. River Rd at College Blvd (S)	All	AM	46.4	D	48.9	D	2.5	No
	All	PM	51.5	D	61.5	E	10.0	Yes
13) College Blvd at Buchanon Park (S)	All	AM	7.9	A	8.3	A	0.4	No
	All	PM	8.9	A	9.0	A	0.1	No
14) College Blvd at Adams St (S)	All	AM	17.1	B	18.1	B	1.0	No
	All	PM	16.2	B	16.7	B	0.5	No
15) College Blvd at Via Cupeno (S)	All	AM	20.4	C	21.4	C	1.0	No
	All	PM	28.4	C	29.3	C	0.9	No
16) College Blvd at SR-76 (S)	All	AM	60.4	E	61.7	E	1.3	No
	All	PM	81.7	F	85.8	F	4.1	Yes
17) N. River Rd at Vandergrift Blvd (S)	All	AM	22.7	C	22.7	C	0.0	No
	All	PM	29.6	C	30.0	C	0.4	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service (Bold = unacceptable LOS). 4) Delta is the increase in delay from project. 5) Impact if project traffic exceeds threshold.

Figure 11: Existing plus Project Volumes

<p>Douglas Dr 247 (538) 870 (1617)</p> <p>523 (361) 249 (288)</p> <p>SR-76 206 (254) 1761 (1034)</p> <p>1</p>	<p>Douglas Dr 67 (231) 258 (609) 62 (148)</p> <p>75 (48) 711 (485) 398 (302)</p> <p>Mission Ave 323 (383) 430 (332) 47 (60)</p> <p>Douglas Dr 331 (1024) 17 (63) 36 (55)</p> <p>1126 (623) 1101 (703) 8 (7)</p> <p>El Camino Real 1 (10) 33 (25) 69 (53)</p> <p>2</p>	<p>Douglas Dr 66 (94) 3 (1) 92 (89)</p> <p>1975 (1236) 15 (21) 24 (24) 2 (3) 9 (7)</p> <p>Pala Rd 37 (90) 870 (1859) 16 (17)</p> <p>Douglas Dr 15 (8) 2 (2) 109 (73)</p> <p>37 (73) 1887 (1182) 2 (4)</p> <p>Rainier Way 6 (4) 4 (2) 67 (41)</p> <p>Douglas Dr 53 (38) 95 (96) 186 (67)</p> <p>9 (46) 703 (571) 18 (39)</p> <p>N. River Rd 21 (40) 49 (65) 982 (567)</p> <p>3</p>
<p>Avenida Descanso 51 (113) 446 (907) 5 (12)</p> <p>104 (71) 12 (4) 111 (81)</p> <p>N. River Rd 44 (85) 887 (613) 18 (25)</p> <p>2 2 (4) 30 (34)</p> <p>7</p>	<p>Westwinds 12 (21) 573 (1014)</p> <p>26 (13) 9 (3) 7 (15)</p> <p>N. River Rd 955 (704)</p> <p>26 (13) 9 (3) 7 (15)</p> <p>8</p>	<p>Riverview Way 22 (25) 537 (873) 26 (112)</p> <p>40 (8) 0 (0) 102 (48)</p> <p>15 (19) 5 (12) 818 (660) 26 (112)</p> <p>9</p>
<p>Calle Montecito 49 (126) 588 (769) 27 (10)</p> <p>105 (59) 1 (1) 196 (135)</p> <p>N. River Rd 98 (183) 695 (696) 32 (8)</p> <p>11 (23) 1 (2) 8 (32)</p> <p>10</p>	<p>Redondo Dr 43 (108) 767 (839) 0 (0)</p> <p>115 (90) 0 (0) 83 (49)</p> <p>N. River Rd 52 (62) 775 (811) 0 (0)</p> <p>Fire Station 0 (0) 1 (1)</p> <p>11</p>	<p>Shopping Center Dwy 14 (23) 232 (402) 619 (479)</p> <p>9 (2) 49 (39) 25 (23)</p> <p>N. River Rd 70 (58) 484 (386) 949 (955)</p> <p>322 (471) 21 (30) 933 (987)</p> <p>12</p>
<p>Mance Buchanan Park 50 (28) 27 (79)</p> <p>74 (55) 1528 (1344) 26 (95)</p> <p>College Dr 1225 (1503) 20 (69)</p> <p>13</p>	<p>College Dr 175 (149) 12 (20) 87 (70)</p> <p>206 (117) 1336 (1303) 16 (40)</p> <p>Adams St 40 (30) 17 (10) 76 (46)</p> <p>20 (69) 1027 (1401) 29 (78)</p> <p>14</p>	<p>College Dr 49 (267) 1 (9) 35 (175)</p> <p>58 (115) 1425 (1186) 132 (419)</p> <p>1 (2) 1 (6) 5 (10) 133 (62)</p> <p>Via Cupeno 1 (6) 5 (10) 133 (62)</p> <p>15</p>
<p>College Dr 292 (502) 766 (1317) 22 (50)</p> <p>327 (402) 751 (731) 510 (524)</p> <p>SR-76 453 (584) 1370 (875) 527 (307)</p> <p>48 (42) 458 (727) 261 (321)</p> <p>16</p>	<p>Vandergrift Blvd 47 (70) 56 (87) 109 (121)</p> <p>38 (53) 703 (893) 92 (212)</p> <p>N. River Rd 233 (89) 51 (106) 413 (311)</p> <p>116 (225) 817 (689) 207 (427)</p> <p>17</p>	<p>Vandergrift Blvd 31,823 ADT</p> <p>N. River Rd 36,605 ADT</p> <p>Adams St 35,546 ADT</p> <p>Via Cupeno 35,567 ADT</p> <p>Via Cupeno 42,973 ADT</p> <p>College Blvd 46,288 ADT</p> <p>41,032 ADT</p>

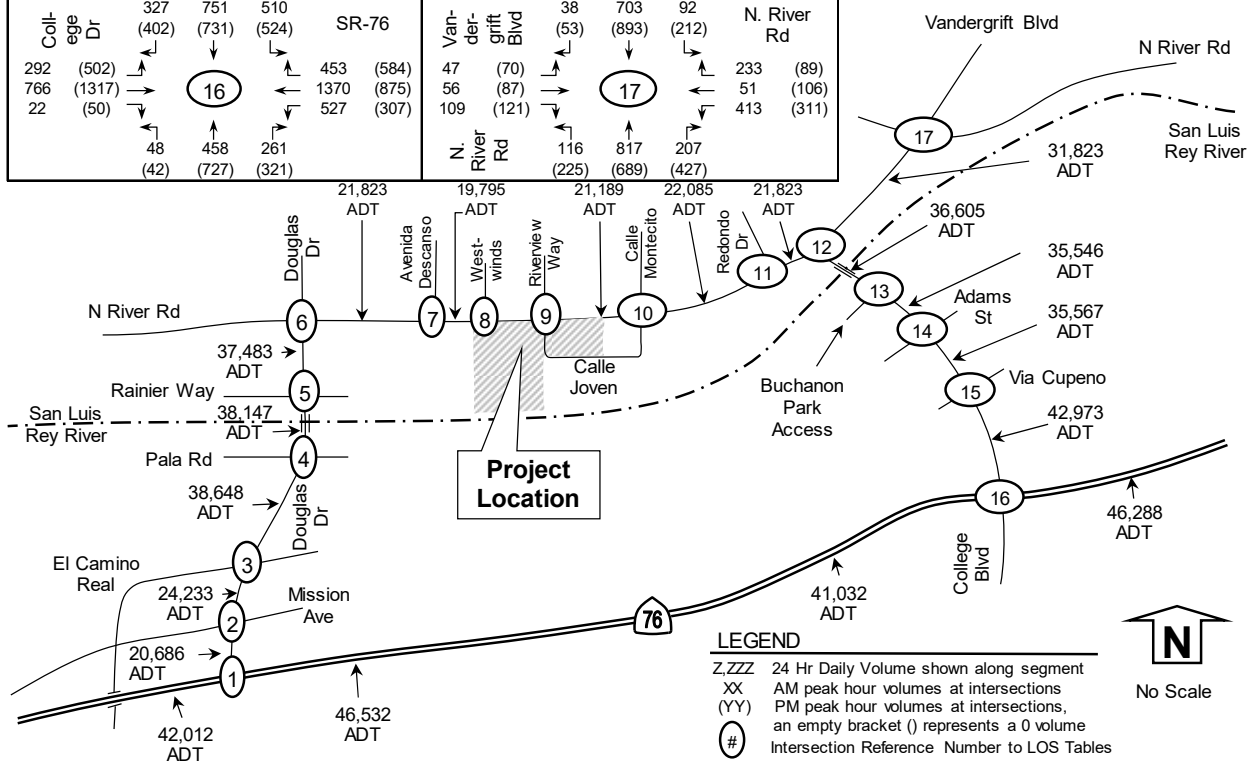


TABLE 10: EXISTING PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Classification (as built)	Existing			Project		Existing + Project					
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volume	Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Impact ?
Douglas Drive												
1) N. River Rd to Rainier Way	4 Ln Major (4D)	35,915	40,000	0.898	E	1,568	37,483	40,000	0.937	E	0.039	Yes
2) Rainier Way to Pala Rd	4 Ln Major (4U)	36,579	40,000	0.914	E	1,568	38,147	40,000	0.954	E	0.039	Yes
3) Pala Rd to El Camino Real	4 Ln Major (4D)	37,080	40,000	0.927	E	1,568	38,648	40,000	0.966	E	0.039	Yes
4) El Camino Real to Mission Ave	4 Ln Secondary (4U)	23,305	30,000	0.777	D	928	24,233	30,000	0.808	D	0.031	No
5) Mission Ave to SR-76	4 Ln Major (4D)	20,142	40,000	0.504	B	544	20,686	40,000	0.517	B	0.014	No
North River Road												
6) Douglas Dr to Avenida Descanso	4 Ln Major (4D)	20,223	40,000	0.506	B	1,600	21,823	40,000	0.546	C	0.040	No
7) Avenida Descanso to Riverview Way	4 Ln Major (4U)	18,195	40,000	0.455	B	1,600	19,795	40,000	0.495	B	0.040	No
8) Riverview Way to Calle Montecito	4 Ln Major (4D)	19,589	40,000	0.490	B	1,600	21,189	40,000	0.530	C	0.040	No
9) Calle Montecito to Redondo Dr	4 Ln Major (4D)	20,485	40,000	0.512	B	1,600	22,085	40,000	0.552	C	0.040	No
10) Redondo Dr to College Blvd	4 Ln Major (4D)	20,383	40,000	0.510	B	1,440	21,823	40,000	0.546	C	0.036	No
11) College Blvd to Vandergrift Blvd	5 Ln Major (5D)	31,503	45,000	0.700	C	320	31,823	45,000	0.707	C	0.007	No
College Blvd												
12) N. River Rd to Buchanan Park	4 Ln Major (4D)	35,485	40,000	0.887	E	1,120	36,605	40,000	0.915	E	0.028	Yes
13) Buchanan Park to Adams St	4 Ln Major (4U)	34,426	40,000	0.861	D	1,120	35,546	40,000	0.889	E	0.028	Yes
14) Adams St to Via Cupeno	6 Ln Major (6D)	34,479	50,000	0.690	C	1,088	35,567	50,000	0.711	C	0.022	No
15) Via Cupeno to SR-76	6 Ln Major (6D)	41,981	50,000	0.840	D	992	42,973	50,000	0.859	D	0.020	No
SR-76												
16) Foussat Rd to Douglas Dr	4 Ln Expressway (4D)	41,500	60,000	0.692	C	512	42,012	60,000	0.700	C	0.009	No
17) Douglas Dr to Rancho Del Oro	4 Ln Expressway (4D)	46,500	60,000	0.775	C	32	46,532	60,000	0.776	C	0.001	No
18) Frazee Rd to College Blvd	4 Ln Expressway (4D)	41,000	60,000	0.683	C	32	41,032	60,000	0.684	C	0.001	No
19) College Blvd to N. Santa Fe	4 Ln Expressway (4D)	46,000	60,000	0.767	C	288	46,288	60,000	0.771	C	0.005	No

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Project impact if project traffic exceeds City thresholds. Bold LOS indicates unacceptable LOS.

Under Existing plus Project conditions, the following study intersections and segments were calculated to operate at LOS E/F AND the project has a transportation impact:

- 1) Intersection #9: N. River Road/Riverview Way
- 2) Intersection #12: N. River Road/College Blvd
- 3) Intersection #16: SR-76/College Blvd
- 4) Segment #1: Douglas Drive from N. River Rd to Rainier Way (LOS E)
- 5) Segment #2: Douglas Drive from Rainier Way to Pala Rd (LOS E)
- 6) Segment #3: Douglas Drive from Pala Rd to El Camino Real (LOS E)
- 7) Segment #12: College Blvd from N. River Rd to Buchanan Park (LOS E)
- 8) Segment #13: College Blvd from Buchanan Park to Adams St (LOS E)

3.8 Cumulative Projects

City of Oceanside staff provided traffic data for nine cumulative projects for the cumulative analysis at the time of the Notice of Preparation in December 2018. The cumulative project locations are shown on **Figure 12** with cumulative project details included in **Appendix I**. The cumulative project traffic volumes are shown on **Figure 13**. The following list includes a brief description of the cumulative projects:

- 1) Villa Storia: a residential subdivision with up to 420 homes (62 single family and 358 multi-family) generally located north of Mission Avenue at Academy Road in the City of Oceanside. According to the traffic study prepared by LLG (2013), this cumulative project is calculated to generate 3,284 daily trips with 58 AM inbound, 205 AM outbound, 225 PM inbound, and 97 PM outbound trips.
- 2) Mission Cove: a mixed-use project with 150 apartments, 138 senior/special needs housing units, 5,000 square feet (sf) of specialty retail, 2,750 sf of office space, 2,750 sf of medical office space, senior/special needs adult day care for up to 60 adults, and a child day care center for 50 children generally located on the south side of Mission Avenue between Airport Road and Foussat Road in the City of Oceanside. According to the traffic study prepared by RBF (2011), this cumulative project is calculated to generate 2,080 net daily trips with 58 AM inbound, 102 AM outbound, 104 PM inbound, and 75 PM outbound trips.
- 3) Pacific Coast Business Park: a commercial project with 1,100,00 sf of industrial use, 518,000 sf of general office, and 80,500 sf of medical office generally located south of Old Grove Road and west of College Boulevard in the City of Oceanside. According to the traffic study prepared by Kimley-Horn (2009), this cumulative project is calculated to generate 21,597 daily trips with 2,213 AM inbound, 273 AM outbound, 575 PM inbound, and 2,080 PM outbound trips.
- 4) Rancho Del Oro Village XII: a residential subdivision with up to 303 homes (mix of single and multi-family) generally located on the northwest quadrant of College Boulevard and Old Grove Road in the City of Oceanside. According to the traffic study prepared by RBF (2010), this cumulative project is calculated to generate 2,424 daily trips with 39 AM inbound, 154 AM outbound, 169 PM inbound, and 73 PM outbound trips.
- 5) Oceanpointe: a residential subdivision with up to 200 multi-family homes generally located south of SR-76 mid-way between Stage Coach Road and San Ramon Drive in the City of Oceanside. According to the traffic study prepared by LOS Engineering, Inc. (2005), this cumulative project is calculated to generate 1,600 daily trips with 26 AM inbound, 102 AM outbound, 112 PM inbound, and 48 PM outbound trips.
- 6) El Corazon Specific Plan: a mixed-use project with commercial, retail, hotel, residential, and recreation facilities on 465 acres generally bounded by Mesa Drive to the north, Rancho del Oro Drive to the east, Oceanside Boulevard to the south, and El Camino Real to the west in the City of Oceanside. According to the traffic study prepared by LLG, this cumulative project is calculated to generate 15,251 daily trips with 201 AM inbound, 168 AM outbound, 459 PM inbound, and 409 PM outbound trips.

- 7) Oceanside + Melrose: a mixed-use project with 37 single family homes, 278 multi-family homes, 10,000 sf restaurant space, and 10,000 sf office space. According to the traffic study prepared by LLG (2017), this cumulative project is calculated to generate 4,059 daily trips with 25 AM inbound, 96 AM outbound, 104 PM inbound, and 46 PM outbound trips.
- 8) Onpoint Oceanside: a commercial center with a gas station including 3,000 sf food mart and car wash, 8,800 sf retail space, 5,000 sf fast food restaurant space, and 2,400 sf high turnover restaurant space generally located on the southwest corner of SR-76 at Fousstat Rd. According to the traffic study prepared by Kimley Horn (2018), this cumulative project is calculated to generate 4,434 daily trips with 151 AM inbound, 150 AM outbound, 190 PM inbound, and 187 PM outbound trips.
- 9) North River Farms: a mixed-use project with up to 689 homes, 25,000 sf commercial space, 5,000 sf restaurant space, 30 acres farm use, and 100 room hotel located on N. River Road east of Stallion Dr (approx. ½ mile east of Vandergraft Blvd). According to the traffic study prepared by LLG (2018), this cumulative project is calculated to generate driveway trips in the amount of 7,921 daily trips with 166 AM inbound, 396 AM outbound, 515 PM inbound, and 262 PM outbound trips. Please note that this cumulative project is included based on the May 2021 Superior Court ruling upholding the project approval and in order to keep the analysis more conservative.

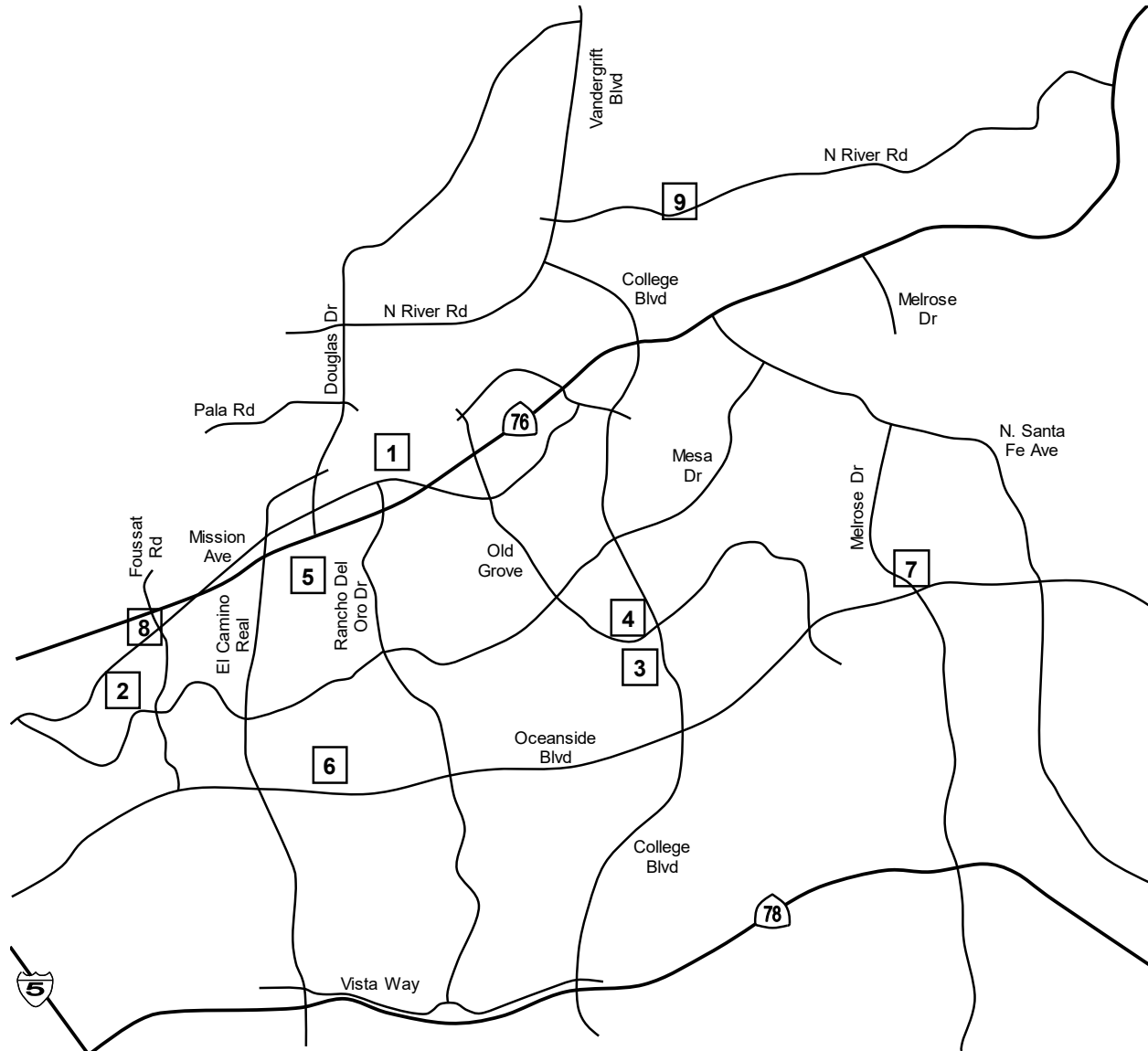
The traffic generated from the proposed cumulative projects is summarized in **Table 11**:

TABLE 11: CUMULATIVE PROJECT TRAFFIC GENERATION

Cumulative Project	ADT	AM		PM	
		IN	OUT	IN	OUT
1) Villa Storia (62 single family and 358 multi-family homes)	3,284	58	205	225	97
2) Mission Cove Mixed Use (150 apts, 138 senior housing homes, 5 KSF specialty retail, 2.75 KSF office, 2.75 KSF medical office, 60 adult senior day care, 50 child day care)	2,080	58	102	104	75
3) Pacific Coast Business Park (1,100 KSF industrial, 518 KSF office, 80.5 KSF medical office)	21,597	2,213	273	575	2,080
4) Rancho Del Oro Village XII (303 multi-family homes)	2,424	39	154	169	73
5) Oceanpointe Development (200 multi-family homes)	1,600	26	102	112	48
6) El Corazon (mixed use master plan phase 1, 2, & Arena)	15,251	201	168	459	409
7) Oceanside + Melrose (37 single family homes, 278 multi-family homes, 10 KSF restaurant, 10 KSF office space)	4,059	25	96	104	46
8) Onpoint Oceanside (a commercial center with a gas station including a 3 KSF food mart and car wash; 8.8 KSF retail; 5 KSF fast food restaurants; and 2.4 KSF high turn over restaurant).	4,434	151	150	190	187
9) North River Farms Mixed Use (689 homes, 25 KSF commercial, 5 KSF restaurant, 30 acres farm use, 100 room hotel)	7,921	166	396	515	262
TOTAL	62,650	2,937	1,646	2,453	3,277

Notes: SF: Single-Family. MF: Multi-Family. KSF: 1,000 square feet

Figure 12: Cumulative Project Locations



LEGEND

Cumulative Projects:

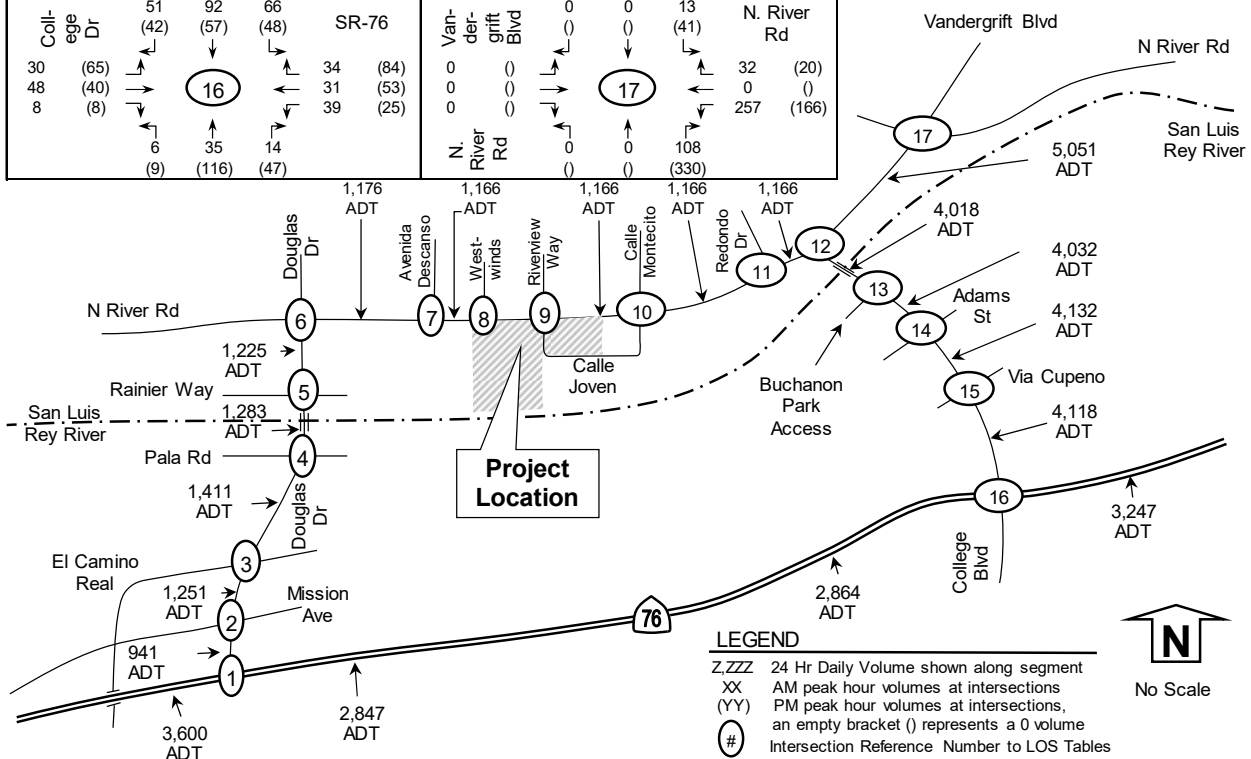
- 1) Villa Stora Residential
- 2) Mission Cove Mixed Use
- 3) Pacific Coast Business Park
- 4) Rancho Del Oro Village XII
- 5) Oceanpointe Residential
- 6) El Corazon Mixed Use
- 7) Oceanside + Melrose Mixed Use
- 8) Onpoinc Oceanside Commercial Center
- 9) North River Farms Mixed Use



No Scale

Figure 13: Cumulative Project Volumes

Douglas Dr (36, 39, 151) 1 20 96 1	SR-76 (3, 120) 3 120 0	Douglas Dr (5, 34, 10) 8 34 10 3 14 0	Mission Ave (14, 21, 1) 11 32 2	Douglas Dr (17, 41) 25 48 0 6	El Camino Real (0, 0, 1) 0 0 1
Douglas Dr (0, 6) 0 0 4	Pala Rd (0, 0, 7) 0 0 4	Douglas Dr (43, 64) 64 22 0 0 0	Rainier Way (0, 0, 2) 0 0 1	Douglas Dr (1, 2) 0 2 0 1	N. River Rd (0, 0, 40) 0 0 60
Avenida Descanso (2, 0) 1 25 0	N. River Rd (0, 0) 0 59 0	Westwinds (0, 0) 0 25 0	N. River Rd (0, 0) 0 59 0	Riverview Way (0, 0) 0 25 0	N. River Rd (0, 0, 38) 0 59 0
Calle Montecito (0, 0) 0 25 0	N. River Rd (0, 0) 0 59 0	Redondo Dr (0, 0) 0 25 0	N. River Rd (0, 0) 0 59 0	Shopping Center Dwy (0, 0) 0 25 0	N. River Rd (0, 0, 130) 0 59 199
Mance Buchanon Park (0, 1) 0 0 0	College Dr (130, 199) 84 199 0	College Dr (0, 0) 0 199 0	Adams St (0, 0, 3) 0 0 5	College Dr (7, 12, 197) 12 197 4 0 10	Via Cupeno (0, 0, 1) 0 0 2
College Dr (51, 92, 66) 30 48 8	SR-76 (34, 84, 53, 25) 34 31 39	Vandergrift Blvd (0, 0) 0 0 0	N. River Rd (13, 41) 13 41 0	Vandergrift Blvd (0, 0) 0 0 0	N. River Rd (0, 0, 166) 0 0 257



3.9 Near Term (Existing + Cumulative) Conditions

This scenario analyzes the addition of cumulative project traffic onto the existing traffic for AM, PM, and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario of near term is shown in **Figure 14**. The intersection LOS calculated with the addition of cumulative traffic is shown in **Table 12**, with segment LOS shown in **Table 13**. Intersection LOS worksheets are included in **Appendix J**.

TABLE 12: NEAR TERM (EXISTING + CUMULATIVE) INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Near Term (Existing + Cumulative)	
			Delay ²	LOS ³
1) Douglas Dr at SR-76 (S)	All	AM	53.1	D
	All	PM	27.4	C
2) Douglas Dr at Mission Ave (S)	All	AM	35.5	D
	All	PM	45.8	D
3) Douglas Dr at El Camino Real (S)	All	AM	19.6	B
	All	PM	39.6	D
4) Douglas Dr at Pala Rd (S)	All	AM	32.6	C
	All	PM	24.6	C
5) Douglas Dr at Rainier Way (S)	All	AM	34.1	C
	All	PM	22.9	C
6) Douglas Dr at N. River Rd (S)	All	AM	40.9	D
	All	PM	25.1	C
7) N. River Rd at Avenida Descanso (S)	All	AM	41.6	D
	All	PM	12.2	B
8) N. River Rd at Westwinds (U)	SB LR	AM	18.3	C
	SB LR	PM	15.1	C
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A
	SB LR	AM	22.4	C
	NB LR	PM	0.0	A
	SB LR	PM	36.3	E
10) N. River Rd at Calle Montecito (S)	All	AM	19.5	B
	All	PM	19.3	B
11) N. River Rd at Redondo Dr (S)	All	AM	9.9	A
	All	PM	10.4	B
12) N. River Rd at College Blvd (S)	All	AM	73.7	E
	All	PM	69.3	E
13) College Blvd at Buchanan Park (S)	All	AM	9.1	A
	All	PM	9.4	A
14) College Blvd at Adams St (S)	All	AM	21.4	C
	All	PM	18.4	B
15) College Blvd at Via Cupeno (S)	All	AM	25.0	C
	All	PM	33.0	C
16) College Blvd at SR-76 (S)	All	AM	69.2	E
	All	PM	107.0	F
17) N. River Rd at Vandergrift Blvd (S)	All	AM	29.8	C
	All	PM	65.5	E

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service (Bold LOS = unacceptable LOS).

Figure 14: Near Term (Existing + Cumulative) Volumes

<p>Douglas Dr (385) SR-76 259 (541) → (1) ← 208 (264) 966 (1768) → (1) ← 1881 (1158)</p>	<p>Douglas Dr (51) (507) Mission Ave (306) 69 (237) → (2) ← 329 (375) 272 (644) → (2) ← 462 (353) 62 (148) → (2) ← 49 (61) 111 (165) → (2) ← 10 (25) 313 (604) → (2) ← 10 (25)</p>	<p>Douglas Dr (621) (716) El Camino Real (7) 332 (1010) → (3) ← 1 (10) 17 (63) → (3) ← 33 (25) 42 (71) → (3) ← 70 (54) 51 (90) → (3) ← 37 (64) 576 (1018) → (3) ← 37 (64)</p>
<p>Douglas Dr (100) (1234) Pala Rd (21) 66 (94) → (4) ← 24 (24) 3 (1) → (4) ← 2 (3) 96 (95) → (4) ← 13 (14) 40 (95) → (4) ← 20 (22) 876 (1832) → (4) ← 20 (22)</p>	<p>Douglas Dr (73) (1178) Rainier Way (4) 15 (8) → (5) ← 6 (4) 2 (2) → (5) ← 4 (2) 109 (73) → (5) ← 68 (43) 954 (1764) → (5) ← 33 (82)</p>	<p>Douglas Dr (46) (572) N. River Rd (39) 53 (38) → (6) ← 21 (40) 94 (94) → (6) ← 47 (64) 187 (68) → (6) ← 942 (560) 71 (147) → (6) ← 434 (669) 375 (861) → (6) ← 375 (861)</p>
<p>Avenida Descanso (73) (81) N. River Rd (85) 52 (115) → (7) ← 44 (85) 445 (871) → (7) ← 844 (603) 5 (12) → (7) ← 18 (25) 2 (2) → (7) ← 2 (4) 2 (4) → (7) ← 30 (34)</p>	<p>Westwinds (13) (26) N. River Rd (15) 12 (21) → (8) ← 7 (15) 572 (978) → (8) ← 912 (694) 9 (9) → (8) ← 7 (15) 3 (3) → (8) ← 7 (15)</p>	<p>Riverview Way (8) (15) N. River Rd (12) 22 (25) → (9) ← 5 (12) 562 (949) → (9) ← 877 (698) 0 (0) → (9) ← 0 (0) 0 (0) → (9) ← 0 (0) 0 (0) → (9) ← 0 (0)</p>
<p>Calle Montecito (59) (1) N. River Rd (83) 49 (126) → (10) ← 98 (183) 511 (797) → (10) ← 728 (622) 27 (10) → (10) ← 32 (8) 11 (23) → (10) ← 1 (2) 1 (2) → (10) ← 8 (32)</p>	<p>Redondo Dr (79) (0) N. River Rd (49) 33 (103) → (11) ← 52 (62) 700 (872) → (11) ← 811 (748) 0 (0) → (11) ← 0 (0) 0 (0) → (11) ← 1 (1) 0 (0) → (11) ← 1 (1)</p>	<p>Shopping Center Dwy (2) (39) N. River Rd (23) 14 (23) → (12) ← 70 (58) 237 (468) → (12) ← 538 (402) 547 (445) → (12) ← 1148 (1085) 304 (393) → (12) ← 21 (1242) 21 (30) → (12) ← 1017 (1242)</p>
<p>Mance Buchanan Park (55) (1440) College Dr (85) 74 (55) → (13) ← 482 (648) 50 (28) → (13) ← 1401 (928) 27 (80) → (13) ← 566 (332) 27 (95) → (13) ← 482 (796) 1291 (1680) → (13) ← 275 (368)</p>	<p>College Dr (116) (1401) Adams St (40) 174 (147) → (14) ← 40 (30) 12 (20) → (14) ← 17 (10) 92 (73) → (14) ← 81 (49) 20 (74) → (14) ← 30 (83) 1095 (1580) → (14) ← 30 (83)</p>	<p>College Dr (119) (1286) Via Cupeno (2) 51 (276) → (15) ← 1 (6) 1 (9) → (15) ← 5 (10) 45 (191) → (15) ← 135 (63) 148 (433) → (15) ← 1093 (1499) 38 (101) → (15) ← 38 (101)</p>
<p>College Dr (443) (768) SR-76 (563) 376 (443) → (16) ← 482 (648) 800 (768) → (16) ← 1401 (928) 558 (563) → (16) ← 566 (332) 54 (51) → (16) ← 482 (796) 275 (368) → (16) ← 275 (368)</p>	<p>Vandergrift Blvd (53) (882) N. River Rd (253) 47 (70) → (17) ← 265 (109) 56 (87) → (17) ← 51 (106) 109 (121) → (17) ← 667 (466) 116 (225) → (17) ← 305 (752) 807 (684) → (17) ← 305 (752)</p>	<p>Vandergrift Blvd (36,554 ADT) N. River Rd (38,458 ADT) San Luis Rey River (38,611 ADT) Adams St (38,611 ADT) Buchanan Park Access (46,099 ADT) Via Cupeno (49,247 ADT) College Blvd (43,864 ADT) College Dr (49,247 ADT)</p>

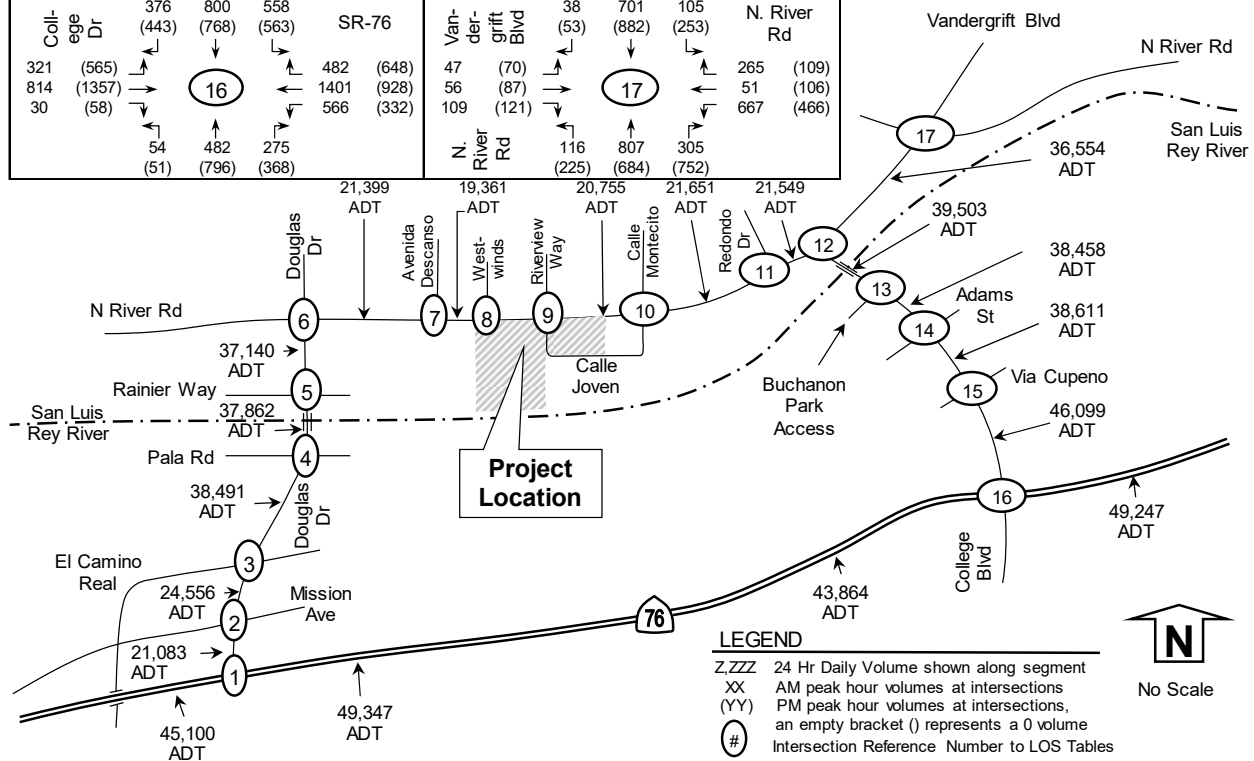


TABLE 13: NEAR TERM (EXISTING + CUMULATIVE) SEGMENT LEVEL OF SERVICE

Segment	Classification (as built)	Near Term (Existing + Cumulative)			
		Daily Volume	LOS E Capacity*	V/C	LOS
Douglas Drive					
1) N. River Rd to Rainier Way	4 Ln Major (4D)	37,140	40,000	0.929	E
2) Rainier Way to Pala Rd	4 Ln Major (4U)	37,862	40,000	0.947	E
3) Pala Rd to El Camino Real	4 Ln Major (4D)	38,491	40,000	0.962	E
4) El Camino Real to Mission Ave	4 Ln Secondary (4U)	24,556	30,000	0.819	D
5) Mission Ave to SR-76	4 Ln Major (4D)	21,083	40,000	0.527	C
North River Road					
6) Douglas Dr to Avenida Descanso	4 Ln Major (4D)	21,399	40,000	0.535	C
7) Avenida Descanso to Riverview Way	4 Ln Major (4U)	19,361	40,000	0.484	B
8) Riverview Way to Calle Montecito	4 Ln Major (4D)	20,755	40,000	0.519	B
9) Calle Montecito to Redondo Dr	4 Ln Major (4D)	21,651	40,000	0.541	C
10) Redondo Dr to College Blvd	4 Ln Major (4D)	21,549	40,000	0.539	C
11) College Blvd to Vandergrift Blvd	5 Ln Major (5D)	36,554	45,000	0.812	D
College Blvd					
12) N. River Rd to Buchanon Park	4 Ln Major (4D)	39,503	40,000	0.988	E
13) Buchanon Park to Adams St	4 Ln Major (4U)	38,458	40,000	0.961	E
14) Adams St to Via Cupeno	6 Ln Major (6D)	38,611	50,000	0.772	C
15) Via Cupeno to SR-76	6 Ln Major (6D)	46,099	50,000	0.922	E
SR-76					
16) Foussat Rd to Douglas Dr	4 Ln Expressway (4D)	45,100	60,000	0.752	C
17) Douglas Dr to Rancho Del Oro	4 Ln Expressway (4D)	49,347	60,000	0.822	C
18) Frazee Rd to College Blvd	4 Ln Expressway (4D)	43,864	60,000	0.731	C
19) College Blvd to N. Santa Fe	4 Ln Expressway (4D)	49,247	60,000	0.821	C

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Bold LOS indicates unacceptable LOS.

Under Near Term (Existing + Cumulative) conditions, the following study elements were calculated to operate at LOS E/F:

- 1) Intersection #9: N. River Rd/Riverview Way
- 2) Intersection #12 N. River Rd/College Blvd
- 3) Intersection #16: SR-76/College Blvd
- 4) Intersection #17: N. River Rd/Vandergrift Blvd
- 5) Segment #1: Douglas Drive from N. River Rd to Rainier Way
- 6) Segment #2: Douglas Drive from Rainier Way to Pala Rd
- 7) Segment #3: Douglas Drive from Pala Rd to El Camino Real
- 8) Segment #12: College Blvd from N. River Rd to Buchanon Park
- 9) Segment #13: College Blvd from Buchanon Park to Adams St
- 10) Segment #15 College Blvd from Via Cupeno to SR-76

3.10 Near Term (Existing + Cumulative) plus Project Conditions

This scenario analyzes the addition of Project traffic onto Near Term (Existing + Cumulative) conditions for AM, PM, and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario is shown in **Figure 15**. The intersection LOS is shown in **Table 14** with segment LOS shown in **Table 15**. Intersection LOS worksheets are included in **Appendix K**.

TABLE 14: NEAR TERM (EXISTING + CUMULATIVE) PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Near Term		Near Term + Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact? ⁵
1) Douglas Dr at SR-76 (S)	All	AM	53.1	D	53.7	D	0.6	No
	All	PM	27.4	C	28.7	C	1.3	No
2) Douglas Dr at Mission Ave (S)	All	AM	35.5	D	38.9	D	3.4	No
	All	PM	45.8	D	50.5	D	4.7	No
3) Douglas Dr at El Camino Real (S)	All	AM	19.6	B	20.3	C	0.7	No
	All	PM	39.6	D	46.1	D	6.5	No
4) Douglas Dr at Pala Rd (S)	All	AM	32.6	C	39.8	D	7.2	No
	All	PM	24.6	C	31.0	C	6.4	No
5) Douglas Dr at Rainier Way (S)	All	AM	34.1	C	44.5	D	10.4	No
	All	PM	22.9	C	33.6	C	10.7	No
6) Douglas Dr at N. River Rd (S)	All	AM	40.9	D	44.2	D	3.3	No
	All	PM	25.1	C	25.7	C	0.6	No
7) N. River Rd at Avenida Descanso (S)	All	AM	41.6	D	44.3	D	2.7	No
	All	PM	12.2	B	12.2	B	0.0	No
8) N. River Rd at Westwinds (U)	SB LR	AM	18.3	C	20.8	C	2.5	No
	SB LR	PM	15.1	C	16.3	C	1.2	No
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A	11.4	B	11.4	No
	SB LR	AM	22.4	C	27.8	D	5.4	No
	NB LR	PM	0.0	A	13.8	B	13.8	No
	SB LR	PM	36.3	E	84.2	F	47.9	Yes
10) N. River Rd at Calle Montecito (S)	All	AM	19.5	B	19.8	B	0.3	No
	All	PM	19.3	B	20.8	C	1.5	No
11) N. River Rd at Redondo Dr (S)	All	AM	9.9	A	10.0	A	0.1	No
	All	PM	10.4	B	10.6	B	0.2	No
12) N. River Rd at College Blvd (S)	All	AM	73.7	E	75.2	E	1.5	No
	All	PM	69.3	E	78.0	E	8.7	Yes
13) College Blvd at Buchanon Park (S)	All	AM	9.1	A	9.8	A	0.7	No
	All	PM	9.4	A	9.6	A	0.2	No
14) College Blvd at Adams St (S)	All	AM	21.4	C	24.4	C	3.0	No
	All	PM	18.4	B	19.1	B	0.7	No
15) College Blvd at Via Cupeno (S)	All	AM	25.0	C	27.7	C	2.7	No
	All	PM	33.0	C	34.8	C	1.8	No
16) College Blvd at SR-76 (S)	All	AM	69.2	E	71.0	E	1.8	No
	All	PM	107.0	F	112.7	F	5.7	Yes
17) N. River Rd at Vandergriff Blvd (S)	All	AM	29.8	C	30.0	C	0.2	No
	All	PM	65.5	E	66.9	E	1.4	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service (Bold = unacceptable LOS). 4) Delta is the increase in delay from project. 5) Impact if project traffic exceeds threshold.

Figure 15: Near Term (Existing + Cumulative) plus Project Volumes

<p>Douglas Dr 267 (577) 966 (1768)</p> <p>559 (400)</p> <p>249 (288)</p> <p>SR-76 209 (266) 1881 (1158)</p> <p>1</p>	<p>Douglas Dr 70 (241) 272 (644) 62 (148)</p> <p>83 (53)</p> <p>745 (523)</p> <p>408 (316)</p> <p>Mission Ave 334 (397) 462 (353) 49 (61)</p> <p>111 (165)</p> <p>322 (642)</p> <p>10 (25)</p> <p>2</p>	<p>Douglas Dr 342 (1055) 17 (63) 42 (71)</p> <p>1151 (640)</p> <p>1149 (744)</p> <p>8 (7)</p> <p>El Camino Real 1 (10) 33 (25) 70 (54)</p> <p>51 (90)</p> <p>591 (1083)</p> <p>37 (64)</p> <p>3</p>
<p>Douglas Dr 66 (94) 3 (1) 96 (95)</p> <p>67 (100)</p> <p>2040 (1281)</p> <p>15 (21)</p> <p>Pala Rd 24 (24) 2 (3) 13 (14)</p> <p>4</p> <p>40 (95)</p> <p>901 (1942)</p> <p>20 (22)</p>	<p>Douglas Dr 15 (8) 2 (2) 109 (73)</p> <p>37 (73)</p> <p>1951 (1225)</p> <p>2 (4)</p> <p>Rainier Way 6 (4) 4 (2) 68 (43)</p> <p>979 (1874)</p> <p>33 (82)</p> <p>5</p>	<p>Douglas Dr 53 (38) 95 (96) 187 (68)</p> <p>9 (46)</p> <p>705 (572)</p> <p>18 (39)</p> <p>N. River Rd 21 (40) 49 (65) 1042 (607)</p> <p>71 (147)</p> <p>434 (669)</p> <p>400 (971)</p> <p>6</p>
<p>Avenida Descanso 52 (115) 471 (983) 5 (12)</p> <p>105 (73)</p> <p>12 (4)</p> <p>111 (81)</p> <p>N. River Rd 44 (85) 946 (651) 18 (25)</p> <p>7</p> <p>2 (2)</p> <p>2 (4)</p> <p>30 (34)</p>	<p>Westwinds 12 (21) 598 (1090)</p> <p>26 (13)</p> <p>9 (3)</p> <p>N. River Rd 7 (15) 1014 (742)</p> <p>0 (0)</p> <p>1 (1)</p> <p>8</p>	<p>Riverview Way 22 (25) 562 (949) 26 (112)</p> <p>40 (8)</p> <p>0 (0)</p> <p>15 (19)</p> <p>N. River Rd 5 (12) 877 (698) 26 (112)</p> <p>102 (48)</p> <p>0 (0)</p> <p>102 (48)</p> <p>9</p>
<p>Calle Montecito 49 (126) 613 (845) 27 (10)</p> <p>105 (59)</p> <p>(1)</p> <p>196 (135)</p> <p>N. River Rd 98 (183) 754 (734) 32 (8)</p> <p>10</p> <p>11 (23)</p> <p>1 (2)</p> <p>8 (32)</p>	<p>Redondo Dr 43 (108) 792 (915) 0 (0)</p> <p>115 (90)</p> <p>0 (0)</p> <p>83 (49)</p> <p>N. River Rd 52 (62) 834 (849) 0 (0)</p> <p>0 (0)</p> <p>1 (1)</p> <p>11</p>	<p>Shopping Center Dwy 14 (23) 257 (478) 619 (479)</p> <p>9 (2)</p> <p>49 (39)</p> <p>25 (23)</p> <p>N. River Rd 70 (58) 543 (424) 1148 (1085)</p> <p>322 (471)</p> <p>21 (30)</p> <p>1017 (1242)</p> <p>12</p>
<p>Mance Buchanan Park 50 (28) 27 (80)</p> <p>74 (55)</p> <p>1727 (1474)</p> <p>College Dr</p> <p>13</p> <p>27 (95)</p> <p>1309 (1758)</p>	<p>College Dr 175 (149) 12 (20) 92 (73)</p> <p>206 (117)</p> <p>1535 (1434)</p> <p>16 (40)</p> <p>Adams St 40 (30) 17 (10) 81 (49)</p> <p>20 (74)</p> <p>1112 (1656)</p> <p>30 (83)</p> <p>14</p>	<p>College Dr 53 (283) 1 (9) 45 (191)</p> <p>70 (122)</p> <p>1622 (1316)</p> <p>1 (2)</p> <p>Via Cupeno 1 (6) 5 (10) 135 (63)</p> <p>148 (433)</p> <p>1109 (1568)</p> <p>38 (101)</p> <p>15</p>
<p>College Dr 322 (567) 814 (1357) 30 (58)</p> <p>378 (444)</p> <p>843 (788)</p> <p>576 (572)</p> <p>SR-76 487 (668) 1401 (928) 566 (332)</p> <p>16</p> <p>54 (51)</p> <p>493 (843)</p> <p>275 (368)</p>	<p>Vandergrift Blvd 47 (70) 56 (87) 109 (121)</p> <p>38 (53)</p> <p>703 (893)</p> <p>105 (253)</p> <p>N. River Rd 265 (109) 51 (106) 670 (477)</p> <p>116 (225)</p> <p>817 (689)</p> <p>315 (757)</p> <p>17</p>	<p>College Dr 40,623 ADT</p> <p>39,578 ADT</p> <p>39,699 ADT</p> <p>47,091 ADT</p> <p>49,535 ADT</p> <p>43,896 ADT</p>

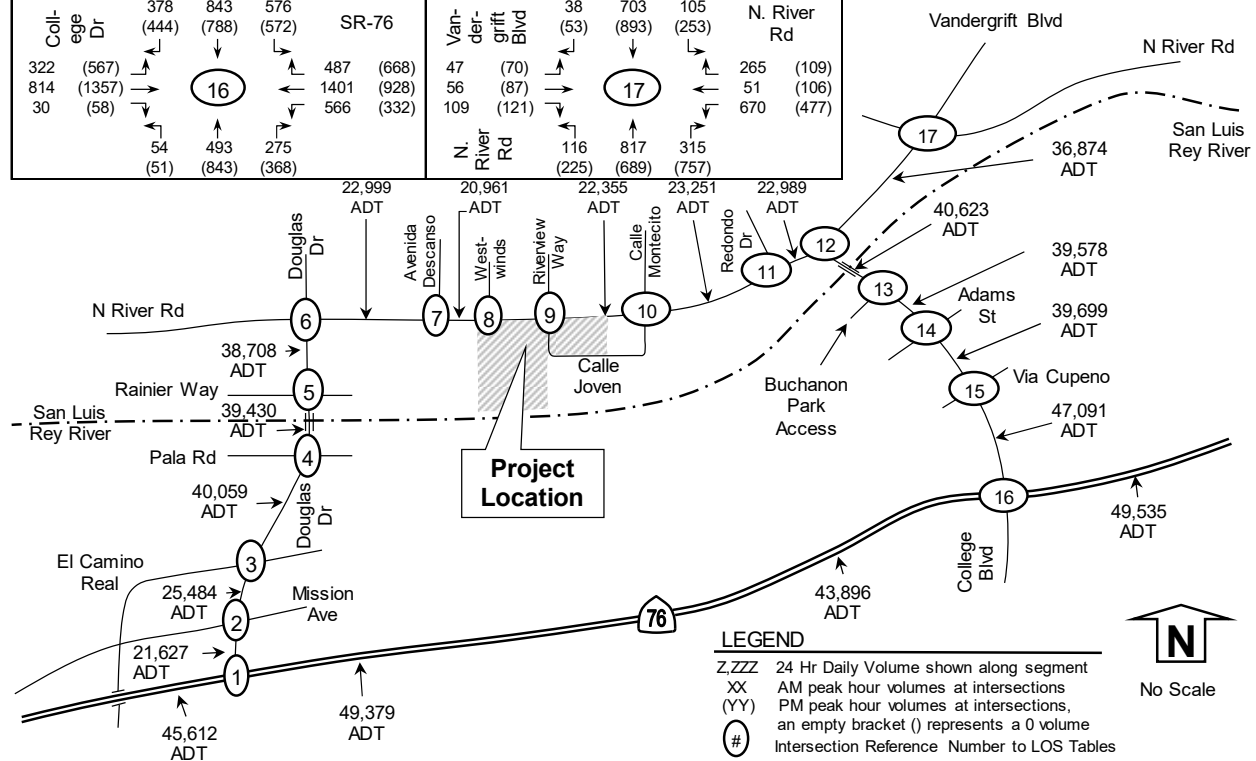


TABLE 15: NEAR TERM (EXISTING + CUMULATIVE) PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Classification (as built)	Near Term				Project		Near Term + Project				
		Daily Volume	LOS E Capacity	V/C	LOS	Daily Volumes	Daily Volume	LOS E Capacity	V/C	LOS	Change in V/C	Impact ?
Douglas Drive												
1) N. River Rd to Rainier Way	4 Ln Major (4D)	37,140	40,000	0.929	E	1,568	38,708	40,000	0.968	E	0.039	Yes
2) Rainier Way to Pala Rd	4 Ln Major (4U)	37,862	40,000	0.947	E	1,568	39,430	40,000	0.986	E	0.039	Yes
3) Pala Rd to El Camino Real	4 Ln Major (4D)	38,491	40,000	0.962	E	1,568	40,059	40,000	1.001	F	0.039	Yes
4) El Camino Real to Mission Ave	4 Ln Secondary (4U)	24,556	30,000	0.819	D	928	25,484	30,000	0.849	E	0.031	Yes
5) Mission Ave to SR-76	4 Ln Major (4D)	21,083	40,000	0.527	C	544	21,627	40,000	0.541	C	0.014	No
North River Road												
6) Douglas Dr to Avenida Descanso	4 Ln Major (4D)	21,399	40,000	0.535	C	1,600	22,999	40,000	0.575	C	0.040	No
7) Avenida Descanso to Riverview W:	4 Ln Major (4U)	19,361	40,000	0.484	B	1,600	20,961	40,000	0.524	B	0.040	No
8) Riverview Way to Calle Montecito	4 Ln Major (4D)	20,755	40,000	0.519	B	1,600	22,355	40,000	0.559	C	0.040	No
9) Calle Montecito to Redondo Dr	4 Ln Major (4D)	21,651	40,000	0.541	C	1,600	23,251	40,000	0.581	C	0.040	No
10) Redondo Dr to College Blvd	4 Ln Major (4D)	21,549	40,000	0.539	C	1,440	22,989	40,000	0.575	C	0.036	No
11) College Blvd to Vandergrift Blvd	5 Ln Major (5D)	36,554	45,000	0.812	D	320	36,874	45,000	0.819	D	0.007	No
College Blvd												
12) N. River Rd to Buchanan Park	4 Ln Major (4D)	39,503	40,000	0.988	E	1,120	40,623	40,000	1.016	F	0.028	Yes
13) Buchanan Park to Adams St	4 Ln Major (4U)	38,458	40,000	0.961	E	1,120	39,578	40,000	0.989	E	0.028	Yes
14) Adams St to Via Cupeno	6 Ln Major (6D)	38,611	50,000	0.772	C	1,088	39,699	50,000	0.794	C	0.022	No
15) Via Cupeno to SR-76	6 Ln Major (6D)	46,099	50,000	0.922	E	992	47,091	50,000	0.942	E	0.020	No
SR-76												
16) Foussat Rd to Douglas Dr	4 Ln Expressway (4D)	45,100	60,000	0.752	C	512	45,612	60,000	0.760	C	0.009	No
17) Douglas Dr to Rancho Del Oro	4 Ln Expressway (4D)	49,347	60,000	0.822	C	32	49,379	60,000	0.823	C	0.001	No
18) Frazee Rd to College Blvd	4 Ln Expressway (4D)	43,864	60,000	0.731	C	32	43,896	60,000	0.732	C	0.001	No
19) College Blvd to N. Santa Fe	4 Ln Expressway (4D)	49,247	60,000	0.821	C	288	49,535	60,000	0.826	C	0.005	No

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Significant impact if LOS D goes to E/F with project traffic. Project impact if project traffic exceeds thresholds under LOS E/F. Bold LOS indicates unacceptable LOS.

Under Near Term (Existing + Cumulative) plus Project conditions, the following study locations were calculated to operate at LOS E/F AND the project has a transportation impact:

- 1) Intersection #9: N. River Rd/Riverview Way
- 2) Intersection #12: N. River Rd/College Blvd
- 3) Intersection #16: SR-76/College Blvd
- 4) Segment #1: Douglas Drive from N. River Rd to Rainier Way
- 5) Segment #2: Douglas Drive from Rainier Way to Pala Rd
- 6) Segment #3: Douglas Drive from Pala Rd to El Camino Real
- 7) Segment #4: Douglas Drive from El Camino Real to Mission Ave
- 8) Segment #12: College Blvd from N. River Rd to Buchanan Park
- 9) Segment #13: College Blvd from Buchanan Park to Adams St

The following roadways were calculated to operate at LOS E/F without a transportation impact because the project traffic did not exceed the transportation impact thresholds:

- 10) Intersection #17: N. River Rd/Vandergrift Blvd
- 11) Segment #15: College Blvd from Via Cupeno to SR-76

3.11 Horizon Year 2035 Conditions

At the request of City staff, two horizon year 2035 scenarios were analyzed: A Base Master Transportation Plan (MTP) scenario and an Alternative scenario.

The Horizon Year 2035 Base MTP scenario reflects the proposed City of Oceanside Circulation Element Master Transportation Plan network conditions (i.e. future planned roadway improvements that include the Pala Road extension, Melrose extension, various segments expanded to 6 lanes, and Rancho Del Oro interchange) with the exception of SR-76 from I-5 to the eastern City Limits that would remain a 4-lane expressway due lack of funding according to City staff as relayed to them by Caltrans staff.

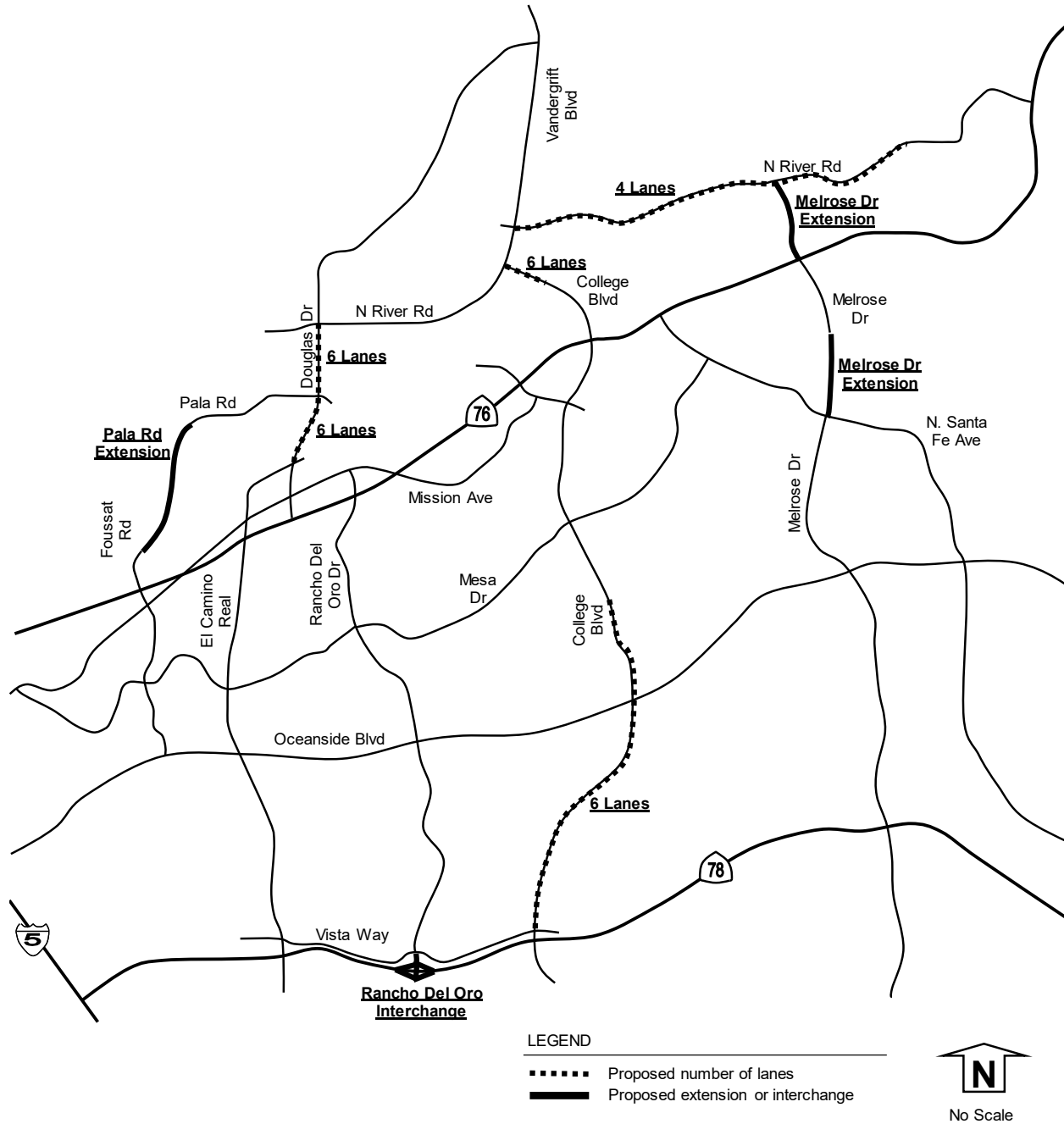
The Horizon Year 2035 Alternative scenario reflects the current roadway network (i.e. it does not incorporate any proposed new roadways nor expanded roadways and is the same as the existing roadway network).

The network differences by scenario are shown in **Table 16**. The proposed Base MTP changes over existing conditions is shown in **Figure 16**.

TABLE 16: SANDAG MODEL NETWORK DETAILS BY SCENARIO

Roadway Element	2035 Base MTP Network	2035 Alternative Network
1) SR-76 (I-5 to eastern City Limit)	4 Lanes	4 Lanes
2) Douglas Drive (N. River Rd to El Camino Real)	6 Lanes	4 Lanes
3) College Ave over San Louis Rey River	6 Lanes	4 Lanes
4) College Ave (Old Grove to Vista Way)	6 Lanes	4 Lanes
5) N. River Rd (Vandergrift to easterly City limit)	4 Lanes	2 Lanes
6) Pala Rd connection between Foussat Rd and Los Arbolitos Blvd	IN	OUT
7) Melrose connection between N. River Rd and SR-76	IN	OUT
8) Melrose connection between Spur Ave and N. Santa Fe	IN	OUT
9) Rancho Del Oro future interchange at SR-76	IN	OUT
Applicable Scenario:	2035 Base MTP	Near-Term & 2035 ALT

Figure 16: Horizon Year 2035 Base MTP Roadway Changes over Existing Conditions



3.12 Horizon Year 2035 Base MTP Conditions

This section documents the analysis of traffic volumes for AM, PM, and daily traffic conditions for a Horizon Year Base 2035 Master Transportation Plan scenario. A SANDAG Series 12 Select Zone Assignment (SZA) was commissioned for the year 2035 Base MTP scenario with the aforementioned network changes over existing conditions (copy included in **Appendix L**). The SANDAG SZA included the project with 400 homes; therefore, this without project scenario has the project volumes subtracted from the SANDAG output volumes.

The Base MTP 2035 segment volumes from the SANDAG Select Zone Assignment were post processed to smooth out the segment volumes and to be at or above the horizon year *Oceanside General Plan Circulation Element* volumes. Calculations are included in **Appendix M**.

The Base MTP 2035 intersection volumes were forecasted using a growth factor calculated from existing and year 2035 segment volumes. Three growth factors were calculated based on the average along each roadway segment. For example, Douglas Drive had a range of volume increases from 6.4% to 22.5% for an average of 15.3% over existing conditions; therefore, the average of 15.3% was applied to the study intersections along Douglas Drive. Calculations are included in **Appendix N**. The growth factors for future intersection volumes are shown below.

- 1) Douglas Dr/SR-76 (15.3% growth)
- 2) Douglas Dr/Mission Avenue (15.3% growth)
- 3) Douglas Dr/El Camino Real (15.3% growth)
- 4) Douglas Dr/Pala Road (15.3% growth)
- 5) Douglas Dr/Rainier Way (15.3% growth)
- 6) N. River Road/Douglas Drive (15.3% growth)
- 7) N. River Road/Avenida Descanso (23.9% growth)
- 8) N. River Road/Westwinds Mobile Home Park (23.9% growth)
- 9) N. River Road/Riverview Way (23.9% growth)
- 10) N. River Road/Calle Montecito (23.9% growth)
- 11) N. River Road/Redondo Drive (23.9% growth)
- 12) N. River Road/College Blvd (16.8% growth)
- 13) College Blvd/Buchanon Park (16.8% growth)
- 14) College Blvd/Adams St (16.8% growth)
- 15) College Blvd/Via Cupeno (16.8% growth)
- 16) College Blvd/SR-76 (16.8% growth)
- 17) N. River Road/Vandergrift Blvd (23.9% growth)

The peak hour intersection volumes and daily traffic volumes are shown in **Figure 17**. The Base MTP analysis incorporated the network changes for the segment ADT operations but did not incorporate any intersection improvements identified as part of the MTP for the intersection LOS analysis. The intersection LOS calculated is shown in **Table 17** with segment LOS shown in **Table 18**. Intersection LOS worksheets are included in **Appendix O**.

Figure 17: Horizon Year 2035 MTP Volumes

<p>Douglas Dr 297 (607) 1110 (2040)</p> <p>598 (434)</p> <p>SR-76 239 (298) 2170 (1340)</p> <p>278 (329)</p> <p>1</p>	<p>Douglas Dr 79 (266) 310 (740) 70 (170)</p> <p>86 (58)</p> <p>806 (573)</p> <p>430 (340)</p> <p>Mission Ave 375 (408) 530 (410) 60 (70)</p> <p>130 (190)</p> <p>356 (684)</p> <p>10 (30)</p> <p>2</p>	<p>Douglas Dr 370 (1115) 20 (70) 50 (80)</p> <p>1239 (701)</p> <p>1221 (812)</p> <p>10 (10)</p> <p>El Camino Real 5 (10) 40 (30) 80 (60)</p> <p>60 (100)</p> <p>650 (1127)</p> <p>40 (70)</p> <p>3</p>
<p>Douglas Dr 75 (88) 5 (5) 110 (110)</p> <p>60 (110)</p> <p>2160 (1383)</p> <p>20 (20)</p> <p>Pala Rd 30 (30) 5 (5) 10 (20)</p> <p>4</p>	<p>Douglas Dr 20 (10) 5 (5) 130 (80)</p> <p>40 (80)</p> <p>2030 (1313)</p> <p>5 (5)</p> <p>Rainier Way 10 (5) 5 (5) 80 (50)</p> <p>1075 (1920)</p> <p>40 (90)</p> <p>5</p>	<p>Douglas Dr 60 (40) 109 (108) 220 (80)</p> <p>10 (50)</p> <p>810 (660)</p> <p>20 (40)</p> <p>N. River Rd 20 (50) 48 (69) 990 (603)</p> <p>80 (170)</p> <p>500 (770)</p> <p>405 (880)</p> <p>6</p>
<p>Avenida Descanso 60 (140) 524 (968) 10 (10)</p> <p>130 (90)</p> <p>5 (5)</p> <p>140 (100)</p> <p>N. River Rd 50 (110) 948 (702) 20 (30)</p> <p>7</p>	<p>Westwinds 10 (30) 684 (1098)</p> <p>30 (20)</p> <p>10 (5)</p> <p>N. River Rd 10 (20) 1028 (812)</p> <p>8</p>	<p>Riverview Way 30 (30) 700 (1180) 0 (0)</p> <p>50 (10)</p> <p>0 (20)</p> <p>N. River Rd 10 (10) 1090 (860) 0 (0)</p> <p>9</p>
<p>Calle Montecito 60 (160) 528 (942) 30 (10)</p> <p>130 (70)</p> <p>5 (5)</p> <p>240 (170)</p> <p>N. River Rd 120 (230) 874 (658) 40 (10)</p> <p>10</p>	<p>Redondo Dr 30 (125) 778 (1037) 0 (0)</p> <p>137 (89)</p> <p>0 (60)</p> <p>N. River Rd 60 (80) 977 (829) 0 (0)</p> <p>11</p>	<p>Shopping Center Dwy 20 (30) 260 (540) 568 (486)</p> <p>10 (5)</p> <p>60 (50)</p> <p>30 (30)</p> <p>N. River Rd 80 (70) 625 (448) 1340 (1270)</p> <p>342 (382)</p> <p>20 (40)</p> <p>1190 (1450)</p> <p>12</p>
<p>Mance Buchanan Park 60 (30) 30 (90)</p> <p>90 (60)</p> <p>1858 (1646)</p> <p>College Dr</p> <p>13</p>	<p>College Dr 199 (168) 10 (20) 110 (90)</p> <p>238 (139)</p> <p>1640 (1607)</p> <p>20 (50)</p> <p>Adams St 50 (40) 20 (10) 90 (60)</p> <p>14</p>	<p>College Dr 58 (313) 5 (10) 50 (220)</p> <p>64 (137)</p> <p>1757 (1470)</p> <p>5 (5)</p> <p>Via Cupeno 5 (10) 10 (10) 160 (70)</p> <p>170 (510)</p> <p>1264 (1681)</p> <p>40 (120)</p> <p>15</p>
<p>College Dr 369 (658) 950 (1580) 40 (70)</p> <p>438 (519)</p> <p>887 (880)</p> <p>632 (651)</p> <p>SR-76 555 (740) 1640 (1070) 660 (390)</p> <p>16</p>	<p>Vandergrift Blvd 60 (90) 70 (110) 140 (150)</p> <p>50 (70)</p> <p>868 (1079)</p> <p>130 (310)</p> <p>N. River Rd 330 (140) 60 (130) 827 (569)</p> <p>17</p>	<p>College Dr 50 (220)</p> <p>64 (137)</p> <p>1757 (1470)</p> <p>5 (5)</p> <p>Via Cupeno 5 (10) 10 (10) 160 (70)</p> <p>170 (510)</p> <p>1264 (1681)</p> <p>40 (120)</p> <p>15</p>

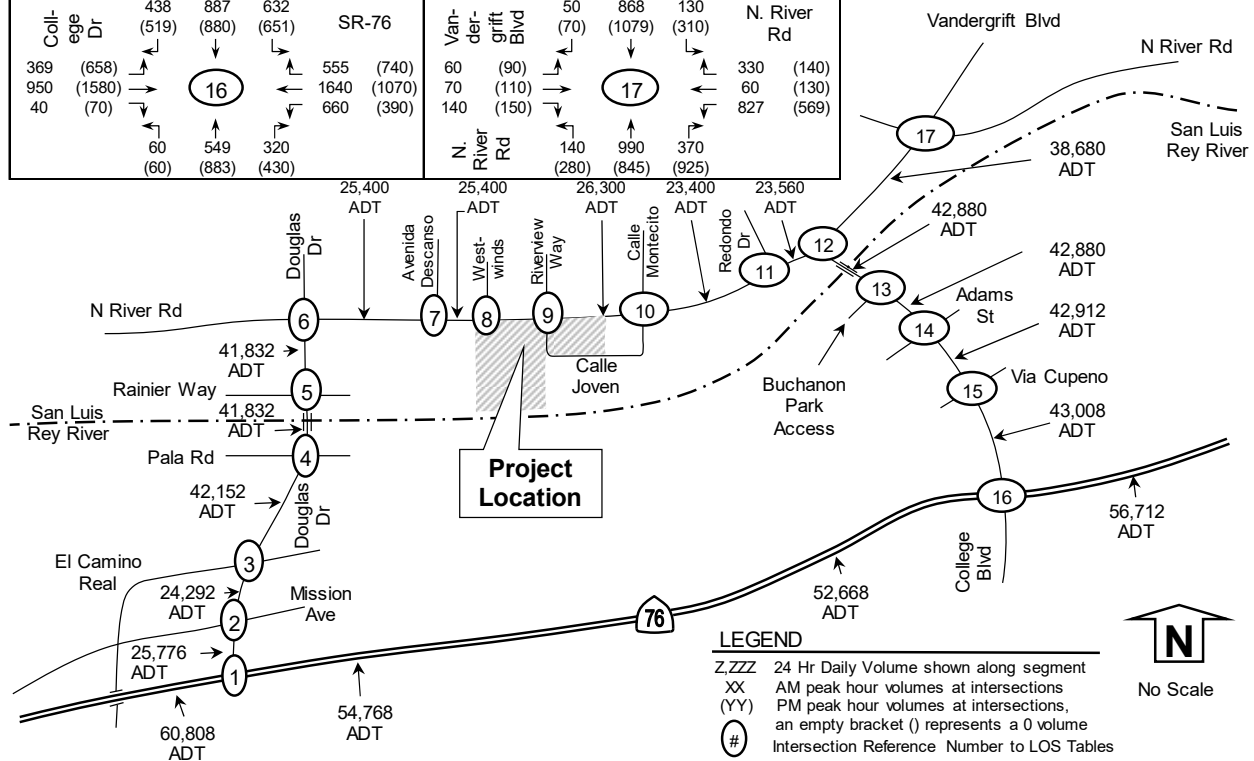


TABLE 17: HORIZON YEAR 2035 BASE MTP INTERSECTION LOS

Intersection and (Analysis) ¹	Movement	Study Period	Horizon Year 2035 MTP	
			Delay ²	LOS ³
1) Douglas Dr at SR-76 (S)	All	AM	75.2	E
	All	PM	43.3	D
2) Douglas Dr at Mission Ave (S)	All	AM	44.8	D
	All	PM	60.6	E
3) Douglas Dr at El Camino Real (S)	All	AM	23.2	C
	All	PM	44.2	D
4) Douglas Dr at Pala Rd (S)	All	AM	37.7	D
	All	PM	34.7	C
5) Douglas Dr at Rainier Way (S)	All	AM	35.9	D
	All	PM	26.2	C
6) Douglas Dr at N. River Rd (S)	All	AM	47.0	D
	All	PM	28.0	C
7) N. River Rd at Avenida Descanso (S)	All	AM	19.5	B
	All	PM	36.4	D
8) N. River Rd at Westwinds (U)	SB LR	AM	22.0	C
	SB LR	PM	18.9	C
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A
	SB LR	AM	45.1	E
	NB LR	PM	0.0	A
	SB LR	PM	67.2	F
10) N. River Rd at Calle Montecito (S)	All	AM	24.1	C
	All	PM	24.0	C
11) N. River Rd at Redondo Dr (S)	All	AM	10.5	B
	All	PM	10.7	B
12) N. River Rd at College Blvd (S)	All	AM	72.0	E
	All	PM	82.6	F
13) College Blvd at Buchanon Park (S)	All	AM	12.6	B
	All	PM	11.0	B
14) College Blvd at Adams St (S)	All	AM	27.6	C
	All	PM	27.7	C
15) College Blvd at Via Cupeno (S)	All	AM	22.3	C
	All	PM	41.5	D
16) College Blvd at SR-76 (S)	All	AM	97.9	F
	All	PM	165.8	F
17) N. River Rd at Vandergrift Blvd (S)	All	AM	56.7	E
	All	PM	109.1	F

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

Bold indicated unacceptable LOS.

TABLE 18: HORIZON YEAR 2035 BASE MTP SEGMENT VOLUMES AND LOS

Segment	Circulation Element Classification (Master Transportation Plan)	Horizon Year 2035 Base MTP			
		Daily Volume	LOS E Capacity	V/C	LOS
Douglas Drive					
1) N. River Rd to Rainier Way	6 Lane Major	41,832	50,000	0.84	D
2) Rainier Way to Pala Rd	6 Lane Major	41,832	50,000	0.84	D
3) Pala Rd to El Camino Real	6 Lane Major	42,152	50,000	0.84	D
4) El Camino Real to Mission Ave	4 Lane Major	24,292	40,000	0.61	C
5) Mission Ave to SR-76	4 Lane Major	25,776	40,000	0.64	C
North River Road					
6) Douglas Dr to Avenida Descanso	4 Lane Major	25,400	40,000	0.64	C
7) Avenida Descanso to Riverview Way	4 Lane Major	25,400	40,000	0.64	C
8) Riverview Way to Calle Montecito	4 Lane Major	26,300	40,000	0.66	C
9) Calle Montecito to Redondo Dr	4 Lane Major	23,400	40,000	0.59	C
10) Redondo Dr to College Blvd	4 Lane Major	23,560	40,000	0.59	C
11) College Blvd to Vandergrift Blvd	5 Lane Major	38,680	45,000	0.86	D
College Blvd					
12) N. River Rd to Buchanon Park	6 Lane Major	42,880	50,000	0.86	D
13) Buchanon Park to Adams St	6 Lane Major	42,880	50,000	0.86	D
14) Adams St to Via Cupeno	6 Lane Major	42,912	50,000	0.86	D
15) Via Cupeno to SR-76	6 Lane Major	43,008	50,000	0.86	D
SR-76					
16) Foussat Rd to Douglas Dr	4 Lane Expressway	60,808	60,000	1.01	F
17) Douglas Dr to Rancho Del Oro	4 Lane Expressway	54,768	60,000	0.91	D
18) Frazee Rd to College Blvd	4 Lane Expressway	52,668	60,000	0.88	D
19) College Blvd to N. Santa Fe	4 Lane Expressway	56,712	60,000	0.95	E

Notes: Daily volume is a 24 hour volume. LOS: Level of Service (bold indicates unacceptable LOS). V/C: Volume to Capacity Ratio.

Under Horizon Year 2035 Base MTP conditions, the following study locations were calculated to operate at LOS E/F:

- 1) Intersection #1: Douglas Dr/SR-76
- 2) Intersection #2: Douglas Dr/Mission Ave
- 3) Intersection #9: N. River Rd/Riverview Wy
- 4) Intersection #12: N. River Rd/College Blvd
- 5) Intersection #16: SR-76/College Blvd
- 6) Intersection #17: N. River Rd/Vandergrift Blvd
- 7) Segment #16: SR-76 from Foussat Rd to Douglas Dr
- 8) Segment #19: SR-76 from College Blvd to N. Santa Fe

3.13 Horizon Year 2035 Base MTP plus Project Conditions

This scenario documents the addition of project traffic onto Horizon Year 2035 Base MTP conditions for AM, PM and daily traffic conditions. The project distribution under Base MTP conditions is slightly different than the near-term scenarios because the MTP has additional roadway connections. The MTP distribution is shown in **Figure 18** with the project assignment shown in **Figure 19**. The peak hour intersection volumes and daily traffic volumes for the Base MTP plus Project scenario is shown in **Figure 20**. The intersection LOS is shown in **Table 19** with segment LOS shown in **Table 20**. Intersection LOS worksheets are included in **Appendix P**.

TABLE 19: HORIZON YEAR 2035 BASE MTP PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Horizon Year MTP		Horizon Year 2035 MTP + Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact? ⁵
1) Douglas Dr at SR-76 (S)	All	AM	75.2	E	75.6	E	0.4	No
	All	PM	43.3	D	44.0	D	0.7	No
2) Douglas Dr at Mission Ave (S)	All	AM	44.8	D	47.0	D	2.2	No
	All	PM	60.6	E	65.4	E	4.8	Yes
3) Douglas Dr at El Camino Real (S)	All	AM	23.2	C	24.1	C	0.9	No
	All	PM	44.2	D	49.2	D	5.0	No
4) Douglas Dr at Pala Rd (S)	All	AM	37.7	D	45.5	D	7.8	No
	All	PM	34.7	C	44.5	D	9.8	No
5) Douglas Dr at Rainier Way (S)	All	AM	35.9	D	42.8	D	6.9	No
	All	PM	26.2	C	34.3	C	8.1	No
6) Douglas Dr at N. River Rd (S)	All	AM	47.0	D	52.2	D	5.2	No
	All	PM	28.0	C	28.9	C	0.9	No
7) N. River Rd at Avenida Descanso (S)	All	AM	19.5	B	20.0	B	0.5	No
	All	PM	36.4	D	38.3	D	1.9	No
8) N. River Rd at Westwinds (U)	SB LR	AM	22.0	C	25.4	D	3.4	No
	SB LR	PM	18.9	C	20.7	C	1.8	No
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A	438.8	F	438.8	Yes
	SB LR	AM	45.1	E	67.8	F	22.7	Yes
	NB LR	PM	0.0	A	943.4	F	943.4	Yes
	SB LR	PM	67.2	F	220.6	F	153.4	Yes
10) N. River Rd at Calle Montecito (S)	All	AM	24.1	C	24.5	C	0.4	No
	All	PM	24.0	C	26.6	C	2.6	No
11) N. River Rd at Redondo Dr (S)	All	AM	10.5	B	10.7	B	0.2	No
	All	PM	10.7	B	10.9	B	0.2	No
12) N. River Rd at College Blvd (S)	All	AM	72.0	E	76.3	E	4.3	Yes
	All	PM	82.6	F	90.8	F	8.2	Yes
13) College Blvd at Buchanon Park (S)	All	AM	12.6	B	14.9	B	2.3	No
	All	PM	11.0	B	11.4	B	0.4	No
14) College Blvd at Adams St (S)	All	AM	27.6	C	30.7	C	3.1	No
	All	PM	27.7	C	29.3	C	1.6	No
15) College Blvd at Via Cupeno (S)	All	AM	22.3	C	22.8	C	0.5	No
	All	PM	41.5	D	43.0	D	1.5	No
16) College Blvd at SR-76 (S)	All	AM	97.9	F	99.4	F	1.5	No
	All	PM	165.8	F	171.2	F	5.4	Yes
17) N. River Rd at Vandergrift Blvd (S)	All	AM	56.7	E	57.1	E	0.4	No
	All	PM	109.1	F	110.0	F	0.9	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service (Bold = unacceptable LOS). 4) Delta is the increase in delay from project. 5) Impact if project traffic exceeds threshold.

Figure 18: Horizon Year 2035 Base MTP Project Distribution

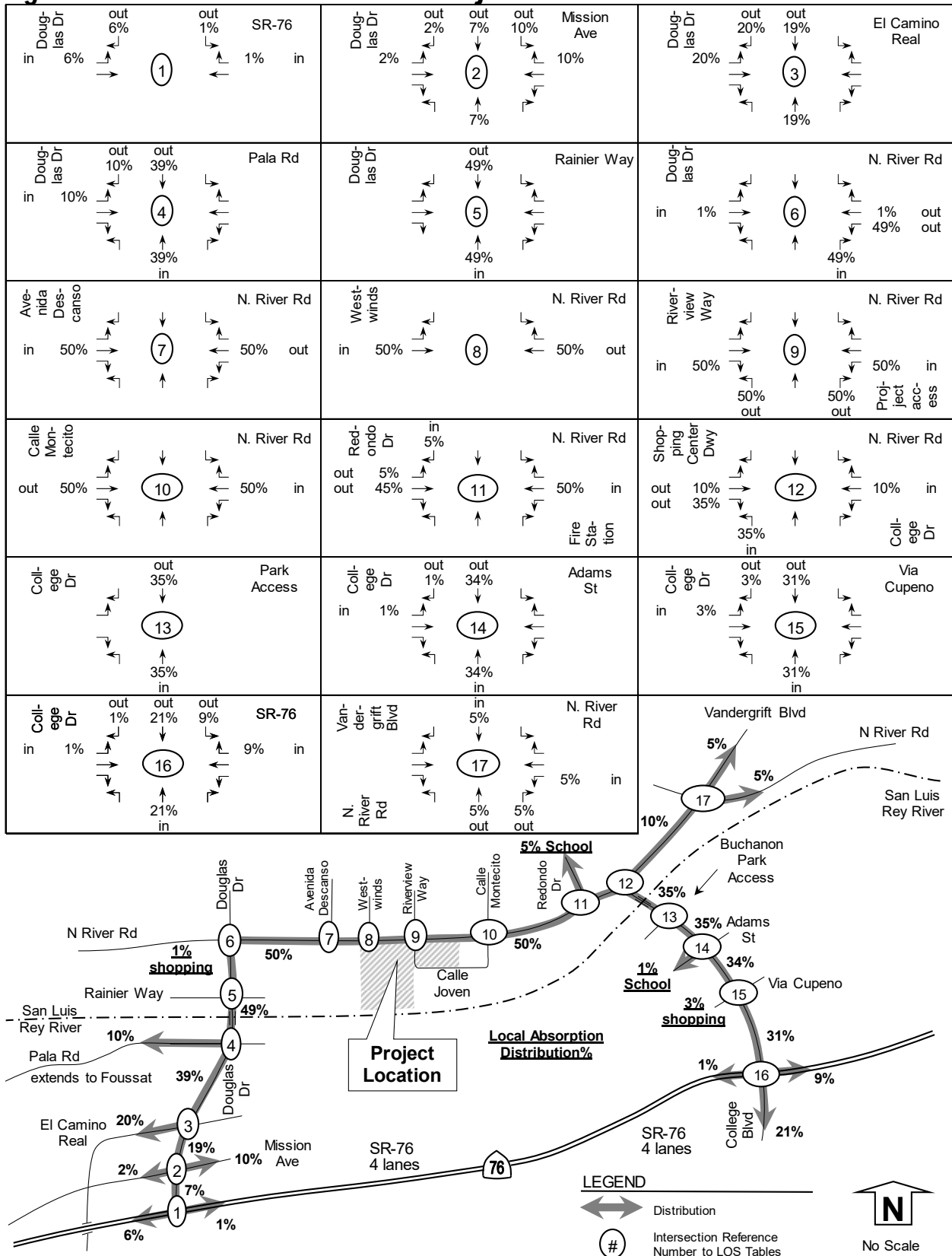


Figure 19: Horizon Year 2035 Base MTP Project Assignment

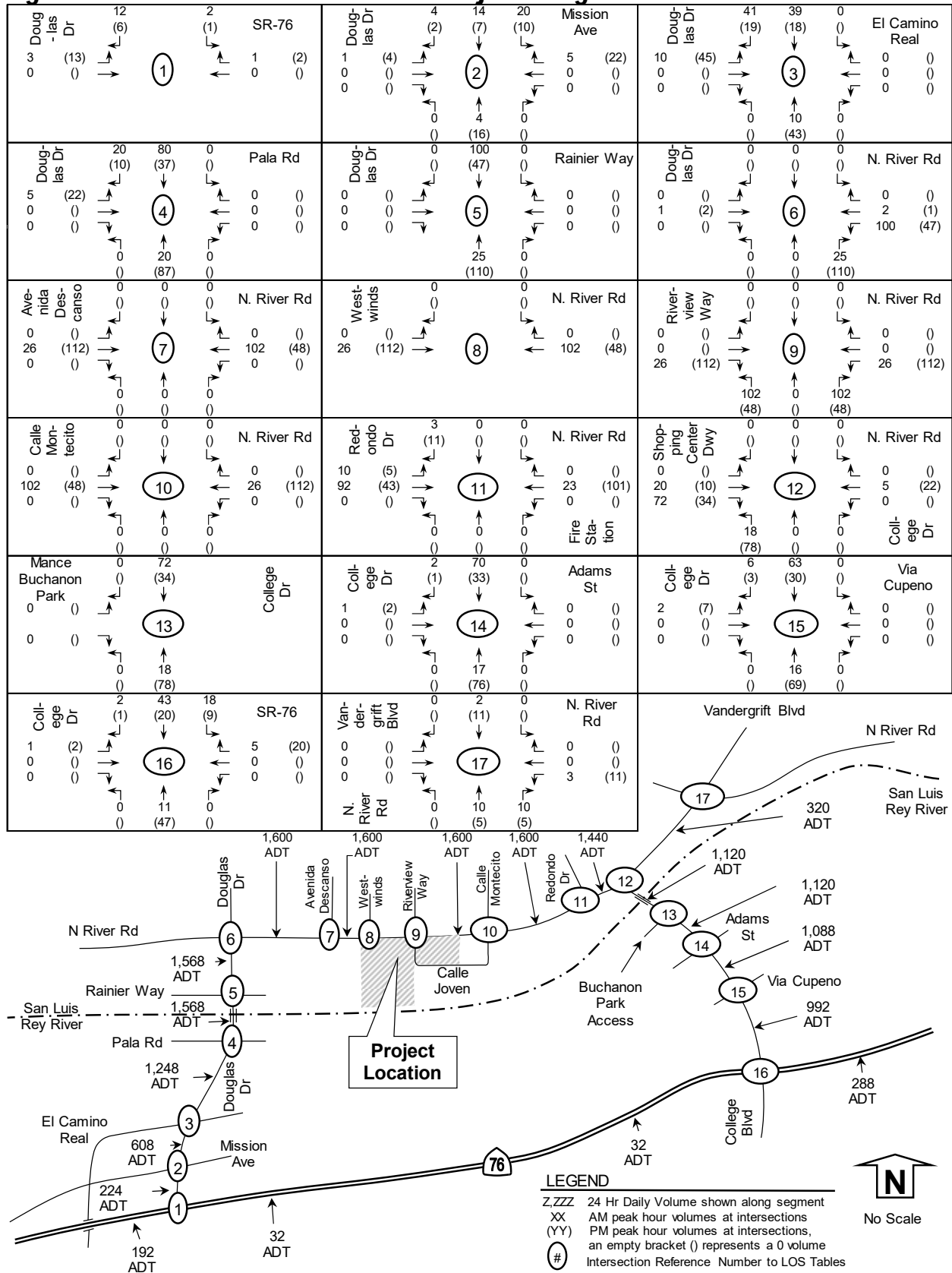


Figure 20: Horizon Year 2035 Base MTP plus Project Volumes

<p>Douglas Dr 300 (620) 1110 (2040)</p> <p>610 (440) 280 (330)</p> <p>SR-76 240 (300) 2170 (1340)</p> <p>1</p>	<p>Douglas Dr 80 (270) 310 (740) 70 (170)</p> <p>90 (60) 820 (580) 450 (350)</p> <p>Mission Ave 380 (430) 530 (410) 60 (70)</p> <p>2</p>	<p>Douglas Dr 380 (1160) 20 (70) 50 (80)</p> <p>1280 (720) 1260 (830) 10 (10)</p> <p>El Camino Real 5 (10) 40 (30) 80 (60)</p> <p>3</p>
<p>Douglas Dr 80 (110) 5 (5) 110 (110)</p> <p>80 (120) 2240 (1420) 20 (20)</p> <p>Pala Rd 30 (30) 5 (5) 10 (20)</p> <p>4</p>	<p>Douglas Dr 20 (10) 5 (5) 130 (80)</p> <p>40 (80) 2130 (1360) 5 (5)</p> <p>Rainier Way 10 (5) 5 (5) 80 (50)</p> <p>5</p>	<p>Douglas Dr 60 (40) 110 (110) 220 (80)</p> <p>10 (50) 810 (660) 20 (40)</p> <p>N. River Rd 20 (50) 50 (70) 1090 (650)</p> <p>6</p>
<p>Avenida Descanso 60 (140) 550 (1080) 10 (10)</p> <p>130 (90) 10 (5) 140 (100)</p> <p>N. River Rd 50 (110) 1050 (750) 20 (30)</p> <p>7</p>	<p>Westwinds 10 (30) 710 (1210)</p> <p>30 (20) 10 (5) 5 (5)</p> <p>N. River Rd 10 (20) 1130 (860)</p> <p>8</p>	<p>Riverview Way 30 (30) 700 (1180) 26 (112)</p> <p>50 (10) 0 (0) 0 (0)</p> <p>N. River Rd 10 (20) 1090 (860) 26 (112)</p> <p>9</p>
<p>Calle Montecito 60 (160) 630 (990) 30 (10)</p> <p>130 (70) 5 (5) 240 (170)</p> <p>N. River Rd 120 (230) 900 (770) 40 (10)</p> <p>10</p>	<p>Redondo Dr 40 (130) 870 (1080) 0 (0)</p> <p>140 (100) 0 (0) 100 (60)</p> <p>N. River Rd 60 (80) 1000 (930) 0 (0)</p> <p>11</p>	<p>Shopping Center Dwy 20 (30) 280 (550) 640 (520)</p> <p>10 (5) 60 (50) 30 (30)</p> <p>N. River Rd 80 (70) 630 (470) 1340 (1270)</p> <p>12</p>
<p>Mance Buchanan Park 60 (30) 30 (90)</p> <p>90 (60) 1930 (1680)</p> <p>College Dr 1510 (1960)</p> <p>13</p>	<p>College Dr 200 (170) 10 (20) 110 (90)</p> <p>240 (140) 1710 (1640) 20 (50)</p> <p>Adams St 50 (40) 20 (10) 90 (60)</p> <p>14</p>	<p>College Dr 60 (320) 5 (10) 50 (220)</p> <p>70 (140) 1820 (1500) 5 (5)</p> <p>Via Cupeno 5 (10) 10 (10) 160 (70)</p> <p>15</p>
<p>College Dr 370 (660) 950 (1580) 40 (70)</p> <p>440 (520) 930 (900) 650 (660)</p> <p>SR-76 560 (760) 1640 (1070) 660 (390)</p> <p>16</p>	<p>Vandergrift Blvd 60 (90) 70 (110) 140 (150)</p> <p>50 (70) 870 (1090) 130 (310)</p> <p>N. River Rd 330 (140) 60 (130) 830 (580)</p> <p>17</p>	

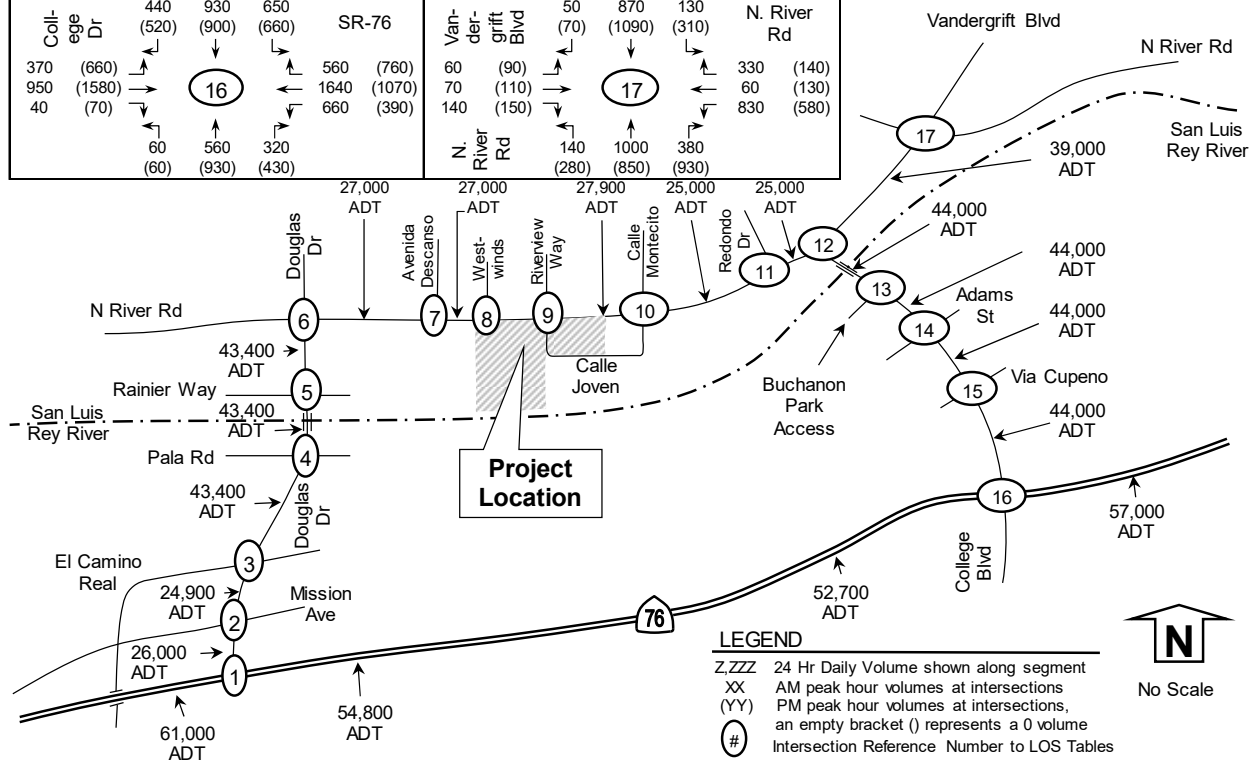


TABLE 20: HORIZON YEAR 2035 BASE MTP PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Circ. Element Classification (MTP)	Horizon Year 2035 Base MTP				Project Daily Volumes	Horizon Year 2035 Base MTP + Project					
		Daily Volume	LOS E Capacity	V/C	LOS		Daily Volume	LOS E Capacity	V/C	LOS	V/C Inc.	Impact ?
Douglas Drive												
1) N. River Rd to Rainier Way	6 Lane Major	41,832	50,000	0.837	D	1,568	43,400	50,000	0.868	D	0.031	No
2) Rainier Way to Pala Rd	6 Lane Major	41,832	50,000	0.837	D	1,568	43,400	50,000	0.868	D	0.031	No
3) Pala Rd to El Camino Real	6 Lane Major	42,152	50,000	0.843	D	1,248	43,400	50,000	0.868	D	0.025	No
4) El Camino Real to Mission Ave	4 Lane Major	24,292	40,000	0.607	C	608	24,900	40,000	0.623	C	0.015	No
5) Mission Ave to SR-76	4 Lane Major	25,776	40,000	0.644	C	224	26,000	40,000	0.650	C	0.006	No
North River Road												
6) Douglas Dr to Avenida Descanso	4 Lane Major	25,400	40,000	0.635	C	1,600	27,000	40,000	0.675	C	0.040	No
7) Avenida Descanso to Riverview W	4 Lane Major	25,400	40,000	0.635	C	1,600	27,000	40,000	0.675	C	0.040	No
8) Riverview Way to Calle Montecito	4 Lane Major	26,300	40,000	0.658	C	1,600	27,900	40,000	0.698	C	0.040	No
9) Calle Montecito to Redondo Dr	4 Lane Major	23,400	40,000	0.585	C	1,600	25,000	40,000	0.625	C	0.040	No
10) Redondo Dr to College Blvd	4 Lane Major	23,560	40,000	0.589	C	1,440	25,000	40,000	0.625	C	0.036	No
11) College Blvd to Vandergrift Blvd	5 Lane Major	38,680	45,000	0.860	D	320	39,000	45,000	0.867	D	0.007	No
College Blvd												
12) N. River Rd to Buchanon Park	6 Lane Major	42,880	50,000	0.858	D	1,120	44,000	50,000	0.880	D	0.022	No
13) Buchanon Park to Adams St	6 Lane Major	42,880	50,000	0.858	D	1,120	44,000	50,000	0.880	D	0.022	No
14) Adams St to Via Cupeno	6 Lane Major	42,912	50,000	0.858	D	1,088	44,000	50,000	0.880	D	0.022	No
15) Via Cupeno to SR-76	6 Lane Major	43,008	50,000	0.860	D	992	44,000	50,000	0.880	D	0.020	No
SR-76												
16) Foussat Rd to Douglas Dr	4 Lane Expy.	60,808	60,000	1.013	F	192	61,000	60,000	1.017	F	0.003	No
17) Douglas Dr to Rancho Del Oro	4 Lane Expy.	54,768	60,000	0.913	D	32	54,800	60,000	0.913	D	0.001	No
18) Frazee Rd to College Blvd	4 Lane Expy.	52,668	60,000	0.878	D	32	52,700	60,000	0.878	D	0.001	No
19) College Blvd to N. Santa Fe	4 Lane Expy.	56,712	60,000	0.945	E	288	57,000	60,000	0.950	E	0.005	No

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Impact if project traffic exceed City's threshold. MTP: Master Transportation Plan. Bold LOS indicates unacceptable LOS. Expy: Expressway.

Under Horizon Year 2035 Base MTP plus Project conditions, the following study locations were calculated to operate at LOS E/F AND the project has a transportation impact:

- 1) Intersection #2: Douglas Dr/Mission Ave
- 2) Intersection #9: N. River Rd/Riverview Way
- 3) Intersection #12: N. River Rd/College Blvd
- 4) Intersection #16: College Blvd/SR-76

The following locations were calculated to operate at LOS E/F without a transportation impact because the project traffic did not exceed the significance thresholds:

- 5) Intersection #1: Douglas Dr/SR-76
- 6) Intersection #17: N. River Rd/Vandergrift Blvd
- 7) Segment #16: SR-76 from Foussat Rd to Douglas Dr
- 8) Segment #19: SR-76 from College Blvd to N. Santa Fe

3.14 Horizon Year 2035 Alternative Conditions

This section documents the analysis of traffic volumes for AM, PM, and daily traffic conditions for a Horizon Year 2035 Alternative scenario. A SANDAG Series 12 Select Zone Assignment (SZA) was commissioned for the year 2035 Alternative scenario (copy included in Appendix G). The SANDAG Select Zone Assignment included the project with 400 homes; therefore, this Alternative without project scenario has the project volumes subtracted from the SANDAG output.

The Alternative 2035 segment volumes were obtained from a SANDAG Select Zone Assignment with post processed to smooth out the segment volumes and to be at or above the horizon year *Oceanside General Plan Circulation Element* volumes. Calculations are included in **Appendix Q**.

The Alternative 2035 intersection volumes were forecasted using a growth factor calculated from existing and year 2035 segment volumes. Three growth factors were calculated based on the average along each roadway segment. For example, Douglas Drive had a range of volume increases from 10.4% to 24.3% for an average of 17.1% over existing conditions; therefore, the average of 17.1% was applied to the study intersections along Douglas Drive. Calculations are included in Appendix L. The growth factors for future intersection volumes are shown below.

- 1) Douglas Dr/SR-76 (17.1% growth)
- 2) Douglas Dr/Mission Avenue (17.1% growth)
- 3) Douglas Dr/El Camino Real (17.1% growth)
- 4) Douglas Dr/Pala Road (17.1% growth)
- 5) Douglas Dr/Rainier Way (17.1% growth)
- 6) N. River Road/Douglas Drive (17.1% growth)
- 7) N. River Road/Avenida Descanso (28.7% growth)
- 8) N. River Road/Westwinds Mobile Home Park (28.7% growth)
- 9) N. River Road/Riverview Way (28.7% growth)
- 10) N. River Road/Calle Montecito (28.7% growth)
- 11) N. River Road/Redondo Drive (28.7% growth)
- 12) N. River Road/College Blvd (22.1% growth)
- 13) College Blvd/Buchanon Park (22.1% growth)
- 14) College Blvd/Adams St (22.1% growth)
- 15) College Blvd/Via Cupeno (22.1% growth)
- 16) College Blvd/SR-76 (22.1% growth)
- 17) N. River Road/Vandergrift Blvd (28.7% growth)

The peak hour intersection volumes and daily traffic volumes for the Alternative scenario are shown in **Figure 21**. This Alternative analysis did not have any segment or intersection improvements over existing conditions for the LOS analyses. The intersection LOS calculated is shown in **Table 21** with segment LOS shown in **Table 22**. Intersection LOS worksheets are included in **Appendix R**.

Figure 21: Horizon Year 2035 Alternative Volumes

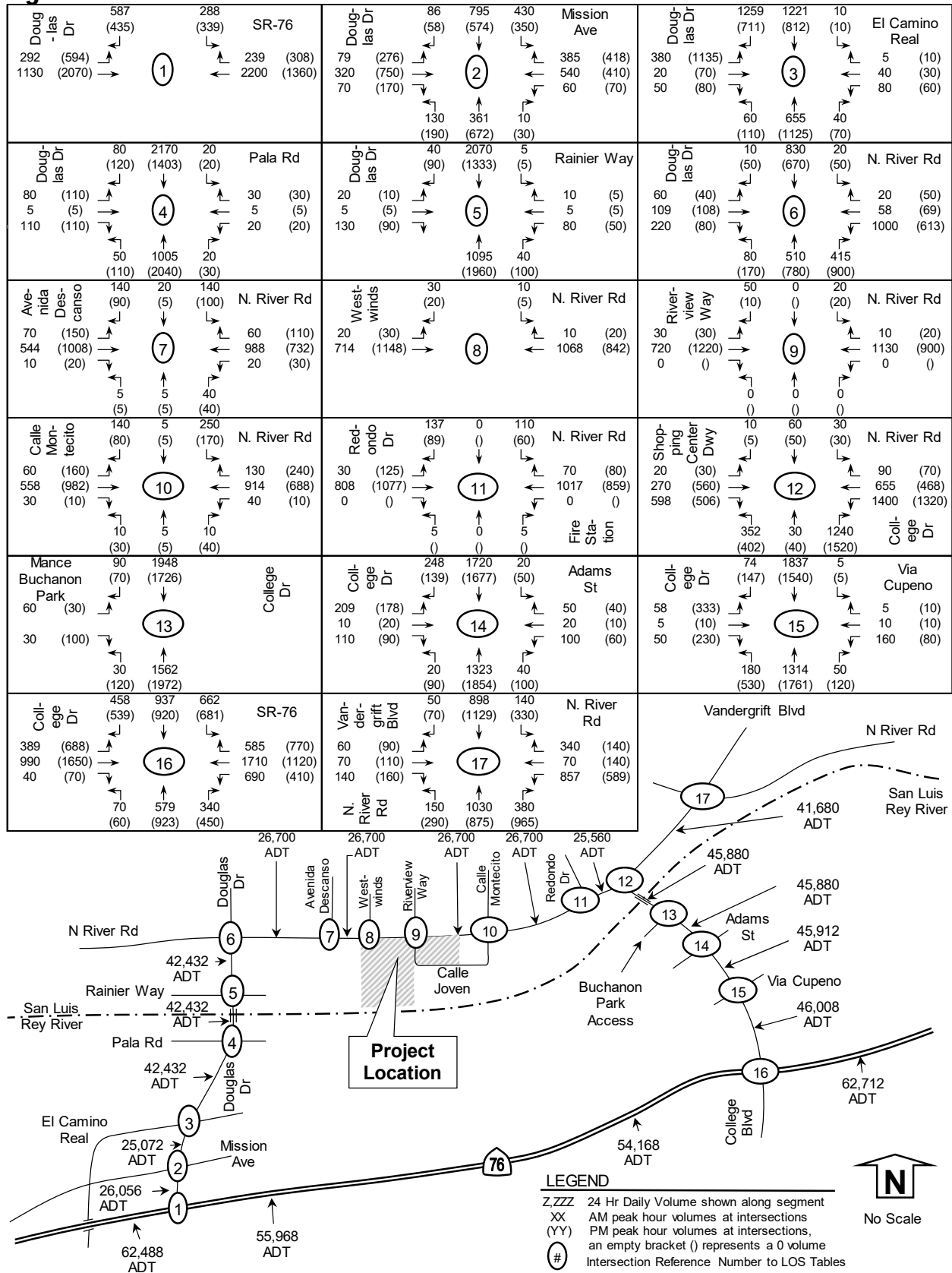


TABLE 21: HORIZON YEAR 2035 ALTERNATIVE INTERSECTION LOS

Intersection and (Analysis) ¹	Movement	Study Period	Horizon Year 2035 Alternative	
			Delay ²	LOS ³
1) Douglas Dr at SR-76 (S)	All	AM	79.3	E
	All	PM	45.3	D
2) Douglas Dr at Mission Ave (S)	All	AM	45.8	D
	All	PM	63.3	E
3) Douglas Dr at El Camino Real (S)	All	AM	23.6	C
	All	PM	45.7	D
4) Douglas Dr at Pala Rd (S)	All	AM	39.3	D
	All	PM	36.8	D
5) Douglas Dr at Rainier Way (S)	All	AM	38.3	D
	All	PM	29.2	C
6) Douglas Dr at N. River Rd (S)	All	AM	48.5	D
	All	PM	28.6	C
7) N. River Rd at Avenida Descanso (S)	All	AM	20.3	C
	All	PM	37.7	D
8) N. River Rd at Westwinds (U)	SB LR	AM	24.3	C
	SB LR	PM	19.8	C
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A
	SB LR	AM	51.4	F
	NB LR	PM	0.0	A
	SB LR	PM	78.0	F
10) N. River Rd at Calle Montecito (S)	All	AM	25.7	C
	All	PM	25.0	C
11) N. River Rd at Redondo Dr (S)	All	AM	10.7	B
	All	PM	10.7	B
12) N. River Rd at College Blvd (S)	All	AM	82.0	F
	All	PM	94.9	F
13) College Blvd at Buchanon Park (S)	All	AM	15.6	B
	All	PM	12.0	B
14) College Blvd at Adams St (S)	All	AM	31.7	C
	All	PM	31.8	C
15) College Blvd at Via Cupeno (S)	All	AM	23.3	C
	All	PM	47.5	D
16) College Blvd at SR-76 (S)	All	AM	111.4	F
	All	PM	184.6	F
17) N. River Rd at Vandergrift Blvd (S)	All	AM	66.8	E
	All	PM	122.9	F

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

Bold indicated unacceptable LOS.

TABLE 22: HORIZON YEAR 2035 ALTERNATIVE SEGMENT VOLUMES AND LOS

Segment	Circulation Element Classification (Alternative)	Horizon Year 2035 (Alternative)			
		Daily Volume	LOS E Capacity	V/C	LOS
Douglas Drive					
1) N. River Rd to Rainier Way	4 Lane Major	42,432	40,000	1.06	F
2) Rainier Way to Pala Rd	4 Lane Major	42,432	40,000	1.06	F
3) Pala Rd to El Camino Real	4 Lane Major	42,432	40,000	1.06	F
4) El Camino Real to Mission Ave	4 Lane Major	25,072	30,000	0.84	E
5) Mission Ave to SR-76	4 Lane Major	26,056	40,000	0.65	C
North River Road					
6) Douglas Dr to Avenida Descanso	4 Lane Major	26,700	40,000	0.67	C
7) Avenida Descanso to Riverview Way	4 Lane Major	26,700	40,000	0.67	C
8) Riverview Way to Calle Montecito	4 Lane Major	26,700	40,000	0.67	C
9) Calle Montecito to Redondo Dr	4 Lane Major	26,700	40,000	0.67	C
10) Redondo Dr to College Blvd	4 Lane Major	25,560	40,000	0.64	C
11) College Blvd to Vandergrift Blvd	5 Lane Major	41,680	45,000	0.93	E
College Blvd					
12) N. River Rd to Buchanon Park	4 Lane Major	45,880	40,000	1.15	F
13) Buchanon Park to Adams St	4 Lane Major	45,880	40,000	1.15	F
14) Adams St to Via Cupeno	6 Lane Major	45,912	50,000	0.92	E
15) Via Cupeno to SR-76	6 Lane Major	46,008	50,000	0.92	E
SR-76					
16) Foussat Rd to Douglas Dr	4 Lane Expressway	62,488	60,000	1.04	F
17) Douglas Dr to Rancho Del Oro	4 Lane Expressway	55,968	60,000	0.93	E
18) Frazee Rd to College Blvd	4 Lane Expressway	54,168	60,000	0.90	D
19) College Blvd to N. Santa Fe	4 Lane Expressway	62,712	60,000	1.05	F

Notes: Daily volume is a 24 hour volume. LOS: Level of Service (bold indicates unacceptable LOS). V/C: Volume to Capacity Ratio.

Under Horizon Year 2035 Alternative conditions, the following study locations were calculated to operate at LOS E/F:

- 1) Intersection #1: Douglas Dr/SR-76
- 2) Intersection #2: Douglas Dr/Mission Ave
- 3) Intersection #9: N. River Rd/Riverview Wy
- 4) Intersection #12: N. River Rd/College Blvd
- 5) Intersection #16: SR-76/College Blvd
- 6) Intersection #17: N. River Rd/Vandergrift Blvd
- 7) Segment #1: Douglas Dr from N. River Rd to Rainier Wy
- 8) Segment #2: Douglas Dr from Rainier Wy to Pala Rd
- 9) Segment #3: Douglas Dr from Pala Rd to El Camino Real
- 10) Segment #4: Douglas Dr from El Camino Real to Mission Ave
- 11) Segment #11: N. River Rd from College Blvd to Vandergrift Blvd
- 12) Segment #12: College Blvd from N. River Rd to Buchanon Park
- 13) Segment #13: College Blvd from Buchanon Park to Adams St
- 14) Segment #14: College Blvd from Adams St to Via Cupeno
- 15) Segment #15: College Blvd from Via Cupeno to SR-76
- 16) Segment #16: SR-76 from Foussat Rd to Douglas Dr
- 17) Segment #17: SR-76 from Douglas Dr to Rancho Del Oro
- 18) Segment #19: SR-76 from College Blvd to N. Santa Fe

3.15 Horizon Year 2035 Alternative plus Project Conditions

This scenario documents the addition of project traffic onto Horizon Year 2035 Alternative conditions for AM, PM, and daily traffic conditions. The project assignment for this Alternative is the same as near-term conditions (Fig 10) as this scenario does not incorporate any new roadway improvements. The peak hour intersection volumes and daily traffic volumes for the Alternative plus Project scenario is shown in **Figure 22**. The intersection LOS is shown in **Table 23** with segment LOS shown in **Table 24**. Intersection LOS worksheets are included in **Appendix S**.

TABLE 23: HORIZON YEAR 2035 ALTERNATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis) ¹	Movement	Study Period	Horizon Year Alt		Horizon Year 2035 Alt + Project			
			Delay ²	LOS ³	Delay ²	LOS ³	Delta ⁴	Impact? ⁵
1) Douglas Dr at SR-76 (S)	All	AM	79.3	E	80.1	E	0.8	No
	All	PM	45.3	D	47.1	D	1.8	No
2) Douglas Dr at Mission Ave (S)	All	AM	45.8	D	48.7	D	2.9	No
	All	PM	63.3	E	69.4	E	6.1	Yes
3) Douglas Dr at El Camino Real (S)	All	AM	23.6	C	24.7	C	1.1	No
	All	PM	45.7	D	52.2	D	6.5	No
4) Douglas Dr at Pala Rd (S)	All	AM	39.3	D	49.8	D	10.5	No
	All	PM	36.8	D	49.3	D	12.5	No
5) Douglas Dr at Rainier Way (S)	All	AM	38.3	D	46.3	D	8.0	No
	All	PM	29.2	C	38.3	D	9.1	No
6) Douglas Dr at N. River Rd (S)	All	AM	48.5	D	53.2	D	4.7	No
	All	PM	28.6	C	29.5	C	0.9	No
7) N. River Rd at Avenida Descanso (S)	All	AM	20.3	C	21.3	C	1.0	No
	All	PM	37.7	D	39.9	D	2.2	No
8) N. River Rd at Westwinds (U)	SB LR	AM	24.3	C	28.2	D	3.9	No
	SB LR	PM	19.8	C	22.1	C	2.3	No
9) N. River Rd at Riverview Way (U)	NB LR	AM	0.0	A	12.4	B	12.4	No
	SB LR	AM	51.4	F	79.0	F	27.6	Yes
	NB LR	PM	0.0	A	16.4	C	16.4	No
	SB LR	PM	78.0	F	273.8	F	195.8	Yes
10) N. River Rd at Calle Montecito (S)	All	AM	25.7	C	26.2	C	0.5	No
	All	PM	25.0	C	27.9	C	2.9	No
11) N. River Rd at Redondo Dr (S)	All	AM	10.7	B	10.9	B	0.2	No
	All	PM	10.7	B	11.0	B	0.3	No
12) N. River Rd at College Blvd (S)	All	AM	82.0	F	87.2	F	5.2	Yes
	All	PM	94.9	F	103.5	F	8.6	Yes
13) College Blvd at Buchanon Park (S)	All	AM	15.6	B	19.8	B	4.2	No
	All	PM	12.0	B	12.6	B	0.6	No
14) College Blvd at Adams St (S)	All	AM	31.7	C	36.6	D	4.9	No
	All	PM	31.8	C	34.4	C	2.6	No
15) College Blvd at Via Cupeno (S)	All	AM	23.3	C	24.0	C	0.7	No
	All	PM	47.5	D	48.9	D	1.4	No
16) College Blvd at SR-76 (S)	All	AM	111.4	F	112.9	F	1.5	No
	All	PM	184.6	F	190.3	F	5.7	Yes
17) N. River Rd at Vandergrift Blvd (S)	All	AM	66.8	E	67.2	E	0.4	No
	All	PM	122.9	F	124.6	F	1.7	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service (Bold = unacceptable LOS). 4) Delta is the increase in delay from project. 5) Impact if project traffic exceeds threshold.

Figure 22: Horizon Year 2035 Alternative plus Project Volumes

<p>Douglas Dr 300 (630) 1130 (2070)</p> <p>620 (450)</p> <p>290 (340)</p> <p>SR-76</p> <p>240 (310)</p> <p>2200 (1360)</p> <p>1</p>	<p>Douglas Dr 80 (280) 320 (750) 70 (170)</p> <p>90 (60)</p> <p>830 (590)</p> <p>450 (360)</p> <p>Mission Ave</p> <p>390 (440)</p> <p>540 (410)</p> <p>60 (70)</p> <p>2</p>	<p>Douglas Dr 390 (1180) 20 (70) 50 (80)</p> <p>1300 (730)</p> <p>1280 (840)</p> <p>10 (10)</p> <p>El Camino Real</p> <p>5 (10)</p> <p>40 (30)</p> <p>80 (60)</p> <p>3</p>
<p>Douglas Dr 80 (110) 5 (5) 110 (110)</p> <p>80 (120)</p> <p>2270 (1450)</p> <p>20 (20)</p> <p>Pala Rd</p> <p>30 (30)</p> <p>5 (5)</p> <p>20 (20)</p> <p>4</p>	<p>Douglas Dr 20 (10) 5 (5) 130 (90)</p> <p>40 (90)</p> <p>2170 (1380)</p> <p>5 (5)</p> <p>Rainier Way</p> <p>10 (5)</p> <p>5 (5)</p> <p>80 (50)</p> <p>5</p>	<p>Douglas Dr 60 (40) 110 (110) 220 (80)</p> <p>10 (50)</p> <p>830 (670)</p> <p>20 (50)</p> <p>N. River Rd</p> <p>20 (50)</p> <p>60 (70)</p> <p>1100 (660)</p> <p>6</p>
<p>Avenida Descanso 70 (150) 570 (1120) 10 (20)</p> <p>140 (90)</p> <p>20 (5)</p> <p>140 (100)</p> <p>N. River Rd</p> <p>60 (110)</p> <p>1090 (780)</p> <p>20 (30)</p> <p>7</p>	<p>Westwinds 20 (30) 740 (1260)</p> <p>30 (20)</p> <p>10 (5)</p> <p>N. River Rd</p> <p>10 (20)</p> <p>1170 (890)</p> <p>8</p>	<p>Riverview Way 30 (30) 720 (1220) 26 (112)</p> <p>50 (10)</p> <p>0 (0)</p> <p>20 (20)</p> <p>N. River Rd</p> <p>10 (20)</p> <p>1130 (900)</p> <p>26 (112)</p> <p>9</p>
<p>Calle Montecito 60 (160) 660 (1030) 30 (10)</p> <p>140 (80)</p> <p>5 (5)</p> <p>250 (170)</p> <p>N. River Rd</p> <p>130 (240)</p> <p>940 (800)</p> <p>40 (10)</p> <p>10</p>	<p>Redondo Dr 40 (130) 900 (1120) 0 (0)</p> <p>140 (100)</p> <p>0 (0)</p> <p>110 (60)</p> <p>N. River Rd</p> <p>70 (80)</p> <p>1040 (960)</p> <p>0 (0)</p> <p>11</p>	<p>Shopping Center Dwy 20 (30) 290 (570) 670 (540)</p> <p>10 (5)</p> <p>60 (50)</p> <p>30 (30)</p> <p>N. River Rd</p> <p>90 (70)</p> <p>660 (490)</p> <p>1400 (1320)</p> <p>12</p>
<p>Mance Buchanan Park 60 (30) 30 (100)</p> <p>90 (70)</p> <p>2020 (1760)</p> <p>College Dr</p> <p>1580 (2050)</p> <p>13</p>	<p>College Dr 210 (180) 10 (20) 110 (90)</p> <p>250 (140)</p> <p>1790 (1710)</p> <p>20 (50)</p> <p>Adams St</p> <p>50 (40)</p> <p>20 (10)</p> <p>100 (60)</p> <p>14</p>	<p>College Dr 60 (340) 5 (10) 50 (230)</p> <p>80 (150)</p> <p>1900 (1570)</p> <p>5 (5)</p> <p>Via Cupeno</p> <p>5 (10)</p> <p>10 (10)</p> <p>160 (80)</p> <p>15</p>
<p>College Dr 390 (690) 990 (1650) 40 (70)</p> <p>460 (540)</p> <p>980 (940)</p> <p>680 (690)</p> <p>SR-76</p> <p>590 (790)</p> <p>1710 (1120)</p> <p>690 (410)</p> <p>16</p>	<p>Vandergrift Blvd 60 (90) 70 (110) 140 (160)</p> <p>50 (70)</p> <p>900 (1140)</p> <p>140 (330)</p> <p>N. River Rd</p> <p>340 (140)</p> <p>70 (140)</p> <p>860 (600)</p> <p>17</p>	

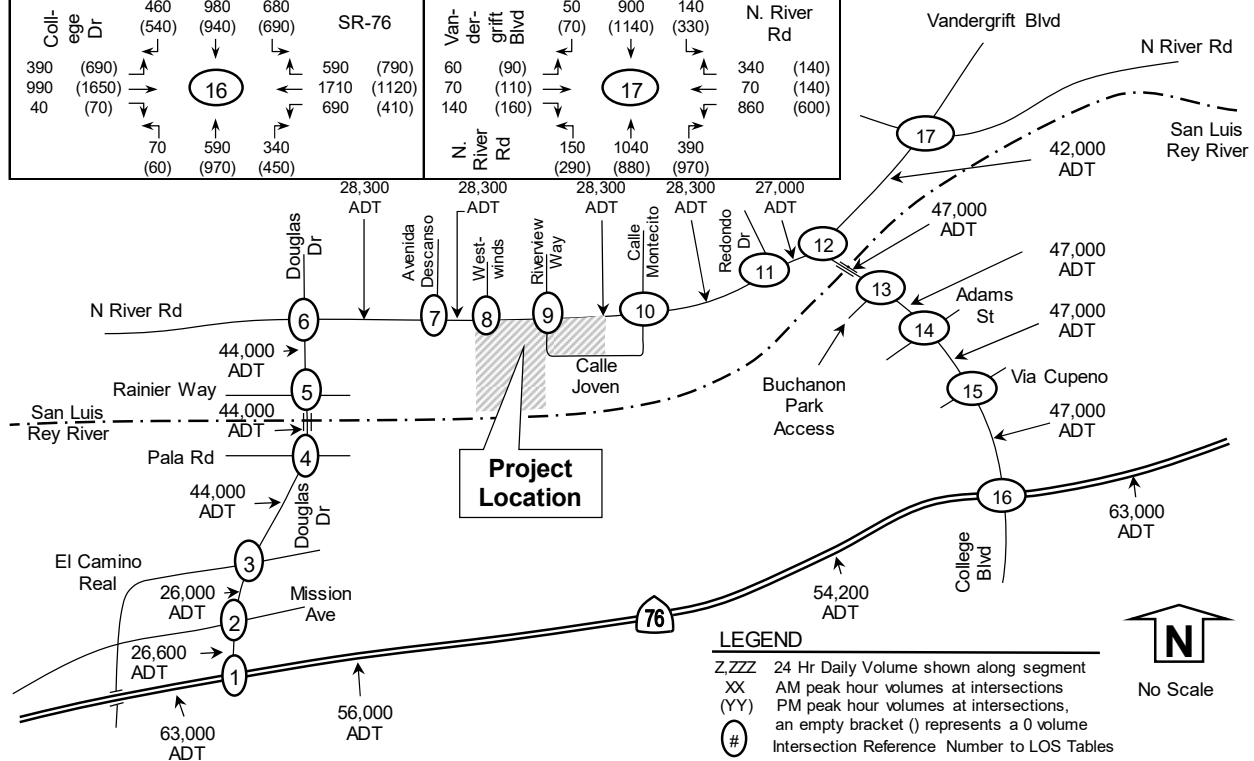


TABLE 24: HORIZON YEAR 2035 ALTERNATIVE PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Circulation Element Classification	Horizon Year 2035 Alt				Project Daily Volumes	Horizon Year 2035 Alt + Project					
		Daily Volume	LOS E Capacity	V/C	LOS		Daily Volume	LOS E Capacity	V/C	LOS	V/C Inc.	Impact ?
Douglas Drive												
1) N. River Rd to Rainier Way	4 Lane Major	42,432	40,000	1.061	F	1,568	44,000	40,000	1.100	F	0.039	Yes
2) Rainier Way to Pala Rd	4 Lane Major	42,432	40,000	1.061	F	1,568	44,000	40,000	1.100	F	0.039	Yes
3) Pala Rd to El Camino Real	4 Lane Major	42,432	40,000	1.061	F	1,568	44,000	40,000	1.100	F	0.039	Yes
4) El Camino Real to Mission Ave	4 Lane Major	25,072	30,000	0.836	E	928	26,000	30,000	0.867	E	0.031	Yes
5) Mission Ave to SR-76	4 Lane Major	26,056	40,000	0.651	C	544	26,600	40,000	0.665	C	0.014	No
North River Road												
6) Douglas Dr to Avenida Descanso	4 Lane Major	26,700	40,000	0.668	C	1,600	28,300	40,000	0.708	C	0.040	No
7) Avenida Descanso to Riverview W	4 Lane Major	26,700	40,000	0.668	C	1,600	28,300	40,000	0.708	C	0.040	No
8) Riverview Way to Calle Montecito	4 Lane Major	26,700	40,000	0.668	C	1,600	28,300	40,000	0.708	C	0.040	No
9) Calle Montecito to Redondo Dr	4 Lane Major	26,700	40,000	0.668	C	1,600	28,300	40,000	0.708	C	0.040	No
10) Redondo Dr to College Blvd	4 Lane Major	25,560	40,000	0.639	C	1,440	27,000	40,000	0.675	C	0.036	No
11) College Blvd to Vandergrift Blvd	5 Lane Major	41,680	45,000	0.926	E	320	42,000	45,000	0.933	E	0.007	No
College Blvd												
12) N. River Rd to Buchanon Park	4 Lane Major	45,880	40,000	1.147	F	1,120	47,000	40,000	1.175	F	0.028	Yes
13) Buchanon Park to Adams St	4 Lane Major	45,880	40,000	1.147	F	1,120	47,000	40,000	1.175	F	0.028	Yes
14) Adams St to Via Cupeno	6 Lane Major	45,912	50,000	0.918	E	1,088	47,000	50,000	0.940	E	0.022	Yes
15) Via Cupeno to SR-76	6 Lane Major	46,008	50,000	0.920	E	992	47,000	50,000	0.940	E	0.020	No
SR-76												
16) Foussat Rd to Douglas Dr	4 Lane Expy.	62,488	60,000	1.041	F	512	63,000	60,000	1.050	F	0.009	No
17) Douglas Dr to Rancho Del Oro	4 Lane Expy.	55,968	60,000	0.933	E	32	56,000	60,000	0.933	E	0.001	No
18) Frazee Rd to College Blvd	4 Lane Expy.	54,168	60,000	0.903	D	32	54,200	60,000	0.903	D	0.001	No
19) College Blvd to N. Santa Fe	4 Lane Expy.	62,712	60,000	1.045	F	288	63,000	60,000	1.050	F	0.005	No

Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio. Impact if project traffic exceed City's threshold. Bold LOS indicates unacceptable LOS. Expy: Expressway.

Under Horizon Year 2035 Alternative plus Project conditions, the following study locations were calculated to operate at LOS E/F AND the project has a transportation impact:

- 1) Intersection #2: Douglas Dr/Mission Ave
- 2) Intersection #9: N. River Rd/Riverview Way
- 3) Intersection #12: N. River Rd/College Blvd
- 4) Intersection #16: College Blvd/SR-76
- 5) Segment #1: Douglas Dr from N. River Rd to Rainier Wy
- 6) Segment #2: Douglas Dr from Rainier Wy to Pala Rd
- 7) Segment #3: Douglas Dr from Pala Rd to El Camino Real
- 8) Segment #4: Douglas Dr from El Camino Real to Mission Ave
- 9) Segment #12: College Blvd from N. River Rd to Buchanon Park
- 10) Segment #13: College Blvd from Buchanon Park to Adams St
- 11) Segment #14: College Blvd from Adams St to Via Cupeno

The following roadways elements were calculated to operate at LOS E/F without a transportation impact because the project traffic did not exceed the transportation impact thresholds:

- 12) Intersection #1: Douglas Dr/SR-76
- 13) Intersection #17: N. River Rd/Vandergrift Blvd
- 14) Segment #11: N. River Rd from College Blvd to Vandergrift Blvd
- 15) Segment #15: College Blvd from Via Cupeno to SR-76 (LOS E)
- 16) Segment #16: SR-76 from Foussat Rd to Douglas Dr (LOS F)
- 17) Segment #17: SR-76 from Douglas Dr to Rancho Del Oro (LOS E)
- 18) Segment #19: SR-76 from College Blvd to N. Santa Fe (LOS F)

3.16 Summary of Transportation Impacts and Recommended Improvements

Based on the City of Oceanside traffic significance criteria, the project is calculated to have transportation impacts under Existing, Near Term, Horizon Year MTP, and Horizon Year Alt conditions. The transportation impacts by location and scenario are summarized in **Table 25**.

TABLE 25: PROJECT TRANSPORTATION IMPACTS WITH 400 UNITS BY SCENARIO

	Existing + Project	Near Term + Project	Horizon Year 2035 MTP + Project	Horizon Year 2035 Alt + Project
Intersections				
T-1 (Int #2): Douglas Dr/ Mission Ave	No Impact	No Impact	Transportation Impact*	Transportation Impact*
T-2 (Int #9): N. River/ Riverview	Transportation Impact**	Transportation Impact**	Transportation Impact**	Transportation Impact**
T-3 (Int #12): N. River Rd/ College Blvd	Transportation Impact*	Transportation Impact*	Transportation Impact*	Transportation Impact*
T-4 (Int #16): SR-76/ College Blvd	Transportation Impact*	Transportation Impact*	Transportation Impact*	Transportation Impact*
Segments				
T-5 (Seg #1): Douglas (N. River to Rainier)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-6 (Seg #2): Douglas (Rainier to Pala)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-7 (Seg #3): Douglas (Pala to El Camino Real)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-8 (Seg #4): Douglas (El Camino Real to Mission)	No Impact	Transportation Impact*	No Impact	Transportation Impact*
T-9 (Seg #12): College (N. River to Buchanon)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-10 (Seg #13): College (Buchanon to Adams)	Transportation Impact*	Transportation Impact*	No Impact	Transportation Impact*
T-11 (Seg #14): College (Adams to Via Cupeno)	No Impact	No Impact	No Impact	Transportation Impact*
Total Transportation Impacts:	8	9	4	11

Notes: MTP: Master Transportation Plan. Alt: Alternative. Int: Intersection. Transportation impact if project traffic is calculated to exceed the allowable thresholds under LOS E or F conditions. *The timing and final mitigation will be determined when a final site plan has been submitted along with a new LTS. **Project owner/permittee to install traffic signal with fiber communitation.

The impacted locations are described in detail below; however, the timing and final mitigation will be determined when a final site plan has been submitted.

3.16.1 T-1: Intersection #2 Douglas Drive/Mission Avenue

The intersection of Douglas Drive/Mission Avenue is calculated to have a transportation impact because the project traffic degrades the operations by more than 2.0 seconds of delay under LOS E conditions. This transportation impact is calculated to occur under the Horizon Year 2035 Alt Plus Project scenario.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This intersection has a constrained right-of-way as shown in **Figure 23**; therefore, the future mitigation will be required to work with these constraints.

Figure 23: Intersection #2 Douglas Dr/Mission Ave Constrained ROW



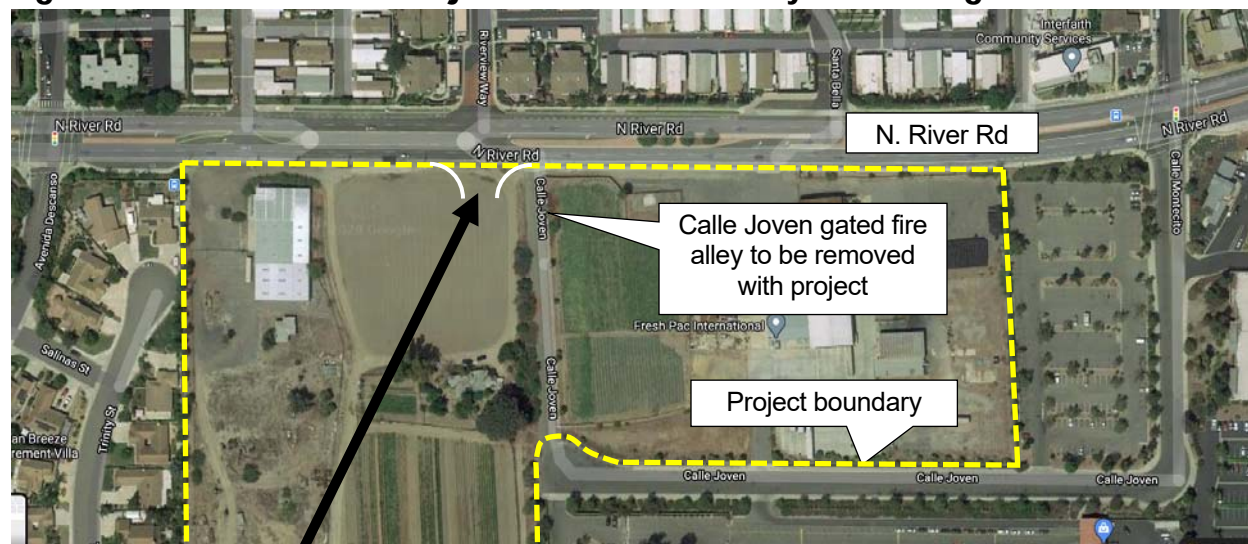
Source: Google Maps

3.16.2 T-2: Intersection #9 N. River Road/Riverview Way/Project Access

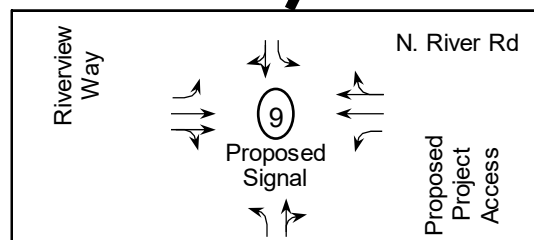
The intersection of N. River Road/Riverview Way/Project Access is calculated to have a transportation impact because the project traffic degrades the northbound approach LOS to less than LOS D under each plus project scenario. The recommended improvement is to signalize with fiber

communication prior to occupancy of the 1st unit based on Warrant 1B “Interruption of Continuous Traffic” in Table 4C-101 (Average Traffic Estimate Form). The owner/permittee will be required to construct a complete and operating traffic signal along with fiber communication at the future project entrance that will align with Riverview Way and construct new sidewalks along the project frontage on N. River Rd to match existing sidewalks. The proposed intersection configuration is shown in **Figure 24**; however, the final design will be determined when the site plan is completed.

Figure 24: Intersection #9 Project Access Preliminary Lane Configuration



Source: Google Maps



The proposed improvement results in acceptable LOS with the higher Year 2035 Alternative + Project volume set. The existing westbound left turn storage bay has sufficient storage for the forecasted demand. The LOS and queuing are shown in **Table 26** with the warrant worksheet and LOS worksheets included in **Appendix T**.

TABLE 26: T-1 PROJECT ACCESS AT RIVERVIEW WAY INTERSECTION #9 LOS AND QUEUING

Intersection	Period	Delay ¹	LOS ²	WB LT Storage	WB LT 95th %ile Queue	
		Year 2035 Alt + Project			Year 2035 Alt + Project	
N. River Rd/ Project Access/	AM	13.0	B	135 Feet	35 Feet	
Riverview Way	PM	15.9	B	135 Feet	87 Feet	

Notes: 1) Delay - HCM Average Control Delay in seconds. 2) LOS: Level of Service.

3.16.3 T-3: Intersection #12 N. River Road/College Boulevard

The intersection of N. River Road/College Blvd is calculated to have a transportation impact because the project traffic degrades the operations by more than 2.0 seconds of delay at LOS E or F. This transportation impact is calculated to occur under each plus project scenario.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This intersection has a constrained right-of-way as shown in **Figure 25**; therefore, the future mitigation will be required to work with these constraints.

Figure 25: Intersection #12 N. River Rd/College Blvd Constrained ROW



Source: Google Maps

3.16.4 T-4: Intersection #16 SR-76/College Boulevard

The intersection of SR-76/College Boulevard is calculated to have a transportation impact because the project traffic degrades the operations by more than 2.0 seconds of delay under LOS F conditions. This transportation impact is calculated to occur under each plus project scenario.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This intersection has a

constrained right-of-way as shown in **Figure 26**; therefore, the future mitigation will be required to work with these constraints.

Figure 26: Intersection #16 SR-76/College Blvd Constrained ROW



Source: Google Maps

3.16.5 T-5: Segment #1 Douglas Drive (N. River Rd to Rainier Way)

The segment of Douglas Drive from N. River Road to Rainier Way is calculated to have a transportation impact because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E under Existing plus Project conditions, Near Term plus Project conditions, and Horizon Year 2035 Alternative plus Project conditions. A transportation impact is not calculated under the Horizon Year 2035 MTP scenario because the MTP scenario and traffic model included the City's proposed 6 lane segment capacity.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment has a constrained right-of-way as shown in **Figure 27**; therefore, the future mitigation will be required to work with these constraints. Also, widening for additional travel lanes could further constrain the existing unbuffered Class II bike lane and reduce the parkway.

Figure 27: Segment #1 Douglas Dr (N. River Rd to Rainier Way) ROW Constraints



Source: Google Maps

3.16.6 T-6: Segment #2 Douglas Drive (Rainier Way to Pala Road)

The segment of Douglas Drive from Rainier Way to Pala Road is calculated to have a transportation impact because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E/F under Existing plus Project, Near Term plus Project and Horizon Year 2035 Alternative plus Project conditions. A transportation impact is not calculated under the Horizon Year 2035 MTP scenario because the MTP scenario and traffic model included the City's 6 lane segment capacity.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment is constrained by a 4-lane bridge as shown in **Figure 28**; therefore, the future mitigation will be required to work with these constraints.

Figure 28: Segment #2 Douglas Dr (Rainier Way to Pala Rd) Bridge Constraints



Source: Google Maps

3.16.7 T-7: Segment #3 Douglas Drive (Pala Road to El Camino Real)

The segment of Douglas Drive from Pala Road to El Camion Real is calculated to have a transportation impact because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E/F Existing plus Project, Near Term plus Project and Horizon Year 2035 Alternative plus Project conditions. A transportation impact is not calculated under the Horizon Year 2035 MTP scenario because the MTP scenario and traffic model included the City's 6 lane segment capacity.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment has areas of constrained right-of-way as shown in **Figure 29**; therefore, the future mitigation will be required to work with these constraints.

Figure 29: Segment #3 Douglas Dr (Pala Rd to El Camino Real) ROW Constraints



Source: Google Maps

3.16.8 T-8: Segment #4 Douglas Drive (El Camino Real to Mission Avenue)

The segment of Douglas Drive from El Camion Real to Mission Avenue is calculated to have a transportation impact under the Near Term plus Project conditions because the project traffic degrades the LOS from D to E. The project is calculated to have a transportation impact under Horizon Year 2035 Alternative plus Project conditions because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E. A transportation impact is not calculated under existing plus project and Horizon Year 2035 MTP plus project conditions.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment has a constrained right-of-way as shown in **Figure 30**; therefore, the future mitigation will be required to work with these constraints.

Figure 30: Segment #4 Douglas Dr (El Camino Real to Mission Ave) ROW Constraints



Source: Google Maps

3.16.9 T-9: Segment #12 College Boulevard (N. River Road to Buchanon Park)

The segment of College Boulevard from N. River Road to Buchanon Park is calculated to have a transportation impact because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E under Existing plus Project conditions, Near Term plus Project conditions, and Horizon Year 2035 Alternative plus Project conditions. A transportation impact is not calculated under the Horizon Year 2035 MTP scenario because the MTP scenario and traffic model included the City's 6 lane segment capacity.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment is constrained by a 4-lane bridge as shown in **Figure 31**; therefore, the future mitigation will be required to work with these constraints.

Figure 31: Segment #12 College Blvd (N. River Rd to Buchanon) Bridge Constraints



Source: Google Maps

3.16.10 T-10: Segment #13 College Boulevard (Buchanon Park to Adams Street)

The segment of College Boulevard from Buchanon Park to Adams Street is calculated to have a transportation impact because the project traffic degrades the LOS from D to E under Existing plus Project conditions. The project is calculated to have a transportation impact under Near Term plus Project and Horizon Year 2035 Alternative plus Project conditions because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E/F. A transportation impact was not calculated under the Horizon Year 2035 MTP scenario because the MTP scenario and traffic model included the City's 6 lane segment capacity.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment is currently transitioning from 6 lanes (south of Adams St) to 4 lanes to match the 4 lane bridge over San Luis Rey River as shown in **Figure 32**; therefore, the future mitigation will be required to work with these constraints.

Figure 32: Segment #13 College Blvd (Buchanon to Adams) Transition Constraint



Source: Google Maps

3.16.11 T-11: Segment #14 College Boulevard (Adams Street to Via Cupeno)

The segment of College Boulevard from Adams Street to Via Cupeno is calculated to have a transportation impact because the project traffic degrades the volume to capacity ratio by more than 0.02 at LOS E under Horizon Year 2035 Alternative plus Project conditions. A transportation impact is not calculated under Existing plus Project, Near Term plus Project, nor Horizon Year 2035 MTP plus Project conditions.

According to the City's traffic guidelines, a roadway improvement to address a project's transportation impact should be considered on a case-by-case basis. This segment is built-out at 6 lanes as shown in **Figure 33**; therefore, the future mitigation will be required to work with these constraints.

Figure 33: Segment #14 College Blvd (Adams to Via Cupeno) Built-Out at 6 Lanes



Source: Google Maps

###

Appendix A

Excerpts from City of Oceanside Bicycle Master Plan 2017 Update

City of Oceanside Bicycle Master Plan

2017 Update 2008

**League of
American
Bicyclists**

*Bicycle
Friendly
Community*



2017 Bicycle Master Plan Update Prepared by
STC Traffic, Inc.



2008 Bicycle Master Plan Prepared by
KTU+A Planning + Landscape Architecture

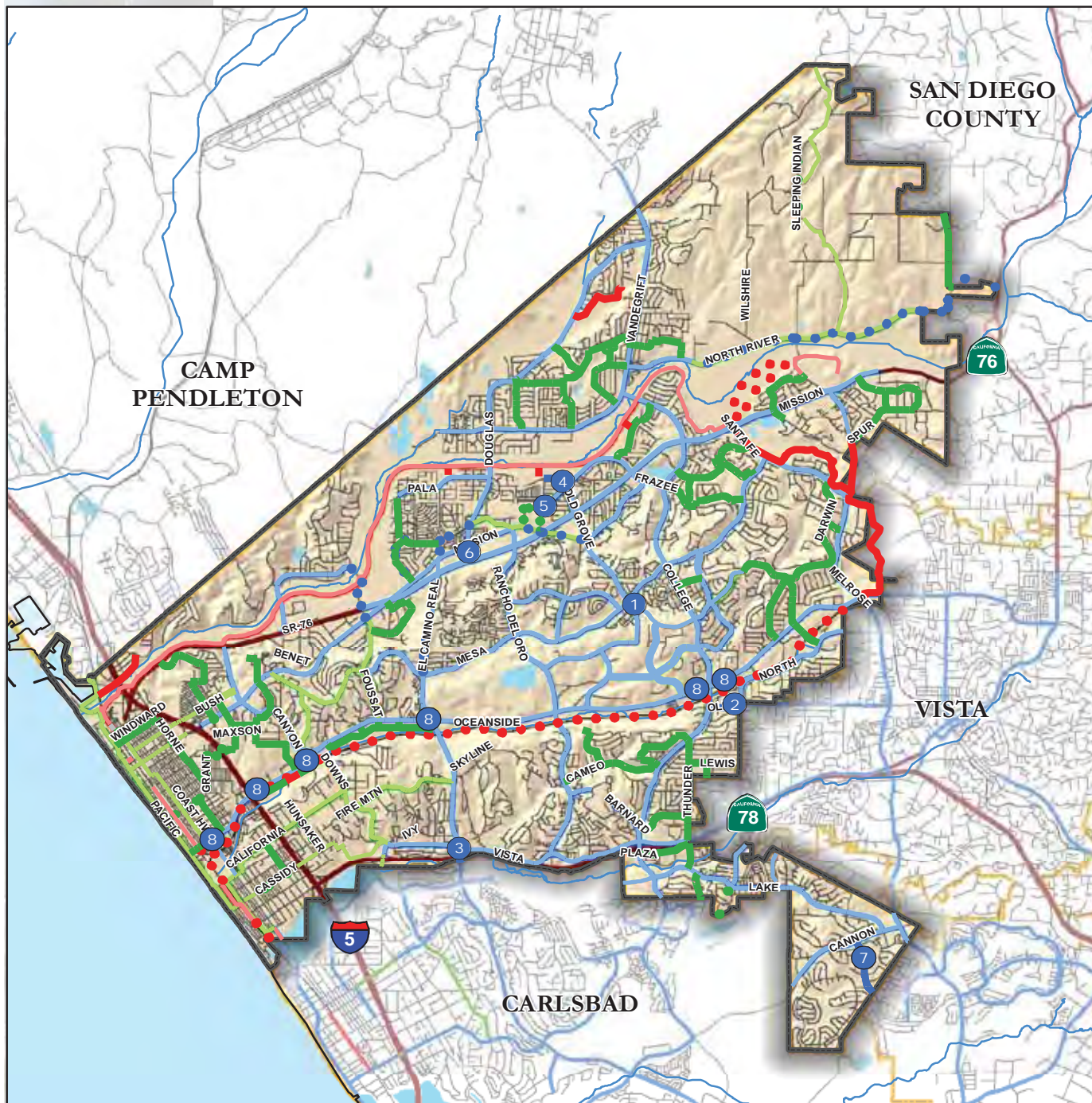


In association with
IBI Group Transportation Planning





for the
City of Oceanside, California
Tierra Norte LTS Appendix





Existing Bicycle Facilities **Planned Bicycle Facilities**

-  Class 1: Bike Path
-  Class 2: Bike Lane
-  Class 3: Bike Route

Recommended Facilities




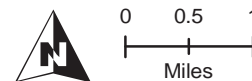
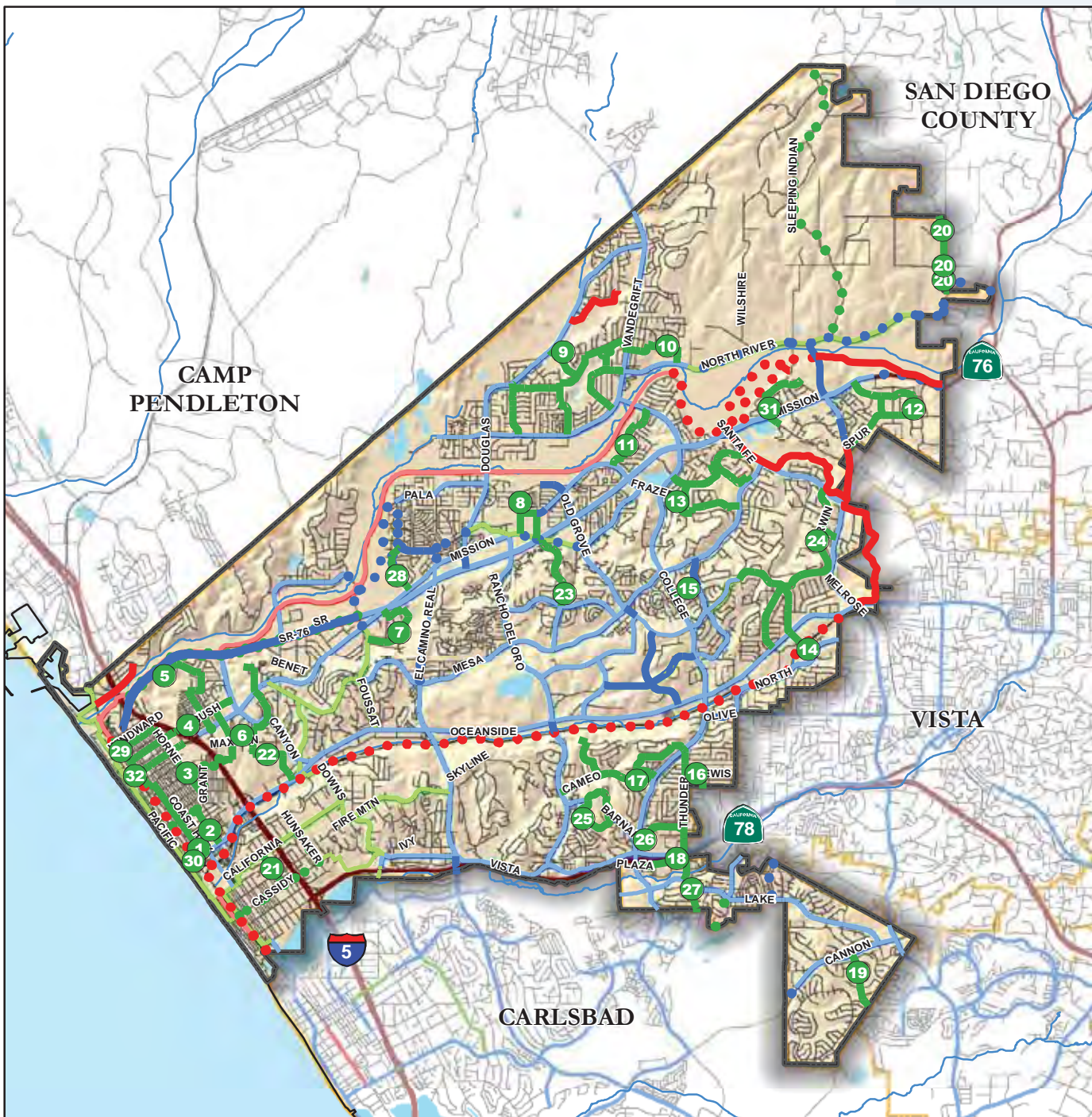
-  Class 1: Bike Path
-  Class 2: Bike Lane
-  Class 3: Bike Route

Figure 4.2 A: Class 2 Bike Lane Recommended Projects

(2017 Update)

Data Source: City of Oceanside





Existing Bicycle Facilities **Planned Bicycle Facilities**

- Class 1: Bike Path Class 1: Bike Path
- Class 2: Bike Lane Class 2: Bike Lane
- Class 3: Bike Route Class 3: Bike Route

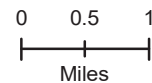
Recommended Facilities

- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

Data Source: City of Oceanside
General Plan (1995) and KTU+A (2008)

Figure 4.3 Class 3 Bike Route Recommended Projects

Superceded 2017



Appendix B

Bus Schedules

EFFECTIVE
July 12, 2020
VÁLIDA
12 de julio, 2020

**NORTH COUNTY
TRANSIT DISTRICT**



Rider's GUIDE

Your complete guide to public transit in North County

**North County Transit District
Guía de Pasajeros**

Su guía completa del transporte público de North County



303

Oceanside to Vista via Town Center North

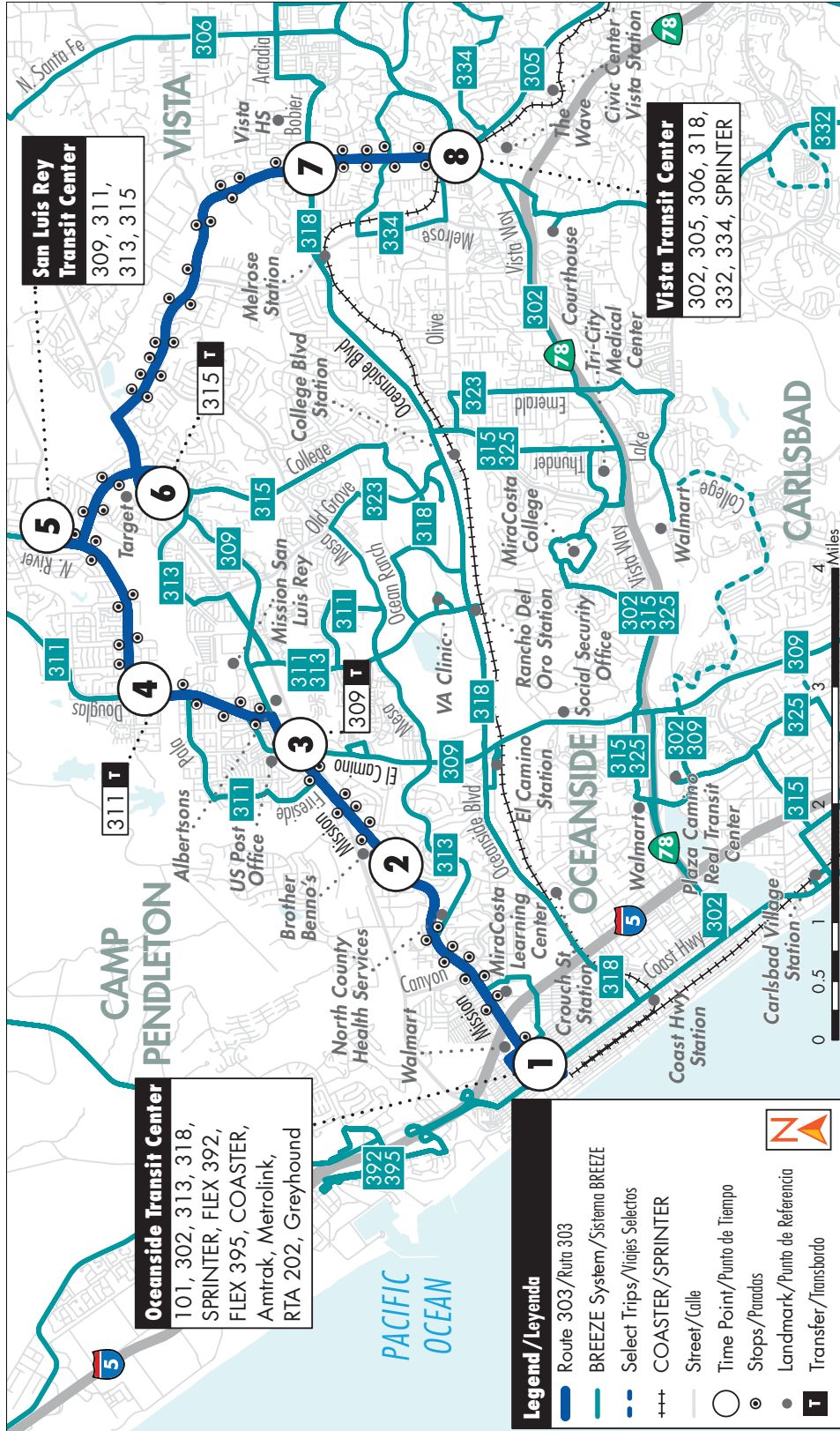
Oceanside a Vista via Town Center North

M-F • SA • SU
L-V • SÁ • DO

Destinations/Destinos

- North County Health Services
- MiraCosta College Learning Center
- Town Center North Shopping Center
- Vista High School

- Antique Gas & Steam Engine Museum
- Jefferson Middle School
- Oceanside High School
- Vista Community Clinic



See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Monday - Friday Eastbound to Vista <i>Lunes a Viernes • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
4:05	4:12	4:16	4:21	4:28	4:34	4:43	4:51 ^a
4:35	4:42	4:46	4:51	4:58	5:04	5:13	5:21
5:01	5:09	5:13	5:18	5:26	5:33	5:44	5:52
5:15	5:23	5:27	5:32	5:40	5:47	5:58	6:06
5:31	5:39	5:43	5:48	5:56	6:03	6:14	6:22
5:43	5:52	5:56	6:01	6:09	6:16	6:27	6:36
5:56	6:05	6:09	6:14	6:22	6:31	6:42	6:51
6:09	6:18	6:22	6:28	6:36	6:45	6:57	7:06
6:24	6:33	6:37	6:43	6:51	7:00	7:12	7:21
6:31	6:40	6:46	6:52	7:01	7:10	7:25	7:36
6:46	6:55	7:01	7:07	7:16	7:25	7:40	7:51
7:01	7:12	7:18	7:24	7:33	7:42	7:57	8:08
7:14	7:25	7:31	7:37	7:46	7:55	8:10	8:21
7:34	7:45	7:51	7:57	8:06	8:15	8:28	8:36
7:49	8:00	8:06	8:12	8:21	8:30	8:43	8:51
8:05	8:16	8:22	8:28	8:37	8:46	8:58	9:06
8:20	8:31	8:37	8:43	8:52	9:01	9:13	9:21
8:35	8:46	8:52	8:58	9:07	9:16	9:28	9:36
8:50	9:01	9:07	9:13	9:22	9:31	9:43	9:51
9:05	9:16	9:22	9:28	9:37	9:46	9:58	10:06
9:20	9:31	9:37	9:43	9:52	10:01	10:13	10:21
9:35	9:46	9:52	9:58	10:07	10:16	10:28	10:36
9:50	10:01	10:07	10:13	10:22	10:31	10:43	10:51
10:04	10:15	10:21	10:27	10:36	10:46	10:58	11:06
10:19	10:30	10:36	10:42	10:51	11:01	11:13	11:21
10:34	10:45	10:51	10:57	11:06	11:16	11:28	11:36
10:49	11:00	11:06	11:12	11:21	11:31	11:43	11:51
11:03	11:15	11:21	11:27	11:36	11:46	11:58	12:06p
11:17	11:29	11:35	11:42	11:51	12:01	12:13	12:21
11:31	11:43	11:50	11:57	12:07	12:17	12:29	12:37
11:46	11:58	12:05	12:12	12:22	12:32	12:44	12:52
12:01	12:13	12:20	12:27	12:37	12:47	12:59	1:07
12:16	12:28	12:35	12:42	12:52	1:02	1:14	1:22
12:31	12:43	12:50	12:57	1:07	1:17	1:29	1:37
12:46	12:58	1:05	1:12	1:22	1:32	1:44	1:52
1:01	1:13	1:20	1:27	1:37	1:47	1:59	2:07
1:14	1:26	1:33	1:41	1:51	2:01	2:13	2:22

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Monday - Friday Eastbound to Vista <i>Lunes a Viernes • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
1:28	1:40	1:47	1:55	2:05	2:15	2:27	2:36
1:39	1:52	1:59	2:07	2:17	2:27	2:40	2:51
1:51	2:04	2:11	2:19	2:29	2:40	2:55	3:06
*2:02	*2:16	*2:23	*2:32	*2:42	*2:53	*3:08	*3:19
2:05	2:19	2:26	2:35	2:45	2:56	3:11	3:22
2:19	2:33	2:40	2:49	2:59	3:10	3:25	3:36
2:32	2:46	2:53	3:02	3:12	3:24	3:39	3:50
2:34	2:48	2:55	3:04	3:14	3:26	3:41	3:52
2:47	3:01	3:08	3:17	3:27	3:40	3:55	4:06
3:02	3:16	3:23	3:32	3:42	3:55	4:10	4:21
3:17	3:31	3:38	3:47	3:57	4:10	4:25	4:36
3:31	3:46	3:53	4:02	4:12	4:25	4:40	4:51
3:46	4:01	4:08	4:17	4:27	4:40	4:55	5:06
4:04	4:17	4:24	4:33	4:43	4:56	5:10	5:19
4:21	4:34	4:41	4:50	5:00	5:13	5:27	5:36
4:34	4:47	4:54	5:03	5:13	5:26	5:40	5:49
4:51	5:04	5:11	5:20	5:30	5:43	5:57	6:06
5:08	5:21	5:28	5:37	5:47	5:59	6:12	6:21
5:23	5:36	5:43	5:52	6:02	6:14	6:27	6:36
5:41	5:54	6:01	6:10	6:20	6:31	6:42	6:51
6:14	6:27	6:34	6:41	6:51	7:02	7:13	7:21
6:47	6:59	7:06	7:13	7:22	7:32	7:43	7:51
7:20	7:31	7:37	7:44	7:53	8:02	8:13	8:21
7:52	8:03	8:09	8:15	8:24	8:33	8:44	8:51
8:32	8:43	8:49	8:55	9:03	9:10	–	–
9:01	9:11	9:16	9:22	9:29	9:36	9:46	9:52
9:35	9:45	9:50	9:55	10:02	10:09	–	–
10:02	10:12	10:17	10:22	10:29	10:36	10:45	10:51
10:39	10:47	10:50	10:55	11:01	11:07	11:15	11:21
11:10	11:18	11:21	11:26	11:32	11:38	11:46	11:52
11:36	11:44	11:47	11:52	11:58	12:04a	–	–

* Operates Wednesdays only.
Opera solamente los Miércoles.

Trip operates when Oceanside High School is open. Trip operates on school days in regular school year (not during summer school).
Los viajes operan cuando Oceanside High School está abierto. Puede haber un servicio adicional durante este horario para acomodar a una alta demanda de pasajeros.

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Monday - Friday Westbound to Oceanside <i>Lunes a Viernes • Dirección hacia el oeste a Oceanside</i>							
Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
–	–	4:05	4:13	4:21	4:26	4:33	4:44 ^a
5:06	5:10	5:21	5:29	5:37	5:42	5:49	6:00
5:36	5:40	5:51	5:59	6:07	6:14	6:21	6:32
5:51	5:55	6:06	6:14	6:22	6:29	6:36	6:47
–	–	6:16	6:25	6:33	6:40	6:47	7:00
6:06	6:11	6:23	6:32	6:40	6:47	6:54	7:07
6:21	6:26	6:38	6:47	6:55	7:02	7:09	7:22
–	–	6:38	6:47	6:55	7:02	7:10	7:25
6:36	6:41	6:54	7:03	7:11	7:18	7:26	7:41
6:51	6:56	7:09	7:18	7:26	7:33	7:41	7:56
7:06	7:12	7:29	7:38	7:46	7:53	8:01	8:16
7:18	7:24	7:41	7:50	7:58	8:05	8:13	8:28
7:36	7:42	7:59	8:08	8:16	8:23	8:31	8:46
7:46	7:52	8:09	8:18	8:26	8:33	8:41	8:56
8:06	8:11	8:24	8:32	8:40	8:47	8:55	9:09
8:21	8:26	8:39	8:46	8:54	9:01	9:08	9:22
8:36	8:41	8:54	9:01	9:09	9:15	9:22	9:36
8:51	8:56	9:09	9:16	9:24	9:30	9:37	9:51
9:06	9:11	9:24	9:31	9:39	9:45	9:52	10:06
9:21	9:26	9:39	9:46	9:54	10:00	10:07	10:21
9:36	9:41	9:54	10:01	10:09	10:15	10:22	10:36
9:51	9:56	10:09	10:16	10:24	10:30	10:37	10:51
10:06	10:11	10:24	10:33	10:41	10:47	10:54	11:08
10:23	10:28	10:41	10:50	10:58	11:04	11:11	11:25
10:36	10:41	10:54	11:03	11:11	11:17	11:24	11:38
10:53	10:58	11:11	11:20	11:28	11:34	11:41	11:55
11:06	11:11	11:24	11:33	11:41	11:47	11:54	12:09p
11:22	11:27	11:40	11:49	11:57	12:03	12:10	12:25
11:36	11:41	11:54	12:03	12:11	12:17	12:24	12:39
11:52	11:57	12:10	12:19	12:27	12:33	12:40	12:55
12:06	12:11	12:24	12:33	12:42	12:48	12:55	1:10
12:21	12:26	12:39	12:48	12:57	1:03	1:10	1:25
12:36	12:41	12:54	1:03	1:12	1:18	1:25	1:40
12:51	12:56	1:09	1:18	1:27	1:33	1:40	1:55

Trip operates on school days in regular school year (not during summer school).
 El viaje opera los días escolares durante el año regular de clases (no durante el verano).

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Monday - Friday Westbound to Oceanside <i>Lunes a Viernes • Dirección hacia el oeste a Oceanside</i>							
Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
1:06	1:11	1:24	1:33	1:42	1:48	1:55	2:10
1:21	1:26	1:39	1:48	1:57	2:03	2:10	2:25
1:36	1:41	1:54	2:03	2:12	2:18	2:25	2:40
1:51	1:56	2:09	2:18	2:27	2:33	2:40	2:55
2:06	2:11	2:25	2:34	2:43	2:50	2:57	3:12
2:17	2:22	2:39	2:49	2:58	3:05	3:12	3:27
2:36	2:43	3:01	3:11	3:20	3:28	3:36	3:51
2:51	2:57	3:15	3:25	3:34	3:41	3:49	4:04
3:06	3:12	3:30	3:40	3:49	3:56	4:04	4:19
3:15	3:21	3:39	3:49	3:58	4:05	4:13	4:28
3:36	3:42	4:00	4:10	4:19	4:26	4:33	4:48
3:46	3:52	4:10	4:20	4:29	4:36	4:43	4:58
4:06	4:12	4:30	4:40	4:49	4:56	5:03	5:18
4:17	4:23	4:41	4:51	5:00	5:07	5:13	5:28
4:36	4:42	5:00	5:10	5:19	5:26	5:32	5:47
4:47	4:53	5:11	5:21	5:30	5:37	5:43	5:58
5:06	5:12	5:30	5:40	5:49	5:55	6:01	6:15
5:19	5:25	5:43	5:53	6:02	6:08	6:14	6:28
5:36	5:42	5:59	6:09	6:18	6:24	6:30	6:43
5:51	5:57	6:14	6:24	6:33	6:39	6:45	6:58
6:06	6:12	6:27	6:35	6:43	6:49	6:55	7:08
6:36	6:42	6:56	7:04	7:12	7:18	7:24	7:37
7:06	7:12	7:26	7:33	7:41	7:46	7:52	8:05
7:36	7:42	7:56	8:03	8:11	8:16	8:22	8:35
8:06	8:12	8:24	8:31	8:39	8:44	8:49	9:00
8:36	8:42	8:54	9:01	9:09	9:14	9:19	9:30
9:06	9:11	9:23	9:30	9:36	9:41	9:46	9:57
10:06	10:10	10:21	10:27	10:33	10:38	10:43	10:53

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Saturday & Sunday Eastbound to Vista <i>Sábado y Domingo • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
4:33	4:40	4:44	4:47	4:53	4:59 _a	–	–
5:38	5:46	5:50	5:55	6:01	6:08	6:18	6:25
6:04	6:13	6:17	6:22	6:28	6:35	6:45	6:52
6:33	6:42	6:46	6:51	6:59	7:06	7:16	7:23
6:57	7:06	7:10	7:16	7:24	7:31	7:42	7:50
7:27	7:37	7:41	7:48	7:56	8:04	8:15	8:23
7:52	8:02	8:06	8:13	8:21	8:29	8:40	8:48
8:12	8:22	8:26	8:33	8:41	8:49	9:00	9:08
8:29	8:40	8:46	8:53	9:01	9:09	9:20	9:28
8:49	9:00	9:06	9:13	9:21	9:29	9:40	9:48
9:08	9:19	9:25	9:32	9:40	9:49	10:00	10:08
9:33	9:44	9:50	9:57	10:05	10:14	10:25	10:33
9:48	9:59	10:05	10:12	10:20	10:29	10:40	10:48
10:01	10:12	10:19	10:27	10:36	10:46	10:57	11:05
10:18	10:29	10:36	10:44	10:53	11:03	11:14	11:22
10:42	10:53	11:01	11:09	11:18	11:28	11:39	11:48
10:58	11:09	11:17	11:25	11:36	11:46	11:57	12:06p
11:13	11:24	11:32	11:40	11:51	12:02	12:13	12:22
11:39	11:50	11:58	12:06	12:17	12:28	12:39	12:48
12:00	12:11	12:19	12:27	12:38	12:49	1:00	1:09
12:13	12:24	12:32	12:40	12:51	1:02	1:13	1:22
12:36	12:48	12:57	1:05	1:16	1:27	1:39	1:48
12:53	1:05	1:14	1:22	1:33	1:44	1:56	2:05
1:10	1:22	1:31	1:39	1:50	2:01	2:13	2:22
1:36	1:48	1:57	2:05	2:16	2:27	2:39	2:48
1:53	2:05	2:14	2:22	2:33	2:44	2:56	3:05
2:11	2:23	2:31	2:39	2:50	3:01	3:13	3:22
2:40	2:52	3:00	3:08	3:19	3:30	3:42	3:51
2:54	3:06	3:14	3:22	3:33	3:44	3:56	4:05
3:11	3:23	3:31	3:39	3:50	4:01	4:13	4:22
3:40	3:52	4:00	4:08	4:19	4:30	4:42	4:51
4:12	4:24	4:32	4:40	4:51	5:01	5:12	5:21
4:43	4:55	5:02	5:10	5:21	5:31	5:42	5:51
5:14	5:26	5:33	5:41	5:52	6:02	6:13	6:21
5:44	5:56	6:03	6:11	6:22	6:32	6:43	6:51
6:15	6:27	6:34	6:41	6:52	7:02	7:13	7:21
6:46	6:58	7:04	7:11	7:22	7:32	7:43	7:51

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Saturday & Sunday Eastbound to Vista <i>Sábado y Domingo • Dirección hacia el este a Vista</i>							
Oceanside Transit Center	Mission Ave. & Airport Rd.	Mission Ave. & El Camino Real	Douglas Dr. & N. River Rd.	San Luis Rey Transit Center	Town Center North	N. Santa Fe & Bobier Dr.	Vista Transit Center
1	2	3	4	5	6	7	8
7:19	7:30	7:35	7:42	7:53	8:02	–	–
7:50	8:01	8:06	8:13	8:24	8:33	8:44	8:51
8:32	8:43	8:48	8:55	9:03	9:11	–	–
8:58	9:08	9:13	9:19	9:26	9:34	9:44	9:51
9:31	9:40	9:45	9:50	9:57	10:04	–	–
10:01	10:10	10:15	10:20	10:27	10:34	10:44	10:51
10:31	10:39	10:43	10:48	10:55	11:01	–	–
11:08	11:15	11:19	11:24	11:31	11:37	–	–
11:31	11:38	11:42	11:47	11:54	12:00 _a	–	–

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

Saturday & Sunday Westbound to Oceanside <i>Sábado y Domingo • Dirección hacia el oeste a Oceanside</i>							
Vista Transit Center	N. Santa Fe & Bobier Dr.	Town Center North	San Luis Rey Transit Center	Douglas Dr. & N. River Rd.	Mission Ave. & El Camino Real	Mission Ave. & Airport Rd.	Oceanside Transit Center
8	7	6	5	4	3	2	1
6:06	6:10	6:21	6:29	6:37	6:42	6:49	7:00 _a
6:36	6:40	6:52	7:00	7:08	7:13	7:20	7:31
7:06	7:11	7:23	7:31	7:39	7:44	7:51	8:04
7:36	7:41	7:53	8:01	8:09	8:14	8:21	8:34
8:06	8:11	8:23	8:31	8:39	8:45	8:52	9:05
8:25	8:30	8:42	8:50	8:58	9:04	9:11	9:24
8:45	8:50	9:02	9:10	9:18	9:24	9:31	9:44
9:05	9:10	9:23	9:31	9:39	9:46	9:53	10:07
9:23	9:28	9:41	9:49	9:57	10:04	10:11	10:25
9:45	9:50	10:03	10:11	10:19	10:26	10:33	10:47
10:06	10:11	10:25	10:33	10:42	10:50	10:57	11:11
10:22	10:27	10:41	10:49	10:58	11:06	11:13	11:27
10:38	10:43	10:57	11:05	11:14	11:22	11:29	11:43
11:05	11:10	11:24	11:32	11:41	11:49	11:56	12:10_p
11:19	11:24	11:38	11:46	11:55	12:03	12:10	12:24
11:38	11:43	11:57	12:05	12:14	12:22	12:29	12:43
12:05	12:10	12:25	12:33	12:42	12:50	12:57	1:11
12:19	12:24	12:39	12:47	12:56	1:04	1:11	1:25
12:38	12:43	12:58	1:06	1:15	1:23	1:30	1:44
1:05	1:10	1:25	1:33	1:41	1:49	1:56	2:10
1:20	1:25	1:40	1:48	1:56	2:04	2:11	2:25
1:38	1:43	1:58	2:06	2:14	2:22	2:29	2:43
2:05	2:10	2:25	2:33	2:41	2:49	2:56	3:10
2:21	2:26	2:41	2:49	2:57	3:05	3:12	3:26
2:38	2:43	2:58	3:06	3:14	3:22	3:29	3:43
3:05	3:10	3:25	3:33	3:41	3:49	3:56	4:10
3:21	3:26	3:41	3:49	3:57	4:05	4:12	4:26
3:38	3:43	3:58	4:06	4:14	4:22	4:29	4:43
4:06	4:11	4:26	4:34	4:42	4:50	4:57	5:11
4:36	4:41	4:56	5:04	5:12	5:20	5:27	5:41
5:06	5:12	5:27	5:35	5:43	5:50	5:57	6:11
5:36	5:42	5:57	6:05	6:13	6:20	6:27	6:41
6:06	6:11	6:26	6:34	6:42	6:48	6:55	7:08
6:36	6:41	6:54	7:02	7:10	7:16	7:23	7:36
7:06	7:11	7:24	7:32	7:40	7:46	7:52	8:05
8:06	8:11	8:24	8:32	8:40	8:46	8:52	9:05
9:06	9:11	9:22	9:30	9:37	9:42	9:47	9:59
10:06	10:10	10:21	10:29	10:35	10:40	10:45	10:55

Appendix C

Excerpts from City of Oceanside VMT and LOS Guidelines

City of Oceanside

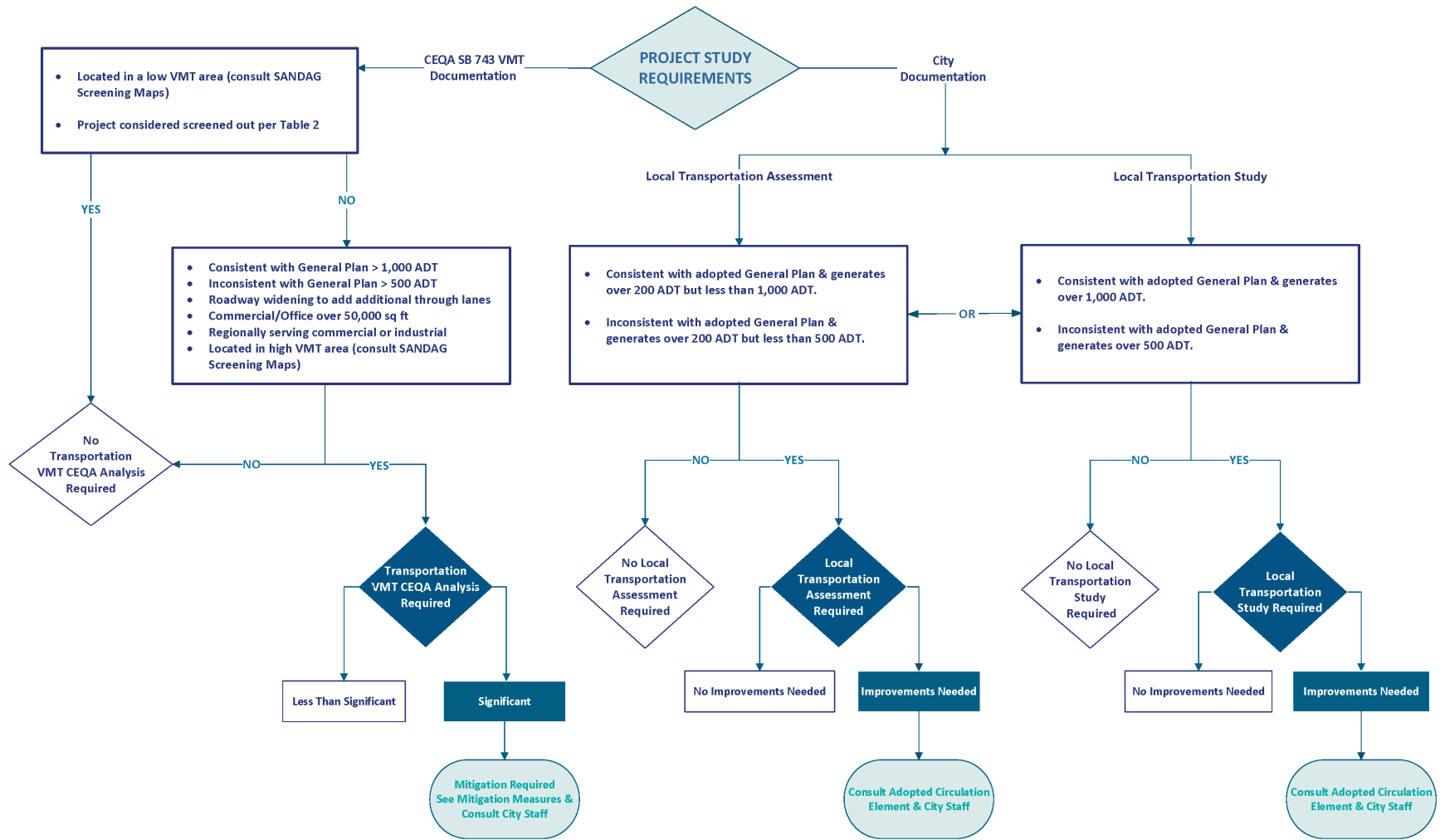
Traffic Impact Analysis Guidelines for

Vehicle Miles Traveled (VMT) and Level of Service Assessment



August 2020
Final Version

Figure 8-1 Project Study Requirements



* Projects are not confined to what is listed above and will need to be coordinated with City Staff to determine study requirements for developments not listed. This flowchart is a generalization, it is up to the City's discretion to determine if additional analyses will be required and if potential mitigation or improvements are acceptable.

9.0 SAN DIEGO REGIONAL GUIDELINES FOR VMT

The City of Oceanside utilizes the Institute of Transportation Engineers (ITE) San Diego Regional Guidelines (May 2019) to establish thresholds and methodology for VMT analysis. For analysis purposes the most recent version of these guidelines shall be utilized. The following sections summarize the VMT thresholds requirements for Oceanside in alignment with ITE. Thorough analysis explanation can be found in the most recent ITE guidance.

Minimum Threshold for VMT Analysis

Based on the recommendations of the Institute of Transportation Engineers (ITE) for the San Diego section, **Table 3** indicates when a VMT analysis for CEQA is required. This is based on keeping consistent with the thresholds previously used and *SANDAG’s Not So Brief Guide Trip Generation (2002)*. These thresholds are based on the understanding that SANDAG trip generation rates differ from ITE trip generation rates which OPR’s recommendations are based on.

Projects Consistent with the Adopted General Plan

The City’s adopted General Plan represents the vision and goals the City has for the community. Projects that support these goals will adhere to the following VMT analysis thresholds identified in Table 3.

Table 3 – Threshold for VMT Analysis for Projects Consistent with the Adopted General Plan

	VMT Analysis Not Needed	VMT Analysis Needed ⁽¹⁾
Average Daily Traffic Volume (ADT)	Less than 1,000 ADT	Greater than 1,000 ADT

(1) If ADT is equal to 1,000 ADT, VMT analysis is required.

Projects Inconsistent with the Adopted General Plan

The City’s adopted General Plan represents the vision and goals the City has for the community. Projects that are not in support of the General Plan have a lower VMT threshold and will require a General Plan Amendment. The following VMT analysis thresholds for projects that are inconsistent are identified in **Table 4**.

Table 4 – Threshold for VMT Analysis for Projects Inconsistent with the Adopted General Plan

	VMT Analysis Not Needed	VMT Analysis Needed ⁽¹⁾
Average Daily Traffic Volume (ADT)	Less than 500 ADT	Greater than 500 ADT

(1) If ADT is equal to 500 ADT, VMT analysis is required.

The thresholds identified in Table 3 and Table 4 stem from the professional expertise and judgement of the ITE San Diego section. These thresholds reflect what is appropriate for the San Diego region to use for VMT and have previously helped determine LOS impacts.

VMT Thresholds

This section identifies what type of VMT analysis is required based on the land use and thresholds identified in the previous section. If a project qualifies for a VMT analysis, the VMT analysis can be compared based on City-wide, Regional, or community basis. The method of comparison shall be agreed upon by the City Traffic Engineer and shall be appropriate based on the use of the site.

The following defines the metrics identified in **Table 5**. It is important the appropriate metrics are applied for each project.

VMT/Capita:

Includes all vehicle-based person trips grouped and summed to the home location of individuals who are drivers or passengers on each trip. It includes home-based and non-home-based trips. The VMT for each home is then summed for all homes in a particular census tract and divided by the population of that census tract to arrive at Resident VMT/Capita.

VMT/Employee:

Includes all vehicle-based person trips grouped and summed to the work location of individuals on the trip. This includes all trips, not just work-related trips. The VMT for each work location is then summed for all work locations in a particular census tract and divided by the number of employees of that census tract to arrive at Employee VMT/Employee.

Small Projects

Small projects, under 2,400 ADT, shall utilize the most recent version of the SANDAG SB 743 Concept Maps. SANDAG has prepared an online mapping system that calculates average VMT/capita and VMT/employee at the census tract level. This tool determines the project's VMT/employee or VMT/capita to be compared to community, city, and/or regional averages. **Appendix C** provides an example of how to use the SANDAG Concept Maps to determine the project's VMT.

Large Projects

Projects consisting of 2,400 ADT or higher will require the use of the most recent SANDAG model to determine VMT. The SANDAG transportation model provides a systematic analytical platform so that different alternatives and inputs can be evaluated in an iterative and controlled environment.

Table 5 identifies the significance thresholds for proposed land uses. Projects that exceed the significance thresholds are considered significant and will require VMT analysis and mitigation.

Table 5 – City of Oceanside Project Threshold

Project Type	Metric	Significance Threshold ⁽¹⁾
Residential	Resident VMT / Capita	15 % below regional average
Commercial	Employee VMT / Employee	15 % below regional average
Industrial	Employee VMT / Employee	15 % below regional average
Retail ⁽²⁾	Net increase in the regional VMT	Net increase in regional VMT
Mixed-Use	Evaluate each land use separately	Based on proposed land use
Redevelopment ⁽³⁾	Based on the proposed land use	Based on the proposed land use

(1) The City may request the applicant to analyze VMT using a more localized threshold if the project requires.

(2) Locally serving retail is presumed to decrease VMT however retail projects over 50,000 square feet are considered regionally serving.

(3) A redevelopment project that reduces VMT is presumed to have less than a significant impact and is screened out. The removal of affordable housing will require VMT analysis.

10.0 MITIGATION MEASURES AND STRATEGIES FOR VMT REDUCTION

A project that exceeds the thresholds identified in the previous tables is considered to have a significant impact and will require mitigation measures and strategies. With appropriate mitigation the project may be able to apply VMT reductions to part or all of the project depending on the land use and strategy chosen. It is critical to implement strategies that are appropriate for the land use, for example, a residential project would not implement a telecommute strategy but may include providing a bike facility and amenities on-site.

SANDAG MOBILITY MANAGEMENT GUIDEBOOK

The purpose of the mitigation measures and strategies is to reduce the VMT generated by the project through a reduction of the distance driven or reducing the number of vehicle trips. It is recommended the SANDAG Mobility Management Guidebook (2019) be consulted to determine mitigation measures for the project site.

The guidebook consists of the following resources:

- Mobility Management Guidebook
- VMT Reduction Calculator Tool
- Calculator Design Document
- Recommendations for Application
- User Training Videos

Figure 10-1 identifies the potential mobility management strategies included in the guidebook that are recommended for a project exceeding the VMT thresholds. It is also recommended the SANDAG iCommute and MTS programs be utilized for projects generating employment. Several opportunities included in these programs are identified in **Table 6. Appendix D** contains the SANDAG Mobility Management Guidebook for reference.

Figure 10-1 Mobility Management Strategies

	Strategy Type	Strategy Name	Included in VMT Calculator?
Project/Site Level	Employer Commute Programs	Comprehensive Employer Commute Program	✓
		Employer Carpool Program	✓
		Employer Transit Pass Subsidy	✓
		Employer Vanpool Program	✓
		Employer Telework Program	✓
		Employer Guaranteed Ride Home Program	
	Land Use Strategies	On-Site Bike Amenities	
		Higher-Density Development	
		Transit-Oriented Development	✓
	Parking Management	Mixed-Use Development	✓
		Parking Pricing	✓
		Parking Cash-Out	✓
		Reduced Parking	
		Unbundled Parking	
		Smart Parking	
Shared Parking			
Shared Mobility Parking			
Flexible Curb Space			
Community/City Level	Neighborhood Enhancements	Street Connectivity Improvement	✓
		Pedestrian Facility Improvement	✓
		Bikeway Network Expansion	✓
		Bike Facility Improvement	✓
		Bikeshare	✓
		Carshare	✓
		Community-Based Travel Planning	✓
		Transit Strategies	✓
	Transportation System Management	Transit Service Expansion	✓
		Transit Frequency Improvements	✓
		Transit-Supportive Treatments	✓
		Transit Fare Reduction	✓
		Microtransit NEV Shuttle	✓
		Microtransit Commuter Shuttle	
		Adaptive Traffic Signal Systems	
		Smart Signals and Intersections	
		Optimized Signal Timing for Bicycles	
		Advanced Bicycle Detection	
		Real-Time Traveler Information	
		Active Traffic Management	
Traffic Incident Management			
Roadway Weather Management			

Source: SANDAG Mobility Management Strategy Guidebook, June 2019

11.0 LOCAL TRANSPORTATION STUDY AND LOCAL TRANSPORTATION ASSESSMENT GUIDELINES

The City of Oceanside utilizes the Institute of Transportation Engineers (ITE) San Diego Regional Guidelines (May 2019) to establish thresholds and methodology for a Local Transportation Study (LTS). A Local Transportation Study is different from VMT analysis for CEQA purposes and may be required in addition to the VMT analysis or individually. A Local Transportation Study will analyze the projects influence on the surrounding intersections and roadway network utilizing level of service (LOS) for all project scenarios. The purpose of the LTS is to help quantify the local impact of the development and expected changes in transportation conditions. The LTS should include roadway, bicycle, pedestrian, and transit evaluations. The following sections identify the project requirements for a Local Transportation Study. The Local Transportation Study helps the City ensure the goals, objectives, and policies adopted by the City are supported and implemented while monitoring the capacity for the roadway networks.

Data should be collected during typical operation hours. Data should be recent and no more than 2 years old for an LTS. **The acceptable level of service for the City of Oceanside that is consistent with the adopted Circulation Element is LOS D.**

Minimum Threshold for Local Transportation Study

Based on the recommendations of the Institute of Transportation Engineers (ITE) for the San Diego section, **Table 8** indicates when a Local Transportation Study is required for the City. This is based on keeping consistent with the thresholds previously used and *SANDAG’s Not So Brief Guide (2002) Trip Generation*.

Projects Consistent with the Adopted General Plan

The City’s adopted General Plan represents the vision and goals the City has for the community. Projects that support these goals will adhere to the following LTS thresholds identified in Table 8.

Table 8 – Threshold for LTS for Projects Consistent with the Adopted General Plan

	LTS Analysis Not Needed	LTS Analysis Needed ⁽¹⁾
Average Daily Traffic Volume (ADT)	Less than 1,000 ADT	Greater than 1,000 ADT

(1) If ADT is equal to 1,000 ADT, an LTS is required.

A Local Transportation Study (LTS) will be required if a project exceeds 1,000 ADT and is consistent with the adopted General Plan.

Projects Inconsistent with the Adopted General Plan

The City’s adopted General Plan represents the vision and goals the City has for the community. Projects that are not in support of the General Plan have a lower LTS threshold and will require a General Plan Amendment. The following LTS analysis thresholds for projects that are inconsistent are identified in **Table 9**.

Table 9 – Threshold for LTS for Projects Inconsistent with the Adopted General Plan

	LTS Analysis Not Needed	LTS Analysis Needed ⁽¹⁾
Average Daily Traffic Volume (ADT)	Less than 500 ADT	Greater than 500 ADT

(1) If ADT is equal to 500 ADT, an LTS is required.

A Local Transportation Study (LTS) will be required if a project exceeds 500 ADT and is inconsistent with the adopted General Plan.

The thresholds identified in Table 7 and Table 8 stem from the professional expertise and judgement of the ITE San Diego section. These thresholds keep consistent with regional practice and will help ensure developments will not overburden the transportation network.

If a project would add peak hour trips to any existing on- or off-ramp it is recommended to consult with the City and Caltrans to determine if an LTS would be required.

Study Scenarios

The following scenarios are included in an LTS and may be modified in agreement with the City Traffic Engineer.

- Existing Conditions
- Existing Conditions Plus Project
- Existing Conditions Plus Near-Term Cumulative Projects
- Existing Conditions Plus Near-Term Cumulative Projects Plus Project
- Buildout Conditions (2030)
- Buildout Conditions Plus Project

Local Transportation Assessment (LTA)

A Local Transportation Assessment (LTA) may be required instead of a Local Transportation Study depending on the size of the project. A helps the City monitor development impacts on the transportation network and is similar to a Local Transportation Study(LTS). The main difference between the two studies is a Local Transportation Assessment (LTA) analyzes fewer scenarios than a Local Transportation Study (LTS). A Local Transportation Assessment (LTA) will be required if a project is less than 1,000 ADT but is anticipated to influence the surrounding environment.

A Local Transportation Assessment (LTA) will be required to analyze the following scenarios based on the thresholds for identified for the project’s ADT.

- **A project that generates between 200-500 ADT will be required to analyze existing conditions and existing conditions plus project.**

-
- **A project that generates between 500-1,000 ADT will be required to analyze existing conditions, existing conditions plus project, existing conditions plus near-term cumulative projects, and existing conditions plus near-term cumulative projects plus project.**

Transportation Modes to be Included for Discussion in the LTS/LTA

Pedestrian:

- The LTS/LTA shall include pedestrian infrastructure available including any opportunities or deficiencies such as path obstructions or missing sidewalk for ½ mile walking distance from project pedestrian access points.
- All pedestrian facilities directly connected to project access points or adjacent to the project development, extending in each direction to the nearest intersection with a classified roadway or connection with a Class I path
- Facilities connecting to transit stops within two blocks of the project
- Only facilities on the side of the project or along the walking route to transit stop
- Additional geographic areas may be included in certain cases to address special cases such as schools or retail centers

Bicycle:

- The LTS/LTA shall include a discussion of bicycle infrastructure available including any opportunities or deficiencies such as bike lanes, bike buffers, or bike boxes. This section must also include discussion of what is planned based on City and regional documentation. The extents are as follows:
 - All roadways adjacent to the project, extending in each direction to the nearest intersection with a classified roadway or with a Class I path
 - Both directions of travel should be evaluated

Transit:

- The LTS/LTA shall identify any transit stops or routes existing and planned near the project site. This section shall also include a discussion and evaluation of transit stop amenities within ½ mile of each pedestrian access point.

Vehicle:

All signalized intersections and signalized project driveways shall be analyzed if:

- The project will add 50 or more peak hour (final cumulative) trips in either direction

All unsignalized intersections and unsignalized project driveways shall be analyzed if:

- The project will add 50 or more peak hour (final cumulative) trips in either direction

All freeway ramp intersections and signalized project driveways shall be analyzed if:

- The project will add 20 or more peak hour (final cumulative) trips in either direction

Intersection Level of Service analysis should be conducted using the Highway Capacity Manual (HCM) Methodology. For signalized intersections, the methodology described in the HCM for signalized intersections is used. With this methodology, the average control delay per vehicle is estimated for each lane group and aggregated for each approach and for the intersection as a whole. The relationship between control delay per vehicle and LOS for signalized intersections is summarized in **Table 10**.

Table 10 – HCM Level of Service Description for Signalized Intersections

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	Insignificant delays: no approach phase is fully utilized and no vehicle waits longer than one red indication	≤ 10
B	Minimal delays: an occasional approach phase is fully utilized. Drivers begin to feel restricted.	> 10 – 20
C	Acceptable delays: major approach phase may become fully utilized. Most drivers feel somewhat restricted.	> 25 – 35
D	Tolerable delays: Drivers may wait through more than one red indication. Queues may develop but dissipate rapidly without excessive delays.	> 35 – 55
E	Significant delays: Volumes approaching capacity. Vehicles may wait through several cycles and long vehicle queues form upstream.	> 55 – 80
F	Excessive delays: Represents conditions at capacity, with extremely long delays. Queues may block upstream intersections.	> 80

Source: Highway Capacity Manual, Transportation Research Board, 2010.

For unsignalized intersections, the methodology described in the HCM for unsignalized intersections is used. With this methodology, LOS is related to the control delay for each stop-controlled movement. The relationship between control delay per vehicle and LOS for unsignalized intersections is summarized in **Table 11**.

Table 11 – HCM Level of Service Description for Unsignalized Intersections

Level of Service	Description of Traffic Conditions	Control Delay (sec/veh)
A	No delay for stop-controlled approaches.	≤ 10
B	Operations with minor delay.	> 10 – 15
C	Operations with moderate delays.	> 15 – 25
D	Operations with some delays.	> 25 – 35
E	Operations with high delays and long queues.	> 35 – 50
F	Operation with extreme congestion, with very high delays and long queues unacceptable to most drivers.	> 50

Source: Highway Capacity Manual, Transportation Research Board, 2010.

Table 12 provides guidance on the levels of ADT that can be accommodated on various types of roadways, based on level of service.

Table 12 – Circulation Element Roadway Classification LOS & Capacity

Class	Lanes	Cross Section ⁽¹⁾	Level of Service (LOS)				
			A	B	C	D	E
Expressway	6	102/160 122/200	30,000	42,000	60,000	70,000	80,000
Expressway	4	102/160 122/200	25,000	35,000	50,000	55,000	60,000
Prime Arterial	6	104/124	25,000	35,000	50,000	55,000	60,000
6-Lane Major Arterial	6	104/124	20,000	28,000	40,000	45,000	50,000
5-Lane Major Arterial ⁽²⁾	5	102/122	17,500	24,500	35,000	40,000	45,000
4-Lane Major Arterial	4	80/100	15,000	21,000	30,000	35,000	40,000
Secondary Collector (4 lanes with 2-way left turn lane)	4	64/84	10,000	14,000	20,000	25,000	30,000
Secondary Collector (4 lanes without 2-way left-turn lane, with left turn pockets)	4	54/74, 60/80	9,000	13,000	18,000	22,000	25,000
Collector (commercial fronting, 2-lanes with 2-way left turn lane) ⁽³⁾	2	50/70	5,000	7,000	10,000	13,000	15,000
Collector (residential streets in the Circulation Element or industrial fronting)	2	40/60, 50/70	4,000	5,500	7,500	9,000	10,000
Local Street (residential streets NOT in the Circulation Element)	1	36/56, 40/60	–	–	2,400	–	–

(1) Cross sections are listed as curd-to-curb width/total right of way width, in feet.

(2) Vandegrift Boulevard is the only Circulation Element roadway designated as a 5-lane Major Arterial. It is not intended that other roadways be build to 5-lane Major Arterial standards.

(3) This capacity will also be assumed for a two-lane one-way collector.

Table 13 indicates when a project's effect on the roadway system is considered to justify the need for roadway improvements. That is, if a project's traffic effect causes the values in this table to be exceeded, roadway improvements should be considered as follows on a case by case basis:

- Improvements should be consistent with the General Plan
- Improvements for transit, bike and pedestrian facilities should be given priority in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG.
- Projects in Transit Priority Areas or Smart Growth Opportunity Areas as identified by SANDAG, that are consistent with the General Plan at the time of project application, should not be denied due to the inability to provide roadway improvements (i.e. existing right of way is constrained, etc.)

Table 13 – Determination of the Need for Roadway Improvements

Level of Service with Project*	Allowable Change Due to Project Effect**					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (MPH)	V/C	Speed (MPH)	Delay (Sec.)	Delay (Min.)
E & F (or ramp meter delays above 15 min)	0.01	1	0.02	1	2	2

12.0 TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES

In general, the goal of City Staff is to help Oceanside increase connectivity and level of comfort for pedestrians, bicyclists, and transit users. Project improvements may come from the City’s adopted General Plan or other City policies that help improve the overall quality of life for the community. **Table 14** identifies some TDM improvement measures that may be considered for a project.

Table 14 – Potential TDM Improvement Measures

Potential TDM Measures	
Transit Facilities	Telecommuting
Bike Facilities	Rideshare Programs
Walkability	Flex-time
Carpool Incentives	Parking Cash-Out
Subsidized Transit Passes	Shuttle Service

A measure that is not listed may be considered if the mitigation is appropriately applied and reasonable. Additional improvement measures may be identified as future technologies and policies evolve or with consultation by City Staff.

Appendix D

Excerpts from the *Oceanside General Plan Circulation Element*, Sept 2012

OCEANSIDE GENERAL PLAN CIRCULATION ELEMENT UPDATE

City of Oceanside, California

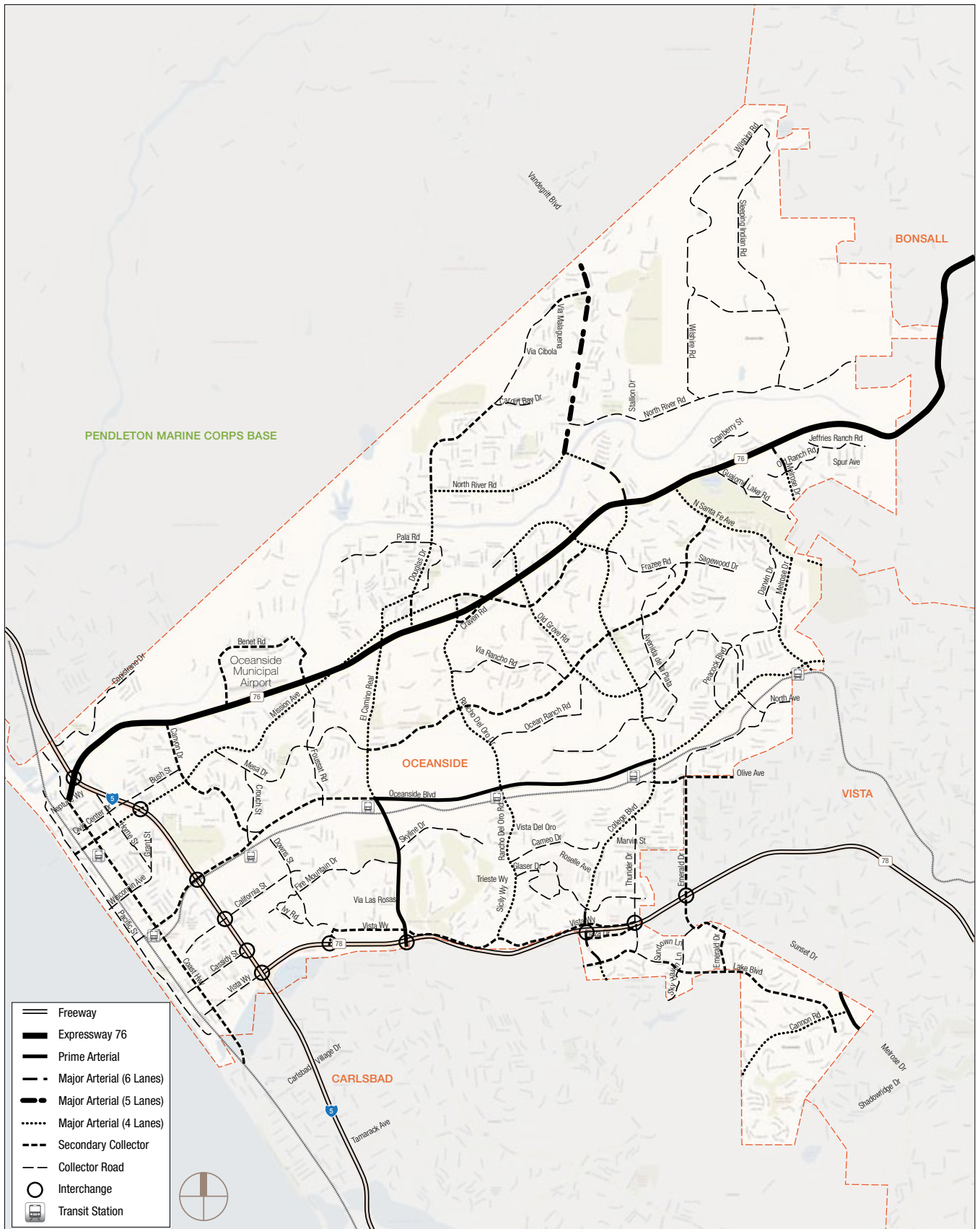
Prepared for
City of Oceanside
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September 2012



Not to Scale



Existing Roadway Classifications

Appendix E

Count Data and Signal Timing Sheets



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: SR-76

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	80	0	130	57	231	0	0	481	56	1035
7:15 AM	0	0	0	68	0	111	54	217	0	0	519	61	1030
7:30 AM	0	0	0	50	0	137	66	217	0	0	393	39	902
7:45 AM	0	0	0	49	0	112	62	205	0	0	368	49	845
8:00 AM	0	0	0	62	0	120	37	206	0	0	418	35	878
8:15 AM	0	0	0	60	0	150	60	213	0	0	399	39	921
8:30 AM	0	0	0	35	0	138	57	187	0	0	394	57	868
8:45 AM	0	0	0	70	0	91	41	179	0	0	367	47	795
TOTAL VOLUMES:	0	0	0	474	0	989	434	1655	0	0	3339	383	7274

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	247	0	490	239	870	0	0	1761	205	3812

PEAK HR FACTOR:	0.000	0.877	0.963	0.847	0.921
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	1

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	1	1



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: SR-76

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	63	0	71	121	410	0	0	234	61	960
4:15 PM	0	0	0	73	0	86	155	411	0	0	278	57	1060
4:30 PM	0	0	0	54	0	84	102	428	0	0	281	67	1016
4:45 PM	0	0	0	83	0	87	114	402	0	0	222	63	971
5:00 PM	0	0	0	77	0	89	131	376	0	0	253	65	991
5:15 PM	0	0	0	79	0	83	110	396	0	0	263	67	998
5:30 PM	0	0	0	62	0	97	124	439	0	0	245	71	1038
5:45 PM	0	0	0	72	0	89	92	369	0	0	304	73	999
TOTAL VOLUMES:	0	0	0	563	0	686	949	3231	0	0	2080	524	8033

PM Peak Hr Begins at: 4:15 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	287	0	346	502	1617	0	0	1034	252	4038

PEAK HR FACTOR:	0.000			0.931			0.936			0.924			0.952
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	0	0	0	0	1

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	1	0	0	0	0	1

Pedestrian Counts

	Douglas Drive North Leg			Douglas Drive South Leg			SR-76 East Leg			SR-76 West Leg			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	3	0	0	0	0	3

PEAK VOLUMES:	North Leg			South Leg			East Leg			West Leg			TOTAL
	0			0			3			0			3



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: Mission Avenue

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Mission Avenue Eastbound			Mission Avenue Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	26	69	1	135	191	14	14	77	17	11	93	94	742
7:15 AM	36	79	1	108	175	22	17	54	9	13	111	82	707
7:30 AM	23	72	3	60	150	13	20	56	14	14	128	87	640
7:45 AM	26	71	4	75	160	22	15	71	22	9	98	55	628
8:00 AM	25	50	4	92	175	13	19	85	22	15	102	63	665
8:15 AM	28	56	5	49	156	18	19	54	16	18	106	60	585
8:30 AM	40	61	1	53	152	12	12	51	18	16	73	38	527
8:45 AM	28	44	5	71	163	21	7	64	19	9	76	43	550
TOTAL VOLUMES:	232	502	24	643	1322	135	123	512	137	105	787	522	5044

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	111	291	9	378	676	71	66	258	62	47	430	318	2717

PEAK HR FACTOR:	0.886	0.827	0.894	0.868	0.915
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Mission Avenue Eastbound			Mission Avenue Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	1	1	0	1	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	1	0	1	0	2

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	Mission Avenue East Leg	Mission Avenue West Leg	TOTAL
7:00 AM	0	0	0	1	1
7:15 AM	1	1	1	2	5
7:30 AM	0	1	3	1	5
7:45 AM	1	3	2	1	7
8:00 AM	0	1	0	0	1
8:15 AM	0	1	1	1	3
8:30 AM	0	1	0	6	7
8:45 AM	2	2	0	2	6
TOTAL VOLUMES:	4	10	7	14	35

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	5	6	5	18



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Location: Oceanside
N/S: Douglas Drive
E/W: Mission Avenue

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Mission Avenue Eastbound			Mission Avenue Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	35	143	7	55	117	17	58	148	36	13	71	72	772
4:15 PM	44	127	10	52	89	9	62	154	40	21	88	76	772
4:30 PM	42	134	2	58	118	17	47	134	34	17	71	84	758
4:45 PM	43	125	2	82	112	12	54	138	33	12	84	95	792
5:00 PM	39	144	4	81	111	13	68	168	43	16	88	103	878
5:15 PM	41	151	6	71	129	10	58	152	24	15	82	91	830
5:30 PM	44	117	9	69	112	10	44	145	39	16	70	86	761
5:45 PM	41	143	4	71	117	13	57	144	42	13	92	81	818
TOTAL VOLUMES:	329	1084	44	539	905	101	448	1183	291	123	646	688	6381

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	165	555	23	292	469	46	227	609	148	60	332	361	3287

PEAK HR FACTOR:	0.938			0.961			0.882			0.909			0.936
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Mission Avenue Eastbound			Mission Avenue Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	2	0	0	2	0	4

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	1	0	0	2	0	3

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	Mission Avenue East Leg	Mission Avenue West Leg	TOTAL
4:00 PM	1	2	3	2	8
4:15 PM	2	1	4	1	8
4:30 PM	1	3	4	0	8
4:45 PM	4	1	4	1	10
5:00 PM	1	2	4	3	10
5:15 PM	0	3	2	3	8
5:30 PM	1	8	5	9	23
5:45 PM	1	4	1	3	9
TOTAL VOLUMES:	11	24	27	22	84

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	3	17	12	18	50



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: El Camino Real

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			El Camino Real Eastbound			El Camino Real Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	11	115	6	2	327	254	48	4	13	20	8	0	808
7:15 AM	10	157	9	2	295	285	67	3	11	21	10	0	870
7:30 AM	14	162	14	0	182	290	95	4	8	18	8	0	795
7:45 AM	5	115	7	4	238	256	111	6	4	10	7	1	764
8:00 AM	13	124	11	3	224	256	55	5	16	14	10	0	731
8:15 AM	15	122	10	0	226	224	77	5	8	9	8	0	704
8:30 AM	7	103	11	3	182	201	62	5	8	12	9	1	604
8:45 AM	4	87	5	1	180	200	79	8	13	13	15	2	607
TOTAL VOLUMES:	79	985	73	15	1854	1966	594	40	81	117	75	4	5883

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	40	549	36	8	1042	1085	321	17	36	69	33	1	3237

PEAK HR FACTOR:	0.822	0.916	0.773	0.831	0.930
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			El Camino Real Eastbound			El Camino Real Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	1	0	0	0	2

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	1	0	0	1	0	0	0	2

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	El Camino Real East Leg	El Camino Real West Leg	TOTAL
7:00 AM	0	1	1	2	4
7:15 AM	0	0	0	2	2
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	0	0	1	0	1
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	2	2
TOTAL VOLUMES:	0	1	2	8	11

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	1	1	6	8



PO Box 1178
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951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: El Camino Real

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			El Camino Real Eastbound			El Camino Real Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	20	199	16	1	139	165	266	10	10	14	4	0	844
4:15 PM	27	239	8	1	139	145	181	11	12	10	9	0	782
4:30 PM	20	213	12	2	118	160	249	18	11	14	6	0	823
4:45 PM	26	237	12	2	172	156	212	13	15	8	3	2	858
5:00 PM	19	215	15	0	167	145	235	14	11	13	6	4	844
5:15 PM	17	266	14	1	195	157	264	11	9	17	3	1	955
5:30 PM	20	241	19	2	150	152	238	20	14	6	6	2	870
5:45 PM	23	233	15	4	163	150	242	18	21	17	10	3	899
TOTAL VOLUMES:	172	1843	111	13	1243	1230	1887	115	103	99	47	12	6875

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	79	955	63	7	675	604	979	63	55	53	25	10	3568

PEAK HR FACTOR:	0.923			0.911			0.966			0.733			0.934
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			El Camino Real Eastbound			El Camino Real Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	0	1	0	0	0	0	3

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	1	0	0	0	0	1

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	El Camino Real East Leg	El Camino Real West Leg	TOTAL
4:00 PM	0	3	1	4	8
4:15 PM	0	2	0	2	4
4:30 PM	0	0	0	1	1
4:45 PM	0	0	2	1	3
5:00 PM	0	0	0	2	2
5:15 PM	0	1	0	1	2
5:30 PM	0	2	2	5	9
5:45 PM	0	0	0	2	2
TOTAL VOLUMES:	0	8	5	18	31

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	0	3	2	10	15



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: Pala Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Pala Road Eastbound			Pala Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	9	174	2	6	539	19	20	1	35	3	2	4	814
7:15 AM	7	244	4	3	470	21	16	1	13	0	0	5	784
7:30 AM	13	239	6	1	406	15	15	0	23	5	0	8	731
7:45 AM	8	188	4	5	460	12	15	1	21	1	0	7	722
8:00 AM	16	152	1	3	466	20	26	1	26	2	2	4	719
8:15 AM	35	147	3	7	343	25	12	2	27	2	1	2	606
8:30 AM	32	125	3	5	349	50	41	2	49	6	4	9	675
8:45 AM	27	131	4	7	304	52	37	2	70	7	6	4	651
TOTAL VOLUMES:	147	1400	27	37	3337	214	182	10	264	26	15	43	5702

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	37	845	16	15	1875	67	66	3	92	9	2	24	3051

PEAK HR FACTOR:	0.870			0.867			0.719			0.673			0.937
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Pala Road Eastbound			Pala Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	1	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	1	1	0	1	0	0	0	1	4

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	1	0	1	0	0	0	0	2

Pedestrian Counts

	Douglas Drive North Leg		Douglas Drive South Leg		Pala Road East Leg		Pala Road West Leg		TOTAL
7:00 AM	0		0		0		0		0
7:15 AM	0		3		3		0		6
7:30 AM	0		0		0		1		1
7:45 AM	0		0		1		0		1
8:00 AM	0		1		3		1		5
8:15 AM	0		3		0		0		3
8:30 AM	0		0		0		2		2
8:45 AM	0		0		0		0		0
TOTAL VOLUMES:	0		7		7		4		18

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	0		3		4		1		8



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: Pala Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Pala Road Eastbound			Pala Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	23	399	5	1	242	20	22	0	35	6	1	8	762
4:15 PM	26	408	7	4	279	14	21	0	16	5	1	4	785
4:30 PM	23	413	2	4	271	21	25	0	21	1	0	9	790
4:45 PM	20	407	8	7	304	25	16	1	28	4	0	12	832
5:00 PM	35	466	0	4	298	22	20	0	19	2	1	4	871
5:15 PM	20	434	6	5	279	28	37	0	20	0	1	4	834
5:30 PM	15	442	3	5	308	25	21	0	22	1	1	4	847
5:45 PM	30	448	3	7	261	24	24	1	17	2	0	8	825
TOTAL VOLUMES:	192	3417	34	37	2242	179	186	2	178	21	5	53	6546

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	90	1749	17	21	1189	100	94	1	89	7	3	24	3384

PEAK HR FACTOR:	0.926	0.969	0.807	0.531	0.971
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Pala Road Eastbound			Pala Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	1	0	0	0	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1	1	0	0	0	0	0	2	5

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	1	1	0	0	0	0	0	0	1	3

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	Pala Road East Leg	Pala Road West Leg	TOTAL
4:00 PM	0	1	0	4	5
4:15 PM	0	0	0	0	0
4:30 PM	0	1	2	2	5
4:45 PM	0	2	2	2	6
5:00 PM	0	0	2	0	2
5:15 PM	0	3	0	0	3
5:30 PM	0	4	0	3	7
5:45 PM	0	4	2	2	8
TOTAL VOLUMES:	0	15	8	13	36

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	9	4	5	18



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: Rainier Way

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Rainier Way Eastbound			Rainier Way Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	227	10	0	505	9	5	0	42	28	2	1	829
7:15 AM	0	270	8	1	433	9	1	0	21	13	2	3	761
7:30 AM	0	254	7	0	409	15	3	0	29	13	0	1	731
7:45 AM	0	174	6	1	440	4	6	2	17	13	0	1	664
8:00 AM	0	183	7	0	424	4	2	0	25	11	1	4	661
8:15 AM	0	190	3	2	330	11	3	0	21	16	2	3	581
8:30 AM	0	167	5	1	355	5	4	1	28	15	0	1	582
8:45 AM	1	178	4	1	290	14	2	0	27	9	0	2	528
TOTAL VOLUMES:	1	1643	50	6	3186	71	26	3	210	118	7	16	5337

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	925	31	2	1787	37	15	2	109	67	4	6	2985

PEAK HR FACTOR:	0.860	0.888	0.670	0.621	0.900
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Rainier Way Eastbound			Rainier Way Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	3	0	0	0	0	1	0	0	4
8:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
8:45 AM	0	2	0	0	0	0	0	0	1	2	0	0	5
TOTAL VOLUMES:	0	5	0	0	6	1	0	0	4	3	0	0	19

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	5	0	0	0	3	1	0	0	9

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	Rainier Way East Leg	Rainier Way West Leg	TOTAL
7:00 AM	0	1	1	0	2
7:15 AM	1	0	0	1	2
7:30 AM	0	1	0	1	2
7:45 AM	1	0	1	1	3
8:00 AM	2	0	0	0	2
8:15 AM	2	0	1	0	3
8:30 AM	2	0	0	0	2
8:45 AM	1	0	0	1	2
TOTAL VOLUMES:	9	2	3	4	18

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	2	2	3	9



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: Rainier Way

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Rainier Way Eastbound			Rainier Way Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	409	10	1	254	26	3	0	11	7	0	2	723
4:15 PM	0	418	24	2	300	18	1	0	17	5	0	0	785
4:30 PM	0	410	13	3	286	15	2	0	9	7	0	5	750
4:45 PM	0	424	25	2	304	15	3	0	18	12	0	1	804
5:00 PM	0	398	21	1	268	21	1	0	13	9	0	1	733
5:15 PM	0	434	14	0	292	17	3	2	23	16	1	0	802
5:30 PM	0	427	20	1	271	20	1	0	19	4	1	2	766
5:45 PM	0	447	13	3	273	29	5	1	17	13	1	1	803
TOTAL VOLUMES:	0	3367	140	13	2248	161	19	3	127	73	3	12	6166

PM Peak Hr Begins at: 4:45 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1683	80	4	1135	73	8	2	73	41	2	4	3105

PEAK HR FACTOR:	0.982			0.944			0.741			0.691			0.965
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			Rainier Way Eastbound			Rainier Way Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	1	0	0	1	0	0	0	0	1	0	0	3
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	1	1	0	1	0	0	0	0	0	0	0	3
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
TOTAL VOLUMES:	1	6	1	0	6	0	0	0	0	1	0	0	15

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	1	0	2	0	0	0	0	0	0	0	7

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	Rainier Way East Leg	Rainier Way West Leg	TOTAL
4:00 PM	0	0	0	3	3
4:15 PM	0	1	0	2	3
4:30 PM	1	0	0	2	3
4:45 PM	0	0	1	0	1
5:00 PM	1	1	0	2	4
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	2	2	2	10	16

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	1	1	2	2	6



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			River Road Eastbound			River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	12	101	78	5	231	2	12	23	58	216	17	1	756
7:15 AM	19	110	75	6	177	4	16	28	39	231	10	2	717
7:30 AM	26	107	102	2	130	2	10	22	40	216	8	6	671
7:45 AM	14	113	94	5	165	1	15	21	49	219	12	12	720
8:00 AM	13	99	54	9	192	4	10	17	29	204	9	9	649
8:15 AM	15	69	76	21	137	10	5	16	32	200	5	2	588
8:30 AM	15	64	68	7	152	1	11	12	40	136	5	5	516
8:45 AM	26	53	83	4	151	0	5	17	39	174	5	6	563
TOTAL VOLUMES:	140	716	630	59	1335	24	84	156	326	1596	71	43	5180

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	71	431	349	18	703	9	53	94	186	882	47	21	2864

PEAK HR FACTOR:	0.905	0.767	0.895	0.977	0.947
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			River Road Eastbound			River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	3	0	0	0	0	0	0	0	4

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	2	0	0	0	0	0	0	0	2

Pedestrian Counts

	Douglas Drive North Leg	Douglas Drive South Leg	River Road East Leg	River Road West Leg	TOTAL
7:00 AM	0	0	0	1	1
7:15 AM	0	0	0	0	0
7:30 AM	1	0	1	0	2
7:45 AM	0	1	0	0	1
8:00 AM	0	1	0	0	1
8:15 AM	0	0	0	0	0
8:30 AM	1	3	1	0	5
8:45 AM	0	2	1	0	3
TOTAL VOLUMES:	2	7	3	1	13

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	1	1	1	4



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Douglas Drive
E/W: River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			River Road Eastbound			River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	24	149	191	4	114	12	11	45	26	112	12	7	707
4:15 PM	25	156	199	6	121	9	12	26	18	111	14	5	702
4:30 PM	29	160	188	0	125	11	8	21	17	138	20	4	721
4:45 PM	43	141	179	11	151	9	6	21	16	118	13	6	714
5:00 PM	37	148	188	14	128	11	11	19	12	143	15	12	738
5:15 PM	34	188	218	11	172	12	10	26	22	129	20	9	851
5:30 PM	50	155	204	7	123	12	7	23	16	122	9	11	739
5:45 PM	25	176	173	7	148	11	10	26	17	126	20	8	747
TOTAL VOLUMES:	267	1273	1540	60	1082	87	75	207	144	999	123	62	5919

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	146	667	783	39	571	46	38	94	67	520	64	40	3075

PEAK HR FACTOR:	0.907			0.841			0.858			0.918			0.903
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Bicycle Counts

	Douglas Drive Northbound			Douglas Drive Southbound			River Road Eastbound			River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	1	0	0	0	1	0	0	0	2
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	0	0	0	4	0	0	0	1	0	0	0	5

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	3	0	0	0	1	0	0	0	4

Pedestrian Counts

	Douglas Drive North Leg		Douglas Drive South Leg		River Road East Leg		River Road West Leg		TOTAL
	North	South	North	South	North	South	North	South	
4:00 PM	1	4	2	2					9
4:15 PM	0	8	2	1					11
4:30 PM	1	7	1	0					9
4:45 PM	1	10	3	1					15
5:00 PM	0	3	0	0					3
5:15 PM	0	0	0	1					1
5:30 PM	4	4	0	3					11
5:45 PM	2	6	2	3					13
TOTAL VOLUMES:	9	42	10	11					72

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	6	13	2	7					28



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Ave Descanso
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Ave Descanso Northbound			Ave Descanso Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	4	39	11	35	10	86	0	6	180	6	377
7:15 AM	1	1	8	29	1	28	14	104	1	2	180	12	381
7:30 AM	0	0	12	20	0	26	18	112	1	4	213	13	419
7:45 AM	1	1	6	23	0	15	9	118	3	6	212	13	407
8:00 AM	0	3	5	14	0	26	5	91	3	4	196	11	358
8:15 AM	0	1	4	15	1	22	9	107	1	2	154	11	327
8:30 AM	0	0	9	18	1	24	4	96	0	9	152	8	321
8:45 AM	0	0	7	8	2	28	4	96	2	10	143	4	304
TOTAL VOLUMES:	2	6	55	166	16	204	73	810	11	43	1430	78	2894

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	2	30	111	12	104	51	420	5	18	785	44	1584

PEAK HR FACTOR:													
	0.708		0.668		0.908		0.917		0.945				

Bicycle Counts

	Ave Descanso Northbound			Ave Descanso Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	0	1

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	Ave Descanso North Leg		Ave Descanso South Leg		N. River Road East Leg		N. River Road West Leg		TOTAL
7:00 AM	0		0		3		0		3
7:15 AM	0		0		1		1		2
7:30 AM	2		2		0		1		5
7:45 AM	1		1		0		2		4
8:00 AM	0		0		2		0		2
8:15 AM	1		0		0		0		1
8:30 AM	0		0		5		0		5
8:45 AM	0		2		0		2		4
TOTAL VOLUMES:	4		5		11		6		26

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	3	3	4	4	14



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Ave Descanso
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Ave Descanso Northbound			Ave Descanso Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	1	2	2	12	1	7	27	228	3	12	119	17	431
4:15 PM	0	2	10	14	0	10	22	172	0	3	165	24	422
4:30 PM	0	1	5	13	1	16	35	208	1	4	132	20	436
4:45 PM	2	3	6	15	2	17	14	181	4	3	135	22	404
5:00 PM	0	3	11	17	0	18	29	175	2	4	161	26	446
5:15 PM	0	1	5	17	1	21	33	225	6	6	123	25	463
5:30 PM	2	0	12	27	2	17	31	182	1	7	148	21	450
5:45 PM	0	0	6	20	1	15	20	213	3	8	133	13	432
TOTAL VOLUMES:	5	12	57	135	8	121	211	1584	20	47	1116	168	3484

PM Peak Hr Begins at: 5:00 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	4	34	81	4	71	113	795	12	25	565	85	1791

PEAK HR FACTOR:	0.714			0.848			0.871			0.884			0.967
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Bicycle Counts

	Ave Descanso Northbound			Ave Descanso Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	2	0	0	0	0	3

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	2	0	0	0	0	2

Pedestrian Counts

	Ave Descanso North Leg		Ave Descanso South Leg		N. River Road East Leg		N. River Road West Leg		TOTAL
	NL	NT	SL	ST	EL	ET	WL	WT	
4:00 PM	1	0	1	0	0	0	1	0	3
4:15 PM	2	0	1	0	0	0	0	0	3
4:30 PM	2	0	4	0	0	0	1	0	7
4:45 PM	1	0	0	0	1	0	0	0	2
5:00 PM	3	0	2	0	6	0	2	0	13
5:15 PM	3	0	0	0	0	0	0	0	3
5:30 PM	1	0	1	0	4	0	1	0	7
5:45 PM	6	0	1	0	0	0	3	0	10
TOTAL VOLUMES:	19		10		11		8		48

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	13		4		10		6		33



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Westwinds
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

Vehicle Counts

	Westwinds Northbound			Westwinds Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	2	0	7	2	125	0	0	194	3	333
7:15 AM	0	0	0	4	0	9	1	138	0	0	196	1	349
7:30 AM	0	0	0	0	0	3	8	138	0	0	240	3	392
7:45 AM	0	0	0	3	0	9	2	133	0	0	223	1	371
8:00 AM	0	0	0	2	0	5	1	138	0	0	194	2	342
8:15 AM	0	0	0	3	0	3	1	97	0	0	151	3	258
8:30 AM	0	0	0	0	0	4	1	133	0	0	167	1	306
8:45 AM	0	0	0	3	0	3	0	101	0	0	172	1	280
TOTAL VOLUMES:	0	0	0	17	0	43	16	1003	0	0	1537	15	2631

AM Peak Hr Begins at: 7:15 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	9	0	26	12	547	0	0	853	7	1454

PEAK HR FACTOR:	0.000	0.673	0.957	0.885	0.927
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Bicycle Counts

	Westwinds Northbound			Westwinds Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	0	1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	0	1

Pedestrian Counts

	Westwinds North Leg	Westwinds South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
7:00 AM	1	0	0	0	1
7:15 AM	2	0	0	0	2
7:30 AM	3	0	0	0	3
7:45 AM	0	0	0	0	0
8:00 AM	4	0	0	0	4
8:15 AM	1	0	0	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	11	0	0	0	11

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	9	0	0	0	9



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Westwinds
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Westwinds Northbound			Westwinds Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	1	0	3	6	211	0	0	159	3	383
4:15 PM	0	0	0	2	0	3	9	202	0	0	178	6	400
4:30 PM	0	0	0	1	0	2	9	206	0	0	150	2	370
4:45 PM	0	0	0	6	0	7	5	191	0	0	163	1	373
5:00 PM	0	0	0	0	0	3	5	228	0	0	183	6	425
5:15 PM	0	0	0	1	0	3	5	220	0	0	165	1	395
5:30 PM	0	0	0	2	0	1	5	243	0	0	150	7	408
5:45 PM	0	0	0	0	0	6	6	211	0	0	158	1	382
TOTAL VOLUMES:	0	0	0	13	0	28	50	1712	0	0	1306	27	3136

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	3	0	13	21	902	0	0	656	15	1610

PEAK HR FACTOR:	0.000			0.667			0.930			0.888			0.947
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Bicycle Counts

	Westwinds Northbound			Westwinds Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	1	0	0	0	1	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	1	2	0	0	2	0	5

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	1	0	0	0	2	0	3

Pedestrian Counts

	Westwinds North Leg			Westwinds South Leg			N. River Road East Leg			N. River Road West Leg			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	3	0	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	3	0	0	0	0	0	1	0	0	0	0	0	4
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	2	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	2	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	7	0	0	0	0	0	0	0	0	0	0	0	7
TOTAL VOLUMES:	19	0	0	0	0	0	1	0	0	0	0	0	20

PEAK VOLUMES:	North Leg			South Leg			East Leg			West Leg			TOTAL
	12			0			0			0			12



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Riverview Way
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

Vehicle Counts

	Riverview Way Northbound			Riverview Way Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	10	0	12	1	125	0	0	181	2	331
7:15 AM	0	0	0	3	0	4	1	142	0	0	202	3	355
7:30 AM	0	0	0	8	0	10	2	138	0	0	227	0	385
7:45 AM	0	0	0	2	0	14	6	129	0	0	206	1	358
8:00 AM	0	0	0	2	0	12	13	128	0	0	183	1	339
8:15 AM	0	0	0	2	0	3	4	96	0	0	150	0	255
8:30 AM	0	0	0	4	0	5	1	132	0	0	163	0	305
8:45 AM	0	0	0	0	0	0	4	100	0	0	175	3	282
TOTAL VOLUMES:	0	0	0	31	0	60	32	990	0	0	1487	10	2610

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	15	0	40	22	537	0	0	818	5	1437

PEAK HR FACTOR:	0.000	0.764	0.977	0.906	0.933
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Bicycle Counts

	Riverview Way Northbound			Riverview Way Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	2	0	0	0	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	2	0	0	0	0	2

Pedestrian Counts

	Riverview Way North Leg	Riverview Way South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	0	0



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Riverview Way
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	Riverview Way Northbound			Riverview Way Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	2	0	8	3	211	0	0	157	2	383
4:15 PM	0	0	0	2	0	3	6	197	0	0	181	6	395
4:30 PM	0	0	0	1	0	1	7	202	0	0	145	3	359
4:45 PM	0	0	0	4	0	4	4	195	0	0	165	3	375
5:00 PM	0	0	0	3	0	2	6	220	0	0	180	3	414
5:15 PM	0	0	0	6	0	4	7	209	0	0	165	4	395
5:30 PM	0	0	0	2	0	2	8	234	0	0	164	2	412
5:45 PM	0	0	0	8	0	0	4	210	0	0	151	3	376
TOTAL VOLUMES:	0	0	0	28	0	24	45	1678	0	0	1308	26	3109

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	19	0	8	25	873	0	0	660	12	1597

PEAK HR FACTOR:	0.000			0.675			0.928			0.918			0.964
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Bicycle Counts

	Riverview Way Northbound			Riverview Way Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	2	1	4	0	0	0	2	9

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	2	0	0	0	0	0	1	3

Pedestrian Counts

	Riverview Way North Leg	Riverview Way South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	0	1
4:30 PM	1	0	0	0	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	2	0	0	0	2
TOTAL VOLUMES:	4	0	0	0	4

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	2	0	0	0	2



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Calle Montecito
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Calle Montecito Northbound			Calle Montecito Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	2	0	2	81	1	34	10	125	2	8	135	19	419
7:15 AM	3	0	3	46	0	23	21	119	6	8	163	22	414
7:30 AM	4	0	2	34	0	26	12	129	8	11	192	34	452
7:45 AM	2	1	1	35	0	22	6	113	11	5	179	23	398
8:00 AM	2	0	2	36	0	25	9	111	1	8	160	19	373
8:15 AM	4	0	1	38	0	12	11	91	7	10	137	19	330
8:30 AM	0	0	4	50	0	20	10	117	6	14	146	25	392
8:45 AM	5	0	6	36	1	22	9	86	8	8	143	40	364
TOTAL VOLUMES:	22	1	21	356	2	184	88	891	49	72	1255	201	3142

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	11	1	8	196	1	105	49	486	27	32	669	98	1683

PEAK HR FACTOR:													
	0.833		0.651		0.943		0.843		0.931				

Bicycle Counts

	Calle Montecito Northbound			Calle Montecito Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	Calle Montecito North Leg		Calle Montecito South Leg		N. River Road East Leg		N. River Road West Leg		TOTAL
7:00 AM	0		1		3		0		4
7:15 AM	0		1		0		0		1
7:30 AM	0		1		1		0		2
7:45 AM	2		0		0		0		2
8:00 AM	3		2		1		1		7
8:15 AM	2		1		1		1		5
8:30 AM	0		3		0		1		4
8:45 AM	0		2		0		0		2
TOTAL VOLUMES:		7		11		6		3	27

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	2	3	4	0	9



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Calle Montecito
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	Calle Montecito Northbound			Calle Montecito Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	7	0	9	29	0	10	30	184	4	2	140	42	457
4:15 PM	5	1	4	28	0	26	20	174	7	3	164	51	483
4:30 PM	5	0	11	33	0	15	36	157	3	5	129	41	435
4:45 PM	3	1	5	42	0	10	31	173	2	2	146	51	466
5:00 PM	10	1	12	37	0	13	22	189	1	1	156	46	488
5:15 PM	3	0	8	23	0	18	38	170	2	2	145	42	451
5:30 PM	7	0	7	33	1	18	35	189	5	3	137	44	479
5:45 PM	2	2	6	23	0	22	28	181	3	1	133	41	442
TOTAL VOLUMES:	42	5	62	248	1	132	240	1417	27	19	1150	358	3701

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	23	2	32	135	1	59	126	721	10	8	584	183	1884

PEAK HR FACTOR:	0.620			0.938			0.936			0.954			0.965
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Bicycle Counts

	Calle Montecito Northbound			Calle Montecito Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	1	0	1	0	2

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	1	0	1

Pedestrian Counts

	Calle Montecito North Leg	Calle Montecito South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
4:00 PM	2	1	0	1	4
4:15 PM	0	1	0	0	1
4:30 PM	3	0	6	2	11
4:45 PM	1	0	0	1	2
5:00 PM	0	2	0	2	4
5:15 PM	2	0	1	0	3
5:30 PM	0	0	2	2	4
5:45 PM	1	2	6	2	11
TOTAL VOLUMES:	9	6	15	10	40

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	3	2	3	5	13



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Redondo Drive
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Redondo Drive Northbound			Redondo Drive Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	40	0	32	8	216	0	0	146	8	450
7:15 AM	1	0	1	21	0	23	4	173	0	0	187	16	426
7:30 AM	0	0	0	10	0	31	8	149	0	0	215	18	431
7:45 AM	0	0	0	12	0	26	13	137	0	0	204	10	402
8:00 AM	0	0	0	14	0	15	14	134	0	0	168	14	359
8:15 AM	0	0	1	18	0	20	28	113	0	0	138	22	340
8:30 AM	0	0	0	28	0	46	44	140	0	0	125	21	404
8:45 AM	0	0	0	28	0	64	35	96	0	0	133	8	364
TOTAL VOLUMES:	1	0	2	171	0	257	154	1158	0	0	1316	117	3176

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	83	0	112	33	675	0	0	752	52	1709

PEAK HR FACTOR:													
	0.250			0.677			0.790			0.863			0.949

Bicycle Counts

	Redondo Drive Northbound			Redondo Drive Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	1	0	0	0	0	0	0	0	0	1

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	1	0	0	0	0	0	0	0	0	1

Pedestrian Counts

	Redondo Drive North Leg		Redondo Drive South Leg		N. River Road East Leg		N. River Road West Leg		TOTAL
7:00 AM	1		0		5		0		6
7:15 AM	1		1		1		0		3
7:30 AM	0		0		1		0		1
7:45 AM	0		0		0		0		0
8:00 AM	1		3		2		0		6
8:15 AM	0		2		2		0		4
8:30 AM	0		3		5		0		8
8:45 AM	0		2		4		0		6
TOTAL VOLUMES:	3		11		20		0		34

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	2		1		7		0		10



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Redondo Drive
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	Redondo Drive Northbound			Redondo Drive Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	17	0	17	25	201	0	0	165	17	442
4:15 PM	0	0	0	15	0	20	11	192	0	0	186	10	434
4:30 PM	0	0	0	11	0	15	18	190	0	0	165	11	410
4:45 PM	0	0	0	12	0	21	24	200	0	0	177	13	447
5:00 PM	0	0	0	4	0	22	31	216	0	0	188	14	475
5:15 PM	0	0	0	17	0	12	24	187	0	0	174	21	435
5:30 PM	0	0	0	16	0	24	24	193	0	0	171	14	442
5:45 PM	0	0	1	11	0	13	33	192	0	0	159	21	430
TOTAL VOLUMES:	0	0	1	103	0	144	190	1571	0	0	1385	121	3515

PM Peak Hr Begins at: 4:45 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	49	0	79	103	796	0	0	710	62	1799

PEAK HR FACTOR:	0.000			0.800			0.910			0.955			0.947
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Bicycle Counts

	Redondo Drive Northbound			Redondo Drive Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	1	0	0	0	0	0	2	3

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	1	0	0	0	0	0	1	2

Pedestrian Counts

	Redondo Drive North Leg			Redondo Drive South Leg			N. River Road East Leg			N. River Road West Leg			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	2			0			0			0			2
4:15 PM	2			0			3			0			5
4:30 PM	1			1			6			0			8
4:45 PM	1			0			3			0			4
5:00 PM	1			0			2			0			3
5:15 PM	1			0			1			0			2
5:30 PM	1			1			2			0			4
5:45 PM	1			2			1			0			4
TOTAL VOLUMES:	10			4			18			0			32

PEAK VOLUMES:	North Leg			South Leg			East Leg			West Leg			TOTAL
	4			1			8			0			13



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	63	4	242	8	20	0	4	53	210	259	93	21	977
7:15 AM	84	5	300	2	13	2	6	50	140	254	118	15	989
7:30 AM	86	6	217	5	11	5	1	63	103	201	133	16	847
7:45 AM	71	6	174	10	5	2	3	46	94	235	135	18	799
8:00 AM	68	3	144	6	6	2	2	57	89	202	108	15	702
8:15 AM	71	5	152	5	8	4	9	49	84	155	87	12	641
8:30 AM	75	4	132	8	7	1	7	50	108	193	74	9	668
8:45 AM	55	2	137	4	5	1	1	48	79	159	83	4	578
TOTAL VOLUMES:	573	35	1498	48	75	17	33	416	907	1658	831	110	6201

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	304	21	933	25	49	9	14	212	547	949	479	70	3612

PEAK HR FACTOR:	0.808	0.741	0.724	0.965	0.913
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	1	0	0	0	0	0	0	0	0	0	1

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
7:00 AM	10	1	0	10	21
7:15 AM	5	0	0	2	7
7:30 AM	1	1	0	1	3
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	1	0	0	1
8:30 AM	2	1	0	0	3
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	18	5	0	13	36

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	16	2	0	13	31



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: N. River Road

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	87	7	207	8	6	0	5	104	118	202	101	10	855
4:15 PM	103	5	229	7	13	0	3	97	111	251	98	6	923
4:30 PM	97	5	238	9	4	0	6	93	95	238	78	12	875
4:45 PM	100	8	215	8	10	0	6	87	108	267	95	12	916
5:00 PM	97	11	247	7	14	0	3	104	114	234	93	16	940
5:15 PM	107	5	276	7	11	2	6	111	113	212	92	17	959
5:30 PM	89	6	249	1	4	0	8	90	110	242	84	13	896
5:45 PM	88	14	239	13	11	1	14	97	97	209	79	14	876
TOTAL VOLUMES:	768	61	1900	60	73	3	51	783	866	1855	720	100	7240

PM Peak Hr Begins at: 4:45 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	393	30	987	23	39	2	23	392	445	955	364	58	3711

PEAK HR FACTOR:	0.909			0.762			0.935			0.920			0.967
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	2	0	0	0	0	0	0	0	1	1	4
5:15 PM	0	0	2	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL VOLUMES:	0	0	4	0	1	0	0	0	0	0	1	2	8

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	4	0	0	0	0	0	0	0	1	1	6

Pedestrian Counts

	College Boulevard North Leg		College Boulevard South Leg		N. River Road East Leg		N. River Road West Leg		TOTAL
	NL	NT	SL	ST	EL	ET	WL	WT	
4:00 PM	0	0	0	0	0	0	1	1	1
4:15 PM	0	0	1	0	0	0	1	1	2
4:30 PM	0	0	3	0	0	0	1	1	4
4:45 PM	0	0	1	0	0	0	0	0	1
5:00 PM	2	0	1	0	0	0	1	1	4
5:15 PM	3	0	0	0	0	0	3	3	6
5:30 PM	4	0	2	0	0	0	5	5	11
5:45 PM	0	0	2	0	0	0	1	1	3
TOTAL VOLUMES:	9	0	10	0	0	0	13	13	32

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	9	0	4	0	0	0	9	9	22



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Buchanan Park Access

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Buchanan Park Access Eastbound			Buchanan Park Access Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	7	286	0	0	438	45	20	0	13	0	0	0	809
7:15 AM	10	360	0	0	382	21	26	0	12	0	0	0	811
7:30 AM	3	308	0	0	306	5	1	0	0	0	0	0	623
7:45 AM	6	253	0	0	330	3	3	0	2	0	0	0	597
8:00 AM	3	189	0	0	299	2	9	0	3	0	0	0	505
8:15 AM	4	217	0	0	241	1	3	0	1	0	0	0	467
8:30 AM	7	205	0	0	301	7	0	0	7	0	0	0	527
8:45 AM	9	190	0	0	240	4	2	0	10	0	0	0	455
TOTAL VOLUMES:	49	2008	0	0	2537	88	64	0	48	0	0	0	4794

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	26	1207	0	0	1456	74	50	0	27	0	0	0	2840

PEAK HR FACTOR:	0.833	0.792	0.507	0.000	0.875
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Buchanan Park Access Eastbound			Buchanan Park Access Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1	0	1	0	0	0	0	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	1	0	0	0	0	0	2

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	Buchanan Park Access East Leg	Buchanan Park Access West Leg	TOTAL
7:00 AM	0	0	0	2	2
7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	1	1
8:00 AM	0	2	0	1	3
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	1	1
8:45 AM	0	3	0	0	3
TOTAL VOLUMES:	0	6	0	5	11

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	1	0	3	4



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Buchanan Park Access

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Buchanan Park Access Eastbound			Buchanan Park Access Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	22	303	0	0	276	21	6	0	11	0	0	0	639
4:15 PM	18	306	0	0	356	17	9	0	12	0	0	0	718
4:30 PM	13	336	0	0	328	12	7	0	10	0	0	0	706
4:45 PM	14	332	0	0	367	13	3	0	6	0	0	0	735
5:00 PM	16	360	0	0	350	8	8	0	7	0	0	0	749
5:15 PM	19	378	0	0	322	13	3	0	8	0	0	0	743
5:30 PM	30	347	0	0	343	13	6	0	20	0	0	0	759
5:45 PM	30	340	0	0	295	21	11	0	44	0	0	0	741
TOTAL VOLUMES:	162	2702	0	0	2637	118	53	0	118	0	0	0	5790

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	95	1425	0	0	1310	55	28	0	79	0	0	0	2992

PEAK HR FACTOR:	0.957			0.953			0.486			0.000			0.986
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Buchanan Park Access Eastbound			Buchanan Park Access Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	5	0	0	0	0	0	0	0	0	0	0	5

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	0	0	0	0	0	0	0	0	2

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	Buchanan Park Access East Leg	Buchanan Park Access West Leg	TOTAL
4:00 PM	0	0	0	2	2
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	5	5
5:15 PM	0	1	0	3	4
5:30 PM	0	0	0	3	3
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	13	14

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	0	1	0	11	12



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Adams Street

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Adams Street Eastbound			Adams Street Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	228	9	4	332	111	47	4	28	22	9	10	804
7:15 AM	7	293	6	6	329	64	75	4	27	15	6	10	842
7:30 AM	7	270	7	1	302	9	31	2	17	24	1	9	680
7:45 AM	6	219	7	5	303	20	21	2	15	15	1	11	625
8:00 AM	2	165	4	5	269	27	16	1	6	16	2	6	519
8:15 AM	7	170	11	3	231	14	37	1	12	11	3	14	514
8:30 AM	7	160	5	13	263	30	43	2	14	13	3	12	565
8:45 AM	3	155	9	7	224	23	24	0	13	14	1	12	485
TOTAL VOLUMES:	39	1660	58	44	2253	298	294	16	132	130	26	84	5034

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	20	1010	29	16	1266	204	174	12	87	76	17	40	2951

PEAK HR FACTOR:	0.865			0.831			0.644			0.811			0.876
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Adams Street Eastbound			Adams Street Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Boulevard North Leg		College Boulevard South Leg		Adams Street East Leg		Adams Street West Leg		TOTAL
	NL	NT	SL	ST	EL	ET	WL	WT	
7:00 AM	3		0		0		1		4
7:15 AM	1		1		1		1		4
7:30 AM	2		0		1		1		4
7:45 AM	2		2		1		0		5
8:00 AM	1		0		0		1		2
8:15 AM	0		0		0		0		0
8:30 AM	0		0		1		4		5
8:45 AM	1		0		0		0		1
TOTAL VOLUMES:	10		3		4		8		25

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	8		3		3		3		17



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Adams Street

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Adams Street Eastbound			Adams Street Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	10	292	22	10	259	26	23	6	25	14	1	6	694
4:15 PM	15	285	9	7	333	20	35	9	13	14	5	10	755
4:30 PM	19	311	21	7	305	27	29	7	17	17	3	7	770
4:45 PM	14	316	20	6	336	32	26	4	18	11	1	5	789
5:00 PM	15	334	20	9	312	32	36	10	16	14	3	9	810
5:15 PM	17	350	17	8	309	24	37	4	16	7	2	6	797
5:30 PM	23	325	21	17	313	28	48	2	20	14	4	10	825
5:45 PM	17	334	21	17	293	24	35	7	14	9	4	10	785
TOTAL VOLUMES:	130	2547	151	81	2460	213	269	49	139	100	23	63	6225

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	69	1325	78	40	1270	116	147	20	70	46	10	30	3221

PEAK HR FACTOR:	0.958			0.953			0.846			0.768			0.976
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Adams Street Eastbound			Adams Street Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	0	0	0	3	4

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	0	0	0	0	0	0	0	0	1

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	Adams Street East Leg	Adams Street West Leg	TOTAL
4:00 PM	0	2	0	3	5
4:15 PM	6	1	1	3	11
4:30 PM	1	0	0	0	1
4:45 PM	0	0	1	0	1
5:00 PM	0	1	1	3	5
5:15 PM	0	1	0	3	4
5:30 PM	0	0	0	3	3
5:45 PM	5	3	0	3	11
TOTAL VOLUMES:	12	8	3	18	41

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	0	2	2	9	13



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Via Cupeno

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Via Cupeno Eastbound			Via Cupeno Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	29	227	6	0	392	12	9	0	5	33	2	0	715
7:15 AM	29	300	11	1	353	15	9	0	10	44	1	1	774
7:30 AM	37	260	9	0	314	13	14	0	7	32	2	0	688
7:45 AM	37	224	11	0	303	12	15	1	13	24	0	0	640
8:00 AM	57	162	8	1	271	19	13	1	13	19	1	2	567
8:15 AM	54	174	10	1	244	16	18	2	24	20	1	2	566
8:30 AM	63	147	7	0	271	15	24	1	16	24	2	1	571
8:45 AM	49	151	10	0	213	27	22	0	20	19	0	0	511
TOTAL VOLUMES:	355	1645	72	3	2361	129	124	5	108	215	9	6	5032

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	132	1011	37	1	1362	52	47	1	35	133	5	1	2817

PEAK HR FACTOR:	0.868	0.876	0.716	0.755	0.910
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Via Cupeno Eastbound			Via Cupeno Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	2
TOTAL VOLUMES:	0	1	0	0	1	0	0	0	1	1	0	0	4

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	Via Cupeno East Leg	Via Cupeno West Leg	TOTAL
7:00 AM	0	2	1	0	3
7:15 AM	0	2	0	0	2
7:30 AM	0	0	2	0	2
7:45 AM	0	1	1	0	2
8:00 AM	0	3	1	0	4
8:15 AM	0	1	1	0	2
8:30 AM	0	1	0	0	1
8:45 AM	0	1	1	0	2
TOTAL VOLUMES:	0	11	7	0	18

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	5	4	0	9



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: Via Cupeno

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			Via Cupeno Eastbound			Via Cupeno Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	73	259	20	0	285	26	56	1	40	11	1	4	776
4:15 PM	94	255	30	1	307	23	41	2	31	18	2	4	808
4:30 PM	97	281	26	2	287	35	63	5	34	15	2	1	848
4:45 PM	88	286	19	3	328	21	57	5	43	14	2	2	868
5:00 PM	110	302	30	0	312	24	64	4	50	11	2	3	912
5:15 PM	101	319	25	2	303	28	62	1	42	18	2	1	904
5:30 PM	105	293	25	0	280	26	65	2	50	18	2	1	867
5:45 PM	103	336	19	0	261	34	69	2	33	15	4	1	877
TOTAL VOLUMES:	771	2331	194	8	2363	217	477	22	323	120	17	17	6860

PM Peak Hr Begins at: 500 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	419	1250	99	2	1156	112	260	9	175	62	10	6	3560

PEAK HR FACTOR:	0.965			0.945			0.941			0.929			0.976
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			Via Cupeno Eastbound			Via Cupeno Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	1	0	0	0	0	0	3

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	1	0	0	0	0	0	1

Pedestrian Counts

	College Boulevard North Leg		College Boulevard South Leg		Via Cupeno East Leg		Via Cupeno West Leg		TOTAL
	NL	NT	SL	ST	EL	ET	WL	WT	
4:00 PM	0	0	2	0	0	0	0	0	2
4:15 PM	1	0	1	0	2	0	0	0	4
4:30 PM	0	0	11	0	9	0	0	0	20
4:45 PM	0	0	0	0	2	0	0	0	2
5:00 PM	0	0	2	0	3	0	0	0	5
5:15 PM	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	2	0	2
5:45 PM	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	1	0	17	0	16	0	2	0	36

PEAK VOLUMES:	North Leg		South Leg		East Leg		West Leg		TOTAL
	0	0	3	0	3	0	2	0	8



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: SR-76

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	12	87	54	116	162	102	72	169	0	135	396	100	1405
7:15 AM	11	126	93	174	178	90	76	206	6	135	295	124	1514
7:30 AM	11	113	67	123	185	64	92	246	7	120	311	116	1455
7:45 AM	14	121	47	79	183	69	51	145	9	137	368	108	1331
8:00 AM	14	103	59	90	144	78	52	171	2	117	333	79	1242
8:15 AM	9	88	40	119	105	70	57	200	6	104	399	90	1287
8:30 AM	7	77	42	87	161	65	57	193	7	125	349	75	1245
8:45 AM	11	80	44	91	128	70	70	158	6	74	306	77	1115
TOTAL VOLUMES:	89	795	446	879	1246	608	527	1488	43	947	2757	769	10594

AM Peak Hr Begins at: 700 AM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	48	447	261	492	708	325	291	766	22	527	1370	448	5705

PEAK HR FACTOR:													
	0.822		0.863		0.782		0.929		0.942				

Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	1	0	0	0	1	0	0	0	0	3

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	1	0	0	0	1	0	0	0	0	2

Pedestrian Counts

	College Boulevard North Leg			College Boulevard South Leg			SR-76 East Leg			SR-76 West Leg			TOTAL
7:00 AM	0			0			0			1		1	
7:15 AM	0			1			1			0		2	
7:30 AM	0			0			0			1		1	
7:45 AM	0			1			1			0		2	
8:00 AM	0			0			1			1		2	
8:15 AM	0			0			0			1		1	
8:30 AM	0			0			0			1		1	
8:45 AM	0			0			0			2		2	
TOTAL VOLUMES:	0			2			3			7		12	

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	0	2	2	2	6



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: College Boulevard
E/W: SR-76

Date: 9/20/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM

Vehicle Counts

	College Boulevard Northbound			College Boulevard Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	11	160	79	125	144	97	74	281	9	73	213	141	1407
4:15 PM	10	149	100	126	169	95	114	318	8	65	227	114	1495
4:30 PM	10	158	96	124	165	95	128	324	17	68	201	141	1527
4:45 PM	12	154	93	134	199	101	109	324	12	75	231	144	1588
5:00 PM	16	190	73	137	174	107	120	337	12	89	205	136	1596
5:15 PM	7	170	99	132	161	92	137	338	13	71	205	145	1570
5:30 PM	7	166	56	112	177	101	134	318	13	72	234	139	1529
5:45 PM	9	166	70	92	178	102	136	322	5	64	233	145	1522
TOTAL VOLUMES:	82	1313	666	982	1367	790	952	2562	89	577	1749	1105	12234

PM Peak Hr Begins at: 445 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	42	680	321	515	711	401	500	1317	50	307	875	564	6283

PEAK HR FACTOR:	0.935			0.937			0.956			0.970			0.984
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Bicycle Counts

	College Boulevard Northbound			College Boulevard Southbound			SR-76 Eastbound			SR-76 Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0	0	0	0	0	0	1	1	2

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	College Boulevard North Leg	College Boulevard South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
4:00 PM	0	2	2	3	7
4:15 PM	0	0	0	0	0
4:30 PM	2	0	0	4	6
4:45 PM	0	0	0	0	0
5:00 PM	0	0	1	3	4
5:15 PM	0	2	0	4	6
5:30 PM	0	0	0	5	5
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	2	4	3	20	29

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	0	2	1	12	15



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Vandergrift Boulevard
E/W: N. River Road

Date: 9/27/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00AM to 8:00 AM

Vehicle Counts

	Vandergrift Boulevard Northbound			Vandergrift Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	30	215	49	31	198	11	10	10	45	93	18	73	783
7:15 AM	26	228	49	18	182	7	9	15	15	108	13	61	731
7:30 AM	32	203	53	22	160	12	22	17	28	104	13	60	726
7:45 AM	28	161	46	21	161	8	6	14	21	105	7	39	617
8:00 AM	18	134	58	15	162	7	5	18	24	85	13	40	579
8:15 AM	28	103	62	17	140	11	10	16	27	90	14	41	559
8:30 AM	26	84	82	22	144	8	14	9	22	89	20	24	544
8:45 AM	22	99	63	18	129	5	8	14	19	107	11	26	521
TOTAL VOLUMES:	210	1227	462	164	1276	69	84	113	201	781	109	364	5060

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	116	807	197	92	701	38	47	56	109	410	51	233	2857

PEAK HR FACTOR:	0.924	0.866	0.791	0.943	0.912
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Bicycle Counts

	Vandergrift Boulevard Northbound			Vandergrift Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	1	0	0	0	0	1	0	0	2
TOTAL VOLUMES:	0	0	0	0	2	0	0	1	0	1	1	0	5

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	1	0	0	1	0	2

Pedestrian Counts

	Vandergrift Boulevard North Leg	Vandergrift Boulevard South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
7:00 AM	0	8	2	2	12
7:15 AM	0	2	1	0	3
7:30 AM	2	8	3	3	16
7:45 AM	2	3	1	0	6
8:00 AM	4	3	3	0	10
8:15 AM	2	6	1	6	15
8:30 AM	6	5	2	2	15
8:45 AM	0	6	2	3	11
TOTAL VOLUMES:	16	41	15	16	88

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	4	21	7	5	37



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Oceanside
N/S: Vandergrift Boulevard
E/W: N. River Road

Date: 9/27/18
Day: THURSDAY
Project # 143-18669

TURNING MOVEMENT COUNT

Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM

Vehicle Counts

	Vandergrift Boulevard Northbound			Vandergrift Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	47	163	107	60	222	13	15	15	24	68	34	19	787
4:15 PM	41	145	82	58	213	11	12	24	33	77	33	26	755
4:30 PM	58	207	97	65	233	10	10	21	26	68	22	14	831
4:45 PM	48	152	109	57	226	14	20	26	28	77	22	25	804
5:00 PM	65	177	122	46	202	18	12	21	32	78	39	19	831
5:15 PM	54	148	94	44	221	11	28	19	35	77	23	31	785
5:30 PM	68	177	92	43	228	12	22	26	27	70	14	22	801
5:45 PM	48	178	110	32	166	9	24	20	30	67	22	27	733
TOTAL VOLUMES:	429	1347	813	405	1711	98	143	172	235	582	209	183	6327

PM Peak Hr Begins at: 4:30 PM

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	225	684	422	212	882	53	70	87	121	300	106	89	3251

PEAK HR FACTOR:	0.914			0.931			0.848			0.910			0.978
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Bicycle Counts

	Vandergrift Boulevard Northbound			Vandergrift Boulevard Southbound			N. River Road Eastbound			N. River Road Westbound			TOTAL
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	0	0	0	0	0	0	5	0	6

PEAK VOLUMES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	0	0	0	0	0	0	0	0	4	0	4

Pedestrian Counts

	Vandergrift Boulevard North Leg	Vandergrift Boulevard South Leg	N. River Road East Leg	N. River Road West Leg	TOTAL
4:00 PM	1	13	1	5	20
4:15 PM	0	10	4	1	15
4:30 PM	3	7	2	5	17
4:45 PM	8	9	3	6	26
5:00 PM	0	6	0	1	7
5:15 PM	2	12	2	5	21
5:30 PM	1	12	2	4	19
5:45 PM	1	8	1	2	12
TOTAL VOLUMES:	16	77	15	29	137

PEAK VOLUMES:	North Leg	South Leg	East Leg	West Leg	TOTAL
	13	34	7	17	71



City of Oceanside
 Douglas Drive
 B/ Rainer Way - River Road

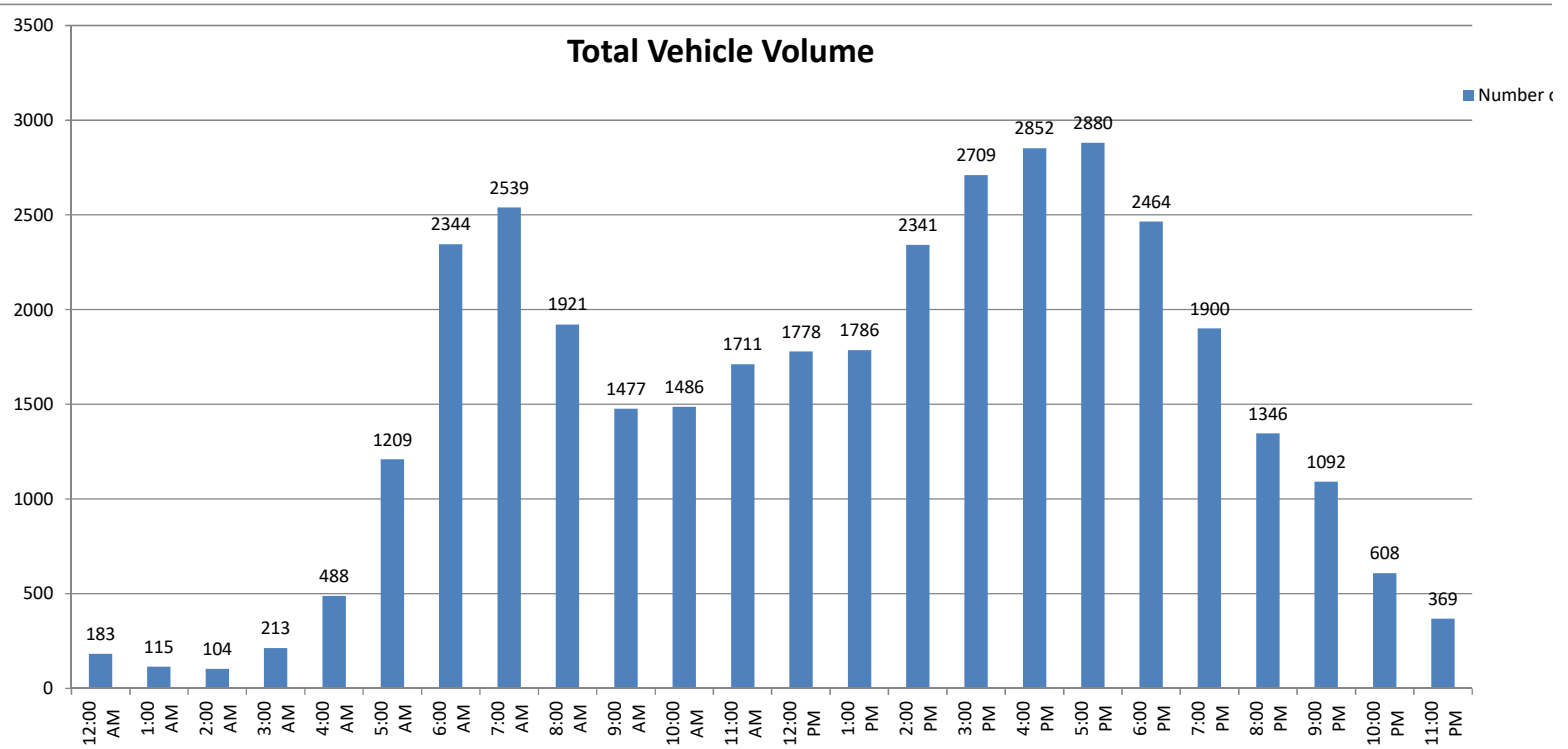
File Name 005
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	45	236			14	198				
12:15	24	218			9	223				
12:30	39	223			17	223				
12:45	24	227	132	904	11	230	51	874	183	1778
1:00	20	216			7	249				
1:15	18	227			16	215				
1:30	21	218			6	211				
1:45	17	220	76	881	10	230	39	905	115	1786
2:00	17	247			14	260				
2:15	12	339			9	224				
2:30	8	410			18	233				
2:45	16	320	53	1316	10	308	51	1025	104	2341
3:00	8	378			30	283				
3:15	14	354			27	310				
3:30	23	446			50	286				
3:45	18	390	63	1568	43	262	150	1141	213	2709
4:00	17	398			75	280				
4:15	25	409			98	275				
4:30	28	414			97	316				
4:45	29	441	99	1662	119	319	389	1190	488	2852
5:00	54	450			157	299				
5:15	82	444			228	321				
5:30	67	426			235	264				
5:45	105	393	308	1713	281	283	901	1167	1209	2880
6:00	125	422			320	248				
6:15	137	372			426	283				
6:30	180	367			506	228				
6:45	192	306	634	1467	458	238	1710	997	2344	2464
7:00	261	285			401	224				
7:15	250	311			410	186				
7:30	204	293			413	159				
7:45	176	278	891	1167	424	164	1648	733	2539	1900
8:00	152	254			328	122				
8:15	167	210			359	101				
8:30	173	212			313	119				
8:45	169	224	661	900	260	104	1260	446	1921	1346
9:00	130	223			238	99				
9:15	137	206			244	90				
9:30	140	173			223	76				
9:45	158	142	565	744	207	83	912	348	1477	1092
10:00	147	119			227	48				
10:15	173	115			214	44				
10:30	158	96			185	43				
10:45	194	91	672	421	188	52	814	187	1486	608
11:00	198	85			235	32				
11:15	199	67			202	33				
11:30	216	55			212	31				
11:45	224	46	837	253	225	20	874	116	1711	369
Totals	4991	12996			8799	9129				
Combined Totals		17987				17928				
ADT										35915
AM Peak Hour	645	AM			615	AM				
Volume	907				1791					
P.H.F.	0.869				0.885					
PM Peak Hour		445	PM			430	PM			
Volume		1761				1255				
P.H.F.		0.978				0.977				
Percentage	27.7%	72.3%			49.1%	50.9%				



24 Hour Volume Plot
Douglas Drive
B/ Rainer Way - River Road
 9/20/2018

Start Time	9/20/2018
12:00 AM	183
1:00 AM	115
2:00 AM	104
3:00 AM	213
4:00 AM	488
5:00 AM	1209
6:00 AM	2344
7:00 AM	2539
8:00 AM	1921
9:00 AM	1477
10:00 AM	1486
11:00 AM	1711
12:00 PM	1778
1:00 PM	1786
2:00 PM	2341
3:00 PM	2709
4:00 PM	2852
5:00 PM	2880
6:00 PM	2464
7:00 PM	1900
8:00 PM	1346
9:00 PM	1092
10:00 PM	608
11:00 PM	369
Total	35915



Volumes represent the combined totals for both directions



City of Oceanside
 Douglas Drive
 B/ Pala Road - Rainer Way

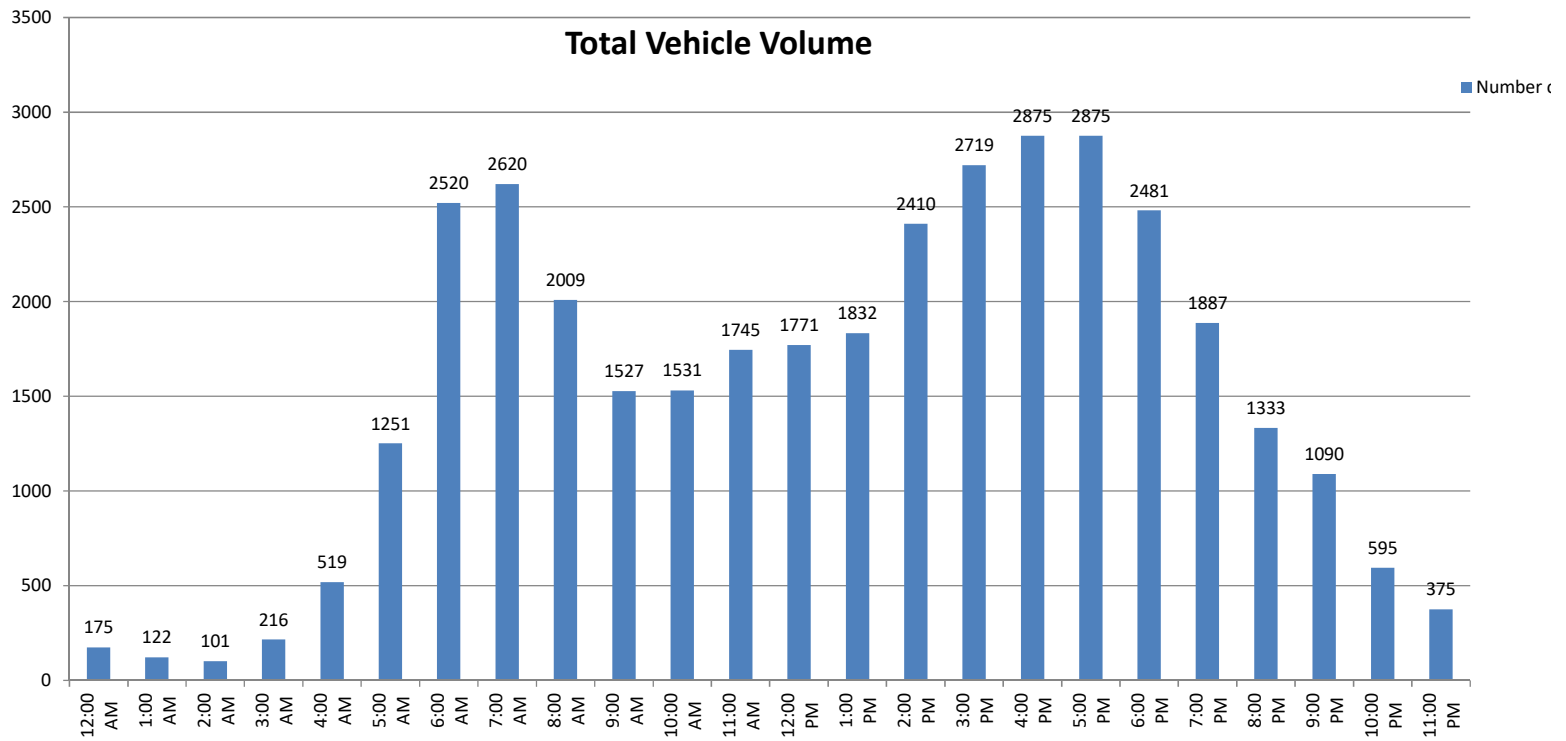
File Name 004
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	46	237			14	209				
12:15	23	218			9	218				
12:30	37	213			13	224				
12:45	23	225	129	893	10	227	46	878	175	1771
1:00	22	216			8	261				
1:15	18	223			15	228				
1:30	21	213			7	227				
1:45	20	213	81	865	11	251	41	967	122	1832
2:00	16	249			15	284				
2:15	10	363			10	225				
2:30	8	405			18	227				
2:45	14	346	48	1363	10	311	53	1047	101	2410
3:00	8	359			28	294				
3:15	14	371			30	314				
3:30	21	449			53	277				
3:45	18	386	61	1565	44	269	155	1154	216	2719
4:00	12	375			86	283				
4:15	24	431			102	267				
4:30	25	405			114	333				
4:45	30	455	91	1666	126	326	428	1209	519	2875
5:00	49	433			175	291				
5:15	77	443			248	324				
5:30	62	435			253	266				
5:45	95	396	283	1707	292	287	968	1168	1251	2875
6:00	112	426			344	248				
6:15	135	365			456	259				
6:30	181	373			568	257				
6:45	202	319	630	1483	522	234	1890	998	2520	2481
7:00	251	282			433	227				
7:15	245	310			419	189				
7:30	195	307			447	161				
7:45	176	265	867	1164	454	146	1753	723	2620	1887
8:00	149	256			358	117				
8:15	166	214			387	102				
8:30	168	206			338	113				
8:45	168	230	651	906	275	95	1358	427	2009	1333
9:00	133	219			246	94				
9:15	141	221			255	83				
9:30	139	168			233	86				
9:45	164	148	577	756	216	71	950	334	1527	1090
10:00	146	118			233	47				
10:15	166	118			227	42				
10:30	159	96			206	40				
10:45	198	89	669	421	196	45	862	174	1531	595
11:00	196	88			237	31				
11:15	193	70			225	29				
11:30	215	59			221	25				
11:45	225	47	829	264	233	26	916	111	1745	375
Totals	4916	13053			9420	9190				
Combined Totals		17969				18610				
ADT										36579
AM Peak Hour	645	AM			615	AM				
Volume	893				1979					
P.H.F.	0.889				0.871					
PM Peak Hour		445	PM			430	PM			
Volume		1766				1274				
P.H.F.		0.970				0.956				
Percentage	27.4%	72.6%			50.6%	49.4%				



24 Hour Volume Plot
Douglas Drive
B/ Pala Road - Rainer Way
 9/20/2018

Start Time	9/20/2018
12:00 AM	175
1:00 AM	122
2:00 AM	101
3:00 AM	216
4:00 AM	519
5:00 AM	1251
6:00 AM	2520
7:00 AM	2620
8:00 AM	2009
9:00 AM	1527
10:00 AM	1531
11:00 AM	1745
12:00 PM	1771
1:00 PM	1832
2:00 PM	2410
3:00 PM	2719
4:00 PM	2875
5:00 PM	2875
6:00 PM	2481
7:00 PM	1887
8:00 PM	1333
9:00 PM	1090
10:00 PM	595
11:00 PM	375
Total	36579



Volumes represent the combined totals for both directions



City of Oceanside
 Douglas Drive
 B/ El Camino Real - Pala Road

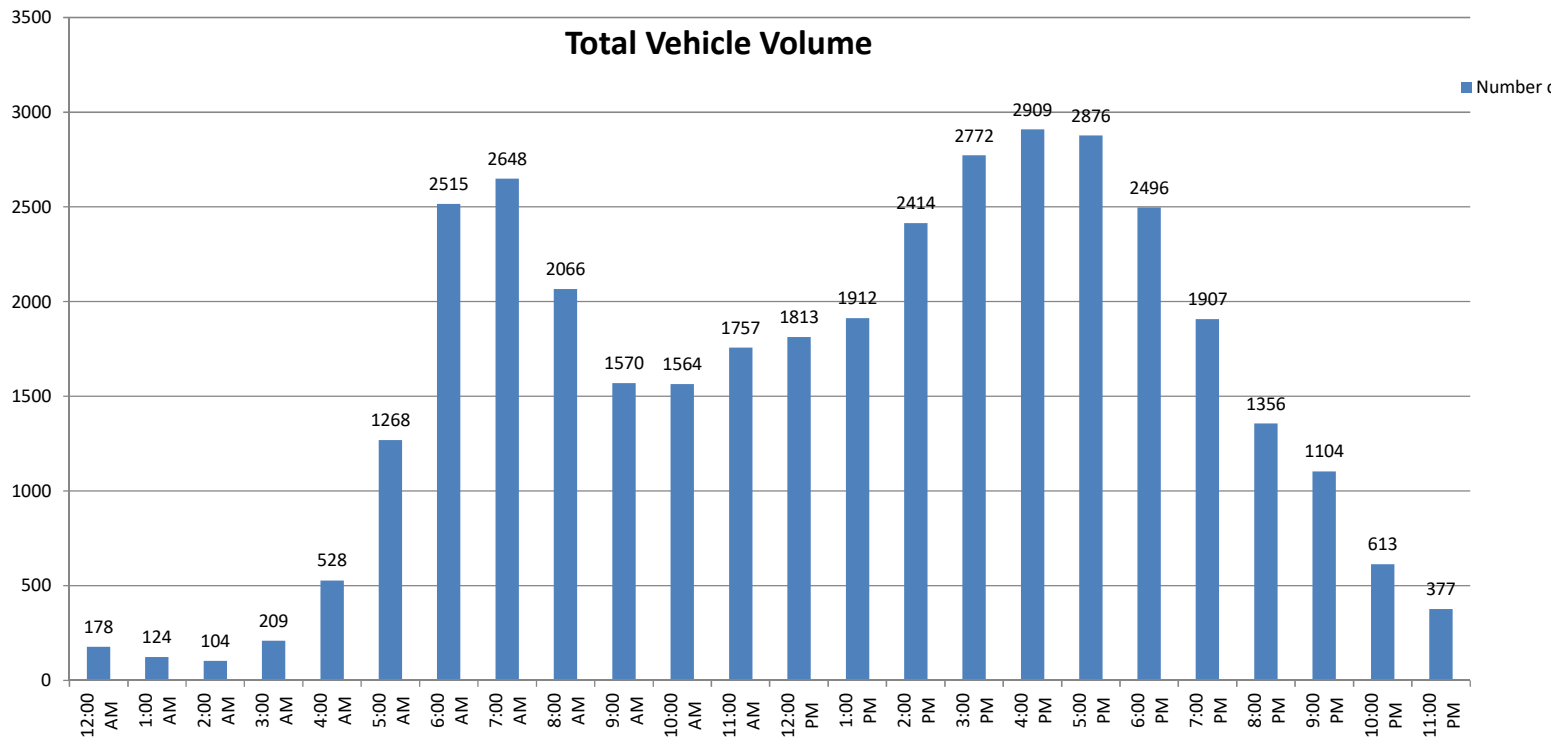
File Name 003
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	44	219			14	232				
12:15	26	211			8	226				
12:30	37	232			12	226				
12:45	26	243	133	905	11	224	45	908	178	1813
1:00	22	246			6	275				
1:15	21	231			17	230				
1:30	19	221			8	240				
1:45	21	215	83	913	10	254	41	999	124	1912
2:00	15	256			14	282				
2:15	11	396			10	226				
2:30	8	390			18	220				
2:45	14	357	48	1399	14	287	56	1015	104	2414
3:00	8	400			25	271				
3:15	13	401			29	287				
3:30	19	421			54	316				
3:45	19	404	59	1626	42	272	150	1146	209	2772
4:00	12	394			91	299				
4:15	21	424			107	271				
4:30	21	417			116	316				
4:45	28	475	82	1710	132	313	446	1199	528	2909
5:00	46	426			173	287				
5:15	63	452			265	311				
5:30	54	448			271	260				
5:45	96	409	259	1735	300	283	1009	1141	1268	2876
6:00	105	432			360	256				
6:15	120	370			474	255				
6:30	176	384			560	239				
6:45	188	331	589	1517	532	229	1926	979	2515	2496
7:00	242	283			461	218				
7:15	244	330			435	184				
7:30	199	306			449	156				
7:45	163	277	848	1196	455	153	1800	711	2648	1907
8:00	184	273			357	112				
8:15	162	221			394	98				
8:30	144	217			368	103				
8:45	161	242	651	953	296	90	1415	403	2066	1356
9:00	131	226			256	90				
9:15	135	228			273	77				
9:30	137	182			238	81				
9:45	167	153	570	789	233	67	1000	315	1570	1104
10:00	142	128			238	40				
10:15	182	117			230	44				
10:30	152	100			215	39				
10:45	209	100	685	445	196	45	879	168	1564	613
11:00	196	97			243	32				
11:15	200	71			223	28				
11:30	229	61			220	21				
11:45	224	46	849	275	222	21	908	102	1757	377
Totals	4856	13463			9675	9086				
Combined Totals		18319				18761				
ADT										37080
AM Peak Hour	645	AM			615	AM				
Volume	873				2027					
P.H.F.	0.894				0.905					
PM Peak Hour		445	PM			430	PM			
Volume		1801				1227				
P.H.F.		0.948				0.971				
Percentage	26.5%	73.5%			51.6%	48.4%				



24 Hour Volume Plot
Douglas Drive
B/ El Camino Real - Pala Road
 9/20/2018

Start Time	9/20/2018
12:00 AM	178
1:00 AM	124
2:00 AM	104
3:00 AM	209
4:00 AM	528
5:00 AM	1268
6:00 AM	2515
7:00 AM	2648
8:00 AM	2066
9:00 AM	1570
10:00 AM	1564
11:00 AM	1757
12:00 PM	1813
1:00 PM	1912
2:00 PM	2414
3:00 PM	2772
4:00 PM	2909
5:00 PM	2876
6:00 PM	2496
7:00 PM	1907
8:00 PM	1356
9:00 PM	1104
10:00 PM	613
11:00 PM	377
Total	37080



Volumes represent the combined totals for both directions



City of Oceanside
 Douglas Drive
 B/ El Camino Real - Mission Avenue

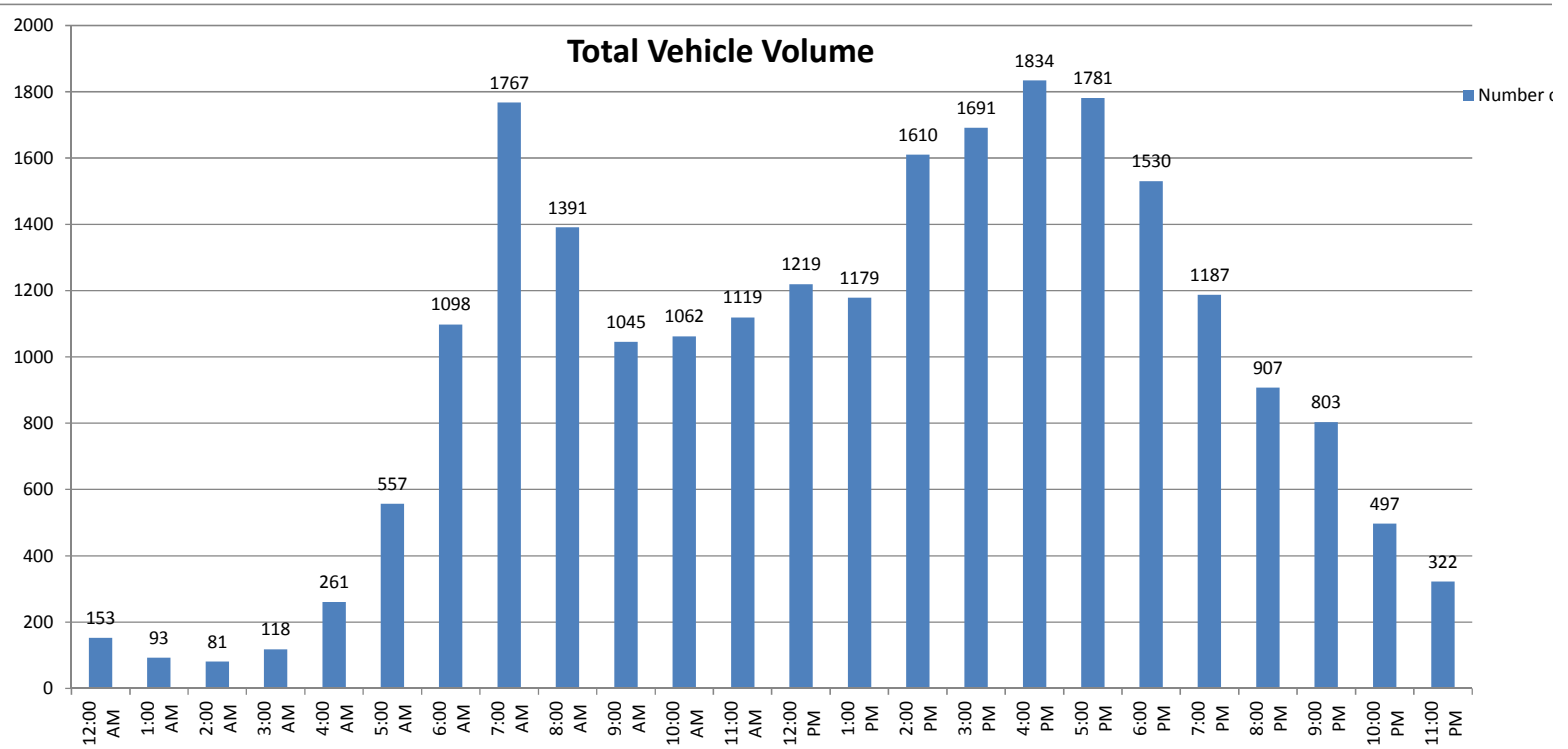
File Name 001
 Site Code: 143-18947
 24 Hour Directional Volume Count

Date: 12/13/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	41	164			6	134				
12:15	33	158			16	160				
12:30	17	145			12	145				
12:45	22	166	113	633	6	147	40	586	153	1219
1:00	19	137			1	119				
1:15	16	136			9	171				
1:30	14	149			6	168				
1:45	14	144	63	566	14	155	30	613	93	1179
2:00	10	163			10	200				
2:15	14	167			9	190				
2:30	9	268			10	171				
2:45	11	283	44	881	8	168	37	729	81	1610
3:00	10	225			13	158				
3:15	9	292			14	179				
3:30	9	259			26	161				
3:45	8	243	36	1019	29	174	82	672	118	1691
4:00	12	249			29	171				
4:15	12	258			38	193				
4:30	8	255			71	200				
4:45	21	295	53	1057	70	213	208	777	261	1834
5:00	17	276			59	178				
5:15	26	293			105	184				
5:30	38	260			139	177				
5:45	28	252	109	1081	145	161	448	700	557	1781
6:00	49	262			146	186				
6:15	60	232			171	173				
6:30	73	186			198	140				
6:45	97	205	279	885	304	146	819	645	1098	1530
7:00	158	223			358	93				
7:15	193	207			257	105				
7:30	213	185			233	91				
7:45	130	192	694	807	225	91	1073	380	1767	1187
8:00	118	147			261	65				
8:15	139	163			224	80				
8:30	111	167			203	68				
8:45	115	126	483	603	220	91	908	304	1391	907
9:00	93	157			171	69				
9:15	99	162			166	58				
9:30	83	132			143	51				
9:45	110	128	385	579	180	46	660	224	1045	803
10:00	93	102			115	35				
10:15	115	80			152	41				
10:30	121	77			177	34				
10:45	137	97	466	356	152	31	596	141	1062	497
11:00	127	74			122	28				
11:15	129	64			156	24				
11:30	131	48			163	12				
11:45	143	50	530	236	148	22	589	86	1119	322
Totals	3255	8703			5490	5857				
Combined Totals		11958				11347				
ADT										23305
AM Peak Hour	700	AM			645	AM				
Volume	694				1152					
P.H.F.	0.815				0.804					
PM Peak Hour		445	PM			415	PM			
Volume		1124				784				
P.H.F.		0.953				0.920				
Percentage	27.2%	72.8%			48.4%	51.6%				



24 Hour Volume Plot
Douglas Drive
B/ El Camino Real - Mission Avenue
 12/13/2018

Start Time	#####
12:00 AM	153
1:00 AM	93
2:00 AM	81
3:00 AM	118
4:00 AM	261
5:00 AM	557
6:00 AM	1098
7:00 AM	1767
8:00 AM	1391
9:00 AM	1045
10:00 AM	1062
11:00 AM	1119
12:00 PM	1219
1:00 PM	1179
2:00 PM	1610
3:00 PM	1691
4:00 PM	1834
5:00 PM	1781
6:00 PM	1530
7:00 PM	1187
8:00 PM	907
9:00 PM	803
10:00 PM	497
11:00 PM	322
Total	23305



Volumes represent the combined totals for both directions



City of Oceanside
 Douglas Drive
 B/ State Route 76 - Mission Avenue

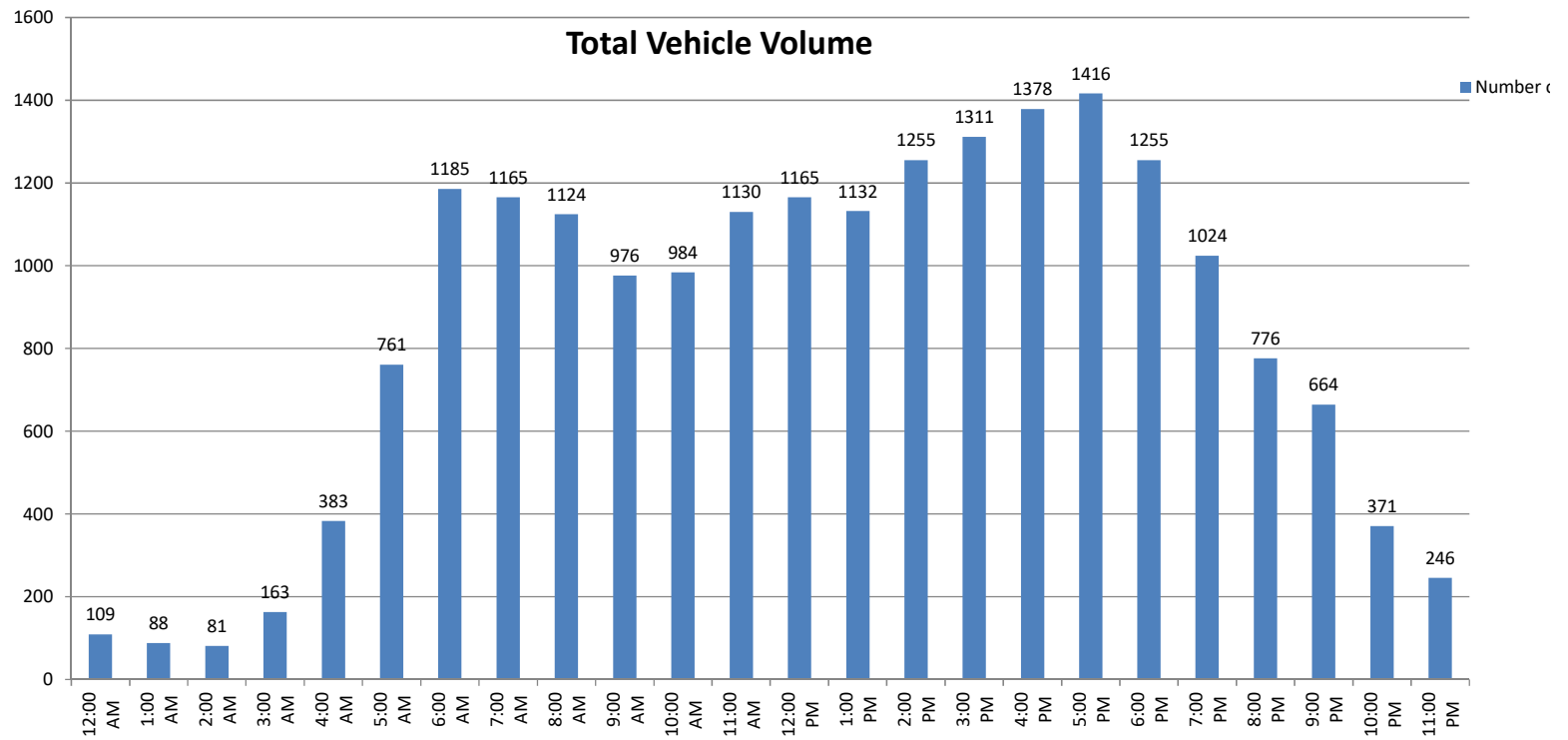
File Name 001
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	22	153			13	175				
12:15	15	133			9	146				
12:30	22	172			10	146				
12:45	13	127	72	585	5	113	37	580	109	1165
1:00	19	152			7	167				
1:15	13	146			12	142				
1:30	16	128			5	138				
1:45	10	125	58	551	6	134	30	581	88	1132
2:00	8	143			11	156				
2:15	8	208			12	135				
2:30	8	180			15	115				
2:45	8	169	32	700	11	149	49	555	81	1255
3:00	11	156			16	144				
3:15	9	213			27	155				
3:30	16	153			34	156				
3:45	18	178	54	700	32	156	109	611	163	1311
4:00	14	204			70	152				
4:15	20	182			78	153				
4:30	14	173			84	154				
4:45	23	192	71	751	80	168	312	627	383	1378
5:00	43	184			102	157				
5:15	39	201			146	160				
5:30	52	174			154	169				
5:45	64	195	198	754	161	176	563	662	761	1416
6:00	85	198			190	164				
6:15	64	174			194	152				
6:30	117	163			202	138				
6:45	108	155	374	690	225	111	811	565	1185	1255
7:00	121	166			180	105				
7:15	110	148			180	134				
7:30	113	158			181	93				
7:45	71	127	415	599	209	93	750	425	1165	1024
8:00	97	139			196	81				
8:15	104	132			190	63				
8:30	100	101			179	70				
8:45	105	122	406	494	153	68	718	282	1124	776
9:00	81	100			140	71				
9:15	103	120			147	51				
9:30	108	118			124	65				
9:45	128	94	420	432	145	45	556	232	976	664
10:00	85	73			155	27				
10:15	127	73			132	35				
10:30	111	52			140	35				
10:45	131	49	454	247	103	27	530	124	984	371
11:00	139	56			155	32				
11:15	127	44			138	16				
11:30	157	37			136	17				
11:45	127	35	550	172	151	9	580	74	1130	246
Totals	3104	6675			5045	5318				
Combined Totals		9779				10363				
ADT										20142
AM Peak Hour	1045	AM			600	AM				
Volume	554				811					
P.H.F.	0.882				0.901					
PM Peak Hour		515	PM		515	PM				
Volume		768			669					
P.H.F.		0.955			0.950					
Percentage	31.7%	68.3%			48.7%	51.3%				



24 Hour Volume Plot
Douglas Drive
B/ State Route 76 - Mission Avenue
 9/20/2018

Start Time	9/20/2018
12:00 AM	109
1:00 AM	88
2:00 AM	81
3:00 AM	163
4:00 AM	383
5:00 AM	761
6:00 AM	1185
7:00 AM	1165
8:00 AM	1124
9:00 AM	976
10:00 AM	984
11:00 AM	1130
12:00 PM	1165
1:00 PM	1132
2:00 PM	1255
3:00 PM	1311
4:00 PM	1378
5:00 PM	1416
6:00 PM	1255
7:00 PM	1024
8:00 PM	776
9:00 PM	664
10:00 PM	371
11:00 PM	246
Total	20142



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Douglas Drive - Avenida Descanso

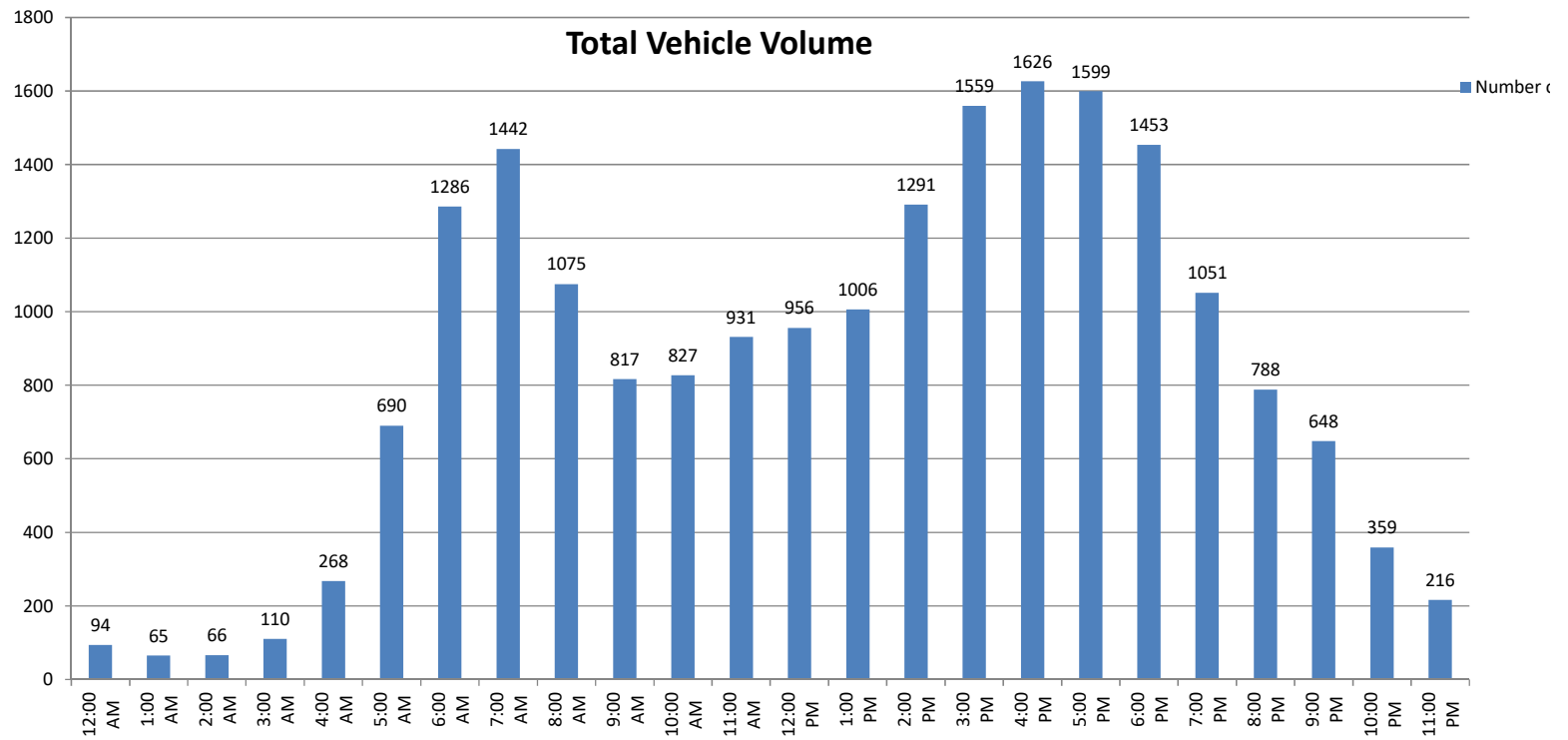
File Name 006
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	22	124			5	100				
12:15	5	127			10	128				
12:30	23	119			10	127				
12:45	14	119	64	489	5	112	30	467	94	956
1:00	11	137			4	140				
1:15	8	120			5	98				
1:30	14	126			5	115				
1:45	12	136	45	519	6	134	20	487	65	1006
2:00	10	137			12	149				
2:15	6	186			9	118				
2:30	4	224			12	139				
2:45	7	199	27	746	6	139	39	545	66	1291
3:00	6	214			15	149				
3:15	4	205			19	184				
3:30	9	266			24	168				
3:45	10	233	29	918	23	140	81	641	110	1559
4:00	17	234			43	158				
4:15	13	239			49	148				
4:30	18	240			48	171				
4:45	13	264	61	977	67	172	207	649	268	1626
5:00	28	261			104	152				
5:15	38	254			143	167				
5:30	35	234			126	149				
5:45	54	221	155	970	162	161	535	629	690	1599
6:00	62	268			194	161				
6:15	66	185			263	165				
6:30	99	214			241	147				
6:45	92	164	319	831	269	149	967	622	1286	1453
7:00	138	161			236	114				
7:15	133	152			240	122				
7:30	112	157			232	104				
7:45	122	137	505	607	229	104	937	444	1442	1051
8:00	91	136			172	69				
8:15	115	114			179	81				
8:30	104	113			194	83				
8:45	84	119	394	482	136	73	681	306	1075	788
9:00	72	127			129	53				
9:15	82	115			136	66				
9:30	75	91			114	56				
9:45	97	85	326	418	112	55	491	230	817	648
10:00	85	72			130	40				
10:15	89	52			108	36				
10:30	89	60			100	31				
10:45	117	45	380	229	109	23	447	130	827	359
11:00	115	49			125	13				
11:15	119	31			114	22				
11:30	135	35			103	20				
11:45	95	27	464	142	125	19	467	74	931	216
Totals	2769	7328			4902	5224				
Combined Totals		10097				10126				
ADT										20223
AM Peak Hour	700	AM			615	AM				
Volume	505				1009					
P.H.F.	0.915				0.938					
PM Peak Hour		430	PM			430	PM			
Volume		1019				662				
P.H.F.		0.965				0.962				
Percentage	27.4%	72.6%			48.4%	51.6%				



24 Hour Volume Plot
River Road
B/ Douglas Drive - Avenida Descanso
 9/20/2018

Start Time	9/20/2018
12:00 AM	94
1:00 AM	65
2:00 AM	66
3:00 AM	110
4:00 AM	268
5:00 AM	690
6:00 AM	1286
7:00 AM	1442
8:00 AM	1075
9:00 AM	817
10:00 AM	827
11:00 AM	931
12:00 PM	956
1:00 PM	1006
2:00 PM	1291
3:00 PM	1559
4:00 PM	1626
5:00 PM	1599
6:00 PM	1453
7:00 PM	1051
8:00 PM	788
9:00 PM	648
10:00 PM	359
11:00 PM	216
Total	20223



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Avenida Descanso - West Winds

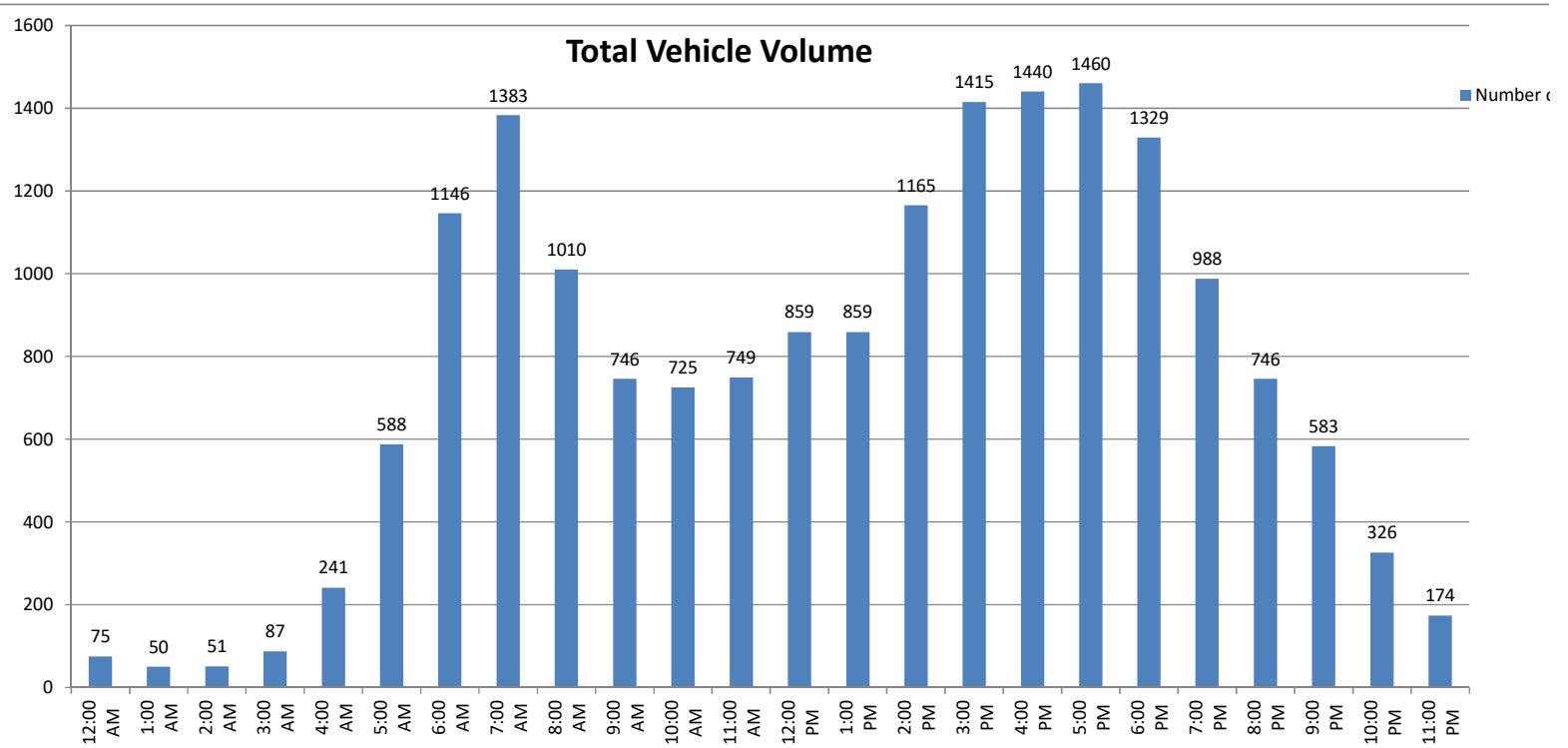
File Name 007
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	13	104			10	102				
12:15	4	92			14	132				
12:30	12	87			10	120				
12:45	6	99	35	382	6	123	40	477	75	859
1:00	6	116			5	118				
1:15	5	91			6	99				
1:30	8	114			7	104				
1:45	7	105	26	426	6	112	24	433	50	859
2:00	4	109			10	134				
2:15	4	137			10	126				
2:30	2	175			11	148				
2:45	2	178	12	599	8	158	39	566	51	1165
3:00	5	177			13	140				
3:15	5	165			12	189				
3:30	6	220			19	173				
3:45	9	191	25	753	18	160	62	662	87	1415
4:00	12	186			39	173				
4:15	16	194			35	148				
4:30	21	184			35	171				
4:45	26	207	75	771	57	177	166	669	241	1440
5:00	38	215			81	161				
5:15	53	236			99	162				
5:30	38	192			90	145				
5:45	64	185	193	828	125	164	395	632	588	1460
6:00	82	231			133	171				
6:15	90	172			208	160				
6:30	138	171			183	148				
6:45	118	138	428	712	194	138	718	617	1146	1329
7:00	133	124			206	118				
7:15	140	136			229	123				
7:30	129	129			221	124				
7:45	132	123	534	512	193	111	849	476	1383	988
8:00	97	113			156	82				
8:15	126	92			160	88				
8:30	94	86			172	95				
8:45	82	99	399	390	123	91	611	356	1010	746
9:00	77	93			115	63				
9:15	93	89			113	68				
9:30	63	75			104	64				
9:45	80	67	313	324	101	64	433	259	746	583
10:00	78	53			118	52				
10:15	79	45			101	41				
10:30	71	42			92	38				
10:45	84	26	312	166	102	29	413	160	725	326
11:00	81	36			108	15				
11:15	92	23			109	28				
11:30	101	18			97	19				
11:45	56	14	330	91	105	21	419	83	749	174
Totals	2682	5954			4169	5390				
Combined Totals		8636				9559				
ADT										18195
AM Peak Hour	700	AM			645	AM				
Volume	534				850					
P.H.F.	0.954				0.928					
PM Peak Hour		445	PM			315	PM			
Volume		850				695				
P.H.F.		0.900				0.919				
Percentage	31.1%	68.9%			43.6%	56.4%				



24 Hour Volume Plot
River Road
B/ Avenida Descanso - West Winds
 9/20/2018

Start Time	9/20/2018
12:00 AM	75
1:00 AM	50
2:00 AM	51
3:00 AM	87
4:00 AM	241
5:00 AM	588
6:00 AM	1146
7:00 AM	1383
8:00 AM	1010
9:00 AM	746
10:00 AM	725
11:00 AM	749
12:00 PM	859
1:00 PM	859
2:00 PM	1165
3:00 PM	1415
4:00 PM	1440
5:00 PM	1460
6:00 PM	1329
7:00 PM	988
8:00 PM	746
9:00 PM	583
10:00 PM	326
11:00 PM	174
Total	18195



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Riverview Way -Calle Montecito

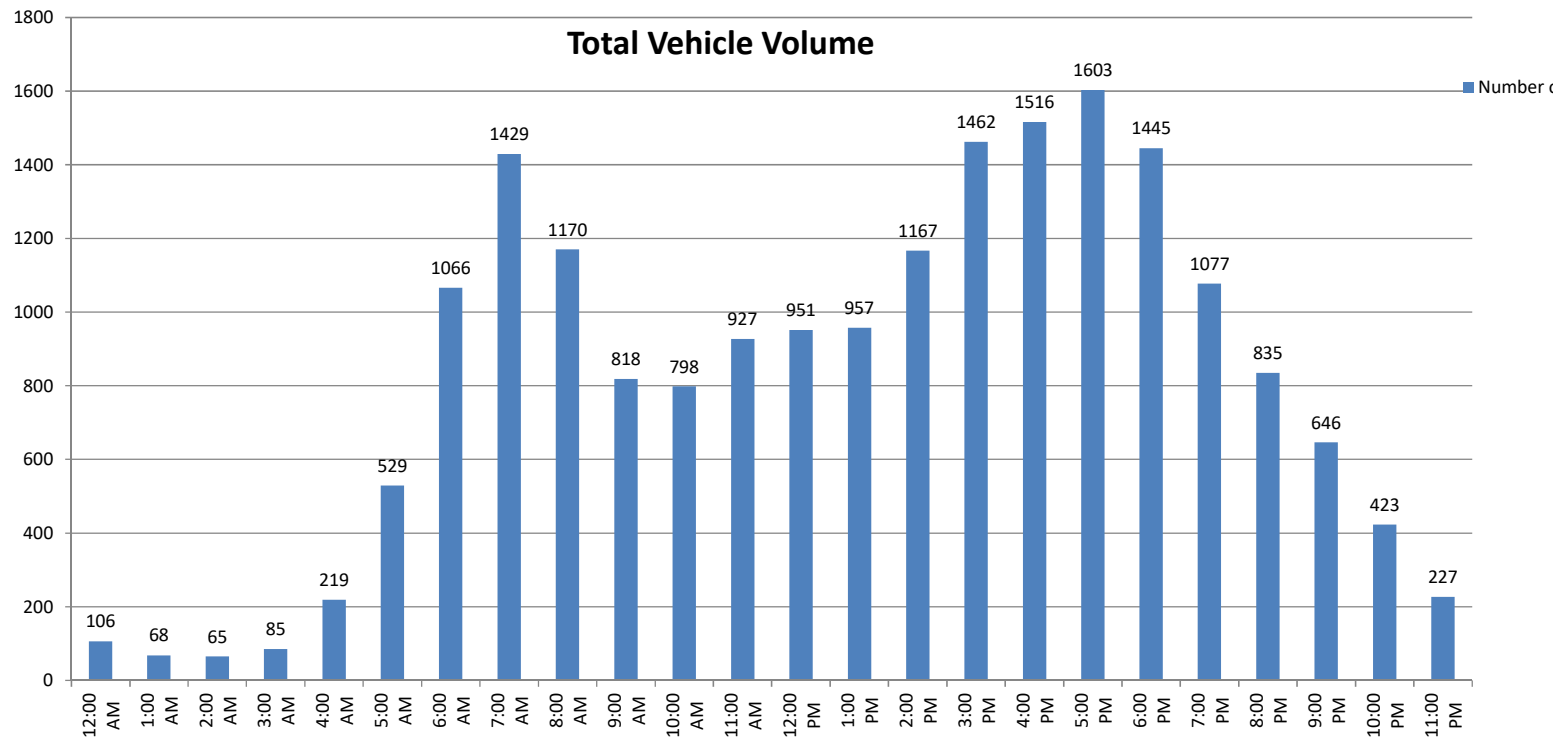
File Name 008
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	20	92			14	111				
12:15	12	129			11	108				
12:30	10	126			15	139				
12:45	16	121	58	468	8	125	48	483	106	951
1:00	8	108			7	124				
1:15	12	152			5	122				
1:30	8	112			7	95				
1:45	12	140	40	512	9	104	28	445	68	957
2:00	11	139			5	128				
2:15	9	131			11	134				
2:30	7	174			9	125				
2:45	3	186	30	630	10	150	35	537	65	1167
3:00	6	183			6	163				
3:15	10	183			14	149				
3:30	10	192			11	190				
3:45	9	226	35	784	19	176	50	678	85	1462
4:00	16	223			20	167				
4:15	20	214			36	191				
4:30	31	198			37	152				
4:45	29	204	96	839	30	167	123	677	219	1516
5:00	36	228			61	194				
5:15	51	226			86	172				
5:30	65	242			96	159				
5:45	50	218	202	914	84	164	327	689	529	1603
6:00	78	191			125	183				
6:15	91	234			131	166				
6:30	108	187			196	146				
6:45	149	173	426	785	188	165	640	660	1066	1445
7:00	147	138			192	142				
7:15	155	134			199	133				
7:30	158	146			236	120				
7:45	133	128	593	546	209	136	836	531	1429	1077
8:00	131	131			184	114				
8:15	108	108			156	93				
8:30	146	102			162	94				
8:45	106	91	491	432	177	102	679	403	1170	835
9:00	92	98			125	95				
9:15	86	91			115	61				
9:30	101	88			108	73				
9:45	85	77	364	354	106	63	454	292	818	646
10:00	89	65			97	64				
10:15	89	60			121	53				
10:30	106	50			100	43				
10:45	98	46	382	221	98	42	416	202	798	423
11:00	117	37			112	31				
11:15	111	44			114	16				
11:30	122	24			113	29				
11:45	131	26	481	131	107	20	446	96	927	227
Totals	3198	6616			4082	5693				
Combined Totals		9814				9775				
ADT										19589
AM Peak Hour	645	AM			700	AM				
Volume	609				836					
P.H.F.	0.964				0.886					
PM Peak Hour		500	PM			330	PM			
Volume		914				724				
P.H.F.		0.944				0.948				
Percentage	32.6%	67.4%			41.8%	58.2%				



24 Hour Volume Plot
River Road
B/ Riverview Way -Calle Montecito
 9/20/2018

Start Time	9/20/2018
12:00 AM	106
1:00 AM	68
2:00 AM	65
3:00 AM	85
4:00 AM	219
5:00 AM	529
6:00 AM	1066
7:00 AM	1429
8:00 AM	1170
9:00 AM	818
10:00 AM	798
11:00 AM	927
12:00 PM	951
1:00 PM	957
2:00 PM	1167
3:00 PM	1462
4:00 PM	1516
5:00 PM	1603
6:00 PM	1445
7:00 PM	1077
8:00 PM	835
9:00 PM	646
10:00 PM	423
11:00 PM	227
Total	19589



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Calle Montecito - Redondo Drive

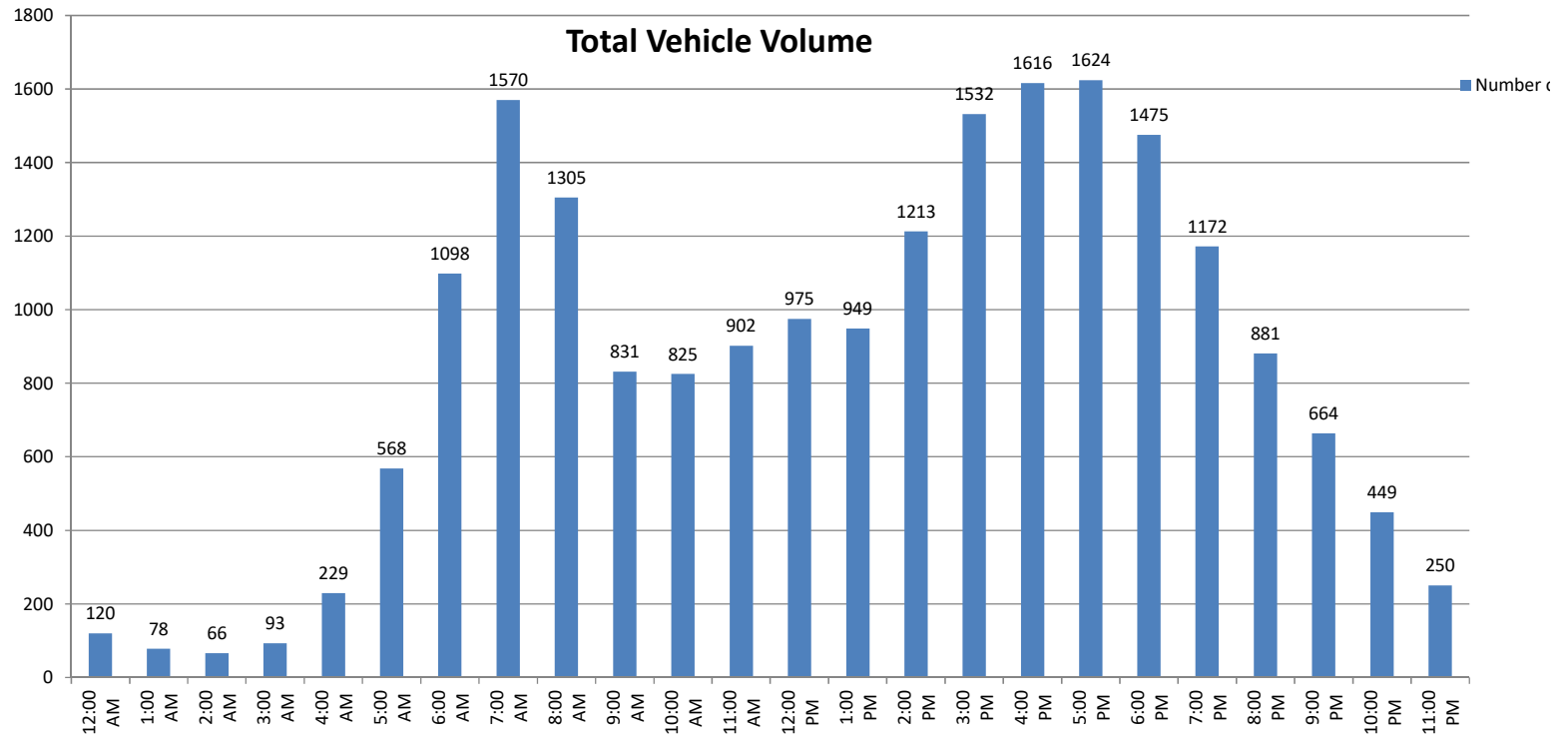
File Name 009
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	13	119			17	108				
12:15	18	117			13	116				
12:30	11	136			21	138				
12:45	13	120	55	492	14	121	65	483	120	975
1:00	8	116			13	123				
1:15	15	143			9	109				
1:30	7	110			7	113				
1:45	9	140	39	509	10	95	39	440	78	949
2:00	11	158			11	114				
2:15	8	137			7	128				
2:30	8	157			8	165				
2:45	3	189	30	641	10	165	36	572	66	1213
3:00	9	179			7	161				
3:15	10	198			11	170				
3:30	16	200			14	214				
3:45	11	204	46	781	15	206	47	751	93	1532
4:00	16	214			17	201				
4:15	31	205			30	199				
4:30	43	201			22	177				
4:45	40	226	130	846	30	193	99	770	229	1616
5:00	58	224			46	192				
5:15	67	211			56	198				
5:30	99	220			77	197				
5:45	98	208	322	863	67	174	246	761	568	1624
6:00	109	176			97	191				
6:15	124	246			117	180				
6:30	148	167			163	161				
6:45	202	163	583	752	138	191	515	723	1098	1475
7:00	218	149			169	157				
7:15	170	132			206	159				
7:30	182	141			237	154				
7:45	161	128	731	550	227	152	839	622	1570	1172
8:00	152	116			185	140				
8:15	122	108			168	108				
8:30	185	80			181	103				
8:45	123	104	582	408	189	122	723	473	1305	881
9:00	101	88			117	110				
9:15	99	79			110	70				
9:30	104	81			95	91				
9:45	94	69	398	317	111	76	433	347	831	664
10:00	100	60			95	88				
10:15	100	50			128	75				
10:30	92	44			95	55				
10:45	116	35	408	189	99	42	417	260	825	449
11:00	115	33			105	35				
11:15	113	39			109	28				
11:30	115	29			107	36				
11:45	126	21	469	122	112	29	433	128	902	250
Totals	3793	6470			3892	6330				
Combined Totals		10263				10222				
ADT										20485
AM Peak Hour	645	AM			715	AM				
Volume	772				855					
P.H.F.	0.885				0.902					
PM Peak Hour		445	PM			330	PM			
Volume		881				820				
P.H.F.		0.975				0.958				
Percentage	37.0%	63.0%			38.1%	61.9%				



24 Hour Volume Plot
River Road
B/ Calle Montecito - Redondo Drive
 9/20/2018

Start Time	9/20/2018
12:00 AM	120
1:00 AM	78
2:00 AM	66
3:00 AM	93
4:00 AM	229
5:00 AM	568
6:00 AM	1098
7:00 AM	1570
8:00 AM	1305
9:00 AM	831
10:00 AM	825
11:00 AM	902
12:00 PM	975
1:00 PM	949
2:00 PM	1213
3:00 PM	1532
4:00 PM	1616
5:00 PM	1624
6:00 PM	1475
7:00 PM	1172
8:00 PM	881
9:00 PM	664
10:00 PM	449
11:00 PM	250
Total	20485



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Redondo Drive - College Boulevard

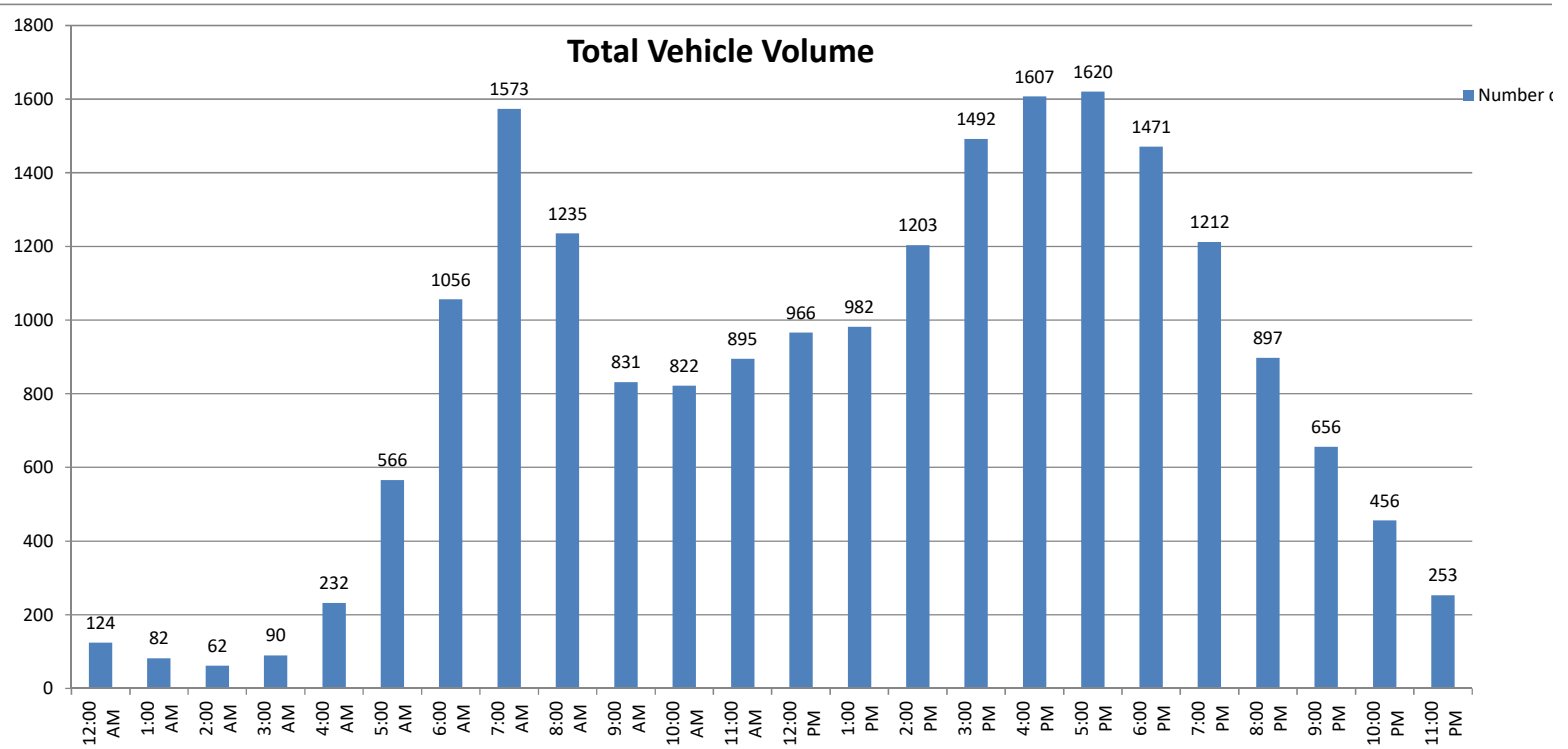
File Name 010
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Eastbound				Westbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	14	112			18	110				
12:15	18	116			17	110				
12:30	8	146			22	139				
12:45	12	115	52	489	15	118	72	477	124	966
1:00	6	113			15	127				
1:15	14	151			10	110				
1:30	8	110			7	109				
1:45	9	145	37	519	13	117	45	463	82	982
2:00	11	161			10	108				
2:15	8	139			7	138				
2:30	7	153			6	156				
2:45	3	180	29	633	10	168	33	570	62	1203
3:00	10	167			5	178				
3:15	8	169			10	160				
3:30	20	191			12	197				
3:45	12	220	50	747	13	210	40	745	90	1492
4:00	17	218			15	188				
4:15	33	214			22	201				
4:30	47	201			23	170				
4:45	46	211	143	844	29	204	89	763	232	1607
5:00	67	221			38	197				
5:15	76	208			48	207				
5:30	107	214			60	190				
5:45	103	206	353	849	67	177	213	771	566	1620
6:00	119	171			90	198				
6:15	131	212			100	194				
6:30	151	171			139	187				
6:45	205	165	606	719	121	173	450	752	1056	1471
7:00	254	151			156	167				
7:15	195	121			210	183				
7:30	161	145			229	152				
7:45	150	128	760	545	218	165	813	667	1573	1212
8:00	150	110			183	151				
8:15	139	99			172	120				
8:30	165	78			157	111				
8:45	124	108	578	395	145	120	657	502	1235	897
9:00	114	76			114	117				
9:15	101	72			97	87				
9:30	105	66			87	86				
9:45	102	57	422	271	111	95	409	385	831	656
10:00	99	52			100	96				
10:15	104	48			121	76				
10:30	92	41			90	68				
10:45	115	32	410	173	101	43	412	283	822	456
11:00	116	32			105	45				
11:15	110	38			119	24				
11:30	104	25			103	41				
11:45	122	20	452	115	116	28	443	138	895	253
Totals	3892	6299			3676	6516				
Combined Totals		10191				10192				
ADT										20383
AM Peak Hour	645	AM			715	AM				
Volume	815				840					
P.H.F.	0.802				0.917					
PM Peak Hour		445	PM		445	PM				
Volume		854			798					
P.H.F.		0.966			0.964					
Percentage	38.2%	61.8%			36.1%	63.9%				



24 Hour Volume Plot
River Road
B/ Redondo Drive - College Boulevard
 9/20/2018

Start Time	9/20/2018
12:00 AM	124
1:00 AM	82
2:00 AM	62
3:00 AM	90
4:00 AM	232
5:00 AM	566
6:00 AM	1056
7:00 AM	1573
8:00 AM	1235
9:00 AM	831
10:00 AM	822
11:00 AM	895
12:00 PM	966
1:00 PM	982
2:00 PM	1203
3:00 PM	1492
4:00 PM	1607
5:00 PM	1620
6:00 PM	1471
7:00 PM	1212
8:00 PM	897
9:00 PM	656
10:00 PM	456
11:00 PM	253
Total	20383



Volumes represent the combined totals for both directions



City of Oceanside
 River Road
 B/ Vandegrift Boulevard - College Boulevard

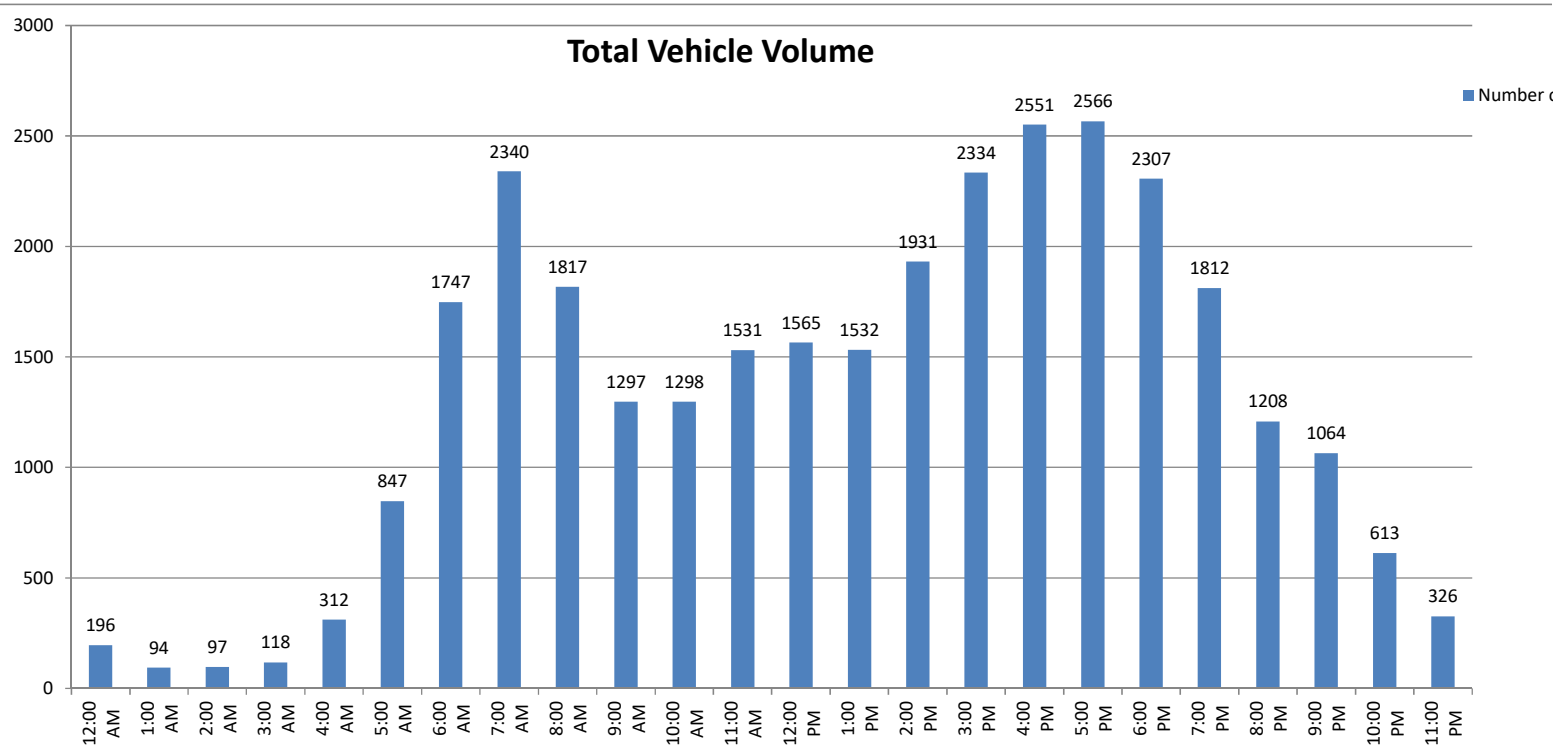
File Name 015
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/26/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	53	225			14	191				
12:15	37	196			18	181				
12:30	29	195			10	189				
12:45	20	199	139	815	15	189	57	750	196	1565
1:00	23	218			9	199				
1:15	10	148			7	188				
1:30	10	196			16	198				
1:45	15	184	58	746	4	201	36	786	94	1532
2:00	15	184			8	229				
2:15	17	201			12	257				
2:30	12	287			11	213				
2:45	12	301	56	973	10	259	41	958	97	1931
3:00	8	294			7	254				
3:15	20	294			14	212				
3:30	12	328			19	311				
3:45	17	307	57	1223	21	334	61	1111	118	2334
4:00	17	317			29	314				
4:15	25	268			30	323				
4:30	39	362			52	327				
4:45	58	309	139	1256	62	331	173	1295	312	2551
5:00	65	364			81	312				
5:15	79	296			104	333				
5:30	129	337			146	325				
5:45	132	336	405	1333	111	263	442	1233	847	2566
6:00	165	335			158	277				
6:15	176	350			207	263				
6:30	247	281			235	258				
6:45	248	300	836	1266	311	243	911	1041	1747	2307
7:00	294	292			336	257				
7:15	303	318			305	241				
7:30	288	175			292	160				
7:45	235	200	1120	985	287	169	1220	827	2340	1812
8:00	210	216			271	154				
8:15	193	186			257	108				
8:30	192	185			255	112				
8:45	184	160	779	747	255	87	1038	461	1817	1208
9:00	145	236			183	152				
9:15	155	126			175	82				
9:30	147	167			164	89				
9:45	141	139	588	668	187	73	709	396	1297	1064
10:00	135	135			167	53				
10:15	139	98			181	46				
10:30	160	93			167	54				
10:45	177	91	611	417	172	43	687	196	1298	613
11:00	155	71			187	28				
11:15	188	64			201	27				
11:30	183	46			245	26				
11:45	202	39	728	220	170	25	803	106	1531	326
Totals	5516	10649			6178	9160				
Combined Totals	16165				15338					
ADT									31503	
AM Peak Hour	645	AM			645	AM				
Volume	1133				1244					
P.H.F.	0.935				0.926					
PM Peak Hour		530	PM			430	PM			
Volume		1358				1303				
P.H.F.		0.970				0.978				
Percentage	34.1%	65.9%			40.3%	59.7%				



24 Hour Volume Plot
River Road
B/ Vandegrift Boulevard - College Boulevard
 9/26/2018

Start Time	9/26/2018
12:00 AM	196
1:00 AM	94
2:00 AM	97
3:00 AM	118
4:00 AM	312
5:00 AM	847
6:00 AM	1747
7:00 AM	2340
8:00 AM	1817
9:00 AM	1297
10:00 AM	1298
11:00 AM	1531
12:00 PM	1565
1:00 PM	1532
2:00 PM	1931
3:00 PM	2334
4:00 PM	2551
5:00 PM	2566
6:00 PM	2307
7:00 PM	1812
8:00 PM	1208
9:00 PM	1064
10:00 PM	613
11:00 PM	326
Total	31503



Volumes represent the combined totals for both directions



City of Oceanside
 College Boulevard
 B/ River Road - Buchanon Park Access

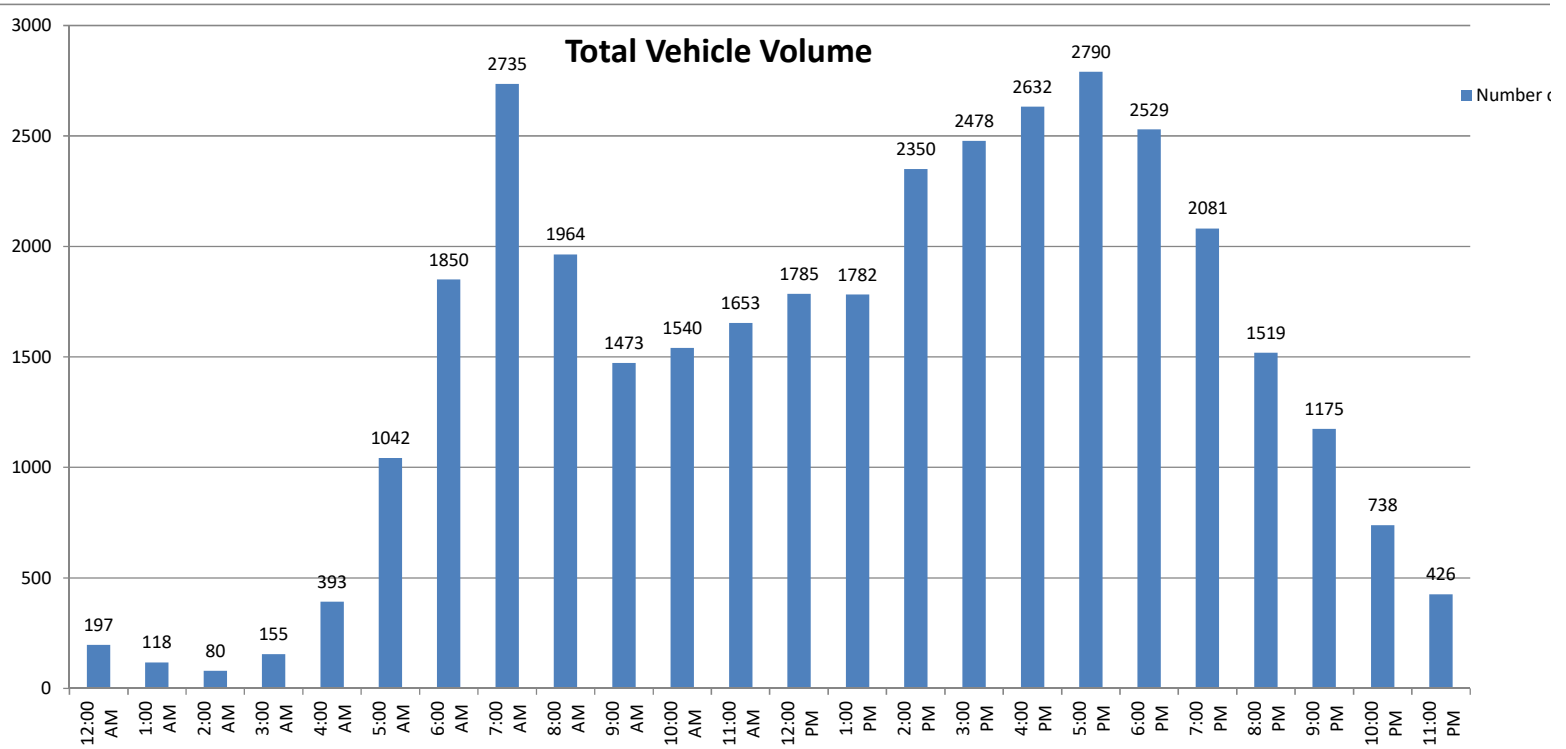
File Name 011
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	39	209			25	218				
12:15	30	229			20	233				
12:30	35	242			20	210				
12:45	21	231	125	911	7	213	72	874	197	1785
1:00	29	245			5	197				
1:15	19	196			14	266				
1:30	15	198			12	207				
1:45	15	219	78	858	9	254	40	924	118	1782
2:00	14	199			11	295				
2:15	6	266			10	358				
2:30	8	310			10	279				
2:45	8	375	36	1150	13	268	44	1200	80	2350
3:00	10	323			14	294				
3:15	14	335			15	291				
3:30	19	300			30	268				
3:45	21	308	64	1266	32	359	91	1212	155	2478
4:00	22	301			25	336				
4:15	26	320			46	343				
4:30	42	313			73	336				
4:45	55	315	145	1249	104	368	248	1383	393	2632
5:00	80	355			89	360				
5:15	93	381			123	351				
5:30	124	367			216	335				
5:45	149	338	446	1441	168	303	596	1349	1042	2790
6:00	134	354			174	330				
6:15	206	313			209	338				
6:30	237	296			294	231				
6:45	233	312	810	1275	363	355	1040	1254	1850	2529
7:00	305	340			461	244				
7:15	386	310			421	238				
7:30	323	251			304	215				
7:45	235	273	1249	1174	300	210	1486	907	2735	2081
8:00	217	264			310	170				
8:15	228	234			257	156				
8:30	213	213			297	116				
8:45	194	233	852	944	248	133	1112	575	1964	1519
9:00	147	206			228	129				
9:15	162	228			203	89				
9:30	154	187			218	95				
9:45	168	167	631	788	193	74	842	387	1473	1175
10:00	195	151			226	81				
10:15	169	118			192	75				
10:30	169	129			222	42				
10:45	165	92	698	490	202	50	842	248	1540	738
11:00	188	90			205	34				
11:15	193	87			230	42				
11:30	184	58			219	34				
11:45	208	55	773	290	226	26	880	136	1653	426
Totals	5907	11836			7293	10449				
Combined Totals		17743				17742				
ADT										35485
AM Peak Hour	700	AM			645	AM				
Volume	1249				1549					
P.H.F.	0.809				0.840					
PM Peak Hour		500	PM			430	PM			
Volume		1441				1415				
P.H.F.		0.946				0.961				
Percentage	33.3%	66.7%			41.1%	58.9%				



24 Hour Volume Plot
College Boulevard
B/ River Road - Buchanan Park Access
 9/20/2018

Start Time	9/20/2018
12:00 AM	197
1:00 AM	118
2:00 AM	80
3:00 AM	155
4:00 AM	393
5:00 AM	1042
6:00 AM	1850
7:00 AM	2735
8:00 AM	1964
9:00 AM	1473
10:00 AM	1540
11:00 AM	1653
12:00 PM	1785
1:00 PM	1782
2:00 PM	2350
3:00 PM	2478
4:00 PM	2632
5:00 PM	2790
6:00 PM	2529
7:00 PM	2081
8:00 PM	1519
9:00 PM	1175
10:00 PM	738
11:00 PM	426
Total	35485



Volumes represent the combined totals for both directions



City of Oceanside
 College Boulevard
 B/ Buchanan Park Access - Adams Street

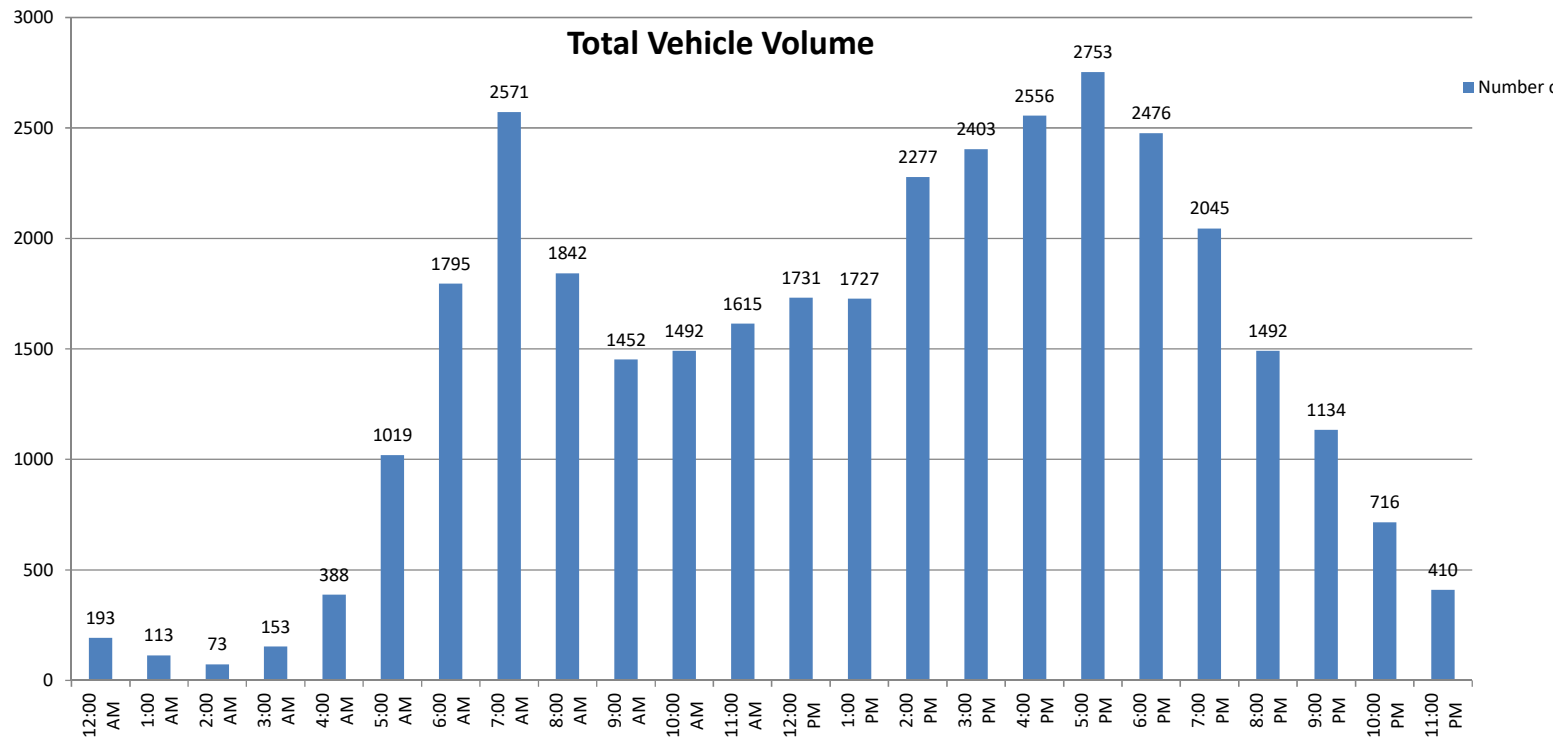
File Name 012
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	42	210			25	225				
12:15	24	229			23	196				
12:30	38	229			16	210				
12:45	19	237	123	905	6	195	70	826	193	1731
1:00	27	228			5	215				
1:15	20	189			11	242				
1:30	15	197			12	200				
1:45	14	214	76	828	9	242	37	899	113	1727
2:00	12	206			9	279				
2:15	7	237			9	316				
2:30	8	300			10	277				
2:45	6	372	33	1115	12	290	40	1162	73	2277
3:00	11	316			14	245				
3:15	16	310			16	279				
3:30	19	305			32	277				
3:45	19	316	65	1247	26	355	88	1156	153	2403
4:00	20	305			28	286				
4:15	27	308			47	336				
4:30	42	323			76	317				
4:45	55	330	144	1266	93	351	244	1290	388	2556
5:00	82	365			88	338				
5:15	94	375			119	324				
5:30	126	346			203	332				
5:45	141	360	443	1446	166	313	576	1307	1019	2753
6:00	143	329			168	324				
6:15	201	309			213	317				
6:30	227	297			279	230				
6:45	234	336	805	1271	330	334	990	1205	1795	2476
7:00	275	323			421	264				
7:15	360	256			373	268				
7:30	295	247			288	230				
7:45	245	252	1175	1078	314	205	1396	967	2571	2045
8:00	192	254			280	164				
8:15	223	224			227	128				
8:30	210	210			287	131				
8:45	187	228	812	916	236	153	1030	576	1842	1492
9:00	160	197			225	118				
9:15	151	211			194	90				
9:30	168	193			206	91				
9:45	161	154	640	755	187	80	812	379	1452	1134
10:00	176	141			213	80				
10:15	177	126			203	69				
10:30	166	115			196	44				
10:45	151	94	670	476	210	47	822	240	1492	716
11:00	202	86			196	36				
11:15	177	83			203	41				
11:30	188	57			226	31				
11:45	196	54	763	280	227	22	852	130	1615	410
Totals	5749	11583			6957	10137				
Combined Totals		17332				17094				
ADT										34426
AM Peak Hour	700	AM			645	AM				
Volume	1175				1412					
P.H.F.	0.816				0.838					
PM Peak Hour		500	PM			445	PM			
Volume		1446				1345				
P.H.F.		0.964				0.958				
Percentage	33.2%	66.8%			40.7%	59.3%				



24 Hour Volume Plot
College Boulevard
B/ Buchanan Park Access - Adams Street
 9/20/2018

Start Time	9/20/2018
12:00 AM	193
1:00 AM	113
2:00 AM	73
3:00 AM	153
4:00 AM	388
5:00 AM	1019
6:00 AM	1795
7:00 AM	2571
8:00 AM	1842
9:00 AM	1452
10:00 AM	1492
11:00 AM	1615
12:00 PM	1731
1:00 PM	1727
2:00 PM	2277
3:00 PM	2403
4:00 PM	2556
5:00 PM	2753
6:00 PM	2476
7:00 PM	2045
8:00 PM	1492
9:00 PM	1134
10:00 PM	716
11:00 PM	410
Total	34426



Volumes represent the combined totals for both directions



City of Oceanside
 College Boulevard
 B/ Adams Street - Via Cupeno

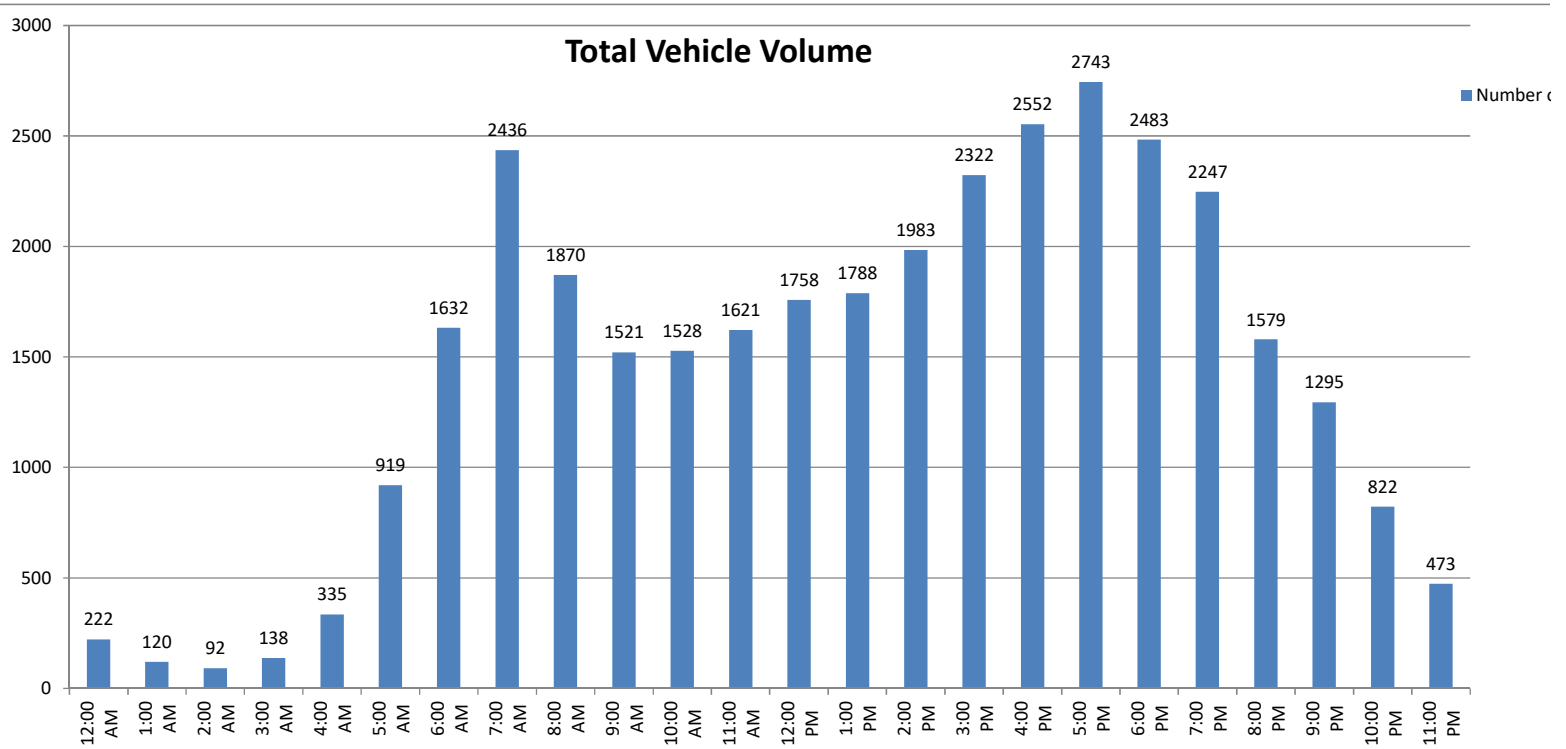
File Name 013
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	31	189			26	211				
12:15	44	219			21	217				
12:30	30	239			21	200				
12:45	35	256	140	903	14	227	82	855	222	1758
1:00	23	252			9	192				
1:15	24	219			8	242				
1:30	17	208			13	242				
1:45	19	220	83	899	7	213	37	889	120	1788
2:00	15	213			11	235				
2:15	14	194			8	283				
2:30	8	227			12	290				
2:45	12	289	49	923	12	252	43	1060	92	1983
3:00	7	362			14	264				
3:15	12	305			17	264				
3:30	14	294			22	233				
3:45	21	317	54	1278	31	283	84	1044	138	2322
4:00	15	300			34	306				
4:15	23	334			35	317				
4:30	27	289			50	331				
4:45	47	347	112	1270	104	328	223	1282	335	2552
5:00	64	336			85	338				
5:15	73	368			113	329				
5:30	84	386			158	308				
5:45	124	365	345	1455	218	313	574	1288	919	2743
6:00	132	358			194	287				
6:15	146	339			208	295				
6:30	196	331			258	290				
6:45	219	312	693	1340	279	271	939	1143	1632	2483
7:00	237	341			349	304				
7:15	254	328			368	259				
7:30	281	272			345	243				
7:45	284	275	1056	1216	318	225	1380	1031	2436	2247
8:00	202	261			310	201				
8:15	202	251			263	145				
8:30	190	224			242	129				
8:45	160	238	754	974	301	130	1116	605	1870	1579
9:00	164	234			234	155				
9:15	162	219			210	117				
9:30	160	227			211	77				
9:45	163	174	649	854	217	92	872	441	1521	1295
10:00	162	162			200	93				
10:15	200	143			205	80				
10:30	175	131			228	52				
10:45	166	109	703	545	192	52	825	277	1528	822
11:00	180	94			212	49				
11:15	213	98			212	35				
11:30	180	80			212	44				
11:45	189	53	762	325	223	20	859	148	1621	473
Totals	5400	11982			7034	10063				
Combined Totals		17382				17097				
ADT										34479
AM Peak Hour	700	AM			700	AM				
Volume	1056				1380					
P.H.F.	0.930				0.938					
PM Peak Hour		515	PM			430	PM			
Volume		1477				1326				
P.H.F.		0.957				0.981				
Percentage	31.1%	68.9%			41.1%	58.9%				



24 Hour Volume Plot
College Boulevard
B/ Adams Street - Via Cupeno
 9/20/2018

Start Time	9/20/2018
12:00 AM	222
1:00 AM	120
2:00 AM	92
3:00 AM	138
4:00 AM	335
5:00 AM	919
6:00 AM	1632
7:00 AM	2436
8:00 AM	1870
9:00 AM	1521
10:00 AM	1528
11:00 AM	1621
12:00 PM	1758
1:00 PM	1788
2:00 PM	1983
3:00 PM	2322
4:00 PM	2552
5:00 PM	2743
6:00 PM	2483
7:00 PM	2247
8:00 PM	1579
9:00 PM	1295
10:00 PM	822
11:00 PM	473
Total	34479



Volumes represent the combined totals for both directions



City of Oceanside
 College Boulevard
 B/ Via Cupeno - State Route 76

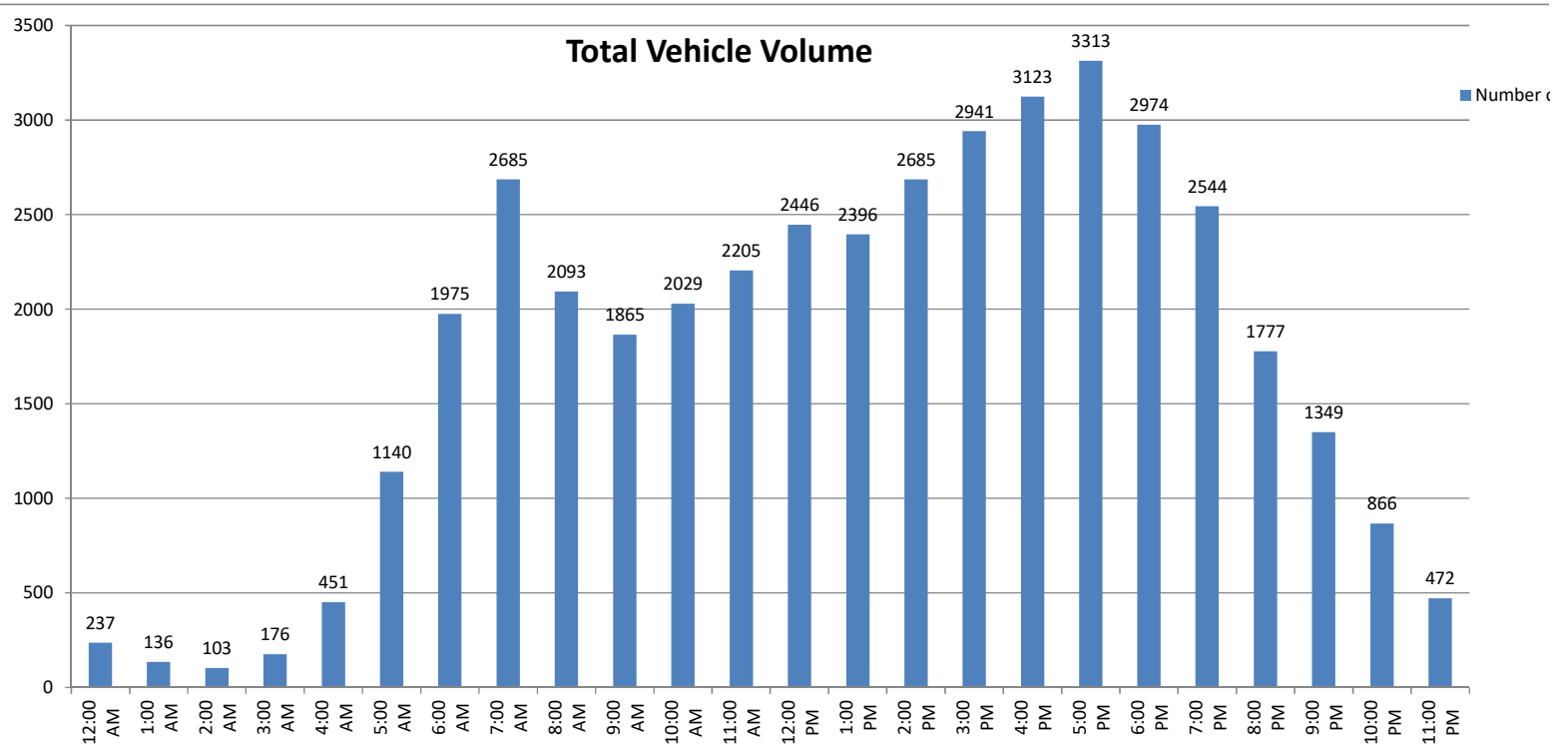
File Name 014
 Site Code: 143-18669
 24 Hour Directional Volume Count

Date: 9/20/2018	Northbound				Southbound				Combined Totals	
	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Morning	Afternoon
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	48	305			29	288				
12:15	33	296			31	299				
12:30	47	331			18	317				
12:45	23	305	151	1237	8	305	86	1209	237	2446
1:00	29	299			7	329				
1:15	24	255			19	336				
1:30	18	257			13	311				
1:45	18	263	89	1074	8	346	47	1322	136	2396
2:00	22	264			12	342				
2:15	10	280			10	387				
2:30	12	323			19	352				
2:45	5	413	49	1280	13	324	54	1405	103	2685
3:00	12	422			14	328				
3:15	14	360			19	336				
3:30	23	396			33	336				
3:45	22	381	71	1559	39	382	105	1382	176	2941
4:00	23	369			31	385				
4:15	33	367			55	390				
4:30	50	416			89	395				
4:45	68	392	174	1544	102	409	277	1579	451	3123
5:00	74	435			103	413				
5:15	87	443			150	385				
5:30	128	440			255	402				
5:45	143	438	432	1756	200	357	708	1557	1140	3313
6:00	152	380			208	370				
6:15	211	373			255	421				
6:30	237	368			323	309				
6:45	239	378	839	1499	350	375	1136	1475	1975	2974
7:00	264	391			413	330				
7:15	332	302			409	342				
7:30	313	317			340	296				
7:45	277	290	1186	1300	337	276	1499	1244	2685	2544
8:00	244	285			301	219				
8:15	240	226			310	172				
8:30	209	247			322	184				
8:45	221	249	914	1007	246	195	1179	770	2093	1777
9:00	201	212			268	172				
9:15	212	241			254	128				
9:30	204	187			249	131				
9:45	213	166	830	806	264	112	1035	543	1865	1349
10:00	245	169			258	105				
10:15	230	139			266	97				
10:30	227	117			299	76				
10:45	231	98	933	523	273	65	1096	343	2029	866
11:00	253	94			293	45				
11:15	265	95			268	47				
11:30	276	65			291	37				
11:45	260	60	1054	314	299	29	1151	158	2205	472
Totals	6722	13899			8373	12987				
Combined Totals		20621				21360				
ADT										41981
AM Peak Hour	700	AM			645	AM				
Volume	1186				1512					
P.H.F.	0.893				0.915					
PM Peak Hour		500	PM			445	PM			
Volume		1756				1609				
P.H.F.		0.991				0.974				
Percentage	32.6%	67.4%			39.2%	60.8%				



24 Hour Volume Plot
College Boulevard
B/ Via Cupeno - State Route 76
 9/20/2018

Start Time	9/20/2018
12:00 AM	237
1:00 AM	136
2:00 AM	103
3:00 AM	176
4:00 AM	451
5:00 AM	1140
6:00 AM	1975
7:00 AM	2685
8:00 AM	2093
9:00 AM	1865
10:00 AM	2029
11:00 AM	2205
12:00 PM	2446
1:00 PM	2396
2:00 PM	2685
3:00 PM	2941
4:00 PM	3123
5:00 PM	3313
6:00 PM	2974
7:00 PM	2544
8:00 PM	1777
9:00 PM	1349
10:00 PM	866
11:00 PM	472
Total	41981



Volumes represent the combined totals for both directions

CALTRANS 2017 VOLUMES

Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
11	076	SD	R 3.389	OCEANSIDE, EL CAMINO REAL	4050	52000	47500	3650	44000	41500
11	076	SD	R 3.745	OCEANSIDE, DOUGLAS STREET	3650	44000	41500	3850	47500	46500
11	076	SD	R 4.211	OCEANSIDE, RANCHO DEL ORO	3250	40500	36500	3150	39500	36500
11	076	SD	R 5.597	OCEANSIDE, FRAZEE ROAD	3150	39500	36500	3800	47000	43500
11	076	SD	R 6.207	COLLEGE BOULEVARD	3600	44500	41000	4800	47500	46000
11	076	SD	R 6.721	OCEANSIDE, NORTH SANTA FE ROAD	4800	47500	46000	4550	51000	50000

INTERVAL	PHASE TIMING								9	PRE-EMPTION E	F										
	1	2	3	4	5	6	7	8			FLAGS	1	2	3	4	5	6	7	8		
0 WALK		1			1	1	1	7	CLK RST	EV SEL	0	PERMIT		2		5	6	7	8	0	
1 DONT WALK		1			1	1	1	37		RR1 CLR	15	RED LOCK								1	
2 MIN GREEN		25			13	25	13	5		EVA DLY	0	YEL LOCK								2	
3 TYPE 3 DET		255			0	255	0	0		EVA CLR	5	V RECALL		2			6			3	
4 ADD/VEH		0.0			0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL								4	
5 PASSAGE		6.3			3.0	6.3	2.0	3.0		EVB CLR	5	PED PHASES							8	5	
6 MAX GAP		8.3			5.0	8.3	2.0	3.0		EVC DLY	0	RT OLA								6	
7 MIN GAP		3.5			2.0	3.5	2.0	3.0		EVC CLR	5	RT OLB								7	
8 MAX EXT		50			17	50	17	10		EVD DLY	0	DBL ENTRY								8	
9 MAX 2		80			32	80			YR	EVD CLR	5	MAX 2 PHASES		2		5	6			9	
A MAX 3									MO	MAX EV	255	LAG PHASES	READ ONLY								A
B									DAY	RR2 CLR	15	RED REST								B	
C REDUCE BY		0.1			0.1	0.1	0.0	0.0	DOW			REST-IN-WALK								C	
D EVERY		1.0			1.0	1.0	1.0	1.0	HR			MAX 3 PHASES								D	
E YELLOW		5.5			3.7	5.5	4.1	4.1	MIN			YEL START UP		2			6			E	
F RED		2.5			2.0	2.5	2.0	2.0	SEC			FIRST PHASE							7	F	
3.5 PED XING FT								149						1	2	3	4	5	6	7	8
BIKE XING FT		112			168	96	170														

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

NOTES:

7/8 SPLIT

INTERNAL COUNT STATION

OLA = FZ 5

FZ 2 BIKE = 7 sec

FZ 6 BIKE = 6 sec

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY



		CONTROL PLANS									Y-COORD			LAG PHASE	FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E	F									
0	CYCLE LENGTH	160	160	160	160	160	160		200	180					LAG FZ FREE	1	2	3	4	5	6	7	8	0
1	FZ1 GRN FCTR	0	0	0	0	0	0		0	0				GAPOUT CP1	1	LAG FZ CP 1	2			5			8	1
2														GAPOUT CP2	1	LAG FZ CP 2	2			5			8	2
3	FZ3 GRN FCTR	0	0	0	0	0	0		0	0				GAPOUT CP3	1	LAG FZ CP 3	2			5			8	3
4	FZ4 GRN FCTR	0	0	0	0	0	0		0	0	PERM TIME			GAPOUT CP4	0	LAG FZ CP 4	2				6		8	4
5	FZ5 GRN FCTR	30	30	45	30	30	45		45	45	LAG OFFSET			GAPOUT CP5	1	LAG FZ CP 5	2			5			8	5
6											FORCE OFF			GAPOUT CP6	0	LAG FZ CP 6	2				6		8	6
7	FZ7 GRN FCTR	13	13	13	13	13	13		13	13	LONG GRN			GAPOUT CP7		LAG FZ CP 7								7
8	FZ8 GRN FCTR	44	44	44	44	44	44		44	44	NO GREEN			GAPOUT CP8	1	LAG FZ CP 8	2			5			8	8
9	MULTI CYCLE	0	0	0	0	0	0		0	0				GAPOUT CP9	0	LAG FZ CP 9	2				6		8	9
A	OFFSET A	131	147	38	106	144	88		116	95	OFFSET					LAG C COORD								A
B	OFFSET B	131	147	38	106	144	88		116	95						LAG D COORD								B
C	OFFSET C	131	147	38	106	144	88		116	95						COORD FAZES	2				6			C
D	FZ 3 EXT																							D
E	FZ 7 EXT	22	22	22	22	22	22		22	22														E
F	OFFSET INTRPT																							F

CO1 MANUAL CP
 CO2 MASTER CP
 CO3 CURRENT CP **SYSTEM MASTER:**
 CO4 LAST CP **RTE 76X @**
 CO7 TRNSMT CP **COLLEGE BLVE**
 COD MANUAL OFFSET
 CAO LOCAL CYCLE TIMER
 CBO MASTER CYCLE TIMER
 CAA LOCAL OFFSET
 CBA MASTER OFFSET

FEATURE

	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION

	OFF	ON
1		1
2		
3		
4		8
5		
6		
7		
8		

COO = 9

CCB/CDB OFFSET TIMER
 CCC/CDC LAG GREEN TIMER
 CCD/CDD FORCE OFF TIMER
 CCE/CDE LONG GREEN TIMER
 CCF/CDF NO GREEN TIMER

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1									CP 1					5				CP 1								
2	CP 2									CP 2					5				CP 2								
3	CP 3									CP 3					5				CP 3								
4	CP 4									CP 4									CP 4								
5	CP 5									CP 5									CP 5								
6	CP 6									CP 6									CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8							7		CP 8								
9	CP 9									CP 9							7		CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

LAST POWER FAILURE REGISTER

HOUR = D-A-E
 MINUTE = D-B-E
 DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES
 (CALL ACTIVE LIGHTS)
 RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES
 (CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F
 MINUTE = D-B-F
 DAY = D-C-F

D-E-E = C8 VERSION NUMBER
 D-E-F = LITHIUM BATTERY CONDITION
 84 = BAD
 85 = GOOD

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED	2								5
6										6 PED					6				6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S	M	T	W	T	F	S
					1	2	3	4	5	6	7
0	05	30	2	ON	1	2	3	4	5	6	7
1	21	00	2		1	2	3	4	5	6	7
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C	20	00	E	ON	1	2	3	4	5	6	7
D	05	30	E			2	3	4	5	6	
E											
F	09	00	E		1						7

ACTIVITY CODE

- 1 TYPE OF MAX TERMINATION
- 2 MAX 2
- 3 MAX 3
- 4 COND SERV (1ST SELECT)
- 5 COND SERV (2ND SELECT)
- 6 ENERGIZE AUX OUTPUT-RED

- 7 ENERGIZE AUX OUTPUT-GREEN

CONTROL PLAN TIME OF DAY												
9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
					1	2	3	4	5	6	7	
0	05	30	1	A		2	3	4	5	6		
1												
2	09	00	2	A	1	2	3	4	5	6	7	
3	14	00	3	A	1	2	3	4	5	6	7	
4	14	45	9	A		2	3	4	5	6		
5	18	30	3	A		2	3	4	5	6		
6	20	00	E		1	2	3	4	5	6	7	
7												
8												
9												
A												
B												
C												
D												
E												
F												

- 8 ENERGIZE AUX OUTPUT-YELLOW

- 9 TIME OF DAY MAX RECALL (1ST SELECT)
- A TRAFFIC ACT. MAX 2 OPERATION
- B TIME OF DAY MAX RECALL (2ND SELECT)
- C YELLOW YIELD COORDINATION
- D YELLOW YIELD COORDINATION
- E TIME OF DAY FREE OPERATION
- F FLASHING OPERATION

CONTROL PLAN TIME OF DAY												
9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
					1	2	3	4	5	6	7	
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C												
D												
E												
F												

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.									
		PHASES		TYPE		PHASES		TYPE	
		C	D			E	F		
0	I1	1	5	5,6	J1	5		5,6	
1	I2U	2		5,6	7,8	J2U	6	5,6	
2	I2L	2		5,6	7,8	J2L	6	5,6	
3	I3U	2	5	5,6		J3U	6	5,6	
4	I3L	2	5	5	5,6	J3L	6	5	7,8
5	I4	2		7,8	5,6	J4	6	7,8	
6	I5	3	5	5,6		J5	7	5,6	
7	I6U	4	7	5,6		J6U	8	5,6	
8	I6L	4		5,6		J6L	8	5,6	
9	I7U	4	2	5,6		J7U	8	5,6	
A	I7L	4	2	5	5,6	J7L	8	5	
B	I8	4		7,8		J8	8	7,8	
C	I9U	1		5,6		J9U	5	5,6	
D	I9L	3		5,6		J9L	7	5,6	

DETECTOR TYPE

- 1 RED LOCK
- 2 YELLOW LOCK
- 5 EXTENSION
- 6 COUNT
- 7 CALLING
- 8 TYPE 3 DISCONNECT

DETECTOR SETTINGS									
I FILE					J FILE				
DELAY		CARRYOVER			DELAY		CARRYOVER		
I1	D10		D30		J1	D20	2.0	D40	1.0
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32		J2L	D22		D42	
I3U	D13		D33	1.0	J3U	D23		D43	
I3L	D14		D34	1.0	J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16	25.0	D36		J5	D26	2.0	D46	2.0
I6U	D17	2.0	D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19		D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

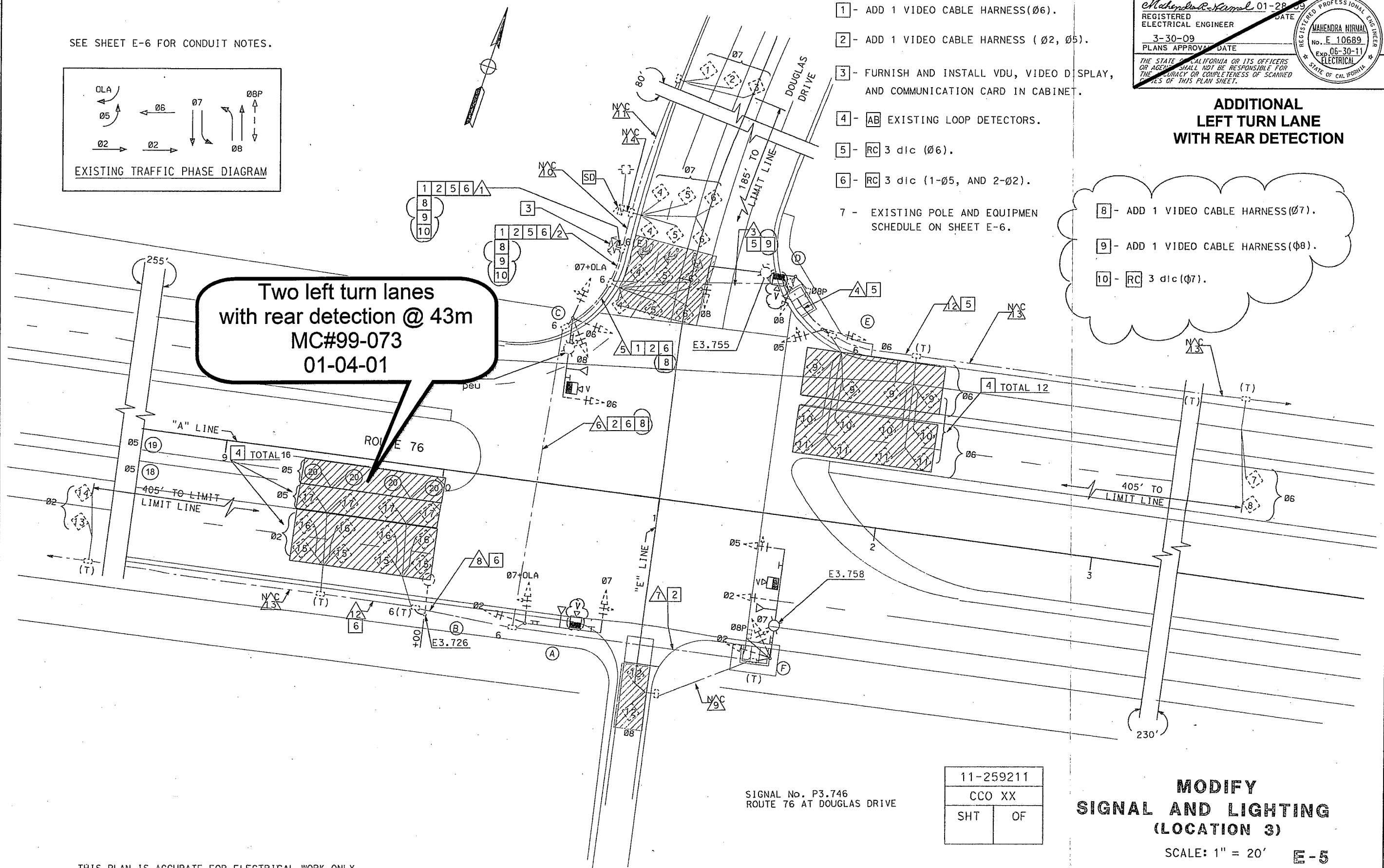
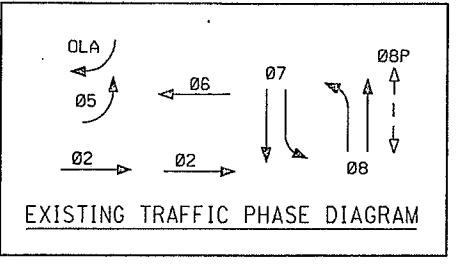
LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans TRAFFIC ELECTRICAL

FUNCTIONAL SUPERVISOR: DALE WILSON
 CALCULATED/DESIGNED BY: MAHENDRA R. NIRMAL
 CHECKED BY: ENRIQUE P. BERNAL
 REVISED BY: MAHENDRA R. NIRMAL
 DATE REVISIED: ENRIQUE P. BERNAL

SEE SHEET E-6 FOR CONDUIT NOTES.



Two left turn lanes with rear detection @ 43m
 MC#99-073
 01-04-01

ADDITIONAL LEFT TURN LANE WITH REAR DETECTION

- 8 - ADD 1 VIDEO CABLE HARNESS (Ø7).
- 9 - ADD 1 VIDEO CABLE HARNESS (Ø8).
- 10 - RC 3 dlc (Ø7).

- NOTES:
- 1 - ADD 1 VIDEO CABLE HARNESS (Ø6).
 - 2 - ADD 1 VIDEO CABLE HARNESS (Ø2, Ø5).
 - 3 - FURNISH AND INSTALL VDU, VIDEO DISPLAY, AND COMMUNICATION CARD IN CABINET.
 - 4 - AB EXISTING LOOP DETECTORS.
 - 5 - RC 3 dlc (Ø6).
 - 6 - RC 3 dlc (1-Ø5, AND 2-Ø2).
 - 7 - EXISTING POLE AND EQUIPMENT SCHEDULE ON SHEET E-6.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	76	R2.2/R4.2	85	86

REGISTERED ELECTRICAL ENGINEER
 MAHENDRA NIRMAL
 No. E 10689
 Exp. 06-30-11
 STATE OF CALIFORNIA

3-30-09
 PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENCIES SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

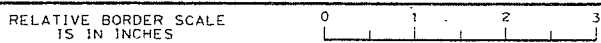
SIGNAL No. P3.746
 ROUTE 76 AT DOUGLAS DRIVE

11-259211	
CCO XX	
SHT	OF

MODIFY SIGNAL AND LIGHTING (LOCATION 3)

SCALE: 1" = 20' E-5

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.
 Meria Norte LTS Appendix



USERNAME => s108987
 DGN FILE => b259211a005c.dgn

CU 11233

EA 259211

DATE PLOTTED => 22-FEB-2010
 TIME PLOTTED => 11:32
 LAST REVISION: 02-22-10

INTERSECTION: Mission & Douglas

Group Assignment: **NONE**
 Field Master Assignment: **NONE**
 System Reference Number: **76**

N/S Street Name: **Not Assigned**
 E/W Street Name: **Not Assigned**

Last Database Change: **10/18/2018 9:41**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	12	<C+0+0>
Zone Number		<C+0+1>
Area Number	1	<C+0+2>
Area Address	76	<C+0+3>
QuicNet Channel	Serial:COM40:	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	20	0	28	0	22	0	26
2	Min Green	5	8	5	8	5	8	5	8
3	Type 3 Limit	0	99	0	0	0	99	0	99
4	Added Initial	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0
5	Veh Extension	3.0	5.0	3.0	4.0	3.0	5.0	3.0	4.0
6	Max Gap	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
7	Min Gap	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
8	Max Limit	20	10	20	40	20	20	40	40
9	Max Limit 2	30	30	50	70	30	30	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	0.0	1.0	0.0	1.5	0.0	1.0	0.0	0.0
E	Yellow Change	4.1	4.8	4.1	4.4	4.1	4.8	4.1	4.4
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

Row	Phase Names ---->	E		F	
		1	2	1	2
0	RR-1 Delay	0		Permit	12345678
1	RR-1 Clear	10		Red Lock	_____
2	EV-A Delay	0		Yellow Lock	_____
3	EV-A Clear	5		Min Recall	<u> 4 </u> <u> 8 </u>
4	EV-B Delay	0		Ped Recall	_____
5	EV-B Clear	5		View Set Peds	-----
6	EV-C Delay	0		Rest In Walk	_____
7	EV-C Clear	5		Red Rest	_____
8	EV-D Delay	0		Dual Entry	<u> 2 </u> <u> 4 </u> <u> 6 </u> <u> 8 </u>
9	EV-D Clear	5		Max Recall	_____
A	RR-2 Delay	0		Soft Recall	_____
B	RR-2 Clear	10		Max 2	_____
C	View EV Delay	---		Cond. Service	<u> 3 </u>
D	View EV Clear	---		Man Cntrl Calls	_____
E	View RR Delay	---		Yellow Start	<u> 3 </u> <u> 7 </u>
F	View RR Clear	---		First Phases	<u> 4 </u> <u> 8 </u>

Preempt Timing Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

Column Numbers ---->		Plan									
Row	Plan Name ---->	1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	80	80	75	100	100	100	80	100	100	0
1	Phase 1 - ForceOff	65	65	60	65	65	65	65	65	65	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	25	25	23	25	25	25	25	25	25	3
4	Phase 4 - ForceOff	50	50	45	40	40	40	50	40	40	4
5	Phase 5 - ForceOff	65	65	60	65	65	65	65	65	65	5
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0	6
7	Phase 7 - ForceOff	1	1	1	25	25	25	1	25	25	7
8	Phase 8 - ForceOff	1	1	1	40	40	40	1	40	40	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	48	14	20	0	0	0	48	0	0	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	12	12	12	12	12	12	12	12	0	D
E	Hold Release	70	70	70	255	255	255	70	255	0	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination <C Page>

(* = Coordination Recall)

Row	E	Row
Plan 1 - Sync	<u>2 6</u>	1
Plan 2 - Sync	<u>2 6</u>	2
Plan 3 - Sync	<u>2 6</u>	3
Plan 4 - Sync	<u>2 6</u>	4
Plan 5 - Sync	<u>2 6</u>	5
Plan 6 - Sync	<u>2 6</u>	6
Plan 7 - Sync	<u>2 6</u>	7
Plan 8 - Sync	<u>2 6</u>	8
Plan 9 - Sync	<u>2 6</u>	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	<u>2 5</u>
B	EV-B Phases	<u>4 7</u>
C	EV-C Phases	<u>1 6</u>
D	EV-D Phases	<u>3 8</u>
E	Extra 1 Config. Bits	<u>1 4</u>
F	IC Select (Interconnect)	<u>2</u>

Configuration <E Page>

Row	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	<u>2</u>
Ped 6P	<u>6</u>
Ped 4P	<u>4</u>
Ped 8P	<u>8</u>
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration <E Page>

- Extra 1 Flags**
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Pretimed Operation
 8 = Split Ring Operation

- Assign 5 Outputs**
 (Ped Loadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust	5
------------------	---

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type	0
-----------------	---

TBC Transition <C+D+D>

Transition Type
 0 = Shortway
 Non-zero = Lengthen

- IC Select Flags**
 1 =
 2 = Modem
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	F	Row
Free Lag	<u>2 4 6 8</u>	0
Plan 1 - Lag	<u>2 4 6 8</u>	1
Plan 2 - Lag	<u>2 4 6 8</u>	2
Plan 3 - Lag	<u>2 4 6 8</u>	3
Plan 4 - Lag	<u>2 4 6 8</u>	4
Plan 5 - Lag	<u>2 4 6 8</u>	5
Plan 6 - Lag	<u>2 4 6 8</u>	6
Plan 7 - Lag	<u>2 4 6 8</u>	7
Plan 8 - Lag	<u>2 4 6 8</u>	8
Plan 9 - Lag	<u>2 4 6 8</u>	9
Coord Max *	_____	A
Coord Lag *	_____	B
		C
		D
		E
		F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	7	A	
2	09:00	2	A	
3	14:00	3	A	
4	19:00	E	A	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

Offset Select
A = Offset A
B = Offset B
C = Offset C

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row		9 Green Clear	C Yellow Change	D Red Clear	0 Load- Switch #
A	Overlap A	0.0	0.0	0.0	0
B	Overlap B	0.0	0.0	0.0	0
C	Overlap C	0.0	0.0	0.0	0
D	Overlap D	0.0	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row		0 Detector Number
0		
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Column Numbers ---->		Phase							
Row	Phase Names ---->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0		0	---	---	---	---	---	---	---	---
1		0	0	---	---	---	---	---	---	---
2		0	0	---	---	---	---	---	---	---
3		0	0	---	---	---	---	---	---	---
4		0	0	---	---	---	---	---	---	---
5		0	0	---	---	---	---	---	---	---
6		0	0	---	---	---	---	---	---	---
7		0	0	---	---	---	---	---	---	---
8		0	0	---	---	---	---	---	---	---
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---
A		---	0	---	---	---	---	---	---	---
B		0	0	---	---	---	---	---	---	---
C		0	0	---	---	---	---	---	---	---
D		0	0	---	---	---	---	---	---	---
E		0	0	---	---	---	---	---	---	---
F		0	0	---	---	---	---	---	---	---

Special Event Schedule <C Page with F+9+F=22>

<--- Limited Service Interval (Set Dwell = 255)

INTERSECTION: Douglas & El Camino

Group Assignment: NONE
 Field Master Assignment: NONE
 System Reference Number: 96

N/S Street Name: Not Assigned
 EW Street Name: Not Assigned

Last Database Change: 1/22/2018 12:33

Change Record		
Change	By	Date

Notes:

Drop Number	19	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	96	<C+0+2>
QuickNet Channel	96	<C+0+3>
Serial:COM40:	(QuickNet)	

Manual Plan	
Manual Offset	
Manual Selection	

Max Initial	20	<F+0+E>
Red Revert	5.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Phase Names -->								
1	Ped Walk	0	7	7	0	0	0	7	0
2	Ped FDW	0	21	14	0	0	0	20	0
3	Min Green	5	10	6	6	5	10	4	4
4	Type 3 Limit	0	99	0	0	0	99	0	0
5	Added Initial	0.0	2.0	0.0	0.0	0.0	1.0	0.0	0.0
6	Veh Extension	2.0	4.0	3.0	3.0	2.0	4.0	3.0	3.5
7	Max Gap	2.0	5.0	3.5	3.0	2.0	5.0	3.0	3.5
8	Min Gap	2.0	3.0	2.5	2.0	2.0	3.0	3.0	3.5
9	Max Limit	20	40	40	20	20	40	30	10
A	Max Limit 2	20	70	30	35	20	40	30	35
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	1.0	2.0	0.8	0.5	0.0	2.0	0.0	0.0
E	Yellow Change	4.4	5.2	4.4	4.1	4.4	5.2	3.0	4.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

Permit	12345678
Red Lock	
Yellow Lock	
Min Recall	2 6
Ped Recall	
View Set Peds	-----
Rest In Walk	
Red Rast	
Dual Entry	
Max Recall	
Soft Recall	
Max 2	
Cond. Service	
Man Cntd Calls	3
Yellow Start	
First Phases	2 6

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: Douglas & El Camino

(* = Coordination Recall)

Row	Plan								
	1	2	3	4	5	6	7	8	9
	Column Numbers -->								
	Plan Name -->								
0	90	90	100	100	100	100	100	100	100
1	70	70	70	63	60	61	65	65	65
2	0	0	0	0	0	0	0	0	0
3	25	30	35	25	20	25	25	25	25
4	35	35	40	40	40	40	40	40	40
5	70	70	70	61	60	63	65	65	65
6	0	0	0	0	0	0	0	0	0
7	1	1	1	25	20	25	25	25	25
8	55	55	55	40	40	40	40	40	40
9	0	0	0	0	0	0	0	0	0
A	21	0	65	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	12	12	12	12	12	12	12	12	12
E	255	255	255	255	255	255	255	255	255
F	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	E
0	Plan 1 - Sync
1	Plan 2 - Sync
2	Plan 3 - Sync
3	Plan 4 - Sync
4	Plan 5 - Sync
5	Plan 6 - Sync
6	Plan 7 - Sync
7	Plan 8 - Sync
8	Plan 9 - Sync
9	Coord Ped *
A	NEMA Hold
B	
C	
D	
E	
F	

Sync Phases <C Page>

Row	E
0	Exclusive Phases
1	RR-1 Clear Phases
2	RR-2 Clear Phases
3	RR-2 Limited Service
4	Prot / Perm Phases
5	Overlap A - Green Omnit
6	Overlap B - Green Omnit
7	Overlap C - Green Omnit
8	Overlap D - Green Omnit
9	Overlap Yellow Flash
A	EV-A Phases
B	EV-B Phases
C	EV-C Phases
D	EV-D Phases
E	Extra 1 Config. Bits
F	IC Select (Interconnect)

Configuration <E Page>

Row	F
0	RR Overlap A - Phases
1	RR Overlap B - Phases
2	RR Overlap C - Phases
3	RR Overlap D - Phases
4	Ped 2P
5	Ped 6P
6	Ped 4P
7	Ped 8P
8	Yellow Flash Phases
9	Overlap A - Phases
A	Overlap B - Phases
B	Overlap C - Phases
C	Overlap D - Phases
D	Restricted Phases
E	Assign 5 Outputs
F	

Configuration <E Page>

Force-Off Adjust	5
Coord Force-Off Adjust for Ped Service <C+D+F>	0
Transition Type	
TBC Transition <C+D+D>	0

Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Prelimed Operation
 8 = Split Ring Operation

Assign 5 Outputs
 (Ped Lockswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Transition Type
 0 = Shortway
 Non-zero = Lengthen

IC Select Flags
 1 = Modern
 2 = 7-Wire Slave
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Lag Phases <C Page>

Row	F
0	Free Lag
1	Plan 1 - Lag
2	Plan 2 - Lag
3	Plan 3 - Lag
4	Plan 4 - Lag
5	Plan 5 - Lag
6	Plan 6 - Lag
7	Plan 7 - Lag
8	Plan 8 - Lag
9	Plan 9 - Lag
A	Coord Max *
B	Coord Lag *
C	
D	
E	
F	

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

- Plan Select**
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash
- Offset Select**
 A = Offset A
 B = Offset B
 C = Offset C

Time	Funct	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

- TOD Functions**
 0 = Permitted Phrases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Min Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phrases
 E = Bit 1 - Local Override
 F = Bit 1 - Phase Bank 2
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
 F = Output Bits 1 thru 4

Column F	Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

- Month Select**
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	A	B	C

Day	Year	Month
	0	0
	0	0
	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	2.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	...	...		...	...
F	...	...		...	...

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	4.3	0.0
D	0.0	5.0	0.0

Overlap Timing <F Page>

Row	0
A	Load-Switch #
B	7
C	3
D	2
E	0

<D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	...	...		...	...
F	...	...		...	...

Row	0	Detector Number
1	0	System Det # 1
2	0	System Det # 2
3	0	System Det # 3
4	0	System Det # 4
5	0	System Det # 5
6	0	System Det # 6
7	0	System Det # 7
8	0	System Det # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>
Advance Warning Beacon - Sign 1		
Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>
Advance Warning Beacon - Sign 2		
Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>
Power Cycle Correction		(Default = 0.5)
Disable Parity	0	<D+B+0>

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Detector Delay & Carryover <D Page>

Row	Phase Names	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	4	4	0	0	0	4	0
1	Ped FDW	0	21	14	0	0	0	20	0
2	Min Green	5	10	5	5	5	10	4	4
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
5	Veh Extension	2.0	4.0	3.0	3.0	2.0	4.0	3.0	3.5
6	Max Gap	2.0	5.0	3.5	3.0	2.0	5.0	3.0	3.5
7	Min Gap	2.0	3.0	2.5	2.0	2.0	3.0	3.0	3.5
8	Max Limit	20	40	40	20	20	40	30	10
9	Max Limit 2	20	70	30	35	20	40	30	35
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	1.0	2.0	0.8	0.5	0.0	2.0	0.0	0.0
E	Yellow Change	3.2	5.0	4.3	4.0	3.2	5.0	3.0	4.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 2

<F Page>

Row	Phase Names	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	4	4	0	0	0	4	0
1	Ped FDW	0	21	14	0	0	0	20	0
2	Min Green	5	10	5	5	5	10	4	4
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	1.0	1.0	0.0	0.0
5	Veh Extension	2.0	4.0	3.0	3.0	2.0	4.0	3.0	3.5
6	Max Gap	2.0	5.0	3.5	3.0	2.0	5.0	3.0	3.5
7	Min Gap	2.0	3.0	2.5	2.0	2.0	3.0	3.0	3.5
8	Max Limit	20	40	40	20	20	40	30	10
9	Max Limit 2	20	70	30	35	20	40	30	35
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	1.0	2.0	0.8	0.5	0.0	2.0	0.0	0.0
E	Yellow Change	3.2	5.0	4.3	4.0	3.2	5.0	3.0	4.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 3

<F Page>

Row	Delay Only	Special Event Schedule								
		7	8	9	A	B	C	D	E	F
0	Time Dwell	0	0	0	0	0	0	0	0	0
1	Hold	0	0	0	0	0	0	0	0	0
2	Advance	0	0	0	0	0	0	0	0	0
3	Force Off	0	0	0	0	0	0	0	0	0
4	Vehicle Call	0	0	0	0	0	0	0	0	0
5	Permit Phases	0	0	0	0	0	0	0	0	0
6	Ped Omit	0	0	0	0	0	0	0	0	0
7	Output	0	0	0	0	0	0	0	0	0
8	-----	0	0	0	0	0	0	0	0	0
9	Limited Service Int.	0	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0	0
C	-----	0	0	0	0	0	0	0	0	0
D	-----	0	0	0	0	0	0	0	0	0
E	-----	0	0	0	0	0	0	0	0	0
F	-----	0	0	0	0	0	0	0	0	0

Special Event Schedule

<C Page with F+9+F=22>

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: Douglas & Pala

Group Assignment: NONE

Field Master Assignment: NONE

System Reference Number: 95

N/S Street Name: Not Assigned
E/W Street Name: Not Assigned

Last Database Change: 7/26/2018 7:45

Change	By	Date	Change	By	Date

Notes:

Drop Number	23	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	95	<C+0+2>
QuickNet Channel	Serial:COM40: (QuickNet)	<C+0+3>
Manual Plan	Manual Offset	<C+A+1>
Manual Selection		<C+B+1>

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>
Start / Revert Times		

Row	Phase	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	1	1	0	7	4	0
1	Ped FDW	0	10	1	1	0	18	20	0
2	Min Green	5	10	1	1	5	10	6	6
3	Type 3 Limit	0	99	1	1	0	99	0	0
4	Added Initial	0.0	1.0	0.0	1.2	0.0	1.0	0.0	0.0
5	Veh Extension	3.0	4.0	0.5	3.5	3.0	4.0	3.0	3.0
6	Max Gap	3.0	5.0	0.5	5.0	3.0	5.0	3.0	3.0
7	Min Gap	3.0	2.5	0.5	2.0	3.0	2.5	3.0	3.0
8	Max Limit	20	60	17	40	5	60	30	30
9	Max Limit 2	0	0	30	70	5	0	0	0
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0
D	Reduce Every	0.0	1.5	1.0	1.0	0.0	1.5	0.0	0.0
E	Yellow Change	4.4	5.2	3.0	4.0	4.4	5.2	4.1	3.6
F	Red Clear	1.0	1.0	0.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

E	Function	Value
	RR-1 Delay	0
	RR-1 Clear	10
	EV-A Delay	0
	EV-A Clear	5
	EV-B Delay	0
	EV-B Clear	5
	EV-C Delay	0
	EV-C Clear	5
	EV-D Delay	0
	EV-D Clear	5
	RR-2 Delay	0
	RR-2 Clear	10
	View EV Delay	---
	View EV Clear	---
	View RR Delay	---
	View RR Clear	---

F	Function	Value
	Permit	12_5678
	Red Lock	
	Yellow Lock	
	Min Recall	_2_6_
	Ped Recall	
	View Set Peds	
	Rest In Walk	
	Red Rest	
	Dual Entry	_2_6_
	Max Recall	
	Soft Recall	
	Max 2	
	Cond. Service	
	Main Ctrl Calls	
	Yellow Start	_2_6_
	First Phases	

Phase Functions <F Page>

Manual Plan
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

INTERSECTION: Douglas & Pala

Row	Plan Name	1	2	3	4	5	6	7	8	9
0	Cycle Length	100	100	100	100	100	100	100	100	100
1	Phase 1 - ForceOff	73	73	73	65	65	65	65	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	0	0	0	25	25	25	25	25	25
4	Phase 4 - ForceOff	0	0	0	40	40	40	40	40	40
5	Phase 5 - ForceOff	73	73	73	65	65	65	65	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	33	33	33	25	25	25	25	25	25
8	Phase 8 - ForceOff	53	53	53	40	40	40	40	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	43	15	39	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	5	5	5	12	12	12	12	12	12
E	Hold Release	90	85	90	255	255	255	255	255	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	Plan	1	2	3	4	5	6	7	8	9
0	Plan 1 - Sync	2	6	2	6	2	6	2	6	2
1	Plan 2 - Sync	2	6	2	6	2	6	2	6	2
2	Plan 3 - Sync	2	6	2	6	2	6	2	6	2
3	Plan 4 - Sync	2	6	2	6	2	6	2	6	2
4	Plan 5 - Sync	2	6	2	6	2	6	2	6	2
5	Plan 6 - Sync	2	6	2	6	2	6	2	6	2
6	Plan 7 - Sync	2	6	2	6	2	6	2	6	2
7	Plan 8 - Sync	2	6	2	6	2	6	2	6	2
8	Plan 9 - Sync	2	6	2	6	2	6	2	6	2
9	Coord Ped *									
A	NEMA Hold									
B										
C										
D										
E										
F										

(* = Coordination Recall)

Sync Phases

<C Page>

Row	Configuration	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omnit	
6	Overlap B - Green Omnit	
7	Overlap C - Green Omnit	
8	Overlap D - Green Omnit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	7
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 4
F	IC Select (Interconnect)	2

Column Numbers ->

<E Page>

Row	Configuration	F
0	RR Overlap A - Phases	
1	RR Overlap B - Phases	
2	RR Overlap C - Phases	
3	RR Overlap D - Phases	
4	Ped 2P	2
5	Ped 6P	6
6	Ped 4P	7
7	Ped 8P	
8	Yellow Flash Phases	
9	Overlap A - Phases	
A	Overlap B - Phases	
B	Overlap C - Phases	
C	Overlap D - Phases	
D	Restricted Phases	
E	Assign 5 Outputs	
F		

Column Numbers ->

<E Page>

Force-Off Adjust 0

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type <C+D+D> 0

- Extra 1 Flags
- 1 = TBC Type 1
- 2 = NEMA Ext. Coord
- 3 = Auto Daylight Savings
- 4 = EV Advance
- 5 =
- 6 = Special Event
- 7 = Pretime Operation
- 8 = Split Ring Operation

- Transition Types
- 0 = Shortway
- Non-zero = Lengthen
- IC Select Flags
- 1 =
- 2 = Modern
- 3 = 7-Wire Slave
- 4 = Flash / Free
- 5 =
- 6 = Simplex Master
- 7 = 7-Wire Master
- 8 = Offset Interrupter

Row	Configuration	F
0	Free Lag	2 4 6 8
1	Plan 1 - Lag	2 4 6 8
2	Plan 2 - Lag	2 4 6 8
3	Plan 3 - Lag	2 4 6 8
4	Plan 4 - Lag	2 4 6 8
5	Plan 5 - Lag	2 4 6 8
6	Plan 6 - Lag	2 4 6 8
7	Plan 7 - Lag	2 4 6 8
8	Plan 8 - Lag	2 4 6 8
9	Plan 9 - Lag	2 4 6 8
A	Coord Max *	
B	Coord Lag *	
C		
D		
E		
F		

Lag Phases

<C Page>

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	...	...		...	...
F	...	...		...	...

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	10.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	12.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	...	...		...	...
F	...	...		...	...

Detector Delay & Carryover <D Page>

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	0.0	0.0
D	0.0	0.0	0.0

Overlap Timing <F Page>

0	Load-Switch #
0	0
0	0
0	0

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Note: initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0	Detector Number
1	0	System Det # 1
2	0	System Det # 2
3	0	System Det # 3
4	0	System Det # 4
5	0	System Det # 5
6	0	System Det # 6
7	0	System Det # 7
8	0	System Det # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+8+0>
----------------	---	---------

Dial-Up Telephone Communications (If set to a non-zero value, parity will be disabled)

Row	Column Numbers →	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
C	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
E	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers →	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
C	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
E	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only →	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	Limited Service Int.	0	0	0	0	0	0	0	0	0
9	Limited Service Int.	0	0	0	0	0	0	0	0	0
A	Limited Service Int.	0	0	0	0	0	0	0	0	0
B	Limited Service Int.	0	0	0	0	0	0	0	0	0
C	Limited Service Int.	0	0	0	0	0	0	0	0	0
D	Limited Service Int.	0	0	0	0	0	0	0	0	0
E	Limited Service Int.	0	0	0	0	0	0	0	0	0
F	Limited Service Int.	0	0	0	0	0	0	0	0	0

Special Event Schedule

<C Page with F+9+F=22>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: Douglas & Old River

Group Assignment: NONE
 Field Master Assignment: NONE
 System Reference Number: 77

N/S Street Name: Not Assigned
 E/W Street Name: Not Assigned

Change Record			
Change	By	Date	Change

Notes:

Drop Number	8	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	76	<C+0+2>
Area Address		<C+0+3>
QuickNet Channel		SerialComztr: (QuickNet)

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Phase Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Phase Names -->								
1	Ped Walk	0	7	0	6	0	7	0	6
2	Ped FDW	0	15	0	26	0	15	0	26
3	Min Green	5	8	3	6	3	8	3	6
4	Type 3 Limit	0	99	0	0	0	99	0	0
5	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Veh Extension	2.0	4.0	0.5	3.0	0.5	4.0	0.5	3.0
7	Min Gap	2.0	5.0	0.5	3.0	0.5	5.0	0.5	3.0
8	Max Limit	2.0	2.5	0.5	3.0	0.5	2.5	0.5	3.0
9	Max Limit 2	20	40	17	20	17	40	17	20
A	Call To Phase	0	0	0	0	0	0	0	0
B	Reduce By	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0
C	Reduce Evey	0.0	1.5	1.0	0.0	1.0	1.5	1.0	0.0
D	Yellow Change	4.4	5.2	3.0	3.6	3.0	5.2	3.0	3.6
E	Red Clear	1.0	1.5	0.0	1.0	0.0	1.5	0.0	1.0

Phase Timing - Bank 1 <F Page>

View	E
RR-1 Delay	0
RR-1 Clear	10
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

View	F
Permit	12_4_6_8
Red Lock	8
Yellow Lock	8
Min Recall	2_2_6
Ped Recall	---
View Set Pads	---
Rest In Walk	---
Red Rest	---
Dual Entry	2_4_6_8
Max Recall	---
Soft Recall	---
Max 2	---
Cond. Service	---
Man Cntrl Calls	2_2_6
Yellow Start	4_8
First Phases	---

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: Douglas & Old River

Row	Plan								
	1	2	3	4	5	6	7	8	9
0	100	100	100	100	90	90	100	100	100
1	47	10	40	40	50	50	50	65	65
2	0	0	0	0	0	0	0	0	0
3	1	1	1	1	1	1	1	25	25
4	37	45	32	32	30	30	40	40	40
5	1	1	1	1	1	1	65	65	65
6	0	0	0	0	0	0	0	0	0
7	1	1	1	1	1	1	25	25	25
8	37	45	32	32	30	30	40	40	40
9	0	0	0	0	0	0	0	0	0
A	23	95	19	19	60	73	20	0	0
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	5	5	5	5	12	12	12	12	12
E	90	85	90	90	255	255	255	255	255
F	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	E	Row
0	Plan 1 - Sync	0
1	Plan 2 - Sync	1
2	Plan 3 - Sync	2
3	Plan 4 - Sync	3
4	Plan 5 - Sync	4
5	Plan 6 - Sync	5
6	Plan 7 - Sync	6
7	Plan 8 - Sync	7
8	Plan 9 - Sync	8
9	Coord Pad *	9
A	NEMA Hold	A
B		B
C		C
D		D
E		E
F		F

(* = Coordination Recall)

Sync Phases <C Page>

Row	E
0	Exclusive Phases
1	RR-1 Clear Phases
2	RR-2 Clear Phases
3	RR-2 Limited Service
4	Prot / Perm Phases
5	Overlap A - Green Omnit
6	Overlap B - Green Omnit
7	Overlap C - Green Omnit
8	Overlap D - Green Omnit
9	Overlap Yellow Flash
A	EV-A Phases
B	EV-B Phases
C	EV-C Phases
D	EV-D Phases
E	Extra 1 Config. Bits
F	IC Select (Interconnect)

Configuration <E Page>

Row	F
RR Overlap A - Phases	
RR Overlap B - Phases	
RR Overlap C - Phases	
RR Overlap D - Phases	2
Ped 2P	
Ped 6P	6
Ped 4P	4
Ped 8P	8
Yellow Flash Phases	
Overlap A - Phases	
Overlap B - Phases	
Overlap C - Phases	
Overlap D - Phases	
Restricted Phases	
Assign 5 Outputs	

Configuration <E Page>

Force-Off Adjust 5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type <C+D+D> 0

- Extra 1 Flags
 - 1 = TBC Type 1
 - 2 = NEMA Ext. Coord
 - 3 = Auto Daylight Savings
 - 4 = EV Advance
 - 5 =
 - 6 = Special Event
 - 7 = Special Operation
 - 8 = Split Ring Operation
- Assign 5 Outputs (Ped Loadswitch (Yellows))
- 1 = Right Turn Overlap
 - 2 = TOD Outputs
 - 3 = EV Beacon - Steady
 - 4 = EV Beacon - Flashing
 - 5 = Special Event Outputs
 - 6 = Phase 3 & 7 Ped
 - 7 = Advanced Warning Sign
 - 8 =
- IC Select Flags
- 1 = Modern
 - 2 = 7-Wire Slave
 - 3 = Flash / Free
 - 4 = Simplex Master
 - 5 = 7-Wire Master
 - 6 =
 - 7 =
 - 8 =
- Transition Type
- 0 = Shortway
 - Non-zero = Lengthen

Row	F	Row
Free Lag	2 4 6 8	0
Plan 1 - Lag	2 4 6 8	1
Plan 2 - Lag	1 4 6 8	2
Plan 3 - Lag	2 4 6 8	3
Plan 4 - Lag	2 4 6 8	4
Plan 5 - Lag	2 4 6 8	5
Plan 6 - Lag	2 4 6 8	6
Plan 7 - Lag	2 4 6 8	7
Plan 8 - Lag	2 4 6 8	8
Plan 9 - Lag	2 4 6 8	9
Coord Max *		A
Coord Lag *		B
		C
		D
		E
		F

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	1	A	23456
2	09:00	2	A	23456
3	15:00	3	A	23456
4	19:00	E	A	23456
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

- Plan Select
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash
- Offset Select
 A = Offset A
 B = Offset B
 C = Offset C

Time	Funct.	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

- TOD Functions
 0 = Permitted Phases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Min Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phases
 E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Spill Monitor
 F = Output Bits 1 thru 4

Column F
Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

- Month Select
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row
A
B
C

Holiday # 1 Date	Day	Year	Month
	0	0	0
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	12.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	2.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	12.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	9	Green Clear	C	Yellow Change	D	Red Clear
A		0.0		0.0		0.0
B		0.0		0.0		0.0
C		0.0		0.0		0.0
D		0.0		0.0		0.0

Overlap Timing <F Page>

Row	0	Load-Switch #
A		0
B		0
C		0
D		0

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0	Detector Number
1		0
2		0
3		0
4		0
5		0
6		0
7		0
8		0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

INTERSECTION: Douglas & Old River

Row	Phase Names -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase Names -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only -->	7 Time	8 Dwell	9 Hold	Special Event Schedule					
					A Advance	B Force Off	C Vehicle Call	D Permit Phases	E Ped Omit	F Output
0	0	0	0	0	---	---	---	---	---	---
1	0	0	0	0	---	---	---	---	---	---
2	0	0	0	0	---	---	---	---	---	---
3	0	0	0	0	---	---	---	---	---	---
4	0	0	0	0	---	---	---	---	---	---
5	0	0	0	0	---	---	---	---	---	---
6	0	0	0	0	---	---	---	---	---	---
7	0	0	0	0	---	---	---	---	---	---
8	0	0	0	0	---	---	---	---	---	---
9	Limited Service Int. -->	0	0	0	---	---	---	---	---	---
A	0	0	0	0	---	---	---	---	---	---
B	0	0	0	0	---	---	---	---	---	---
C	0	0	0	0	---	---	---	---	---	---
D	0	0	0	0	---	---	---	---	---	---
E	0	0	0	0	---	---	---	---	---	---
F	0	0	0	0	---	---	---	---	---	---

<C Page with F+9+F=22>

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: Douglas & North River

Group Assignment: NONE
 Field Master Assignment: NONE
 System Reference Number: 78

N/S Street Name: Not Assigned
 EW Street Name: Not Assigned

Last Database Change: 11/22/2018 12:32

Change Record			
Change	By	Date	Change

Notes:

Drop Number	9	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	77	<C+0+2>
Area Address		<C+0+3>
QuickNet Channel		Serial:COM21r: (QuickNet)

Manual Plan	
Manual Offset	

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Phase							
	1	2	3	4	5	6	7	8
0								
1	Ped Walk	0	7	0	7	0	7	0
2	Ped FDW	0	27	0	25	0	26	0
3	Min Green	5	8	3	8	5	8	0
4	Type 3 Limit	0	99	0	99	0	99	3
5	Added Initial	0.0	0.0	0.0	0.0	2.0	0.0	0.0
6	Veh Extension	3.0	5.0	3.0	5.0	3.0	5.0	3.5
7	Max Gap	3.0	6.0	3.0	6.0	3.0	6.0	3.0
8	Min Gap	3.0	2.5	3.0	2.5	3.0	2.5	2.5
9	Max Limit	15	40	30	40	20	40	25
A	Max Limit 2	30	70	30	70	30	70	25
B	Call To Phase	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.1	0.0	0.1	0.1
D	Reduce Every	0.0	1.0	0.0	1.0	0.0	1.0	1.0
E	Yellow Change	4.4	5.2	3.0	4.8	4.4	5.2	3.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

Row	E
0	
1	RR-1 Delay
2	RR-1 Clear
3	EV-A Delay
4	EV-A Clear
5	EV-B Delay
6	EV-B Clear
7	EV-C Delay
8	EV-C Clear
9	EV-D Delay
A	EV-D Clear
B	RR-2 Delay
C	RR-2 Clear
D	View EV Delay
E	View EV Clear
F	View RR Delay

Preempt Timing

Row	F
0	
1	Permit
2	Red Lock
3	Yellow Lock
4	Min Recall
5	Ped Recall
6	View Set Pads
7	Rest In Walk
8	Red Rest
9	Dual Entry
A	Max Recall
B	Soft Recall
C	Max 2
D	Cond. Service
E	Main Cntl Calls
F	Yellow Start

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: Douglas & North River

(* = Coordination Recall)

Row	Plan Name	Plan								
		1	2	3	4	5	6	7	8	9
0	Cycle Length	100	100	100	100	90	90	100	100	100
1	Phase 1 - ForceOff	75	75	75	75	70	70	75	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	1	1	1	1	1	1	25	25	25
4	Phase 4 - ForceOff	35	40	35	35	30	30	40	40	40
5	Phase 5 - ForceOff	75	75	80	75	70	70	65	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	1	1	1	25	25	25
8	Phase 8 - ForceOff	56	56	56	56	50	50	60	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	31	11	31	31	44	41	70	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	12	12	12	5	12	12	12	12	0
E	Hold Release	95	85	100	90	80	80	90	0	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	Plan Name	E
0	Plan 1 - Sync	2 6
1	Plan 2 - Sync	2 6
2	Plan 3 - Sync	2 6
3	Plan 4 - Sync	2 6
4	Plan 5 - Sync	2 6
5	Plan 6 - Sync	2 6
6	Plan 7 - Sync	2 6
7	Plan 8 - Sync	2 6
8	Plan 9 - Sync	2 6
9	Coord Ped *	2 6
A	NEMA Hold	
B		
C		
D		
E		
F		

Sync Phases

<C Page>

Row	Column Numbers	E
0	Exclusive Phases	34 78
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Services	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	12 56 8
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 4
F	IC Select (Interconnect)	2

Row	Column Numbers	F
0	RR Overlap A - Phases	
1	RR Overlap B - Phases	
2	RR Overlap C - Phases	
3	RR Overlap D - Phases	
4	Ped 2P	2
5	Ped 6P	6
6	Ped 4P	4
7	Ped 8P	8
8	Yellow Flash Phases	
9	Overlap A - Phases	
A	Overlap B - Phases	
B	Overlap C - Phases	
C	Overlap D - Phases	4
D	Restricted Phases	
E	Assign 5 Outputs	
F		

Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Prtred Operation
 8 = Split Ring Operation

Assign 5 Outputs
 (Ped Leads with Yellow)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust	8
Coord Force-Off Adjust for Ped Service <C+D+F>	
Transition Type <C+D+D>	0

Row	Free Lag	F
0	Plan 1 - Lag	2 4 6 8
1	Plan 2 - Lag	2 4 6 8
2	Plan 3 - Lag	2 4 6 8
3	Plan 4 - Lag	2 4 6 8
4	Plan 5 - Lag	2 4 6 8
5	Plan 6 - Lag	2 4 6 8
6	Plan 7 - Lag	2 4 6 8
7	Plan 8 - Lag	2 4 6 8
8	Plan 9 - Lag	2 4 6 8
9	Coord Max *	
A	Coord Lag *	
B		
C		
D		
E		
F		

Lag Phases

<C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	1	A	
2	09:00	2	A	
3	15:00	3	A	
4	19:00	E	A	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F	Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

- Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash
- Offset Select
A = Offset A
B = Offset B
C = Offset C

- T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Pad Recall
5 =
6 = Rest in Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
F = Bit 1 - Phase Bank 2
Bit 2 - Phase Bank 3
Bit 3 - Phase Bank 2
Bit 4 - Disable Detector
OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

- Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month
A	0	0	0
B	0	0	0
C	0	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	1.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	9	Green Clear
A	0.0	
B	0.0	
C	0.0	
D	0.0	

C	Yellow Change	D	Red Clear
A	0.0	0.0	
B	0.0	0.0	
C	0.0	0.0	
D	0.0	0.0	

0	Load-Switch #
A	0
B	0
C	0
D	7

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0	Detector Number
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

INTERSECTION: Douglas & North River

Row	Phase							
	1	2	3	4	5	6	7	8
0	Ped Walk							
1	0	22	0	24	0	20	0	20
2	3	10	3	8	0	10	0	8
3	0	99	0	99	3	99	3	99
4	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0
5	3.0	5.0	3.0	4.0	3.0	5.0	3.0	4.0
6	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
8	25	45	30	40	25	45	25	40
9	30	70	30	70	30	70	25	40
A	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0
C	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
D	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
E	3.0	4.5	3.0	4.5	3.0	4.5	3.0	4.5
F	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase							
	1	2	3	4	5	6	7	8
0	Ped Walk							
1	0	22	0	24	0	20	0	20
2	3	10	3	8	0	10	0	8
3	0	99	0	99	3	99	3	99
4	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0
5	3.0	5.0	3.0	4.0	3.0	5.0	3.0	4.0
6	3.0	6.0	3.0	6.0	3.0	6.0	3.0	6.0
7	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
8	25	45	30	40	25	45	25	40
9	30	70	30	70	30	70	25	40
A	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0
C	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1
D	0.0	1.5	0.0	1.5	0.0	1.5	0.0	1.5
E	3.0	4.5	3.0	4.5	3.0	4.5	3.0	4.5
F	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Special Event Schedule					
	7	8	9	A	B	C
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
A	0	0	0	0	0	0
B	0	0	0	0	0	0
C	0	0	0	0	0	0
D	0	0	0	0	0	0
E	0	0	0	0	0	0
F	0	0	0	0	0	0

Special Event Schedule <C Page with F+9+F=22>

Row	7	8	9	A	B	C
0	0	0	0	0	0	0
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	0	0	0	0	0	0
9	0	0	0	0	0	0
A	0	0	0	0	0	0
B	0	0	0	0	0	0
C	0	0	0	0	0	0
D	0	0	0	0	0	0
E	0	0	0	0	0	0
F	0	0	0	0	0	0

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: North River & Ave Descanso

Group Assignment: NONE

Field Master Assignment: NONE

System Reference Number: 79

N/S Street Name: Not Assigned

E/W Street Name: Not Assigned

Change Record			
Change	By	Date	Change

Notes:

Drop Number **10** <C+0+0>
 Zone Number <C+0+1>
 Area Number **1** <C+0+2>
 Area Address <C+0+3>
 QuicNet Channel **78** Serial:comz0: (QuicNet)

Manual Plan _____
 Manual Offset _____
 Manual Selection _____

Max Initial **20** <F+0+E>
 Red Revert **2.0** <F+0+F>
 All Red Start **5.0** <F+C+0>

Communication Addresses

Manual Selection

Start / Revert Times

Row	Phase Names -->	1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	6	0	7	0	6
1	Ped EDW	0	12	0	25	0	12	0	25
2	Min Green	5	8	3	6	5	8	3	6
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Veh Extension	3.0	3.5	0.5	2.0	3.0	3.5	0.5	2.0
6	Max Gap	3.0	5.0	0.5	2.0	3.0	5.0	0.5	2.0
7	Min Gap	3.0	2.0	0.5	2.0	3.0	2.0	0.5	2.0
8	Max Limit	20	40	17	25	20	40	17	25
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0
D	Reduce Every	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
E	Yellow Change	4.1	4.8	3.0	3.6	4.1	4.8	3.0	3.6
F	Red Clear	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0

Phase Timing - Bank 1

<F Page>

Row	Phase Names -->	E
	RR-1 Delay	0
	RR-1 Clear	10
	EVA Delay	0
	EVA Clear	5
	EV-B Delay	0
	EV-B Clear	5
	EV-C Delay	0
	EV-C Clear	5
	EV-D Delay	0
	EV-D Clear	5
	RR-2 Delay	0
	RR-2 Clear	10
	View EV Delay	---
	View EV Clear	---
	View RR Delay	---
	View RR Clear	---

Preempt Timing

Row	Phase Names -->	F
	Permit	12_456_8
	Red Lock	1
	Yellow Lock	1
	Min Recall	2_6
	Pad Recall	-----
	View Set Peds	-----
	Rest In Walk	-----
	Red Rest	-----
	Dial Entry	2_4_6_8
	Max Recall	-----
	Soft Recall	-----
	Max 2	-----
	Cond. Services	-----
	Man Cntrl Calls	-----
	Yellow Start	2_6
	First Phases	4_8

Phase Functions

<F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: North River & Ave Descanso

(* = Coordination Recall)

Row	Column Numbers -->								
	1	2	3	4	5	6	7	8	9
0	100	100	100	100	90	90	100	100	100
1	46	16	55	55	50	50	50	65	65
2	0	0	0	0	0	0	0	0	0
3	1	1	1	1	1	1	1	25	25
4	30	45	45	45	30	30	30	40	40
5	46	16	15	15	50	50	50	65	65
6	0	0	0	0	0	0	0	0	0
7	1	1	1	1	1	1	1	25	25
8	30	45	45	45	30	30	30	40	40
9	0	0	0	0	0	0	0	0	0
A	65	50	53	53	6	53	52	0	0
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	5	20	20	5	12	12	12	12	12
E	90	85	90	90	255	255	255	255	255
F	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	E
0	2 4 6 8
1	2 4 6 8
2	2 6
3	2 6
4	2 6
5	2 6
6	2 6
7	2 6
8	2 6
9	2 6
A	
B	
C	
D	
E	
F	

Sync Phases

<C Page>

Row	Column Numbers -->
0	Exclusive Phases
1	RR-1 Clear Phases
2	RR-2 Clear Phases
3	RR-2 Limited Service
4	Prot / Perm Phases
5	Overlap A - Green Omit
6	Overlap B - Green Omit
7	Overlap C - Green Omit
8	Overlap D - Green Omit
9	Overlap Yellow Flash
A	EV-A Phases
B	EV-B Phases
C	EV-C Phases
D	EV-D Phases
E	Extra 1 Config. Bits
F	IC Select (Interconnect)

Configuration

<E Page>

Row	Column Numbers -->
0	RR Overlap A - Phases
1	RR Overlap B - Phases
2	RR Overlap C - Phases
3	RR Overlap D - Phases
4	Ped 2P
5	Ped 6P
6	Ped 4P
7	Ped 8P
8	Yellow Flash Phases
9	Overlap A - Phases
A	Overlap B - Phases
B	Overlap C - Phases
C	Overlap D - Phases
D	Restricted Phases
E	Assign 5 Outputs
F	

Configuration

<E Page>

Force-Off Adjust 5
Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type <C+D+D> 0

- Extra 1 Class
 - 1 = TBC Type 1
 - 2 = NEMA Ext. Coord
 - 3 = Auto Daylight Savings
 - 4 = EV Advance
 - 5 =
 - 6 = Special Event
 - 7 = Preload Operation
 - 8 = Split Ring Operation
- Assign 5 Outputs
 (Ped Loadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =
- Transition Type
 0 = Shortway
 Non-zero = Lengthen
- IC Select Class
 1 = Modern
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	F
0	2 4 6 8
1	2 4 6 8
2	1 4 5 8
3	2 4 5 8
4	2 4 5 8
5	2 4 6 8
6	2 4 6 8
7	2 4 6 8
8	2 4 6 8
9	2 4 6 8
A	
B	
C	
D	
E	
F	

Lag Phases

<C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	1	A	23456
2	09:00	E	A	23456
3	11:00	2	A	23456
4	13:00	E	A	23456
5	15:00	3	A	23456
6	19:00	E	A	23456
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row
0
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F

- Plan Select**
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash
- Offset Select**
A = Offset A
B = Offset B
C = Offset C

- T.O.D. Functions**
0 = Permitted Phrases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
- OFF Monitor**
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phrases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector
- Bit 7 - Detector Count Monitor**
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

- Month Select**
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row
A
B
C

Holiday # 1 Date	Day	Year	Month
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	2.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	12.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	12.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	0.0	0.0
D	0.0	0.0	0.0

0	Load-Switch #
0	0
0	0
0	0

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Active Detectors <D Page>

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	2.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	2.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	0	Detector Number
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

INTERSECTION: North River & Ave Descanso

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
C	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
E	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
C	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
D	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
E	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	7	8	9	A	B	C	D	E	F
	Time	Dwell	Hold	Advances	Force Off	Vehicle Call	Permit Phases	Ped Omnit	Output
0	Delay Only	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	Limited Service Int.	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0

Special Event Schedule

<C Page with F+9+F=22>

Row	7	8	9	A	B	C	D	E	F
0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: N River & Calle Montecito

Group Assignment: NONE
 Field Master Assignment: NONE
 System Reference Number: 80

N/S Street Name: Not Assigned
 EW Street Name: Not Assigned

Last Database Change: 8/8/2017 10:55

Notes:

Change	By	Date	Change	By	Date

Drop Number: 11 <C+0+0+0>
 Zone Number: 1 <C+0+1>
 Area Number: 76 <C+0+2>
 Area Address: <C+0+3>
 QuickNet Channel: Serial:COM20: (QuickNet)

Manual Plan: _____
 Manual Offset: _____

Manual Selection: _____
 <C+A+1>
 <C+B+1>

Max Initial: 30 <F+0+E>
 Red Revert: 2.0 <F+0+F>
 All Red Start: 5.0 <F+C+0>
 Start / Revert Times

Row	Column Numbers -->	1	2	3	4	5	6	7	8
0	Phase Names -->								
1	Ped Walk	0	7	0	6	0	7	0	6
2	Ped FDW	0	19	0	25	0	16	0	25
3	Min Green	5	8	3	6	5	8	3	6
4	Type 3 Limit	0	99	0	0	0	99	0	0
5	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Veh Extension	3.0	4.0	0.5	3.0	3.0	4.0	0.5	3.0
7	Max Gap	3.0	5.0	0.5	3.0	3.0	5.0	0.5	3.0
8	Min Gap	3.0	2.0	0.5	3.0	3.0	2.0	0.5	3.0
9	Max Limit	15	40	17	30	20	40	17	30
A	Max Limit 2	0	70	30	0	0	70	30	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0
D	Reduce Every	0.0	1.0	1.0	0.0	1.0	1.0	0.0	0.0
E	Yellow Change	4.1	4.8	3.0	3.6	4.1	4.8	3.0	3.6
F	Red Clear	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0

Phase Timing - Bank 1 <F Page>

Row	E	F
0	RR-1 Delay	0
1	RR-1 Clear	10
2	EVA Delay	0
3	EVA Clear	5
4	EV-B Delay	0
5	EV-B Clear	5
6	EV-C Delay	0
7	EV-C Clear	5
8	EV-D Delay	0
9	EV-D Clear	5
A	RR-2 Delay	0
B	RR-2 Clear	10
C	View EV Delay	---
D	View EV Clear	---
E	View RR Delay	---
F	View RR Clear	---

Phase Functions <F Page>

Row	Permit	12_456_8
0	Red Lock	
1	Yellow Lock	
2	Min Recall	2_6_
3	Ped Recall	
4	View Set Peds	-----
5	Rest In Walk	
6	Red Rest	
7	Dual Entry	2_4_6_8
8	Max Recall	
9	Soft Recall	
A	Max 2	
B	Cond. Service	
C	Man Cntrl Calls	
D	Yellow Start	2_6_
E	First Phases	4_8
F		

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: N River & Calle Montecito

(* = Coordination Recall)

Row	Plan Name	Plan								
		1	2	3	4	5	6	7	8	9
0	Cycle Length	100	100	100	100	90	90	100	100	100
1	Phase 1 - ForceOff	19	14	55	50	50	50	65	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	1	1	1	1	1	1	25	25	25
4	Phase 4 - ForceOff	59	54	40	35	30	30	40	40	40
5	Phase 5 - ForceOff	74	77	55	54	50	50	65	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	1	1	1	25	25	25
8	Phase 8 - ForceOff	59	54	40	35	30	30	40	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	99	92	14	14	24	79	99	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	22	17	10	10	12	12	12	12	12
E	Hold Release	90	75	90	90	255	255	255	255	255
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	Plan Name	E
0	Plan 1 - Sync	2 6
1	Plan 2 - Sync	2 6
2	Plan 3 - Sync	2 6
3	Plan 4 - Sync	2 6
4	Plan 5 - Sync	2 6
5	Plan 6 - Sync	2 6
6	Plan 7 - Sync	2 6
7	Plan 8 - Sync	2 6
8	Plan 9 - Sync	2 6
9	Coord Ped *	
A	Coord Ped *	
B	NEMA Hold	
C		
D		
E		
F		

Sync Phases

<C Page>

Row	Column Numbers	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 4
F	IC Select (Interconnect)	2

<E Page>

Row	Column Numbers	F
	RR Overlap A - Phases	
	RR Overlap B - Phases	
	RR Overlap C - Phases	
	RR Overlap D - Phases	
	Ped 2P	2
	Ped 6P	6
	Ped 4P	4
	Ped 8P	8
	Yellow Flash Phases	
	Overlap A - Phases	
	Overlap B - Phases	
	Overlap C - Phases	
	Overlap D - Phases	
	Restricted Phases	
	Assign 5 Outputs	

<E Page>

Force-Off Adjust	5
Coord Force-Off Adjust for Ped Service	<C+D+F>
TBC Transition	<C+D+D>

Transition Type
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Predefined Operation
 8 = Split Ring Operation

Transition Type
 0 = Shortway
 Non-zero = Lengthen

Assign 5 Outputs
 (Ped Leadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

IC Select Flags
 1 = Modern
 2 = 7-Wire Slave
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

<E Page>

Row	Plan Name	F
0	Free Lag	2 4 6 8
1	Plan 1 - Lag	1 4 6 8
2	Plan 2 - Lag	1 4 6 8
3	Plan 3 - Lag	2 4 6 8
4	Plan 4 - Lag	2 4 6 8
5	Plan 5 - Lag	2 4 6 8
6	Plan 6 - Lag	2 4 6 8
7	Plan 7 - Lag	2 4 6 8
8	Plan 8 - Lag	2 4 6 8
9	Plan 9 - Lag	2 4 6 8
A	Coord Max *	
B	Coord Lag *	
C		
D		
E		
F		

Lag Phases

<C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	1	A	23456
2	09:00	E	A	23456
3	11:00	2	A	23456
4	13:00	E	A	23456
5	15:00	3	A	23456
6	19:00	E	A	23456
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Func	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F	Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Plan Select
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash
Offset Select
 A = Offset A
 B = Offset B
 C = Offset C

T.O.D. Functions
 0 = Permitted Phases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Min Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phases
 E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
 F = Output Bits 1 thru 4

Month Select
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Row	Day	Year	Month
A	0	0	0
B	0	0	0
C	0	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	4.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	4.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	0.0	0.0
D	0.0	0.0	0.0

Overlap Timing <F Page>

0	Load-Switch #
0	0
0	0
0	0

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0	Detector Number
0	System Det # 1	0
1	System Det # 2	0
2	System Det # 3	0
3	System Det # 4	0
4	System Det # 5	0
5	System Det # 6	0
6	System Det # 7	0
7	System Det # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (If set to a non-zero value, parity will be disabled)

INTERSECTION: N River & Calle Montecito

Row	Column Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Velv Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Velv Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only -->	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omnit	Output
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	Limited Service Int. -->	0	0	0	0	0	0	0	0	0
A	-----	0	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0

Special Event Schedule

<C Page with F+9+F=Z2>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: No. River Rd. & So. Redondo

Group Assignment: NONE
 Field Master Assignment: NONE
 System Reference Number: 112

N/S Street Name: Not Assigned
 E/W Street Name: Not Assigned

Page 1 (of 5)
 Last Database Change: 1/22/2018 10:56

Change Record	By	Date	Change	By	Date

Notes:

Drop Number	12	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	80	<C+0+2>
QuicNet Channel	80	<C+0+3>
Serial:COM20:	(QuicNet)	

Communication Addresses

Manual Plan	
Manual Offset	

Manual Selection

<C+A+1>
 <C+B+1>

Max Initial	30	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Column Numbers -->	1	2	3	4	5	6	7	8
Phase Names -->	Phase							
Ped Walk	0	7	0	0	0	7	0	6
Ped FDW	0	19	0	0	0	16	0	25
Min Green	5	10	3	6	5	10	3	6
Type 3 Limit	0	99	0	0	0	99	0	0
Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Veh Extension	3.0	4.0	0.5	3.0	3.0	4.0	0.5	3.0
Max Gap	3.0	5.0	0.5	3.0	3.0	5.0	0.5	3.0
Min Gap	3.0	2.0	0.5	3.0	3.0	2.0	0.5	3.0
Max Limit	15	40	17	25	20	40	17	15
Max Limit 2	0	70	30	0	30	70	30	0
Call To Phase	0	0	0	0	0	0	0	0
Reduce By	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0
Reduce Every	0.0	1.0	1.0	0.0	0.0	1.0	1.0	0.0
Yellow Change	4.1	4.8	3.0	3.6	4.1	4.8	3.0	3.6
Red Clear	1.0	2.0	0.0	1.0	1.0	2.0	0.0	1.0

Phase Timing - Bank 1

<F Page>

RR-1 Delay	0
RR-1 Clear	0
EV-A Delay	0
EV-A Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	0
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

Permit	12_456_8
Red Lock	
Yellow Lock	
Min Recall	2_6
Ped Recall	
View Set Peds	-----
Rest In Walk	
Red Rest	
Dual Entry	2_4_6_8
Max Recall	
Soft Recall	
Max 2	
Cond. Service	
Man Cntrl Calls	
Yellow Start	2_6
First Phases	4_8

Phase Functions

<F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Flash
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

INTERSECTION: No. River Rd. & So. Redondo

Row	Plan Name	Plan								
		1	2	3	4	5	6	7	8	9
0	Cycle Length	100	100	100	100	90	90	120	100	120
1	Phase 1 - ForceOff	55	55	55	50	50	50	55	65	55
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	1	1	1	1	1	1	1	25	1
4	Phase 4 - ForceOff	35	35	35	35	30	30	30	40	30
5	Phase 5 - ForceOff	60	60	60	54	50	50	55	65	55
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	1	1	1	1	25	1
8	Phase 8 - ForceOff	35	35	35	35	30	30	30	40	30
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	40	45	63	0	70	36	93	0	6
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	10	10	10	10	12	12	12	12	12
E	Hold Release	85	75	95	90	255	255	110	255	110
F	Zone Offset	0	0	0	0	0	0	0	0	0

(* = Coordination Recall)

Row	Plan Name	E
0	Plan 1 - Sync	2 6 8
1	Plan 2 - Sync	2 6 8
2	Plan 3 - Sync	2 6 8
3	Plan 4 - Sync	2 6 8
4	Plan 5 - Sync	2 6 8
5	Plan 6 - Sync	2 6 8
6	Plan 7 - Sync	2 6 8
7	Plan 8 - Sync	2 6 8
8	Plan 9 - Sync	2 6 8
9	Coord Pad *	
A	NEMA Hold	
B		
C		
D		
E		
F		

Sync Phases <C Page>

Row	Column Numbers	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4 7
C	EV-C Phases	1 6
D	EV-D Phases	3 8
E	Extra 1 Config. Bits	1 4
F	IC Select (Interconnect)	2

Row	Column Numbers	F
	RR Overlap A - Phases	
	RR Overlap B - Phases	
	RR Overlap C - Phases	
	RR Overlap D - Phases	
	Ped 2P	2
	Ped 6P	
	Ped 4P	6
	Ped 8P	8
	Yellow Flash Phases	
	Overlap A - Phases	
	Overlap B - Phases	
	Overlap C - Phases	
	Overlap D - Phases	
	Restricted Phases	
	Assign 5 Outputs	

Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Prerimed Operation
 8 = Split Ring Operation

Assign 5 Outputs
 (Ped Leadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust	Coord Force-Off Adjust for Ped Service	Transition Type	IC Select Flags
5	<C+D+F>	0	1 = Modern 2 = 7-Wire Slave 3 = Flash / Free 4 = Simplex Master 5 = 7-Wire Master 6 = Offset Interrupter

Row	Free Lag	F
0	Plan 1 - Lag	2 4 6 8
1	Plan 2 - Lag	2 4 6 8
2	Plan 3 - Lag	2 4 6 8
3	Plan 4 - Lag	2 4 6 8
4	Plan 5 - Lag	2 4 6 8
5	Plan 6 - Lag	2 4 6 8
6	Plan 7 - Lag	2 4 6 8
7	Plan 8 - Lag	2 4 6 8
8	Plan 9 - Lag	2 4 6 8
9	Coord Max *	
A	Coord Lag	
B		
C		
D		
E		
F		

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:00	1	A	23456
2	09:00	E	A	23456
3	11:00	2	A	23456
4	13:00	E	A	23456
5	15:00	3	A	23456
6	19:00	E	A	23456
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash
Offset Select
A = Offset A
B = Offset B
C = Offset C

Time	Func	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector
OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Column F	Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	A	B	C

Holiday # 1 Date	Day	Year	Month
	0	0	0
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

Holiday Dates
<8 Key>

Day of Week

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	12.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	2.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	0.0	0.0
D	0.0	0.0	0.0

Overlap Timing <F Page>

Row	0
A	Load-Switch #
B	0
C	0
D	0

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Active Detectors <D Page>

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	12.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	0	Detector Number
1	System Det. # 1	0
2	System Det. # 2	0
3	System Det. # 3	0
4	System Det. # 4	0
5	System Det. # 5	0
6	System Det. # 6	0
7	System Det. # 7	0
8	System Det. # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

Row	Phase Names -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase Names -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only -->	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0		0	0	0	0	0	0	0	0	0
1		0	0	0	0	0	0	0	0	0
2		0	0	0	0	0	0	0	0	0
3		0	0	0	0	0	0	0	0	0
4		0	0	0	0	0	0	0	0	0
5		0	0	0	0	0	0	0	0	0
6		0	0	0	0	0	0	0	0	0
7		0	0	0	0	0	0	0	0	0
8	Limited Service Int. -->	0	0	0	0	0	0	0	0	0
9		0	0	0	0	0	0	0	0	0
A		0	0	0	0	0	0	0	0	0
B		0	0	0	0	0	0	0	0	0
C		0	0	0	0	0	0	0	0	0
D		0	0	0	0	0	0	0	0	0
E		0	0	0	0	0	0	0	0	0
F		0	0	0	0	0	0	0	0	0

Special Event Schedule <C Page with F+9+F=22>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: North River & Collage

Group Assignment: NONE

Field Master Assignment: NONE

System Reference Number: 81

N/S Street Name: Not Assigned

EW Street Name: Not Assigned

Change	By	Date	Change	By	Date

Notes:

Drop Number	14	<C+0+0>
Zone Number	1	<C+0+1>
Area Number	1	<C+0+2>
Area Address	81	<C+0+3>
QuickNet Channel	Serial:COM20: (QuickNet)	

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>
Manual Selection		

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Column Numbers -->	1	2	3	4	5	6	7	8
0	Phase Names -->								
1	Ped Walk	0	7	0	4	0	7	0	0
2	Ped FDW	0	22	0	22	0	12	0	0
3	Min Green	5	10	8	6	5	10	0	0
4	Type 3 Limit	0	99	0	0	0	99	0	0
5	Added Initial	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Veh Extension	3.0	4.0	3.0	3.0	4.0	0.0	0.0	0.0
7	Max Gap	5.0	5.0	3.0	3.0	5.0	0.0	0.0	0.0
8	Min Gap	2.5	3.5	3.0	3.0	3.5	0.0	0.0	0.0
9	Max Limit	45	40	45	10	40	0	0	0
A	Max Limit 2	30	50	45	20	15	50	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0
D	Reduce Every	1.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0
E	Yellow Change	4.1	4.8	4.4	3.6	4.1	4.8	0.0	0.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	0.0	0.0	0.0

Phase Timing - Bank 1 <F Page>

Row	Phase	1	2	3	4	5	6	7	8
0	RR-1 Delay	0							
1	RR-1 Clear	10							
2	EV-A Delay	0							
3	EV-A Clear	5							
4	EV-B Delay	0							
5	EV-B Clear	1							
6	EV-C Delay	0							
7	EV-C Clear	5							
8	EV-D Delay	0							
9	EV-D Clear	5							
A	RR-2 Delay	0							
B	RR-2 Clear	10							
C	View EV Delay	---							
D	View EV Clear	---							
E	View RR Delay	---							
F	View RR Clear	---							

Preempt Timing

Row	Phase	1	2	3	4	5	6	7	8
0	Permit	123456							
1	Red Lock	3							
2	Yellow Lock								
3	Min Recall	2	6						
4	Ped Recall								
5	View Set Peds	*****							
6	Rest In Walk								
7	Red Rest								
8	Dual Entry	2	6						
9	Max Recall								
A	Soft Recall								
B	Max 2								
C	Cond. Service	1							
D	Man Cntrl Calls								
E	Yellow Start	2	6						
F	First Phases		3						

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

(* = Coordination Recall)

Row	Plan								
	1	2	3	4	5	6	7	8	9
0	100	100	130	100	90	140	120	100	120
1	29	35	0	63	30	0	40	65	40
2	0	0	78	0	0	87	0	0	0
3	55	55	35	1	1	46	70	25	75
4	70	70	53	1	1	64	90	40	90
5	80	80	71	1	1	82	105	65	105
6	0	0	0	0	0	0	0	0	0
7	1	1	0	1	1	0	1	1	1
8	1	1	0	1	1	0	1	1	1
9	0	0	0	0	0	0	0	0	0
A	43	24	0	0	76	105	52	0	30
B	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0
D	5	5	12	12	12	12	12	12	12
E	90	85	255	255	255	255	110	255	110
F	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	E
0	2 4 6 8
1	2 6
2	2 6
3	1 6
4	2 6
5	2 6
6	1 6
7	2 6
8	2 6
9	2 6
A	
B	
C	
D	
E	
F	

Sync Phases

<C Page>

Row	E
0	RR-1 Clear Phases
1	RR-2 Clear Phases
2	RR-2 Limited Service
3	Prot / Perm Phases
4	Overlap A - Green Omnit
5	Overlap B - Green Omnit
6	Overlap C - Green Omnit
7	Overlap D - Green Omnit
8	Overlap Yellow Flash
9	EV-A Phases
A	EV-B Phases
B	EV-C Phases
C	EV-D Phases
D	Extra 1 Config. Bits
E	IC Select (Interconnect)
F	

Configuration

<E Page>

Row	F
0	RR Overlap A - Phases
1	RR Overlap B - Phases
2	RR Overlap C - Phases
3	RR Overlap D - Phases
4	Pad 2P
5	Pad 6P
6	Pad 4P
7	Pad 8P
8	Yellow Flash Phases
9	Overlap A - Phases
A	Overlap B - Phases
B	Overlap C - Phases
C	Overlap D - Phases
D	Restricted Phases
E	Assign 5 Outputs
F	

Configuration

<E Page>

Force-Off Adjust for Ped Service <C+D+F> 8

Transition Type for Ped Service <C+D+D> 0

- Extra 1 Class
 - 1 = TBC Type 1
 - 2 = NEMA Ext. Coord
 - 3 = Auto Daylight Savings
 - 4 = EV Advances
 - 5 =
 - 6 = Special Event
 - 7 = Prelimed Operation
 - 8 = Split Ring Operation
- Assign 5 Outputs (Ped Loadswitch Yellows)
- 1 = Right Turn Overlap
 - 2 = TOD Outputs
 - 3 = EV Beacon - Steady
 - 4 = EV Beacon - Flashing
 - 5 = Special Event Outputs
 - 6 = Phase 3 & 7 Ped
 - 7 = Advanced Warning Sign
 - 8 =
- Transition Type
- 0 = Shortway
 - Non-zero = Lengthen
- IC Select Flags
- 1 = Modern
 - 2 = 7-Wire Slave
 - 3 = 7-Wire Slave
 - 4 = Flash / Free
 - 5 =
 - 6 = Simplex Master
 - 7 = 7-Wire Master
 - 8 = Offset Interrupter

Row	F
0	Free Lag 2 4 6 8
1	Plan 1 - Lag 1 4 6 8
2	Plan 2 - Lag 1 4 6 8
3	Plan 3 - Lag 1 4 6 8
4	Plan 4 - Lag 1 4 6 8
5	Plan 5 - Lag 1 4 6 8
6	Plan 6 - Lag 1 4 6 7
7	Plan 7 - Lag 1 4 6 8
8	Plan 8 - Lag 2 4 6 8
9	Plan 9 - Lag 1 4 6 8
A	Coord Max *
B	Coord Lag *
C	
D	
E	
F	

Lag Phases

<C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	E	0	1234567
1	06:00	E	A	23456
2	09:00	E	A	23456
3	15:00	6	A	23456
4	17:30	E	A	23456
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Function
<7 Key>

Column F	Phrases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

Row	A	B	C

Holiday # 1 Date	Day	Year	Month
Holiday # 2 Date	0	0	0
Holiday # 3 Date	0	0	0

Holiday Dates
<8 Key>

Day of Week

- Plan Select**
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash
- Offset Select**
 A = Offset A
 B = Offset B
 C = Offset C

- TOD Functions**
 0 = Permitted Phrases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh MIn Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = MaxImm 2
 C = Conditional Service
 D = Free Lag Phrases
 E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Spill Monitor
 F = Output Bits 1 thru 4

- Month Select**
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	3.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	3.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	...	...		...	...
F	...	...		...	...

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	...	...		...	...
F	...	...		...	...

Detector Delay & Carryover <D Page>

Row	9	C	D	0
A	Overlap A	Yellow Change	Red Clear	Load-Switch #
B	Overlap B	3.9	0.0	7
C	Overlap C	0.0	0.0	8
D	Overlap D	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- --	1234
F	-- 25 26 27 28 -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	0	Detector Number
1	System Det # 1	0
2	System Det # 2	0
3	System Det # 3	0
4	System Det # 4	0
5	System Det # 5	0
6	System Det # 6	0
7	System Det # 7	0
8	System Det # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

INTERSECTION: North River & College

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Special Event Schedule					
	7	8	9	A	B	C
0	Delay Only	Time	Dwell	Hold	Advance	Force Off
1	0	0	0	0	0	0
2	0	0	0	0	0	0
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0	0	0	0	0	0
7	0	0	0	0	0	0
8	Limited Service Int.	0	0	0	0	0
9	0	0	0	0	0	0
A	-----	0	0	0	0	0
B	0	0	0	0	0	0
C	0	0	0	0	0	0
D	0	0	0	0	0	0
E	0	0	0	0	0	0
F	0	0	0	0	0	0

Special Event Schedule <C Page with F+9+F=22>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

<--- Limited Service Interval (Set Dwell = 255)

INTERSECTION: College & Mance Buchanan

Group Assignment: NONE

Field Master Assignment: NONE

System Reference Number: 151

N/S Street Name: College Blvd.

E/W Street Name: Mance Buchanan

Last Database Change: 8/27/2019 16:10

Change Record			
Change	By	Date	Change

Notes:

Drop Number	30	<C+0+0>
Zone Number		<C+0+1>
Area Number	0	<C+0+2>
Area Address	6	<C+0+3>
QuickNet Channel	Serial:COM17: (QuickNet)	

Manual Plan	
Manual Offset	

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Phase							
	1	2	3	4	5	6	7	8
0	0	0	0	4	0	7	0	0
1	0	0	0	24	0	14	0	0
2	0	10	0	8	6	10	4	0
3	0	99	0	0	0	99	0	0
4	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
5	0.0	4.0	0.0	3.0	2.0	4.0	3.0	0.0
6	0.0	6.0	0.0	3.0	2.0	6.0	3.0	0.0
7	0.0	2.5	0.0	3.0	2.0	2.5	3.0	0.0
8	0	40	0	25	20	40	0	0
9	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0
C	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
D	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
E	0.0	4.8	0.0	3.6	4.1	4.8	0.0	0.0
F	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

Row	E
RR-1 Delay	0
RR-1 Clear	10
EVA Delay	0
EVA Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

Row	F
Permit	2_456
Red Lock	_____
Yellow Lock	_____
Min Recall	2_6
Ped Recall	_____
View Set Peds	-----
Rest In Walk	_____
Red Rest	_____
Dual Entry	2_6
Max Recall	_____
Soft Recall	_____
Max 2	_____
Cond. Service	_____
Man Cntrl Calls	_____
Yellow Start	2_6
First Phases	4

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Flash
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

Row	Plan Name	1	2	3	4	5	6	7	8	9
0	Cycle Length	80	80	90	100	100	100	100	100	100
1	Phase 1 - ForceOff	1	1	1	65	65	65	65	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	1	1	1	25	25	25	25	25	25
4	Phase 4 - ForceOff	32	32	32	40	40	40	40	40	40
5	Phase 5 - ForceOff	57	57	65	65	65	65	65	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	25	25	25	25	25	25
8	Phase 8 - ForceOff	1	1	1	40	40	40	40	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	63	26	28	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Permissive	12	12	12	12	12	12	12	12	0
E	Hold Release	80	80	90	255	255	255	255	255	0
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	Plan	1	2	3	4	5	6	7	8	9
0	Plan 1 - Sync									
1	Plan 2 - Sync									
2	Plan 3 - Sync									
3	Plan 4 - Sync									
4	Plan 5 - Sync									
5	Plan 6 - Sync									
6	Plan 7 - Sync									
7	Plan 8 - Sync									
8	Plan 9 - Sync									
9	Coord Pad *									
A	NEMA Hold									
B										
C										
D										
E										
F										

(* = Coordination Recall)

Sync Phases

<C Page>

Row	Configuration	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omnit	
6	Overlap B - Green Omnit	
7	Overlap C - Green Omnit	
8	Overlap D - Green Omnit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4
C	EV-C Phases	6
D	EV-D Phases	
E	Extra 1 Config. Bits	1 4
F	IC Select (Interconnect)	2

Row	Configuration	F
0	RR Overlap A - Phases	
1	RR Overlap B - Phases	
2	RR Overlap C - Phases	
3	RR Overlap D - Phases	
4	Ped 2P	
5	Ped 6P	6
6	Ped 4P	4
7	Ped 8P	
8	Yellow Flash Phases	
9	Overlap A - Phases	
A	Overlap B - Phases	
B	Overlap C - Phases	
C	Overlap D - Phases	
D	Restricted Phases	
E	Assign 5 Outputs	1
F		

Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Preimed Operation
 8 = Split Ring Operation

Transition Type
 0 = Shortway
 Non-zero = Lengthen

IC Select Flags
 1 = Modem
 2 = 7-Wire Slave
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	Free Lag	F
0	Plan 1 - Lag	2 4 6 8
1	Plan 2 - Lag	2 4 6 8
2	Plan 3 - Lag	2 4 6 8
3	Plan 4 - Lag	2 4 6 8
4	Plan 5 - Lag	2 4 6 8
5	Plan 6 - Lag	2 4 6 8
6	Plan 7 - Lag	2 4 6 8
7	Plan 8 - Lag	2 4 6 8
8	Plan 9 - Lag	2 4 6 8
9	Coord Max *	
A	Coord Lag *	
B		
C		
D		
E		
F		

Lag Phases

<C Page>

INTERSECTION: College & Mance Buchanan

Row	Time	Plan	Offset	Day of Week
0	06:30	1	A	23456
1	09:00	2	A	23456
2	14:00	3	A	23456
3	20:00	E	A	23456
4	09:00	1	A	1 7
5	18:00	E	A	1 7
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Plan	Offset	Day of Week
00:00	E		1234567
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

TOD Function
<7 Key>

Column F	Phases/Bits
1	

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

- Plan Selected**
 1 thru 9 = Coordination
 Plan 1 thru 9
 14 or E = Free
 15 or F = Flash
- Offset Selected**
 A = Offset A
 B = Offset B
 C = Offset C

- T.O.D. Functions**
 0 = Permitted Phases
 1 = Red Lock
 2 = Yellow Lock
 3 = Veh Mfn Recall
 4 = Ped Recall
 5 =
 6 = Rest In Walk
 7 = Red Rest
 8 = Double Entry
 9 = Veh Max Recall
 A = Veh Soft Recall
 B = Maximum 2
 C = Conditional Service
 D = Free Lag Phases
 E = Bit 1 - Local Override
 Bit 2 - Phase Bank 2
 Bit 3 - Phase Bank 3
 Bit 4 - Disable Detector
 OFF Monitor
 Bit 7 - Detector Count Monitor
 Bit 8 - Real Time Split Monitor
 F = Output Bits 1 thru 4

- Month Selected**
 1 = January
 2 = February
 3 = March
 4 = April
 5 = May
 6 = June
 7 = July
 8 = August
 9 = September
 A = October
 B = November
 C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday # 1 Date	Day	Year	Month	Day of Week
	0	0	0	
	0	0	0	
	0	0	0	

Holiday Dates
<8 Key>

Row	1	3	Detector Name	332 Input File	Detector Number
0	0.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	15.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	...	...		...	...
F	...	...		...	...

Row	9	C	D	0
A	Green Clear	Yellow Change	Red Clear	Load-Switch #
B	0.0	0.0	0.0	0
C	0.0	0.0	0.0	0
D	0.0	0.0	0.0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers								E
A	1	2	3	4	5	6	7	8	12345678
B	9	10	11	12	--	--	--	--	1234
C	13	14	15	16	17	18	19	20	12345678
D	--	--	--	--	21	22	23	24	5678
E	--	25	26	27	28	--	--	--	1234
F	--	25	26	27	28	--	--	--	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	5.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	...	...		...	...
F	...	...		...	...

Detector Delay & Carryover <D Page>

Row	0	Detector Number
1	0	System Det # 1
2	0	System Det # 2
3	0	System Det # 3
4	0	System Det # 4
5	0	System Det # 5
6	0	System Det # 6
7	0	System Det # 7
8	0	System Det # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>
Advance Warning Beacon - Sign 1		
Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>
Advance Warning Beacon - Sign 2		
Long Failure	0.0	<F+O+6>
Short Failure	0.0	<F+O+7>
Power Cycle Correction (Default = 0.5)		
Disable Parity	0	<D+B+O>
Dial-Up Telephone Communications		
(if set to a non-zero value, parity will be disabled)		

Row	Column Numbers →	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Column Numbers →	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	Call To Phase	0	0	0	0	0	0	0	0
B	-----	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	Delay Only →	7	8	9	A	B	C	D	E	F
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Ornit	Output
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0
9	Limited Service Int. →	0	0	0	0	0	0	0	0	0
A	0	0	0	0	0	0	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0	0	0
E	0	0	0	0	0	0	0	0	0	0
F	0	0	0	0	0	0	0	0	0	0

Special Event Schedule

<C Page with F+9+F=22>

← Limited Service Interval (Set Dwell = 255)

INTERSECTION: College & Adams

Group Assignment: **NONE**

Field Master Assignment: **NONE**

System Reference Number: **43**

N/S Street Name: **Not Assigned**

EW Street Name: **Not Assigned**

Change Record	By	Date	Change	By	Date

Notes:

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

Drop Number	13	<C/0+0+0>
Zone Number	1	<C/0+0+1>
Area Number	1	<C/0+0+2>
Area Address	43	<C/0+0+3>
QuickNet Channel	Serial:COM17: (QuickNet)	

Manual Plan	
Manual Offset	
Manual Selection	

Flash Start	0	<F/1+0+E>
Red Revert	2.0	<F/1+0+F>
All Red Start	5.0	<F/1+C+0>

Exclusive Walk	0	<F/1+0+0>
Exclusive FDW	0	<F/1+0+1>
All Red Clear	0.0	<F/1+0+2>

Communication Addresses

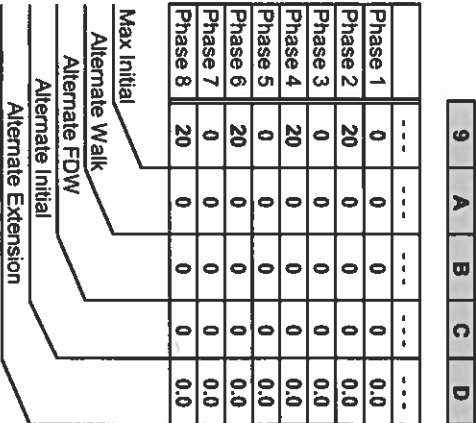
Manual Selection

Start / Revert Times

Exclusive Ped Phase
 (Outputs specified in Assignable
 Outputs at E17+A+E & F)

Row	Column Numbers	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	6	0	7	0	6
1	Ped FDW	0	15	0	26	0	12	0	26
2	Min Green	5	10	4	8	5	10	4	8
3	Type 3 Disconnect	0	99	0	0	0	99	0	0
4	Added per Vehicle	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
5	Veh Extension	3.0	4.0	2.0	3.0	3.0	4.0	2.0	3.0
6	Max Gap	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
7	Min Gap	3.0	3.0	0.5	3.0	3.0	3.0	0.5	3.0
8	Max Limit	20	50	20	30	20	50	20	30
9	Max Limit 2	20	50	30	30	20	50	30	30
A	Adv. / Delay Walk	0	0	0	5	0	0	0	5
B	PE Min Ped FDW	0	0	0	0	0	0	0	0
C	Cond Serv Check	0	0	0	0	0	0	0	0
D	Reduce Every	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0
E	Yellow Change	4.1	4.8	3.0	3.7	4.1	4.8	3.0	3.7
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <C+0+F=1>



Alternate Timing <C+0+F=1>

9	A	B	C	D	E
RR-1 Delay	0	0	0	0	0
RR-1 Clear	0	0	0	0	0
EV-A Delay	0	0	0	0	0
EV-A Clear	0	0	0	0	0
EV-B Delay	0	0	0	0	0
EV-B Clear	5	0	0	0	0
EV-C Delay	0	0	0	0	0
EV-C Clear	0	0	0	0	0
EV-D Delay	5	0	0	0	0
EV-D Clear	5	0	0	0	0
RR-2 Delay	0	0	0	0	0
RR-2 Clear	0	0	0	0	0
View EV Delay	---	---	---	---	---
View EV Clear	---	---	---	---	---
View RR Delay	---	---	---	---	---
View RR Clear	---	---	---	---	---

Preempt Timing

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Permit	12	456	8													
Red Lock																
Yellow Lock																
Min Recall				2	6											
Ped Recall																
View Set Peds																
Rest In Walk																
Red Rest																
Dual Entry																
Max Recall																
Soft Recall																
Max 2																
Cond. Service																
Man Cntrl Calls																
Yellow Start																
First Phases																

Phase Functions <C+0+F=1>

Row	Overlap Name -->	Overlap							
		1	2	3	4	5	6	7	8
0	Load Switch Number	0	0	0	0	0	0	0	0
1	Veh Set 1 - Phases								
2	Veh Set 2 - Phases								
3	Veh Set 3 - Phases								
4	Neg Veh Phases								
5	Neg Ped Phases								
6	Green Omit Phases								
7	Green Clear Omit Phs.								
8									
9									
A									
B									
C									
D	Green Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	Yellow Change	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F	Red Clear	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Overlap Assignments <C+0+E=29>

- Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = Solid FDW on EV
 5 = Extended Status
 6 = International Ped
 7 = Flash - Clear Outputs
 8 = Split Ring

- Extra 2 Flags
 1 = AWB During Initial
 2 = LMU Installed
 3 = Disable Min Walk
 4 = QuickNet/4 System
 5 = Ignore P/P on EV
 6 =
 7 = Allow QuickNet PE
 8 =

Preempt Priority
 <C+0+E=125>
 * RR-1 is always Highest, and RR-2 is always Second Highest.)

Row	C
0	0
1	0
2	0
3	0
4	0
5	0
6	0
7	0
8	0
9	0
A	0
B	0
C	0
D	0
E	0
F	0

Row	Column Numbers -->	E		
			0	1	2
0	Exclusive Phases			
1	RR-1 Clear Phases			
2	RR-2 Clear Phases			
3	RR-2 Limited Service			
4	Prot / Perm Phases			
5	Flash to PE Circuits			
6	Fast Entry Phases			
7	Disable Yellow Range			
8	Disable Ovp Yel Range			
9	Overlap Yellow Flash			
A	EV-A Phases	2	5	
B	EV-B Phases	4	7	
C	EV-C Phases	1	6	
D	EV-D Phases	3	8	
E	Extra 1 Config. Bits	1	4	
F	IC Select (Interconnect)	2		

Configuration <C+0+E=125>

Row	Column Numbers -->	F												
			Ext. Permit 1 Phases	Ext. Permit 2 Phases	Exclusive Ped Assign	Preempt Non-Lock	Ped for 2P Output	Ped for 6P Output	Ped for 4P Output	Ped for 8P Output	Yellow Flash Phases	Low Priority A Phases	Low Priority B Phases	Low Priority C Phases	Low Priority D Phases	Restricted Phases	Extra 2 Config. Bits
0	Ext. Permit 1 Phases													
1	Ext. Permit 2 Phases													
2	Exclusive Ped Assign													
3	Preempt Non-Lock	12345678												
4	Ped for 2P Output	2												
5	Ped for 6P Output	6												
6	Ped for 4P Output	4												
7	Ped for 8P Output	8												
8	Yellow Flash Phases													
9	Low Priority A Phases													
A	Low Priority B Phases													
B	Low Priority C Phases													
C	Low Priority D Phases													
D	Restricted Phases													
E	Extra 2 Config. Bits													
F	Configuration	<C+0+E=125>												

Configuration <C+0+E=125>

Row	Column Numbers -->	F													
			Fast Green Flash Phase	Green Flash Phases	Flashing Walk Phases	Guaranteed Passage	Simultaneous Gap Term	Sequential Timing	Advance Walk Phases	Delay Walk Phases	External Recall	Start-up Overlap Green	Max Extension	Inhibit Ped Reserve	Semi-Actuated	Start-up Overlap Yellow	Start-up Vehicle Calls	Start-up Ped Calls
0	Fast Green Flash Phase														
1	Green Flash Phases														
2	Flashing Walk Phases														
3	Guaranteed Passage														
4	Simultaneous Gap Term	12345678													
5	Sequential Timing														
6	Advance Walk Phases	4													
7	Delay Walk Phases	8													
8	External Recall														
9	Start-up Overlap Green														
A	Max Extension														
B	Inhibit Ped Reserve														
C	Semi-Actuated														
D	Start-up Overlap Yellow	2													
E	Start-up Vehicle Calls	4													
F	Start-up Ped Calls	6													

Specials <C+0+F=2>

- Flash to PE & PE Non-Lock
 1 = EV A 5 = RR 1
 2 = EV B 6 = RR 2
 3 = EV C 7 = SE 1
 4 = EV D 8 = SE 2
- IC Select Flags
 1 =
 2 = Modern
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	2
0	Phase 1 10
1	Phase 2 10
2	Phase 3 10
3	Phase 4 10
4	Phase 5 10
5	Phase 6 10
6	Phase 7 10
7	Phase 8 10
8	Phase 9 10
9	Phase 10 10
A	Phase 11 10
B	Phase 12 10
C	Phase 13 10
D	Phase 14 10
E	Phase 15 10
F	Phase 16 10

Coordination Transition Minimums
 <C+0+C=5>

Coord Extra
 1 = Programmed WALK Time for Sync Phases
 2 = Always Terminate Sync Phase Peds

Row	Plan Name	Plan								
		1	2	3	4	5	6	7	8	9
0	Cycle Length	80	80	90	100	100	100	100	100	100
1	Phase 1 - ForceOff	45	50	50	55	55	55	55	55	55
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	1	1	1	20	20	20	20	20	20
4	Phase 4 - ForceOff	30	30	30	40	40	40	40	40	40
5	Phase 5 - ForceOff	45	50	50	55	55	55	55	55	55
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	20	20	20	20	20	20
8	Phase 8 - ForceOff	30	30	30	40	40	40	40	40	40
9	Ring Offset	0	0	0	0	0	0	0	0	0
A	Offset 1	53	16	18	0	0	0	0	0	0
B	Offset 2	0	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0	0
D	Perm 1 - End	15	15	15	15	15	15	15	15	15
E	Hold Release	80	80	90	255	255	255	255	255	255
F	Zone Offset	0	0	0	0	0	0	0	0	0

Coordination - Bank 1 <C+0+C=1>

Row	Plan Name	E	Row
0	Plan 1 - Sync	2 6	0
1	Plan 2 - Sync	2 6	1
2	Plan 3 - Sync	2 6	2
3	Plan 4 - Sync	2 6	3
4	Plan 5 - Sync	2 6	4
5	Plan 6 - Sync	2 6	5
6	Plan 7 - Sync	2 6	6
7	Plan 8 - Sync	2 6	7
8	Plan 9 - Sync	2 6	8
9	NEMA Sync	2 6	9
A	NEMA Hold		A
B			B
C			C
D			D
E			E
F			F

Sync Phases <C+0+C=1>

Row	Plan Name	Plan								
		1	2	3	4	5	6	7	8	9
0	Ped Adjustment	5	5	5	0	0	0	0	0	0
1	Perm 2 - Start	0	0	0	0	0	0	0	0	0
2	Perm 2 - End	0	0	0	0	0	0	0	0	0
3	Perm 3 - Start	0	0	0	0	0	0	0	0	0
4	Perm 3 - End	0	0	0	0	0	0	0	0	0
5	Reservice Time	0	0	0	0	0	0	0	0	0
6	Reservice Phases									
7	Pretimed Phases									
8	Max Recall									
9	Perm 1 Veh Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
A	Perm 1 Ped Phase	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678	12345678
B	Perm 2 Veh Phase									
C	Perm 2 Ped Phase									
D	Perm 3 Veh Phase									
E	Perm 3 Ped Phase									
F										

Coordination - Bank 2 <C+0+C=2>

Row	Plan Name	F	Row
0	Free Lag	2 4 6 8	0
1	Plan 1 - Lag	2 4 6 8	1
2	Plan 2 - Lag	2 4 6 8	2
3	Plan 3 - Lag	2 4 6 8	3
4	Plan 4 - Lag	2 4 6 8	4
5	Plan 5 - Lag	2 4 6 8	5
6	Plan 6 - Lag	2 4 6 8	6
7	Plan 7 - Lag	2 4 6 8	7
8	Plan 8 - Lag	2 4 6 8	8
9	Plan 9 - Lag	2 4 6 8	9
A	External Lag		A
B			B
C			C
D			D
E			E
F			F

Lag Phases <C+0+C=1>

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Spec. Funct. 1	NOT-3	Max 2	Pretimed	Set Monday	Dial 2 (7-wire)	Sim Term	0
1	Spec. Funct. 2	NOT-4	System Det 1	Plan 1	Ext. Perm 1	Dial 3 (7-wire)	EV-A	71
2	Spec. Funct. 3	OR-4 (a)	System Det 2	Plan 2	Ext. Perm 2	Offset 1 (7-wire)	EV-B	72
3	Spec. Funct. 4	OR-4 (b)	System Det 3	Plan 3	Reserved	Offset 2 (7-wire)	EV-C	73
4	NAND-3 (a)	OR-5 (a)	System Det 4	Plan 4	Set Clock	Offset 3 (7-wire)	EV-D	74
5	NAND-3 (b)	OR-5 (b)	System Det 5	Plan 5	Stop Time	Free (7-wire)	RR-1	51
6	NAND-4 (a)	OR-6 (a)	System Det 6	Plan 6	Flash Sense	Flash (7-wire)	RR-2	52
7	NAND-4 (b)	OR-6 (b)	System Det 7	Plan 7	Manual Enable	Excl. Ped Omit	Spec. Event 1	0
8	OR-7 (a)	Fig 3 Diamond	System Det 8	Plan 8	Man. Advance	NOT-1	Spec. Event 2	0
9	OR-7 (b)	Fig 4 Diamond	Max Inhibit (nema)	Plan 9	External Alarm	NOT-2	External Lag	0
A	OR-7 (c)	AND-4 (a)	Force A (nema)	Plan 1	Phase Bank 2	OR-1 (a)	AND-1 (a)	0
B	OR-7 (d)	AND-4 (b)	Force B (nema)	Plan 2	Phase Bank 3	OR-1 (b)	AND-1 (b)	0
C	OR-8 (a)	NAND-1 (a)	C.N.A. (nema)	Plan 3	Overlap Set 2	OR-2 (a)	AND-2 (a)	0
D	OR-8 (b)	NAND-1 (b)	Hold (nema)	Plan 4	Overlap Set 3	OR-2 (b)	AND-2 (b)	0
E	OR-8 (c)	NAND-2 (a)	Max Recall	Plan 5	Detector Set 2	OR-3 (a)	AND-3 (a)	0
F	OR-8 (d)	NAND-2 (b)	Min Recall	Plan 6	Detector Set 3	OR-3 (b)	AND-3 (b)	0

Assignable Inputs

<C+0+E=126>

Row	Column 9	Column A	Column B	Column C	Column D	Column E	Column F	Row
0	Phase ON - 1	Preempt Fail	Flasher 0	Free	NOT-1	TOD Out 1	Dial 2 (7-wire)	0
1	Phase ON - 2	Sp Evt Out 1	Flasher 1	Plan 1	OR-1	TOD Out 2	Dial 3 (7-wire)	0
2	Phase ON - 3	Sp Evt Out 2	Fast Flasher	Plan 2	OR-2	TOD Out 3	Offset 1 (7-wire)	0
3	Phase ON - 4	Sp Evt Out 3	Fig 3 Diamond	Plan 3	OR-3	TOD Out 4	Offset 2 (7-wire)	0
4	Phase ON - 5	Sp Evt Out 4	Fig 4 Diamond	Plan 4	AND-1	TOD Out 5	Offset 3 (7-wire)	0
5	Phase ON - 6	Sp Evt Out 5		Plan 5	AND-2	TOD Out 6	Free (7-wire)	0
6	Phase ON - 7	Sp Evt Out 6		Plan 6	AND-3	TOD Out 7	Flash (7-wire)	0
7	Phase ON - 8	Sp Evt Out 7		Plan 7	NOT-2	TOD Out 8	Preempt	0
8	Ph. Check - 1	Sp Evt Out 8	NOT-3	Plan 8	EV-A	Adv. Warm - 1	Low Priority A	0
9	Ph. Check - 2		NOT-4	Plan 9	EV-B	Adv. Warm - 2	Low Priority B	0
A	Ph. Check - 3	Detector Fail	OR-4	Spec. Funct. 3	EV-C	DELAY-A	Low Priority C	0
B	Ph. Check - 4	Spec. Funct. 1	OR-5	Spec. Funct. 4	EV-D	DELAY-B	Low Priority D	0
C	Ph. Check - 5	Spec. Funct. 2	OR-6	NAND-3	RR-1	DELAY-C		
D	Ph. Check - 6	Central Control	AND-4	NAND-4	RR-2	DELAY-D		
E	Ph. Check - 7	Excl. Ped DW	NAND-1	OR-7	Spec. Event 1	DELAY-E		
F	Ph. Check - 8	Excl. Ped WK	NAND-2	OR-8	Spec. Event 2	DELAY-F		

Assignable Outputs

<C+0+E=127>

Row	Column Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	15	0	15	0	15	0	15
2	Min Green	4	7	4	4	4	7	4	4
3	Type 3 Disconnect	0	20	0	20	0	20	0	20
4	Added per Vehicle	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	2.0	4.0	2.0	2.5	2.0	4.0	2.0	2.5
6	Max Gap	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
7	Min Gap	0.5	2.0	0.5	1.5	0.5	2.0	0.5	1.5
8	Max Limit	20	30	20	25	20	30	20	25
9	Max Limit 2	30	50	30	40	30	50	30	40
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	7	7	7	7	7	7	7	7
C	Cond Serv Check	10	10	10	10	10	10	10	10
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 2 <C+0+F=2>

Row	Column Numbers -->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	15	0	15	0	15	0	15
2	Min Green	4	7	4	4	4	7	4	4
3	Type 3 Disconnect	0	20	0	20	0	20	0	20
4	Added per Vehicle	0.0	2.0	0.0	2.0	0.0	2.0	0.0	2.0
5	Veh Extension	2.0	4.0	2.0	2.5	2.0	4.0	2.0	2.5
6	Max Gap	3.0	6.0	3.0	3.0	3.0	6.0	3.0	3.0
7	Min Gap	0.5	2.0	0.5	1.5	0.5	2.0	0.5	1.5
8	Max Limit	20	30	20	25	20	30	20	25
9	Max Limit 2	30	50	30	40	30	50	30	40
A	Adv. / Delay Walk	0	0	0	0	0	0	0	0
B	PE Min Ped FDW	7	7	7	7	7	7	7	7
C	Cond Serv Check	10	10	10	10	10	10	10	10
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	3.0	3.0	4.0	3.0	3.0
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 3 <C+0+F=3>

9	A	B	C	D
---	---	---	---	---
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0

Transition Type
0,X = Shortway
1,X = Lengthen
X,1 thru X,4 = Number of cycles when lengthening

Transition Type **0,3** <C/5+1+9>
TBC Transition
Lag Hold Phases **---** <C/5+1+A>
Coordinated Lag Hold Phases

9	A	B	C	D
---	---	---	---	---
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0

Daylight Savings
Date
if set to all zeros,
standard dates
will be used

Begin Month **3** <C/5+2+A>
Begin Week **2** <C/5+2+B>
End Month **11** <C/5+2+C>
End Week **1** <C/5+2+D>
Daylight Savings Time

9	A	B	C	D
---	---	---	---	---
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0
0	0	0	0	0.0
20	0	0	0	0.0

Alternate Timing

Alternate Timing

Time B4 Yellow **0.0** <F/1+C+E>
Phase Number **0** <F/1+C+F>
Advance Warning Beacon - Sign 1

Time B4 Yellow **0.0** <F/1+D+E>
Phase Number **0** <F/1+D+F>
Advance Warning Beacon - Sign 2

Row	Column Numbers ---->			C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
	0	1	2							3
0				39	45 7	2	123	0.0	0.0
1				40	45 7	6	123	0.0	0.0
2				41	45 7	4	123 8	10.0	0.0
3				42	45 7	8	123 8	10.0	0.0
4				43	45 7	2	123	0.0	0.0
5				44	45 7	6	123	0.0	0.0
6				45	45 7	4	123 8	4.0	0.0
7				46	45 7	8	123 8	4.0	0.0
8				47	67	2	123 8	0.0	0.0
9				48	67	6	123	0.0	0.0
A				49	67	4	123	0.0	0.0
B				50	67	8	123	0.0	0.0
C				55	45 7	5	123 8	3.0	0.0
D				56	45 7	1	123 8	3.0	0.0
E				57	45 7	7	123	0.0	0.0
F				58	45 7	3	123	0.0	0.0

Column Numbers ---->	Ped / Phase / Overlap								Row
	1	2	3	4	5	6	7	8	
Walk	0	0	0	0	0	0	0	0	0
Dort Walk	0	0	0	0	0	0	0	0	0
Phase Green	0	0	0	0	0	0	0	0	0
Phase Yellow	0	0	0	0	0	0	0	0	0
Phase Red	0	0	0	0	0	0	0	0	0
Overlap Green	0	0	0	0	0	0	0	0	0
Overlap Yellow	0	0	0	0	0	0	0	0	0
Overlap Red	0	0	0	0	0	0	0	0	0

Redirect Phase Outputs <C+0+E=127>

Cabinet Type 0 <E/125+D+0>

Enable Redirection (Enable Redirection = 30)

Max OFF (minutes) 255 <D/0+0+1>

Max ON (minutes) 7 <D/0+0+2>

Detector Failure Monitor

Row	Detector Name	C1 Pin Number	Attributes	Phase(s)	Assign	Delay	Carry-over
0		59	45 7	5	123	0.0	0.0
1		60	45 7	1	123	0.0	0.0
2		61	45 7	7	123	0.0	0.0
3		62	45 7	3	123	0.0	0.0
4		63	45 7	2	123 8	0.0	0.0
5		64	45 7	6	123 8	0.0	0.0
6		65	45 7	4	123	0.0	0.0
7		66	45 7	8	123	0.0	0.0
8		67	2	2	123 8	0.0	0.0
9		68	2	6	123 8	0.0	0.0
A		69	2	4	123 8	0.0	0.0
B		70	2	8	123 8	0.0	0.0
C		76	45 7	2	123	0.0	0.0
D		77	45 7	6	123	0.0	0.0
E		78	45 7	4	123	0.0	0.0
F		79	45 7	8	123	0.0	0.0

Detector Assignments <C+0+E=126>

<C+0+D=0>

Detector Attributes
 1 = Full Time Delay
 2 = Ped Call
 3 = Count
 4 = Extension
 5 = Type 3
 6 = Calling
 7 = Alternate
 8 = Alternate

Del. Assignments
 1 = Det. Set 1
 2 = Det. Set 2
 3 = Det. Set 3
 4 =
 5 =
 6 = Failure - Min Recall
 7 = Failure - Max Recall
 8 = Report on Failure

Disable Alarms
 1 = Stop Time
 2 = Flash Sense
 3 = Keyboard Entry
 4 = Manual Plan
 5 = Police Control
 6 = External Alarm
 7 = Detector Failure
 8 =

Delay Logic Times (seconds)	Row
DElay-A	A
DElay-B	B
DElay-C	C
DElay-D	D
DElay-E	E
DElay-F	F

Omit Alarm <C/5+F+0>

Disable Alarm Reporting

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	06:30	1	A	23456
2	09:00	2	A	23456
3	14:00	3	A	23456
4	20:00	E	A	23456
5	09:00	1	A	1_7
6	18:00	E	A	1_7
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination <C+0+9=0,1> (Bank 1)

Row	Time	Plan	Offset	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination <C+0+9=0,2> (Bank 2)

Time	Unct.	Day of Week	Column 4 Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

TOD Function <C+0+7=0,1> (Bank 1)

Time	Unct.	Holiday Type	Column 4 Phases/Bits
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		
00:00	0		

Holiday TOD Function <C+0+7=0,2> (Bank 2)

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

Holiday Dates <C+0+8=1,1> (Bank 1)

Day	Year	Month	Holiday Type
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	
00	00	0	

Holiday Dates <C+0+8=1,2> (Bank 2)

Time	Plan	Offset	Holiday Type
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday Events <C+0+9=1,1> (Bank 1)

Time	Plan	Offset	Holiday Type
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday Events <C+0+9=1,2> (Bank 2)

- T.O.D. Functions
- 0 =
 - 1 = Red Lock
 - 2 = Yellow Lock
 - 3 = Veh Min Recall
 - 4 = Ped Recall
 - 5 =
 - 6 = Rest In Walk
 - 7 = Red Rest
 - 8 = Double Entry
 - 9 = Veh Max Recall
 - A = Veh Soft Recall
 - B = Maximum 2
 - C = Conditional Service
 - D = Free Lag Phases
 - E = Bit 1 - Local Override
 - Bit 4 - Disable Detector
 - OFF Monitor
 - Bit 5 - Disable Low
 - Priority Preempt
 - Bit 7 - Detector Count
 - Monitor
 - Bit 8 - Rear Time Split
 - F = Output Bits 1 thru 8

- Plan Select
- 1 thru 9 = Coordination
 - Plan 1 thru 9
 - 14 or E = Free
 - 15 or F = Flash

- Offset Select
- A = Offset A
 - B = Offset B
 - C = Offset C

- Month Select
- 1 = January
 - 2 = February
 - 3 = March
 - 4 = April
 - 5 = May
 - 6 = June
 - 7 = July
 - 8 = August
 - 9 = September
 - A = October
 - B = November
 - C = December

Row	6	7	8	9	A	B	C	D	E	F
	Clear	Time	Ped Call	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Ornit	Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 1

<C+0+E=27>

Notes:

0 <E/27+5+F>

Limited Service Interval

Row	6	7	8	9	A	B	C	D	E	F
	Clear	Time	Ped Call	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Ornit	Output
0		0								
1		0								
2		0								
3		0								
4		0								
5		0								
6		0								
7		0								
8		0								
9		0								
A		0								
B		0								
C		0								
D		0								
E		0								
F		0								

Special Event Schedule -- Table 2

<C+0+E=28>

Notes:

0 <E/28+5+F>

Limited Service Interval

Min Time (seconds) <F/1+0+8>
 Min Green Before PE Force Off

Max Time (minutes) <F/1+0+9>

Max Preempt Time Before Failure

Min Time (seconds) <F/1+0+A>

Min Time Between Same Preempts
 (Does Not Apply To Railroad Preempt)

Low Pri. Channel <E/125+C+8>
 Disable Low Priority Channel

- Low Priority
 1 = Channel A
 2 = Channel B
 3 = Channel C
 4 = Channel D

Delay Time (seconds) <F/1+A+D>

Bus Delay

Max Time (seconds) <F/1+A+E>

Max Early Green

Max Time (seconds) <F/1+A+F>

Max Green Extension

Row	Time	Headway	Direction	Day of Week
0	00:00	0	0	
1	00:00	0	0	
2	00:00	0	0	
3	00:00	0	0	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

Headway <C+0+9=2.1>

Headway Time
 (minutes)
 1 thru 9 = 1 thru 9
 A = 10
 B = 11
 C = 12
 D = 13
 E = 14
 F = 15

Low Priority Preemption (Bus Priority)

Only available with Program 233RV2.B (and above)
 Note: Also see "Time of Day Functions", Function E, Bit 5 (Disable Low Priority)

INTERSECTION: Collece & Via Cupeno

Group Assignment: NONE

Field Master Assignment: NONE

System Reference Number: 42

N/S Street Name: Not Assigned

E/W Street Name: Not Assigned

Last Database Change: 5/10/2021 8:51

Change	By	Date	Change	By	Date

Notes:

Drop Number	12	<C+0+0>
Zone Number		<C+0+1>
Area Number	1	<C+0+2>
Area Address	42	<C+0+3>
QuicNet Channel	Serial:COM17: (QuicNet)	<C+A+1>
Manual Plan		<C+B+1>
Manual Offset		

Communication Addresses

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Column Numbers →	1	2	3	4	5	6	7	8
Phase Names →								
Ped Walk	0	7	0	4	0	7	0	0
Ped FDW	0	15	0	24	0	18	0	0
Min Green	6	10	8	8	6	10	3	4
Type 3 Limit	0	99	0	0	0	99	0	0
Added Initial	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0
Veh Extension	2.5	3.5	3.0	3.0	2.5	3.5	0.5	0.5
Max Gap	2.5	5.0	3.0	3.0	2.5	5.0	0.5	0.5
Min Gap	2.5	2.0	3.0	3.0	2.5	2.0	0.5	0.5
Max Limit	30	50	20	30	30	50	17	20
Max Limit 2	30	70	30	70	30	70	30	30
-----	0	0	0	0	0	0	0	0
Call To Phase	0	0	0	0	0	0	0	0
Reduce By	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0
Reduce Every	0.0	1.5	0.0	0.0	0.0	1.5	1.0	0.0
Yellow Change	4.1	4.8	4.0	4.0	4.1	4.8	3.0	4.0
Red Clear	1.0	2.0	1.0	1.0	1.0	2.0	0.0	1.0

Phase Timing - Bank 1

<F Page>

RR-1 Delay	0
RR-1 Clear	10
EVA Delay	0
EVA Clear	5
EV-B Delay	0
EV-B Clear	5
EV-C Delay	0
EV-C Clear	5
EV-D Delay	0
EV-D Clear	5
RR-2 Delay	0
RR-2 Clear	10
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing

Permit	123456
Red Lock	
Yellow Lock	
Min Recall	2_6
Pad Recall	
View Set Pads	-----
Rest In Walk	
Red Rest	
Dual Entry	2_6
Max Recall	
Soft Recall	
Max 2	
Cond. Service	
Man Cntrl Calls	
Yellow Start	1_5
First Phases	2_6

Phase Functions

<F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

(* = Coordination Recall)

Row	Column Numbers ---->								
	1	2	3	4	5	6	7	8	9
0	80	80	90	90	100	30	80	100	100
1	Phase 1 - ForceOff	50	50	15	15	0	50	65	65
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0
3	Phase 3 - ForceOff	15	15	35	35	0	1	25	25
4	Phase 4 - ForceOff	35	35	60	60	15	25	40	40
5	Phase 5 - ForceOff	55	55	60	75	0	50	65	65
6	Phase 6 - ForceOff	0	0	0	0	0	0	0	0
7	Phase 7 - ForceOff	1	1	1	1	0	1	25	25
8	Phase 8 - ForceOff	1	1	1	1	15	25	40	40
9	Ring Offset	0	0	0	0	0	0	0	0
A	Offset 1	14	49	38	0	0	20	0	0
B	Offset 2	0	0	0	0	0	0	0	0
C	Offset 3	0	0	0	0	0	0	0	0
D	Permissive	12	12	12	12	12	12	12	12
E	Hold Release	80	80	90	255	255	255	255	0
F	Zone Offset	0	0	0	0	0	0	0	0

Coordination

<C Page>

Row	E
0	Plan 1 - Sync
1	Plan 2 - Sync
2	Plan 3 - Sync
3	Plan 4 - Sync
4	Plan 5 - Sync
5	Plan 6 - Sync
6	Plan 7 - Sync
7	Plan 8 - Sync
8	Plan 9 - Sync
9	Coord Ped *
A	NEMA Hold
B	
C	
D	
E	
F	

Sync Phases <C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	2 5
A	EV-A Phases	4
B	EV-B Phases	6
C	EV-C Phases	3
D	EV-D Phases	1 4
E	Extra 1 Config. Bits	2
F	IC Select (Interconnect)	

Configuration <E Page>

Row	Column Numbers ---->	F
0	RR Overlap A - Phases	
1	RR Overlap B - Phases	
2	RR Overlap C - Phases	
3	RR Overlap D - Phases	
4	Pad 2P	2
5	Pad 6P	6
6	Pad 4P	4
7	Pad 8P	
8	Yellow Flash Phases	
9	Overlap A - Phases	
A	Overlap B - Phases	
B	Overlap C - Phases	
C	Overlap D - Phases	
D	Restricted Phases	
E	Assign 5 Outputs	
F		

Configuration <E Page>

Force-Off Adjust
Coord Force-Off Adjust
for Ped Service <C+D+F>

Transition Type
TBC Transition <C+D+D>

- Extra 1 Flags
- 1 = TBC Type 1
- 2 = NEMA Ext. Coord
- 3 = Auto Daylight Savings
- 4 = EV Advance
- 5 =
- 6 = Special Event
- 7 = Prelimed Operation
- 8 = Split Ring Operation
- Assign 5 Outputs
- (Ped Loadswitch Yellows)
- 1 = Right Turn Overlap
- 2 = TOD Outputs
- 3 = EV Beacon - Steady
- 4 = EV Beacon - Flashing
- 5 = Special Event Outputs
- 6 = Phase 3 & 7 Ped
- 7 = Advanced Warning Sign
- 8 =
- Transition Type
- 0 = Shortway
- Non-zero = Lengthen
- IC Select Flags
- 1 = Modern
- 2 = 7-Wire Slave
- 3 = Flash / Free
- 4 = Simplex Master
- 5 = 7-Wire Master
- 6 =
- 7 =
- 8 = Offset Interrupter

Row	F
0	Free Lag
1	Plan 1 - Lag
2	Plan 2 - Lag
3	Plan 3 - Lag
4	Plan 4 - Lag
5	Plan 5 - Lag
6	Plan 6 - Lag
7	Plan 7 - Lag
8	Plan 8 - Lag
9	Plan 9 - Lag
A	Coord Max *
B	Coord Lag *
C	
D	
E	
F	

Lag Phases <C Page>

Row	Time	Plan	Offset	Day of Week
0	06:30	1	A	
1	09:00	2	A	
2	14:00	3	A	
3	19:00	E	A	
4	00:00	0	0	
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Func	Day of Week
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F	Phases/Bits

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

- Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash
- Offset Select
A = Offset A
B = Offset B
C = Offset C

- T.O.D. Functions
0 = Permitted Phrases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector
OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

- Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday Dates
<8 Key>

Row	1	3	Detector Name	332 Input File	Detector Number
0	10.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	15.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---		---	---
F	---	---		---	---

Row	9	C	D
A	Green Clear	Yellow Change	Red Clear
B	0.0	0.0	0.0
C	0.0	0.0	0.0
D	0.0	0.0	0.0

0	Load-Switch #
0	0
0	0
0	0

Overlap Timing <F Page>

<D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Active Detectors <D Page>

Row	2	4	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	0.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	2.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---		---	---
F	---	---		---	---

Detector Delay & Carryover <D Page>

Row	0	Detector Number
1	System Det # 1	0
2	System Det # 2	0
3	System Det # 3	0
4	System Det # 4	0
5	System Det # 5	0
6	System Det # 6	0
7	System Det # 7	0
8	System Det # 8	0

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications (if set to a non-zero value, parity will be disabled)

INTERSECTION: College & Via Cupeno

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

Row	Phase								
	1	2	3	4	5	6	7	8	
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 3 <F Page>

Row	7	8	9	A	B	C	D	E	F
	Time Delay Only	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output
0	0	0	---	---	---	---	---	---	---
1	0	0							
2	0	0							
3	0	0							
4	0	0							
5	0	0							
6	0	0							
7	0	0							
8	0	0							
9	Limited Service Int	0							
A	---	0							
B	0	0							
C	0	0							
D	0	0							
E	0	0							
F	0	0							

Special Event Schedule

<C Page with F+9+F=22>

Row	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F

← Limited Service Interval (Set Dwell = 255)

INTERVAL	PHASE TIMING								9	PRE-EMPTION		F									
	1	2	3	4	5	6	7	8		E	0	FLAGS	1	2	3	4	5	6	7	8	
0 WALK	1	7	1	7	1	7	1	7	CLK RST	EV SEL	0	PERMIT	1	2	3	4	5	6	7	8	
1 DONT WALK	1	26	1	36	1	26	1	34		RR1 CLR	15	RED LOCK								1	
2 MIN GREEN	13	25	12	11	12	25	12	11		EVA DLY	0	YEL LOCK								2	
3 TYPE 3 DET	0	255	0	255	0	255	0	255		EVA CLR	5	V RECALL		2			6			3	
4 ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL								4	
5 PASSAGE	3.0	6.3	3.0	6.5	4.0	6.3	3.0	6.5		EVB CLR	5	PED PHASES		2		4		6		8	
6 MAX GAP	5.0	8.3	5.0	8.8	6.0	8.3	5.0	8.8		EVC DLY	0	RT OLA								6	
7 MIN GAP	1.0	3.0	1.0	3.0	2.0	3.5	1.0	3.0		EVC CLR	5	RT OLB								7	
8 MAX EXT	12	30	8	24	23	30	23	39		EVD DLY	0	DBL ENTRY				4			8	8	
9 MAX 2		80			35	80			YR	EVD CLR	5	MAX 2 PHASES		2			5	6		9	
A MAX 3									MO	MAX EV	255	LAG PHASES	READ ONLY								A
B									DAY	RR2 CLR	15	RED REST								B	
C REDUCE BY	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	DOW			REST-IN-WALK								C	
D EVERY	0.4	0.6	0.4	0.5	0.5	0.6	0.4	0.6	HR			MAX 3 PHASES								D	
E YELLOW	3.7	5.5	3.7	4.8	3.7	5.5	3.7	4.8	MIN			YEL START UP		2			6			E	
F RED	2.0	2.5	2.0	2.0	2.0	2.5	2.0	2.0	SEC			FIRST PHASE			3				7	F	
3.5 PED XING FT		116		150		118		140					1	2	3	4	5	6	7	8	
BIKE XING FT	163	126	152	160	155	135	147	152													

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

NOTES:

OLA = FZ 7

OLB = FZ 3

OLC = FZ 5

FZ 2 BIKE = 8 sec

FZ 6 BIKE = 8 sec

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY



		CONTROL PLANS									Y-COORD			LAG PHASE	FLAGS										
		1	2	3	4	5	6	7	8	9		C	D	E	F	1	2	3	4	5	6	7	8		
0	CYCLE LENGTH	160	160	160	160	160	160		200	180						LAG FZ FREE		2		4		6		8	0
1	FZ1 GRN FCTR	25	25	25	25	25	25		25	25				GAPOUT CP1	1	LAG FZ CP 1		2		4	5			8	1
2														GAPOUT CP2	1	LAG FZ CP 2		2		4	5			8	2
3	FZ3 GRN FCTR	12	12	12	12	12	12		12	12				GAPOUT CP3	0	LAG FZ CP 3		2		4		6		8	3
4	FZ4 GRN FCTR	43	43	43	43	43	43		43	43	PERM TIME			GAPOUT CP4	1	LAG FZ CP 4	1			4		6		8	4
5	FZ5 GRN FCTR	20	35	35	20	35	35		35	35	LAG OFFSET			GAPOUT CP5	1	LAG FZ CP 5		2		4	5			8	5
6											FORCE OFF			GAPOUT CP6	1	LAG FZ CP 6	1			4		6		8	6
7	FZ7 GRN FCTR	30	17	25	30	17	25		37	37	LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	41	41	41	41	41	41		50	50	NO GREEN			GAPOUT CP8	0	LAG FZ CP 8		2		4		6		8	8
9	MULTI CYCLE	0	0	0	0	0	0		0	0				GAPOUT CP9	1	LAG FZ CP 9		2		4	5			8	9
A	OFFSET A	126	142	38	65	137	51		135	149	OFFSET					LAG C COORD									A
B	OFFSET B	126	142	38	65	137	51		135	149						LAG D COORD									B
C	OFFSET C	126	142	38	65	137	51		135	149						COORD FAZES		2				6			C
D	FZ 3 EXT	3	3	3	3	3	3		3	3															D
E	FZ 7 EXT	10	10	10	10	10	10		0	0															E
F	OFFSET INTRPT																								F

1 2 3 4 5 6 7 8

CO1 MANUAL CP
 CO2 MASTER CP
 CO3 CURRENT CP **SYSTEM MASTER:**
 CO4 LAST CP **RTE 76X @**
 CO7 TRNSMT CP **COLLEGE BLVD**
 COD MANUAL OFFSET
 CAO LOCAL CYCLE TIMER
 CBO MASTER CYCLE TIMER
 CAA LOCAL OFFSET
 CBA MASTER OFFSET

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		
2		2
3		4
4		8
5		
6		
7		
8		

COO = 14

CCB/CDB OFFSET TIMER
 CCC/CDC LAG GREEN TIMER
 CCD/CDD FORCE OFF TIMER
 CCE/CDE LONG GREEN TIMER
 CCF/CDF NO GREEN TIMER

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL								RCL									RCL									
1	CP 1								CP 1					5				CP 1									
2	CP 2								CP 2					5				CP 2									
3	CP 3								CP 3	1								CP 3									
4	CP 4								CP 4									CP 4									
5	CP 5								CP 5									CP 5									
6	CP 6								CP 6									CP 6									
7	CP 7								CP 7									CP 7									
8	CP 8								CP 8					5				CP 8									
9	CP 9								CP 9					5				CP 9									
A																		RCL 1									
B																		RCL 2									
C																											
D																											
E																											
F																											

	E	FLAGS								F	FLAGS							
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8
0										CODE 4								
1										CODE 5								
2										C-RECALL								
3										D-RECALL								
4										EXCLUSIVE								
5										2 PED	2							
6										6 PED					6			
7										4 PED				4				
8										8 PED								8
9																		
A	OIA NOT									OIA ON								
B	OIB NOT									OIB ON								
C	OLC NOT									OLC ON								
D	OLD NOT									OLD ON								
E																		
F																		

LAST POWER FAILURE REGISTER

HOUR = D-A-E
 MINUTE = D-B-E
 DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES
 (CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES
 (CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F
 MINUTE = D-B-F
 DAY = D-C-F

D-E-E = C8 VERSION NUMBER
 D-E-F = LITHIUM BATTERY CONDITION
 84 = BAD
 85 = GOOD

TIME OF DAY ACTIVITY TABLE												
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS												
	HR	MIN	ACT	ON/ OFF	S	M	T	W	T	F	S	
					1	2	3	4	5	6	7	
0	05	30	2	ON	1	2	3	4	5	6	7	
1	21	00	2		1	2	3	4	5	6	7	
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C	20	00	E	ON	1	2	3	4	5	6	7	
D	06	00	E			2	3	4	5	6		
E												
F	09	00	E		1							7

ACTIVITY CODE

- 1 TYPE OF MAX TERMINATION
- 2 MAX 2
- 3 MAX 3
- 4 COND SERV (1ST SELECT)
- 5 COND SERV (2ND SELECT)
- 6 ENERGIZE AUX OUTPUT-RED
- 7 ENERGIZE AUX OUTPUT-GREEN

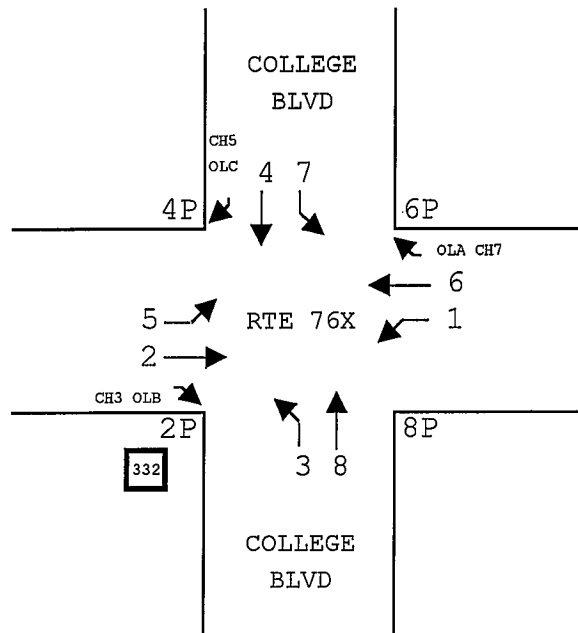
CONTROL PLAN TIME OF DAY												
9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
					1	2	3	4	5	6	7	
0	05	30	1	A		2	3	4	5	6		
1												
2	09	00	2	A	1	2	3	4	5	6	7	
3	14	00	3	A	1	2	3	4	5	6	7	
4	14	45	9	A		2	3	4	5	6		
5	18	30	3	A		2	3	4	5	6		
6	20	00	E		1	2	3	4	5	6	7	
7												
8												
9												
A												
B												
C												
D												
E												
F												

8 ENERGIZE AUX OUTPUT-YELLOW

- 9 TIME OF DAY MAX RECALL (1ST SELECT)
- A TRAFFIC ACT. MAX 2 OPERATION
- B TIME OF DAY MAX RECALL (2ND SELECT)
- C YELLOW YIELD COORDINATION
- D YELLOW YIELD COORDINATION
- E TIME OF DAY FREE OPERATION
- F FLASHING OPERATION

CONTROL PLAN TIME OF DAY												
9+EVENT+HR+MIN+CP+OS+E+DOW												
	HR	MIN	CP	OS	S	M	T	W	T	F	S	
					1	2	3	4	5	6	7	
0												
1												
2												
3												
4												
5												
6												
7												
8												
9												
A												
B												
C												
D												
E												
F												

CONFLICT MONITOR PROGRAM



	+OLB	+OLC	+OLA		2P	4P	6P	8P							
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
FZ 1	C	C	C	X	X	C	C	X	X			C	C	X	C
FZ 2	C	C	X	X	C	C	X	X				X	C	X	C
OLB + FZ 3	C	C	C	X	X	X	X					C	C	C	X
FZ 4	C	C	X	X	X	X						C	X	C	X
OLC + FZ 5	C	C	C	X	X							X	C	C	C
FZ 6	C	C	X	X								X	C	X	C
OLA + FZ 7	C	X	X									C	X	C	C
FZ 8	X	X										C	X	C	X
RTOLA 9	X											X	X	X	X
RTOLB 10												X	X	X	X
AUX 1 11															
AUX 2 12															
FZ 2 P 13												C	X	C	
FZ 4 P 14												C	X		
FZ 6 P 15														C	
FZ 8 P 16															

DIODE CUT OUT LIST:

- 1-5, 6, 9, 10, 15
- 2-5, 6, 9, 10, 13, 15
- 3-7, 8, 9, 10, 16
- 4-7, 8, 9, 10, 14, 16
- 5-9, 10, 13
- 6-9, 10, 13, 15
- 7-9, 10, 14
- 8-9, 10, 14, 16
- 9-10, 13, 14, 15, 16
- 10-13, 14, 15, 16

- 13-15
- 14-16

C = CONFLICTING CHANNELS

X = CONCURRENT CHANNELS
(REMOVE DIODE)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	76	R6.3/R8.1	206	254

REGISTERED CIVIL ENGINEER
 2-26-96
 PLANS APPROVAL DATE
 PARSONS BRINCKERHOFF QUADE & DOUGLAS, INC.
 505 S. MAIN STREET, SUITE 900
 ORANGE, CA 92668

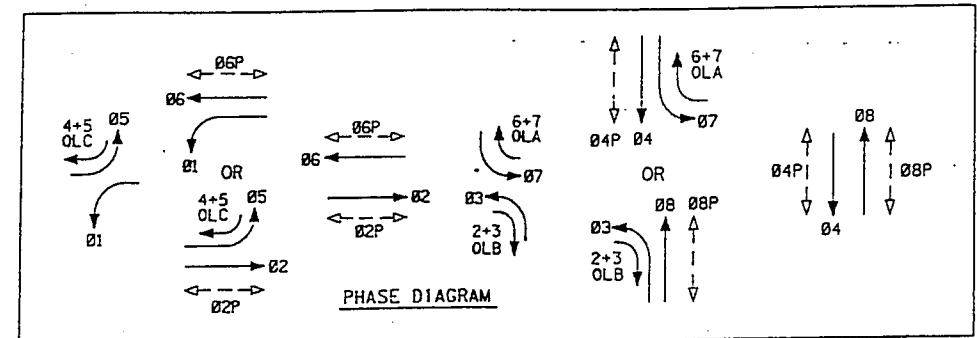
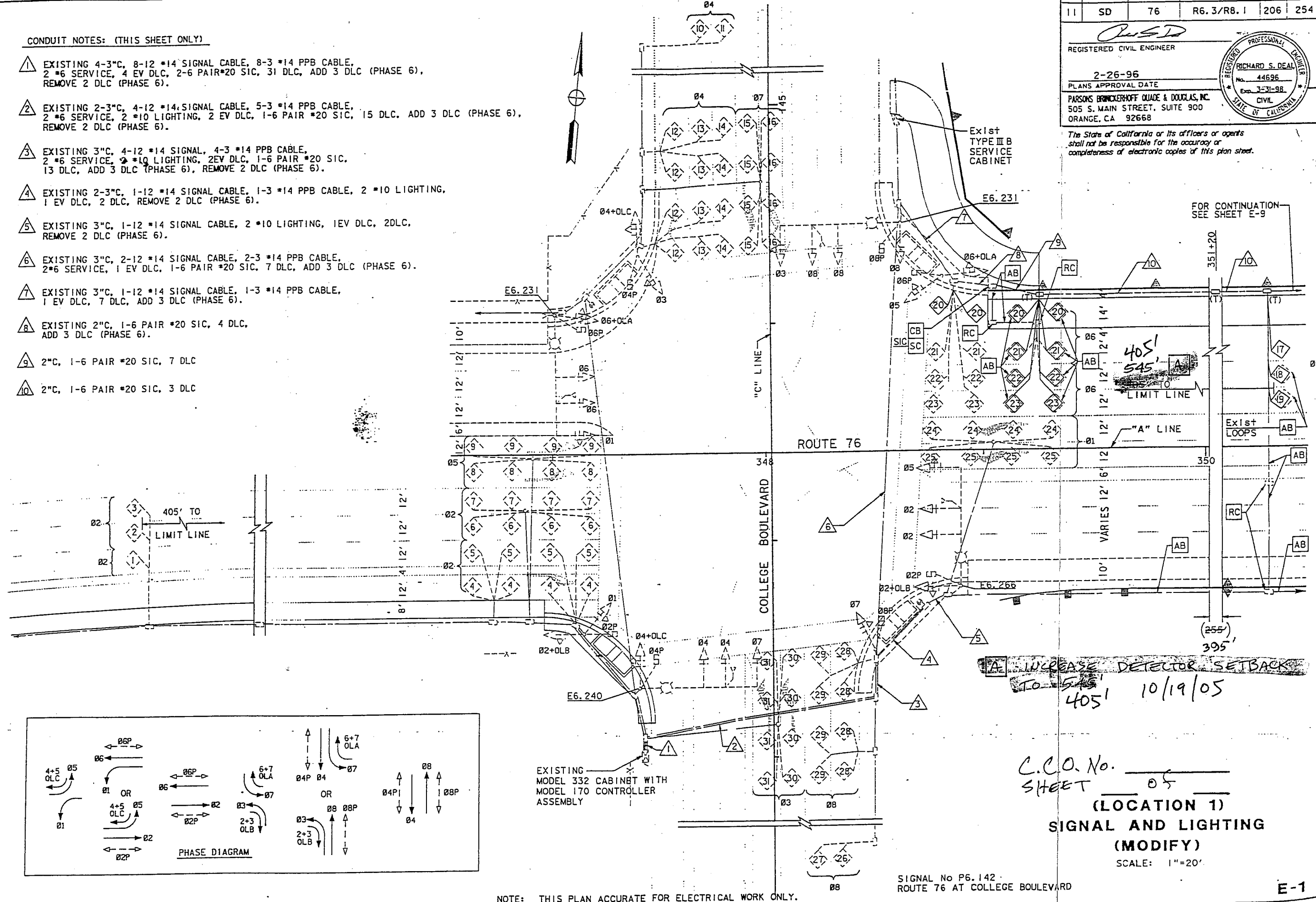
REGISTERED PROFESSIONAL ENGINEER
 RICHARD S. DEAL
 No. 44596
 Exp. 3-31-98
 CIVIL
 STATE OF CALIFORNIA

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

CONDUIT NOTES: (THIS SHEET ONLY)

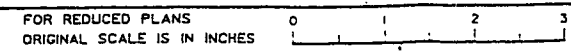
- 1 EXISTING 4-3"C, 8-12 *14 SIGNAL CABLE, 8-3 *14 PPB CABLE, 2 *6 SERVICE, 4 EV DLC, 2-6 PAIR *20 SIC, 31 DLC, ADD 3 DLC (PHASE 6), REMOVE 2 DLC (PHASE 6).
- 2 EXISTING 2-3"C, 4-12 *14 SIGNAL CABLE, 5-3 *14 PPB CABLE, 2 *6 SERVICE, 2 *10 LIGHTING, 2 EV DLC, 1-6 PAIR *20 SIC, 15 DLC, ADD 3 DLC (PHASE 6), REMOVE 2 DLC (PHASE 6).
- 3 EXISTING 3"C, 4-12 *14 SIGNAL, 4-3 *14 PPB CABLE, 2 *6 SERVICE, 2 *10 LIGHTING, 2 EV DLC, 1-6 PAIR *20 SIC, 13 DLC, ADD 3 DLC (PHASE 6), REMOVE 2 DLC (PHASE 6).
- 4 EXISTING 2-3"C, 1-12 *14 SIGNAL CABLE, 1-3 *14 PPB CABLE, 2 *10 LIGHTING, 1 EV DLC, 2 DLC, REMOVE 2 DLC (PHASE 6).
- 5 EXISTING 3"C, 1-12 *14 SIGNAL CABLE, 2 *10 LIGHTING, 1 EV DLC, 2 DLC, REMOVE 2 DLC (PHASE 6).
- 6 EXISTING 3"C, 2-12 *14 SIGNAL CABLE, 2-3 *14 PPB CABLE, 2 *6 SERVICE, 1 EV DLC, 1-6 PAIR *20 SIC, 7 DLC, ADD 3 DLC (PHASE 6).
- 7 EXISTING 3"C, 1-12 *14 SIGNAL CABLE, 1-3 *14 PPB CABLE, 1 EV DLC, 7 DLC, ADD 3 DLC (PHASE 6).
- 8 EXISTING 2"C, 1-6 PAIR *20 SIC, 4 DLC, ADD 3 DLC (PHASE 6).
- 9 2"C, 1-6 PAIR *20 SIC, 7 DLC
- 10 2"C, 1-6 PAIR *20 SIC, 3 DLC

DESIGN OVERS: R. CHAVEZ
 DATE REVISIONS: 6/95
 DATE REVISIONS: 6/95
 CALCULATED/DESIGNED BY: R. CHAVEZ
 CHECKED BY:
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 CALTRANS



EXISTING MODEL 332 CABINET WITH MODEL 170 CONTROLLER ASSEMBLY

NOTE: THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.



USERNAME => trjimt
 DGN FILE => b01003u0105081343

INCREASE DETECTOR SETBACK TO 405' 10/19/05

C.C.O. No. _____
 SHEET 05

(LOCATION 1)
SIGNAL AND LIGHTING (MODIFY)
 SCALE: 1"=20'

SIGNAL No P6.142
 ROUTE 76 AT COLLEGE BOULEVARD

E-1

INTERSECTION: North River & Vandegrift/Red

Group Assignment: **NONE**
 Field Master Assignment: **NONE**
 System Reference Number: **82**

N/S Street Name: **Not Assigned**
 E/W Street Name: **Not Assigned**

Last Database Change: **5/24/2021 16:50**

Change Record					
Change	By	Date	Change	By	Date

Notes:

Drop Number	15	<C+0+0>
Zone Number		<C+0+1>
Area Number	1	<C+0+2>
Area Address	82	<C+0+3>
QuicNet Channel	Serial:COM20:	(QuicNet)

Communication Addresses

Manual Plan		<C+A+1>
Manual Offset		<C+B+1>

Manual Selection

Max Initial	20	<F+0+E>
Red Revert	2.0	<F+0+F>
All Red Start	5.0	<F+C+0>

Start / Revert Times

Row	Phase Names ---->	Phase							
		1	2	3	4	5	6	7	8
0	Ped Walk	0	7	0	4	0	7	0	4
1	Ped FDW	0	20	0	22	0	16	0	20
2	Min Green	5	10	5	6	5	10	5	8
3	Type 3 Limit	0	99	0	0	0	99	0	0
4	Added Initial	0.0	2.0	0.0	0.0	0.0	2.0	0.0	0.0
5	Veh Extension	2.5	4.5	2.5	3.0	2.5	4.5	2.5	3.0
6	Max Gap	2.5	8.0	2.5	3.0	2.5	8.0	2.5	3.0
7	Min Gap	2.5	4.0	2.5	3.0	2.5	4.0	2.5	3.0
8	Max Limit	20	60	25	25	60	40	20	25
9	Max Limit 2	30	40	30	30	30	40	30	30
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
D	Reduce Every	0.0	1.2	0.0	0.0	0.0	1.2	0.0	0.0
E	Yellow Change	4.1	4.8	4.1	4.8	4.1	4.8	4.1	4.8
F	Red Clear	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Phase Timing - Bank 1 <F Page>

Row	Phase Names	E		F	
		Delay	Clear	Delay	Clear
RR-1 Delay	RR-1	0	10		
RR-1 Clear	RR-1				
EV-A Delay	EV-A	0	5		
EV-A Clear	EV-A				
EV-B Delay	EV-B	0	5		
EV-B Clear	EV-B				
EV-C Delay	EV-C	0	5		
EV-C Clear	EV-C				
EV-D Delay	EV-D	0	5		
EV-D Clear	EV-D				
RR-2 Delay	RR-2	0	10		
RR-2 Clear	RR-2				
View EV Delay		---	---		
View EV Clear		---	---		
View RR Delay		---	---		
View RR Clear		---	---		

Preempt Timing <F Page>

Row	Phase Names	Function
0	Permit	12345678
1	Red Lock	
2	Yellow Lock	
3	Min Recall	2 6
4	Ped Recall	
5	View Set Peds	-----
6	Rest In Walk	
7	Red Rest	
8	Dual Entry	2 4 6 8
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond. Service	1
D	Man Cntrl Calls	
E	Yellow Start	1 5
F	First Phases	2 6

Phase Functions <F Page>

Manual Plan
 0 = Automatic
 1-9 = Plan 1-9
 14 = Free
 15 = Flash

Manual Offset
 0 = Automatic
 1 = Offset A
 2 = Offset B
 3 = Offset C

(* = Coordination Recall)

Column Numbers ---->		Plan									
Row	Plan Name ---->	1	2	3	4	5	6	7	8	9	Row
0	Cycle Length	100	100	130	100	90	140	120	100	120	0
1	Phase 1 - ForceOff	65	25	72	75	60	100	75	65	25	1
2	Phase 2 - ForceOff	0	0	0	0	0	0	0	0	0	2
3	Phase 3 - ForceOff	25	45	34	40	26	48	26	25	45	3
4	Phase 4 - ForceOff	50	60	52	55	41	68	55	50	75	4
5	Phase 5 - ForceOff	65	25	95	17	60	100	75	65	100	5
6	Phase 6 - ForceOff	0	0	0	0	0	18	0	0	0	6
7	Phase 7 - ForceOff	20	40	18	1	1	42	20	25	40	7
8	Phase 8 - ForceOff	50	60	52	1	1	68	55	40	75	8
9	Ring Offset	0	0	0	0	0	0	0	0	0	9
A	Offset 1	57	40	60	47	16	60	94	0	40	A
B	Offset 2	0	0	0	0	0	0	0	0	0	B
C	Offset 3	0	0	0	0	0	0	0	0	0	C
D	Permissive	5	5	16	5	12	19	12	12	12	D
E	Hold Release	90	85	255	90	255	255	255	255	255	E
F	Zone Offset	0	0	0	0	0	0	0	0	0	F

Coordination

<C Page>

Row	E	Row
Plan 1 - Sync	<u>2 6</u>	1
Plan 2 - Sync	<u>2 6</u>	2
Plan 3 - Sync	<u>2 6</u>	3
Plan 4 - Sync	<u>2 6</u>	4
Plan 5 - Sync	<u>2 6</u>	5
Plan 6 - Sync	<u>2 6</u>	6
Plan 7 - Sync	<u>2 6</u>	7
Plan 8 - Sync	<u>2 6</u>	8
Plan 9 - Sync	<u>2 6</u>	9
Coord Ped *	_____	A
NEMA Hold	_____	B
		C
		D
		E
		F

Sync Phases

<C Page>

Row	Column Numbers ---->	E
0	Exclusive Phases	_____
1	RR-1 Clear Phases	_____
2	RR-2 Clear Phases	_____
3	RR-2 Limited Service	_____
4	Prot / Perm Phases	_____
5	Overlap A - Green Omit	_____
6	Overlap B - Green Omit	_____
7	Overlap C - Green Omit	_____
8	Overlap D - Green Omit	_____
9	Overlap Yellow Flash	_____
A	EV-A Phases	<u>2 5</u>
B	EV-B Phases	<u>4 7</u>
C	EV-C Phases	<u>1 6</u>
D	EV-D Phases	<u>3 8</u>
E	Extra 1 Config. Bits	<u>1 4</u>
F	IC Select (Interconnect)	<u>2</u>

Configuration

<E Page>

Row	F
RR Overlap A - Phases	_____
RR Overlap B - Phases	_____
RR Overlap C - Phases	_____
RR Overlap D - Phases	_____
Ped 2P	<u>2</u>
Ped 6P	<u>6</u>
Ped 4P	<u>4</u>
Ped 8P	<u>8</u>
Yellow Flash Phases	_____
Overlap A - Phases	_____
Overlap B - Phases	_____
Overlap C - Phases	_____
Overlap D - Phases	_____
Restricted Phases	_____
Assign 5 Outputs	_____

Configuration

<E Page>

- Extra 1 Flags
 1 = TBC Type 1
 2 = NEMA Ext. Coord
 3 = Auto Daylight Savings
 4 = EV Advance
 5 =
 6 = Special Event
 7 = Pretimed Operation
 8 = Split Ring Operation

- Assign 5 Outputs
 (Ped Loadswitch Yellows)
 1 = Right Turn Overlap
 2 = TOD Outputs
 3 = EV Beacon - Steady
 4 = EV Beacon - Flashing
 5 = Special Event Outputs
 6 = Phase 3 & 7 Ped
 7 = Advanced Warning Sign
 8 =

Force-Off Adjust 5

Coord Force-Off Adjust for Ped Service <C+D+F>

Transition Type 0

TBC Transition <C+D+D>

Transition Type
 0 = Shortway
 Non-zero = Lengthen

IC Select Flags

- 1 =
 2 = Modem
 3 = 7-Wire Slave
 4 = Flash / Free
 5 =
 6 = Simplex Master
 7 = 7-Wire Master
 8 = Offset Interrupter

Row	F	Row
Free Lag	<u>2 4 6 8</u>	0
Plan 1 - Lag	<u>2 4 6 8</u>	1
Plan 2 - Lag	<u>1 45 8</u>	2
Plan 3 - Lag	<u>2 4 6 8</u>	3
Plan 4 - Lag	<u>2 45 8</u>	4
Plan 5 - Lag	<u>2 4 6 8</u>	5
Plan 6 - Lag	<u>2 4 6 8</u>	6
Plan 7 - Lag	<u>2 4 6 8</u>	7
Plan 8 - Lag	<u>2 4 6 8</u>	8
Plan 9 - Lag	<u>1 4 6 8</u>	9
Coord Max *	_____	A
Coord Lag *	_____	B
		C
		D
		E
		F

Lag Phases

<C Page>

Row	Time	Plan	Offset	Day of Week
0	00:00	E	A	1234567
1	06:00	7	A	23456
2	09:00	E	A	23456
3	15:00	6	A	23456
4	17:30	E	A	23456
5	00:00	0	0	
6	00:00	0	0	
7	00:00	0	0	
8	00:00	0	0	
9	00:00	0	0	
A	00:00	0	0	
B	00:00	0	0	
C	00:00	0	0	
D	00:00	0	0	
E	00:00	0	0	
F	00:00	0	0	

TOD Coordination
<9 Key with C+D+9=0>

Time	Funct.	Day of Week
15:00	C	23456
18:00	C	23456
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	
00:00	0	

TOD Function
<7 Key>

Column F
Phases/Bits
1

<D Page>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 1
TOD Coordination
<9 Key with C+D+9=1>

Time	Plan	Offset	Day of Week
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	
00:00	0	0	

Holiday # 2
TOD Coordination
<9 Key with C+D+9=2>

Time	Plan	Offset	Day of Week	Row
00:00	0	0		0
00:00	0	0		1
00:00	0	0		2
00:00	0	0		3
00:00	0	0		4
00:00	0	0		5
00:00	0	0		6
00:00	0	0		7
00:00	0	0		8
00:00	0	0		9
00:00	0	0		A
00:00	0	0		B
00:00	0	0		C
00:00	0	0		D
00:00	0	0		E
00:00	0	0		F

Holiday # 3
TOD Coordination
<9 Key with C+D+9=3>

- Plan Select
1 thru 9 = Coordination
Plan 1 thru 9
14 or E = Free
15 or F = Flash

- Offset Select
A = Offset A
B = Offset B
C = Offset C

- T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector
OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

- Month Select
1 = January
2 = February
3 = March
4 = April
5 = May
6 = June
7 = July
8 = August
9 = September
A = October
B = November
C = December

Row	Day	Year	Month	Day of Week
A	0	0	0	
B	0	0	0	
C	0	0	0	

Holiday Dates
<8 Key>

Row	1 Delay	3 Carry-over	Detector Name	332 Input File	Detector Number
0	1.0	0.0		I-1	14
1	0.0	0.0		I-2U	1
2	0.0	0.0		I-2L	5
3	0.0	0.0		I-3U	21
4	0.0	0.0		I-3L	25
5	0.0	0.0		I-4	9
6	0.0	0.0		I-5	16
7	0.0	0.0		I-6U	3
8	0.0	0.0		I-6L	7
9	0.0	0.0		I-7U	23
A	0.0	0.0		I-7L	27
B	0.0	0.0		I-8	11
C	0.0	0.0		I-9U	18
D	0.0	0.0		I-9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	4 Carry-over	Detector Name	332 Input File	Detector Number
0	0.0	0.0		J-1	13
1	0.0	0.0		J-2U	2
2	0.0	0.0		J-2L	6
3	0.0	0.0		J-3U	22
4	0.0	0.0		J-3L	26
5	10.0	0.0		J-4	10
6	0.0	0.0		J-5	15
7	0.0	0.0		J-6U	4
8	0.0	0.0		J-6L	8
9	0.0	0.0		J-7U	24
A	0.0	0.0		J-7L	28
B	0.0	0.0		J-8	12
C	0.0	0.0		J-9U	17
D	0.0	0.0		J-9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

Row	9 Green Clear	C Yellow Change	D Red Clear	0 Load- Switch #
A	Overlap A	0.0	0.0	0
B	Overlap B	0.0	0.0	0
C	Overlap C	0.0	0.0	0
D	Overlap D	0.0	0.0	0

Overlap Timing <F Page> <D Page>

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 -- -- -- --	1234
C	13 14 15 16 17 18 19 20	12345678
D	-- -- -- -- 21 22 23 24	5678
E	-- -- -- -- -- -- -- --	1234
F	-- 25 26 27 28 -- -- --	2345

Active Detectors <D Page>

Note: Initialized data is for all detectors to be active (ie, all flag bits set). A Detector which is "not flagged", will not be active as a Phase Detector, and WILL NOT call or extend its associated phase. It will still function as a System Detector.

Row	Detector Number
0	
1	System Det. # 1
2	System Det. # 2
3	System Det. # 3
4	System Det. # 4
5	System Det. # 5
6	System Det. # 6
7	System Det. # 7
8	System Det. # 8

System Detectors <D Page>

Max ON (minutes)	5	<D+A+E>
Max OFF (minutes)	60	<D+A+F>

Detector Failure Monitor

Phase Number	0	<F+C+1>
Time Before Yellow	0.0	<F+C+3>

Advance Warning Beacon - Sign 1

Phase Number	0	<F+D+1>
Time Before Yellow	0.0	<F+D+3>

Advance Warning Beacon - Sign 2

Long Failure	0.0	<F+0+6>
Short Failure	0.0	<F+0+7>

Power Cycle Correction (Default = 0.5)

Disable Parity	0	<D+B+0>
----------------	---	---------

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

		Phase							
Column Numbers ---->		1	2	3	4	5	6	7	8
Row	Phase Names ---->								
0	Ped Walk	0	7	0	7	0	7	0	7
1	Ped FDW	0	10	0	10	0	10	0	10
2	Min Green	3	7	3	7	3	7	3	7
3	Type 3 Limit	0	0	0	0	0	0	0	0
4	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2
5	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5
6	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0
7	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0
8	Max Limit	17	40	17	40	17	40	17	40
9	Max Limit 2	30	70	30	70	30	70	30	70
A	-----	0	0	0	0	0	0	0	0
B	Call To Phase	0	0	0	0	0	0	0	0
C	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
D	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
E	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0
F	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0

Phase Timing - Bank 2 <F Page>

		Phase								Row
Column Numbers ---->		1	2	3	4	5	6	7	8	
	Phase Names ---->									
	Ped Walk	0	7	0	7	0	7	0	7	0
	Ped FDW	0	10	0	10	0	10	0	10	1
	Min Green	3	7	3	7	3	7	3	7	2
	Type 3 Limit	0	0	0	0	0	0	0	0	3
	Added Initial	0.0	1.2	0.0	1.2	0.0	1.2	0.0	1.2	4
	Veh Extension	0.5	3.5	0.5	3.5	0.5	3.5	0.5	3.5	5
	Max Gap	0.5	5.0	0.5	5.0	0.5	5.0	0.5	5.0	6
	Min Gap	0.5	2.0	0.5	2.0	0.5	2.0	0.5	2.0	7
	Max Limit	17	40	17	40	17	40	17	40	8
	Max Limit 2	30	70	30	70	30	70	30	70	9
	-----	0	0	0	0	0	0	0	0	A
	Call To Phase	0	0	0	0	0	0	0	0	B
	Reduce By	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	C
	Reduce Every	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	D
	Yellow Change	3.0	4.0	3.0	4.0	3.0	4.0	3.0	4.0	E
	Red Clear	0.0	0.5	0.0	1.0	0.0	0.5	0.0	1.0	F

Phase Timing - Bank 3 <F Page>

Row	Delay Only ---->	7	8	9	A	B	C	D	E	F	Row
		Time	Dwell	Hold	Advance	Force Off	Vehicle Call	Permit Phases	Ped Omit	Output	
0		0	---	---	---	---	---	---	---	---	0
1		0	0	---	---	---	---	---	---	---	1
2		0	0	---	---	---	---	---	---	---	2
3		0	0	---	---	---	---	---	---	---	3
4		0	0	---	---	---	---	---	---	---	4
5		0	0	---	---	---	---	---	---	---	5
6		0	0	---	---	---	---	---	---	---	6
7		0	0	---	---	---	---	---	---	---	7
8		0	0	---	---	---	---	---	---	---	8
9	Limited Service Int. ---->	0	0	---	---	---	---	---	---	---	9
A		---	0	---	---	---	---	---	---	---	A
B		0	0	---	---	---	---	---	---	---	B
C		0	0	---	---	---	---	---	---	---	C
D		0	0	---	---	---	---	---	---	---	D
E		0	0	---	---	---	---	---	---	---	E
F		0	0	---	---	---	---	---	---	---	F

Special Event Schedule <C Page with F+9+F=22>

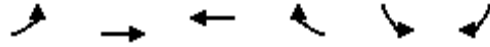
<--- Limited Service Interval (Set Dwell = 255)

Appendix F

Existing Intersection LOS Worksheets

AM Existing
1: SR-76 & Douglas Dr

Timings

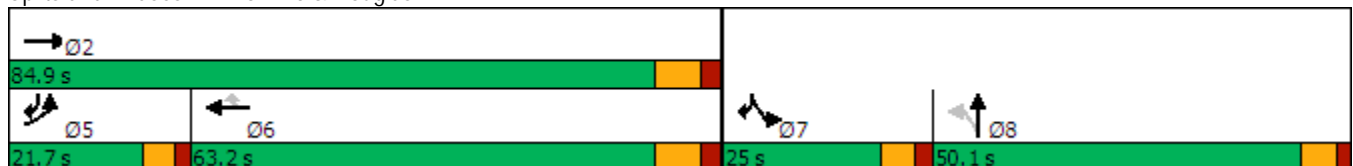


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↶↷	↶↷	↶↷	↷	↶	↷↷	
Traffic Volume (vph)	239	870	1761	205	247	490	
Future Volume (vph)	239	870	1761	205	247	490	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	21.7	84.9	63.2	63.2	25.0		50.1
Total Split (%)	13.6%	53.1%	39.5%	39.5%	15.6%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	14.5	75.4	55.2	55.2	18.9	39.5	
Actuated g/C Ratio	0.13	0.70	0.51	0.51	0.17	0.36	
v/c Ratio	0.57	0.38	1.06	0.24	0.87	0.39	
Control Delay	49.2	7.4	67.3	2.7	71.6	2.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.2	7.4	67.3	2.7	71.6	2.9	
LOS	D	A	E	A	E	A	
Approach Delay		16.4	60.5				
Approach LOS		B	E				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 108.4
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 41.0
 Intersection LOS: D
 Intersection Capacity Utilization 87.9%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



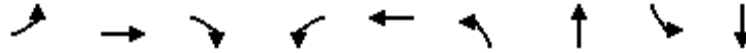
AM Existing
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	239	870	0	0	1761	205	0	0	0	247	0	490
Future Volume (veh/h)	239	870	0	0	1761	205	0	0	0	247	0	490
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	260	946	0	0	1914	223	0	0	0	268	0	533
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	425	2484	0	0	1856	828	0	2	0	299	0	0
Arrive On Green	0.12	0.70	0.00	0.00	0.52	0.52	0.00	0.00	0.00	0.17	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	268	
Grp Volume(v), veh/h	260	946	0	0	1914	223	0	0	0	268	68.6	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	7.5	11.5	0.0	0.0	55.2	8.3	0.0	0.0	0.0	15.6		
Cycle Q Clear(g_c), s	7.5	11.5	0.0	0.0	55.2	8.3	0.0	0.0	0.0	15.6		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	425	2484	0	0	1856	828	0	2	0	299		
V/C Ratio(X)	0.61	0.38	0.00	0.00	1.03	0.27	0.00	0.00	0.00	0.90		
Avail Cap(c_a), veh/h	523	2585	0	0	1856	828	0	778	0	318		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	44.0	6.5	0.0	0.0	25.3	14.0	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.0	29.5	0.2	0.0	0.0	0.0	25.5		
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		
%ile BackOfQ(50%),veh/ln	3.3	3.9	0.0	0.0	29.3	2.9	0.0	0.0	0.0	8.9		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.4	6.6	0.0	0.0	54.7	14.2	0.0	0.0	0.0	68.6		
LnGrp LOS	D	A	A	A	F	B	A	A	A	E		
Approach Vol, veh/h		1206			2137			0				
Approach Delay, s/veh		15.0			50.5			0.0				
Approach LOS		B			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		81.9			18.7	63.2	23.8	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		76.9			* 16	55.2	18.9	44.0				
Max Q Clear Time (g_c+I1), s		13.5			9.5	57.2	17.6	0.0				
Green Ext Time (p_c), s		5.5			0.6	0.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				40.0								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing
2: Douglas Dr & Mission Ave

Timings

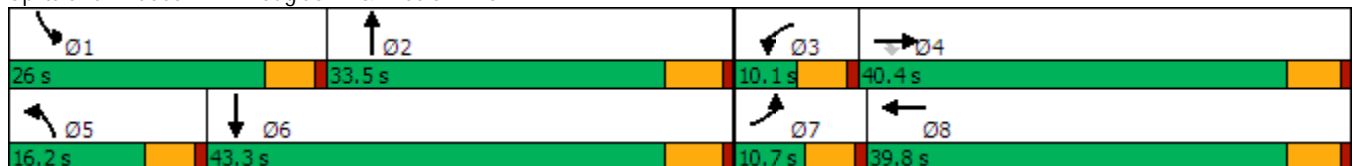


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	66	258	62	47	430	111	291	378	676
Future Volume (vph)	66	258	62	47	430	111	291	378	676
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.7	40.4	40.4	10.1	39.8	16.2	33.5	26.0	43.3
Total Split (%)	9.7%	36.7%	36.7%	9.2%	36.2%	14.7%	30.5%	23.6%	39.4%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.9	24.3	24.3	5.2	23.9	10.2	16.8	21.9	28.5
Actuated g/C Ratio	0.07	0.28	0.28	0.06	0.27	0.12	0.19	0.25	0.33
v/c Ratio	0.31	0.29	0.12	0.49	0.79	0.59	0.48	0.93	0.71
Control Delay	49.0	26.5	0.4	62.5	29.6	54.2	34.6	66.4	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	26.5	0.4	62.5	29.6	54.2	34.6	66.4	31.2
LOS	D	C	A	E	C	D	C	E	C
Approach Delay		26.2			31.6		39.9		43.1
Approach LOS		C			C		D		D

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 87.6
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 36.8
 Intersection LOS: D
 Intersection Capacity Utilization 73.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM Existing
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↕	↖	↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	66	258	62	47	430	318	111	291	9	378	676	71
Future Volume (veh/h)	66	258	62	47	430	318	111	291	9	378	676	71
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	72	280	67	51	467	346	121	316	10	411	735	77
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	176	1068	476	77	570	421	166	447	14	452	932	98
Arrive On Green	0.05	0.30	0.30	0.04	0.29	0.29	0.09	0.13	0.13	0.25	0.29	0.29
Sat Flow, veh/h	3456	3554	1585	1781	1949	1439	1781	3516	111	1781	3246	340
Grp Volume(v), veh/h	72	280	67	51	426	387	121	159	167	411	402	410
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1611	1781	1777	1850	1781	1777	1809
Q Serve(g_s), s	1.6	4.6	2.4	2.2	17.3	17.4	5.1	6.7	6.7	17.4	16.2	16.2
Cycle Q Clear(g_c), s	1.6	4.6	2.4	2.2	17.3	17.4	5.1	6.7	6.7	17.4	16.2	16.2
Prop In Lane	1.00		1.00	1.00		0.89	1.00		0.06	1.00		0.19
Lane Grp Cap(c), veh/h	176	1068	476	77	520	471	166	226	235	452	510	520
V/C Ratio(X)	0.41	0.26	0.14	0.67	0.82	0.82	0.73	0.71	0.71	0.91	0.79	0.79
Avail Cap(c_a), veh/h	250	1604	715	115	788	715	255	635	661	480	859	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	20.6	19.8	36.6	25.5	25.5	34.2	32.5	32.5	28.1	25.5	25.5
Incr Delay (d2), s/veh	1.5	0.1	0.1	9.5	4.1	4.7	5.9	4.0	3.9	20.6	2.8	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	1.9	0.9	1.1	7.5	6.9	2.4	3.0	3.2	9.6	6.9	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.2	20.7	19.9	46.1	29.7	30.2	40.1	36.5	36.4	48.7	28.2	28.2
LnGrp LOS	D	C	B	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		419			864			447			1223	
Approach Delay, s/veh		23.4			30.9			37.4			35.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.8	15.7	8.4	28.7	12.3	28.1	9.0	28.1				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	20.9	27.7	5.0	35.0	11.1	37.5	5.6	34.4				
Max Q Clear Time (g_c+I1), s	19.4	8.7	4.2	6.6	7.1	18.2	3.6	19.4				
Green Ext Time (p_c), s	0.3	1.2	0.0	1.6	0.1	3.4	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

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

AM Existing
3: Douglas Dr & El Camino Real

Timings

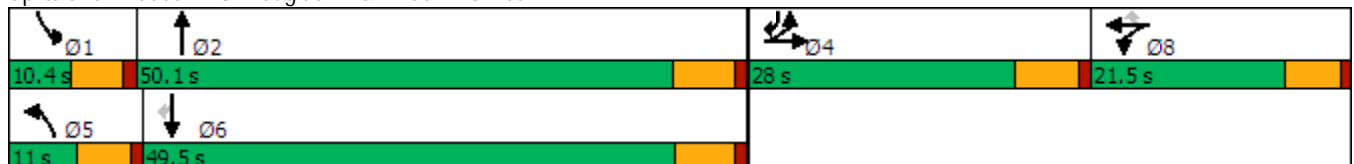


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	321	17	36	33	1	40	549	8	1042	1085
Future Volume (vph)	321	17	36	33	1	40	549	8	1042	1085
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	28.0	28.0		21.5	21.5	11.0	50.1	10.4	49.5	28.0
Total Split (%)	25.5%	25.5%		19.5%	19.5%	10.0%	45.5%	9.5%	45.0%	25.5%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	19.3	19.3	87.2	11.5	11.5	6.2	39.4	5.6	35.9	64.2
Actuated g/C Ratio	0.22	0.22	1.00	0.13	0.13	0.07	0.45	0.06	0.41	0.74
v/c Ratio	0.46	0.04	0.02	0.47	0.00	0.34	0.40	0.08	0.78	0.57
Control Delay	35.9	34.9	0.0	48.4	0.0	55.8	18.2	51.0	29.1	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	34.9	0.0	48.4	0.0	55.8	18.2	51.0	29.1	10.2
LOS	D	C	A	D	A	E	B	D	C	B
Approach Delay		32.4		48.0			20.5		19.6	
Approach LOS		C		D			C		B	



























Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 87.2
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 22.2
 Intersection LOS: C
 Intersection Capacity Utilization 61.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM Existing
3: Douglas Dr & El Camino Real

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	321	17	36	69	33	1	40	549	36	8	1042	1085
Future Volume (veh/h)	321	17	36	69	33	1	40	549	36	8	1042	1085
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	349	18	0	75	36	1	43	597	39	9	1133	1179
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	474	256		98	47	127	68	1658	108	20	1645	1673
Arrive On Green	0.14	0.14	0.00	0.08	0.08	0.08	0.04	0.49	0.49	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1222	587	1585	1781	3387	221	1781	3554	2790
Grp Volume(v), veh/h	349	18	0	111	0	1	43	313	323	9	1133	1179
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1831	1781	1777	1395
Q Serve(g_s), s	8.0	0.7	0.0	5.0	0.0	0.0	2.0	9.0	9.0	0.4	20.8	24.2
Cycle Q Clear(g_c), s	8.0	0.7	0.0	5.0	0.0	0.0	2.0	9.0	9.0	0.4	20.8	24.2
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	474	256		145	0	127	68	870	896	20	1645	1673
V/C Ratio(X)	0.74	0.07		0.77	0.00	0.01	0.64	0.36	0.36	0.45	0.69	0.70
Avail Cap(c_a), veh/h	912	493		350	0	307	121	944	973	108	1871	1851
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	31.1	0.0	37.2	0.0	35.0	39.2	13.1	13.1	40.6	17.5	11.5
Incr Delay (d2), s/veh	2.3	0.1	0.0	8.1	0.0	0.0	9.5	0.3	0.2	14.8	0.9	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	3.4	0.3	0.0	2.5	0.0	0.0	1.0	3.4	3.5	0.3	8.1	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	31.2	0.0	45.3	0.0	35.0	48.7	13.3	13.3	55.4	18.4	12.6
LnGrp LOS	D	C		D	A	D	D	B	B	E	B	B
Approach Vol, veh/h		367	A		112			679			2321	
Approach Delay, s/veh		36.2			45.3			15.6			15.6	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	46.6		17.5	8.5	44.4		12.1				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	43.9		21.8	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.4	11.0		10.0	4.0	26.2		7.0				
Green Ext Time (p_c), s	0.0	2.7		1.3	0.0	12.0		0.2				

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

AM Existing
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	66	3	92	9	2	37	845	16	15	1875	67
Future Volume (vph)	66	3	92	9	2	37	845	16	15	1875	67
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	58.2	21.0	10.7	58.5	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	8.7%	48.5%	17.5%	8.9%	48.8%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.1	10.1	10.1	6.6	6.6	5.1	58.7	64.6	5.4	56.8	75.6
Actuated g/C Ratio	0.11	0.11	0.11	0.07	0.07	0.06	0.65	0.71	0.06	0.63	0.83
v/c Ratio	0.20	0.20	0.35	0.08	0.20	0.40	0.40	0.01	0.15	0.92	0.05
Control Delay	39.8	39.7	7.4	46.4	22.5	58.5	11.6	0.0	50.1	27.8	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	39.7	7.4	46.4	22.5	58.5	11.6	0.0	50.1	27.8	1.1
LOS	D	D	A	D	C	E	B	A	D	C	A
Approach Delay		21.3			28.8		13.3			27.1	
Approach LOS		C			C		B			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 90.7
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 22.7
 Intersection LOS: C
 Intersection Capacity Utilization 76.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd

10.7 s	58.2 s	30.1 s	21 s
10.4 s	58.5 s		

AM Existing
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	3	92	9	2	24	37	845	16	15	1875	67
Future Volume (veh/h)	66	3	92	9	2	24	37	845	16	15	1875	67
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	74	0	100	10	2	26	40	918	17	16	2038	73
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	319	0	142	73	5	61	63	2150	1024	33	2090	1074
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.04	0.61	0.61	0.02	0.59	0.59
Sat Flow, veh/h	3563	0	1585	1781	114	1488	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	0	100	10	0	28	40	918	17	16	2038	73
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1603	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.7	0.0	5.4	0.5	0.0	1.5	2.0	12.2	0.3	0.8	49.1	1.4
Cycle Q Clear(g_c), s	1.7	0.0	5.4	0.5	0.0	1.5	2.0	12.2	0.3	0.8	49.1	1.4
Prop In Lane	1.00		1.00	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	142	73	0	66	63	2150	1024	33	2090	1074
V/C Ratio(X)	0.23	0.00	0.70	0.14	0.00	0.42	0.64	0.43	0.02	0.49	0.98	0.07
Avail Cap(c_a), veh/h	1004	0	447	319	0	287	100	2150	1024	106	2095	1077
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	39.2	41.0	0.0	41.5	42.2	9.3	5.6	43.1	17.6	4.8
Incr Delay (d2), s/veh	0.4	0.0	6.2	0.8	0.0	4.3	10.2	0.1	0.0	10.9	14.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.3	0.2	0.0	0.7	1.0	4.3	0.1	0.4	21.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	45.4	41.9	0.0	45.8	52.4	9.5	5.6	54.0	31.9	4.9
LnGrp LOS	D	A	D	D	A	D	D	A	A	D	C	A
Approach Vol, veh/h		174			38			975			2127	
Approach Delay, s/veh		42.2			44.8			11.2			31.1	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	59.9		13.1	8.5	58.4		8.7				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.3	52.0		25.0	5.0	52.3		15.9				
Max Q Clear Time (g_c+I1), s	2.8	14.2		7.4	4.0	51.1		3.5				
Green Ext Time (p_c), s	0.0	5.3		0.6	0.0	1.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	26.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

AM Existing
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	15	2	109	67	4	6	925	31	2	1787	37
Future Volume (vph)	15	2	109	67	4	6	925	31	2	1787	37
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.3	12.3		12.3	12.3	51.2	51.2	5.1	52.8	52.8
Actuated g/C Ratio		0.16	0.16		0.16	0.16	0.67	0.67	0.07	0.69	0.69
v/c Ratio		0.08	0.35		0.36	0.02	0.43	0.03	0.02	0.80	0.04
Control Delay		27.3	11.4		33.2	0.2	9.1	0.3	41.0	13.7	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.3	11.4		33.2	0.2	9.1	0.3	41.0	13.7	4.5
LOS		C	B		C	A	A	A	D	B	A
Approach Delay		13.5			30.4		8.8			13.6	
Approach LOS		B			C		A			B	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 76.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 12.5
 Intersection LOS: B
 Intersection Capacity Utilization 74.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



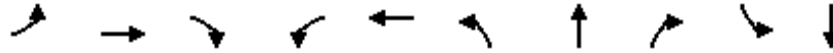
AM Existing
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2	109	67	4	6	0	925	31	2	1787	37
Future Volume (veh/h)	15	2	109	67	4	6	0	925	31	2	1787	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2	118	73	4	7	0	1005	34	2	1942	40
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	0	2	2	2	2	2
Cap, veh/h	80	6	505	83	3	505	0	1807	806	5	2012	897
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.51	0.51	0.00	0.57	0.57
Sat Flow, veh/h	34	19	1585	36	9	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	18	0	118	77	0	7	0	1005	34	2	1942	40
Grp Sat Flow(s),veh/h/ln	53	0	1585	45	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.8	0.0	5.4	0.9	0.0	0.3	0.0	19.0	1.1	0.1	51.3	1.1
Cycle Q Clear(g_c), s	31.3	0.0	5.4	31.3	0.0	0.3	0.0	19.0	1.1	0.1	51.3	1.1
Prop In Lane	0.89		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	86	0	505	86	0	505	0	1807	806	5	2012	897
V/C Ratio(X)	0.21	0.00	0.23	0.90	0.00	0.01	0.00	0.56	0.04	0.43	0.97	0.04
Avail Cap(c_a), veh/h	96	0	516	95	0	516	0	1807	806	91	2052	915
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.6	0.0	24.6	48.2	0.0	22.9	0.0	16.5	12.1	48.9	20.4	9.5
Incr Delay (d2), s/veh	1.2	0.0	0.2	57.9	0.0	0.0	0.0	0.4	0.0	51.2	12.6	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	0.5	0.0	2.0	3.3	0.0	0.1	0.0	7.5	0.4	0.1	22.7	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	0.0	24.9	106.0	0.0	22.9	0.0	16.9	12.1	100.1	33.0	9.5
LnGrp LOS	D	A	C	F	A	C	A	B	B	F	C	A
Approach Vol, veh/h		136			84			1039			1984	
Approach Delay, s/veh		27.1			99.1			16.8			32.6	
Approach LOS		C			F			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	56.9		36.3		62.6		36.3				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.1	21.0		33.3		53.3		33.3				
Green Ext Time (p_c), s	0.0	5.7		0.0		2.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.0									
HCM 6th LOS			C									

AM Existing
6: Douglas Dr & North River Rd

Timings

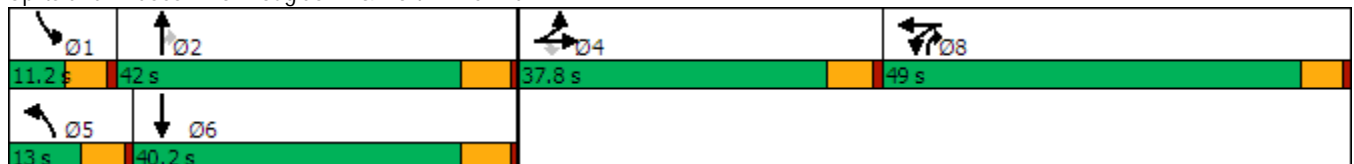


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↗	↙	↔	↙	↑↑	↗↗	↙	↑↑
Traffic Volume (vph)	53	94	186	882	47	71	431	349	18	703
Future Volume (vph)	53	94	186	882	47	71	431	349	18	703
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	49.0	49.0	13.0	42.0	49.0	11.2	40.2
Total Split (%)	27.0%	27.0%	27.0%	35.0%	35.0%	9.3%	30.0%	35.0%	8.0%	28.7%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	15.8	15.8	15.8	42.5	42.5	7.7	41.8	88.6	5.8	32.8
Actuated g/C Ratio	0.13	0.13	0.13	0.35	0.35	0.06	0.34	0.73	0.05	0.27
v/c Ratio	0.25	0.22	0.68	0.85	0.49	0.69	0.39	0.18	0.24	0.81
Control Delay	50.0	48.1	34.7	53.7	34.0	89.1	34.2	0.9	67.7	50.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	48.1	34.7	53.7	34.0	89.1	34.2	0.9	67.7	50.5
LOS	D	D	C	D	C	F	C	A	E	D
Approach Delay		40.9			43.2		25.1			50.9
Approach LOS		D			D		C			D

Intersection Summary

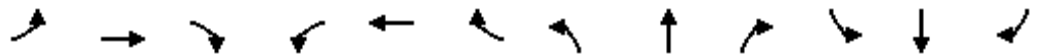
Cycle Length: 140
 Actuated Cycle Length: 121.8
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 39.5
 Intersection LOS: D
 Intersection Capacity Utilization 70.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: Douglas Dr & North River Rd



AM Existing
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	94	186	882	47	21	71	431	349	18	703	9
Future Volume (veh/h)	53	94	186	882	47	21	71	431	349	18	703	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	58	102	202	959	51	23	77	468	379	20	764	10
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	284	566	252	1153	395	178	98	1038	1718	37	926	12
Arrive On Green	0.16	0.16	0.16	0.32	0.32	0.32	0.06	0.29	0.29	0.02	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	3563	1221	551	1781	3554	2790	1781	3592	47
Grp Volume(v), veh/h	58	102	202	959	0	74	77	468	379	20	378	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1771	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	3.2	2.8	13.7	27.8	0.0	3.3	4.8	12.0	6.7	1.2	22.4	22.4
Cycle Q Clear(g_c), s	3.2	2.8	13.7	27.8	0.0	3.3	4.8	12.0	6.7	1.2	22.4	22.4
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	284	566	252	1153	0	573	98	1038	1718	37	458	480
V/C Ratio(X)	0.20	0.18	0.80	0.83	0.00	0.13	0.78	0.45	0.22	0.54	0.83	0.83
Avail Cap(c_a), veh/h	510	1018	454	1391	0	692	121	1139	1797	93	541	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	40.6	45.2	34.9	0.0	26.7	52.1	32.2	9.5	54.2	39.1	39.1
Incr Delay (d2), s/veh	0.5	0.2	8.1	4.2	0.0	0.1	23.0	0.7	0.1	11.8	11.0	10.6
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	1.4	1.2	5.9	12.5	0.0	1.4	2.8	5.2	4.2	0.7	11.1	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	40.8	53.3	39.1	0.0	26.8	75.1	32.9	9.7	66.0	50.1	49.6
LnGrp LOS	D	D	D	D	A	C	E	C	A	E	D	D
Approach Vol, veh/h		362			1033			924			794	
Approach Delay, s/veh		47.9			38.2			26.9			50.3	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	38.8		23.6	11.6	35.0		41.5				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	5.8	35.8		32.0	7.6	34.0		43.6				
Max Q Clear Time (g_c+I1), s	3.2	14.0		15.7	6.8	24.4		29.8				
Green Ext Time (p_c), s	0.0	8.4		2.1	0.0	4.4		6.3				

Intersection Summary

HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM Existing
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	51	420	18	785	2	2	30	111	12	104
Future Volume (vph)	51	420	18	785	2	2	30	111	12	104
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	15.0	51.0	11.0	47.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	15.0%	51.0%	11.0%	47.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	8.2	27.6	6.7	22.3		13.7	13.7		13.7	13.7
Actuated g/C Ratio	0.15	0.50	0.12	0.41		0.25	0.25		0.25	0.25
v/c Ratio	0.21	0.26	0.09	0.63		0.01	0.07		0.39	0.24
Control Delay	31.1	9.4	33.9	17.3		19.8	0.3		24.1	6.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	31.1	9.4	33.9	17.3		19.8	0.3		24.1	6.2
LOS	C	A	C	B		B	A		C	A
Approach Delay		11.7		17.6		2.4			15.9	
Approach LOS		B		B		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 54.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 15.3
 Intersection LOS: B
 Intersection Capacity Utilization 53.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



AM Existing

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	51	420	5	18	785	44	2	2	30	111	12	104
Future Volume (veh/h)	51	420	5	18	785	44	2	2	30	111	12	104
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	55	457	5	20	853	48	2	2	33	121	13	113
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	80	1190	13	40	1053	59	72	50	700	96	6	700
Arrive On Green	0.05	0.33	0.33	0.02	0.31	0.31	0.44	0.44	0.44	0.44	0.44	0.44
Sat Flow, veh/h	1781	3601	39	1781	3420	192	2	114	1585	12	13	1585
Grp Volume(v), veh/h	55	225	237	20	443	458	4	0	33	134	0	113
Grp Sat Flow(s),veh/h/ln	1781	1777	1863	1781	1777	1836	116	0	1585	25	0	1585
Q Serve(g_s), s	2.3	7.3	7.4	0.8	17.4	17.4	0.1	0.0	0.9	0.3	0.0	3.2
Cycle Q Clear(g_c), s	2.3	7.3	7.4	0.8	17.4	17.4	33.4	0.0	0.9	33.4	0.0	3.2
Prop In Lane	1.00		0.02	1.00		0.10	0.50		1.00	0.90		1.00
Lane Grp Cap(c), veh/h	80	587	616	40	547	565	123	0	700	102	0	700
V/C Ratio(X)	0.68	0.38	0.38	0.50	0.81	0.81	0.03	0.00	0.05	1.31	0.00	0.16
Avail Cap(c_a), veh/h	233	1063	1115	139	969	1001	123	0	701	102	0	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.5	19.4	19.4	36.5	24.1	24.1	18.3	0.0	12.0	36.0	0.0	12.7
Incr Delay (d2), s/veh	9.8	0.4	0.4	9.2	2.9	2.8	0.1	0.0	0.0	195.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	2.9	3.1	0.5	7.3	7.5	0.0	0.0	0.3	7.4	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	19.8	19.8	45.7	27.0	26.9	18.4	0.0	12.1	231.2	0.0	12.8
LnGrp LOS	D	B	B	D	C	C	B	A	B	F	A	B
Approach Vol, veh/h		517			921			37				247
Approach Delay, s/veh		22.5			27.4			12.7				131.3
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	30.8		38.0	8.5	29.1		38.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	45.2		33.4	9.9	41.2		33.4				
Max Q Clear Time (g_c+I1), s	2.8	9.4		35.4	4.3	19.4		35.4				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	4.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

AM Existing
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	547	853	7	9	26
Future Vol, veh/h	12	547	853	7	9	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	13	595	927	8	10	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	935	0	-	0	1255 468
Stage 1	-	-	-	-	931 -
Stage 2	-	-	-	-	324 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	728	-	-	-	164 542
Stage 1	-	-	-	-	344 -
Stage 2	-	-	-	-	705 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	728	-	-	-	161 542
Mov Cap-2 Maneuver	-	-	-	-	161 -
Stage 1	-	-	-	-	338 -
Stage 2	-	-	-	-	705 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	17
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	728	-	-	-	337
HCM Lane V/C Ratio	0.018	-	-	-	0.113
HCM Control Delay (s)	10	-	-	-	17
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

LOS Engineering, Inc.

AM Existing
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	22	537	0	0	818	5	0	0	0	15	0	40
Future Vol, veh/h	22	537	0	0	818	5	0	0	0	15	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	584	0	0	889	5	0	0	0	16	0	43

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	894	0	0	584	0	0	-	-	292	1232	1524	447
Stage 1	-	-	-	-	-	-	-	-	-	892	892	-
Stage 2	-	-	-	-	-	-	-	-	-	340	632	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	755	-	-	987	-	-	0	0	704	133	117	559
Stage 1	-	-	-	-	-	-	0	0	-	303	358	-
Stage 2	-	-	-	-	-	-	0	0	-	648	472	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	755	-	-	987	-	-	-	-	704	130	113	559
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	130	113	-
Stage 1	-	-	-	-	-	-	-	-	-	293	358	-
Stage 2	-	-	-	-	-	-	-	-	-	627	457	-

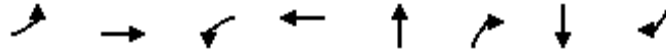
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0	0	20.3
HCM LOS			A	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	755	-	-	987	-	-	294
HCM Lane V/C Ratio	-	0.032	-	-	-	-	-	0.203
HCM Control Delay (s)	-	0	9.9	-	-	0	-	20.3
HCM Lane LOS	-	A	A	-	-	A	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.7

LOS Engineering, Inc.

AM Existing
10: Calle Montecito & North River Rd

Timings

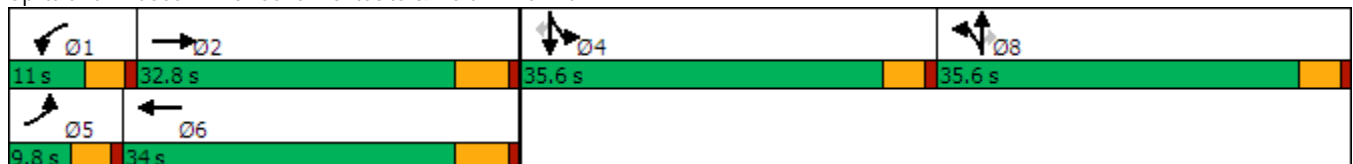


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	49	486	32	669	1	8	1	105
Future Volume (vph)	49	486	32	669	1	8	1	105
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.7	27.6	6.7	26.0	9.9	9.9	15.7	15.7
Actuated g/C Ratio	0.08	0.37	0.09	0.35	0.13	0.13	0.21	0.21
v/c Ratio	0.39	0.43	0.22	0.69	0.06	0.03	0.58	0.27
Control Delay	50.2	23.2	44.0	27.6	31.8	0.1	35.8	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	23.2	44.0	27.6	31.8	0.1	35.8	8.4
LOS	D	C	D	C	C	A	D	A
Approach Delay		25.6		28.3	18.8		26.3	
Approach LOS		C		C	B		C	

Intersection Summary

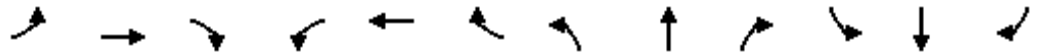
Cycle Length: 115
 Actuated Cycle Length: 75.2
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 26.9
 Intersection Capacity Utilization 55.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



AM Existing
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	49	486	27	32	669	98	11	1	8	196	1	105
Future Volume (veh/h)	49	486	27	32	669	98	11	1	8	196	1	105
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	53	528	29	35	727	107	12	1	9	213	1	114
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	90	1100	60	67	957	141	182	15	175	309	1	276
Arrive On Green	0.05	0.32	0.32	0.04	0.31	0.31	0.11	0.11	0.11	0.17	0.17	0.17
Sat Flow, veh/h	1781	3426	188	1781	3108	457	1650	138	1585	1773	8	1585
Grp Volume(v), veh/h	53	273	284	35	415	419	13	0	9	214	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1788	1788	0	1585	1782	0	1585
Q Serve(g_s), s	1.6	6.7	6.7	1.0	11.5	11.5	0.4	0.0	0.3	6.1	0.0	3.5
Cycle Q Clear(g_c), s	1.6	6.7	6.7	1.0	11.5	11.5	0.4	0.0	0.3	6.1	0.0	3.5
Prop In Lane	1.00		0.10	1.00		0.26	0.92		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	570	590	67	547	551	197	0	175	310	0	276
V/C Ratio(X)	0.59	0.48	0.48	0.52	0.76	0.76	0.07	0.00	0.05	0.69	0.00	0.41
Avail Cap(c_a), veh/h	174	886	916	213	925	931	1020	0	904	1016	0	904
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.2	14.8	14.8	25.7	17.0	17.0	21.7	0.0	21.6	21.1	0.0	20.0
Incr Delay (d2), s/veh	5.9	0.6	0.6	6.1	2.2	2.2	0.1	0.0	0.1	2.7	0.0	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	0.8	2.5	2.6	0.5	4.4	4.5	0.1	0.0	0.1	2.6	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	15.4	15.4	31.8	19.2	19.2	21.8	0.0	21.8	23.8	0.0	21.0
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		610			869			22			328	
Approach Delay, s/veh		16.8			19.7			21.8			22.8	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	23.1		14.1	7.3	22.4		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.0	8.7		8.1	3.6	13.5		2.4				
Green Ext Time (p_c), s	0.0	2.1		1.3	0.0	3.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

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

AM Existing
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	33	675	752	1	0	83	0	
Future Volume (vph)	33	675	752	1	0	83	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.4	23.7	20.2		12.8	11.6	11.6	
Actuated g/C Ratio	0.15	0.48	0.41		0.26	0.23	0.23	
v/c Ratio	0.14	0.44	0.61		0.00	0.27	0.23	
Control Delay	29.1	9.4	15.3		0.0	20.7	1.2	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	29.1	9.4	15.3		0.0	20.7	1.2	
LOS	C	A	B		A	C	A	
Approach Delay		10.3	15.3				9.5	
Approach LOS		B	B				A	

Intersection Summary

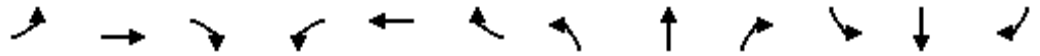
Cycle Length: 100
 Actuated Cycle Length: 49.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 12.6
 Intersection Capacity Utilization 45.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: Redondo Dr & North River Rd



AM Existing
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕		↖	↕	
Traffic Volume (veh/h)	33	675	0	0	752	52	1	0	1	83	0	112
Future Volume (veh/h)	33	675	0	0	752	52	1	0	1	83	0	112
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	36	734	0	0	817	57	1	0	1	90	0	122
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	74	1855	0	5	1223	85	202	39	100	436	0	248
Arrive On Green	0.04	0.52	0.00	0.00	0.36	0.36	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3647	0	1781	3370	235	389	250	639	1416	0	1585
Grp Volume(v), veh/h	36	734	0	0	431	443	2	0	0	90	0	122
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1828	1278	0	0	1416	0	1585
Q Serve(g_s), s	0.8	4.8	0.0	0.0	7.8	7.8	0.0	0.0	0.0	0.0	0.0	2.7
Cycle Q Clear(g_c), s	0.8	4.8	0.0	0.0	7.8	7.8	2.7	0.0	0.0	1.7	0.0	2.7
Prop In Lane	1.00		0.00	1.00		0.13	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	74	1855	0	5	645	663	341	0	0	436	0	248
V/C Ratio(X)	0.49	0.40	0.00	0.00	0.67	0.67	0.01	0.00	0.00	0.21	0.00	0.49
Avail Cap(c_a), veh/h	349	4373	0	256	2093	2154	1284	0	0	1346	0	1267
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.9	5.5	0.0	0.0	10.3	10.3	13.6	0.0	0.0	14.3	0.0	14.7
Incr Delay (d2), s/veh	4.9	0.1	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.2	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	0.0	0.0	2.4	2.5	0.0	0.0	0.0	0.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	5.7	0.0	0.0	11.5	11.4	13.6	0.0	0.0	14.6	0.0	16.2
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		770			874			2				212
Approach Delay, s/veh		6.5			11.4			13.6				15.5
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	26.7		11.6	6.1	20.6		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	6.8		4.7	2.8	9.8		4.7				
Green Ext Time (p_c), s	0.0	3.9		0.8	0.0	4.1		0.0				

Intersection Summary

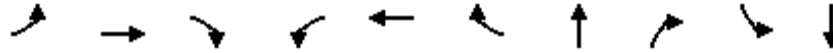
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

AM Existing
12: College Blvd & North River Rd

Timings

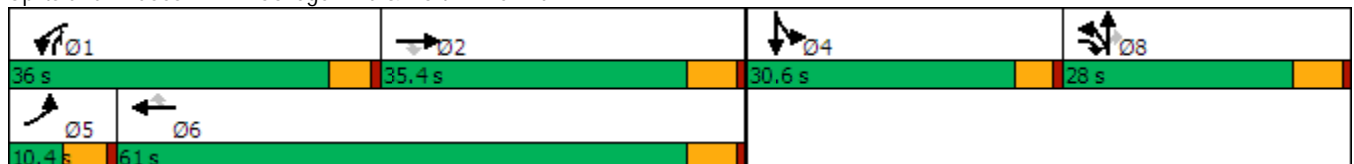


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	212	547	949	479	70	21	933	25	49
Future Volume (vph)	14	212	547	949	479	70	21	933	25	49
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	10.4	35.4	28.0	36.0	61.0	61.0	28.0	36.0	30.6	30.6
Total Split (%)	8.0%	27.2%	21.5%	27.7%	46.9%	46.9%	21.5%	27.7%	23.5%	23.5%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.4	14.0	38.2	31.7	49.3	49.3	22.8	60.4	10.6	10.6
Actuated g/C Ratio	0.05	0.14	0.39	0.32	0.50	0.50	0.23	0.61	0.11	0.11
v/c Ratio	0.15	0.46	0.70	0.93	0.29	0.09	0.86	0.48	0.14	0.31
Control Delay	55.0	42.4	9.7	49.6	16.8	2.0	59.5	1.9	42.7	42.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	42.4	9.7	49.6	16.8	2.0	59.5	1.9	42.7	42.1
LOS	D	D	A	D	B	A	E	A	D	D
Approach Delay		19.5			36.9		16.8			42.3
Approach LOS		B			D		B			D

Intersection Summary
























Cycle Length: 130
 Actuated Cycle Length: 98.3
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 26.3
 Intersection LOS: C
 Intersection Capacity Utilization 78.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd



AM Existing
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	212	547	949	479	70	304	21	933	25	49	9
Future Volume (veh/h)	14	212	547	949	479	70	304	21	933	25	49	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	15	230	595	1032	521	76	330	23	1014	27	53	10
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	30	959	749	974	1901	848	338	24	1351	92	79	15
Arrive On Green	0.02	0.27	0.27	0.28	0.53	0.53	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1670	116	2790	1781	1530	289
Grp Volume(v), veh/h	15	230	595	1032	521	76	353	0	1014	27	0	63
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1818
Q Serve(g_s), s	0.9	5.5	29.6	30.9	8.8	2.6	21.5	0.0	22.2	1.6	0.0	3.7
Cycle Q Clear(g_c), s	0.9	5.5	29.6	30.9	8.8	2.6	21.5	0.0	22.2	1.6	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	30	959	749	974	1901	848	362	0	1351	92	0	94
V/C Ratio(X)	0.50	0.24	0.79	1.06	0.27	0.09	0.98	0.00	0.75	0.29	0.00	0.67
Avail Cap(c_a), veh/h	86	959	749	974	1901	848	362	0	1351	422	0	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	31.2	23.1	39.4	13.9	12.5	43.5	0.0	22.9	50.1	0.0	51.1
Incr Delay (d2), s/veh	12.5	0.1	5.9	46.0	0.1	0.0	40.7	0.0	2.4	1.8	0.0	8.0
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	0.5	2.4	17.6	19.1	3.5	0.9	13.5	0.0	10.7	0.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	31.4	29.0	85.4	14.0	12.5	84.2	0.0	25.3	51.8	0.0	59.1
LnGrp LOS	E	C	C	F	B	B	F	A	C	D	A	E
Approach Vol, veh/h		840			1629			1367				90
Approach Delay, s/veh		30.3			59.2			40.5				56.9
Approach LOS		C			E			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	36.0	35.4		10.3	6.9	64.5		28.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	30.9	29.6		26.0	5.3	55.2		22.2				
Max Q Clear Time (g_c+I1), s	32.9	31.6		5.7	2.9	10.8		24.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	2.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			46.4									
HCM 6th LOS			D									

AM Existing
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	50	27	26	1207	1456	74
Future Volume (vph)	50	27	26	1207	1456	74
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.0	6.5	53.3	47.4	47.4
Actuated g/C Ratio	0.17	0.24	0.10	0.81	0.72	0.72
v/c Ratio	0.18	0.07	0.08	0.46	0.62	0.07
Control Delay	26.5	14.2	34.5	6.0	13.9	6.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	26.5	14.2	34.5	6.1	13.9	6.3
LOS	C	B	C	A	B	A
Approach Delay	22.2			6.7	13.5	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 65.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 10.8
 Intersection Capacity Utilization 55.6%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 13: College Blvd & Buchanon Park



AM Existing
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	27	26	1207	1456	74
Future Volume (veh/h)	50	27	26	1207	1456	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	54	29	28	1312	1583	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	189	229	132	2483	2008	895
Arrive On Green	0.11	0.11	0.04	0.70	0.56	0.56
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	54	29	28	1312	1583	80
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.5	0.9	0.4	9.4	18.6	1.2
Cycle Q Clear(g_c), s	1.5	0.9	0.4	9.4	18.6	1.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	189	229	132	2483	2008	895
V/C Ratio(X)	0.29	0.13	0.21	0.53	0.79	0.09
Avail Cap(c_a), veh/h	935	893	415	3439	2673	1192
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	22.0	19.9	24.9	3.8	9.1	5.3
Incr Delay (d2), s/veh	0.8	0.2	0.8	0.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.2	1.7	5.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.8	20.1	25.7	4.0	10.3	5.4
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	83			1340	1663	
Approach Delay, s/veh	21.9			4.5	10.1	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		43.1		10.3	7.1	35.9
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		11.4		3.5	2.4	20.6
Green Ext Time (p_c), s		8.7		0.3	0.0	9.5
Intersection Summary						
HCM 6th Ctrl Delay			7.9			
HCM 6th LOS			A			

AM Existing
14: College Blvd & Adams St

Timings

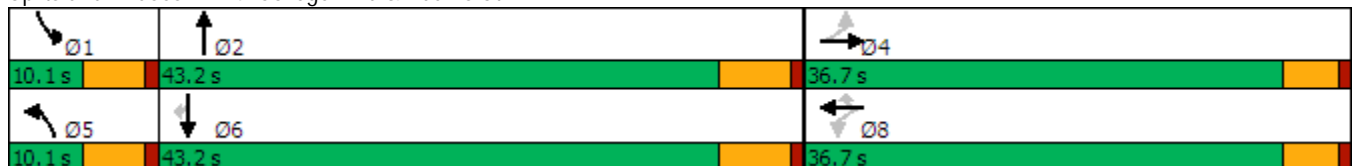


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	174	12	76	17	40	20	1010	16	1266	204
Future Volume (vph)	174	12	76	17	40	20	1010	16	1266	204
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	43.2	10.1	43.2	43.2
Total Split (%)	40.8%	40.8%	40.8%	40.8%	40.8%	11.2%	48.0%	11.2%	48.0%	48.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.3	16.3		16.3	16.3	5.3	35.1	5.3	33.4	33.4
Actuated g/C Ratio	0.25	0.25		0.25	0.25	0.08	0.55	0.08	0.52	0.52
v/c Ratio	0.58	0.22		0.30	0.09	0.15	0.41	0.12	0.75	0.26
Control Delay	29.7	7.6		23.3	0.4	38.1	10.6	37.8	18.2	8.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	7.6		23.3	0.4	38.1	10.6	37.8	18.2	8.4
LOS	C	A		C	A	D	B	D	B	A
Approach Delay		21.7		16.5			11.1		17.1	
Approach LOS		C		B			B		B	

Intersection Summary























Cycle Length: 90
 Actuated Cycle Length: 64.1
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 15.3
 Intersection LOS: B
 Intersection Capacity Utilization 60.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM Existing
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	12	87	76	17	40	20	1010	29	16	1266	204
Future Volume (veh/h)	174	12	87	76	17	40	20	1010	29	16	1266	204
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	189	13	95	83	18	43	22	1098	32	17	1376	222
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	345	55	402	355	68	448	44	2395	70	36	1652	737
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.02	0.47	0.47	0.02	0.46	0.46
Sat Flow, veh/h	1341	194	1420	916	240	1585	1781	5099	149	1781	3554	1585
Grp Volume(v), veh/h	189	0	108	101	0	43	22	733	397	17	1376	222
Grp Sat Flow(s),veh/h/ln	1341	0	1615	1157	0	1585	1781	1702	1844	1781	1777	1585
Q Serve(g_s), s	9.2	0.0	3.5	3.6	0.0	1.4	0.8	10.0	10.0	0.6	23.2	6.0
Cycle Q Clear(g_c), s	16.3	0.0	3.5	7.1	0.0	1.4	0.8	10.0	10.0	0.6	23.2	6.0
Prop In Lane	1.00		0.88	0.82		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	345	0	457	423	0	448	44	1599	866	36	1652	737
V/C Ratio(X)	0.55	0.00	0.24	0.24	0.00	0.10	0.49	0.46	0.46	0.47	0.83	0.30
Avail Cap(c_a), veh/h	591	0	753	672	0	739	130	1855	1005	130	1937	864
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	18.9	21.0	0.0	18.1	33.0	12.3	12.3	33.3	16.0	11.4
Incr Delay (d2), s/veh	1.4	0.0	0.3	0.3	0.0	0.1	8.3	0.2	0.4	9.4	2.9	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	2.9	0.0	1.3	1.3	0.0	0.5	0.5	3.4	3.7	0.4	8.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	19.2	21.3	0.0	18.2	41.3	12.5	12.7	42.6	18.9	11.7
LnGrp LOS	C	A	B	C	A	B	D	B	B	D	B	B
Approach Vol, veh/h		297			144			1152			1615	
Approach Delay, s/veh		25.0			20.4			13.1			18.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	38.0		24.1	6.8	37.7		24.1				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.0	37.4		* 32	5.0	37.4		* 32				
Max Q Clear Time (g_c+I1), s	2.6	12.0		18.3	2.8	25.2		9.1				
Green Ext Time (p_c), s	0.0	5.7		1.0	0.0	6.7		0.5				

Intersection Summary												
HCM 6th Ctrl Delay				17.1								
HCM 6th LOS				B								

Notes

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

AM Existing
15: College Blvd & Via Cupeno

Timings

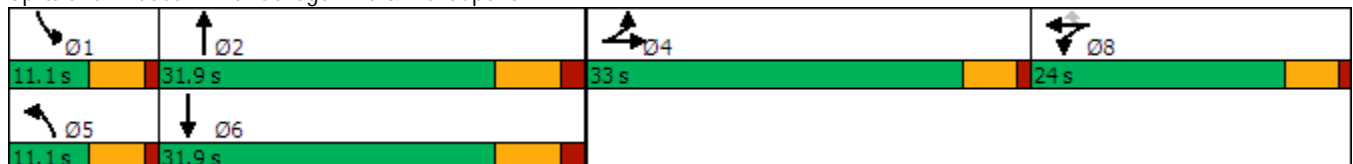


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	1	5	1	132	1011	1	1362
Future Volume (vph)	1	5	1	132	1011	1	1362
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	11.1	31.9	11.1	31.9
Total Split (%)	33.0%	24.0%	24.0%	11.1%	31.9%	11.1%	31.9%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.3	11.7	11.7	6.2	35.9	6.2	26.0
Actuated g/C Ratio	0.15	0.16	0.16	0.08	0.48	0.08	0.35
v/c Ratio	0.17	0.54	0.00	0.50	0.47	0.01	0.87
Control Delay	19.1	38.6	0.0	43.5	18.1	39.0	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	38.6	0.0	43.5	18.1	39.0	31.8
LOS	B	D	A	D	B	D	C
Approach Delay	19.1	38.3			20.9		31.9
Approach LOS	B	D			C		C

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 74.4
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 27.2
 Intersection LOS: C
 Intersection Capacity Utilization 60.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM Existing
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1	35	133	5	1	132	1011	37	1	1362	52
Future Volume (veh/h)	47	1	35	133	5	1	132	1011	37	1	1362	52
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	51	1	38	145	5	1	143	1099	40	1	1480	57
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	178	4	155	191	7	176	300	2239	81	3	1803	69
Arrive On Green	0.10	0.10	0.10	0.11	0.11	0.11	0.09	0.44	0.44	0.00	0.36	0.36
Sat Flow, veh/h	1781	41	1550	1725	59	1585	3456	5057	184	1781	5045	194
Grp Volume(v), veh/h	51	0	39	150	0	1	143	740	399	1	999	538
Grp Sat Flow(s),veh/h/ln	1781	0	1591	1784	0	1585	1728	1702	1837	1781	1702	1835
Q Serve(g_s), s	1.7	0.0	1.4	5.2	0.0	0.0	2.5	9.8	9.8	0.0	16.9	16.9
Cycle Q Clear(g_c), s	1.7	0.0	1.4	5.2	0.0	0.0	2.5	9.8	9.8	0.0	16.9	16.9
Prop In Lane	1.00		0.97	0.97		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	178	0	159	198	0	176	300	1507	813	3	1217	656
V/C Ratio(X)	0.29	0.00	0.24	0.76	0.00	0.01	0.48	0.49	0.49	0.34	0.82	0.82
Avail Cap(c_a), veh/h	785	0	701	533	0	474	326	1507	813	168	1345	725
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	26.4	27.4	0.0	25.1	27.6	12.6	12.6	31.7	18.6	18.6
Incr Delay (d2), s/veh	0.9	0.0	0.8	5.9	0.0	0.0	1.2	0.2	0.5	57.1	3.9	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.6	2.4	0.0	0.0	1.0	3.3	3.7	0.1	6.6	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.4	0.0	27.2	33.3	0.0	25.1	28.8	12.9	13.1	88.7	22.4	25.5
LnGrp LOS	C	A	C	C	A	C	C	B	B	F	C	C
Approach Vol, veh/h		90			151			1282			1538	
Approach Delay, s/veh		27.3			33.2			14.7			23.5	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	34.9		11.4	10.6	29.5		12.0				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	25.1		28.0	6.0	25.1		19.0				
Max Q Clear Time (g_c+I1), s	2.0	11.8		3.7	4.5	18.9		7.2				
Green Ext Time (p_c), s	0.0	4.6		0.3	0.1	3.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				20.4								
HCM 6th LOS				C								

AM Existing
16: College Blvd & SR-76

Timings

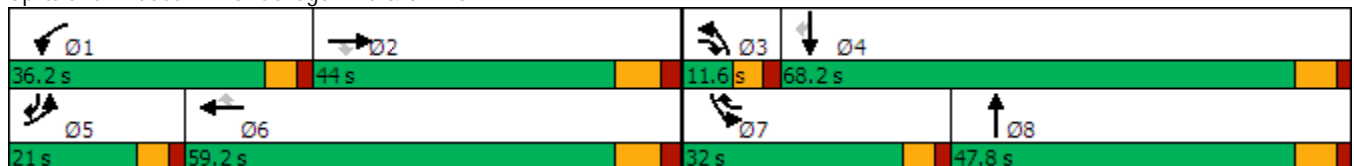


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑↔	↖↗	↑↑	↗
Traffic Volume (vph)	291	766	22	527	1370	448	48	447	492	708	325
Future Volume (vph)	291	766	22	527	1370	448	48	447	492	708	325
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.4	36.2	50.1	28.7	49.6	83.7	5.9	37.1	26.1	59.9	82.1
Actuated g/C Ratio	0.10	0.23	0.32	0.19	0.32	0.54	0.04	0.24	0.17	0.39	0.53
v/c Ratio	0.93	0.70	0.04	0.90	0.91	0.55	0.40	0.90	0.92	0.56	0.40
Control Delay	101.8	58.5	0.1	79.5	60.0	22.7	83.9	65.7	85.7	39.6	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.8	58.5	0.1	79.5	60.0	22.7	83.9	65.7	85.7	39.6	16.2
LOS	F	E	A	E	E	C	F	E	F	D	B
Approach Delay		69.0			57.2			66.9		49.5	
Approach LOS		E			E			E		D	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 154.4
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 58.7
 Intersection LOS: E
 Intersection Capacity Utilization 91.4%
 ICU Level of Service F
 Analysis Period (min) 15


































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

AM Existing
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	291	766	22	527	1370	448	48	447	261	492	708	325
Future Volume (veh/h)	291	766	22	527	1370	448	48	447	261	492	708	325
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	316	833	24	573	1489	487	52	486	284	535	770	353
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	342	1217	417	628	1640	774	86	527	307	577	1371	768
Arrive On Green	0.10	0.24	0.24	0.18	0.32	0.32	0.02	0.24	0.24	0.17	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2163	1258	3456	3554	1585
Grp Volume(v), veh/h	316	833	24	573	1489	487	52	399	371	535	770	353
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1644	1728	1777	1585
Q Serve(g_s), s	14.0	23.0	1.8	25.2	43.3	35.1	2.3	33.9	34.1	23.6	26.3	22.9
Cycle Q Clear(g_c), s	14.0	23.0	1.8	25.2	43.3	35.1	2.3	33.9	34.1	23.6	26.3	22.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		1.00
Lane Grp Cap(c), veh/h	342	1217	417	628	1640	774	86	433	401	577	1371	768
V/C Ratio(X)	0.93	0.68	0.06	0.91	0.91	0.63	0.60	0.92	0.93	0.93	0.56	0.46
Avail Cap(c_a), veh/h	342	1217	417	681	1689	789	132	471	435	587	1410	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.2	53.7	42.7	62.1	50.3	29.3	74.7	57.1	57.2	63.6	37.3	26.5
Incr Delay (d2), s/veh	30.3	1.6	0.1	16.0	7.5	1.6	6.6	22.5	24.7	21.0	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	10.1	0.7	12.5	19.6	13.8	1.1	17.9	17.0	12.1	11.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.5	55.3	42.7	78.1	57.8	30.8	81.3	79.6	81.9	84.5	37.8	26.9
LnGrp LOS	F	E	D	E	E	C	F	E	F	F	D	C
Approach Vol, veh/h		1173			2549			822			1658	
Approach Delay, s/veh		66.9			57.2			80.7			50.5	
Approach LOS		E			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.8	44.9	9.6	66.5	21.0	57.7	31.5	44.5				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	27.2	25.0	4.3	28.3	16.0	45.3	25.6	36.1				
Green Ext Time (p_c), s	0.9	3.3	0.0	6.3	0.0	4.5	0.2	1.6				

Intersection Summary

HCM 6th Ctrl Delay	60.4
HCM 6th LOS	E

Notes

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

AM Existing
17: North River Rd/Vandergrift Blvd

Timings

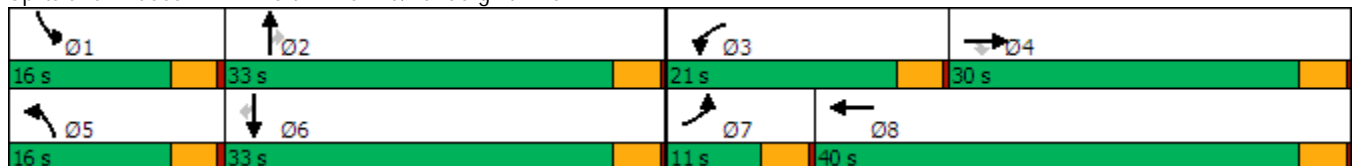


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	47	56	109	410	51	116	807	197	92	701	38
Future Volume (vph)	47	56	109	410	51	116	807	197	92	701	38
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases				4				2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.7	10.6	10.6	15.0	20.9	10.2	33.4	33.4	9.5	29.9	29.9
Actuated g/C Ratio	0.08	0.13	0.13	0.19	0.26	0.13	0.42	0.42	0.12	0.38	0.38
v/c Ratio	0.34	0.25	0.35	0.69	0.50	0.55	0.41	0.27	0.47	0.57	0.06
Control Delay	45.5	34.2	6.8	38.2	8.9	45.5	20.8	4.7	43.8	24.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	34.2	6.8	38.2	8.9	45.5	20.8	4.7	43.8	24.6	0.2
LOS	D	C	A	D	A	D	C	A	D	C	A
Approach Delay		22.7			26.2		20.5			25.6	
Approach LOS		C			C		C			C	

Intersection Summary
























Cycle Length: 100	
Actuated Cycle Length: 79.4	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 23.5	Intersection LOS: C
Intersection Capacity Utilization 60.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



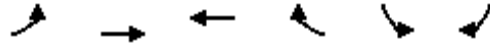
AM Existing
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	56	109	410	51	233	116	807	197	92	701	38
Future Volume (veh/h)	47	56	109	410	51	233	116	807	197	92	701	38
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	51	61	118	446	55	253	126	877	214	100	762	41
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	79	213	181	569	68	313	162	2166	672	130	1444	644
Arrive On Green	0.04	0.11	0.11	0.16	0.23	0.23	0.09	0.42	0.42	0.07	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	291	1338	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	51	61	118	446	0	308	126	877	214	100	762	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1629	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	2.0	2.1	5.1	8.8	0.0	12.7	4.9	8.5	6.4	3.9	11.6	1.1
Cycle Q Clear(g_c), s	2.0	2.1	5.1	8.8	0.0	12.7	4.9	8.5	6.4	3.9	11.6	1.1
Prop In Lane	1.00		1.00	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	213	181	569	0	381	162	2166	672	130	1444	644
V/C Ratio(X)	0.64	0.29	0.65	0.78	0.00	0.81	0.78	0.40	0.32	0.77	0.53	0.06
Avail Cap(c_a), veh/h	175	681	577	823	0	822	300	2166	672	300	1444	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	28.9	30.3	28.6	0.0	25.8	31.7	14.3	13.7	32.5	16.0	12.9
Incr Delay (d2), s/veh	8.4	0.7	3.9	3.1	0.0	4.1	7.9	0.6	1.2	9.2	1.4	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	1.0	1.0	2.1	3.8	0.0	5.1	2.4	3.1	2.3	2.0	4.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	29.7	34.2	31.7	0.0	29.9	39.6	14.8	14.9	41.7	17.4	13.1
LnGrp LOS	D	C	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		230			754			1217			903	
Approach Delay, s/veh		34.7			31.0			17.4			19.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	34.3	15.7	12.1	10.5	33.0	7.2	20.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	5.9	10.5	10.8	7.1	6.9	13.6	4.0	14.7				
Green Ext Time (p_c), s	0.1	6.8	0.9	0.6	0.1	4.9	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay				22.7								
HCM 6th LOS				C								

PM Existing
1: SR-76 & Douglas Dr

Timings

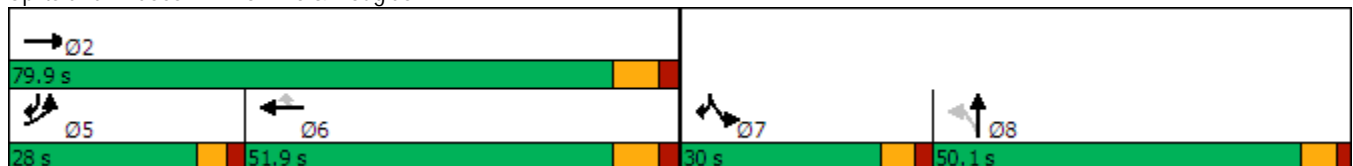


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↗	↕	↕	↖	↖	↖↗	
Traffic Volume (vph)	502	1617	1034	252	287	346	
Future Volume (vph)	502	1617	1034	252	287	346	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	79.9	51.9	51.9	30.0		50.1
Total Split (%)	17.5%	49.9%	32.4%	32.4%	18.8%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	22.3	71.9	43.9	43.9	23.9	52.3	
Actuated g/C Ratio	0.20	0.65	0.40	0.40	0.22	0.48	
v/c Ratio	0.78	0.76	0.80	0.34	0.81	0.25	
Control Delay	50.6	15.8	34.2	3.9	58.7	2.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.6	15.8	34.2	3.9	58.7	2.1	
LOS	D	B	C	A	E	A	
Approach Delay		24.1	28.2				
Approach LOS		C	C				

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 26.0
 Intersection LOS: C
 Intersection Capacity Utilization 73.6%
 ICU Level of Service D
 Analysis Period (min) 15

























Splits and Phases: 1: SR-76 & Douglas Dr



LOS Engineering, Inc.

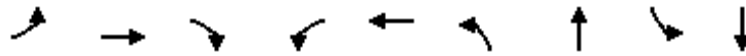
PM Existing
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	502	1617	0	0	1034	252	0	0	0	287	0	346
Future Volume (veh/h)	502	1617	0	0	1034	252	0	0	0	287	0	346
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	546	1758	0	0	1124	274	0	0	0	312	0	376
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	663	2276	0	0	1366	609	0	2	0	357	0	0
Arrive On Green	0.19	0.64	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.20	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	312	
Grp Volume(v), veh/h	546	1758	0	0	1124	274	0	0	0	312	47.2	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	D	
Q Serve(g_s), s	13.4	31.2	0.0	0.0	25.2	11.4	0.0	0.0	0.0	15.0		
Cycle Q Clear(g_c), s	13.4	31.2	0.0	0.0	25.2	11.4	0.0	0.0	0.0	15.0		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	663	2276	0	0	1366	609	0	2	0	357		
V/C Ratio(X)	0.82	0.77	0.00	0.00	0.82	0.45	0.00	0.00	0.00	0.87		
Avail Cap(c_a), veh/h	870	2884	0	0	1761	785	0	929	0	481		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	34.4	11.3	0.0	0.0	24.6	20.3	0.0	0.0	0.0	34.3		
Incr Delay (d2), s/veh	5.0	1.0	0.0	0.0	2.6	0.5	0.0	0.0	0.0	12.9		
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		
%ile BackOfQ(50%),veh/ln	6.0	10.7	0.0	0.0	10.6	4.1	0.0	0.0	0.0	7.6		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	12.4	0.0	0.0	27.1	20.8	0.0	0.0	0.0	47.2		
LnGrp LOS	D	B	A	A	C	C	A	A	A	D		
Approach Vol, veh/h		2304			1398			0				
Approach Delay, s/veh		18.8			25.9			0.0				
Approach LOS		B			C							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		64.7			22.7	42.1	23.8	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		71.9			* 22	43.9	23.9	44.0				
Max Q Clear Time (g_c+I1), s		33.2			15.4	27.2	17.0	0.0				
Green Ext Time (p_c), s		14.1			1.6	6.8	0.7	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				23.4								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing
2: Douglas Dr & Mission Ave

Timings

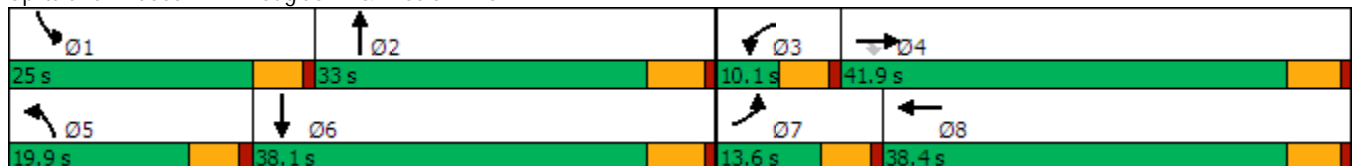


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	227	609	148	60	332	165	555	292	469
Future Volume (vph)	227	609	148	60	332	165	555	292	469
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.6	41.9	41.9	10.1	38.4	19.9	33.0	25.0	38.1
Total Split (%)	12.4%	38.1%	38.1%	9.2%	34.9%	18.1%	30.0%	22.7%	34.6%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.6	25.6	25.6	5.1	22.0	13.3	21.6	20.2	28.5
Actuated g/C Ratio	0.09	0.27	0.27	0.05	0.23	0.14	0.23	0.21	0.30
v/c Ratio	0.79	0.69	0.30	0.68	0.79	0.72	0.77	0.84	0.53
Control Delay	62.8	34.9	7.0	82.4	28.5	57.6	41.6	58.3	30.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	34.9	7.0	82.4	28.5	57.6	41.6	58.3	30.0
LOS	E	C	A	F	C	E	D	E	C
Approach Delay		37.1			32.8		45.2		40.2
Approach LOS		D			C		D		D

Intersection Summary































Cycle Length: 110
 Actuated Cycle Length: 94.2
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 38.7
 Intersection LOS: D
 Intersection Capacity Utilization 77.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM Existing
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 		 	 		 	 	
Traffic Volume (veh/h)	227	609	148	60	332	361	165	555	23	292	469	46
Future Volume (veh/h)	227	609	148	60	332	361	165	555	23	292	469	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	247	662	161	65	361	392	179	603	25	317	510	50
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	309	1152	514	83	500	446	216	720	30	351	925	90
Arrive On Green	0.09	0.32	0.32	0.05	0.28	0.28	0.12	0.21	0.21	0.20	0.28	0.28
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3477	144	1781	3270	320
Grp Volume(v), veh/h	247	662	161	65	361	392	179	308	320	317	276	284
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1844	1781	1777	1813
Q Serve(g_s), s	6.7	14.7	7.3	3.4	17.4	22.5	9.3	15.8	15.8	16.5	12.6	12.7
Cycle Q Clear(g_c), s	6.7	14.7	7.3	3.4	17.4	22.5	9.3	15.8	15.8	16.5	12.6	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	309	1152	514	83	500	446	216	368	382	351	503	513
V/C Ratio(X)	0.80	0.57	0.31	0.78	0.72	0.88	0.83	0.84	0.84	0.90	0.55	0.55
Avail Cap(c_a), veh/h	309	1363	608	94	616	550	277	508	527	373	603	615
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	26.7	24.2	44.9	30.8	32.6	40.8	36.2	36.2	37.3	29.0	29.0
Incr Delay (d2), s/veh	13.9	0.5	0.3	30.3	3.2	12.9	15.0	8.6	8.4	23.8	0.9	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	3.4	6.2	2.7	2.2	7.7	10.0	4.9	7.6	7.9	9.4	5.4	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.4	27.2	24.5	75.1	34.0	45.5	55.9	44.7	44.6	61.2	29.9	29.9
LnGrp LOS	E	C	C	E	C	D	E	D	D	E	C	C
Approach Vol, veh/h		1070			818			807			877	
Approach Delay, s/veh		33.5			42.8			47.1			41.2	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	23.8	25.5	9.6	36.2	16.6	32.7	13.6	32.2				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	19.9	27.2	5.0	36.5	14.8	32.3	8.5	33.0				
Max Q Clear Time (g_c+I1), s	18.5	17.8	5.4	16.7	11.3	14.7	8.7	24.5				
Green Ext Time (p_c), s	0.2	1.9	0.0	3.9	0.2	2.1	0.0	2.3				

Intersection Summary												
HCM 6th Ctrl Delay			40.6									
HCM 6th LOS			D									

Notes

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

PM Existing
3: Douglas Dr & El Camino Real

Timings

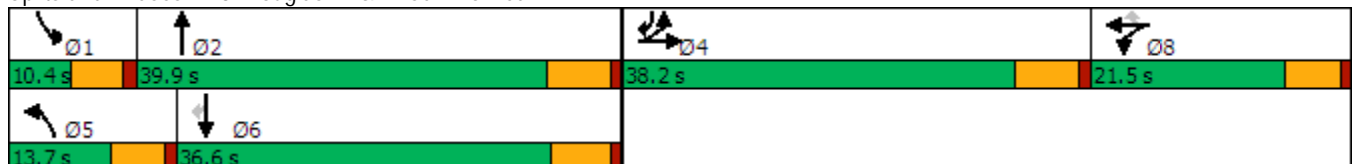


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↔	↔	↔	↔	↔↔	↔	↔↔	↔↔
Traffic Volume (vph)	979	63	55	25	10	79	955	7	675	604
Future Volume (vph)	979	63	55	25	10	79	955	7	675	604
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	38.2	38.2		21.5	21.5	13.7	39.9	10.4	36.6	38.2
Total Split (%)	34.7%	34.7%		19.5%	19.5%	12.5%	36.3%	9.5%	33.3%	34.7%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	32.4	32.4	97.3	10.0	10.0	8.0	37.8	5.1	29.4	69.4
Actuated g/C Ratio	0.33	0.33	1.00	0.10	0.10	0.08	0.39	0.05	0.30	0.71
v/c Ratio	0.93	0.11	0.04	0.46	0.04	0.60	0.81	0.09	0.69	0.33
Control Delay	48.2	26.7	0.0	51.3	0.2	64.0	33.8	50.6	36.1	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	26.7	0.0	51.3	0.2	64.0	33.8	50.6	36.1	8.2
LOS	D	C	A	D	A	E	C	D	D	A
Approach Delay		44.6		45.4			36.0		23.1	
Approach LOS		D		D			D		C	

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 97.3
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 34.2
 Intersection LOS: C
 Intersection Capacity Utilization 82.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



PM Existing
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	979	63	55	53	25	10	79	955	63	7	675	604
Future Volume (veh/h)	979	63	55	53	25	10	79	955	63	7	675	604
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	1064	68	0	58	27	11	86	1038	68	8	734	657
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	1157	626		79	37	101	110	1146	75	18	1019	1734
Arrive On Green	0.33	0.33	0.00	0.06	0.06	0.06	0.06	0.34	0.34	0.01	0.29	0.29
Sat Flow, veh/h	3456	1870	1585	1234	575	1585	1781	3386	222	1781	3554	2790
Grp Volume(v), veh/h	1064	68	0	85	0	11	86	545	561	8	734	657
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1830	1781	1777	1395
Q Serve(g_s), s	27.3	2.3	0.0	4.3	0.0	0.6	4.4	26.9	27.0	0.4	17.1	10.7
Cycle Q Clear(g_c), s	27.3	2.3	0.0	4.3	0.0	0.6	4.4	26.9	27.0	0.4	17.1	10.7
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	1157	626		115	0	101	110	602	620	18	1019	1734
V/C Ratio(X)	0.92	0.11		0.74	0.00	0.11	0.78	0.91	0.91	0.45	0.72	0.38
Avail Cap(c_a), veh/h	1200	649		314	0	275	160	650	669	97	1180	1860
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.5	21.2	0.0	42.4	0.0	40.7	42.6	29.1	29.1	45.4	29.5	8.6
Incr Delay (d2), s/veh	11.2	0.1	0.0	8.8	0.0	0.5	13.8	15.6	15.3	16.5	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	1.0	0.0	2.2	0.0	0.2	2.3	13.6	14.0	0.3	7.4	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	21.2	0.0	51.1	0.0	41.1	56.4	44.7	44.4	61.8	31.4	8.8
LnGrp LOS	D	C		D	A	D	E	D	D	E	C	A
Approach Vol, veh/h		1132	A		96			1192			1399	
Approach Delay, s/veh		39.5			50.0			45.4			20.9	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	37.4		37.0	11.1	32.6		11.4				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	33.7		32.0	8.3	* 31		16.0				
Max Q Clear Time (g_c+I1), s	2.4	29.0		29.3	6.4	19.1		6.3				
Green Ext Time (p_c), s	0.0	2.3		1.6	0.0	5.6		0.2				

Intersection Summary

HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM Existing
4: Douglas Dr & Pala Rd

Timings

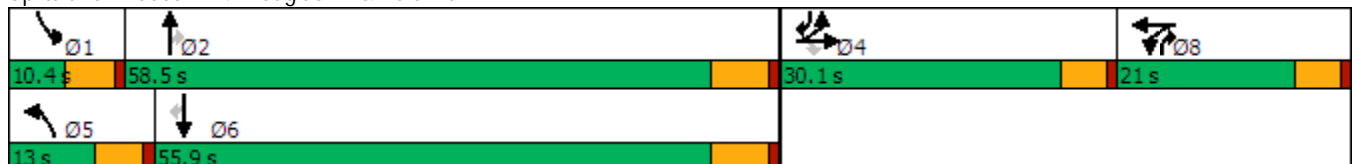


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	94	1	89	7	3	90	1749	17	21	1189	100
Future Volume (vph)	94	1	89	7	3	90	1749	17	21	1189	100
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	13.0	58.5	21.0	10.4	55.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.8%	48.8%	17.5%	8.7%	46.6%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.5	10.5	10.5	6.6	6.6	7.9	54.3	60.2	5.2	44.3	61.2
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08	0.09	0.63	0.70	0.06	0.51	0.71
v/c Ratio	0.27	0.24	0.32	0.06	0.20	0.61	0.86	0.02	0.22	0.71	0.09
Control Delay	39.6	39.1	6.4	45.6	22.9	60.1	22.4	0.0	51.0	20.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	39.1	6.4	45.6	22.9	60.1	22.4	0.0	51.0	20.9	1.1
LOS	D	D	A	D	C	E	C	A	D	C	A
Approach Delay		23.4			27.8		24.0			19.8	
Approach LOS		C			C		C			B	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 86.4
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 22.4
 Intersection LOS: C
 Intersection Capacity Utilization 75.7%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM Existing
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1	89	7	3	24	90	1749	17	21	1189	100
Future Volume (veh/h)	94	1	89	7	3	24	90	1749	17	21	1189	100
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	103	0	97	8	3	26	98	1901	18	23	1292	109
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	324	0	144	73	7	60	125	2079	993	44	1917	999
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.07	0.59	0.59	0.02	0.54	0.54
Sat Flow, veh/h	3563	0	1585	1781	167	1444	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	103	0	97	8	0	29	98	1901	18	23	1292	109
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1610	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.3	0.0	5.0	0.4	0.0	1.5	4.6	40.3	0.4	1.1	22.2	2.3
Cycle Q Clear(g_c), s	2.3	0.0	5.0	0.4	0.0	1.5	4.6	40.3	0.4	1.1	22.2	2.3
Prop In Lane	1.00		1.00	1.00		0.90	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	324	0	144	73	0	66	125	2079	993	44	1917	999
V/C Ratio(X)	0.32	0.00	0.67	0.11	0.00	0.44	0.78	0.91	0.02	0.52	0.67	0.11
Avail Cap(c_a), veh/h	1054	0	469	335	0	303	160	2199	1046	105	2090	1076
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	0.0	37.2	39.0	0.0	39.6	38.7	15.6	6.0	40.7	14.1	6.2
Incr Delay (d2), s/veh	0.6	0.0	5.3	0.6	0.0	4.5	17.3	6.2	0.0	9.3	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.1	0.2	0.0	0.7	2.6	15.8	0.1	0.6	8.3	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.5	0.0	42.5	39.7	0.0	44.0	55.9	21.9	6.0	50.0	14.8	6.2
LnGrp LOS	D	A	D	D	A	D	E	C	A	D	B	A
Approach Vol, veh/h		200			37			2017			1424	
Approach Delay, s/veh		39.4			43.1			23.4			14.8	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	55.7		12.8	11.3	51.8		8.6				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	7.6	49.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	42.3		7.0	6.6	24.2		3.5				
Green Ext Time (p_c), s	0.0	7.1		0.8	0.0	8.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↖	↗
Traffic Volume (vph)	8	2	73	41	2	4	1683	80	4	1135	73
Future Volume (vph)	8	2	73	41	2	4	1683	80	4	1135	73
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		11.1	11.1		11.1	11.1	56.0	56.0	5.1	57.6	57.6
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.73	0.73	0.07	0.75	0.75
v/c Ratio		0.05	0.25		0.24	0.01	0.71	0.07	0.03	0.46	0.07
Control Delay		25.3	5.8		29.7	0.0	13.2	3.5	38.2	7.0	4.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.3	5.8		29.7	0.0	13.2	3.5	38.2	7.0	4.3
LOS		C	A		C	A	B	A	D	A	A
Approach Delay		8.2			27.4		12.7			6.9	
Approach LOS		A			C		B			A	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 76.4
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 10.6
 Intersection Capacity Utilization 69.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 5: Douglas Dr & Rainer Way



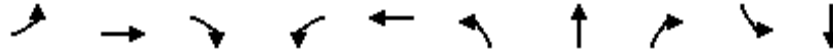
PM Existing
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	73	41	2	4	0	1683	80	4	1135	73
Future Volume (veh/h)	8	2	73	41	2	4	0	1683	80	4	1135	73
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2	79	45	2	4	0	1829	87	4	1234	79
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	0	2	2	2	2	2
Cap, veh/h	91	12	363	106	3	363	0	1974	880	9	2234	996
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.56	0.56	0.01	0.63	0.63
Sat Flow, veh/h	39	54	1585	74	12	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	11	0	79	47	0	4	0	1829	87	4	1234	79
Grp Sat Flow(s),veh/h/ln	93	0	1585	87	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	3.2	1.1	0.0	0.2	0.0	37.5	2.1	0.2	15.7	1.5
Cycle Q Clear(g_c), s	17.8	0.0	3.2	18.2	0.0	0.2	0.0	37.5	2.1	0.2	15.7	1.5
Prop In Lane	0.82		1.00	0.96		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	0	363	109	0	363	0	1974	880	9	2234	996
V/C Ratio(X)	0.11	0.00	0.22	0.43	0.00	0.01	0.00	0.93	0.10	0.43	0.55	0.08
Avail Cap(c_a), veh/h	360	0	638	340	0	638	0	2070	923	112	2535	1131
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	0.0	24.8	38.7	0.0	23.7	0.0	16.2	8.3	39.4	8.4	5.8
Incr Delay (d2), s/veh	0.4	0.0	0.3	2.7	0.0	0.0	0.0	7.6	0.0	28.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	1.0	0.0	0.1	0.0	15.2	0.6	0.2	5.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	25.1	41.4	0.0	23.7	0.0	23.8	8.4	68.0	8.6	5.8
LnGrp LOS	C	A	C	D	A	C	A	C	A	E	A	A
Approach Vol, veh/h		90			51			1916			1317	
Approach Delay, s/veh		25.3			40.0			23.1			8.6	
Approach LOS		C			D			C			A	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.8	51.1		23.4		56.9		23.4				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.2	39.5		19.8		17.7		20.2				
Green Ext Time (p_c), s	0.0	5.2		0.2		8.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			17.8									
HCM 6th LOS			B									

PM Existing
6: Douglas Dr & North River Rd

Timings

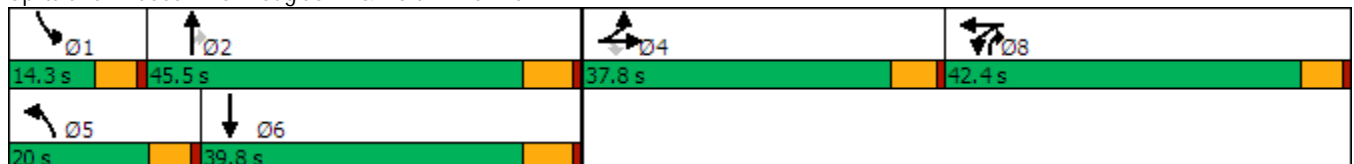


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘	↔	↘	↑↑	↗↘	↘	↔
Traffic Volume (vph)	38	94	67	520	64	146	667	783	39	571
Future Volume (vph)	38	94	67	520	64	146	667	783	39	571
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.0	45.5	42.4	14.3	39.8
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.3%	32.5%	30.3%	10.2%	28.4%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.0	13.0	13.0	31.4	31.4	14.1	38.2	71.9	7.7	28.9
Actuated g/C Ratio	0.12	0.12	0.12	0.28	0.28	0.13	0.34	0.65	0.07	0.26
v/c Ratio	0.20	0.25	0.23	0.62	0.43	0.71	0.59	0.40	0.34	0.73
Control Delay	48.7	47.6	1.7	43.3	34.8	67.8	35.5	1.1	63.3	44.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.7	47.6	1.7	43.3	34.8	67.8	35.5	1.1	63.3	44.2
LOS	D	D	A	D	C	E	D	A	E	D
Approach Delay		32.3			38.3		21.6			45.3
Approach LOS		C			D		C			D

Intersection Summary

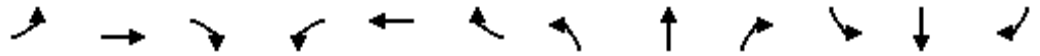
Cycle Length: 140
 Actuated Cycle Length: 110.9
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 30.7
 Intersection Capacity Utilization 60.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 6: Douglas Dr & North River Rd



PM Existing
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↔		↘	↑↑	↗↗	↘	↑↗	
Traffic Volume (veh/h)	38	94	67	520	64	40	146	667	783	39	571	46
Future Volume (veh/h)	38	94	67	520	64	40	146	667	783	39	571	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	102	73	565	70	43	159	725	851	42	621	50
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	165	329	147	805	245	150	197	1349	1689	66	1019	82
Arrive On Green	0.09	0.09	0.09	0.23	0.23	0.23	0.11	0.38	0.38	0.04	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3563	1084	666	1781	3554	2790	1781	3331	268
Grp Volume(v), veh/h	41	102	73	565	0	113	159	725	851	42	331	340
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1750	1781	1777	1395	1781	1777	1822
Q Serve(g_s), s	1.8	2.3	3.8	12.5	0.0	4.6	7.5	13.7	14.9	2.0	13.7	13.7
Cycle Q Clear(g_c), s	1.8	2.3	3.8	12.5	0.0	4.6	7.5	13.7	14.9	2.0	13.7	13.7
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	165	329	147	805	0	395	197	1349	1689	66	543	557
V/C Ratio(X)	0.25	0.31	0.50	0.70	0.00	0.29	0.81	0.54	0.50	0.64	0.61	0.61
Avail Cap(c_a), veh/h	663	1323	590	1533	0	753	303	1625	1905	184	695	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.2	36.4	37.1	30.6	0.0	27.5	37.3	20.8	9.6	40.8	25.4	25.5
Incr Delay (d2), s/veh	1.1	0.8	3.7	1.6	0.0	0.6	8.9	0.7	0.5	9.9	2.4	2.3
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	0.8	1.0	1.6	5.4	0.0	1.9	3.7	5.6	7.4	1.0	5.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	37.2	40.8	32.2	0.0	28.1	46.2	21.5	10.1	50.8	27.8	27.8
LnGrp LOS	D	D	D	C	A	C	D	C	B	D	C	C
Approach Vol, veh/h		216			678			1735			713	
Approach Delay, s/veh		38.4			31.5			18.2			29.1	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	38.8		13.8	14.9	32.5		24.8				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	8.9	39.3		32.0	14.6	33.6		37.0				
Max Q Clear Time (g_c+I1), s	4.0	16.9		5.8	9.5	15.7		14.5				
Green Ext Time (p_c), s	0.0	15.7		1.3	0.2	5.5		4.9				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	113	795	25	565	2	4	34	81	4	71
Future Volume (vph)	113	795	25	565	2	4	34	81	4	71
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	51.0	12.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	51.0%	12.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	10.4	26.6	7.1	18.5		12.0	12.0		12.0	12.0
Actuated g/C Ratio	0.19	0.49	0.13	0.34		0.22	0.22		0.22	0.22
v/c Ratio	0.36	0.51	0.12	0.59		0.02	0.08		0.31	0.17
Control Delay	28.1	12.7	31.6	19.0		19.7	0.4		23.2	1.1
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	28.1	12.7	31.6	19.0		19.7	0.4		23.2	1.1
LOS	C	B	C	B		B	A		C	A
Approach Delay		14.6		19.5		3.0			13.1	
Approach LOS		B		B		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 54.4
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 16.1
 Intersection LOS: B
 Intersection Capacity Utilization 50.8%
 ICU Level of Service A
 Analysis Period (min) 15

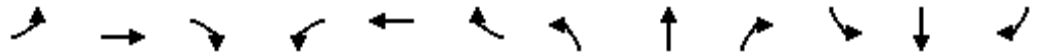
Splits and Phases: 7: Avenida Descanso & North River Rd



PM Existing

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	795	12	25	565	85	2	4	34	81	4	71
Future Volume (veh/h)	113	795	12	25	565	85	2	4	34	81	4	71
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	123	864	13	27	614	92	2	4	37	88	4	77
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	1346	20	58	963	144	180	241	262	408	14	262
Arrive On Green	0.10	0.38	0.38	0.03	0.31	0.31	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	3584	54	1781	3100	464	290	1458	1585	1301	87	1585
Grp Volume(v), veh/h	123	428	449	27	351	355	6	0	37	92	0	77
Grp Sat Flow(s),veh/h/ln	1781	1777	1861	1781	1777	1787	1748	0	1585	1388	0	1585
Q Serve(g_s), s	2.4	7.2	7.2	0.5	6.2	6.2	0.0	0.0	0.7	2.0	0.0	1.5
Cycle Q Clear(g_c), s	2.4	7.2	7.2	0.5	6.2	6.2	0.1	0.0	0.7	2.1	0.0	1.5
Prop In Lane	1.00		0.03	1.00		0.26	0.33		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	174	668	699	58	552	555	421	0	262	423	0	262
V/C Ratio(X)	0.71	0.64	0.64	0.46	0.64	0.64	0.01	0.00	0.14	0.22	0.00	0.29
Avail Cap(c_a), veh/h	779	2210	2314	338	1770	1780	1612	0	1413	1427	0	1413
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	9.3	9.3	17.3	10.8	10.8	12.7	0.0	13.0	13.6	0.0	13.3
Incr Delay (d2), s/veh	5.2	1.0	1.0	5.6	1.2	1.2	0.0	0.0	0.2	0.3	0.0	0.6
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	1.1	2.1	2.2	0.3	2.0	2.0	0.0	0.0	0.2	0.6	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.0	10.4	10.3	22.8	12.0	12.0	12.7	0.0	13.2	13.8	0.0	13.9
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1000			733			43				169
Approach Delay, s/veh		11.7			12.4			13.1				13.9
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	19.5		10.6	8.7	17.1		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	6.9	45.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	2.5	9.2		4.1	4.4	8.2		2.7				
Green Ext Time (p_c), s	0.0	4.1		0.7	0.3	3.1		0.1				

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

PM Existing
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	902	656	15	3	13
Future Vol, veh/h	21	902	656	15	3	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	23	980	713	16	3	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	729	0	-	0	1257 365
Stage 1	-	-	-	-	721 -
Stage 2	-	-	-	-	536 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	871	-	-	-	163 632
Stage 1	-	-	-	-	443 -
Stage 2	-	-	-	-	551 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	871	-	-	-	159 632
Mov Cap-2 Maneuver	-	-	-	-	159 -
Stage 1	-	-	-	-	431 -
Stage 2	-	-	-	-	551 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	871	-	-	-	406
HCM Lane V/C Ratio	0.026	-	-	-	0.043
HCM Control Delay (s)	9.2	-	-	-	14.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

LOS Engineering, Inc.

PM Existing
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗				↖		↔	
Traffic Vol, veh/h	25	873	0	0	660	12	0	0	0	19	0	8
Future Vol, veh/h	25	873	0	0	660	12	0	0	0	19	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	949	0	0	717	13	0	0	0	21	0	9

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	730	0	0	949	0	0	-	-	475	1253	1727	365
Stage 1	-	-	-	-	-	-	-	-	-	724	724	-
Stage 2	-	-	-	-	-	-	-	-	-	529	1003	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	870	-	-	719	-	-	0	0	536	129	88	632
Stage 1	-	-	-	-	-	-	0	0	-	383	429	-
Stage 2	-	-	-	-	-	-	0	0	-	501	318	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	870	-	-	719	-	-	-	-	536	126	85	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	126	85	-
Stage 1	-	-	-	-	-	-	-	-	-	371	429	-
Stage 2	-	-	-	-	-	-	-	-	-	485	308	-

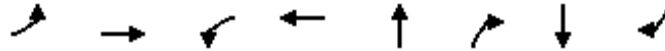
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	31.5
HCM LOS			A	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	870	-	-	719	-	-	165
HCM Lane V/C Ratio	-	0.031	-	-	-	-	-	0.178
HCM Control Delay (s)	-	0	9.3	-	-	0	-	31.5
HCM Lane LOS	-	A	A	-	-	A	-	D
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.6

LOS Engineering, Inc.

PM Existing
10: Calle Montecito & North River Rd

Timings

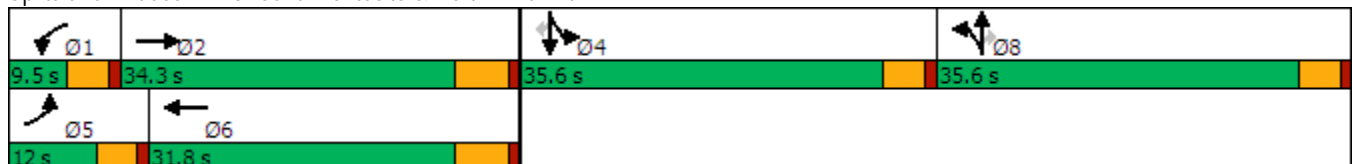


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↗	↕	↗
Traffic Volume (vph)	126	721	8	584	2	32	1	59
Future Volume (vph)	126	721	8	584	2	32	1	59
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.4	5.2	27.2	10.0	10.0	13.5	13.5
Actuated g/C Ratio	0.10	0.49	0.07	0.35	0.13	0.13	0.17	0.17
v/c Ratio	0.78	0.46	0.08	0.69	0.12	0.12	0.49	0.18
Control Delay	67.9	19.4	44.1	27.9	31.8	0.8	35.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	19.4	44.1	27.9	31.8	0.8	35.6	1.9
LOS	E	B	D	C	C	A	D	A
Approach Delay		26.5		28.1	14.3		25.4	
Approach LOS		C		C	B		C	

Intersection Summary

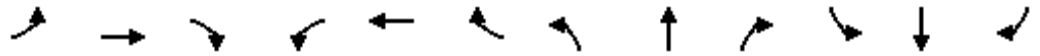
Cycle Length: 115
 Actuated Cycle Length: 78.7
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 26.7
 Intersection Capacity Utilization 55.5%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



PM Existing
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↖	↗
Traffic Volume (veh/h)	126	721	10	8	584	183	23	2	32	135	1	59
Future Volume (veh/h)	126	721	10	8	584	183	23	2	32	135	1	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	784	11	9	635	199	25	2	35	147	1	64
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	176	1420	20	21	822	257	181	14	173	230	2	206
Arrive On Green	0.10	0.40	0.40	0.01	0.31	0.31	0.11	0.11	0.11	0.13	0.13	0.13
Sat Flow, veh/h	1781	3588	50	1781	2663	834	1655	132	1585	1770	12	1585
Grp Volume(v), veh/h	137	388	407	9	423	411	27	0	35	148	0	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1861	1781	1777	1720	1788	0	1585	1782	0	1585
Q Serve(g_s), s	4.1	9.3	9.3	0.3	11.9	11.9	0.8	0.0	1.1	4.3	0.0	2.0
Cycle Q Clear(g_c), s	4.1	9.3	9.3	0.3	11.9	11.9	0.8	0.0	1.1	4.3	0.0	2.0
Prop In Lane	1.00		0.03	1.00		0.48	0.93		1.00	0.99		1.00
Lane Grp Cap(c), veh/h	176	703	736	21	549	531	195	0	173	232	0	206
V/C Ratio(X)	0.78	0.55	0.55	0.43	0.77	0.77	0.14	0.00	0.20	0.64	0.00	0.31
Avail Cap(c_a), veh/h	243	925	969	162	844	818	1009	0	895	1006	0	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.2	12.8	12.8	27.0	17.2	17.2	22.1	0.0	22.3	22.7	0.0	21.7
Incr Delay (d2), s/veh	10.4	0.7	0.6	13.5	2.4	2.5	0.3	0.0	0.6	2.9	0.0	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	2.1	3.3	3.4	0.2	4.6	4.5	0.3	0.0	0.4	1.9	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.5	13.5	13.5	40.5	19.6	19.7	22.4	0.0	22.8	25.6	0.0	22.5
LnGrp LOS	C	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		932			843			62			212	
Approach Delay, s/veh		16.6			19.9			22.7			24.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	27.4		11.7	9.9	22.7		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.3	11.3		6.3	6.1	13.9		3.1				
Green Ext Time (p_c), s	0.0	3.2		0.8	0.1	3.1		0.2				

Intersection Summary

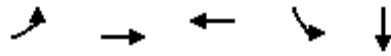
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

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

PM Existing
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↗	↖	↗		
Traffic Volume (vph)	103	796	710	49	0		
Future Volume (vph)	103	796	710	49	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	19.0	54.9	45.4	35.6	35.6	9.5	35.6
Total Split (%)	19.0%	54.9%	45.4%	35.6%	35.6%	10%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effect Green (s)	10.0	32.9	21.7	10.8	10.8		
Actuated g/C Ratio	0.17	0.57	0.38	0.19	0.19		
v/c Ratio	0.36	0.43	0.64	0.20	0.16		
Control Delay	30.6	8.0	18.9	24.6	0.7		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	30.6	8.0	18.9	24.6	0.7		
LOS	C	A	B	C	A		
Approach Delay		10.6	18.9		9.8		
Approach LOS		B	B		A		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 57.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 14.1
 Intersection LOS: B
 Intersection Capacity Utilization 46.3%
 ICU Level of Service A
 Analysis Period (min) 15

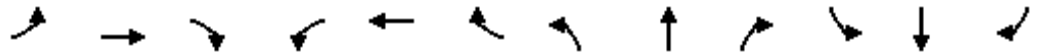
Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

PM Existing
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↕		↗	↘	
Traffic Volume (veh/h)	103	796	0	0	710	62	0	0	0	49	0	79
Future Volume (veh/h)	103	796	0	0	710	62	0	0	0	49	0	79
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	112	865	0	0	772	67	0	0	0	53	0	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	158	1936	0	4	1139	99	0	279	0	445	0	237
Arrive On Green	0.09	0.54	0.00	0.00	0.34	0.34	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3308	287	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	112	865	0	0	415	424	0	0	0	53	0	86
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1819	0	1870	0	1781	0	1585
Q Serve(g_s), s	2.5	5.9	0.0	0.0	8.0	8.0	0.0	0.0	0.0	1.0	0.0	2.0
Cycle Q Clear(g_c), s	2.5	5.9	0.0	0.0	8.0	8.0	0.0	0.0	0.0	1.0	0.0	2.0
Prop In Lane	1.00		0.00	1.00		0.16	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	1936	0	4	611	626	0	279	0	445	0	237
V/C Ratio(X)	0.71	0.45	0.00	0.00	0.68	0.68	0.00	0.00	0.00	0.12	0.00	0.36
Avail Cap(c_a), veh/h	642	4260	0	222	1710	1751	0	1442	0	1508	0	1183
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.8	5.5	0.0	0.0	11.3	11.3	0.0	0.0	0.0	15.0	0.0	15.4
Incr Delay (d2), s/veh	5.7	0.2	0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.1	0.0	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	1.1	1.3	0.0	0.0	2.6	2.7	0.0	0.0	0.0	0.4	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	5.7	0.0	0.0	12.6	12.6	0.0	0.0	0.0	15.1	0.0	16.3
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		977			839			0				139
Approach Delay, s/veh		7.7			12.6			0.0				15.9
Approach LOS		A			B							B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	28.6		11.6	8.1	20.5		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.0	48.2		30.0	14.5	38.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	7.9		4.0	4.5	10.0		0.0				
Green Ext Time (p_c), s	0.0	4.8		0.5	0.2	3.8		0.0				

Intersection Summary

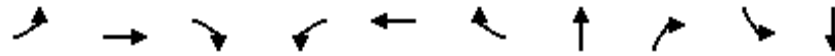
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

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

PM Existing
12: College Blvd & North River Rd

Timings

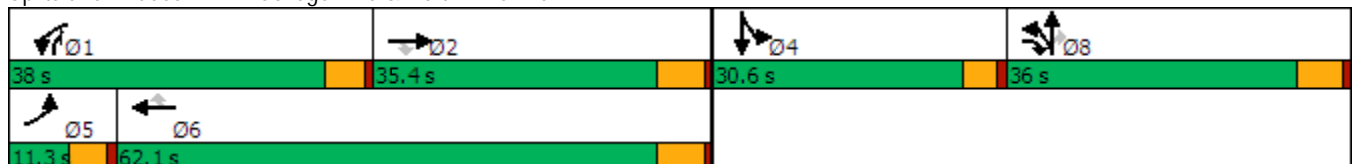


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	392	445	955	364	58	30	987	23	39
Future Volume (vph)	23	392	445	955	364	58	30	987	23	39
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.3	35.4	36.0	38.0	62.1	62.1	36.0	38.0	30.6	30.6
Total Split (%)	8.1%	25.3%	25.7%	27.1%	44.4%	44.4%	25.7%	27.1%	21.9%	21.9%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.1	19.1	51.2	33.5	51.4	51.4	30.7	70.1	10.5	10.5
Actuated g/C Ratio	0.05	0.17	0.45	0.30	0.46	0.46	0.27	0.62	0.09	0.09
v/c Ratio	0.26	0.71	0.52	1.02	0.25	0.08	0.95	0.53	0.15	0.25
Control Delay	64.0	52.2	4.7	74.0	21.7	1.7	72.8	4.3	50.3	50.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	52.2	4.7	74.0	21.7	1.7	72.8	4.3	50.3	50.5
LOS	E	D	A	E	C	A	E	A	D	D
Approach Delay		27.9			57.1		24.9			50.4
Approach LOS		C			E		C			D

Intersection Summary

























Cycle Length: 140
 Actuated Cycle Length: 112.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 38.0
 Intersection LOS: D
 Intersection Capacity Utilization 82.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd



PM Existing
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	392	445	955	364	58	393	30	987	23	39	2
Future Volume (veh/h)	23	392	445	955	364	58	393	30	987	23	39	2
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	25	426	484	1038	396	63	427	33	1073	25	42	2
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	42	865	789	958	1766	788	422	33	1483	81	80	4
Arrive On Green	0.02	0.24	0.24	0.28	0.50	0.50	0.25	0.25	0.25	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1659	128	2790	1781	1771	84
Grp Volume(v), veh/h	25	426	484	1038	396	63	460	0	1073	25	0	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1855
Q Serve(g_s), s	1.6	12.2	26.2	32.9	7.5	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Cycle Q Clear(g_c), s	1.6	12.2	26.2	32.9	7.5	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	42	865	789	958	1766	788	455	0	1483	81	0	84
V/C Ratio(X)	0.59	0.49	0.61	1.08	0.22	0.08	1.01	0.00	0.72	0.31	0.00	0.52
Avail Cap(c_a), veh/h	93	886	799	958	1766	788	455	0	1483	390	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.4	38.6	21.5	42.9	16.9	15.6	44.2	0.0	21.1	54.8	0.0	55.4
Incr Delay (d2), s/veh	12.6	0.4	1.4	54.4	0.1	0.0	45.1	0.0	1.8	2.1	0.0	5.0
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	5.4	14.8	21.1	3.1	0.9	18.9	0.0	11.3	0.8	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	39.0	22.9	97.3	17.0	15.7	89.3	0.0	22.9	57.0	0.0	60.3
LnGrp LOS	E	D	C	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		935			1497			1533				69
Approach Delay, s/veh		31.5			72.6			42.8				59.1
Approach LOS		C			E			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	38.0	34.7		10.0	7.9	64.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	32.9	29.6		26.0	6.2	56.3		30.2				
Max Q Clear Time (g_c+I1), s	34.9	28.2		4.8	3.6	9.5		32.2				
Green Ext Time (p_c), s	0.0	0.7		0.2	0.0	2.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				51.5								
HCM 6th LOS				D								

PM Existing
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	79	95	1425	1310	55
Future Volume (vph)	28	79	95	1425	1310	55
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	13.3	7.2	51.6	39.0	39.0
Actuated g/C Ratio	0.19	0.22	0.12	0.87	0.66	0.66
v/c Ratio	0.09	0.23	0.25	0.50	0.61	0.06
Control Delay	25.6	16.4	33.2	5.5	12.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	16.4	33.2	5.5	12.0	5.5
LOS	C	B	C	A	B	A
Approach Delay	18.8			7.2	11.7	
Approach LOS	B			A	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 59.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 9.7
 Intersection Capacity Utilization 56.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service B

Splits and Phases: 13: College Blvd & Buchanon Park



PM Existing
13: College Blvd & Buchanan Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	79	95	1425	1310	55
Future Volume (veh/h)	28	79	95	1425	1310	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	30	86	103	1549	1424	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	211	322	293	2483	1863	831
Arrive On Green	0.12	0.12	0.08	0.70	0.52	0.52
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	30	86	103	1549	1424	60
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	0.9	2.6	1.6	13.2	18.1	1.1
Cycle Q Clear(g_c), s	0.9	2.6	1.6	13.2	18.1	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	211	322	293	2483	1863	831
V/C Ratio(X)	0.14	0.27	0.35	0.62	0.76	0.07
Avail Cap(c_a), veh/h	878	915	395	3852	3127	1395
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	22.5	19.1	24.5	4.6	10.7	6.7
Incr Delay (d2), s/veh	0.3	0.4	0.7	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.6	2.7	5.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.8	19.5	25.2	4.8	11.4	6.7
LnGrp LOS	C	B	C	A	B	A
Approach Vol, veh/h	116			1652	1484	
Approach Delay, s/veh	20.4			6.1	11.2	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.5		11.3	9.9	35.6
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		15.2		4.6	3.6	20.1
Green Ext Time (p_c), s		11.7		0.4	0.1	9.7
Intersection Summary						
HCM 6th Ctrl Delay			8.9			
HCM 6th LOS			A			

PM Existing
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	147	20	46	10	30	69	1325	40	1270	116
Future Volume (vph)	147	20	46	10	30	69	1325	40	1270	116
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	12.0	51.5	11.8	51.3	51.3
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	12.0%	51.5%	11.8%	51.3%	51.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.3	16.3		16.3	16.3	7.0	41.6	6.7	38.8	38.8
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.09	0.55	0.09	0.52	0.52
v/c Ratio	0.56	0.24		0.21	0.08	0.45	0.55	0.27	0.76	0.15
Control Delay	35.7	11.1		27.6	0.4	48.6	13.7	43.6	20.0	6.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	11.1		27.6	0.4	48.6	13.7	43.6	20.0	6.8
LOS	D	B		C	A	D	B	D	C	A
Approach Delay		26.3		18.1			15.4		19.6	
Approach LOS		C		B			B		B	

Intersection Summary























Cycle Length: 100
 Actuated Cycle Length: 75.2
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 18.1
 Intersection Capacity Utilization 67.1%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 14: College Blvd & Adams St



PM Existing
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	20	70	46	10	30	69	1325	78	40	1270	116
Future Volume (veh/h)	147	20	70	46	10	30	69	1325	78	40	1270	116
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	160	22	76	50	11	33	75	1440	85	43	1380	126
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	86	297	303	58	369	99	2454	145	73	1717	766
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.50	0.50	0.04	0.48	0.48
Sat Flow, veh/h	1362	368	1273	891	248	1585	1781	4931	291	1781	3554	1585
Grp Volume(v), veh/h	160	0	98	61	0	33	75	994	531	43	1380	126
Grp Sat Flow(s),veh/h/ln	1362	0	1641	1139	0	1585	1781	1702	1818	1781	1777	1585
Q Serve(g_s), s	7.7	0.0	3.3	2.0	0.0	1.1	2.8	14.1	14.2	1.6	22.4	3.0
Cycle Q Clear(g_c), s	13.0	0.0	3.3	5.3	0.0	1.1	2.8	14.1	14.2	1.6	22.4	3.0
Prop In Lane	1.00		0.78	0.82		1.00	1.00		0.16	1.00		1.00
Lane Grp Cap(c), veh/h	317	0	382	361	0	369	99	1694	905	73	1717	766
V/C Ratio(X)	0.50	0.00	0.26	0.17	0.00	0.09	0.76	0.59	0.59	0.59	0.80	0.16
Avail Cap(c_a), veh/h	638	0	769	685	0	743	180	2278	1216	175	2367	1056
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.6	0.0	21.4	22.7	0.0	20.5	31.8	12.2	12.2	32.2	14.9	9.9
Incr Delay (d2), s/veh	1.2	0.0	0.4	0.2	0.0	0.1	11.2	0.3	0.6	7.4	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	1.3	0.8	0.0	0.4	1.5	4.7	5.2	0.8	8.2	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	21.7	22.9	0.0	20.6	43.0	12.5	12.8	39.6	16.4	10.0
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		258			94			1600			1549	
Approach Delay, s/veh		26.1			22.1			14.0			16.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	39.8		20.6	8.9	38.8		20.6				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.7	45.7		* 32	6.9	45.5		* 32				
Max Q Clear Time (g_c+I1), s	3.6	16.2		15.0	4.8	24.4		7.3				
Green Ext Time (p_c), s	0.0	9.0		0.9	0.0	8.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				16.2								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing
15: College Blvd & Via Cupeno

Timings

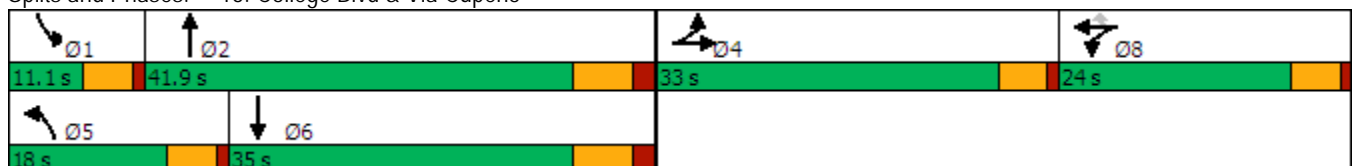


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	9	10	6	419	1250	2	1156
Future Volume (vph)	9	10	6	419	1250	2	1156
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	18.0	41.9	11.1	35.0
Total Split (%)	30.0%	21.8%	21.8%	16.4%	38.1%	10.1%	31.8%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	16.1	9.3	9.3	13.2	45.3	6.1	28.8
Actuated g/C Ratio	0.19	0.11	0.11	0.15	0.52	0.07	0.33
v/c Ratio	0.69	0.41	0.02	0.88	0.56	0.02	0.82
Control Delay	29.4	45.6	0.2	57.6	18.4	44.0	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.4	45.6	0.2	57.6	18.4	44.0	33.7
LOS	C	D	A	E	B	D	C
Approach Delay	29.4	41.9			27.7		33.7
Approach LOS	C	D			C		C

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 86.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 30.4
 Intersection LOS: C
 Intersection Capacity Utilization 73.4%
 ICU Level of Service D
 Analysis Period (min) 15

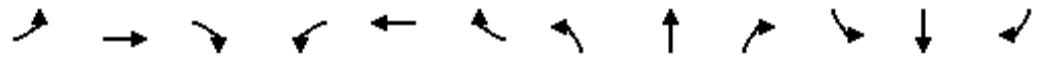
Splits and Phases: 15: College Blvd & Via Cupeno



LOS Engineering, Inc.

PM Existing
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔	↔	↔↔	↔↔↔		↔	↔↔↔	
Traffic Volume (veh/h)	260	9	175	62	10	6	419	1250	99	2	1156	112
Future Volume (veh/h)	260	9	175	62	10	6	419	1250	99	2	1156	112
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	283	10	190	67	11	7	455	1359	108	2	1257	122
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	353	16	301	92	15	94	535	2253	179	6	1494	145
Arrive On Green	0.20	0.20	0.20	0.06	0.06	0.06	0.15	0.47	0.47	0.00	0.32	0.32
Sat Flow, veh/h	1781	80	1517	1540	253	1585	3456	4822	383	1781	4732	459
Grp Volume(v), veh/h	283	0	200	78	0	7	455	959	508	2	904	475
Grp Sat Flow(s),veh/h/ln	1781	0	1597	1793	0	1585	1728	1702	1801	1781	1702	1788
Q Serve(g_s), s	12.2	0.0	9.2	3.4	0.0	0.3	10.3	16.8	16.8	0.1	19.9	19.9
Cycle Q Clear(g_c), s	12.2	0.0	9.2	3.4	0.0	0.3	10.3	16.8	16.8	0.1	19.9	19.9
Prop In Lane	1.00		0.95	0.86		1.00	1.00		0.21	1.00		0.26
Lane Grp Cap(c), veh/h	353	0	317	107	0	94	535	1590	842	6	1074	564
V/C Ratio(X)	0.80	0.00	0.63	0.73	0.00	0.07	0.85	0.60	0.60	0.34	0.84	0.84
Avail Cap(c_a), veh/h	619	0	555	423	0	374	553	1590	842	133	1191	626
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	29.6	37.3	0.0	35.8	33.2	15.9	15.9	40.1	25.7	25.7
Incr Delay (d2), s/veh	4.2	0.0	2.1	9.2	0.0	0.3	11.8	0.6	1.2	31.8	5.2	9.3
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	5.5	0.0	3.6	1.8	0.0	0.1	5.1	6.2	6.7	0.1	8.4	9.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.0	0.0	31.7	46.5	0.0	36.1	44.9	16.6	17.2	71.8	30.9	35.0
LnGrp LOS	D	A	C	D	A	D	D	B	B	E	C	D
Approach Vol, veh/h		483			85			1922			1381	
Approach Delay, s/veh		33.6			45.6			23.4			32.3	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	44.4		21.0	17.6	32.2		9.8				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	35.1		28.0	12.9	28.2		19.0				
Max Q Clear Time (g_c+I1), s	2.1	18.8		14.2	12.3	21.9		5.4				
Green Ext Time (p_c), s	0.0	6.8		1.8	0.1	3.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				28.4								
HCM 6th LOS				C								

PM Existing
16: College Blvd & SR-76

Timings

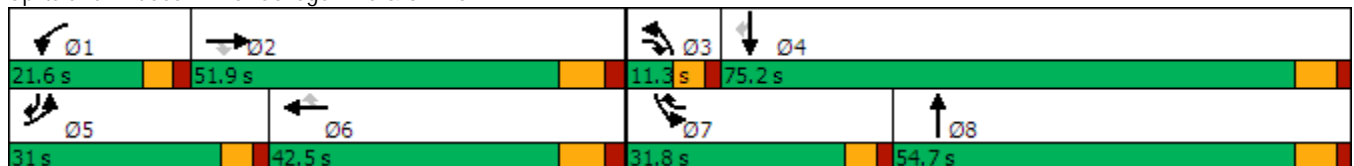


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖↖	↑↑↑	↗	↖↖	↑↑	↖↖	↑↑	↗
Traffic Volume (vph)	500	1317	50	307	875	564	42	680	515	711	401
Future Volume (vph)	500	1317	50	307	875	564	42	680	515	711	401
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	31.0	51.9	11.3	21.6	42.5	31.8	11.3	54.7	31.8	75.2	31.0
Total Split (%)	19.4%	32.4%	7.1%	13.5%	26.6%	19.9%	7.1%	34.2%	19.9%	47.0%	19.4%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	25.3	43.9	57.5	15.9	34.5	68.6	5.6	47.9	26.1	70.7	102.8
Actuated g/C Ratio	0.16	0.27	0.36	0.10	0.22	0.43	0.04	0.30	0.16	0.44	0.64
v/c Ratio	1.00	1.03	0.09	0.98	0.87	0.83	0.38	1.04	1.00	0.49	0.42
Control Delay	105.1	87.1	0.3	114.2	70.0	44.5	84.9	90.6	103.7	33.8	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.1	87.1	0.3	114.2	70.0	44.5	84.9	90.6	103.7	33.8	13.2
LOS	F	F	A	F	E	D	F	F	F	C	B
Approach Delay		89.6			69.5			90.4		50.8	
Approach LOS		F			E			F		D	

Intersection Summary



































Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.04
 Intersection Signal Delay: 74.1
 Intersection Capacity Utilization 99.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 16: College Blvd & SR-76



PM Existing
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	500	1317	50	307	875	564	42	680	321	515	711	401
Future Volume (veh/h)	500	1317	50	307	875	564	42	680	321	515	711	401
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	543	1432	54	334	951	613	46	739	349	560	773	436
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	546	1401	470	343	1101	600	78	701	331	564	1564	948
Arrive On Green	0.16	0.27	0.27	0.10	0.22	0.22	0.02	0.30	0.30	0.16	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2343	1105	3456	3554	1585
Grp Volume(v), veh/h	543	1432	54	334	951	613	46	560	528	560	773	436
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1671	1728	1777	1585
Q Serve(g_s), s	25.1	43.9	4.0	15.4	28.7	34.5	2.1	47.9	47.9	25.9	24.9	24.4
Cycle Q Clear(g_c), s	25.1	43.9	4.0	15.4	28.7	34.5	2.1	47.9	47.9	25.9	24.9	24.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.66	1.00		1.00
Lane Grp Cap(c), veh/h	546	1401	470	343	1101	600	78	532	500	564	1564	948
V/C Ratio(X)	0.99	1.02	0.11	0.97	0.86	1.02	0.59	1.05	1.05	0.99	0.49	0.46
Avail Cap(c_a), veh/h	546	1401	470	343	1101	600	121	532	500	564	1564	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	58.0	41.0	71.8	60.5	49.7	77.5	56.0	56.1	66.9	32.1	17.8
Incr Delay (d2), s/veh	36.8	29.8	0.1	41.1	7.3	42.2	7.1	53.8	55.4	36.1	0.2	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	13.9	22.8	1.6	8.8	13.2	30.9	1.0	29.4	27.9	14.3	10.9	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	104.1	87.8	41.1	112.9	67.8	91.9	84.5	109.8	111.5	103.0	32.3	18.2
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	C	B
Approach Vol, veh/h		2029			1898			1134			1769	
Approach Delay, s/veh		90.9			83.5			109.6			51.2	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	51.9	9.3	77.2	31.0	42.5	31.8	54.7				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 16	43.9	* 5.6	68.4	* 25	34.5	* 26	47.9				
Max Q Clear Time (g_c+I1), s	17.4	45.9	4.1	26.9	27.1	36.5	27.9	49.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			81.7									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing
17: North River Rd/Vandergrift Blvd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	87	121	300	106	225	684	422	212	882	53
Future Volume (vph)	70	87	121	300	106	225	684	422	212	882	53
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	15.0	30.0	30.0	19.0	34.0	27.0	42.0	42.0	29.0	44.0	44.0
Total Split (%)	12.5%	25.0%	25.0%	15.8%	28.3%	22.5%	35.0%	35.0%	24.2%	36.7%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.2	13.0	13.0	13.7	20.0	18.6	41.1	41.1	18.1	40.6	40.6
Actuated g/C Ratio	0.09	0.13	0.13	0.13	0.20	0.18	0.40	0.40	0.18	0.40	0.40
v/c Ratio	0.48	0.40	0.42	0.71	0.58	0.76	0.36	0.50	0.73	0.68	0.09
Control Delay	57.8	46.5	11.2	53.0	39.5	56.9	24.0	4.8	55.3	30.6	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	46.5	11.2	53.0	39.5	56.9	24.0	4.8	55.3	30.6	3.0
LOS	E	D	B	D	D	E	C	A	E	C	A
Approach Delay		33.9			47.6		23.5			33.9	
Approach LOS		C			D		C			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 102.1
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 31.7
 Intersection Capacity Utilization 65.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM Existing
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	87	121	300	106	89	225	684	422	212	882	53
Future Volume (veh/h)	70	87	121	300	106	89	225	684	422	212	882	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	95	132	326	115	97	245	743	459	230	959	58
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	98	208	176	411	164	138	286	2264	703	271	1547	690
Arrive On Green	0.06	0.11	0.11	0.12	0.17	0.17	0.16	0.44	0.44	0.15	0.44	0.44
Sat Flow, veh/h	1781	1870	1585	3456	937	791	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	76	95	132	326	0	212	245	743	459	230	959	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1728	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.9	4.4	7.4	8.4	0.0	10.6	12.3	8.7	20.9	11.5	19.2	2.0
Cycle Q Clear(g_c), s	3.9	4.4	7.4	8.4	0.0	10.6	12.3	8.7	20.9	11.5	19.2	2.0
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	208	176	411	0	302	286	2264	703	271	1547	690
V/C Ratio(X)	0.77	0.46	0.75	0.79	0.00	0.70	0.86	0.33	0.65	0.85	0.62	0.08
Avail Cap(c_a), veh/h	213	529	449	564	0	564	446	2264	703	485	1547	690
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	38.2	39.6	39.4	0.0	35.6	37.6	16.7	20.0	37.9	20.1	15.2
Incr Delay (d2), s/veh	12.0	1.6	6.2	5.4	0.0	3.0	9.7	0.4	4.7	7.2	1.9	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	2.0	2.1	3.2	3.8	0.0	4.6	6.0	3.4	8.2	5.5	8.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	39.8	45.8	44.8	0.0	38.6	47.2	17.1	24.7	45.1	21.9	15.4
LnGrp LOS	D	D	D	D	A	D	D	B	C	D	C	B
Approach Vol, veh/h		303			538			1447			1247	
Approach Delay, s/veh		46.2			42.3			24.6			25.9	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.0	44.7	14.9	14.2	18.7	44.0	9.1	20.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	25.0	38.0	15.0	26.0	23.0	40.0	11.0	30.0				
Max Q Clear Time (g_c+I1), s	13.5	22.9	10.4	9.4	14.3	21.2	5.9	12.6				
Green Ext Time (p_c), s	0.5	6.2	0.5	0.8	0.5	7.0	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay				29.6								
HCM 6th LOS				C								

Appendix G

SANDAG Series 12 Select Zone Assignment (Existing Network)

**SANDAG Series 12
2035 Highway Network
Select Zone Assignment**
OCEANSIDE Area

Map Date: 11/22/18
2035 - Revised Forecast

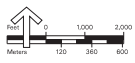
- Forecasted Volumes:
- Unadjusted Volume (in Thousands)
 - Select Link Volume
 - Select Link Percentage
 - Traffic Analysis Zone

Link Distributions:

- 100%
- 50.1% -> 99.9%
- 25.1% -> 50.0%
- 10.1% -> 25.0%
- 5.1% -> 10.0%
- 0.1% -> 5.0%
- 0%

Zonal Distributions:

- 100%
- 25.1% -> 99.9%
- 10.1% -> 25.0%
- 1.1% -> 10.0%
- 0.6% -> 1.0%
- 0.1% -> 0.5%
- Zero Tolls (0.0%)

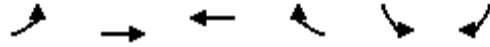


Appendix H

Existing + Project Intersection LOS Worksheets

AM Existing + Project
1: SR-76 & Douglas Dr

Timings

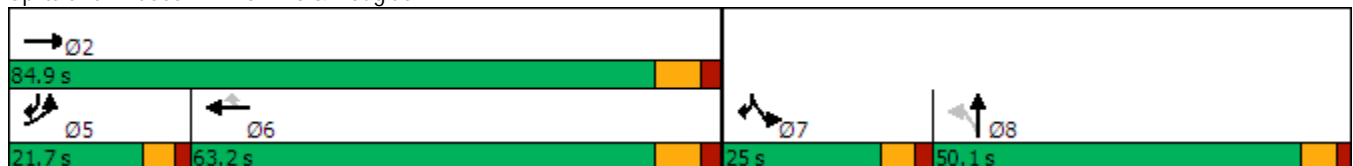


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	247	870	1761	206	249	523	
Future Volume (vph)	247	870	1761	206	249	523	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	21.7	84.9	63.2	63.2	25.0		50.1
Total Split (%)	13.6%	53.1%	39.5%	39.5%	15.6%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	14.9	75.8	55.2	55.2	18.9	39.9	
Actuated g/C Ratio	0.14	0.70	0.51	0.51	0.17	0.37	
v/c Ratio	0.57	0.38	1.07	0.25	0.88	0.41	
Control Delay	49.1	7.3	68.7	2.7	73.7	2.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.1	7.3	68.7	2.7	73.7	2.9	
LOS	D	A	E	A	E	A	
Approach Delay		16.6	61.8				
Approach LOS		B	E				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 108.8
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.07
 Intersection Signal Delay: 41.5
 Intersection LOS: D
 Intersection Capacity Utilization 88.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



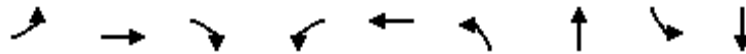
AM Existing + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	247	870	0	0	1761	206	0	0	0	249	0	523
Future Volume (veh/h)	247	870	0	0	1761	206	0	0	0	249	0	523
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	268	946	0	0	1914	224	0	0	0	271	0	568
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	424	2480	0	0	1852	826	0	2	0	301	0	0
Arrive On Green	0.12	0.70	0.00	0.00	0.52	0.52	0.00	0.00	0.00	0.17	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	271	
Grp Volume(v), veh/h	268	946	0	0	1914	224	0	0	0	271	69.2	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	7.8	11.6	0.0	0.0	55.2	8.3	0.0	0.0	0.0	15.8		
Cycle Q Clear(g_c), s	7.8	11.6	0.0	0.0	55.2	8.3	0.0	0.0	0.0	15.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	424	2480	0	0	1852	826	0	2	0	301		
V/C Ratio(X)	0.63	0.38	0.00	0.00	1.03	0.27	0.00	0.00	0.00	0.90		
Avail Cap(c_a), veh/h	522	2580	0	0	1852	826	0	777	0	318		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	44.2	6.6	0.0	0.0	25.4	14.1	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	1.7	0.1	0.0	0.0	30.0	0.2	0.0	0.0	0.0	26.1		
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		
%ile BackOfQ(50%),veh/ln	3.4	3.9	0.0	0.0	29.4	3.0	0.0	0.0	0.0	9.1		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.9	6.7	0.0	0.0	55.4	14.3	0.0	0.0	0.0	69.2		
LnGrp LOS	D	A	A	A	F	B	A	A	A	E		
Approach Vol, veh/h		1214			2138			0				
Approach Delay, s/veh		15.3			51.1			0.0				
Approach LOS		B			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		81.9			18.7	63.2	24.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		76.9			* 16	55.2	18.9	44.0				
Max Q Clear Time (g_c+I1), s		13.6			9.8	57.2	17.8	0.0				
Green Ext Time (p_c), s		5.5			0.6	0.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				40.5								
HCM 6th LOS				D								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing + Project
2: Douglas Dr & Mission Ave

Timings

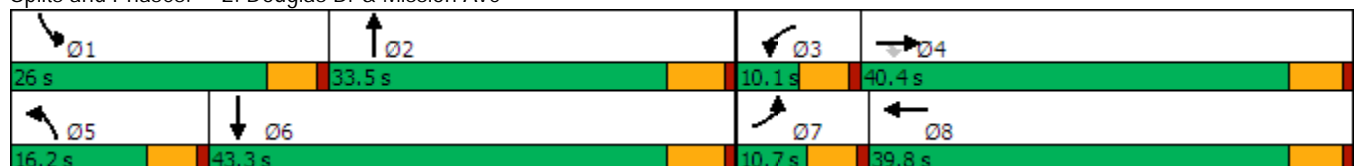


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↔↔	↑↑	↗	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	67	258	62	47	430	111	300	398	711
Future Volume (vph)	67	258	62	47	430	111	300	398	711
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.7	40.4	40.4	10.1	39.8	16.2	33.5	26.0	43.3
Total Split (%)	9.7%	36.7%	36.7%	9.2%	36.2%	14.7%	30.5%	23.6%	39.4%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.8	25.0	25.0	5.2	24.5	10.2	17.9	21.8	29.5
Actuated g/C Ratio	0.06	0.28	0.28	0.06	0.27	0.11	0.20	0.24	0.33
v/c Ratio	0.33	0.28	0.12	0.50	0.79	0.60	0.47	1.00	0.74
Control Delay	50.0	26.9	0.4	64.2	29.9	55.7	34.3	82.9	32.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	26.9	0.4	64.2	29.9	55.7	34.3	82.9	32.0
LOS	D	C	A	E	C	E	C	F	C
Approach Delay		26.7			31.9		40.0		49.1
Approach LOS		C			C		D		D

Intersection Summary






























Cycle Length: 110
 Actuated Cycle Length: 89.3
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 39.7
 Intersection LOS: D
 Intersection Capacity Utilization 74.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM Existing + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 		 	 		 		
Traffic Volume (veh/h)	67	258	62	47	430	323	111	300	9	398	711	75
Future Volume (veh/h)	67	258	62	47	430	323	111	300	9	398	711	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	280	67	51	467	351	121	326	10	433	773	82
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	173	1066	475	75	566	424	165	454	14	465	965	102
Arrive On Green	0.05	0.30	0.30	0.04	0.29	0.29	0.09	0.13	0.13	0.26	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	1781	1936	1450	1781	3520	108	1781	3242	344
Grp Volume(v), veh/h	73	280	67	51	429	389	121	164	172	433	424	431
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1609	1781	1777	1851	1781	1777	1808
Q Serve(g_s), s	1.6	4.8	2.5	2.3	18.0	18.1	5.3	7.1	7.1	19.0	17.6	17.6
Cycle Q Clear(g_c), s	1.6	4.8	2.5	2.3	18.0	18.1	5.3	7.1	7.1	19.0	17.6	17.6
Prop In Lane	1.00		1.00	1.00		0.90	1.00		0.06	1.00		0.19
Lane Grp Cap(c), veh/h	173	1066	475	75	519	470	165	229	239	465	529	538
V/C Ratio(X)	0.42	0.26	0.14	0.68	0.83	0.83	0.73	0.72	0.72	0.93	0.80	0.80
Avail Cap(c_a), veh/h	242	1555	693	111	764	692	247	615	641	465	833	848
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	21.3	20.5	37.8	26.4	26.4	35.3	33.4	33.5	28.8	25.9	25.9
Incr Delay (d2), s/veh	1.6	0.1	0.1	10.0	4.8	5.4	6.2	4.2	4.1	25.4	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	0.7	1.9	0.9	1.2	8.0	7.3	2.5	3.2	3.4	11.0	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	21.4	20.6	47.8	31.2	31.9	41.5	37.6	37.5	54.3	29.0	28.9
LnGrp LOS	D	C	C	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		420			869			457			1288	
Approach Delay, s/veh		24.3			32.5			38.6			37.5	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	16.1	8.5	29.4	12.5	29.6	9.1	28.8				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	20.9	27.7	5.0	35.0	11.1	37.5	5.6	34.4				
Max Q Clear Time (g_c+I1), s	21.0	9.1	4.3	6.8	7.3	19.6	3.6	20.1				
Green Ext Time (p_c), s	0.0	1.2	0.0	1.6	0.1	3.6	0.0	3.3				
Intersection Summary												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									
Notes												
User approved pedestrian interval to be less than phase max green.												

AM Existing + Project
3: Douglas Dr & El Camino Real

Timings

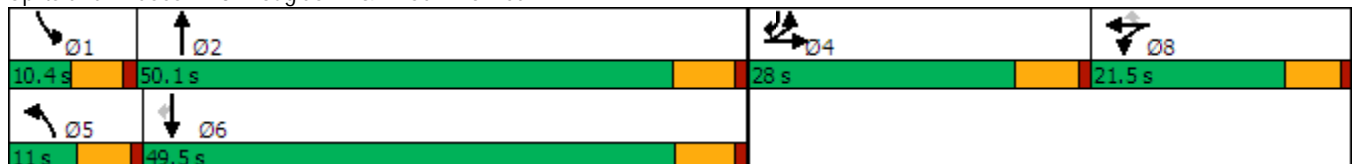


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	331	17	36	33	1	40	564	8	1101	1126
Future Volume (vph)	331	17	36	33	1	40	564	8	1101	1126
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	28.0	28.0		21.5	21.5	11.0	50.1	10.4	49.5	28.0
Total Split (%)	25.5%	25.5%		19.5%	19.5%	10.0%	45.5%	9.5%	45.0%	25.5%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effct Green (s)	19.9	19.9	89.6	11.5	11.5	6.1	41.2	5.5	37.7	66.4
Actuated g/C Ratio	0.22	0.22	1.00	0.13	0.13	0.07	0.46	0.06	0.42	0.74
v/c Ratio	0.47	0.04	0.02	0.48	0.00	0.36	0.40	0.08	0.80	0.59
Control Delay	36.7	35.1	0.0	49.5	0.0	57.3	18.2	51.6	30.3	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	35.1	0.0	49.5	0.0	57.3	18.2	51.6	30.3	10.4
LOS	D	D	A	D	A	E	B	D	C	B
Approach Delay		33.2		49.1			20.6		20.4	
Approach LOS		C		D			C		C	

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 89.6
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 22.8
 Intersection Capacity Utilization 63.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 3: Douglas Dr & El Camino Real



AM Existing + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	331	17	36	69	33	1	40	564	36	8	1101	1126
Future Volume (veh/h)	331	17	36	69	33	1	40	564	36	8	1101	1126
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	360	18	0	75	36	1	43	613	39	9	1197	1224
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	482	261		98	47	127	67	1675	106	20	1661	1693
Arrive On Green	0.14	0.14	0.00	0.08	0.08	0.08	0.04	0.49	0.49	0.01	0.47	0.47
Sat Flow, veh/h	3456	1870	1585	1222	587	1585	1781	3393	216	1781	3554	2790
Grp Volume(v), veh/h	360	18	0	111	0	1	43	321	331	9	1197	1224
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1832	1781	1777	1395
Q Serve(g_s), s	8.5	0.7	0.0	5.1	0.0	0.0	2.0	9.4	9.5	0.4	22.9	26.0
Cycle Q Clear(g_c), s	8.5	0.7	0.0	5.1	0.0	0.0	2.0	9.4	9.5	0.4	22.9	26.0
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	482	261		145	0	127	67	877	904	20	1661	1693
V/C Ratio(X)	0.75	0.07		0.77	0.00	0.01	0.64	0.37	0.37	0.45	0.72	0.72
Avail Cap(c_a), veh/h	891	482		342	0	300	118	923	951	105	1828	1824
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	31.6	0.0	38.1	0.0	35.8	40.1	13.2	13.2	41.5	18.1	11.6
Incr Delay (d2), s/veh	2.3	0.1	0.0	8.2	0.0	0.0	9.8	0.3	0.2	14.9	1.3	1.3
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	3.6	0.3	0.0	2.5	0.0	0.0	1.1	3.6	3.7	0.3	9.0	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	31.7	0.0	46.3	0.0	35.8	49.9	13.5	13.5	56.4	19.4	13.0
LnGrp LOS	D	C		D	A	D	D	B	B	E	B	B
Approach Vol, veh/h		378	A		112			695			2430	
Approach Delay, s/veh		37.0			46.2			15.7			16.3	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	47.9		18.0	8.6	45.7		12.3				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	43.9		21.8	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.4	11.5		10.5	4.0	28.0		7.1				
Green Ext Time (p_c), s	0.0	2.8		1.3	0.0	11.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM Existing + Project
4: Douglas Dr & Pala Rd

Timings

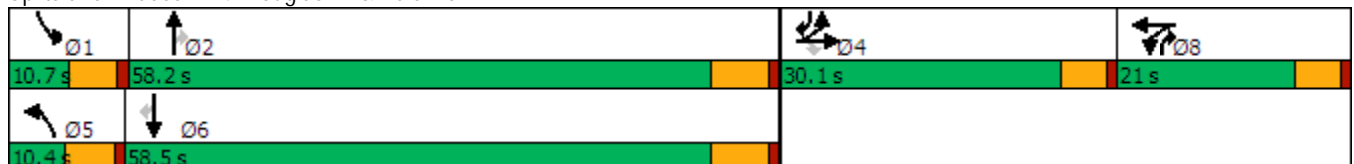


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	66	3	92	9	2	37	870	16	15	1975	67
Future Volume (vph)	66	3	92	9	2	37	870	16	15	1975	67
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	58.2	21.0	10.7	58.5	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	8.7%	48.5%	17.5%	8.9%	48.8%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.1	10.1	10.1	6.6	6.6	5.1	58.7	64.6	5.4	56.8	75.6
Actuated g/C Ratio	0.11	0.11	0.11	0.07	0.07	0.06	0.65	0.71	0.06	0.63	0.83
v/c Ratio	0.20	0.20	0.35	0.08	0.20	0.40	0.41	0.01	0.15	0.97	0.05
Control Delay	39.8	39.7	7.4	46.4	22.5	58.5	11.7	0.0	50.1	34.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	39.7	7.4	46.4	22.5	58.5	11.7	0.0	50.1	34.3	1.1
LOS	D	D	A	D	C	E	B	A	D	C	A
Approach Delay		21.3			28.8		13.4			33.3	
Approach LOS		C			C		B			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 90.7
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 26.9
 Intersection LOS: C
 Intersection Capacity Utilization 79.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



AM Existing + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	3	92	9	2	24	37	870	16	15	1975	67
Future Volume (veh/h)	66	3	92	9	2	24	37	870	16	15	1975	67
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	74	0	100	10	2	26	40	946	17	16	2147	73
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	319	0	142	73	5	61	63	2152	1025	33	2092	1075
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.04	0.61	0.61	0.02	0.59	0.59
Sat Flow, veh/h	3563	0	1585	1781	114	1488	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	0	100	10	0	28	40	946	17	16	2147	73
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1603	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.7	0.0	5.4	0.5	0.0	1.5	2.0	12.7	0.3	0.8	52.3	1.4
Cycle Q Clear(g_c), s	1.7	0.0	5.4	0.5	0.0	1.5	2.0	12.7	0.3	0.8	52.3	1.4
Prop In Lane	1.00		1.00	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	319	0	142	73	0	66	63	2152	1025	33	2092	1075
V/C Ratio(X)	0.23	0.00	0.70	0.14	0.00	0.43	0.64	0.44	0.02	0.49	1.03	0.07
Avail Cap(c_a), veh/h	1002	0	446	319	0	287	100	2152	1025	106	2092	1075
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	39.3	41.1	0.0	41.6	42.3	9.4	5.6	43.2	18.3	4.8
Incr Delay (d2), s/veh	0.4	0.0	6.2	0.8	0.0	4.3	10.2	0.1	0.0	10.9	26.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.3	0.2	0.0	0.7	1.0	4.5	0.1	0.4	26.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	45.5	41.9	0.0	45.9	52.5	9.6	5.6	54.1	45.0	4.8
LnGrp LOS	D	A	D	D	A	D	D	A	A	D	F	A
Approach Vol, veh/h		174			38			1003			2236	
Approach Delay, s/veh		42.3			44.8			11.2			43.8	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	60.0		13.1	8.5	58.5		8.8				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.3	52.0		25.0	5.0	52.3		15.9				
Max Q Clear Time (g_c+I1), s	2.8	14.7		7.4	4.0	54.3		3.5				
Green Ext Time (p_c), s	0.0	5.5		0.6	0.0	0.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			34.2									
HCM 6th LOS			C									
Notes												
User approved volume balancing among the lanes for turning movement.												

AM Existing + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↕	↗	↖	↕↕	↗
Traffic Volume (vph)	15	2	109	67	4	6	950	31	2	1887	37
Future Volume (vph)	15	2	109	67	4	6	950	31	2	1887	37
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.7	12.7		12.7	12.7	58.3	58.3	5.0	60.1	60.1
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.69	0.69	0.06	0.71	0.71
v/c Ratio		0.08	0.37		0.38	0.02	0.42	0.03	0.02	0.81	0.04
Control Delay		27.9	11.5		35.1	0.2	8.9	0.3	41.5	14.2	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.9	11.5		35.1	0.2	8.9	0.3	41.5	14.2	4.5
LOS		C	B		D	A	A	A	D	B	A
Approach Delay		13.7			32.2		8.6			14.0	
Approach LOS		B			C		A			B	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 84.2
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 12.7
 Intersection LOS: B
 Intersection Capacity Utilization 77.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



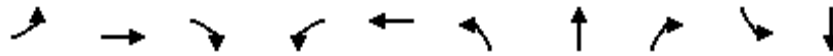
AM Existing + Project
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2	109	67	4	6	0	950	31	2	1887	37
Future Volume (veh/h)	15	2	109	67	4	6	0	950	31	2	1887	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2	118	73	4	7	0	1033	34	2	2051	40
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	0	2	2	2	2	2
Cap, veh/h	76	6	504	78	2	504	0	1819	811	5	2021	902
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.51	0.51	0.00	0.57	0.57
Sat Flow, veh/h	23	18	1585	24	8	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	18	0	118	77	0	7	0	1033	34	2	2051	40
Grp Sat Flow(s),veh/h/ln	41	0	1585	32	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.6	0.0	5.5	0.6	0.0	0.3	0.0	19.9	1.1	0.1	56.7	1.1
Cycle Q Clear(g_c), s	31.7	0.0	5.5	31.7	0.0	0.3	0.0	19.9	1.1	0.1	56.7	1.1
Prop In Lane	0.89		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	0	504	80	0	504	0	1819	811	5	2021	902
V/C Ratio(X)	0.22	0.00	0.23	0.96	0.00	0.01	0.00	0.57	0.04	0.42	1.01	0.04
Avail Cap(c_a), veh/h	86	0	509	85	0	509	0	1819	811	89	2022	902
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	0.0	25.0	48.9	0.0	23.3	0.0	16.7	12.1	49.6	21.5	9.5
Incr Delay (d2), s/veh	1.4	0.0	0.2	82.0	0.0	0.0	0.0	0.4	0.0	49.9	23.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.1	3.7	0.0	0.1	0.0	7.8	0.4	0.1	27.9	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	0.0	25.3	131.0	0.0	23.3	0.0	17.2	12.2	99.5	45.2	9.5
LnGrp LOS	D	A	C	F	A	C	A	B	B	F	F	A
Approach Vol, veh/h		136			84			1067			2093	
Approach Delay, s/veh		27.6			122.0			17.0			44.6	
Approach LOS		C			F			B			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	57.7		36.4		63.4		36.4				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.1	21.9		33.7		58.7		33.7				
Green Ext Time (p_c), s	0.0	5.8		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				37.1								
HCM 6th LOS				D								

AM Existing + Project
6: Douglas Dr & North River Rd

Timings

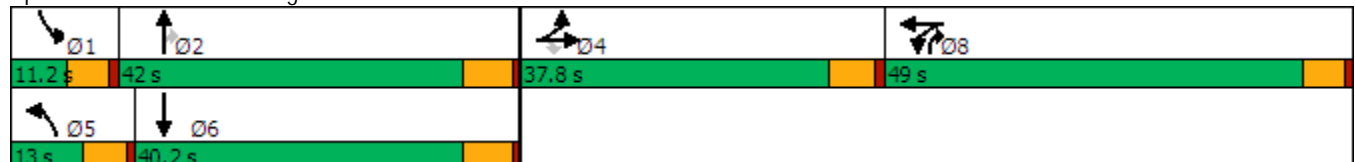


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↗	↙	↔	↙	↑↑	↗↗	↙	↑↑
Traffic Volume (vph)	53	95	186	982	49	71	431	374	18	703
Future Volume (vph)	53	95	186	982	49	71	431	374	18	703
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	49.0	49.0	13.0	42.0	49.0	11.2	40.2
Total Split (%)	27.0%	27.0%	27.0%	35.0%	35.0%	9.3%	30.0%	35.0%	8.0%	28.7%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	15.8	15.8	15.8	43.9	43.9	7.6	41.6	89.7	5.8	32.7
Actuated g/C Ratio	0.13	0.13	0.13	0.36	0.36	0.06	0.34	0.73	0.05	0.27
v/c Ratio	0.26	0.23	0.68	0.93	0.89dl	0.70	0.39	0.19	0.24	0.82
Control Delay	50.0	48.3	34.8	63.4	34.7	90.4	34.6	0.8	67.8	51.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	48.3	34.8	63.4	34.7	90.4	34.6	0.8	67.8	51.5
LOS	D	D	C	E	C	F	C	A	E	D
Approach Delay		41.1			48.1		24.7			51.9
Approach LOS		D			D		C			D

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 123
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 41.4
 Intersection LOS: D
 Intersection Capacity Utilization 72.9%
 ICU Level of Service C
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd



AM Existing + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	95	186	982	49	21	71	431	374	18	703	9
Future Volume (veh/h)	53	95	186	982	49	21	71	431	374	18	703	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	58	103	202	1067	53	23	77	468	407	20	764	10
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	280	559	249	1215	422	183	98	1020	1752	36	907	12
Arrive On Green	0.16	0.16	0.16	0.34	0.34	0.34	0.05	0.29	0.29	0.02	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	3563	1237	537	1781	3554	2790	1781	3592	47
Grp Volume(v), veh/h	58	103	202	1067	0	76	77	468	407	20	378	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1774	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	3.3	3.0	14.5	33.1	0.0	3.5	5.0	12.7	7.5	1.3	23.7	23.7
Cycle Q Clear(g_c), s	3.3	3.0	14.5	33.1	0.0	3.5	5.0	12.7	7.5	1.3	23.7	23.7
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	280	559	249	1215	0	605	98	1020	1752	36	449	470
V/C Ratio(X)	0.21	0.18	0.81	0.88	0.00	0.13	0.79	0.46	0.23	0.55	0.84	0.84
Avail Cap(c_a), veh/h	485	968	432	1322	0	658	115	1083	1802	88	514	539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	43.0	47.8	36.4	0.0	26.6	54.8	34.4	9.5	57.0	41.7	41.7
Incr Delay (d2), s/veh	0.5	0.2	8.6	6.9	0.0	0.1	25.7	0.7	0.1	12.3	13.0	12.5
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	1.3	6.3	15.4	0.0	1.5	2.9	5.6	4.9	0.7	11.9	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	43.2	56.4	43.3	0.0	26.8	80.5	35.1	9.7	69.4	54.7	54.2
LnGrp LOS	D	D	E	D	A	C	F	D	A	E	D	D
Approach Vol, veh/h		363			1143			952			794	
Approach Delay, s/veh		50.6			42.2			27.9			54.8	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.9		24.3	11.9	35.9		45.5				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	5.8	35.8		32.0	7.6	34.0		43.6				
Max Q Clear Time (g_c+I1), s	3.3	14.7		16.5	7.0	25.7		35.1				
Green Ext Time (p_c), s	0.0	8.5		2.0	0.0	3.9		5.0				

Intersection Summary

HCM 6th Ctrl Delay	42.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM Existing + Project
7: Avenida Descanso & North River Rd

Timings

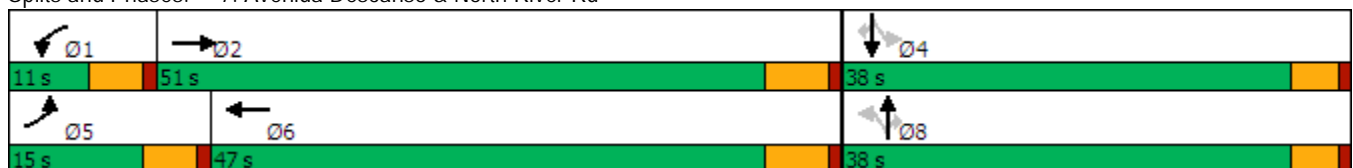


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	51	446	18	887	2	2	30	111	12	104
Future Volume (vph)	51	446	18	887	2	2	30	111	12	104
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	15.0	51.0	11.0	47.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	15.0%	51.0%	11.0%	47.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	8.3	30.6	6.8	25.2		14.0	14.0		14.0	14.0
Actuated g/C Ratio	0.14	0.52	0.12	0.43		0.24	0.24		0.24	0.24
v/c Ratio	0.22	0.26	0.10	0.66		0.01	0.07		0.40	0.24
Control Delay	33.4	9.0	36.3	17.5		21.8	0.3		26.3	6.7
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	33.4	9.0	36.3	17.5		21.8	0.3		26.3	6.7
LOS	C	A	D	B		C	A		C	A
Approach Delay		11.5		17.9		2.6			17.4	
Approach LOS		B		B		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 58.3
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 15.6
 Intersection LOS: B
 Intersection Capacity Utilization 56.4%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



AM Existing + Project

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	446	5	18	887	44	2	2	30	111	12	104
Future Volume (veh/h)	51	446	5	18	887	44	2	2	30	111	12	104
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	55	485	5	20	964	48	2	2	33	121	13	113
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	79	1296	13	40	1164	58	69	48	669	90	5	669
Arrive On Green	0.04	0.36	0.36	0.02	0.34	0.34	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	3603	37	1781	3445	172	1	114	1585	8	13	1585
Grp Volume(v), veh/h	55	239	251	20	497	515	4	0	33	134	0	113
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1839	115	0	1585	21	0	1585
Q Serve(g_s), s	2.4	7.9	7.9	0.9	20.4	20.4	0.1	0.0	1.0	0.2	0.0	3.5
Cycle Q Clear(g_c), s	2.4	7.9	7.9	0.9	20.4	20.4	33.4	0.0	1.0	33.4	0.0	3.5
Prop In Lane	1.00		0.02	1.00		0.09	0.50		1.00	0.90		1.00
Lane Grp Cap(c), veh/h	79	639	670	40	600	621	117	0	669	96	0	669
V/C Ratio(X)	0.70	0.37	0.37	0.50	0.83	0.83	0.03	0.00	0.05	1.40	0.00	0.17
Avail Cap(c_a), veh/h	223	1015	1065	133	925	958	117	0	669	96	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.3	18.7	18.7	38.2	24.1	24.1	19.5	0.0	13.5	37.8	0.0	14.2
Incr Delay (d2), s/veh	10.6	0.4	0.3	9.4	3.8	3.7	0.1	0.0	0.0	232.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.2	3.3	0.5	8.7	9.0	0.0	0.0	0.3	8.0	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	19.1	19.1	47.6	27.9	27.7	19.6	0.0	13.5	269.9	0.0	14.3
LnGrp LOS	D	B	B	D	C	C	B	A	B	F	A	B
Approach Vol, veh/h		545			1032			37				247
Approach Delay, s/veh		22.0			28.2			14.2				153.0
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	34.3		38.0	8.6	32.6		38.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	45.2		33.4	9.9	41.2		33.4				
Max Q Clear Time (g_c+I1), s	2.9	9.9		35.4	4.4	22.4		35.4				
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	4.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

AM Existing + Project
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	573	955	7	9	26
Future Vol, veh/h	12	573	955	7	9	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	13	623	1038	8	10	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1046	0	-	0	1380 523
Stage 1	-	-	-	-	1042 -
Stage 2	-	-	-	-	338 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	661	-	-	-	135 499
Stage 1	-	-	-	-	301 -
Stage 2	-	-	-	-	694 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	661	-	-	-	132 499
Mov Cap-2 Maneuver	-	-	-	-	132 -
Stage 1	-	-	-	-	295 -
Stage 2	-	-	-	-	694 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	661	-	-	-	291
HCM Lane V/C Ratio	0.02	-	-	-	0.131
HCM Control Delay (s)	10.6	-	-	-	19.2
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

LOS Engineering, Inc.

AM Existing + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕				↕		↕	
Traffic Vol, veh/h	22	537	26	26	818	5	102	0	102	15	0	40
Future Vol, veh/h	22	537	26	26	818	5	102	0	102	15	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	584	28	28	889	5	111	0	111	16	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	894	0	0	612	0	0	1147	-	306	1288	1608	447
Stage 1	-	-	-	-	-	-	646	-	-	948	948	-
Stage 2	-	-	-	-	-	-	501	-	-	340	660	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	755	-	-	963	-	-	154	0	690	121	104	559
Stage 1	-	-	-	-	-	-	427	0	-	280	338	-
Stage 2	-	-	-	-	-	-	521	0	-	648	458	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	755	-	-	963	-	-	136	-	690	97	98	559
Mov Cap-2 Maneuver	-	-	-	-	-	-	136	-	-	97	98	-
Stage 1	-	-	-	-	-	-	413	-	-	271	328	-
Stage 2	-	-	-	-	-	-	467	-	-	527	443	-

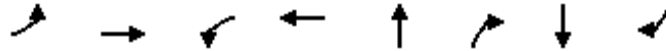
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.3			11.2			24.6		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	690	755	-	-	963	-	-	243
HCM Lane V/C Ratio	0.161	0.032	-	-	0.029	-	-	0.246
HCM Control Delay (s)	11.2	9.9	-	-	8.9	-	-	24.6
HCM Lane LOS	B	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.9

LOS Engineering, Inc.

AM Existing + Project
10: Calle Montecito & North River Rd

Timings

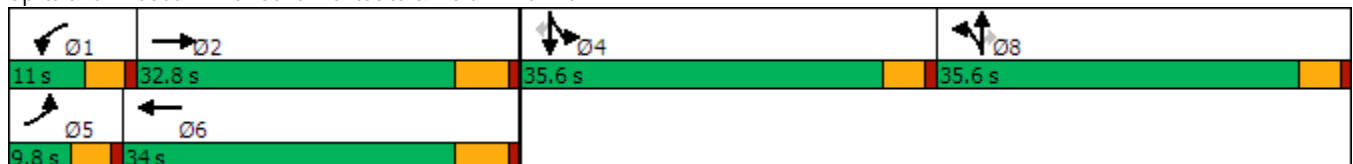


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	49	588	32	695	1	8	1	105
Future Volume (vph)	49	588	32	695	1	8	1	105
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.7	29.5	6.6	28.0	9.8	9.8	15.6	15.6
Actuated g/C Ratio	0.07	0.38	0.09	0.36	0.13	0.13	0.20	0.20
v/c Ratio	0.41	0.49	0.23	0.68	0.06	0.03	0.59	0.28
Control Delay	51.4	23.9	44.4	27.2	31.9	0.1	36.8	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	23.9	44.4	27.2	31.9	0.1	36.8	8.5
LOS	D	C	D	C	C	A	D	A
Approach Delay		25.9		27.9	18.9		27.0	
Approach LOS		C		C	B		C	

Intersection Summary

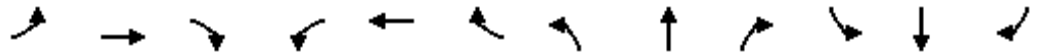
Cycle Length: 115
 Actuated Cycle Length: 76.9
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 26.9
 Intersection Capacity Utilization 56.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



AM Existing + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	49	588	27	32	695	98	11	1	8	196	1	105
Future Volume (veh/h)	49	588	27	32	695	98	11	1	8	196	1	105
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	53	639	29	35	755	107	12	1	9	213	1	114
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	90	1135	51	67	985	140	180	15	173	307	1	275
Arrive On Green	0.05	0.33	0.33	0.04	0.32	0.32	0.11	0.11	0.11	0.17	0.17	0.17
Sat Flow, veh/h	1781	3462	157	1781	3125	443	1650	138	1585	1773	8	1585
Grp Volume(v), veh/h	53	328	340	35	429	433	13	0	9	214	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1777	1791	1788	0	1585	1782	0	1585
Q Serve(g_s), s	1.6	8.4	8.4	1.1	12.0	12.0	0.4	0.0	0.3	6.2	0.0	3.5
Cycle Q Clear(g_c), s	1.6	8.4	8.4	1.1	12.0	12.0	0.4	0.0	0.3	6.2	0.0	3.5
Prop In Lane	1.00		0.09	1.00		0.25	0.92		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	583	604	67	560	564	195	0	173	309	0	275
V/C Ratio(X)	0.59	0.56	0.56	0.52	0.77	0.77	0.07	0.00	0.05	0.69	0.00	0.42
Avail Cap(c_a), veh/h	171	874	906	210	913	920	1006	0	892	1003	0	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	15.3	15.3	26.0	17.0	17.0	22.0	0.0	22.0	21.4	0.0	20.3
Incr Delay (d2), s/veh	6.0	0.9	0.8	6.2	2.2	2.2	0.1	0.0	0.1	2.8	0.0	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	0.8	3.1	3.2	0.5	4.7	4.7	0.1	0.0	0.1	2.6	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.6	16.1	16.1	32.2	19.3	19.3	22.2	0.0	22.1	24.2	0.0	21.3
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		721			897			22			328	
Approach Delay, s/veh		17.2			19.8			22.1			23.2	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	23.8		14.1	7.3	23.1		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.1	10.4		8.2	3.6	14.0		2.4				
Green Ext Time (p_c), s	0.0	2.6		1.3	0.0	3.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

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

AM Existing + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	43	767	775	1	0	83	0	
Future Volume (vph)	43	767	775	1	0	83	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.5	26.5	20.6		12.9	11.7	11.7	
Actuated g/C Ratio	0.14	0.50	0.39		0.25	0.22	0.22	
v/c Ratio	0.19	0.47	0.65		0.00	0.29	0.25	
Control Delay	30.7	9.3	17.1		0.0	22.5	1.7	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	30.7	9.3	17.1		0.0	22.5	1.7	
LOS	C	A	B		A	C	A	
Approach Delay		10.5	17.1				10.4	
Approach LOS		B	B				B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 52.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 49.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: Redondo Dr & North River Rd



AM Existing + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	767	0	0	775	52	1	0	1	83	0	115
Future Volume (veh/h)	43	767	0	0	775	52	1	0	1	83	0	115
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	47	834	0	0	842	57	1	0	1	90	0	125
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	91	1898	0	5	1244	84	194	38	95	426	0	242
Arrive On Green	0.05	0.53	0.00	0.00	0.37	0.37	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3377	229	370	250	620	1416	0	1585
Grp Volume(v), veh/h	47	834	0	0	443	456	2	0	0	90	0	125
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1829	1240	0	0	1416	0	1585
Q Serve(g_s), s	1.0	5.6	0.0	0.0	8.2	8.2	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	1.0	5.6	0.0	0.0	8.2	8.2	2.9	0.0	0.0	1.8	0.0	2.8
Prop In Lane	1.00		0.00	1.00		0.12	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	91	1898	0	5	655	674	327	0	0	426	0	242
V/C Ratio(X)	0.52	0.44	0.00	0.00	0.68	0.68	0.01	0.00	0.00	0.21	0.00	0.52
Avail Cap(c_a), veh/h	340	4261	0	249	2040	2100	1244	0	0	1313	0	1235
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	5.6	0.0	0.0	10.4	10.4	14.1	0.0	0.0	14.8	0.0	15.3
Incr Delay (d2), s/veh	4.5	0.2	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.2	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.2	0.0	0.0	2.6	2.7	0.0	0.0	0.0	0.6	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.6	5.7	0.0	0.0	11.7	11.6	14.1	0.0	0.0	15.1	0.0	17.0
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		881			899			2				215
Approach Delay, s/veh		6.6			11.6			14.1				16.2
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	27.7		11.6	6.5	21.2		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	7.6		4.8	3.0	10.2		4.9				
Green Ext Time (p_c), s	0.0	4.6		0.9	0.0	4.2		0.0				

Intersection Summary

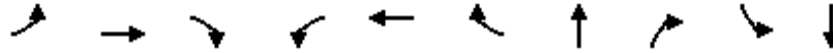
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

AM Existing + Project
12: College Blvd & North River Rd

Timings

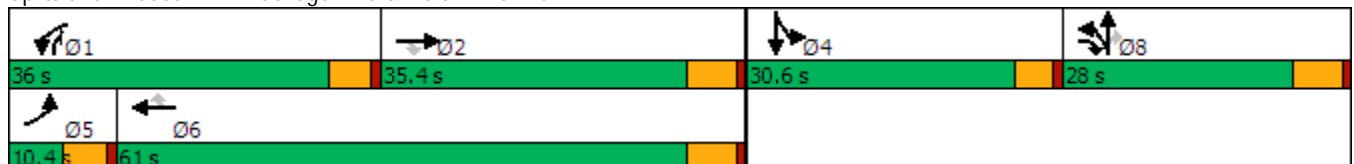


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	232	619	949	484	70	21	933	25	49
Future Volume (vph)	14	232	619	949	484	70	21	933	25	49
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	10.4	35.4	28.0	36.0	61.0	61.0	28.0	36.0	30.6	30.6
Total Split (%)	8.0%	27.2%	21.5%	27.7%	46.9%	46.9%	21.5%	27.7%	23.5%	23.5%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.4	14.4	38.6	31.7	49.7	49.7	22.8	60.4	10.6	10.6
Actuated g/C Ratio	0.05	0.15	0.39	0.32	0.50	0.50	0.23	0.61	0.11	0.11
v/c Ratio	0.15	0.49	0.79	0.94	0.30	0.09	0.91	0.48	0.14	0.31
Control Delay	55.3	42.8	14.2	50.4	16.8	2.0	66.8	2.0	42.9	42.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	42.8	14.2	50.4	16.8	2.0	66.8	2.0	42.9	42.2
LOS	E	D	B	D	B	A	E	A	D	D
Approach Delay		22.5			37.3		19.5			42.4
Approach LOS		C			D		B			D

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 98.7
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 27.9
 Intersection LOS: C
 Intersection Capacity Utilization 83.3%
 ICU Level of Service E
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

AM Existing + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	232	619	949	484	70	322	21	933	25	49	9
Future Volume (veh/h)	14	232	619	949	484	70	322	21	933	25	49	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	15	252	673	1032	526	76	350	23	1014	27	53	10
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	30	959	749	974	1901	848	339	22	1351	92	79	15
Arrive On Green	0.02	0.27	0.27	0.28	0.53	0.53	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1676	110	2790	1781	1530	289
Grp Volume(v), veh/h	15	252	673	1032	526	76	373	0	1014	27	0	63
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1818
Q Serve(g_s), s	0.9	6.1	29.6	30.9	8.9	2.6	22.2	0.0	22.2	1.6	0.0	3.7
Cycle Q Clear(g_c), s	0.9	6.1	29.6	30.9	8.9	2.6	22.2	0.0	22.2	1.6	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	0.94		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	30	959	749	974	1901	848	362	0	1351	92	0	94
V/C Ratio(X)	0.50	0.26	0.90	1.06	0.28	0.09	1.03	0.00	0.75	0.29	0.00	0.67
Avail Cap(c_a), veh/h	86	959	749	974	1901	848	362	0	1351	422	0	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	31.5	23.1	39.4	13.9	12.5	43.7	0.0	22.9	50.1	0.0	51.1
Incr Delay (d2), s/veh	12.5	0.1	13.8	46.0	0.1	0.0	55.6	0.0	2.4	1.8	0.0	8.0
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	0.5	2.6	21.4	19.1	3.5	0.9	15.3	0.0	10.7	0.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	31.6	36.9	85.4	14.0	12.5	99.3	0.0	25.3	51.8	0.0	59.1
LnGrp LOS	E	C	D	F	B	B	F	A	C	D	A	E
Approach Vol, veh/h		940			1634			1387				90
Approach Delay, s/veh		35.9			59.0			45.2				56.9
Approach LOS		D			E			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	36.0	35.4		10.3	6.9	64.5		28.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	30.9	29.6		26.0	5.3	55.2		22.2				
Max Q Clear Time (g_c+I1), s	32.9	31.6		5.7	2.9	10.9		24.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	2.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				48.9								
HCM 6th LOS				D								

LOS Engineering, Inc.

AM Existing + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	50	27	26	1225	1528	74
Future Volume (vph)	50	27	26	1225	1528	74
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	11.4	16.4	6.3	56.4	50.1	50.1
Actuated g/C Ratio	0.16	0.24	0.09	0.81	0.72	0.72
v/c Ratio	0.19	0.08	0.09	0.47	0.65	0.07
Control Delay	27.0	14.9	34.5	6.0	14.4	6.4
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.0	14.9	34.5	6.1	14.4	6.4
LOS	C	B	C	A	B	A
Approach Delay	22.7			6.7	14.1	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 69.7
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 11.1
 Intersection LOS: B
 Intersection Capacity Utilization 57.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM Existing + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	27	26	1225	1528	74
Future Volume (veh/h)	50	27	26	1225	1528	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	54	29	28	1332	1661	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	186	225	131	2516	2054	916
Arrive On Green	0.10	0.10	0.04	0.71	0.58	0.58
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	54	29	28	1332	1661	80
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.6	0.9	0.4	9.7	20.5	1.2
Cycle Q Clear(g_c), s	1.6	0.9	0.4	9.7	20.5	1.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	186	225	131	2516	2054	916
V/C Ratio(X)	0.29	0.13	0.21	0.53	0.81	0.09
Avail Cap(c_a), veh/h	901	862	399	3312	2574	1148
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	22.9	20.8	25.8	3.8	9.3	5.2
Incr Delay (d2), s/veh	0.9	0.3	0.8	0.2	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.8	0.2	1.8	6.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.8	21.0	26.6	3.9	10.9	5.2
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	83			1360	1741	
Approach Delay, s/veh	22.8			4.4	10.6	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		45.0		10.4	7.2	37.8
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		11.7		3.6	2.4	22.5
Green Ext Time (p_c), s		8.9		0.3	0.0	9.5
Intersection Summary						
HCM 6th Ctrl Delay			8.3			
HCM 6th LOS			A			

AM Existing + Project
14: College Blvd & Adams St

Timings

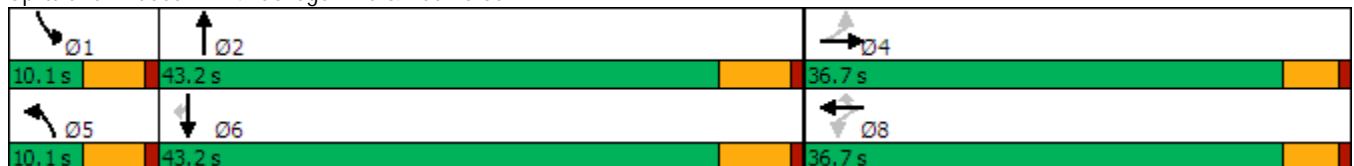


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖↗↘	↖	↖↗	↗
Traffic Volume (vph)	175	12	76	17	40	20	1027	16	1336	206
Future Volume (vph)	175	12	76	17	40	20	1027	16	1336	206
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	43.2	10.1	43.2	43.2
Total Split (%)	40.8%	40.8%	40.8%	40.8%	40.8%	11.2%	48.0%	11.2%	48.0%	48.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.4	16.4		16.4	16.4	5.2	39.0	5.2	37.2	37.2
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.08	0.58	0.08	0.55	0.55
v/c Ratio	0.61	0.23		0.32	0.09	0.16	0.39	0.13	0.75	0.25
Control Delay	32.2	7.7		24.5	0.4	38.9	10.3	38.4	18.3	8.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	7.7		24.5	0.4	38.9	10.3	38.4	18.3	8.3
LOS	C	A		C	A	D	B	D	B	A
Approach Delay		23.3		17.3			10.8		17.2	
Approach LOS		C		B			B		B	

Intersection Summary























Cycle Length: 90
 Actuated Cycle Length: 67.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 15.5
 Intersection LOS: B
 Intersection Capacity Utilization 62.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM Existing + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	12	87	76	17	40	20	1027	29	16	1336	206
Future Volume (veh/h)	175	12	87	76	17	40	20	1027	29	16	1336	206
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	190	13	95	83	18	43	22	1116	32	17	1452	224
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	340	55	401	351	67	447	44	2443	70	36	1685	752
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.02	0.48	0.48	0.02	0.47	0.47
Sat Flow, veh/h	1341	194	1420	916	239	1585	1781	5102	146	1781	3554	1585
Grp Volume(v), veh/h	190	0	108	101	0	43	22	744	404	17	1452	224
Grp Sat Flow(s),veh/h/ln	1341	0	1615	1155	0	1585	1781	1702	1844	1781	1777	1585
Q Serve(g_s), s	9.7	0.0	3.7	3.7	0.0	1.4	0.9	10.4	10.4	0.7	25.9	6.2
Cycle Q Clear(g_c), s	17.1	0.0	3.7	7.4	0.0	1.4	0.9	10.4	10.4	0.7	25.9	6.2
Prop In Lane	1.00		0.88	0.82		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	340	0	456	418	0	447	44	1630	883	36	1685	752
V/C Ratio(X)	0.56	0.00	0.24	0.24	0.00	0.10	0.50	0.46	0.46	0.48	0.86	0.30
Avail Cap(c_a), veh/h	563	0	725	645	0	711	125	1785	967	125	1864	831
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	0.0	19.7	21.9	0.0	18.9	34.3	12.4	12.4	34.6	16.7	11.5
Incr Delay (d2), s/veh	1.4	0.0	0.3	0.3	0.0	0.1	8.4	0.2	0.4	9.5	4.1	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	3.1	0.0	1.3	1.4	0.0	0.5	0.5	3.6	3.9	0.4	10.2	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	19.9	22.2	0.0	19.0	42.8	12.6	12.8	44.1	20.8	11.7
LnGrp LOS	C	A	B	C	A	B	D	B	B	D	C	B
Approach Vol, veh/h		298			144			1170			1693	
Approach Delay, s/veh		26.0			21.2			13.2			19.8	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.5	39.9		24.8	6.9	39.6		24.8				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.0	37.4		* 32	5.0	37.4		* 32				
Max Q Clear Time (g_c+I1), s	2.7	12.4		19.1	2.9	27.9		9.4				
Green Ext Time (p_c), s	0.0	5.8		1.0	0.0	5.9		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.

AM Existing + Project
15: College Blvd & Via Cupeno

Timings

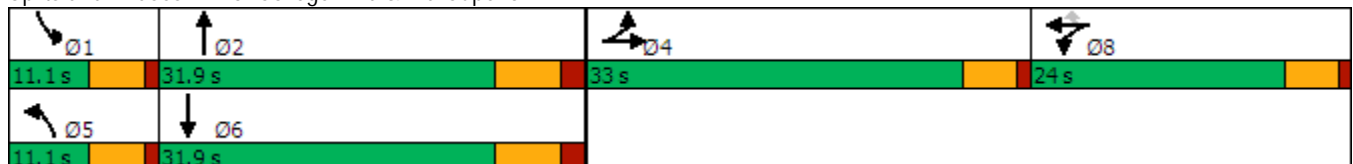


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	1	5	1	132	1027	1	1425
Future Volume (vph)	1	5	1	132	1027	1	1425
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	11.1	31.9	11.1	31.9
Total Split (%)	33.0%	24.0%	24.0%	11.1%	31.9%	11.1%	31.9%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.3	11.7	11.7	6.2	35.9	6.2	26.0
Actuated g/C Ratio	0.15	0.16	0.16	0.08	0.48	0.08	0.35
v/c Ratio	0.18	0.54	0.00	0.50	0.47	0.01	0.91
Control Delay	19.3	38.6	0.0	43.5	18.2	39.0	34.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	38.6	0.0	43.5	18.2	39.0	34.8
LOS	B	D	A	D	B	D	C
Approach Delay	19.3	38.3			21.0		34.8
Approach LOS	B	D			C		C

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 74.4
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 28.8
 Intersection Capacity Utilization 62.2%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 15: College Blvd & Via Cupeno



AM Existing + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	1	35	133	5	1	132	1027	37	1	1425	58
Future Volume (veh/h)	49	1	35	133	5	1	132	1027	37	1	1425	58
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	53	1	38	145	5	1	143	1116	40	1	1549	63
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	178	4	155	191	7	175	297	2268	81	3	1831	74
Arrive On Green	0.10	0.10	0.10	0.11	0.11	0.11	0.09	0.45	0.45	0.00	0.36	0.36
Sat Flow, veh/h	1781	41	1550	1725	59	1585	3456	5060	181	1781	5033	205
Grp Volume(v), veh/h	53	0	39	150	0	1	143	751	405	1	1048	564
Grp Sat Flow(s),veh/h/ln	1781	0	1591	1784	0	1585	1728	1702	1838	1781	1702	1834
Q Serve(g_s), s	1.8	0.0	1.5	5.3	0.0	0.0	2.5	10.1	10.1	0.0	18.2	18.2
Cycle Q Clear(g_c), s	1.8	0.0	1.5	5.3	0.0	0.0	2.5	10.1	10.1	0.0	18.2	18.2
Prop In Lane	1.00		0.97	0.97		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	178	0	159	197	0	175	297	1525	823	3	1239	667
V/C Ratio(X)	0.30	0.00	0.24	0.76	0.00	0.01	0.48	0.49	0.49	0.34	0.85	0.85
Avail Cap(c_a), veh/h	773	0	691	525	0	467	321	1525	823	166	1325	713
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.9	0.0	26.8	27.9	0.0	25.5	28.1	12.6	12.6	32.2	18.9	18.9
Incr Delay (d2), s/veh	0.9	0.0	0.8	5.9	0.0	0.0	1.2	0.2	0.5	57.1	5.0	8.8
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	0.8	0.0	0.6	2.5	0.0	0.0	1.1	3.4	3.8	0.1	7.3	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.8	0.0	27.6	33.8	0.0	25.5	29.3	12.9	13.1	89.2	23.8	27.7
LnGrp LOS	C	A	C	C	A	C	C	B	B	F	C	C
Approach Vol, veh/h		92			151			1299			1613	
Approach Delay, s/veh		27.7			33.7			14.7			25.2	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	35.7		11.5	10.6	30.3		12.1				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	25.1		28.0	6.0	25.1		19.0				
Max Q Clear Time (g_c+I1), s	2.0	12.1		3.8	4.5	20.2		7.3				
Green Ext Time (p_c), s	0.0	4.6		0.3	0.1	3.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				21.4								
HCM 6th LOS				C								

AM Existing + Project
16: College Blvd & SR-76

Timings

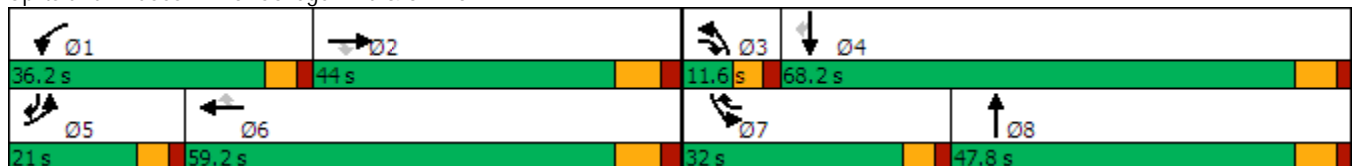


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↖	↑↑↑	↗	↖↖	↑↑↑	↗	↖↖	↑↑	↖↖	↑↑	↗
Traffic Volume (vph)	292	766	22	527	1370	453	48	458	510	751	327
Future Volume (vph)	292	766	22	527	1370	453	48	458	510	751	327
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effect Green (s)	15.3	36.2	50.1	28.8	49.7	84.1	5.9	38.0	26.4	61.0	83.1
Actuated g/C Ratio	0.10	0.23	0.32	0.19	0.32	0.54	0.04	0.24	0.17	0.39	0.53
v/c Ratio	0.94	0.70	0.04	0.90	0.92	0.56	0.40	0.90	0.95	0.59	0.40
Control Delay	104.6	59.2	0.1	80.6	61.0	23.3	84.3	66.5	91.1	40.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.6	59.2	0.1	80.6	61.0	23.3	84.3	66.5	91.1	40.3	16.2
LOS	F	E	A	F	E	C	F	E	F	D	B
Approach Delay		70.2			58.1			67.6		51.6	
Approach LOS		E			E			E		D	

Intersection Summary



































Cycle Length: 160
 Actuated Cycle Length: 155.6
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 59.9
 Intersection LOS: E
 Intersection Capacity Utilization 92.2%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 16: College Blvd & SR-76



AM Existing + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	292	766	22	527	1370	453	48	458	261	510	751	327
Future Volume (veh/h)	292	766	22	527	1370	453	48	458	261	510	751	327
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	317	833	24	573	1489	492	52	498	284	554	816	355
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	339	1207	414	627	1632	774	86	537	305	582	1384	773
Arrive On Green	0.10	0.24	0.24	0.18	0.32	0.32	0.02	0.25	0.25	0.17	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2183	1240	3456	3554	1585
Grp Volume(v), veh/h	317	833	24	573	1489	492	52	405	377	554	816	355
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1647	1728	1777	1585
Q Serve(g_s), s	14.2	23.2	1.8	25.4	43.7	36.0	2.3	34.7	34.9	24.8	28.4	23.1
Cycle Q Clear(g_c), s	14.2	23.2	1.8	25.4	43.7	36.0	2.3	34.7	34.9	24.8	28.4	23.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	339	1207	414	627	1632	774	86	437	405	582	1384	773
V/C Ratio(X)	0.94	0.69	0.06	0.91	0.91	0.64	0.60	0.93	0.93	0.95	0.59	0.46
Avail Cap(c_a), veh/h	339	1207	414	675	1675	787	131	467	433	582	1398	779
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.9	54.4	43.2	62.7	51.0	29.6	75.3	57.5	57.6	64.2	37.7	26.4
Incr Delay (d2), s/veh	32.7	1.7	0.1	16.4	7.9	1.7	6.7	23.9	26.1	25.7	0.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	10.2	0.7	12.6	19.8	14.1	1.1	18.5	17.5	13.0	12.6	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	102.6	56.1	43.3	79.1	58.9	31.3	82.0	81.4	83.6	89.9	38.4	26.8
LnGrp LOS	F	E	D	E	E	C	F	F	F	F	D	C
Approach Vol, veh/h		1174			2554			834			1725	
Approach Delay, s/veh		68.3			58.1			82.4			52.6	
Approach LOS		E			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	44.9	9.6	67.6	21.0	57.9	32.0	45.2				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	27.4	25.2	4.3	30.4	16.2	45.7	26.8	36.9				
Green Ext Time (p_c), s	0.9	3.3	0.0	6.6	0.0	4.2	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	61.7
HCM 6th LOS	E

Notes

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

AM Existing + Project
17: North River Rd/Vandergrift Blvd

Timings

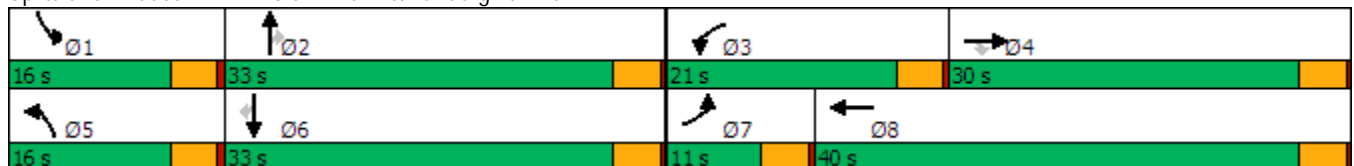


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙↗	↖	↙	↑↑↑	↗	↙	↑↑	↗
Traffic Volume (vph)	47	56	109	413	51	116	817	207	92	703	38
Future Volume (vph)	47	56	109	413	51	116	817	207	92	703	38
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.7	10.5	10.5	15.0	21.0	10.2	33.3	33.3	9.5	29.8	29.8
Actuated g/C Ratio	0.08	0.13	0.13	0.19	0.26	0.13	0.42	0.42	0.12	0.38	0.38
v/c Ratio	0.34	0.25	0.35	0.69	0.50	0.55	0.42	0.28	0.47	0.57	0.06
Control Delay	45.5	34.2	6.8	38.2	8.9	45.5	20.8	4.7	43.9	24.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	34.2	6.8	38.2	8.9	45.5	20.8	4.7	43.9	24.6	0.2
LOS	D	C	A	D	A	D	C	A	D	C	A
Approach Delay		22.7			26.3		20.4			25.6	
Approach LOS		C			C		C			C	

Intersection Summary
























Cycle Length: 100	
Actuated Cycle Length: 79.4	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 23.5	Intersection LOS: C
Intersection Capacity Utilization 60.4%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



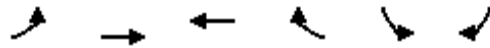
AM Existing + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	56	109	413	51	233	116	817	207	92	703	38
Future Volume (veh/h)	47	56	109	413	51	233	116	817	207	92	703	38
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	51	61	118	449	55	253	126	888	225	100	764	41
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	79	212	180	572	68	313	162	2166	672	130	1444	644
Arrive On Green	0.04	0.11	0.11	0.17	0.23	0.23	0.09	0.42	0.42	0.07	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	291	1338	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	51	61	118	449	0	308	126	888	225	100	764	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1629	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	2.0	2.1	5.1	8.9	0.0	12.7	4.9	8.7	6.8	3.9	11.6	1.1
Cycle Q Clear(g_c), s	2.0	2.1	5.1	8.9	0.0	12.7	4.9	8.7	6.8	3.9	11.6	1.1
Prop In Lane	1.00		1.00	1.00		0.82	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	212	180	572	0	381	162	2166	672	130	1444	644
V/C Ratio(X)	0.64	0.29	0.66	0.79	0.00	0.81	0.78	0.41	0.33	0.77	0.53	0.06
Avail Cap(c_a), veh/h	175	681	577	823	0	822	300	2166	672	300	1444	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	29.0	30.3	28.6	0.0	25.8	31.7	14.3	13.8	32.5	16.0	12.9
Incr Delay (d2), s/veh	8.4	0.7	4.0	3.2	0.0	4.1	7.9	0.6	1.3	9.2	1.4	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	1.0	1.0	2.1	3.8	0.0	5.1	2.4	3.2	2.5	2.0	4.6	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	29.7	34.4	31.8	0.0	29.9	39.6	14.9	15.1	41.7	17.4	13.1
LnGrp LOS	D	C	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		230			757			1239			905	
Approach Delay, s/veh		34.8			31.0			17.5			19.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	34.3	15.8	12.1	10.5	33.0	7.2	20.7				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	5.9	10.7	10.9	7.1	6.9	13.6	4.0	14.7				
Green Ext Time (p_c), s	0.1	6.9	0.9	0.6	0.1	4.9	0.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay				22.7								
HCM 6th LOS				C								

PM Existing + Project
1: SR-76 & Douglas Dr

Timings

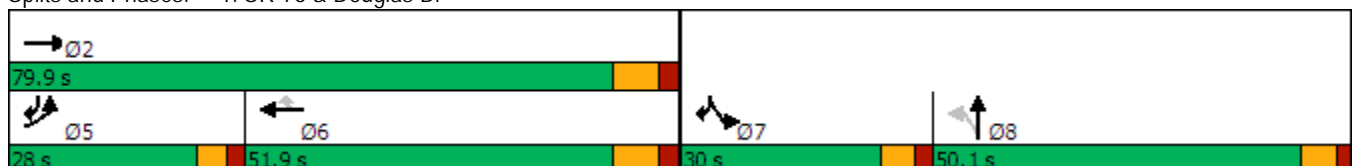


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↗	↕↗	↕↕	↖	↖	↖↗	
Traffic Volume (vph)	538	1617	1034	254	288	361	
Future Volume (vph)	538	1617	1034	254	288	361	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	79.9	51.9	51.9	30.0		50.1
Total Split (%)	17.5%	49.9%	32.4%	32.4%	18.8%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	22.3	71.9	43.9	43.9	23.9	52.3	
Actuated g/C Ratio	0.20	0.65	0.40	0.40	0.22	0.48	
v/c Ratio	0.84	0.76	0.80	0.35	0.82	0.26	
Control Delay	54.3	15.8	34.2	3.9	59.0	2.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	54.3	15.8	34.2	3.9	59.0	2.1	
LOS	D	B	C	A	E	A	
Approach Delay		25.4	28.2				
Approach LOS		C	C				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 26.6
 Intersection LOS: C
 Intersection Capacity Utilization 74.6%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



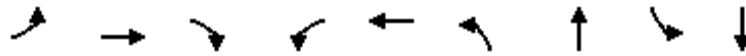
PM Existing + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	538	1617	0	0	1034	254	0	0	0	288	0	361
Future Volume (veh/h)	538	1617	0	0	1034	254	0	0	0	288	0	361
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	585	1758	0	0	1124	276	0	0	0	313	0	392
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	694	2292	0	0	1356	605	0	2	0	356	0	0
Arrive On Green	0.20	0.64	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.20	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	313	
Grp Volume(v), veh/h	585	1758	0	0	1124	276	0	0	0	313	49.3	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	D	
Q Serve(g_s), s	14.8	31.6	0.0	0.0	26.0	11.9	0.0	0.0	0.0	15.5		
Cycle Q Clear(g_c), s	14.8	31.6	0.0	0.0	26.0	11.9	0.0	0.0	0.0	15.5		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	694	2292	0	0	1356	605	0	2	0	356		
V/C Ratio(X)	0.84	0.77	0.00	0.00	0.83	0.46	0.00	0.00	0.00	0.88		
Avail Cap(c_a), veh/h	848	2810	0	0	1716	765	0	905	0	468		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	35.0	11.3	0.0	0.0	25.4	21.1	0.0	0.0	0.0	35.3		
Incr Delay (d2), s/veh	6.6	1.1	0.0	0.0	2.9	0.5	0.0	0.0	0.0	14.0		
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		
%ile BackOfQ(50%),veh/ln	6.7	10.9	0.0	0.0	11.0	4.3	0.0	0.0	0.0	8.0		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	12.4	0.0	0.0	28.3	21.6	0.0	0.0	0.0	49.3		
LnGrp LOS	D	B	A	A	C	C	A	A	A	D		
Approach Vol, veh/h		2343			1400			0				
Approach Delay, s/veh		19.7			27.0			0.0				
Approach LOS		B			C							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		66.6			23.9	42.7	24.3	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		71.9			* 22	43.9	23.9	44.0				
Max Q Clear Time (g_c+I1), s		33.6			16.8	28.0	17.5	0.0				
Green Ext Time (p_c), s		14.1			1.4	6.7	0.7	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				24.5								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Project
2: Douglas Dr & Mission Ave

Timings

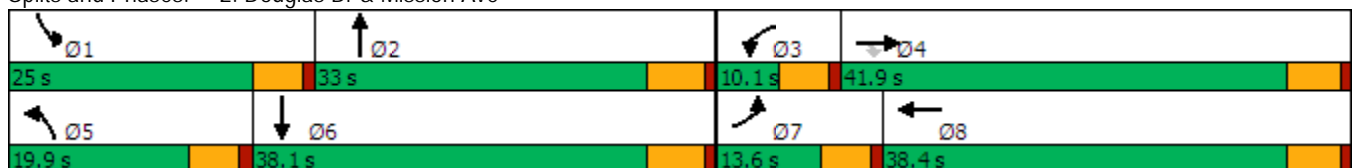


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	231	609	148	60	332	165	593	302	485
Future Volume (vph)	231	609	148	60	332	165	593	302	485
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.6	41.9	41.9	10.1	38.4	19.9	33.0	25.0	38.1
Total Split (%)	12.4%	38.1%	38.1%	9.2%	34.9%	18.1%	30.0%	22.7%	34.6%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.6	26.0	26.0	5.1	22.5	13.4	22.6	20.2	29.4
Actuated g/C Ratio	0.09	0.27	0.27	0.05	0.24	0.14	0.24	0.21	0.31
v/c Ratio	0.81	0.69	0.30	0.70	0.80	0.72	0.80	0.88	0.54
Control Delay	66.1	35.2	7.0	84.9	28.9	59.0	43.1	64.4	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.1	35.2	7.0	84.9	28.9	59.0	43.1	64.4	30.2
LOS	E	D	A	F	C	E	D	E	C
Approach Delay		38.2			33.2		46.4		42.6
Approach LOS		D			C		D		D

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 95.6
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 40.0
 Intersection LOS: D
 Intersection Capacity Utilization 79.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM Existing + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	231	609	148	60	332	383	165	593	23	302	485	48
Future Volume (veh/h)	231	609	148	60	332	383	165	593	23	302	485	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	251	662	161	65	361	416	179	645	25	328	527	52
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	291	1166	520	83	516	461	213	751	29	352	957	94
Arrive On Green	0.08	0.33	0.33	0.05	0.29	0.29	0.12	0.22	0.22	0.20	0.29	0.29
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3488	135	1781	3268	322
Grp Volume(v), veh/h	251	662	161	65	361	416	179	328	342	328	286	293
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1846	1781	1777	1812
Q Serve(g_s), s	7.2	15.5	7.7	3.6	18.2	25.4	9.9	17.9	18.0	18.3	13.7	13.7
Cycle Q Clear(g_c), s	7.2	15.5	7.7	3.6	18.2	25.4	9.9	17.9	18.0	18.3	13.7	13.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	291	1166	520	83	516	461	213	383	397	352	521	531
V/C Ratio(X)	0.86	0.57	0.31	0.78	0.70	0.90	0.84	0.86	0.86	0.93	0.55	0.55
Avail Cap(c_a), veh/h	291	1287	574	88	582	519	262	480	498	352	570	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	28.0	25.3	47.5	31.8	34.4	43.4	38.1	38.1	39.8	30.0	30.0
Incr Delay (d2), s/veh	22.1	0.5	0.3	33.2	3.2	17.8	17.8	12.1	11.8	31.2	0.9	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	4.0	6.6	2.9	2.4	8.1	11.9	5.4	9.0	9.3	10.9	5.9	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.7	28.4	25.7	80.8	35.0	52.2	61.2	50.2	49.9	71.0	30.9	31.0
LnGrp LOS	E	C	C	F	D	D	E	D	D	E	C	C
Approach Vol, veh/h		1074			842			849			907	
Approach Delay, s/veh		37.2			47.1			52.4			45.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	27.5	9.8	38.5	17.2	35.3	13.6	34.7				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	19.9	27.2	5.0	36.5	14.8	32.3	8.5	33.0				
Max Q Clear Time (g_c+I1), s	20.3	20.0	5.6	17.5	11.9	15.7	9.2	27.4				
Green Ext Time (p_c), s	0.0	1.7	0.0	3.8	0.2	2.2	0.0	1.8				

Intersection Summary

HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Notes

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

PM Existing + Project
3: Douglas Dr & El Camino Real

Timings

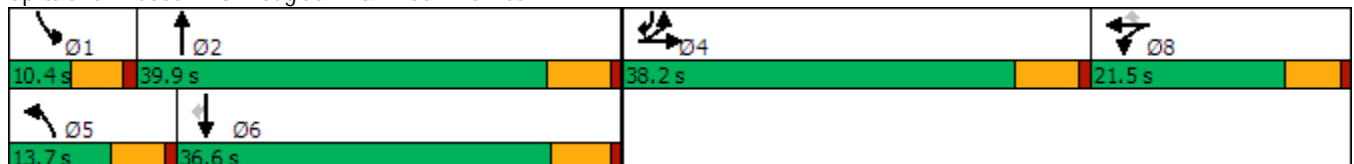


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1024	63	55	25	10	79	1020	7	703	623
Future Volume (vph)	1024	63	55	25	10	79	1020	7	703	623
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	38.2	38.2		21.5	21.5	13.7	39.9	10.4	36.6	38.2
Total Split (%)	34.7%	34.7%		19.5%	19.5%	12.5%	36.3%	9.5%	33.3%	34.7%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	32.4	32.4	97.9	10.1	10.1	8.0	38.3	5.1	29.9	70.0
Actuated g/C Ratio	0.33	0.33	1.00	0.10	0.10	0.08	0.39	0.05	0.31	0.72
v/c Ratio	0.98	0.11	0.04	0.46	0.04	0.60	0.86	0.09	0.71	0.34
Control Delay	56.9	27.0	0.0	51.6	0.2	64.7	36.2	50.9	36.5	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	27.0	0.0	51.6	0.2	64.7	36.2	50.9	36.5	8.3
LOS	E	C	A	D	A	E	D	D	D	A
Approach Delay		52.6		45.7			38.1		23.4	
Approach LOS		D		D			D		C	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 97.9
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 37.5
 Intersection LOS: D
 Intersection Capacity Utilization 85.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



PM Existing + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1024	63	55	53	25	10	79	1020	63	7	703	623
Future Volume (veh/h)	1024	63	55	53	25	10	79	1020	63	7	703	623
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	1113	68	0	58	27	11	86	1109	68	8	764	677
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	1159	627		78	37	101	110	1179	72	18	1048	1758
Arrive On Green	0.34	0.34	0.00	0.06	0.06	0.06	0.06	0.35	0.35	0.01	0.29	0.29
Sat Flow, veh/h	3456	1870	1585	1234	575	1585	1781	3401	208	1781	3554	2790
Grp Volume(v), veh/h	1113	68	0	85	0	11	86	579	598	8	764	677
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1833	1781	1777	1395
Q Serve(g_s), s	30.1	2.4	0.0	4.4	0.0	0.6	4.5	30.1	30.2	0.4	18.4	11.3
Cycle Q Clear(g_c), s	30.1	2.4	0.0	4.4	0.0	0.6	4.5	30.1	30.2	0.4	18.4	11.3
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	1159	627		115	0	101	110	616	635	18	1048	1758
V/C Ratio(X)	0.96	0.11		0.74	0.00	0.11	0.78	0.94	0.94	0.45	0.73	0.39
Avail Cap(c_a), veh/h	1159	627		303	0	266	155	628	648	93	1140	1831
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	21.9	0.0	43.9	0.0	42.1	44.1	30.2	30.2	47.0	30.2	8.6
Incr Delay (d2), s/veh	17.7	0.1	0.0	8.9	0.0	0.5	15.2	22.1	21.8	16.6	2.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.9	1.1	0.0	2.2	0.0	0.3	2.5	16.2	16.7	0.3	8.0	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.7	21.9	0.0	52.8	0.0	42.6	59.3	52.3	52.0	63.6	32.4	8.7
LnGrp LOS	D	C		D	A	D	E	D	D	E	C	A
Approach Vol, veh/h		1181	A		96			1263			1449	
Approach Delay, s/veh		47.2			51.6			52.7			21.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.3		38.2	11.3	34.3		11.6				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	33.7		32.0	8.3	* 31		16.0				
Max Q Clear Time (g_c+I1), s	2.4	32.2		32.1	6.5	20.4		6.4				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.0	5.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	39.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM Existing + Project
4: Douglas Dr & Pala Rd

Timings

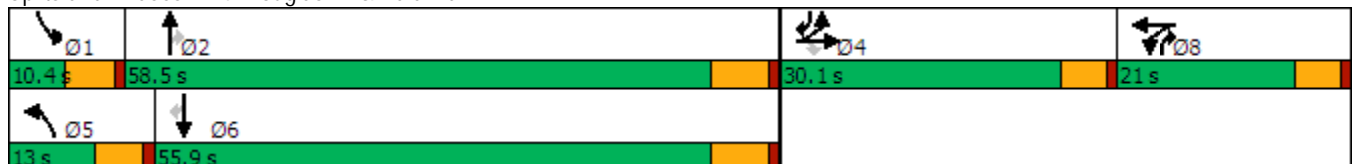


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	94	1	89	7	3	90	1859	17	21	1236	100
Future Volume (vph)	94	1	89	7	3	90	1859	17	21	1236	100
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	13.0	58.5	21.0	10.4	55.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.8%	48.8%	17.5%	8.7%	46.6%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.5	10.5	10.5	6.6	6.6	7.8	54.6	60.4	5.2	44.7	61.6
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08	0.09	0.63	0.70	0.06	0.52	0.71
v/c Ratio	0.27	0.24	0.32	0.06	0.20	0.61	0.91	0.02	0.22	0.74	0.09
Control Delay	39.8	39.3	6.4	45.7	22.9	60.5	25.6	0.0	51.2	21.6	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	39.3	6.4	45.7	22.9	60.5	25.6	0.0	51.2	21.6	1.1
LOS	D	D	A	D	C	E	C	A	D	C	A
Approach Delay		23.5			27.8		27.0			20.5	
Approach LOS		C			C		C			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 86.7
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 24.3
 Intersection LOS: C
 Intersection Capacity Utilization 78.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM Existing + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1	89	7	3	24	90	1859	17	21	1236	100
Future Volume (veh/h)	94	1	89	7	3	24	90	1859	17	21	1236	100
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	103	0	97	8	3	26	98	2021	18	23	1343	109
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	321	0	143	73	7	59	125	2111	1006	44	1949	1012
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.07	0.59	0.59	0.02	0.55	0.55
Sat Flow, veh/h	3563	0	1585	1781	167	1444	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	103	0	97	8	0	29	98	2021	18	23	1343	109
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1610	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	5.2	0.4	0.0	1.5	4.7	46.6	0.4	1.1	23.9	2.3
Cycle Q Clear(g_c), s	2.4	0.0	5.2	0.4	0.0	1.5	4.7	46.6	0.4	1.1	23.9	2.3
Prop In Lane	1.00		1.00	1.00		0.90	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	321	0	143	73	0	66	125	2111	1006	44	1949	1012
V/C Ratio(X)	0.32	0.00	0.68	0.11	0.00	0.44	0.78	0.96	0.02	0.53	0.69	0.11
Avail Cap(c_a), veh/h	1023	0	455	325	0	294	156	2135	1017	102	2029	1048
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	38.4	40.2	0.0	40.8	39.8	16.6	5.9	42.0	14.3	6.1
Incr Delay (d2), s/veh	0.6	0.0	5.5	0.7	0.0	4.6	18.5	11.1	0.0	9.5	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.2	0.2	0.0	0.7	2.7	19.5	0.1	0.6	9.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	0.0	43.9	40.9	0.0	45.4	58.3	27.7	5.9	51.5	15.2	6.1
LnGrp LOS	D	A	D	D	A	D	E	C	A	D	B	A
Approach Vol, veh/h		200			37			2137			1475	
Approach Delay, s/veh		40.7			44.4			28.9			15.1	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	57.9		13.0	11.5	53.9		8.6				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	7.6	49.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	48.6		7.2	6.7	25.9		3.5				
Green Ext Time (p_c), s	0.0	3.1		0.8	0.0	8.6		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		24.4
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↕	↗	↖	↕↕	↗
Traffic Volume (vph)	8	2	73	41	2	4	1793	80	4	1182	73
Future Volume (vph)	8	2	73	41	2	4	1793	80	4	1182	73
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		11.1	11.1		11.1	11.1	56.0	56.0	5.1	57.6	57.6
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.73	0.73	0.07	0.75	0.75
v/c Ratio		0.05	0.25		0.24	0.01	0.75	0.07	0.03	0.48	0.07
Control Delay		25.3	5.8		29.7	0.0	14.2	3.5	38.2	7.2	4.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.3	5.8		29.7	0.0	14.2	3.5	38.2	7.2	4.3
LOS		C	A		C	A	B	A	D	A	A
Approach Delay		8.2			27.4		13.7			7.1	
Approach LOS		A			C		B			A	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 76.4
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 11.2
 Intersection LOS: B
 Intersection Capacity Utilization 72.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



PM Existing + Project
5: Douglas Dr & Rainer Way

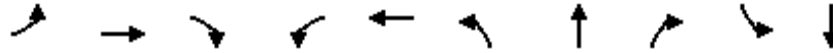
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	73	41	2	4	0	1793	80	4	1182	73
Future Volume (veh/h)	8	2	73	41	2	4	0	1793	80	4	1182	73
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2	79	45	2	4	0	1949	87	4	1285	79
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	0	2	2	2	2	2
Cap, veh/h	88	12	372	103	3	372	0	1983	884	9	2233	996
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.00	0.56	0.56	0.01	0.63	0.63
Sat Flow, veh/h	39	51	1585	73	12	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	11	0	79	47	0	4	0	1949	87	4	1285	79
Grp Sat Flow(s),veh/h/ln	90	0	1585	85	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	3.3	1.1	0.0	0.2	0.0	44.4	2.1	0.2	17.4	1.6
Cycle Q Clear(g_c), s	18.9	0.0	3.3	19.4	0.0	0.2	0.0	44.4	2.1	0.2	17.4	1.6
Prop In Lane	0.82		1.00	0.96		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	100	0	372	105	0	372	0	1983	884	9	2233	996
V/C Ratio(X)	0.11	0.00	0.21	0.45	0.00	0.01	0.00	0.98	0.10	0.43	0.58	0.08
Avail Cap(c_a), veh/h	325	0	614	309	0	614	0	1991	888	108	2439	1088
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	25.5	40.3	0.0	24.3	0.0	17.9	8.5	41.0	8.9	6.0
Incr Delay (d2), s/veh	0.5	0.0	0.3	2.9	0.0	0.0	0.0	16.3	0.0	28.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	1.0	0.0	0.1	0.0	20.2	0.7	0.2	5.7	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	25.7	43.2	0.0	24.3	0.0	34.1	8.6	69.5	9.2	6.0
LnGrp LOS	C	A	C	D	A	C	A	C	A	E	A	A
Approach Vol, veh/h		90			51			2036			1368	
Approach Delay, s/veh		25.9			41.7			33.0			9.2	
Approach LOS		C			D			C			A	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.8	52.9		24.6		58.7		24.6				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.2	46.4		20.9		19.4		21.4				
Green Ext Time (p_c), s	0.0	0.0		0.2		8.9		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				23.8								
HCM 6th LOS				C								

LOS Engineering, Inc.

PM Existing + Project
6: Douglas Dr & North River Rd

Timings

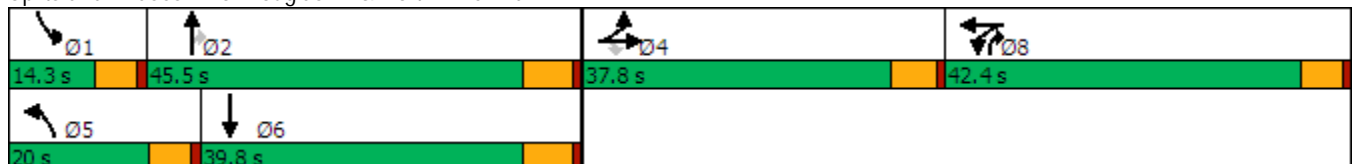


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘	↔	↘	↑↑	↗↘	↘	↔
Traffic Volume (vph)	38	96	67	567	65	146	667	893	39	571
Future Volume (vph)	38	96	67	567	65	146	667	893	39	571
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.0	45.5	42.4	14.3	39.8
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.3%	32.5%	30.3%	10.2%	28.4%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.1	13.1	13.1	33.5	33.5	14.1	38.4	74.2	7.7	29.2
Actuated g/C Ratio	0.12	0.12	0.12	0.30	0.30	0.12	0.34	0.65	0.07	0.26
v/c Ratio	0.20	0.25	0.23	0.65	0.44	0.72	0.60	0.45	0.35	0.74
Control Delay	49.2	48.3	1.7	44.2	34.9	70.0	36.5	1.1	64.3	45.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	48.3	1.7	44.2	34.9	70.0	36.5	1.1	64.3	45.3
LOS	D	D	A	D	C	E	D	A	E	D
Approach Delay		32.9			38.8		20.9			46.5
Approach LOS		C			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 113.3
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 30.5
 Intersection Capacity Utilization 61.9%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 6: Douglas Dr & North River Rd



PM Existing + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	96	67	567	65	40	146	667	893	39	571	46
Future Volume (veh/h)	38	96	67	567	65	40	146	667	893	39	571	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	104	73	616	71	43	159	725	971	42	621	50
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	157	313	140	849	260	157	195	1371	1741	64	1040	84
Arrive On Green	0.09	0.09	0.09	0.24	0.24	0.24	0.11	0.39	0.39	0.04	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3563	1091	661	1781	3554	2790	1781	3331	268
Grp Volume(v), veh/h	41	104	73	616	0	114	159	725	971	42	331	340
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1751	1781	1777	1395	1781	1777	1822
Q Serve(g_s), s	1.9	2.5	4.0	14.4	0.0	4.8	7.9	14.2	18.2	2.1	14.2	14.3
Cycle Q Clear(g_c), s	1.9	2.5	4.0	14.4	0.0	4.8	7.9	14.2	18.2	2.1	14.2	14.3
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	157	313	140	849	0	417	195	1371	1741	64	555	569
V/C Ratio(X)	0.26	0.33	0.52	0.73	0.00	0.27	0.81	0.53	0.56	0.65	0.60	0.60
Avail Cap(c_a), veh/h	630	1256	560	1456	0	716	287	1543	1876	175	660	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	38.8	39.5	31.7	0.0	28.1	39.4	21.5	9.8	43.1	26.3	26.3
Incr Delay (d2), s/veh	1.2	0.9	4.3	1.7	0.0	0.5	10.7	0.7	0.6	10.7	2.2	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	0.9	1.1	1.7	6.3	0.0	2.0	4.0	5.8	9.5	1.1	6.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	39.7	43.7	33.4	0.0	28.6	50.1	22.1	10.4	53.8	28.5	28.5
LnGrp LOS	D	D	D	C	A	C	D	C	B	D	C	C
Approach Vol, veh/h		218			730			1855			713	
Approach Delay, s/veh		41.0			32.7			18.4			30.0	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	41.1		13.8	15.3	34.5		27.0				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	8.9	39.3		32.0	14.6	33.6		37.0				
Max Q Clear Time (g_c+I1), s	4.1	20.2		6.0	9.9	16.3		16.4				
Green Ext Time (p_c), s	0.0	14.7		1.4	0.2	5.4		5.2				

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Project
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕		↕	↖		↕	↖
Traffic Volume (vph)	113	907	25	613	2	4	34	81	4	71
Future Volume (vph)	113	907	25	613	2	4	34	81	4	71
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	47.0	16.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	47.0%	16.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	10.6	28.1	7.4	20.2		12.1	12.1		12.1	12.1
Actuated g/C Ratio	0.19	0.50	0.13	0.36		0.21	0.21		0.21	0.21
v/c Ratio	0.37	0.57	0.12	0.60		0.02	0.09		0.32	0.19
Control Delay	29.5	13.6	32.1	18.9		21.0	0.4		24.6	6.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	29.5	13.6	32.1	18.9		21.0	0.4		24.6	6.2
LOS	C	B	C	B		C	A		C	A
Approach Delay		15.3		19.4		3.3			16.2	
Approach LOS		B		B		A			B	

Intersection Summary

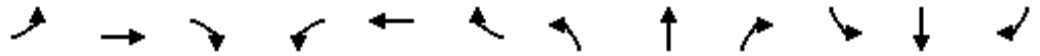
Cycle Length: 100
 Actuated Cycle Length: 56.4
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 16.7
 Intersection LOS: B
 Intersection Capacity Utilization 53.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



PM Existing + Project
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	907	12	25	613	85	2	4	34	81	4	71
Future Volume (veh/h)	113	907	12	25	613	85	2	4	34	81	4	71
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	123	986	13	27	666	92	2	4	37	88	4	77
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	170	1449	19	58	1068	147	172	229	249	389	14	249
Arrive On Green	0.10	0.40	0.40	0.03	0.34	0.34	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3591	47	1781	3137	433	290	1458	1585	1299	87	1585
Grp Volume(v), veh/h	123	488	511	27	377	381	6	0	37	92	0	77
Grp Sat Flow(s),veh/h/ln	1781	1777	1862	1781	1777	1792	1748	0	1585	1387	0	1585
Q Serve(g_s), s	2.6	8.6	8.6	0.6	6.8	6.8	0.0	0.0	0.8	2.2	0.0	1.6
Cycle Q Clear(g_c), s	2.6	8.6	8.6	0.6	6.8	6.8	0.1	0.0	0.8	2.3	0.0	1.6
Prop In Lane	1.00		0.03	1.00		0.24	0.33		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	170	717	751	58	605	611	401	0	249	403	0	249
V/C Ratio(X)	0.72	0.68	0.68	0.46	0.62	0.62	0.01	0.00	0.15	0.23	0.00	0.31
Avail Cap(c_a), veh/h	743	1920	2012	509	1687	1702	1537	0	1347	1360	0	1347
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.8	9.4	9.4	18.1	10.5	10.5	13.6	0.0	13.9	14.5	0.0	14.2
Incr Delay (d2), s/veh	5.7	1.1	1.1	5.7	1.1	1.1	0.0	0.0	0.3	0.3	0.0	0.7
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	1.2	2.5	2.6	0.3	2.1	2.2	0.0	0.0	0.2	0.6	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	10.5	10.4	23.8	11.6	11.6	13.6	0.0	14.1	14.8	0.0	14.9
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1122			785			43				169
Approach Delay, s/veh		11.8			12.0			14.1				14.8
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	21.2		10.6	8.7	18.8		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	10.9	41.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	2.6	10.6		4.3	4.6	8.8		2.8				
Green Ext Time (p_c), s	0.0	4.8		0.7	0.3	3.4		0.1				

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

PM Existing + Project
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1014	704	15	3	13
Future Vol, veh/h	21	1014	704	15	3	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	23	1102	765	16	3	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	781	0	-	0	1370 391
Stage 1	-	-	-	-	773 -
Stage 2	-	-	-	-	597 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	832	-	-	-	137 608
Stage 1	-	-	-	-	416 -
Stage 2	-	-	-	-	513 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	832	-	-	-	133 608
Mov Cap-2 Maneuver	-	-	-	-	133 -
Stage 1	-	-	-	-	404 -
Stage 2	-	-	-	-	513 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	832	-	-	-	364
HCM Lane V/C Ratio	0.027	-	-	-	0.048
HCM Control Delay (s)	9.4	-	-	-	15.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

LOS Engineering, Inc.

PM Existing + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔				↕		↕↔	
Traffic Vol, veh/h	25	873	112	112	660	12	48	0	48	19	0	8
Future Vol, veh/h	25	873	112	112	660	12	48	0	48	19	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	949	122	122	717	13	52	0	52	21	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	730	0	0	1071	0	0	1667	-	536	1497	2093	365
Stage 1	-	-	-	-	-	-	1064	-	-	968	968	-
Stage 2	-	-	-	-	-	-	603	-	-	529	1125	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	870	-	-	647	-	-	63	0	489	85	52	632
Stage 1	-	-	-	-	-	-	238	0	-	273	330	-
Stage 2	-	-	-	-	-	-	453	0	-	501	278	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	870	-	-	647	-	-	~ 52	-	489	63	41	632
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 52	-	-	63	41	-
Stage 1	-	-	-	-	-	-	231	-	-	265	268	-
Stage 2	-	-	-	-	-	-	363	-	-	434	269	-

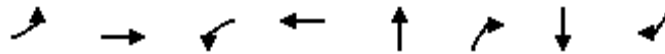
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.7	13.2	67.2
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	489	870	-	-	647	-	-	86
HCM Lane V/C Ratio	0.107	0.031	-	-	0.188	-	-	0.341
HCM Control Delay (s)	13.2	9.3	-	-	11.8	-	-	67.2
HCM Lane LOS	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.7	-	-	1.3

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

PM Existing + Project
10: Calle Montecito & North River Rd

Timings

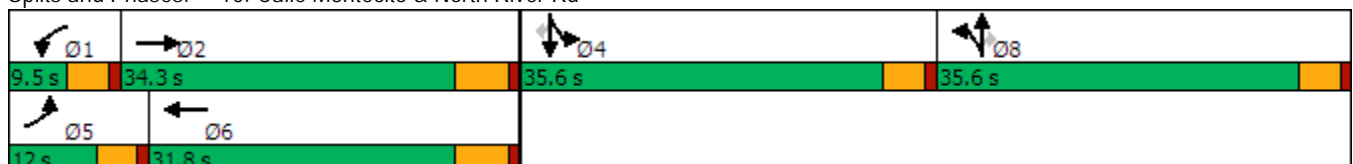


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↗	↕	↗
Traffic Volume (vph)	126	769	8	696	2	32	1	59
Future Volume (vph)	126	769	8	696	2	32	1	59
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	7.8	38.4	5.2	27.2	10.0	10.0	13.5	13.5
Actuated g/C Ratio	0.10	0.49	0.07	0.35	0.13	0.13	0.17	0.17
v/c Ratio	0.78	0.49	0.08	0.80	0.12	0.12	0.49	0.18
Control Delay	67.9	19.8	44.1	31.2	31.8	0.8	35.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	19.8	44.1	31.2	31.8	0.8	35.6	1.9
LOS	E	B	D	C	C	A	D	A
Approach Delay		26.5		31.4	14.3		25.4	
Approach LOS		C		C	B		C	

Intersection Summary

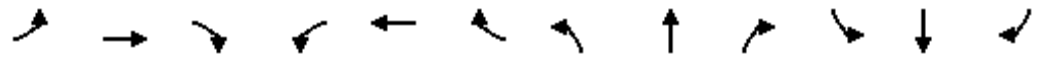
Cycle Length: 115
 Actuated Cycle Length: 78.7
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 28.2
 Intersection Capacity Utilization 58.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



PM Existing + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↖	↗
Traffic Volume (veh/h)	126	769	10	8	696	183	23	2	32	135	1	59
Future Volume (veh/h)	126	769	10	8	696	183	23	2	32	135	1	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	836	11	9	757	199	25	2	35	147	1	64
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	1521	20	21	938	246	171	14	164	226	2	202
Arrive On Green	0.10	0.42	0.42	0.01	0.34	0.34	0.10	0.10	0.10	0.13	0.13	0.13
Sat Flow, veh/h	1781	3591	47	1781	2784	732	1655	132	1585	1770	12	1585
Grp Volume(v), veh/h	137	414	433	9	483	473	27	0	35	148	0	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1862	1781	1777	1739	1788	0	1585	1782	0	1585
Q Serve(g_s), s	4.4	10.2	10.2	0.3	14.4	14.4	0.8	0.0	1.2	4.6	0.0	2.1
Cycle Q Clear(g_c), s	4.4	10.2	10.2	0.3	14.4	14.4	0.8	0.0	1.2	4.6	0.0	2.1
Prop In Lane	1.00		0.03	1.00		0.42	0.93		1.00	0.99		1.00
Lane Grp Cap(c), veh/h	175	752	788	21	599	586	185	0	164	227	0	202
V/C Ratio(X)	0.78	0.55	0.55	0.43	0.81	0.81	0.15	0.00	0.21	0.65	0.00	0.32
Avail Cap(c_a), veh/h	230	875	917	153	799	781	954	0	846	951	0	846
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.6	12.6	12.6	28.5	17.5	17.5	23.7	0.0	23.9	24.1	0.0	23.0
Incr Delay (d2), s/veh	12.1	0.6	0.6	13.7	4.6	4.7	0.4	0.0	0.6	3.1	0.0	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	2.3	3.6	3.8	0.2	6.0	5.8	0.3	0.0	0.4	2.0	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	13.2	13.2	42.2	22.1	22.2	24.1	0.0	24.5	27.2	0.0	23.9
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		984			965			62			212	
Approach Delay, s/veh		16.6			22.3			24.3			26.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	30.3		12.0	10.2	25.3		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.3	12.2		6.6	6.4	16.4		3.2				
Green Ext Time (p_c), s	0.0	3.4		0.8	0.0	3.2		0.2				

Intersection Summary

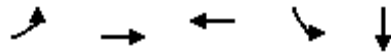
HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

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

PM Existing + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↕	↕	↖	↗		
Traffic Volume (vph)	108	839	811	49	0		
Future Volume (vph)	108	839	811	49	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	19.0	54.9	45.4	35.6	35.6	9.5	35.6
Total Split (%)	19.0%	54.9%	45.4%	35.6%	35.6%	10%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	10.3	35.8	24.4	10.9	10.9		
Actuated g/C Ratio	0.17	0.59	0.40	0.18	0.18		
v/c Ratio	0.39	0.44	0.67	0.21	0.20		
Control Delay	32.6	7.9	19.4	26.3	0.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.6	7.9	19.4	26.3	0.9		
LOS	C	A	B	C	A		
Approach Delay		10.7	19.4		9.8		
Approach LOS		B	B		A		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 60.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 49.9%
 ICU Level of Service A
 Analysis Period (min) 15

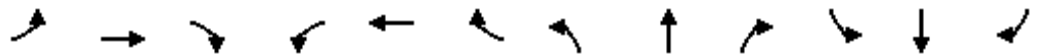
Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

PM Existing + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕		↖	↕	
Traffic Volume (veh/h)	108	839	0	0	811	62	0	0	0	49	0	90
Future Volume (veh/h)	108	839	0	0	811	62	0	0	0	49	0	90
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	117	912	0	0	882	67	0	0	0	53	0	98
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	157	2023	0	4	1255	95	0	264	0	421	0	224
Arrive On Green	0.09	0.57	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.14	0.00	0.14
Sat Flow, veh/h	1781	3647	0	1781	3347	254	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	117	912	0	0	468	481	0	0	0	53	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1825	0	1870	0	1781	0	1585
Q Serve(g_s), s	2.7	6.3	0.0	0.0	9.5	9.5	0.0	0.0	0.0	1.1	0.0	2.4
Cycle Q Clear(g_c), s	2.7	6.3	0.0	0.0	9.5	9.5	0.0	0.0	0.0	1.1	0.0	2.4
Prop In Lane	1.00		0.00	1.00		0.14	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	2023	0	4	666	684	0	264	0	421	0	224
V/C Ratio(X)	0.75	0.45	0.00	0.00	0.70	0.70	0.00	0.00	0.00	0.13	0.00	0.44
Avail Cap(c_a), veh/h	608	4033	0	210	1619	1663	0	1365	0	1428	0	1120
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.9	5.3	0.0	0.0	11.3	11.3	0.0	0.0	0.0	16.1	0.0	16.7
Incr Delay (d2), s/veh	6.8	0.2	0.0	0.0	1.4	1.3	0.0	0.0	0.0	0.1	0.0	1.3
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	1.3	1.4	0.0	0.0	3.1	3.2	0.0	0.0	0.0	0.4	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	5.5	0.0	0.0	12.6	12.6	0.0	0.0	0.0	16.3	0.0	18.0
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		1029			949			0				151
Approach Delay, s/veh		7.8			12.6			0.0				17.4
Approach LOS		A			B							B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	30.9		11.6	8.2	22.6		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.0	48.2		30.0	14.5	38.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	8.3		4.4	4.7	11.5		0.0				
Green Ext Time (p_c), s	0.0	5.1		0.6	0.2	4.4		0.0				

Intersection Summary

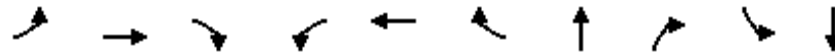
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

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

PM Existing + Project
12: College Blvd & North River Rd

Timings

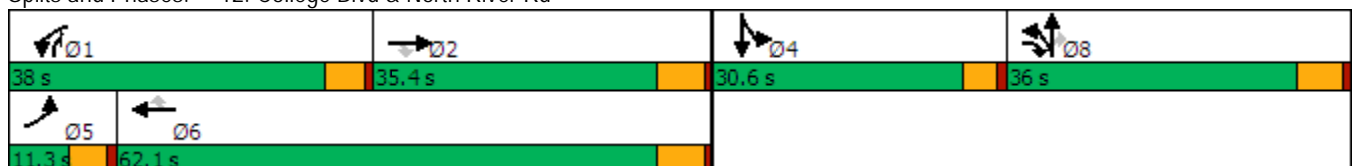


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	402	479	955	386	58	30	987	23	39
Future Volume (vph)	23	402	479	955	386	58	30	987	23	39
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.3	35.4	36.0	38.0	62.1	62.1	36.0	38.0	30.6	30.6
Total Split (%)	8.1%	25.3%	25.7%	27.1%	44.4%	44.4%	25.7%	27.1%	21.9%	21.9%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.1	19.4	51.5	33.5	51.7	51.7	30.7	70.1	10.6	10.6
Actuated g/C Ratio	0.05	0.17	0.45	0.30	0.46	0.46	0.27	0.62	0.09	0.09
v/c Ratio	0.26	0.72	0.56	1.02	0.26	0.08	1.13	0.53	0.15	0.25
Control Delay	64.1	52.4	5.7	74.9	21.8	1.7	121.0	4.4	50.3	50.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.1	52.4	5.7	74.9	21.8	1.7	121.0	4.4	50.3	50.6
LOS	E	D	A	E	C	A	F	A	D	D
Approach Delay		28.0			57.2		43.7			50.5
Approach LOS		C			E		D			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 113.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 45.0
 Intersection LOS: D
 Intersection Capacity Utilization 86.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd



PM Existing + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	402	479	955	386	58	471	30	987	23	39	2
Future Volume (veh/h)	23	402	479	955	386	58	471	30	987	23	39	2
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	25	437	521	1038	420	63	512	33	1073	25	42	2
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	42	881	794	952	1776	792	425	27	1474	80	80	4
Arrive On Green	0.02	0.25	0.25	0.28	0.50	0.50	0.25	0.25	0.25	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1678	108	2790	1781	1771	84
Grp Volume(v), veh/h	25	437	521	1038	420	63	545	0	1073	25	0	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1786	0	1395	1781	0	1855
Q Serve(g_s), s	1.7	12.6	29.2	32.9	8.0	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Cycle Q Clear(g_c), s	1.7	12.6	29.2	32.9	8.0	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	0.94		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	42	881	794	952	1776	792	452	0	1474	80	0	84
V/C Ratio(X)	0.59	0.50	0.66	1.09	0.24	0.08	1.21	0.00	0.73	0.31	0.00	0.53
Avail Cap(c_a), veh/h	93	881	794	952	1776	792	452	0	1474	388	0	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.7	38.5	22.2	43.2	16.9	15.5	44.6	0.0	21.6	55.2	0.0	55.7
Incr Delay (d2), s/veh	12.7	0.4	2.0	56.8	0.1	0.0	112.0	0.0	1.8	2.2	0.0	5.0
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	5.5	16.2	21.4	3.3	0.9	27.3	0.0	11.5	0.8	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	38.9	24.1	100.1	17.0	15.6	156.6	0.0	23.4	57.4	0.0	60.8
LnGrp LOS	E	D	C	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		983			1521			1618				69
Approach Delay, s/veh		31.9			73.6			68.3				59.5
Approach LOS		C			E			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	38.0	35.4		10.0	7.9	65.5		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	32.9	29.6		26.0	6.2	56.3		30.2				
Max Q Clear Time (g_c+I1), s	34.9	31.2		4.8	3.7	10.0		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	2.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				61.5								
HCM 6th LOS				E								

PM Existing + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	79	95	1503	1344	55
Future Volume (vph)	28	79	95	1503	1344	55
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.0	7.2	51.0	39.8	39.8
Actuated g/C Ratio	0.18	0.26	0.11	0.81	0.63	0.63
v/c Ratio	0.09	0.21	0.26	0.57	0.65	0.06
Control Delay	27.3	16.3	35.3	6.9	13.8	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.3	16.3	35.3	7.0	13.8	5.9
LOS	C	B	D	A	B	A
Approach Delay	19.2			8.6	13.5	
Approach LOS	B			A	B	

Intersection Summary

Cycle Length: 100	
Actuated Cycle Length: 62.7	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 11.2	Intersection LOS: B
Intersection Capacity Utilization 56.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 13: College Blvd & Buchanon Park



LOS Engineering, Inc.

PM Existing + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	79	95	1503	1344	55
Future Volume (veh/h)	28	79	95	1503	1344	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	30	86	103	1634	1461	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	208	317	289	2503	1893	844
Arrive On Green	0.12	0.12	0.08	0.70	0.53	0.53
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	30	86	103	1634	1461	60
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	0.9	2.7	1.6	14.6	18.9	1.1
Cycle Q Clear(g_c), s	0.9	2.7	1.6	14.6	18.9	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	208	317	289	2503	1893	844
V/C Ratio(X)	0.14	0.27	0.36	0.65	0.77	0.07
Avail Cap(c_a), veh/h	859	897	387	3771	3061	1365
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	23.0	19.6	25.1	4.7	10.8	6.6
Incr Delay (d2), s/veh	0.3	0.5	0.7	0.3	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.5	0.7	2.9	6.0	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.4	20.1	25.9	5.0	11.5	6.6
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	116			1737	1521	
Approach Delay, s/veh	20.9			6.2	11.3	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		46.7		11.4	10.0	36.7
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		16.6		4.7	3.6	20.9
Green Ext Time (p_c), s		12.9		0.4	0.1	10.0
Intersection Summary						
HCM 6th Ctrl Delay			9.0			
HCM 6th LOS			A			

PM Existing + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	149	20	46	10	30	69	1401	40	1303	117
Future Volume (vph)	149	20	46	10	30	69	1401	40	1303	117
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	12.0	51.5	11.8	51.3	51.3
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	12.0%	51.5%	11.8%	51.3%	51.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.4	16.4		16.4	16.4	7.0	42.3	6.7	39.5	39.5
Actuated g/C Ratio	0.22	0.22		0.22	0.22	0.09	0.56	0.09	0.52	0.52
v/c Ratio	0.56	0.24		0.21	0.08	0.46	0.57	0.28	0.77	0.15
Control Delay	36.2	11.1		27.8	0.4	49.2	14.1	44.0	20.5	6.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	11.1		27.8	0.4	49.2	14.1	44.0	20.5	6.8
LOS	D	B		C	A	D	B	D	C	A
Approach Delay		26.8		18.2			15.7		20.1	
Approach LOS		C		B			B		C	

Intersection Summary























Cycle Length: 100
 Actuated Cycle Length: 76.1
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 18.5
 Intersection LOS: B
 Intersection Capacity Utilization 68.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM Existing + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	20	70	46	10	30	69	1401	78	40	1303	117
Future Volume (veh/h)	149	20	70	46	10	30	69	1401	78	40	1303	117
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	162	22	76	50	11	33	75	1523	85	43	1416	127
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	86	297	302	58	370	98	2492	139	72	1739	776
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.05	0.50	0.50	0.04	0.49	0.49
Sat Flow, veh/h	1362	368	1273	892	246	1585	1781	4949	276	1781	3554	1585
Grp Volume(v), veh/h	162	0	98	61	0	33	75	1048	560	43	1416	127
Grp Sat Flow(s),veh/h/ln	1362	0	1641	1138	0	1585	1781	1702	1821	1781	1777	1585
Q Serve(g_s), s	8.0	0.0	3.4	2.0	0.0	1.1	2.9	15.5	15.5	1.7	23.7	3.1
Cycle Q Clear(g_c), s	13.4	0.0	3.4	5.4	0.0	1.1	2.9	15.5	15.5	1.7	23.7	3.1
Prop In Lane	1.00		0.78	0.82		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	315	0	383	359	0	370	98	1714	917	72	1739	776
V/C Ratio(X)	0.51	0.00	0.26	0.17	0.00	0.09	0.77	0.61	0.61	0.60	0.81	0.16
Avail Cap(c_a), veh/h	618	0	749	665	0	723	175	2217	1186	170	2305	1028
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.4	0.0	21.9	23.3	0.0	21.0	32.7	12.5	12.5	33.1	15.2	9.9
Incr Delay (d2), s/veh	1.3	0.0	0.3	0.2	0.0	0.1	11.9	0.4	0.7	7.7	1.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	0.0	1.3	0.8	0.0	0.4	1.5	5.2	5.7	0.9	8.7	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	0.0	22.3	23.5	0.0	21.1	44.6	12.8	13.2	40.8	17.0	10.0
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		260			94			1683			1586	
Approach Delay, s/veh		26.9			22.7			14.4			17.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	41.1		21.1	8.9	40.1		21.1				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.7	45.7		* 32	6.9	45.5		* 32				
Max Q Clear Time (g_c+I1), s	3.7	17.5		15.4	4.9	25.7		7.4				
Green Ext Time (p_c), s	0.0	9.5		0.9	0.0	8.6		0.3				

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.

PM Existing + Project
15: College Blvd & Via Cupeno

Timings

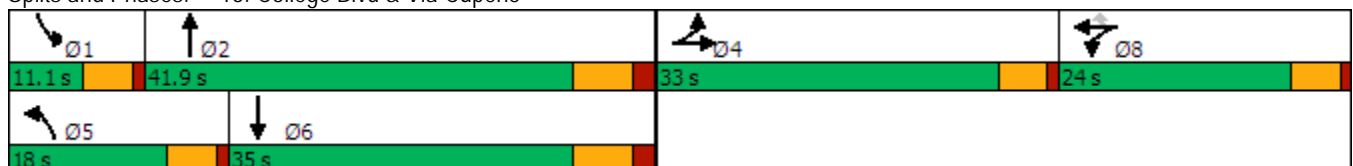


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	9	10	6	419	1319	2	1186
Future Volume (vph)	9	10	6	419	1319	2	1186
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	18.0	41.9	11.1	35.0
Total Split (%)	30.0%	21.8%	21.8%	16.4%	38.1%	10.1%	31.8%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	16.4	9.3	9.3	13.2	45.3	6.1	28.8
Actuated g/C Ratio	0.19	0.11	0.11	0.15	0.52	0.07	0.33
v/c Ratio	0.69	0.41	0.02	0.88	0.59	0.02	0.85
Control Delay	30.1	45.8	0.2	58.2	19.1	44.0	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	45.8	0.2	58.2	19.1	44.0	35.0
LOS	C	D	A	E	B	D	D
Approach Delay	30.1	42.1			28.0		35.0
Approach LOS	C	D			C		D

Intersection Summary






















Cycle Length: 110
 Actuated Cycle Length: 87.1
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 31.1
 Intersection LOS: C
 Intersection Capacity Utilization 74.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



PM Existing + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	9	175	62	10	6	419	1319	99	2	1186	115
Future Volume (veh/h)	267	9	175	62	10	6	419	1319	99	2	1186	115
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	290	10	190	67	11	7	455	1434	108	2	1289	125
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	359	16	306	92	15	94	532	2270	171	6	1504	146
Arrive On Green	0.20	0.20	0.20	0.06	0.06	0.06	0.15	0.47	0.47	0.00	0.32	0.32
Sat Flow, veh/h	1781	80	1517	1540	253	1585	3456	4844	365	1781	4733	459
Grp Volume(v), veh/h	290	0	200	78	0	7	455	1008	534	2	927	487
Grp Sat Flow(s),veh/h/ln	1781	0	1597	1793	0	1585	1728	1702	1805	1781	1702	1788
Q Serve(g_s), s	12.7	0.0	9.4	3.5	0.0	0.3	10.5	18.3	18.3	0.1	20.9	20.9
Cycle Q Clear(g_c), s	12.7	0.0	9.4	3.5	0.0	0.3	10.5	18.3	18.3	0.1	20.9	20.9
Prop In Lane	1.00		0.95	0.86		1.00	1.00		0.20	1.00		0.26
Lane Grp Cap(c), veh/h	359	0	322	107	0	94	532	1595	846	6	1082	568
V/C Ratio(X)	0.81	0.00	0.62	0.73	0.00	0.07	0.86	0.63	0.63	0.34	0.86	0.86
Avail Cap(c_a), veh/h	609	0	546	416	0	368	544	1595	846	130	1172	615
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	0.0	29.9	37.9	0.0	36.4	33.8	16.4	16.4	40.7	26.2	26.2
Incr Delay (d2), s/veh	4.3	0.0	2.0	9.3	0.0	0.3	12.5	0.8	1.5	31.8	6.1	10.9
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	5.7	0.0	3.7	1.8	0.0	0.1	5.2	6.8	7.4	0.1	9.0	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.5	0.0	31.8	47.1	0.0	36.7	46.3	17.2	18.0	72.5	32.3	37.1
LnGrp LOS	D	A	C	D	A	D	D	B	B	E	C	D
Approach Vol, veh/h		490			85			1997			1416	
Approach Delay, s/veh		34.0			46.3			24.1			34.0	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	45.2		21.5	17.7	32.8		9.9				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	35.1		28.0	12.9	28.2		19.0				
Max Q Clear Time (g_c+I1), s	2.1	20.3		14.7	12.5	22.9		5.5				
Green Ext Time (p_c), s	0.0	6.9		1.8	0.1	3.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				29.3								
HCM 6th LOS				C								

PM Existing + Project
16: College Blvd & SR-76

Timings

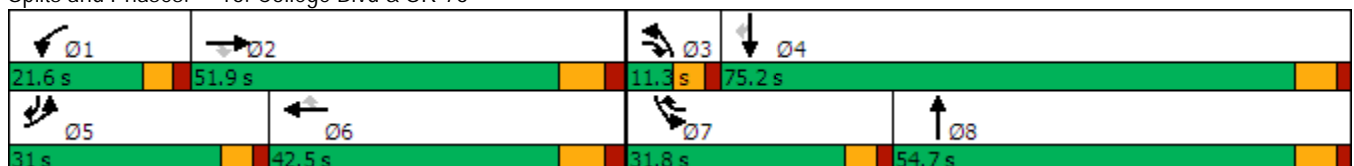


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑↑	↖	↖↗	↑↔	↖↗	↑↑	↖
Traffic Volume (vph)	502	1317	50	307	875	584	42	727	524	731	402
Future Volume (vph)	502	1317	50	307	875	584	42	727	524	731	402
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	31.0	51.9	11.3	21.6	42.5	31.8	11.3	54.7	31.8	75.2	31.0
Total Split (%)	19.4%	32.4%	7.1%	13.5%	26.6%	19.9%	7.1%	34.2%	19.9%	47.0%	19.4%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effect Green (s)	25.3	43.9	57.5	15.9	34.5	68.6	5.6	47.9	26.1	70.7	102.8
Actuated g/C Ratio	0.16	0.27	0.36	0.10	0.22	0.43	0.04	0.30	0.16	0.44	0.64
v/c Ratio	1.01	1.03	0.09	0.98	0.87	0.86	0.38	1.09	1.02	0.51	0.42
Control Delay	106.1	87.1	0.3	114.2	70.0	47.4	84.9	106.1	107.1	34.1	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.1	87.1	0.3	114.2	70.0	47.4	84.9	106.1	107.1	34.1	13.2
LOS	F	F	A	F	E	D	F	F	F	C	B
Approach Delay		89.9			70.2			105.3		52.1	
Approach LOS		F			E			F		D	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 77.3
 Intersection LOS: E
 Intersection Capacity Utilization 101.4%
 ICU Level of Service G
 Analysis Period (min) 15




































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

PM Existing + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		  	 	
Traffic Volume (veh/h)	502	1317	50	307	875	584	42	727	321	524	731	402
Future Volume (veh/h)	502	1317	50	307	875	584	42	727	321	524	731	402
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	546	1432	54	334	951	635	46	790	349	570	795	437
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	546	1401	470	343	1101	600	78	718	317	564	1564	948
Arrive On Green	0.16	0.27	0.27	0.10	0.22	0.22	0.02	0.30	0.30	0.16	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2399	1058	3456	3554	1585
Grp Volume(v), veh/h	546	1432	54	334	951	635	46	585	554	570	795	437
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1680	1728	1777	1585
Q Serve(g_s), s	25.3	43.9	4.0	15.4	28.7	34.5	2.1	47.9	47.9	26.1	25.8	24.5
Cycle Q Clear(g_c), s	25.3	43.9	4.0	15.4	28.7	34.5	2.1	47.9	47.9	26.1	25.8	24.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	546	1401	470	343	1101	600	78	532	503	564	1564	948
V/C Ratio(X)	1.00	1.02	0.11	0.97	0.86	1.06	0.59	1.10	1.10	1.01	0.51	0.46
Avail Cap(c_a), veh/h	546	1401	470	343	1101	600	121	532	503	564	1564	948
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	58.0	41.0	71.8	60.5	49.7	77.5	56.0	56.1	66.9	32.3	17.8
Incr Delay (d2), s/veh	38.3	29.8	0.1	41.1	7.3	52.9	7.1	68.9	71.0	40.7	0.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.1	22.8	1.6	8.8	13.2	32.7	1.0	31.6	30.2	14.7	11.3	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.6	87.8	41.1	112.9	67.8	102.6	84.5	124.9	127.1	107.7	32.6	18.2
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	C	B
Approach Vol, veh/h		2032			1920			1185			1802	
Approach Delay, s/veh		91.4			87.2			124.4			52.8	
Approach LOS		F			F			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	51.9	9.3	77.2	31.0	42.5	31.8	54.7				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 16	43.9	* 5.6	68.4	* 25	34.5	* 26	47.9				
Max Q Clear Time (g_c+I1), s	17.4	45.9	4.1	27.8	27.3	36.5	28.1	49.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	7.3	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			85.8									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Project
17: North River Rd/Vandergrift Blvd

Timings

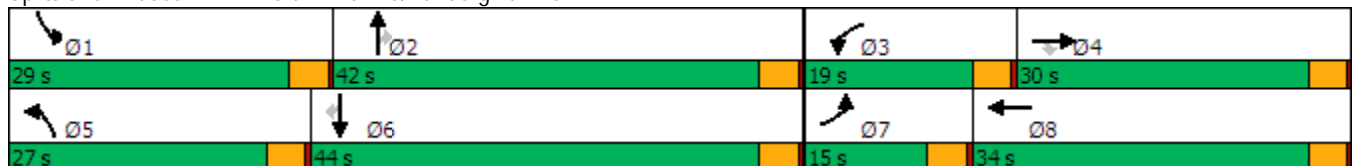


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	70	87	121	311	106	225	689	427	212	893	53
Future Volume (vph)	70	87	121	311	106	225	689	427	212	893	53
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	15.0	30.0	30.0	19.0	34.0	27.0	42.0	42.0	29.0	44.0	44.0
Total Split (%)	12.5%	25.0%	25.0%	15.8%	28.3%	22.5%	35.0%	35.0%	24.2%	36.7%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.2	13.0	13.0	13.9	20.2	18.6	41.1	41.1	18.1	40.5	40.5
Actuated g/C Ratio	0.09	0.13	0.13	0.14	0.20	0.18	0.40	0.40	0.18	0.40	0.40
v/c Ratio	0.48	0.40	0.42	0.72	0.57	0.76	0.37	0.51	0.74	0.69	0.09
Control Delay	57.8	46.5	11.2	53.6	39.3	57.0	24.1	4.8	55.5	31.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	46.5	11.2	53.6	39.3	57.0	24.1	4.8	55.5	31.0	3.0
LOS	E	D	B	D	D	E	C	A	E	C	A
Approach Delay		34.0			48.1		23.5			34.2	
Approach LOS		C			D		C			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 102.3
 Natural Cycle: 90
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 31.9
 Intersection LOS: C
 Intersection Capacity Utilization 65.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM Existing + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	87	121	311	106	89	225	689	427	212	893	53
Future Volume (veh/h)	70	87	121	311	106	89	225	689	427	212	893	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	95	132	338	115	97	245	749	464	230	971	58
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	98	208	176	422	167	141	285	2253	699	271	1540	687
Arrive On Green	0.06	0.11	0.11	0.12	0.18	0.18	0.16	0.44	0.44	0.15	0.43	0.43
Sat Flow, veh/h	1781	1870	1585	3456	937	791	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	76	95	132	338	0	212	245	749	464	230	971	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1728	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.9	4.4	7.5	8.8	0.0	10.6	12.4	8.9	21.4	11.6	19.7	2.0
Cycle Q Clear(g_c), s	3.9	4.4	7.5	8.8	0.0	10.6	12.4	8.9	21.4	11.6	19.7	2.0
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	208	176	422	0	308	285	2253	699	271	1540	687
V/C Ratio(X)	0.77	0.46	0.75	0.80	0.00	0.69	0.86	0.33	0.66	0.85	0.63	0.08
Avail Cap(c_a), veh/h	212	527	446	561	0	561	444	2253	699	482	1540	687
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	38.4	39.8	39.4	0.0	35.6	37.7	16.9	20.4	38.1	20.4	15.4
Incr Delay (d2), s/veh	12.0	1.6	6.3	6.1	0.0	2.7	9.9	0.4	4.9	7.2	2.0	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	2.0	2.1	3.2	4.0	0.0	4.6	6.1	3.4	8.5	5.5	8.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	40.0	46.0	45.5	0.0	38.3	47.6	17.3	25.3	45.3	22.4	15.6
LnGrp LOS	E	D	D	D	A	D	D	B	C	D	C	B
Approach Vol, veh/h		303			550			1458			1259	
Approach Delay, s/veh		46.4			42.7			24.9			26.3	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.1	44.7	15.3	14.3	18.8	44.0	9.1	20.4				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	25.0	38.0	15.0	26.0	23.0	40.0	11.0	30.0				
Max Q Clear Time (g_c+I1), s	13.6	23.4	10.8	9.5	14.4	21.7	5.9	12.6				
Green Ext Time (p_c), s	0.5	6.1	0.5	0.8	0.5	7.0	0.1	1.1				
Intersection Summary												
HCM 6th Ctrl Delay				30.0								
HCM 6th LOS				C								

Appendix I

Cumulative Project Traffic Volumes and Assignments

	<i>Cumulative</i>			<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>									
1) Douglas/SR-76												
AM Cumulative Total	0	0	0	0	0	36	20	96	0	0	120	3
C1 Villa Storia						2	1	11			39	
C2 Mission Cove						2	4	22			13	
C3 Pacific Coast								33			6	
C4 RDO Village XII								2			5	
C5 Oceanpointe								1			6	
C6 El Corazon						4		2			2	3
C7 Oceanside + Melrose								13			21	
C8 Onpoint						8	7					
C9 N. River Farms						20	8	12			28	
PM Cumulative Total	()	()	()	()	()	(39)	(39)	(151)	()	()	(124)	(12)
C1 Villa Storia						(1)	(2)	(43)			(18)	
C2 Mission Cove						(4)	(3)	(17)			(23)	
C3 Pacific Coast								(16)			(40)	
C4 RDO Village XII								(5)			(2)	
C5 Oceanpointe								(6)			(2)	
C6 El Corazon						(12)		(6)			(6)	(12)
C7 Oceanside + Melrose								(23)			(15)	
C8 Onpoint						(9)	(9)					
C9 N. River Farms						(13)	(25)	(35)			(18)	
2) Douglas/Mission (#23 Circ Element)	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	22	1	10	34	8	3	14	0	2	32	11
C1 Villa Storia			1	2				6		2	23	8
C2 Mission Cove		4			2			1			1	
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon		3			4							
C7 Oceanside + Melrose												
C8 Onpoint		7			8			7			8	
C9 N. River Farms		8		8	20	8	3					3
PM Cumulative Total	()	(49)	(2)	(14)	(38)	(5)	(10)	(35)	()	(1)	(21)	(14)
C1 Villa Storia			(2)	(9)				(25)		(1)	(11)	(4)
C2 Mission Cove		(3)			(4)			(1)			(1)	
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon		(12)			(12)							
C7 Oceanside + Melrose												
C8 Onpoint		(9)			(9)			(9)			(9)	
C9 N. River Farms		(25)		(5)	(13)	(5)	(10)					(10)
3) Douglas/El Camino Real (#22 Circ Element)	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	11	27	1	0	48	25	11	0	6	1	0	0
C1 Villa Storia	8								2			
C2 Mission Cove		4			2	1	1					
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon	2	3			4				3			
C7 Oceanside + Melrose												
C8 Onpoint	1	5	1		6				1	1		
C9 N. River Farms		15			36	24	10					
PM Cumulative Total	(11)	(63)	(1)	()	(41)	(17)	(31)	()	(16)	(1)	()	()
C1 Villa Storia	(4)								(9)			
C2 Mission Cove		(3)			(4)	(2)	(1)					
C3 Pacific Coast												

C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon	(6)	(7)		(7)				(6)				
C7 Oceanside + Melrose												
C8 Onpoint	(1)	(7)	(1)	(7)				(1)	(1)			
C9 N. River Farms		(46)		(23)	(15)	(30)						
4) Douglas/Pala	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	3	31	4	0	65	0	0	0	4	4	0	0
C1 Villa Stora												
C2 Mission Cove	1	3	1	1				1		1		
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon	1		2					2		2		
C7 Oceanside + Melrose												
C8 Onpoint	1	3	1	4				1		1		
C9 N. River Farms		25		60								
PM Cumulative Total	(5)	(83)	(5)	()	(45)	()	()	()	(6)	(7)	()	()
C1 Villa Stora												
C2 Mission Cove	(1)	(2)	(1)	(2)				(2)		(2)		
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon	(3)		(3)					(3)		(4)		
C7 Oceanside + Melrose												
C8 Onpoint	(1)	(5)	(1)	(5)				(1)		(1)		
C9 N. River Farms		(76)		(38)								
5) Douglas/Rainier	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	29	2	0	64	0	0	0	0	1	0	0
C1 Villa Stora												
C2 Mission Cove		2	1	1						0		
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint		2	1	3						1		
C9 N. River Farms		25		60								
PM Cumulative Total	()	(81)	(2)	()	(43)	()	()	()	()	(2)	()	()
C1 Villa Stora												
C2 Mission Cove		(1)	(1)	(1)						(1)		
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint		(4)	(1)	(4)						(1)		
C9 N. River Farms		(76)		(38)								
6) Douglas/N River Rd (#21 Circ Element)	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	3	26	0	2	0	0	0	1	60	0	0
C1 Villa Stora												
C2 Mission Cove		2		1								
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint		1	1	1				1		1		
C9 N. River Farms			25							59		

PM Cumulative Total	(1)	(2)	(78)	(0)	(1)	(0)	(0)	(0)	(1)	(40)	(0)	(0)
C1 Villa Stora												
C2 Mission Cove		(1)			(0)							
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint	(1)	(1)	(2)		(1)			(1)		(2)		
C9 N. River Farms			(76)							(38)		
7) N River/Ave Descanso	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	0	0	0	1	1	25	0	0	59	0
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint						1	1					
C9 N. River Farms								25			59	
PM Cumulative Total	(0)	(0)	(0)	(0)	(0)	(2)	(2)	(76)	(0)	(0)	(38)	(0)
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint						(2)	(2)					
C9 N. River Farms								(76)			(38)	
8) N River/Westwinds MHP	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	0	0	0	0	0	25	0	0	59	0
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								25			59	
PM Cumulative Total	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(76)	(0)	(0)	(38)	(0)
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								(76)			(38)	
9) N River/Riverview Way	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	0	0	0	0	0	25	0	0	59	0
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												

C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								25			59	
PM Cumulative Total	()	()	()	()	()	()	()	(76)	()	()	(38)	()
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								(76)			(38)	
10) N River/Calle Montecito	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	0	0	0	0	0	25	0	0	59	0
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								25			59	
PM Cumulative Total	()	()	()	()	()	()	()	(76)	()	()	(38)	()
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								(76)			(38)	
11) N River/Redondo	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	0	0	0	0	0	25	0	0	59	0
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								25			59	
PM Cumulative Total	()	()	()	()	()	()	()	(76)	()	()	(38)	()
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms								(76)			(38)	
12) N River/College (#33 Circ Element)	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	84	0	0	0	0	25	0	199	59	0
C1 Villa Stora			1							1		
C2 Mission Cove												

C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			83				25		198	59		
PM Cumulative Total	()	()	(255)	()	()	()	()	(76)	()	(130)	(38)	()
C1 Villa Storia			(1)							(2)		
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			(254)				(76)		(128)	(38)		
13) College/Buchanan Park	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	1	84	0	0	199	0	0	0	0	0	0	0
C1 Villa Storia	1	1			1				0			
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			83			198						
PM Cumulative Total	()	(255)	()	()	(130)	()	()	()	(1)	()	()	()
C1 Villa Storia	()	(1)			(2)				(1)			
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			(254)			(128)						
14) College/Adams	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	85	1	0	199	0	0	0	5	5	0	0
C1 Villa Storia		2			1							
C2 Mission Cove												
C3 Pacific Coast			1						5	5		
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			83			198						
PM Cumulative Total	(5)	(255)	(5)	()	(131)	()	()	()	(3)	(3)	()	()
C1 Villa Storia		(1)			(3)							
C2 Mission Cove												
C3 Pacific Coast	(5)		(5)						(3)	(3)		
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												

C9 N. River Farms	(254)			(128)								
15) College/Via Cupeno	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	16	82	1	0	197	12	4	0	10	2	0	0
C1 Villa Stora	8	2			1				2			
C2 Mission Cove												
C3 Pacific Coast	1	1	1		10				5	2		
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose	7								3			
C8 Onpoint												
C9 N. River Farms		79			186	12	4					
PM Cumulative Total	(14)	(249)	(2)	()	(130)	(7)	(16)	()	(16)	(1)	()	()
C1 Villa Stora	(3)	(1)			(3)				(8)			
C2 Mission Cove												
C3 Pacific Coast	(8)	(10)	(2)		(6)				(1)	(1)		
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose	(3)								(7)			
C8 Onpoint												
C9 N. River Farms		(238)			(121)	(7)	(16)					
16) College/SR-76 (#34 Circ Element)	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	6	35	14	66	92	51	30	48	8	39	31	34
C1 Villa Stora	1					3	10	25	6		7	
C2 Mission Cove												
C3 Pacific Coast		3	6		17					33		
C4 RDO Village XII	5		5						2	2		
C5 Oceanpointe								10			3	
C6 El Corazon												
C7 Oceanside + Melrose			3	3				13		4	21	7
C8 Onpoint												
C9 N. River Farms		32		63	75	48	20					27
PM Cumulative Total	(9)	(116)	(47)	(48)	(57)	(42)	(65)	(40)	(8)	(25)	(53)	(84)
C1 Villa Stora	(7)					(11)	(4)	(12)	(3)		(27)	
C2 Mission Cove												
C3 Pacific Coast		(20)	(40)		(8)					(18)		
C4 RDO Village XII	(2)		(2)						(5)	(5)		
C5 Oceanpointe								(5)			(11)	
C6 El Corazon												
C7 Oceanside + Melrose			(5)	(7)				(23)		(2)	(15)	(3)
C8 Onpoint												
C9 N. River Farms		(96)		(41)	(49)	(31)	(61)					(81)
17) Vandergrift/N. River Rd	<i>NBL</i>	<i>NBT</i>	<i>NBR</i>	<i>SBL</i>	<i>SBT</i>	<i>SBR</i>	<i>EBL</i>	<i>EBT</i>	<i>EBR</i>	<i>WBL</i>	<i>WBT</i>	<i>WBR</i>
AM Cumulative Total	0	0	108	13	0	0	0	0	0	257	0	32
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												
C5 Oceanpointe												
C6 El Corazon												
C7 Oceanside + Melrose												
C8 Onpoint												
C9 N. River Farms			108	13						257		32
PM Cumulative Total	()	()	(330)	(41)	()	()	()	()	()	(166)	()	(20)
C1 Villa Stora												
C2 Mission Cove												
C3 Pacific Coast												
C4 RDO Village XII												

C5 Oceanpointe				
C6 El Corazon				
C7 Oceanside + Melrose				
C8 Onpoint				
C9 N. River Farms	(330)	(41)	(166)	(20)

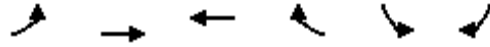
Cumulative Project:	Villa Storia	Mission Cove	Pac Coast	RDO	Oc- ean Point	El Cor- azon	Oside Mel- rose	On Point	North River Farms LLG Fig 7-2
<u>Douglas Drive</u>									
N. River Rd to Rainier Way		24				10		25	1,166
Rainier Way to Pala Rd		42				20		55	1,166
Pala Rd to El Camino Real		84				50		111	1,166
El Camino Real to Mission Ave	146	84				100		222	699
Mission Ave to SR-76	146	84				100		222	389
<u>North River Road</u>									
Douglas Dr to Avenida Descanso								10	1,166
Ave. Descanso to Riverview Wy									1,166
Riverview Way to Calle Montecito									1,166
Calle Montecito to Redondo Dr									1,166
Redondo Dr to College Blvd									1,166
College Blvd to Vandergrift Blvd									5,051
<u>College Blvd</u>									
N. River Rd to Buchanan Park	10						122		3,886
Buchanan Park to Adams St	24						122		3,886
Adams St to Via Cupeno	24		100				122		3,886
Via Cupeno to SR-76	164	10	170				122		3,652
<u>SR-76</u>									
Foussat Rd to Douglas Dr	657	62	300	60	80	60	202	1,109	1,070
Douglas Dr to Rancho Del Oro	624	50	300	60	80	20	202	887	624
Frazee Rd to College Blvd	657	50		60	160		202	665	1,070
College Blvd to N. Santa Fe	394	40	300	60	160		202	665	1,426

Appendix J

Existing + Cumulative Intersection LOS Worksheets

AM Existing + Cumulative
1: SR-76 & Douglas Dr

Timings

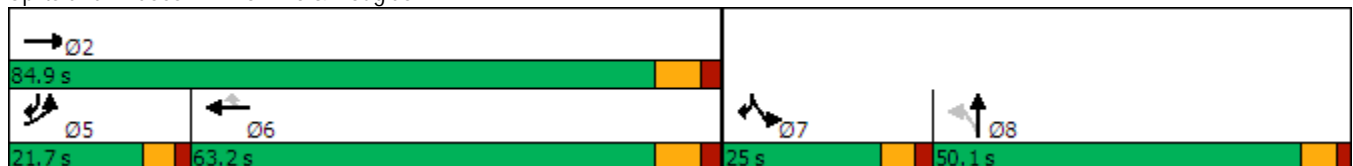


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	259	966	1881	208	247	526	
Future Volume (vph)	259	966	1881	208	247	526	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	21.7	84.9	63.2	63.2	25.0		50.1
Total Split (%)	13.6%	53.1%	39.5%	39.5%	15.6%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	15.0	75.9	55.2	55.2	18.9	40.0	
Actuated g/C Ratio	0.14	0.70	0.51	0.51	0.17	0.37	
v/c Ratio	0.60	0.43	1.14	0.25	0.87	0.41	
Control Delay	49.8	7.7	97.8	3.2	72.5	2.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	49.8	7.7	97.8	3.2	72.5	2.9	
LOS	D	A	F	A	E	A	
Approach Delay		16.6	88.3				
Approach LOS		B	F				

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 108.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 54.9
 Intersection LOS: D
 Intersection Capacity Utilization 91.3%
 ICU Level of Service F
 Analysis Period (min) 15

























Splits and Phases: 1: SR-76 & Douglas Dr



LOS Engineering, Inc.

AM Existing + Cumulative
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	259	966	0	0	1881	208	0	0	0	247	0	526
Future Volume (veh/h)	259	966	0	0	1881	208	0	0	0	247	0	526
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	282	1050	0	0	2045	226	0	0	0	268	0	572
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	425	2484	0	0	1856	828	0	2	0	299	0	0
Arrive On Green	0.12	0.70	0.00	0.00	0.52	0.52	0.00	0.00	0.00	0.17	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	268	
Grp Volume(v), veh/h	282	1050	0	0	2045	226	0	0	0	268	68.6	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	8.2	13.3	0.0	0.0	55.2	8.4	0.0	0.0	0.0	15.6		
Cycle Q Clear(g_c), s	8.2	13.3	0.0	0.0	55.2	8.4	0.0	0.0	0.0	15.6		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	425	2484	0	0	1856	828	0	2	0	299		
V/C Ratio(X)	0.66	0.42	0.00	0.00	1.10	0.27	0.00	0.00	0.00	0.90		
Avail Cap(c_a), veh/h	523	2585	0	0	1856	828	0	778	0	318		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	44.3	6.8	0.0	0.0	25.3	14.1	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	2.3	0.1	0.0	0.0	54.7	0.2	0.0	0.0	0.0	25.5		
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		
%ile BackOfQ(50%),veh/ln	3.6	4.5	0.0	0.0	35.8	3.0	0.0	0.0	0.0	8.9		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.6	6.9	0.0	0.0	80.0	14.3	0.0	0.0	0.0	68.6		
LnGrp LOS	D	A	A	A	F	B	A	A	A	E		
Approach Vol, veh/h		1332			2271			0				
Approach Delay, s/veh		15.3			73.5			0.0				
Approach LOS		B			E							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		81.9			18.7	63.2	23.8	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		76.9			* 16	55.2	18.9	44.0				
Max Q Clear Time (g_c+I1), s		15.3			10.2	57.2	17.6	0.0				
Green Ext Time (p_c), s		6.4			0.6	0.0	0.1	0.0				

Intersection Summary

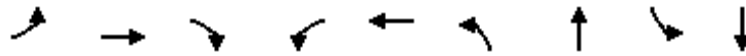
HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

Notes

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

AM Existing + Cumulative
2: Douglas Dr & Mission Ave

Timings

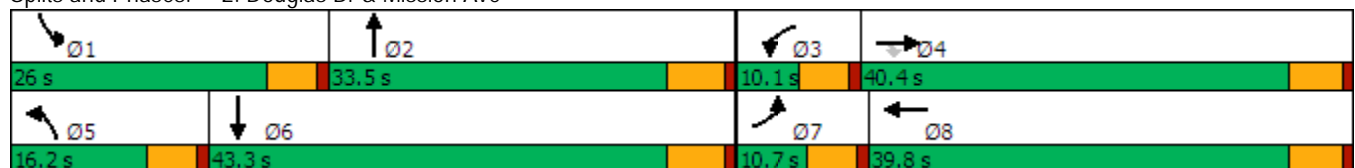


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	69	272	62	49	462	111	313	388	710
Future Volume (vph)	69	272	62	49	462	111	313	388	710
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.7	40.4	40.4	10.1	39.8	16.2	33.5	26.0	43.3
Total Split (%)	9.7%	36.7%	36.7%	9.2%	36.2%	14.7%	30.5%	23.6%	39.4%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.8	26.5	26.5	5.2	26.0	10.2	18.5	21.8	30.1
Actuated g/C Ratio	0.06	0.29	0.29	0.06	0.28	0.11	0.20	0.24	0.33
v/c Ratio	0.34	0.29	0.11	0.53	0.81	0.61	0.49	1.00	0.74
Control Delay	51.4	26.9	0.4	67.7	31.4	57.5	35.1	84.1	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.4	26.9	0.4	67.7	31.4	57.5	35.1	84.1	32.9
LOS	D	C	A	E	C	E	D	F	C
Approach Delay		27.0			33.5		40.9		49.7
Approach LOS		C			C		D		D

Intersection Summary































Cycle Length: 110
 Actuated Cycle Length: 91.4
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 40.4
 Intersection LOS: D
 Intersection Capacity Utilization 75.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM Existing + Cumulative
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 		 	 		 	 	
Traffic Volume (veh/h)	69	272	62	49	462	329	111	313	10	388	710	79
Future Volume (veh/h)	69	272	62	49	462	329	111	313	10	388	710	79
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	75	296	67	53	502	358	121	340	11	422	772	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	172	1099	490	76	599	426	164	466	15	454	952	106
Arrive On Green	0.05	0.31	0.31	0.04	0.30	0.30	0.09	0.13	0.13	0.25	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	1781	1982	1411	1781	3513	113	1781	3224	359
Grp Volume(v), veh/h	75	296	67	53	450	410	121	172	179	422	425	433
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1616	1781	1777	1850	1781	1777	1806
Q Serve(g_s), s	1.7	5.2	2.5	2.4	19.4	19.5	5.4	7.6	7.6	19.0	18.2	18.2
Cycle Q Clear(g_c), s	1.7	5.2	2.5	2.4	19.4	19.5	5.4	7.6	7.6	19.0	18.2	18.2
Prop In Lane	1.00		1.00	1.00		0.87	1.00		0.06	1.00		0.20
Lane Grp Cap(c), veh/h	172	1099	490	76	537	488	164	236	245	454	525	533
V/C Ratio(X)	0.43	0.27	0.14	0.70	0.84	0.84	0.74	0.73	0.73	0.93	0.81	0.81
Avail Cap(c_a), veh/h	236	1515	676	108	745	677	241	600	624	454	812	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	21.4	20.4	38.8	26.8	26.8	36.3	34.2	34.2	29.9	26.8	26.8
Incr Delay (d2), s/veh	1.7	0.1	0.1	10.9	6.1	6.7	6.5	4.3	4.2	25.9	3.6	3.5
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	0.8	2.1	0.9	1.3	8.8	8.1	2.6	3.5	3.6	11.1	7.9	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	21.5	20.6	49.6	32.8	33.5	42.8	38.5	38.4	55.8	30.4	30.3
LnGrp LOS	D	C	C	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		438			913			472			1280	
Approach Delay, s/veh		24.4			34.1			39.5			38.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	16.7	8.6	30.8	12.6	30.0	9.2	30.2				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	20.9	27.7	5.0	35.0	11.1	37.5	5.6	34.4				
Max Q Clear Time (g_c+I1), s	21.0	9.6	4.4	7.2	7.4	20.2	3.7	21.5				
Green Ext Time (p_c), s	0.0	1.2	0.0	1.6	0.1	3.5	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

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

AM Existing + Cumulative
3: Douglas Dr & El Camino Real

Timings

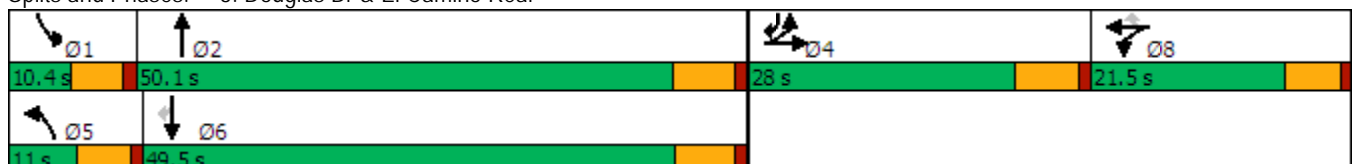


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	332	17	42	33	1	51	576	8	1090	1110
Future Volume (vph)	332	17	42	33	1	51	576	8	1090	1110
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	28.0	28.0		21.5	21.5	11.0	50.1	10.4	49.5	28.0
Total Split (%)	25.5%	25.5%		19.5%	19.5%	10.0%	45.5%	9.5%	45.0%	25.5%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	19.8	19.8	92.5	11.7	11.7	6.2	44.2	5.5	38.3	67.1
Actuated g/C Ratio	0.21	0.21	1.00	0.13	0.13	0.07	0.48	0.06	0.41	0.73
v/c Ratio	0.49	0.05	0.03	0.50	0.00	0.47	0.40	0.09	0.81	0.60
Control Delay	38.2	35.2	0.0	51.2	0.0	63.0	17.9	51.6	31.5	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	35.2	0.0	51.2	0.0	63.0	17.9	51.6	31.5	11.2
LOS	D	D	A	D	A	E	B	D	C	B
Approach Delay		33.9		50.7			21.3		21.4	
Approach LOS		C		D			C		C	

Intersection Summary




























Cycle Length: 110
 Actuated Cycle Length: 92.5
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 23.7
 Intersection LOS: C
 Intersection Capacity Utilization 65.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM Existing + Cumulative
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	  
Traffic Volume (veh/h)	332	17	42	70	33	1	51	576	37	8	1090	1110
Future Volume (veh/h)	332	17	42	70	33	1	51	576	37	8	1090	1110
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	361	18	0	76	36	1	55	626	40	9	1185	1207
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	482	261		99	47	128	76	1676	107	20	1644	1680
Arrive On Green	0.14	0.14	0.00	0.08	0.08	0.08	0.04	0.49	0.49	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1228	581	1585	1781	3392	216	1781	3554	2790
Grp Volume(v), veh/h	361	18	0	112	0	1	55	328	338	9	1185	1207
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1831	1781	1777	1395
Q Serve(g_s), s	8.5	0.7	0.0	5.2	0.0	0.0	2.6	9.7	9.7	0.4	22.8	25.8
Cycle Q Clear(g_c), s	8.5	0.7	0.0	5.2	0.0	0.0	2.6	9.7	9.7	0.4	22.8	25.8
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	482	261		146	0	128	76	878	905	20	1644	1680
V/C Ratio(X)	0.75	0.07		0.77	0.00	0.01	0.72	0.37	0.37	0.45	0.72	0.72
Avail Cap(c_a), veh/h	887	480		341	0	299	117	918	946	105	1820	1818
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.1	31.7	0.0	38.3	0.0	35.9	40.2	13.3	13.3	41.7	18.4	11.8
Incr Delay (d2), s/veh	2.3	0.1	0.0	8.2	0.0	0.0	12.1	0.3	0.3	14.9	1.3	1.3
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	3.7	0.3	0.0	2.6	0.0	0.0	1.4	3.7	3.8	0.3	9.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	31.9	0.0	46.4	0.0	35.9	52.2	13.6	13.6	56.6	19.7	13.1
LnGrp LOS	D	C		D	A	D	D	B	B	E	B	B
Approach Vol, veh/h		379	A		113			721			2401	
Approach Delay, s/veh		37.2			46.4			16.5			16.5	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	48.2		18.1	9.0	45.5		12.4				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	43.9		21.8	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.4	11.7		10.5	4.6	27.8		7.2				
Green Ext Time (p_c), s	0.0	2.9		1.3	0.0	11.5		0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.6
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM Existing + Cumulative
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	66	3	96	13	2	40	876	20	15	1940	67
Future Volume (vph)	66	3	96	13	2	40	876	20	15	1940	67
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	58.2	21.0	10.7	58.5	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	8.7%	48.5%	17.5%	8.9%	48.8%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.1	10.1	10.1	6.6	6.6	5.1	60.7	66.7	5.4	56.3	73.8
Actuated g/C Ratio	0.11	0.11	0.11	0.07	0.07	0.05	0.65	0.72	0.06	0.61	0.79
v/c Ratio	0.21	0.20	0.37	0.11	0.20	0.45	0.41	0.02	0.16	0.98	0.06
Control Delay	40.4	40.2	8.2	46.9	22.5	61.8	11.7	0.1	50.3	38.0	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	40.2	8.2	46.9	22.5	61.8	11.7	0.1	50.3	38.0	1.1
LOS	D	D	A	D	C	E	B	A	D	D	A
Approach Delay		21.7			30.6		13.6			36.8	
Approach LOS		C			C		B			D	

Intersection Summary
























Cycle Length: 120	
Actuated Cycle Length: 92.9	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 29.1	Intersection LOS: C
Intersection Capacity Utilization 78.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Douglas Dr & Pala Rd

Ø1	Ø2	Ø4	Ø8
10.7 s	58.2 s	30.1 s	21 s
Ø5	Ø6		
10.4 s	58.5 s		

AM Existing + Cumulative
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	3	96	13	2	24	40	876	20	15	1940	67
Future Volume (veh/h)	66	3	96	13	2	24	40	876	20	15	1940	67
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	74	0	104	14	2	26	43	952	22	16	2109	73
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	328	0	146	77	5	65	65	2141	1024	33	2076	1072
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.04	0.60	0.60	0.02	0.58	0.58
Sat Flow, veh/h	3563	0	1585	1781	114	1488	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	0	104	14	0	28	43	952	22	16	2109	73
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1603	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.7	0.0	5.7	0.7	0.0	1.5	2.1	13.0	0.4	0.8	52.3	1.4
Cycle Q Clear(g_c), s	1.7	0.0	5.7	0.7	0.0	1.5	2.1	13.0	0.4	0.8	52.3	1.4
Prop In Lane	1.00		1.00	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	328	0	146	77	0	70	65	2141	1024	33	2076	1072
V/C Ratio(X)	0.23	0.00	0.71	0.18	0.00	0.40	0.66	0.44	0.02	0.49	1.02	0.07
Avail Cap(c_a), veh/h	995	0	443	316	0	285	99	2141	1024	105	2076	1072
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.7	0.0	39.5	41.3	0.0	41.7	42.6	9.7	5.7	43.5	18.6	4.9
Incr Delay (d2), s/veh	0.3	0.0	6.3	1.1	0.0	3.7	10.7	0.1	0.0	10.9	23.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.4	0.3	0.0	0.7	1.1	4.6	0.2	0.4	25.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	45.8	42.4	0.0	45.4	53.3	9.8	5.7	54.4	42.4	4.9
LnGrp LOS	D	A	D	D	A	D	D	A	A	D	F	A
Approach Vol, veh/h		178			42			1017			2198	
Approach Delay, s/veh		42.5			44.4			11.6			41.2	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	60.1		13.3	8.7	58.5		9.0				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.3	52.0		25.0	5.0	52.3		15.9				
Max Q Clear Time (g_c+I1), s	2.8	15.0		7.7	4.1	54.3		3.5				
Green Ext Time (p_c), s	0.0	5.5		0.6	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

AM Existing + Cumulative
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	15	2	109	68	4	6	954	33	2	1851	37
Future Volume (vph)	15	2	109	68	4	6	954	33	2	1851	37
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		12.6	12.6		12.6	12.6	56.4	56.4	5.1	58.1	58.1
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.69	0.69	0.06	0.71	0.71
v/c Ratio		0.08	0.36		0.38	0.02	0.43	0.03	0.02	0.80	0.04
Control Delay		27.8	11.5		34.8	0.2	9.0	0.5	41.5	13.9	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.8	11.5		34.8	0.2	9.0	0.5	41.5	13.9	4.5
LOS		C	B		C	A	A	A	D	B	A
Approach Delay		13.7			32.0		8.7			13.8	
Approach LOS		B			C		A			B	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 82.2
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 12.6
 Intersection LOS: B
 Intersection Capacity Utilization 76.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



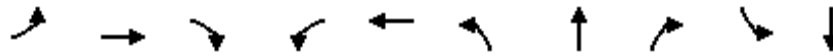
AM Existing + Cumulative
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2	109	68	4	6	0	954	33	2	1851	37
Future Volume (veh/h)	15	2	109	68	4	6	0	954	33	2	1851	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2	118	74	4	7	0	1037	36	2	2012	40
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	0	2	2	2	2	2
Cap, veh/h	76	6	504	79	2	504	0	1818	811	5	2021	901
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.51	0.51	0.00	0.57	0.57
Sat Flow, veh/h	25	18	1585	25	8	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	18	0	118	78	0	7	0	1037	36	2	2012	40
Grp Sat Flow(s),veh/h/ln	42	0	1585	33	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.6	0.0	5.5	0.7	0.0	0.3	0.0	20.0	1.1	0.1	56.0	1.1
Cycle Q Clear(g_c), s	31.6	0.0	5.5	31.6	0.0	0.3	0.0	20.0	1.1	0.1	56.0	1.1
Prop In Lane	0.89		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	0	504	81	0	504	0	1818	811	5	2021	901
V/C Ratio(X)	0.22	0.00	0.23	0.96	0.00	0.01	0.00	0.57	0.04	0.42	1.00	0.04
Avail Cap(c_a), veh/h	87	0	510	86	0	510	0	1818	811	89	2024	903
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	0.0	25.0	48.9	0.0	23.3	0.0	16.8	12.1	49.6	21.3	9.5
Incr Delay (d2), s/veh	1.3	0.0	0.2	83.1	0.0	0.0	0.0	0.4	0.0	50.2	18.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.1	3.8	0.0	0.1	0.0	7.9	0.4	0.1	26.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	25.3	132.0	0.0	23.3	0.0	17.2	12.2	99.8	40.3	9.5
LnGrp LOS	D	A	C	F	A	C	A	B	B	F	D	A
Approach Vol, veh/h		136			85			1073			2054	
Approach Delay, s/veh		27.6			123.1			17.0			39.8	
Approach LOS		C			F			B			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	57.7		36.4		63.3		36.4				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.1	22.0		33.6		58.0		33.6				
Green Ext Time (p_c), s	0.0	5.8		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.1									
HCM 6th LOS			C									

AM Existing + Cumulative
6: Douglas Dr & North River Rd

Timings

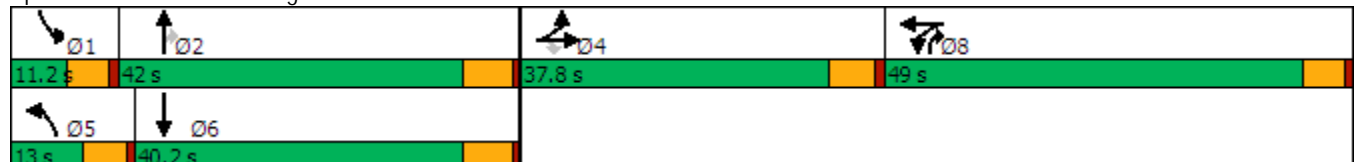


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↗	↙	↔	↙	↑↑	↗↗	↙	↑↑
Traffic Volume (vph)	53	94	187	942	47	71	434	375	18	705
Future Volume (vph)	53	94	187	942	47	71	434	375	18	705
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	49.0	49.0	13.0	42.0	49.0	11.2	40.2
Total Split (%)	27.0%	27.0%	27.0%	35.0%	35.0%	9.3%	30.0%	35.0%	8.0%	28.7%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	15.9	15.9	15.9	43.9	43.9	7.6	41.7	89.8	5.8	32.8
Actuated g/C Ratio	0.13	0.13	0.13	0.36	0.36	0.06	0.34	0.73	0.05	0.27
v/c Ratio	0.25	0.22	0.68	0.89	0.85dl	0.70	0.39	0.19	0.24	0.82
Control Delay	50.0	48.3	35.0	58.1	34.4	90.5	34.7	0.8	67.9	51.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	48.3	35.0	58.1	34.4	90.5	34.7	0.8	67.9	51.6
LOS	D	D	C	E	C	F	C	A	E	D
Approach Delay		41.1			45.4		24.7			52.0
Approach LOS		D			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 123.1
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 40.4
 Intersection LOS: D
 Intersection Capacity Utilization 71.9%
 ICU Level of Service C
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd



AM Existing + Cumulative
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	94	187	942	47	21	71	434	375	18	705	9
Future Volume (veh/h)	53	94	187	942	47	21	71	434	375	18	705	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	58	102	203	1024	51	23	77	472	408	20	766	10
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	564	251	1192	408	184	98	1027	1740	37	914	12
Arrive On Green	0.16	0.16	0.16	0.33	0.33	0.33	0.06	0.29	0.29	0.02	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	3563	1221	551	1781	3554	2790	1781	3592	47
Grp Volume(v), veh/h	58	102	203	1024	0	74	77	472	408	20	379	397
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1771	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	3.3	2.9	14.3	31.0	0.0	3.4	4.9	12.6	7.5	1.3	23.4	23.4
Cycle Q Clear(g_c), s	3.3	2.9	14.3	31.0	0.0	3.4	4.9	12.6	7.5	1.3	23.4	23.4
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	282	564	251	1192	0	593	98	1027	1740	37	452	474
V/C Ratio(X)	0.21	0.18	0.81	0.86	0.00	0.12	0.79	0.46	0.23	0.55	0.84	0.84
Avail Cap(c_a), veh/h	493	984	439	1344	0	668	117	1101	1797	89	523	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	42.1	46.9	35.9	0.0	26.7	53.9	33.7	9.6	56.1	40.8	40.8
Incr Delay (d2), s/veh	0.5	0.2	8.4	5.7	0.0	0.1	24.8	0.7	0.1	12.2	12.4	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	1.5	1.3	6.2	14.2	0.0	1.5	2.9	5.5	4.8	0.7	11.7	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	42.3	55.4	41.6	0.0	26.8	78.7	34.4	9.7	68.3	53.2	52.7
LnGrp LOS	D	D	E	D	A	C	E	C	A	E	D	D
Approach Vol, veh/h		363			1098			957			796	
Approach Delay, s/veh		49.7			40.6			27.4			53.3	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.6		24.1	11.8	35.6		44.1				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	5.8	35.8		32.0	7.6	34.0		43.6				
Max Q Clear Time (g_c+I1), s	3.3	14.6		16.3	6.9	25.4		33.0				
Green Ext Time (p_c), s	0.0	8.6		2.0	0.0	4.1		5.6				

Intersection Summary

HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM Existing + Cumulative
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	52	445	18	844	2	2	30	111	12	105
Future Volume (vph)	52	445	18	844	2	2	30	111	12	105
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	15.0	51.0	11.0	47.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	15.0%	51.0%	11.0%	47.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	8.3	29.7	6.8	24.3		13.9	13.9		13.9	13.9
Actuated g/C Ratio	0.15	0.52	0.12	0.42		0.24	0.24		0.24	0.24
v/c Ratio	0.22	0.27	0.10	0.65		0.01	0.07		0.40	0.24
Control Delay	32.7	9.1	35.7	17.3		21.2	0.3		25.7	6.6
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	32.7	9.1	35.7	17.3		21.2	0.3		25.7	6.6
LOS	C	A	D	B		C	A		C	A
Approach Delay		11.6		17.6		2.6			16.9	
Approach LOS		B		B		A			B	

Intersection Summary





















Cycle Length: 100
 Actuated Cycle Length: 57.2
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 15.4
 Intersection LOS: B
 Intersection Capacity Utilization 55.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



AM Existing + Cumulative
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	445	5	18	844	44	2	2	30	111	12	105
Future Volume (veh/h)	52	445	5	18	844	44	2	2	30	111	12	105
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	57	484	5	20	917	48	2	2	33	121	13	114
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	81	1255	13	40	1117	58	70	49	681	92	6	681
Arrive On Green	0.05	0.35	0.35	0.02	0.33	0.33	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	1781	3603	37	1781	3435	180	2	114	1585	10	13	1585
Grp Volume(v), veh/h	57	239	250	20	474	491	4	0	33	134	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1838	115	0	1585	23	0	1585
Q Serve(g_s), s	2.5	7.9	7.9	0.9	19.1	19.1	0.1	0.0	0.9	0.3	0.0	3.4
Cycle Q Clear(g_c), s	2.5	7.9	7.9	0.9	19.1	19.1	33.4	0.0	0.9	33.4	0.0	3.4
Prop In Lane	1.00		0.02	1.00		0.10	0.50		1.00	0.90		1.00
Lane Grp Cap(c), veh/h	81	619	649	40	578	598	119	0	681	98	0	681
V/C Ratio(X)	0.70	0.39	0.39	0.50	0.82	0.82	0.03	0.00	0.05	1.37	0.00	0.17
Avail Cap(c_a), veh/h	227	1034	1084	135	942	975	119	0	682	98	0	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.6	19.1	19.1	37.5	24.1	24.1	19.0	0.0	12.9	37.1	0.0	13.6
Incr Delay (d2), s/veh	10.6	0.4	0.4	9.3	3.0	2.9	0.1	0.0	0.0	217.6	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	3.1	3.3	0.5	8.1	8.3	0.0	0.0	0.3	7.7	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	19.4	19.4	46.8	27.2	27.1	19.1	0.0	12.9	254.7	0.0	13.7
LnGrp LOS	D	B	B	D	C	C	B	A	B	F	A	B
Approach Vol, veh/h		546			985			37				248
Approach Delay, s/veh		22.3			27.5			13.6				143.9
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	32.9		38.0	8.6	31.1		38.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	45.2		33.4	9.9	41.2		33.4				
Max Q Clear Time (g_c+I1), s	2.9	9.9		35.4	4.5	21.1		35.4				
Green Ext Time (p_c), s	0.0	2.0		0.0	0.0	4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				41.6								
HCM 6th LOS				D								

AM Existing + Cumulative
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	572	912	7	9	26
Future Vol, veh/h	12	572	912	7	9	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	13	622	991	8	10	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	999	0	-	0	1332 500
Stage 1	-	-	-	-	995 -
Stage 2	-	-	-	-	337 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	689	-	-	-	146 516
Stage 1	-	-	-	-	318 -
Stage 2	-	-	-	-	695 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	689	-	-	-	143 516
Mov Cap-2 Maneuver	-	-	-	-	143 -
Stage 1	-	-	-	-	312 -
Stage 2	-	-	-	-	695 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	689	-	-	-	309
HCM Lane V/C Ratio	0.019	-	-	-	0.123
HCM Control Delay (s)	10.3	-	-	-	18.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

LOS Engineering, Inc.

AM Existing + Cumulative
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	22	562	0	0	877	5	0	0	0	15	0	40
Future Vol, veh/h	22	562	0	0	877	5	0	0	0	15	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	611	0	0	953	5	0	0	0	16	0	43

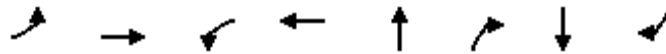
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	958	0	0	611	0	0	-	-	306	1310	1615	479
Stage 1	-	-	-	-	-	-	-	-	-	956	956	-
Stage 2	-	-	-	-	-	-	-	-	-	354	659	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	714	-	-	964	-	-	0	0	690	117	103	533
Stage 1	-	-	-	-	-	-	0	0	-	277	335	-
Stage 2	-	-	-	-	-	-	0	0	-	636	459	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	714	-	-	964	-	-	-	-	690	114	99	533
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	114	99	-
Stage 1	-	-	-	-	-	-	-	-	-	268	335	-
Stage 2	-	-	-	-	-	-	-	-	-	615	443	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0			0			22.4		
HCM LOS							A			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	714	-	-	964	-	-	266
HCM Lane V/C Ratio	-	0.033	-	-	-	-	-	0.225
HCM Control Delay (s)	-	0	10.2	-	-	0	-	22.4
HCM Lane LOS	-	A	B	-	-	A	-	C
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.8

AM Existing + Cumulative
10: Calle Montecito & North River Rd

Timings

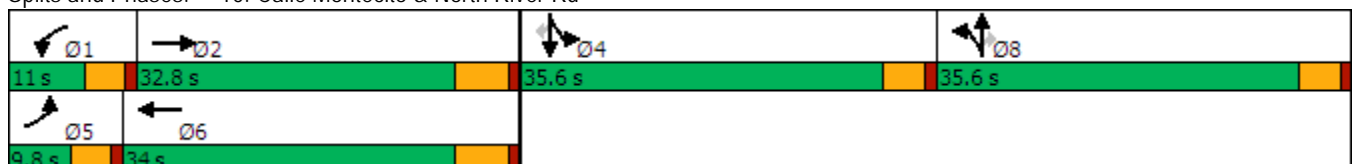


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	49	511	32	728	1	8	1	105
Future Volume (vph)	49	511	32	728	1	8	1	105
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.6	31.3	6.5	29.8	9.8	9.8	15.6	15.6
Actuated g/C Ratio	0.07	0.40	0.08	0.38	0.12	0.12	0.20	0.20
v/c Ratio	0.42	0.42	0.24	0.68	0.06	0.03	0.61	0.28
Control Delay	52.3	22.7	44.8	27.1	32.0	0.2	37.6	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	22.7	44.8	27.1	32.0	0.2	37.6	8.4
LOS	D	C	D	C	C	A	D	A
Approach Delay		25.2		27.7	19.0		27.5	
Approach LOS		C		C	B		C	

Intersection Summary





















Cycle Length: 115
 Actuated Cycle Length: 78.5
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 26.8
 Intersection Capacity Utilization 57.3%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



AM Existing + Cumulative
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	511	27	32	728	98	11	1	8	196	1	105
Future Volume (veh/h)	49	511	27	32	728	98	11	1	8	196	1	105
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	53	555	29	35	791	107	12	1	9	213	1	114
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	89	1157	60	67	1019	138	177	15	170	306	1	273
Arrive On Green	0.05	0.34	0.34	0.04	0.32	0.32	0.11	0.11	0.11	0.17	0.17	0.17
Sat Flow, veh/h	1781	3436	179	1781	3145	425	1650	138	1585	1773	8	1585
Grp Volume(v), veh/h	53	287	297	35	447	451	13	0	9	214	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1838	1781	1777	1794	1788	0	1585	1782	0	1585
Q Serve(g_s), s	1.6	7.1	7.2	1.1	12.7	12.7	0.4	0.0	0.3	6.3	0.0	3.6
Cycle Q Clear(g_c), s	1.6	7.1	7.2	1.1	12.7	12.7	0.4	0.0	0.3	6.3	0.0	3.6
Prop In Lane	1.00		0.10	1.00		0.24	0.92		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	598	619	67	576	581	191	0	170	307	0	273
V/C Ratio(X)	0.59	0.48	0.48	0.52	0.78	0.78	0.07	0.00	0.05	0.70	0.00	0.42
Avail Cap(c_a), veh/h	169	860	889	207	898	906	989	0	877	986	0	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	14.7	14.7	26.5	17.1	17.1	22.5	0.0	22.5	21.8	0.0	20.7
Incr Delay (d2), s/veh	6.2	0.6	0.6	6.2	2.3	2.3	0.1	0.0	0.1	2.9	0.0	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	0.8	2.6	2.7	0.5	4.9	5.0	0.2	0.0	0.1	2.7	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.2	15.3	15.3	32.7	19.4	19.4	22.6	0.0	22.6	24.7	0.0	21.7
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		637			933			22			328	
Approach Delay, s/veh		16.7			19.9			22.6			23.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	24.6		14.3	7.3	23.9		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.1	9.2		8.3	3.6	14.7		2.4				
Green Ext Time (p_c), s	0.0	2.2		1.3	0.0	3.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

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

AM Existing + Cumulative
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	33	700	811	1	0	83	0	
Future Volume (vph)	33	700	811	1	0	83	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.4	25.4	21.9		12.9	11.7	11.7	
Actuated g/C Ratio	0.14	0.49	0.43		0.25	0.23	0.23	
v/c Ratio	0.14	0.44	0.63		0.00	0.28	0.24	
Control Delay	30.3	9.2	15.3		0.0	21.9	1.9	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	30.3	9.2	15.3		0.0	21.9	1.9	
LOS	C	A	B		A	C	A	
Approach Delay		10.1	15.3				10.3	
Approach LOS		B	B				B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 51.5
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.63
 Intersection Signal Delay: 12.6
 Intersection Capacity Utilization 45.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

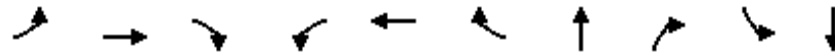
AM Existing + Cumulative
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	700	0	0	811	52	1	0	1	83	0	112
Future Volume (veh/h)	33	700	0	0	811	52	1	0	1	83	0	112
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	36	761	0	0	882	57	1	0	1	90	0	122
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	74	1908	0	5	1293	84	194	38	95	423	0	241
Arrive On Green	0.04	0.54	0.00	0.00	0.38	0.38	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3389	219	377	250	627	1416	0	1585
Grp Volume(v), veh/h	36	761	0	0	462	477	2	0	0	90	0	122
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1831	1254	0	0	1416	0	1585
Q Serve(g_s), s	0.8	5.0	0.0	0.0	8.6	8.6	0.0	0.0	0.0	0.0	0.0	2.8
Cycle Q Clear(g_c), s	0.8	5.0	0.0	0.0	8.6	8.6	2.8	0.0	0.0	1.8	0.0	2.8
Prop In Lane	1.00		0.00	1.00		0.12	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	74	1908	0	5	678	699	327	0	0	423	0	241
V/C Ratio(X)	0.49	0.40	0.00	0.00	0.68	0.68	0.01	0.00	0.00	0.21	0.00	0.51
Avail Cap(c_a), veh/h	338	4236	0	248	2028	2090	1240	0	0	1305	0	1228
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	5.4	0.0	0.0	10.2	10.2	14.2	0.0	0.0	15.0	0.0	15.4
Incr Delay (d2), s/veh	5.0	0.1	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.1	0.0	0.0	2.7	2.7	0.0	0.0	0.0	0.6	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.5	5.5	0.0	0.0	11.4	11.4	14.2	0.0	0.0	15.2	0.0	17.0
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		797			939			2				212
Approach Delay, s/veh		6.3			11.4			14.2				16.3
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	27.9		11.6	6.1	21.8		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	7.0		4.8	2.8	10.6		4.8				
Green Ext Time (p_c), s	0.0	4.1		0.8	0.0	4.5		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.												

AM Existing + Cumulative
12: College Blvd & North River Rd

Timings

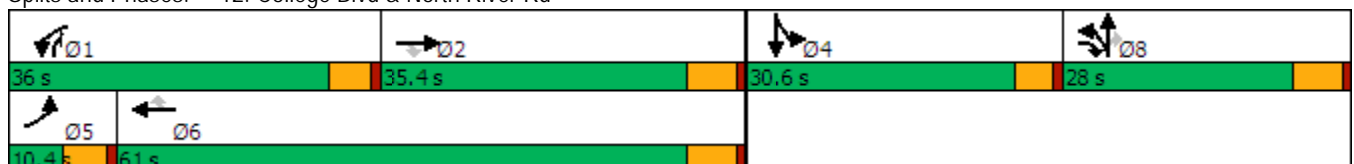


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	237	547	1148	538	70	21	1017	25	49
Future Volume (vph)	14	237	547	1148	538	70	21	1017	25	49
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	10.4	35.4	28.0	36.0	61.0	61.0	28.0	36.0	30.6	30.6
Total Split (%)	8.0%	27.2%	21.5%	27.7%	46.9%	46.9%	21.5%	27.7%	23.5%	23.5%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	5.4	14.5	38.7	31.7	49.8	49.8	22.7	60.4	10.7	10.7
Actuated g/C Ratio	0.05	0.15	0.39	0.32	0.50	0.50	0.23	0.61	0.11	0.11
v/c Ratio	0.15	0.50	0.69	1.14	0.33	0.09	0.86	0.53	0.14	0.31
Control Delay	55.3	42.9	9.6	105.3	17.1	2.0	60.4	3.0	43.0	42.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.3	42.9	9.6	105.3	17.1	2.0	60.4	3.0	43.0	42.3
LOS	E	D	A	F	B	A	E	A	D	D
Approach Delay		20.3			74.2		16.9			42.5
Approach LOS		C			E		B			D

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 98.8
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 43.4
 Intersection LOS: D
 Intersection Capacity Utilization 84.5%
 ICU Level of Service E
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

AM Existing + Cumulative
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	237	547	1148	538	70	304	21	1017	25	49	9
Future Volume (veh/h)	14	237	547	1148	538	70	304	21	1017	25	49	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	15	258	595	1248	585	76	330	23	1105	27	53	10
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	30	959	749	974	1901	848	338	24	1351	92	79	15
Arrive On Green	0.02	0.27	0.27	0.28	0.53	0.53	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1670	116	2790	1781	1530	289
Grp Volume(v), veh/h	15	258	595	1248	585	76	353	0	1105	27	0	63
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1818
Q Serve(g_s), s	0.9	6.3	29.6	30.9	10.0	2.6	21.5	0.0	22.2	1.6	0.0	3.7
Cycle Q Clear(g_c), s	0.9	6.3	29.6	30.9	10.0	2.6	21.5	0.0	22.2	1.6	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	30	959	749	974	1901	848	362	0	1351	92	0	94
V/C Ratio(X)	0.50	0.27	0.79	1.28	0.31	0.09	0.98	0.00	0.82	0.29	0.00	0.67
Avail Cap(c_a), veh/h	86	959	749	974	1901	848	362	0	1351	422	0	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	31.5	23.1	39.4	14.2	12.5	43.5	0.0	24.2	50.1	0.0	51.1
Incr Delay (d2), s/veh	12.5	0.1	5.9	134.6	0.1	0.0	40.7	0.0	4.1	1.8	0.0	8.0
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	0.5	2.7	17.6	31.1	4.0	0.9	13.5	0.0	12.5	0.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	31.7	29.0	174.0	14.3	12.5	84.2	0.0	28.2	51.8	0.0	59.1
LnGrp LOS	E	C	C	F	B	B	F	A	C	D	A	E
Approach Vol, veh/h		868			1909			1458				90
Approach Delay, s/veh		30.4			118.6			41.8				56.9
Approach LOS		C			F			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	36.0	35.4		10.3	6.9	64.5		28.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	30.9	29.6		26.0	5.3	55.2		22.2				
Max Q Clear Time (g_c+I1), s	32.9	31.6		5.7	2.9	12.0		24.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	3.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				73.7								
HCM 6th LOS				E								

LOS Engineering, Inc.

AM Existing + Cumulative
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	50	27	27	1291	1655	74
Future Volume (vph)	50	27	27	1291	1655	74
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	16.5	6.3	57.0	50.7	50.7
Actuated g/C Ratio	0.16	0.23	0.09	0.81	0.72	0.72
v/c Ratio	0.19	0.08	0.10	0.49	0.71	0.07
Control Delay	27.2	15.9	34.6	6.3	15.7	6.6
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.2	15.9	34.6	6.3	15.7	6.6
LOS	C	B	C	A	B	A
Approach Delay	23.2			6.9	15.3	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 11.9
 Intersection LOS: B
 Intersection Capacity Utilization 61.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM Existing + Cumulative
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	27	27	1291	1655	74
Future Volume (veh/h)	50	27	27	1291	1655	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	54	29	29	1403	1799	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	180	221	133	2567	2122	946
Arrive On Green	0.10	0.10	0.04	0.72	0.60	0.60
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	54	29	29	1403	1799	80
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.7	0.9	0.5	10.7	24.3	1.3
Cycle Q Clear(g_c), s	1.7	0.9	0.5	10.7	24.3	1.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	180	221	133	2567	2122	946
V/C Ratio(X)	0.30	0.13	0.22	0.55	0.85	0.08
Avail Cap(c_a), veh/h	848	815	376	3117	2422	1080
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	24.5	22.2	27.4	3.7	9.7	5.0
Incr Delay (d2), s/veh	0.9	0.3	0.8	0.2	2.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.2	2.0	7.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.4	22.5	28.2	3.9	12.4	5.1
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	83			1432	1879	
Approach Delay, s/veh	24.4			4.4	12.1	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.3		10.5	7.4	40.9
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		12.7		3.7	2.5	26.3
Green Ext Time (p_c), s		9.6		0.3	0.0	8.8
Intersection Summary						
HCM 6th Ctrl Delay			9.1			
HCM 6th LOS			A			

AM Existing + Cumulative
14: College Blvd & Adams St

Timings

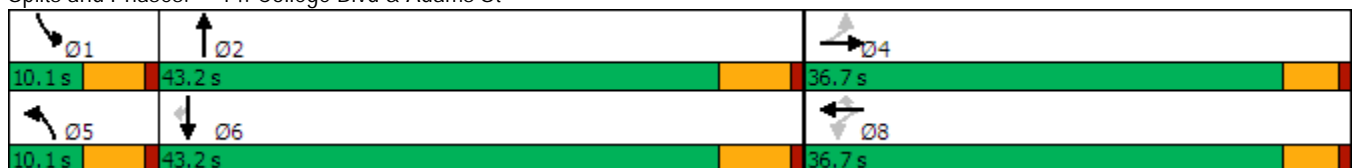


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	174	12	81	17	40	20	1095	16	1465	204
Future Volume (vph)	174	12	81	17	40	20	1095	16	1465	204
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	43.2	10.1	43.2	43.2
Total Split (%)	40.8%	40.8%	40.8%	40.8%	40.8%	11.2%	48.0%	11.2%	48.0%	48.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.4	16.4		16.4	16.4	5.1	41.1	5.1	39.2	39.2
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.07	0.59	0.07	0.56	0.56
v/c Ratio	0.63	0.25		0.35	0.10	0.17	0.41	0.13	0.80	0.24
Control Delay	33.6	7.5		25.4	0.4	39.0	10.3	38.5	20.0	8.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	7.5		25.4	0.4	39.0	10.3	38.5	20.0	8.2
LOS	C	A		C	A	D	B	D	B	A
Approach Delay		23.8		18.2			10.8		18.7	
Approach LOS		C		B			B		B	

Intersection Summary























Cycle Length: 90
 Actuated Cycle Length: 69.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 16.4
 Intersection LOS: B
 Intersection Capacity Utilization 65.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM Existing + Cumulative
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	12	92	81	17	40	20	1095	30	16	1465	204
Future Volume (veh/h)	174	12	92	81	17	40	20	1095	30	16	1465	204
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	189	13	100	88	18	43	22	1190	33	17	1592	222
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	330	53	408	348	63	453	44	2493	69	35	1718	766
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.49	0.49	0.02	0.48	0.48
Sat Flow, veh/h	1341	186	1428	913	222	1585	1781	5107	142	1781	3554	1585
Grp Volume(v), veh/h	189	0	113	106	0	43	22	793	430	17	1592	222
Grp Sat Flow(s),veh/h/ln	1341	0	1613	1135	0	1585	1781	1702	1845	1781	1777	1585
Q Serve(g_s), s	10.2	0.0	4.1	4.3	0.0	1.5	0.9	11.8	11.8	0.7	31.7	6.4
Cycle Q Clear(g_c), s	18.6	0.0	4.1	8.4	0.0	1.5	0.9	11.8	11.8	0.7	31.7	6.4
Prop In Lane	1.00		0.88	0.83		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	330	0	461	412	0	453	44	1662	901	35	1718	766
V/C Ratio(X)	0.57	0.00	0.25	0.26	0.00	0.09	0.50	0.48	0.48	0.48	0.93	0.29
Avail Cap(c_a), veh/h	514	0	682	597	0	670	118	1683	912	118	1757	784
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	20.7	23.4	0.0	19.8	36.4	12.9	12.9	36.7	18.3	11.7
Incr Delay (d2), s/veh	1.6	0.0	0.3	0.3	0.0	0.1	8.7	0.2	0.4	9.8	8.9	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	3.3	0.0	1.5	1.5	0.0	0.5	0.5	4.1	4.5	0.4	13.6	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.5	0.0	21.0	23.7	0.0	19.9	45.2	13.1	13.3	46.4	27.2	11.9
LnGrp LOS	C	A	C	C	A	B	D	B	B	D	C	B
Approach Vol, veh/h		302			149			1245			1831	
Approach Delay, s/veh		27.6			22.6			13.8			25.5	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	42.7		26.3	7.0	42.4		26.3				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.0	37.4		* 32	5.0	37.4		* 32				
Max Q Clear Time (g_c+I1), s	2.7	13.8		20.6	2.9	33.7		10.4				
Green Ext Time (p_c), s	0.0	6.2		0.9	0.0	2.9		0.5				

Intersection Summary

HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

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

AM Existing + Cumulative
15: College Blvd & Via Cupeno

Timings

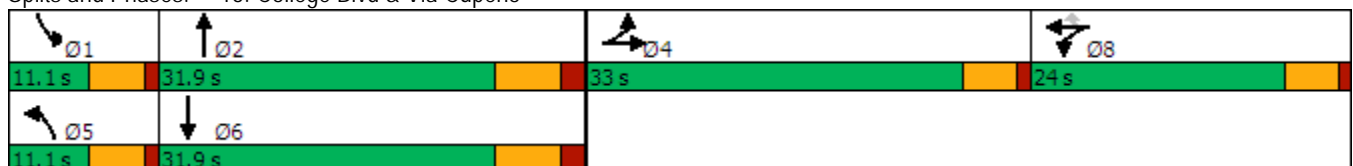


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	1	5	1	148	1093	1	1559
Future Volume (vph)	1	5	1	148	1093	1	1559
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	11.1	31.9	11.1	31.9
Total Split (%)	33.0%	24.0%	24.0%	11.1%	31.9%	11.1%	31.9%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.3	11.8	11.8	6.2	35.9	6.2	26.0
Actuated g/C Ratio	0.15	0.16	0.16	0.08	0.48	0.08	0.35
v/c Ratio	0.20	0.54	0.00	0.56	0.50	0.01	1.00
Control Delay	18.1	38.6	0.0	45.5	18.7	39.0	48.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	38.6	0.0	45.5	18.7	39.0	48.6
LOS	B	D	A	D	B	D	D
Approach Delay	18.1	38.4			21.8		48.5
Approach LOS	B	D			C		D

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 74.5
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 36.3
 Intersection LOS: D
 Intersection Capacity Utilization 65.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM Existing + Cumulative
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	1	45	135	5	1	148	1093	38	1	1559	64
Future Volume (veh/h)	51	1	45	135	5	1	148	1093	38	1	1559	64
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	55	1	49	147	5	1	161	1188	41	1	1695	70
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	181	3	162	192	7	177	296	2306	80	3	1866	77
Arrive On Green	0.10	0.10	0.10	0.11	0.11	0.11	0.09	0.45	0.45	0.00	0.37	0.37
Sat Flow, veh/h	1762	32	1575	1725	59	1585	3456	5068	175	1781	5029	208
Grp Volume(v), veh/h	56	0	49	152	0	1	161	798	431	1	1147	618
Grp Sat Flow(s),veh/h/ln	1782	0	1587	1784	0	1585	1728	1702	1839	1781	1702	1833
Q Serve(g_s), s	1.9	0.0	1.9	5.5	0.0	0.0	3.0	11.1	11.1	0.0	21.3	21.3
Cycle Q Clear(g_c), s	1.9	0.0	1.9	5.5	0.0	0.0	3.0	11.1	11.1	0.0	21.3	21.3
Prop In Lane	0.99		0.99	0.97		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	183	0	163	199	0	177	296	1549	837	3	1263	680
V/C Ratio(X)	0.30	0.00	0.30	0.76	0.00	0.01	0.54	0.52	0.52	0.34	0.91	0.91
Avail Cap(c_a), veh/h	750	0	667	509	0	452	311	1549	837	161	1283	691
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	27.6	28.7	0.0	26.3	29.2	12.9	12.9	33.2	19.9	19.9
Incr Delay (d2), s/veh	0.9	0.0	1.0	6.0	0.0	0.0	1.8	0.3	0.5	57.1	9.5	15.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.7	2.6	0.0	0.0	1.3	3.8	4.2	0.1	9.2	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	28.7	34.7	0.0	26.3	31.0	13.2	13.5	90.3	29.4	35.7
LnGrp LOS	C	A	C	C	A	C	C	B	B	F	C	D
Approach Vol, veh/h		105			153			1390			1766	
Approach Delay, s/veh		28.6			34.7			15.3			31.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	37.1		11.9	10.8	31.5		12.4				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	25.1		28.0	6.0	25.1		19.0				
Max Q Clear Time (g_c+I1), s	2.0	13.1		3.9	5.0	23.3		7.5				
Green Ext Time (p_c), s	0.0	4.7		0.4	0.1	1.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				25.0								
HCM 6th LOS				C								

AM Existing + Cumulative
16: College Blvd & SR-76

Timings

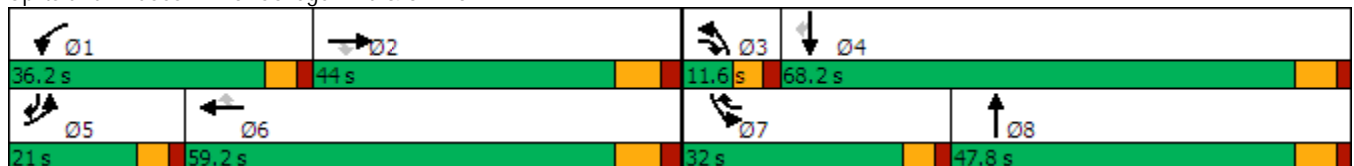


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↔	↖↗	↑↑	↗
Traffic Volume (vph)	321	814	30	566	1401	482	54	482	558	800	376
Future Volume (vph)	321	814	30	566	1401	482	54	482	558	800	376
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.3	35.7	49.6	29.9	50.3	84.6	5.9	39.3	26.3	62.2	84.3
Actuated g/C Ratio	0.10	0.23	0.32	0.19	0.32	0.54	0.04	0.25	0.17	0.40	0.54
v/c Ratio	1.04	0.77	0.06	0.94	0.94	0.59	0.46	0.93	1.06	0.62	0.45
Control Delay	128.2	62.4	0.2	86.5	63.9	24.9	87.1	70.0	114.8	41.3	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.2	62.4	0.2	86.5	63.9	24.9	87.1	70.0	114.8	41.3	18.2
LOS	F	E	A	F	E	C	F	E	F	D	B
Approach Delay		78.9			61.4			71.2		59.9	
Approach LOS		E			E			E		E	

Intersection Summary


































Cycle Length: 160
 Actuated Cycle Length: 157.4
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 65.6
 Intersection Capacity Utilization 96.1%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 16: College Blvd & SR-76



AM Existing + Cumulative
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	321	814	30	566	1401	482	54	482	275	558	800	376
Future Volume (veh/h)	321	814	30	566	1401	482	54	482	275	558	800	376
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	349	885	33	615	1523	524	59	524	299	607	870	409
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	333	1154	402	655	1629	769	95	553	315	573	1392	774
Arrive On Green	0.10	0.23	0.23	0.19	0.32	0.32	0.03	0.25	0.25	0.17	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2182	1242	3456	3554	1585
Grp Volume(v), veh/h	349	885	33	615	1523	524	59	427	396	607	870	409
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1647	1728	1777	1585
Q Serve(g_s), s	15.3	25.7	2.5	27.8	45.9	40.3	2.7	37.4	37.5	26.3	31.3	28.2
Cycle Q Clear(g_c), s	15.3	25.7	2.5	27.8	45.9	40.3	2.7	37.4	37.5	26.3	31.3	28.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.75	1.00		1.00
Lane Grp Cap(c), veh/h	333	1154	402	655	1629	769	95	450	417	573	1392	774
V/C Ratio(X)	1.05	0.77	0.08	0.94	0.93	0.68	0.62	0.95	0.95	1.06	0.62	0.53
Avail Cap(c_a), veh/h	333	1159	403	665	1649	775	129	459	426	573	1392	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	57.5	45.1	63.3	52.4	31.4	76.3	58.2	58.2	66.1	38.8	28.0
Incr Delay (d2), s/veh	62.0	3.1	0.1	21.1	10.3	2.4	6.5	28.9	30.9	54.2	0.9	0.7
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	9.7	11.5	1.0	14.2	21.2	16.0	1.3	20.4	19.2	15.9	13.9	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	133.6	60.6	45.2	84.4	62.7	33.8	82.8	87.0	89.1	120.3	39.7	28.7
LnGrp LOS	F	E	D	F	E	C	F	F	F	F	D	C
Approach Vol, veh/h		1267			2662			882			1886	
Approach Delay, s/veh		80.3			62.0			87.7			63.3	
Approach LOS		F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.8	43.8	10.0	68.9	21.0	58.6	32.0	47.0				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	29.8	27.7	4.7	33.3	17.3	47.9	28.3	39.5				
Green Ext Time (p_c), s	0.2	3.0	0.0	7.3	0.0	2.7	0.0	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			69.2									
HCM 6th LOS			E									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing + Cumulative
17: North River Rd/Vandergrift Blvd

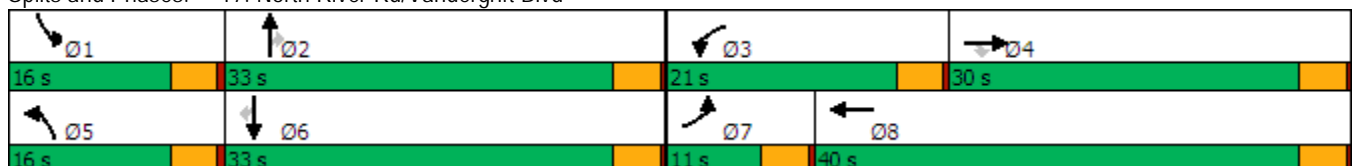
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	47	56	109	667	51	116	807	305	105	701	38	
Future Volume (vph)	47	56	109	667	51	116	807	305	105	701	38	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0	
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	6.7	10.6	10.6	17.2	25.5	10.2	31.9	31.9	10.0	29.3	29.3	
Actuated g/C Ratio	0.08	0.13	0.13	0.21	0.31	0.12	0.38	0.38	0.12	0.35	0.35	
v/c Ratio	0.36	0.26	0.36	1.03	0.49	0.58	0.45	0.41	0.54	0.61	0.06	
Control Delay	46.8	34.8	6.9	76.3	8.0	47.5	22.4	4.7	46.1	26.4	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.8	34.8	6.9	76.3	8.0	47.5	22.4	4.7	46.1	26.4	0.2	
LOS	D	C	A	E	A	D	C	A	D	C	A	
Approach Delay		23.1			54.4		20.3			27.7		
Approach LOS		C			D		C			C		

Intersection Summary
























Cycle Length: 100	
Actuated Cycle Length: 83.5	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 32.7	Intersection LOS: C
Intersection Capacity Utilization 63.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



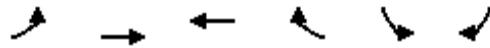
AM Existing + Cumulative
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	56	109	667	51	265	116	807	305	105	701	38
Future Volume (veh/h)	47	56	109	667	51	265	116	807	305	105	701	38
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	51	61	118	725	55	288	126	877	332	114	762	41
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	77	198	168	762	74	386	161	1961	609	146	1337	596
Arrive On Green	0.04	0.11	0.11	0.22	0.28	0.28	0.09	0.38	0.38	0.08	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	3456	261	1364	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	51	61	118	725	0	343	126	877	332	114	762	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1625	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	2.2	2.3	5.5	16.0	0.0	14.8	5.3	9.8	12.6	4.8	13.1	1.3
Cycle Q Clear(g_c), s	2.2	2.3	5.5	16.0	0.0	14.8	5.3	9.8	12.6	4.8	13.1	1.3
Prop In Lane	1.00		1.00	1.00		0.84	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	198	168	762	0	460	161	1961	609	146	1337	596
V/C Ratio(X)	0.66	0.31	0.70	0.95	0.00	0.75	0.78	0.45	0.55	0.78	0.57	0.07
Avail Cap(c_a), veh/h	162	631	534	762	0	759	277	1961	609	277	1337	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	31.9	33.3	29.6	0.0	25.1	34.3	17.7	18.5	34.7	19.1	15.4
Incr Delay (d2), s/veh	9.4	0.9	5.3	21.6	0.0	2.4	8.1	0.7	3.5	8.6	1.8	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	1.1	1.1	2.3	8.6	0.0	5.7	2.6	3.8	4.9	2.4	5.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	32.7	38.6	51.2	0.0	27.5	42.5	18.4	22.0	43.3	20.9	15.6
LnGrp LOS	D	C	D	D	A	C	D	B	C	D	C	B
Approach Vol, veh/h		230			1068			1335			917	
Approach Delay, s/veh		38.6			43.6			21.6			23.4	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.6	21.0	12.2	11.0	33.0	7.3	25.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	6.8	14.6	18.0	7.5	7.3	15.1	4.2	16.8				
Green Ext Time (p_c), s	0.1	6.4	0.0	0.6	0.1	4.6	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				29.8								
HCM 6th LOS				C								

PM Existing + Cumulative
1: SR-76 & Douglas Dr

Timings

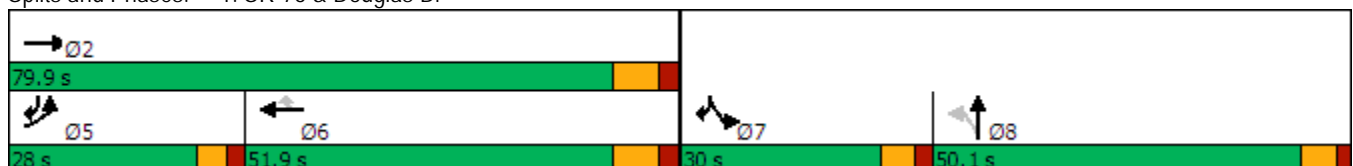


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↖	↗↗	↖↖	↖	↗	↗↗	
Traffic Volume (vph)	541	1768	1158	264	287	385	
Future Volume (vph)	541	1768	1158	264	287	385	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	79.9	51.9	51.9	30.0		50.1
Total Split (%)	17.5%	49.9%	32.4%	32.4%	18.8%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	22.3	71.9	43.9	43.9	23.9	52.3	
Actuated g/C Ratio	0.20	0.65	0.40	0.40	0.22	0.48	
v/c Ratio	0.84	0.83	0.89	0.36	0.81	0.27	
Control Delay	54.7	18.5	40.1	3.9	58.7	2.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	54.7	18.5	40.1	3.9	58.7	2.0	
LOS	D	B	D	A	E	A	
Approach Delay		27.0	33.4				
Approach LOS		C	C				

Intersection Summary




















Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 28.9
 Intersection LOS: C
 Intersection Capacity Utilization 78.1%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



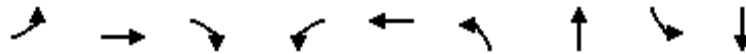
PM Existing + Cumulative
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	541	1768	0	0	1158	264	0	0	0	287	0	385
Future Volume (veh/h)	541	1768	0	0	1158	264	0	0	0	287	0	385
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	588	1922	0	0	1259	287	0	0	0	312	0	418
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	681	2343	0	0	1436	641	0	2	0	351	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.40	0.40	0.00	0.00	0.00	0.20	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	312	
Grp Volume(v), veh/h	588	1922	0	0	1259	287	0	0	0	312	55.5	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	16.1	39.3	0.0	0.0	32.0	12.9	0.0	0.0	0.0	16.7		
Cycle Q Clear(g_c), s	16.1	39.3	0.0	0.0	32.0	12.9	0.0	0.0	0.0	16.7		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	681	2343	0	0	1436	641	0	2	0	351		
V/C Ratio(X)	0.86	0.82	0.00	0.00	0.88	0.45	0.00	0.00	0.00	0.89		
Avail Cap(c_a), veh/h	786	2607	0	0	1592	710	0	840	0	434		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	38.1	12.4	0.0	0.0	27.0	21.3	0.0	0.0	0.0	38.3		
Incr Delay (d2), s/veh	8.9	2.0	0.0	0.0	5.5	0.5	0.0	0.0	0.0	17.2		
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		
%ile BackOfQ(50%),veh/ln	7.6	14.0	0.0	0.0	14.1	4.8	0.0	0.0	0.0	8.9		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	14.4	0.0	0.0	32.4	21.7	0.0	0.0	0.0	55.5		
LnGrp LOS	D	B	A	A	C	C	A	A	A	E		
Approach Vol, veh/h		2510			1546			0				
Approach Delay, s/veh		22.0			30.4			0.0				
Approach LOS		C			C							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		72.6			25.0	47.6	25.4	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		71.9			* 22	43.9	23.9	44.0				
Max Q Clear Time (g_c+I1), s		41.3			18.1	34.0	18.7	0.0				
Green Ext Time (p_c), s		14.9			1.2	5.6	0.6	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				27.4								
HCM 6th LOS				C								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Cumulative
2: Douglas Dr & Mission Ave

Timings

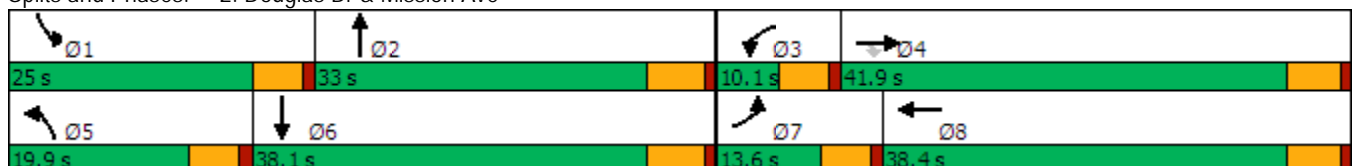


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	237	644	148	61	353	165	604	306	507
Future Volume (vph)	237	644	148	61	353	165	604	306	507
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.6	41.9	41.9	10.1	38.4	19.9	33.0	25.0	38.1
Total Split (%)	12.4%	38.1%	38.1%	9.2%	34.9%	18.1%	30.0%	22.7%	34.6%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	8.6	27.0	27.0	5.1	23.5	13.4	23.0	20.2	29.8
Actuated g/C Ratio	0.09	0.28	0.28	0.05	0.24	0.14	0.24	0.21	0.31
v/c Ratio	0.85	0.71	0.30	0.72	0.81	0.73	0.82	0.90	0.56
Control Delay	70.6	35.8	7.9	88.3	30.4	60.3	44.1	69.0	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.6	35.8	7.9	88.3	30.4	60.3	44.1	69.0	31.1
LOS	E	D	A	F	C	E	D	E	C
Approach Delay		39.8			34.8		47.5		44.5
Approach LOS		D			C		D		D

Intersection Summary




























Cycle Length: 110
 Actuated Cycle Length: 96.9
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 41.6
 Intersection LOS: D
 Intersection Capacity Utilization 80.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM Existing + Cumulative
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	237	644	148	61	353	375	165	604	25	306	507	51
Future Volume (veh/h)	237	644	148	61	353	375	165	604	25	306	507	51
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	258	700	161	66	384	408	179	657	27	333	551	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	292	1150	513	85	510	455	213	762	31	352	968	96
Arrive On Green	0.08	0.32	0.32	0.05	0.29	0.29	0.12	0.22	0.22	0.20	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3479	143	1781	3264	325
Grp Volume(v), veh/h	258	700	161	66	384	408	179	335	349	333	299	307
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1845	1781	1777	1812
Q Serve(g_s), s	7.4	16.7	7.7	3.7	19.8	24.9	9.9	18.3	18.3	18.6	14.4	14.4
Cycle Q Clear(g_c), s	7.4	16.7	7.7	3.7	19.8	24.9	9.9	18.3	18.3	18.6	14.4	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	292	1150	513	85	510	455	213	389	404	352	527	537
V/C Ratio(X)	0.89	0.61	0.31	0.78	0.75	0.90	0.84	0.86	0.86	0.95	0.57	0.57
Avail Cap(c_a), veh/h	292	1287	574	88	582	519	262	480	498	352	570	581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	28.7	25.7	47.5	32.7	34.5	43.4	37.9	37.9	39.9	30.0	30.0
Incr Delay (d2), s/veh	26.0	0.7	0.3	33.7	4.8	16.9	17.8	12.7	12.4	34.3	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	4.2	7.1	2.9	2.4	9.0	11.5	5.4	9.2	9.6	11.4	6.2	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	29.4	26.0	81.1	37.5	51.4	61.2	50.6	50.3	74.2	31.1	31.2
LnGrp LOS	E	C	C	F	D	D	E	D	D	E	C	C
Approach Vol, veh/h		1119			858			863			939	
Approach Delay, s/veh		38.6			47.5			52.7			46.4	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	27.9	9.9	38.0	17.2	35.7	13.6	34.3				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	19.9	27.2	5.0	36.5	14.8	32.3	8.5	33.0				
Max Q Clear Time (g_c+I1), s	20.6	20.3	5.7	18.7	11.9	16.4	9.4	26.9				
Green Ext Time (p_c), s	0.0	1.7	0.0	4.0	0.2	2.3	0.0	2.0				

Intersection Summary

HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

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

PM Existing + Cumulative
3: Douglas Dr & El Camino Real

Timings

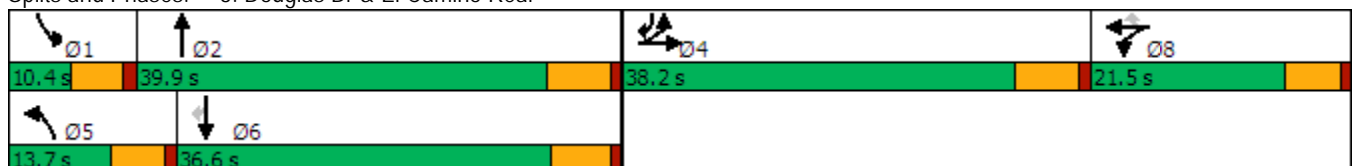


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1010	63	71	25	10	90	1018	7	716	621
Future Volume (vph)	1010	63	71	25	10	90	1018	7	716	621
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	38.2	38.2		21.5	21.5	13.7	39.9	10.4	36.6	38.2
Total Split (%)	34.7%	34.7%		19.5%	19.5%	12.5%	36.3%	9.5%	33.3%	34.7%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effct Green (s)	32.4	32.4	98.1	10.1	10.1	8.1	38.5	5.1	26.9	65.5
Actuated g/C Ratio	0.33	0.33	1.00	0.10	0.10	0.08	0.39	0.05	0.27	0.67
v/c Ratio	0.97	0.11	0.05	0.46	0.04	0.67	0.85	0.09	0.80	0.36
Control Delay	54.8	27.1	0.1	51.9	0.2	69.5	36.0	51.0	41.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	27.1	0.1	51.9	0.2	69.5	36.0	51.0	41.0	8.7
LOS	D	C	A	D	A	E	D	D	D	A
Approach Delay		49.9		46.0			38.6		26.1	
Approach LOS		D		D			D		C	

Intersection Summary
























Cycle Length: 110
 Actuated Cycle Length: 98.1
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 37.8
 Intersection LOS: D
 Intersection Capacity Utilization 84.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



PM Existing + Cumulative
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1010	63	71	54	25	10	90	1018	64	7	716	621
Future Volume (veh/h)	1010	63	71	54	25	10	90	1018	64	7	716	621
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	1098	68	0	59	27	11	98	1107	70	8	778	675
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	1155	625		80	36	102	124	1178	74	18	1020	1733
Arrive On Green	0.33	0.33	0.00	0.06	0.06	0.06	0.07	0.35	0.35	0.01	0.29	0.29
Sat Flow, veh/h	3456	1870	1585	1241	568	1585	1781	3394	215	1781	3554	2790
Grp Volume(v), veh/h	1098	68	0	86	0	11	98	579	598	8	778	675
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1808	0	1585	1781	1777	1832	1781	1777	1395
Q Serve(g_s), s	29.5	2.4	0.0	4.5	0.0	0.6	5.2	30.1	30.1	0.4	19.0	11.5
Cycle Q Clear(g_c), s	29.5	2.4	0.0	4.5	0.0	0.6	5.2	30.1	30.1	0.4	19.0	11.5
Prop In Lane	1.00		1.00	0.69		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	1155	625		116	0	102	124	616	636	18	1020	1733
V/C Ratio(X)	0.95	0.11		0.74	0.00	0.11	0.79	0.94	0.94	0.45	0.76	0.39
Avail Cap(c_a), veh/h	1161	628		304	0	266	155	629	648	93	1141	1828
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	21.9	0.0	43.8	0.0	42.0	43.6	30.1	30.2	46.9	31.0	9.0
Incr Delay (d2), s/veh	16.0	0.1	0.0	8.9	0.0	0.5	19.0	22.0	21.7	16.6	2.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.4	1.1	0.0	2.3	0.0	0.3	2.9	16.2	16.6	0.3	8.4	7.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.9	22.0	0.0	52.7	0.0	42.5	62.6	52.2	51.9	63.5	33.7	9.2
LnGrp LOS	D	C		D	A	D	E	D	D	E	C	A
Approach Vol, veh/h		1166	A		97			1275			1461	
Approach Delay, s/veh		45.5			51.5			52.8			22.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.3		38.0	12.0	33.6		11.6				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	33.7		32.0	8.3	* 31		16.0				
Max Q Clear Time (g_c+I1), s	2.4	32.1		31.5	7.2	21.0		6.5				
Green Ext Time (p_c), s	0.0	0.9		0.3	0.0	5.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM Existing + Cumulative
4: Douglas Dr & Pala Rd

Timings

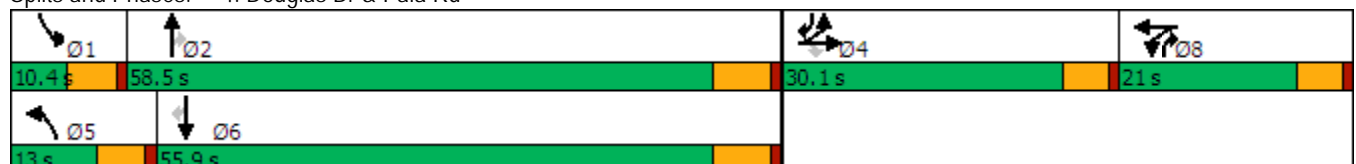


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	94	1	95	14	3	95	1832	22	21	1234	100
Future Volume (vph)	94	1	95	14	3	95	1832	22	21	1234	100
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	13.0	58.5	21.0	10.4	55.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.8%	48.8%	17.5%	8.7%	46.6%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.6	10.6	10.6	6.7	6.7	7.9	54.4	60.4	5.2	44.5	61.5
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08	0.09	0.63	0.70	0.06	0.51	0.71
v/c Ratio	0.26	0.24	0.34	0.11	0.19	0.64	0.90	0.02	0.22	0.74	0.09
Control Delay	39.8	39.3	7.7	46.2	22.8	62.6	24.9	0.0	51.3	21.7	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.8	39.3	7.7	46.2	22.8	62.6	24.9	0.0	51.3	21.7	1.2
LOS	D	D	A	D	C	E	C	A	D	C	A
Approach Delay		23.6			30.8		26.4			20.6	
Approach LOS		C			C		C			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 86.7
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 24.1
 Intersection LOS: C
 Intersection Capacity Utilization 78.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM Existing + Cumulative
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1	95	14	3	24	95	1832	22	21	1234	100
Future Volume (veh/h)	94	1	95	14	3	24	95	1832	22	21	1234	100
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	103	0	103	15	3	26	103	1991	24	23	1341	109
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	335	0	149	80	7	65	131	2090	1003	44	1916	1003
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.07	0.59	0.59	0.02	0.54	0.54
Sat Flow, veh/h	3563	0	1585	1781	167	1444	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	103	0	103	15	0	29	103	1991	24	23	1341	109
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1610	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	5.5	0.7	0.0	1.5	5.0	46.0	0.5	1.1	24.5	2.4
Cycle Q Clear(g_c), s	2.4	0.0	5.5	0.7	0.0	1.5	5.0	46.0	0.5	1.1	24.5	2.4
Prop In Lane	1.00		1.00	1.00		0.90	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	335	0	149	80	0	72	131	2090	1003	44	1916	1003
V/C Ratio(X)	0.31	0.00	0.69	0.19	0.00	0.40	0.79	0.95	0.02	0.53	0.70	0.11
Avail Cap(c_a), veh/h	1016	0	452	323	0	292	154	2119	1017	102	2014	1047
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	0.0	38.5	40.3	0.0	40.7	40.0	16.9	6.0	42.3	15.0	6.3
Incr Delay (d2), s/veh	0.5	0.0	5.6	1.1	0.0	3.5	20.2	10.5	0.0	9.6	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.3	0.3	0.0	0.7	2.9	19.3	0.2	0.6	9.3	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.6	0.0	44.1	41.4	0.0	44.3	60.2	27.5	6.0	51.8	16.0	6.4
LnGrp LOS	D	A	D	D	A	D	E	C	A	D	B	A
Approach Vol, veh/h		206			44			2118			1473	
Approach Delay, s/veh		40.9			43.3			28.8			15.8	
Approach LOS		D			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	57.8		13.3	11.8	53.5		9.0				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	7.6	49.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	48.0		7.5	7.0	26.5		3.5				
Green Ext Time (p_c), s	0.0	3.5		0.8	0.0	8.5		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Cumulative
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	8	2	73	43	2	4	1764	82	4	1178	73
Future Volume (vph)	8	2	73	43	2	4	1764	82	4	1178	73
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		11.2	11.2		11.2	11.2	55.9	55.9	5.1	57.5	57.5
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.73	0.73	0.07	0.75	0.75
v/c Ratio		0.05	0.25		0.25	0.01	0.74	0.08	0.03	0.48	0.07
Control Delay		25.3	5.8		29.8	0.0	13.9	3.6	38.5	7.2	4.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.3	5.8		29.8	0.0	13.9	3.6	38.5	7.2	4.3
LOS		C	A		C	A	B	A	D	A	A
Approach Delay		8.2			27.6		13.5			7.1	
Approach LOS		A			C		B			A	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 76.4
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 11.1
 Intersection LOS: B
 Intersection Capacity Utilization 72.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



PM Existing + Cumulative
5: Douglas Dr & Rainer Way

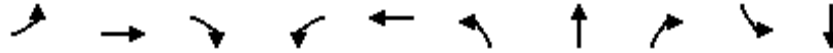
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	73	43	2	4	0	1764	82	4	1178	73
Future Volume (veh/h)	8	2	73	43	2	4	0	1764	82	4	1178	73
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2	79	47	2	4	0	1917	89	4	1280	79
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	0	2	2	2	2	2
Cap, veh/h	88	12	380	103	3	380	0	1968	878	9	2218	989
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.00	0.55	0.55	0.01	0.62	0.62
Sat Flow, veh/h	39	50	1585	73	11	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	11	0	79	49	0	4	0	1917	89	4	1280	79
Grp Sat Flow(s),veh/h/ln	89	0	1585	85	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	3.3	1.1	0.0	0.2	0.0	43.3	2.2	0.2	17.5	1.6
Cycle Q Clear(g_c), s	19.4	0.0	3.3	19.9	0.0	0.2	0.0	43.3	2.2	0.2	17.5	1.6
Prop In Lane	0.82		1.00	0.96		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	100	0	380	105	0	380	0	1968	878	9	2218	989
V/C Ratio(X)	0.11	0.00	0.21	0.47	0.00	0.01	0.00	0.97	0.10	0.43	0.58	0.08
Avail Cap(c_a), veh/h	317	0	612	301	0	612	0	1985	885	107	2431	1084
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.3	0.0	25.2	40.5	0.0	24.0	0.0	17.9	8.7	41.1	9.1	6.2
Incr Delay (d2), s/veh	0.5	0.0	0.3	3.2	0.0	0.0	0.0	14.5	0.0	28.6	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.2	1.1	0.0	0.1	0.0	19.3	0.7	0.2	5.9	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	25.5	43.6	0.0	24.0	0.0	32.4	8.8	69.7	9.4	6.2
LnGrp LOS	C	A	C	D	A	C	A	C	A	E	A	A
Approach Vol, veh/h		90			53			2006			1363	
Approach Delay, s/veh		25.6			42.2			31.4			9.4	
Approach LOS		C			D			C			A	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.8	52.7		25.1		58.6		25.1				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.2	45.3		21.4		19.5		21.9				
Green Ext Time (p_c), s	0.0	0.9		0.2		8.8		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			C									

LOS Engineering, Inc.

PM Existing + Cumulative
6: Douglas Dr & North River Rd

Timings

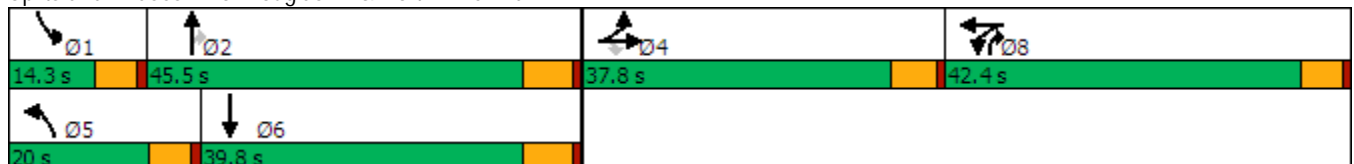


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↘	↙	↔	↙	↑↑	↘↘	↙	↔
Traffic Volume (vph)	38	94	68	560	64	147	669	861	39	572
Future Volume (vph)	38	94	68	560	64	147	669	861	39	572
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.0	45.5	42.4	14.3	39.8
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.3%	32.5%	30.3%	10.2%	28.4%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effct Green (s)	13.1	13.1	13.1	33.0	33.0	14.1	38.4	73.7	7.7	29.1
Actuated g/C Ratio	0.12	0.12	0.12	0.29	0.29	0.13	0.34	0.65	0.07	0.26
v/c Ratio	0.20	0.25	0.23	0.65	0.44	0.72	0.60	0.44	0.35	0.74
Control Delay	49.2	48.2	1.7	44.1	34.9	69.7	36.3	1.1	64.1	45.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	48.2	1.7	44.1	34.9	69.7	36.3	1.1	64.1	45.1
LOS	D	D	A	D	C	E	D	A	E	D
Approach Delay		32.5			38.8		21.2			46.2
Approach LOS		C			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 112.7
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 30.7
 Intersection LOS: C
 Intersection Capacity Utilization 61.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Douglas Dr & North River Rd



PM Existing + Cumulative
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	94	68	560	64	40	147	669	861	39	572	46
Future Volume (veh/h)	38	94	68	560	64	40	147	669	861	39	572	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	102	74	609	70	43	160	727	936	42	622	50
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	158	316	141	844	257	158	197	1362	1730	64	1030	83
Arrive On Green	0.09	0.09	0.09	0.24	0.24	0.24	0.11	0.38	0.38	0.04	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3563	1084	666	1781	3554	2790	1781	3332	267
Grp Volume(v), veh/h	41	102	74	609	0	113	160	727	936	42	331	341
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1750	1781	1777	1395	1781	1777	1822
Q Serve(g_s), s	1.9	2.4	4.0	14.1	0.0	4.7	7.9	14.2	17.2	2.1	14.2	14.2
Cycle Q Clear(g_c), s	1.9	2.4	4.0	14.1	0.0	4.7	7.9	14.2	17.2	2.1	14.2	14.2
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	158	316	141	844	0	415	197	1362	1730	64	549	563
V/C Ratio(X)	0.26	0.32	0.52	0.72	0.00	0.27	0.81	0.53	0.54	0.65	0.60	0.60
Avail Cap(c_a), veh/h	637	1270	567	1473	0	724	291	1560	1886	177	667	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	38.2	39.0	31.4	0.0	27.9	38.9	21.4	9.7	42.6	26.3	26.3
Incr Delay (d2), s/veh	1.2	0.8	4.3	1.7	0.0	0.5	10.5	0.7	0.6	10.6	2.3	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	0.9	1.1	1.7	6.1	0.0	2.0	4.0	5.8	8.9	1.1	6.2	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	39.1	43.2	33.1	0.0	28.4	49.4	22.1	10.3	53.1	28.5	28.5
LnGrp LOS	D	D	D	C	A	C	D	C	B	D	C	C
Approach Vol, veh/h		217			722			1823			714	
Approach Delay, s/veh		40.5			32.4			18.4			30.0	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	40.5		13.8	15.3	33.9		26.6				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	8.9	39.3		32.0	14.6	33.6		37.0				
Max Q Clear Time (g_c+I1), s	4.1	19.2		6.0	9.9	16.2		16.1				
Green Ext Time (p_c), s	0.0	15.1		1.3	0.2	5.4		5.1				

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Cumulative
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↖	↕		↕	↗		↕	↗
Traffic Volume (vph)	115	871	25	603	2	4	34	81	4	73
Future Volume (vph)	115	871	25	603	2	4	34	81	4	73
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	47.0	16.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	47.0%	16.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	10.5	27.6	7.4	19.7		12.1	12.1		12.1	12.1
Actuated g/C Ratio	0.19	0.49	0.13	0.35		0.22	0.22		0.22	0.22
v/c Ratio	0.37	0.55	0.12	0.60		0.02	0.09		0.31	0.19
Control Delay	29.1	13.5	31.6	19.0		20.5	0.4		24.2	6.2
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	29.1	13.5	31.6	19.0		20.5	0.4		24.2	6.2
LOS	C	B	C	B		C	A		C	A
Approach Delay		15.3		19.4		3.2			15.9	
Approach LOS		B		B		A			B	

Intersection Summary





















Cycle Length: 100
 Actuated Cycle Length: 55.8
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 16.6
 Intersection LOS: B
 Intersection Capacity Utilization 52.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



PM Existing + Cumulative
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	871	12	25	603	85	2	4	34	81	4	73
Future Volume (veh/h)	115	871	12	25	603	85	2	4	34	81	4	73
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	125	947	13	27	655	92	2	4	37	88	4	79
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	173	1408	19	58	1026	144	175	234	254	397	14	254
Arrive On Green	0.10	0.39	0.39	0.03	0.33	0.33	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1781	3589	49	1781	3129	439	290	1458	1585	1300	87	1585
Grp Volume(v), veh/h	125	469	491	27	372	375	6	0	37	92	0	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1861	1781	1777	1791	1748	0	1585	1387	0	1585
Q Serve(g_s), s	2.5	8.1	8.1	0.6	6.6	6.7	0.0	0.0	0.8	2.1	0.0	1.6
Cycle Q Clear(g_c), s	2.5	8.1	8.1	0.6	6.6	6.7	0.1	0.0	0.8	2.2	0.0	1.6
Prop In Lane	1.00		0.03	1.00		0.25	0.33		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	173	697	730	58	583	587	409	0	254	411	0	254
V/C Ratio(X)	0.72	0.67	0.67	0.46	0.64	0.64	0.01	0.00	0.15	0.22	0.00	0.31
Avail Cap(c_a), veh/h	757	1957	2051	519	1720	1734	1566	0	1373	1387	0	1373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	9.4	9.4	17.8	10.7	10.7	13.2	0.0	13.5	14.1	0.0	13.9
Incr Delay (d2), s/veh	5.6	1.1	1.1	5.6	1.2	1.2	0.0	0.0	0.3	0.3	0.0	0.7
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	1.1	2.4	2.5	0.3	2.1	2.1	0.0	0.0	0.2	0.6	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	10.5	10.5	23.4	11.8	11.9	13.2	0.0	13.8	14.4	0.0	14.6
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1085			774			43				171
Approach Delay, s/veh		11.8			12.3			13.7				14.5
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	20.5		10.6	8.7	18.1		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	10.9	41.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	2.6	10.1		4.2	4.5	8.7		2.8				
Green Ext Time (p_c), s	0.0	4.5		0.7	0.3	3.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				12.2								
HCM 6th LOS				B								

PM Existing + Cumulative
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	978	694	15	3	13
Future Vol, veh/h	21	978	694	15	3	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	23	1063	754	16	3	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	770	0	-	0	1340 385
Stage 1	-	-	-	-	762 -
Stage 2	-	-	-	-	578 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	840	-	-	-	144 613
Stage 1	-	-	-	-	421 -
Stage 2	-	-	-	-	524 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	840	-	-	-	140 613
Mov Cap-2 Maneuver	-	-	-	-	140 -
Stage 1	-	-	-	-	410 -
Stage 2	-	-	-	-	524 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	840	-	-	-	375
HCM Lane V/C Ratio	0.027	-	-	-	0.046
HCM Control Delay (s)	9.4	-	-	-	15.1
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

LOS Engineering, Inc.

PM Existing + Cumulative
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕↔		↔	↕↔				↔		↕↔	
Traffic Vol, veh/h	25	949	0	0	698	12	0	0	0	19	0	8
Future Vol, veh/h	25	949	0	0	698	12	0	0	0	19	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1032	0	0	759	13	0	0	0	21	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	772	0	0	1032	0	0	-	-	516	1336	1852	386
Stage 1	-	-	-	-	-	-	-	-	-	766	766	-
Stage 2	-	-	-	-	-	-	-	-	-	570	1086	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	839	-	-	669	-	-	0	0	504	112	73	612
Stage 1	-	-	-	-	-	-	0	0	-	361	410	-
Stage 2	-	-	-	-	-	-	0	0	-	474	291	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	839	-	-	669	-	-	-	-	504	109	71	612
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	109	71	-
Stage 1	-	-	-	-	-	-	-	-	-	349	410	-
Stage 2	-	-	-	-	-	-	-	-	-	459	282	-

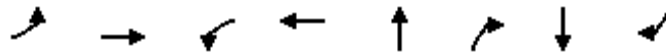
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	0	36.3
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	839	-	-	669	-	-	144
HCM Lane V/C Ratio	-	0.032	-	-	-	-	-	0.204
HCM Control Delay (s)	-	0	9.4	-	-	0	-	36.3
HCM Lane LOS	-	A	A	-	-	A	-	E
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	0.7

LOS Engineering, Inc.

PM Existing + Cumulative
10: Calle Montecito & North River Rd

Timings

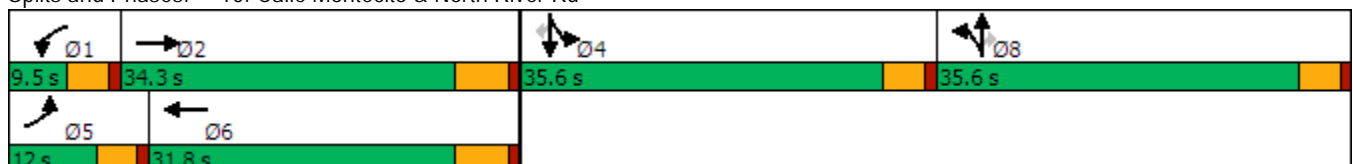


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↗	↕	↗
Traffic Volume (vph)	126	797	8	622	2	32	1	59
Future Volume (vph)	126	797	8	622	2	32	1	59
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.4	5.2	27.2	10.0	10.0	13.5	13.5
Actuated g/C Ratio	0.10	0.49	0.07	0.35	0.13	0.13	0.17	0.17
v/c Ratio	0.78	0.51	0.08	0.73	0.12	0.12	0.49	0.18
Control Delay	67.9	20.0	44.1	28.9	31.8	0.8	35.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	20.0	44.1	28.9	31.8	0.8	35.6	1.9
LOS	E	B	D	C	C	A	D	A
Approach Delay		26.4		29.1	14.3		25.4	
Approach LOS		C		C	B		C	

Intersection Summary





















Cycle Length: 115
 Actuated Cycle Length: 78.7
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 27.1
 Intersection Capacity Utilization 56.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



PM Existing + Cumulative
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	797	10	8	622	183	23	2	32	135	1	59
Future Volume (veh/h)	126	797	10	8	622	183	23	2	32	135	1	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	866	11	9	676	199	25	2	35	147	1	64
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	1457	19	21	862	254	177	14	170	229	2	205
Arrive On Green	0.10	0.41	0.41	0.01	0.32	0.32	0.11	0.11	0.11	0.13	0.13	0.13
Sat Flow, veh/h	1781	3593	46	1781	2707	797	1655	132	1585	1770	12	1585
Grp Volume(v), veh/h	137	428	449	9	444	431	27	0	35	148	0	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1862	1781	1777	1727	1788	0	1585	1782	0	1585
Q Serve(g_s), s	4.2	10.6	10.6	0.3	12.7	12.7	0.8	0.0	1.1	4.4	0.0	2.1
Cycle Q Clear(g_c), s	4.2	10.6	10.6	0.3	12.7	12.7	0.8	0.0	1.1	4.4	0.0	2.1
Prop In Lane	1.00		0.02	1.00		0.46	0.93		1.00	0.99		1.00
Lane Grp Cap(c), veh/h	175	720	755	21	566	550	192	0	170	230	0	205
V/C Ratio(X)	0.78	0.59	0.59	0.43	0.78	0.78	0.14	0.00	0.21	0.64	0.00	0.31
Avail Cap(c_a), veh/h	239	908	951	159	829	805	990	0	878	987	0	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.6	13.0	13.0	27.5	17.3	17.3	22.7	0.0	22.8	23.1	0.0	22.1
Incr Delay (d2), s/veh	10.9	0.8	0.8	13.6	3.0	3.1	0.3	0.0	0.6	3.0	0.0	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	2.2	3.7	3.9	0.2	5.0	4.9	0.3	0.0	0.4	1.9	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.6	13.8	13.8	41.1	20.4	20.5	23.0	0.0	23.4	26.1	0.0	23.0
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1014			884			62			212	
Approach Delay, s/veh		16.7			20.6			23.2			25.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	28.4		11.8	10.0	23.5		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.3	12.6		6.4	6.2	14.7		3.1				
Green Ext Time (p_c), s	0.0	3.5		0.8	0.1	3.1		0.2				

Intersection Summary

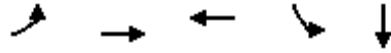
HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

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

PM Existing + Cumulative
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↗	↖	↗		
Traffic Volume (vph)	103	872	748	49	0		
Future Volume (vph)	103	872	748	49	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	26.0	43.4	38.4	35.6	35.6	21.0	35.6
Total Split (%)	26.0%	43.4%	38.4%	35.6%	35.6%	21%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effect Green (s)	10.1	32.2	21.0	10.9	10.9		
Actuated g/C Ratio	0.18	0.56	0.37	0.19	0.19		
v/c Ratio	0.36	0.48	0.68	0.20	0.14		
Control Delay	29.7	8.5	20.4	24.0	0.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	29.7	8.5	20.4	24.0	0.5		
LOS	C	A	C	C	A		
Approach Delay		10.8	20.4		9.4		
Approach LOS		B	C		A		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 57.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 14.7
 Intersection LOS: B
 Intersection Capacity Utilization 47.4%
 ICU Level of Service A
 Analysis Period (min) 15




















Splits and Phases: 11: Redondo Dr & North River Rd



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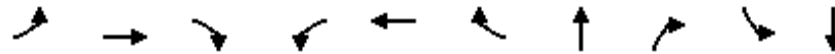
PM Existing + Cumulative
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	872	0	0	748	62	0	0	0	49	0	79
Future Volume (veh/h)	103	872	0	0	748	62	0	0	0	49	0	79
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	112	948	0	0	813	67	0	0	0	53	0	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	1959	0	4	1172	97	0	275	0	439	0	233
Arrive On Green	0.09	0.55	0.00	0.00	0.35	0.35	0.00	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3324	274	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	112	948	0	0	435	445	0	0	0	53	0	86
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1821	0	1870	0	1781	0	1585
Q Serve(g_s), s	2.5	6.7	0.0	0.0	8.5	8.5	0.0	0.0	0.0	1.1	0.0	2.0
Cycle Q Clear(g_c), s	2.5	6.7	0.0	0.0	8.5	8.5	0.0	0.0	0.0	1.1	0.0	2.0
Prop In Lane	1.00		0.00	1.00		0.15	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	1959	0	4	627	642	0	275	0	439	0	233
V/C Ratio(X)	0.71	0.48	0.00	0.00	0.69	0.69	0.00	0.00	0.00	0.12	0.00	0.37
Avail Cap(c_a), veh/h	939	3198	0	721	1381	1416	0	1422	0	1487	0	1166
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.1	5.6	0.0	0.0	11.3	11.3	0.0	0.0	0.0	15.3	0.0	15.7
Incr Delay (d2), s/veh	5.9	0.2	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.1	0.0	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	1.1	1.5	0.0	0.0	2.8	2.9	0.0	0.0	0.0	0.4	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	5.8	0.0	0.0	12.7	12.7	0.0	0.0	0.0	15.4	0.0	16.7
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		1060			880			0				139
Approach Delay, s/veh		7.7			12.7			0.0				16.2
Approach LOS		A			B							B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	29.2		11.6	8.1	21.1		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	16.5	36.7		30.0	21.5	31.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	8.7		4.0	4.5	10.5		0.0				
Green Ext Time (p_c), s	0.0	5.2		0.5	0.3	3.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.4								
HCM 6th LOS				B								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Cumulative
12: College Blvd & North River Rd

Timings

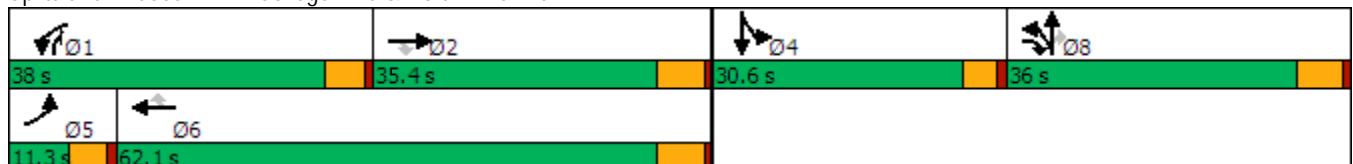


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	468	445	1085	402	58	30	1242	23	39
Future Volume (vph)	23	468	445	1085	402	58	30	1242	23	39
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.3	35.4	36.0	38.0	62.1	62.1	36.0	38.0	30.6	30.6
Total Split (%)	8.1%	25.3%	25.7%	27.1%	44.4%	44.4%	25.7%	27.1%	21.9%	21.9%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.1	21.5	53.6	33.4	53.7	53.7	30.7	70.0	10.6	10.6
Actuated g/C Ratio	0.05	0.19	0.46	0.29	0.47	0.47	0.27	0.61	0.09	0.09
v/c Ratio	0.27	0.77	0.51	1.18	0.27	0.08	0.97	0.67	0.15	0.26
Control Delay	65.3	54.0	4.6	130.8	21.6	1.7	78.6	8.7	51.3	51.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	54.0	4.6	130.8	21.6	1.7	78.6	8.7	51.3	51.6
LOS	E	D	A	F	C	A	E	A	D	D
Approach Delay		30.8			97.5		26.5			51.5
Approach LOS		C			F		C			D

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 115.3
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 53.9
 Intersection LOS: D
 Intersection Capacity Utilization 87.8%
 ICU Level of Service E
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

PM Existing + Cumulative
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	468	445	1085	402	58	393	30	1242	23	39	2
Future Volume (veh/h)	23	468	445	1085	402	58	393	30	1242	23	39	2
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	25	509	484	1179	437	63	427	33	1350	25	42	2
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	42	866	790	958	1767	788	422	33	1483	81	80	4
Arrive On Green	0.02	0.24	0.24	0.28	0.50	0.50	0.25	0.25	0.25	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1659	128	2790	1781	1771	84
Grp Volume(v), veh/h	25	509	484	1179	437	63	460	0	1350	25	0	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1855
Q Serve(g_s), s	1.7	15.0	26.2	32.9	8.4	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Cycle Q Clear(g_c), s	1.7	15.0	26.2	32.9	8.4	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	0.93		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	42	866	790	958	1767	788	455	0	1483	81	0	84
V/C Ratio(X)	0.59	0.59	0.61	1.23	0.25	0.08	1.01	0.00	0.91	0.31	0.00	0.52
Avail Cap(c_a), veh/h	93	886	798	958	1767	788	455	0	1483	390	0	406
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.4	39.6	21.5	42.9	17.1	15.6	44.3	0.0	25.3	54.9	0.0	55.4
Incr Delay (d2), s/veh	12.6	1.0	1.4	113.2	0.1	0.0	45.2	0.0	8.7	2.1	0.0	5.0
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	6.7	14.9	28.9	3.4	0.9	18.9	0.0	18.2	0.8	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	40.6	22.9	156.2	17.2	15.7	89.4	0.0	34.0	57.0	0.0	60.4
LnGrp LOS	E	D	C	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		1018			1679			1810				69
Approach Delay, s/veh		32.9			114.7			48.1				59.2
Approach LOS		C			F			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	38.0	34.7		10.0	7.9	64.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	32.9	29.6		26.0	6.2	56.3		30.2				
Max Q Clear Time (g_c+I1), s	34.9	28.2		4.8	3.7	10.4		32.2				
Green Ext Time (p_c), s	0.0	0.8		0.2	0.0	2.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				69.3								
HCM 6th LOS				E								

LOS Engineering, Inc.

PM Existing + Cumulative
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	28	80	95	1680	1440	55
Future Volume (vph)	28	80	95	1680	1440	55
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	16.1	6.9	56.3	40.6	40.6
Actuated g/C Ratio	0.17	0.24	0.10	0.82	0.59	0.59
v/c Ratio	0.10	0.23	0.30	0.63	0.75	0.06
Control Delay	28.8	18.9	37.4	7.7	15.5	6.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	28.8	18.9	37.4	7.8	15.5	6.0
LOS	C	B	D	A	B	A
Approach Delay	21.4			9.4	15.2	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 68.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 12.3
 Intersection Capacity Utilization 61.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 13: College Blvd & Buchanon Park



PM Existing + Cumulative
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	80	95	1680	1440	55
Future Volume (veh/h)	28	80	95	1680	1440	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	30	87	103	1826	1565	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	200	306	279	2555	1974	880
Arrive On Green	0.11	0.11	0.08	0.72	0.56	0.56
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	30	87	103	1826	1565	60
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	0.9	2.9	1.7	18.3	21.6	1.1
Cycle Q Clear(g_c), s	0.9	2.9	1.7	18.3	21.6	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	200	306	279	2555	1974	880
V/C Ratio(X)	0.15	0.28	0.37	0.71	0.79	0.07
Avail Cap(c_a), veh/h	810	848	365	3553	2884	1286
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	24.7	21.2	26.8	5.0	10.9	6.3
Incr Delay (d2), s/veh	0.3	0.5	0.8	0.4	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.7	3.8	6.9	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.0	21.7	27.6	5.4	11.9	6.4
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	117			1929	1625	
Approach Delay, s/veh	22.6			6.6	11.7	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		50.1		11.5	10.1	40.0
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		20.3		4.9	3.7	23.6
Green Ext Time (p_c), s		15.4		0.4	0.1	10.7
Intersection Summary						
HCM 6th Ctrl Delay			9.4			
HCM 6th LOS			A			

PM Existing + Cumulative
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	147	20	49	10	30	74	1580	40	1401	116
Future Volume (vph)	147	20	49	10	30	74	1580	40	1401	116
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	12.0	51.5	11.8	51.3	51.3
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	12.0%	51.5%	11.8%	51.3%	51.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.5	16.5		16.5	16.5	7.0	45.6	6.6	43.0	43.0
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.09	0.57	0.08	0.54	0.54
v/c Ratio	0.58	0.25		0.23	0.08	0.51	0.62	0.29	0.80	0.14
Control Delay	38.3	11.2		29.2	0.4	52.8	14.7	45.4	21.2	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	38.3	11.2		29.2	0.4	52.8	14.7	45.4	21.3	6.6
LOS	D	B		C	A	D	B	D	C	A
Approach Delay		27.8		19.4			16.3		20.9	
Approach LOS		C		B			B		C	

Intersection Summary























Cycle Length: 100
 Actuated Cycle Length: 79.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 19.1
 Intersection LOS: B
 Intersection Capacity Utilization 70.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM Existing + Cumulative
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	20	73	49	10	30	74	1580	83	40	1401	116
Future Volume (veh/h)	147	20	73	49	10	30	74	1580	83	40	1401	116
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	160	22	79	53	11	33	80	1717	90	43	1523	126
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	300	84	300	294	53	371	103	2596	136	70	1791	799
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.52	0.52	0.04	0.50	0.50
Sat Flow, veh/h	1362	357	1282	889	228	1585	1781	4967	260	1781	3554	1585
Grp Volume(v), veh/h	160	0	101	64	0	33	80	1176	631	43	1523	126
Grp Sat Flow(s),veh/h/ln	1362	0	1640	1117	0	1585	1781	1702	1824	1781	1777	1585
Q Serve(g_s), s	8.6	0.0	3.8	2.5	0.0	1.2	3.4	19.2	19.3	1.8	28.4	3.3
Cycle Q Clear(g_c), s	14.9	0.0	3.8	6.3	0.0	1.2	3.4	19.2	19.3	1.8	28.4	3.3
Prop In Lane	1.00		0.78	0.83		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	300	0	383	347	0	371	103	1779	953	70	1791	799
V/C Ratio(X)	0.53	0.00	0.26	0.18	0.00	0.09	0.78	0.66	0.66	0.62	0.85	0.16
Avail Cap(c_a), veh/h	553	0	687	601	0	665	161	2039	1092	156	2119	945
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.1	0.0	23.9	25.7	0.0	22.9	35.5	13.3	13.3	36.1	16.4	10.2
Incr Delay (d2), s/veh	1.5	0.0	0.4	0.3	0.0	0.1	11.7	0.7	1.2	8.5	3.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	1.5	1.0	0.0	0.5	1.8	6.7	7.3	0.9	10.9	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	24.2	25.9	0.0	23.0	47.2	14.0	14.5	44.6	19.5	10.3
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		261			97			1887			1692	
Approach Delay, s/veh		29.4			24.9			15.6			19.4	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	45.7		22.5	9.5	44.2		22.5				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.7	45.7		* 32	6.9	45.5		* 32				
Max Q Clear Time (g_c+I1), s	3.8	21.3		16.9	5.4	30.4		8.3				
Green Ext Time (p_c), s	0.0	10.7		0.9	0.0	8.1		0.3				

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

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

PM Existing + Cumulative
15: College Blvd & Via Cupeno

Timings

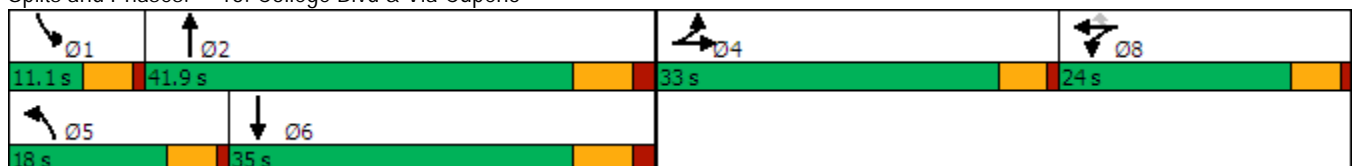


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	9	10	6	433	1499	2	1286
Future Volume (vph)	9	10	6	433	1499	2	1286
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	18.0	41.9	11.1	35.0
Total Split (%)	30.0%	21.8%	21.8%	16.4%	38.1%	10.1%	31.8%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	16.7	9.4	9.4	13.2	45.3	6.1	28.8
Actuated g/C Ratio	0.19	0.11	0.11	0.15	0.52	0.07	0.33
v/c Ratio	0.71	0.42	0.02	0.91	0.67	0.02	0.92
Control Delay	29.8	46.0	0.2	63.0	20.7	44.0	40.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	46.0	0.2	63.0	20.7	44.0	40.6
LOS	C	D	A	E	C	D	D
Approach Delay	29.8	42.3			29.7		40.6
Approach LOS	C	D			C		D

Intersection Summary






















Cycle Length: 110
 Actuated Cycle Length: 87.5
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 33.8
 Intersection LOS: C
 Intersection Capacity Utilization 77.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



PM Existing + Cumulative
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	276	9	191	63	10	6	433	1499	101	2	1286	119
Future Volume (veh/h)	276	9	191	63	10	6	433	1499	101	2	1286	119
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	300	10	208	68	11	7	471	1629	110	2	1398	129
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	367	15	314	93	15	95	525	2309	156	6	1541	142
Arrive On Green	0.21	0.21	0.21	0.06	0.06	0.06	0.15	0.47	0.47	0.00	0.32	0.32
Sat Flow, veh/h	1781	73	1523	1543	250	1585	3456	4885	330	1781	4757	439
Grp Volume(v), veh/h	300	0	218	79	0	7	471	1135	604	2	1000	527
Grp Sat Flow(s),veh/h/ln	1781	0	1596	1793	0	1585	1728	1702	1811	1781	1702	1791
Q Serve(g_s), s	13.7	0.0	10.7	3.7	0.0	0.4	11.4	22.4	22.4	0.1	23.9	23.9
Cycle Q Clear(g_c), s	13.7	0.0	10.7	3.7	0.0	0.4	11.4	22.4	22.4	0.1	23.9	23.9
Prop In Lane	1.00		0.95	0.86		1.00	1.00		0.18	1.00		0.24
Lane Grp Cap(c), veh/h	367	0	329	108	0	95	525	1609	856	6	1103	580
V/C Ratio(X)	0.82	0.00	0.66	0.73	0.00	0.07	0.90	0.71	0.71	0.34	0.91	0.91
Avail Cap(c_a), veh/h	587	0	526	401	0	355	525	1609	856	126	1131	595
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.2	0.0	31.0	39.2	0.0	37.7	35.3	17.7	17.7	42.2	27.5	27.5
Incr Delay (d2), s/veh	4.8	0.0	2.3	9.3	0.0	0.3	18.0	1.4	2.7	31.9	10.4	17.5
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	6.2	0.0	4.2	1.9	0.0	0.1	6.0	8.4	9.3	0.1	10.8	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.0	0.0	33.3	48.5	0.0	38.0	53.4	19.1	20.4	74.1	37.9	45.0
LnGrp LOS	D	A	C	D	A	D	D	B	C	E	D	D
Approach Vol, veh/h		518			86			2210			1529	
Approach Delay, s/veh		35.4			47.6			26.8			40.4	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	46.9		22.5	18.0	34.3		10.1				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	35.1		28.0	12.9	28.2		19.0				
Max Q Clear Time (g_c+I1), s	2.1	24.4		15.7	13.4	25.9		5.7				
Green Ext Time (p_c), s	0.0	6.3		1.8	0.0	1.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			C									

PM Existing + Cumulative
16: College Blvd & SR-76

Timings

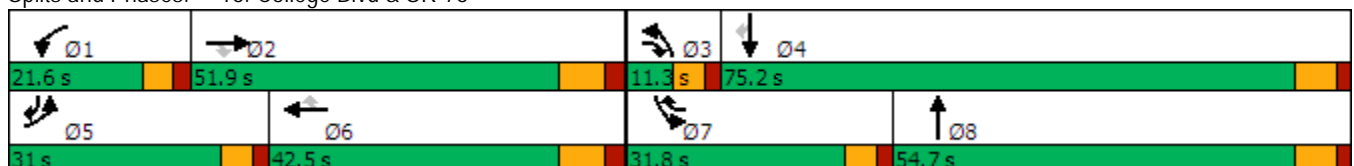


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	565	1357	58	332	928	648	51	796	563	768	443
Future Volume (vph)	565	1357	58	332	928	648	51	796	563	768	443
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	31.0	51.9	11.3	21.6	42.5	31.8	11.3	54.7	31.8	75.2	31.0
Total Split (%)	19.4%	32.4%	7.1%	13.5%	26.6%	19.9%	7.1%	34.2%	19.9%	47.0%	19.4%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	25.3	43.9	57.5	15.9	34.5	68.6	5.6	47.9	26.1	68.4	100.5
Actuated g/C Ratio	0.16	0.27	0.36	0.10	0.22	0.43	0.04	0.30	0.16	0.43	0.63
v/c Ratio	1.13	1.06	0.10	1.06	0.92	0.95	0.46	1.21	1.09	0.55	0.47
Control Delay	139.0	95.4	1.1	131.3	75.0	61.1	88.2	149.8	125.9	36.0	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	139.0	95.4	1.1	131.3	75.0	61.1	88.2	149.8	125.9	36.0	14.8
LOS	F	F	A	F	E	E	F	F	F	D	B
Approach Delay		105.1			80.1			147.2		59.2	
Approach LOS		F			F			F		E	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.21
 Intersection Signal Delay: 93.8
 Intersection LOS: F
 Intersection Capacity Utilization 107.4%
 ICU Level of Service G
 Analysis Period (min) 15


































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

PM Existing + Cumulative
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	565	1357	58	332	928	648	51	796	368	563	768	443
Future Volume (veh/h)	565	1357	58	332	928	648	51	796	368	563	768	443
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	614	1475	63	361	1009	704	55	865	400	612	835	482
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	546	1401	476	343	1101	600	89	708	325	564	1552	943
Arrive On Green	0.16	0.27	0.27	0.10	0.22	0.22	0.03	0.30	0.30	0.16	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2366	1086	3456	3554	1585
Grp Volume(v), veh/h	614	1475	63	361	1009	704	55	648	617	612	835	482
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1675	1728	1777	1585
Q Serve(g_s), s	25.3	43.9	4.6	15.9	30.9	34.5	2.5	47.9	47.9	26.1	27.7	28.3
Cycle Q Clear(g_c), s	25.3	43.9	4.6	15.9	30.9	34.5	2.5	47.9	47.9	26.1	27.7	28.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.65	1.00		1.00
Lane Grp Cap(c), veh/h	546	1401	476	343	1101	600	89	532	501	564	1552	943
V/C Ratio(X)	1.12	1.05	0.13	1.05	0.92	1.17	0.62	1.22	1.23	1.09	0.54	0.51
Avail Cap(c_a), veh/h	546	1401	476	343	1101	600	121	532	501	564	1552	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	58.0	40.8	72.1	61.3	49.7	77.1	56.0	56.1	66.9	33.2	18.9
Incr Delay (d2), s/veh	77.2	39.3	0.1	62.6	11.8	94.5	6.7	114.5	120.1	63.2	0.4	0.5
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	17.1	24.0	1.9	10.1	14.6	39.6	1.2	38.4	36.9	16.5	12.2	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.6	97.3	40.9	134.7	73.2	144.2	83.8	170.6	176.2	130.2	33.6	19.3
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	C	B
Approach Vol, veh/h		2152			2074			1320			1929	
Approach Delay, s/veh		109.2			108.0			169.6			60.7	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	51.9	9.8	76.7	31.0	42.5	31.8	54.7				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 16	43.9	* 5.6	68.4	* 25	34.5	* 26	47.9				
Max Q Clear Time (g_c+I1), s	17.9	45.9	4.5	30.3	27.3	36.5	28.1	49.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			107.0									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Cumulative
17: North River Rd/Vandergrift Blvd

Timings

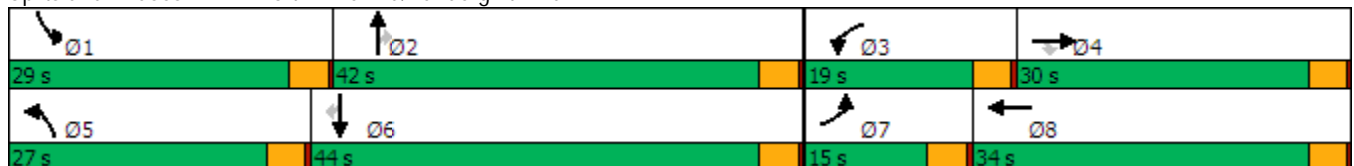


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖↗	↖	↖	↑↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	70	87	121	466	106	225	684	752	253	882	53
Future Volume (vph)	70	87	121	466	106	225	684	752	253	882	53
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	15.0	30.0	30.0	19.0	34.0	27.0	42.0	42.0	29.0	44.0	44.0
Total Split (%)	12.5%	25.0%	25.0%	15.8%	28.3%	22.5%	35.0%	35.0%	24.2%	36.7%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	9.2	13.5	13.5	15.2	21.9	18.7	38.7	38.7	20.4	40.4	40.4
Actuated g/C Ratio	0.09	0.13	0.13	0.15	0.21	0.18	0.37	0.37	0.20	0.39	0.39
v/c Ratio	0.49	0.39	0.41	1.01	0.59	0.77	0.39	0.88	0.79	0.70	0.09
Control Delay	58.7	46.1	10.9	89.3	38.7	58.5	26.3	23.2	57.9	31.7	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	46.1	10.9	89.3	38.7	58.5	26.3	23.2	57.9	31.7	3.0
LOS	E	D	B	F	D	E	C	C	E	C	A
Approach Delay		34.0			73.4		29.3			36.0	
Approach LOS		C			E		C			D	

Intersection Summary
























Cycle Length: 120	
Actuated Cycle Length: 103.9	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 75.6%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM Existing + Cumulative
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

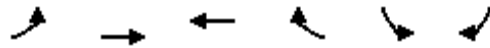
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	87	121	466	106	109	225	684	752	253	882	53
Future Volume (veh/h)	70	87	121	466	106	109	225	684	752	253	882	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	95	132	507	115	118	245	743	817	275	959	58
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	98	205	174	534	177	181	283	2015	626	314	1464	653
Arrive On Green	0.06	0.11	0.11	0.15	0.21	0.21	0.16	0.39	0.39	0.18	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	846	868	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	76	95	132	507	0	233	245	743	817	275	959	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1714	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	4.1	4.6	7.9	14.1	0.0	12.1	13.0	10.0	38.3	14.6	21.1	2.2
Cycle Q Clear(g_c), s	4.1	4.6	7.9	14.1	0.0	12.1	13.0	10.0	38.3	14.6	21.1	2.2
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	205	174	534	0	358	283	2015	626	314	1464	653
V/C Ratio(X)	0.77	0.46	0.76	0.95	0.00	0.65	0.87	0.37	1.31	0.88	0.66	0.09
Avail Cap(c_a), veh/h	202	501	424	534	0	530	422	2015	626	459	1464	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	40.5	42.0	40.7	0.0	35.1	39.8	20.8	29.4	38.9	23.0	17.4
Incr Delay (d2), s/veh	12.1	1.6	6.6	26.8	0.0	2.0	11.7	0.5	149.0	12.3	2.3	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	2.1	2.2	3.4	7.9	0.0	5.2	6.5	4.0	39.8	7.4	9.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	42.2	48.6	67.5	0.0	37.1	51.5	21.3	178.4	51.3	25.3	17.7
LnGrp LOS	E	D	D	E	A	D	D	C	F	D	C	B
Approach Vol, veh/h		303			740			1805			1292	
Approach Delay, s/veh		48.8			57.9			96.5			30.5	
Approach LOS		D			E			F			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.1	42.3	19.0	14.7	19.4	44.0	9.4	24.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	25.0	38.0	15.0	26.0	23.0	40.0	11.0	30.0				
Max Q Clear Time (g_c+I1), s	16.6	40.3	16.1	9.9	15.0	23.1	6.1	14.1				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.8	0.4	6.6	0.1	1.2				
Intersection Summary												
HCM 6th Ctrl Delay			65.5									
HCM 6th LOS			E									

Appendix K

Existing + Cumulative + Project Intersection LOS Worksheets

AM Existing + Cumulative + Project
1: SR-76 & Douglas Dr

Timings

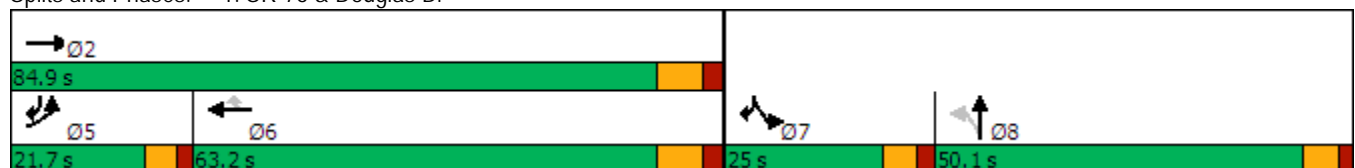


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	267	966	1881	209	249	559	
Future Volume (vph)	267	966	1881	209	249	559	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	21.7	84.9	63.2	63.2	25.0		50.1
Total Split (%)	13.6%	53.1%	39.5%	39.5%	15.6%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	15.1	76.0	55.2	55.2	18.9	40.1	
Actuated g/C Ratio	0.14	0.70	0.51	0.51	0.17	0.37	
v/c Ratio	0.61	0.43	1.14	0.25	0.89	0.43	
Control Delay	50.2	7.7	98.2	3.2	74.1	2.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.2	7.7	98.2	3.2	74.1	2.9	
LOS	D	A	F	A	E	A	
Approach Delay		16.9	88.7				
Approach LOS		B	F				

Intersection Summary




















Cycle Length: 160
 Actuated Cycle Length: 109
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 54.8
 Intersection LOS: D
 Intersection Capacity Utilization 91.4%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



AM Existing + Cumulative + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	966	0	0	1881	209	0	0	0	249	0	559
Future Volume (veh/h)	267	966	0	0	1881	209	0	0	0	249	0	559
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	290	1050	0	0	2045	227	0	0	0	271	0	608
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	424	2480	0	0	1852	826	0	2	0	301	0	0
Arrive On Green	0.12	0.70	0.00	0.00	0.52	0.52	0.00	0.00	0.00	0.17	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	271	
Grp Volume(v), veh/h	290	1050	0	0	2045	227	0	0	0	271	69.2	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	8.5	13.4	0.0	0.0	55.2	8.5	0.0	0.0	0.0	15.8		
Cycle Q Clear(g_c), s	8.5	13.4	0.0	0.0	55.2	8.5	0.0	0.0	0.0	15.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	424	2480	0	0	1852	826	0	2	0	301		
V/C Ratio(X)	0.68	0.42	0.00	0.00	1.10	0.27	0.00	0.00	0.00	0.90		
Avail Cap(c_a), veh/h	522	2580	0	0	1852	826	0	777	0	318		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	44.5	6.9	0.0	0.0	25.4	14.2	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	2.7	0.1	0.0	0.0	55.5	0.2	0.0	0.0	0.0	26.1		
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		
%ile BackOfQ(50%),veh/ln	3.8	4.5	0.0	0.0	36.0	3.0	0.0	0.0	0.0	9.1		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	7.0	0.0	0.0	80.9	14.3	0.0	0.0	0.0	69.2		
LnGrp LOS	D	A	A	A	F	B	A	A	A	E		
Approach Vol, veh/h		1340			2272			0				
Approach Delay, s/veh		15.7			74.2			0.0				
Approach LOS		B			E							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		81.9			18.7	63.2	24.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		76.9			* 16	55.2	18.9	44.0				
Max Q Clear Time (g_c+I1), s		15.4			10.5	57.2	17.8	0.0				
Green Ext Time (p_c), s		6.4			0.6	0.0	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					53.7							
HCM 6th LOS					D							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing + Cumulative + Project
2: Douglas Dr & Mission Ave

Timings

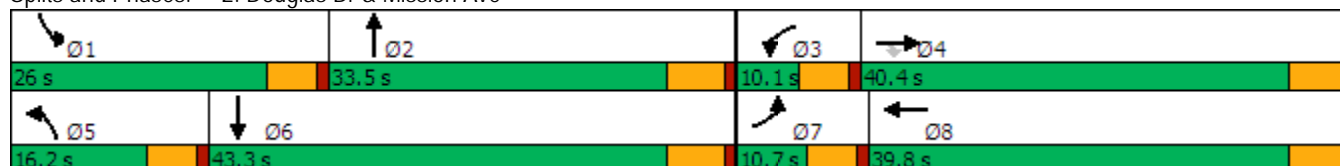


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	70	272	62	49	462	111	322	408	745
Future Volume (vph)	70	272	62	49	462	111	322	408	745
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.7	40.4	40.4	10.1	39.8	16.2	33.5	26.0	43.3
Total Split (%)	9.7%	36.7%	36.7%	9.2%	36.2%	14.7%	30.5%	23.6%	39.4%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.9	26.9	26.9	5.2	26.5	10.3	19.5	21.8	31.0
Actuated g/C Ratio	0.06	0.29	0.29	0.06	0.29	0.11	0.21	0.23	0.33
v/c Ratio	0.35	0.29	0.11	0.54	0.81	0.62	0.49	1.06	0.77
Control Delay	52.4	27.2	0.4	69.0	31.8	58.8	35.0	101.2	33.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	27.2	0.4	69.0	31.8	58.8	35.0	101.2	33.8
LOS	D	C	A	E	C	E	D	F	C
Approach Delay		27.5			34.0		41.0		56.0
Approach LOS		C			C		D		E

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 92.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 43.5
 Intersection LOS: D
 Intersection Capacity Utilization 77.3%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM Existing + Cumulative + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	70	272	62	49	462	334	111	322	10	408	745	83
Future Volume (veh/h)	70	272	62	49	462	334	111	322	10	408	745	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	296	67	53	502	363	121	350	11	443	810	90
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	171	1100	491	75	595	430	163	506	16	444	973	108
Arrive On Green	0.05	0.31	0.31	0.04	0.30	0.30	0.09	0.14	0.14	0.25	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	1781	1969	1422	1781	3517	110	1781	3224	358
Grp Volume(v), veh/h	76	296	67	53	453	412	121	176	185	443	446	454
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1614	1781	1777	1851	1781	1777	1806
Q Serve(g_s), s	1.8	5.3	2.6	2.5	20.0	20.1	5.6	7.9	8.0	20.8	19.6	19.6
Cycle Q Clear(g_c), s	1.8	5.3	2.6	2.5	20.0	20.1	5.6	7.9	8.0	20.8	19.6	19.6
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.06	1.00		0.20
Lane Grp Cap(c), veh/h	171	1100	491	75	537	488	163	255	266	444	536	545
V/C Ratio(X)	0.44	0.27	0.14	0.70	0.84	0.84	0.74	0.69	0.69	1.00	0.83	0.83
Avail Cap(c_a), veh/h	231	1483	662	106	729	662	236	587	611	444	795	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	21.8	20.9	39.6	27.4	27.4	37.1	34.1	34.1	31.4	27.3	27.3
Incr Delay (d2), s/veh	1.8	0.1	0.1	11.3	6.7	7.4	7.1	3.3	3.2	42.1	4.9	4.8
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	0.8	2.1	0.9	1.3	9.1	8.4	2.7	3.6	3.7	13.8	8.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	21.9	21.0	50.9	34.1	34.8	44.3	37.5	37.4	73.5	32.2	32.2
LnGrp LOS	D	C	C	D	C	C	D	D	D	E	C	C
Approach Vol, veh/h		439			918			482			1343	
Approach Delay, s/veh		25.0			35.4			39.1			45.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	17.9	8.6	31.3	12.8	31.1	9.2	30.7				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	20.9	27.7	5.0	35.0	11.1	37.5	5.6	34.4				
Max Q Clear Time (g_c+I1), s	22.8	10.0	4.5	7.3	7.6	21.6	3.8	22.1				
Green Ext Time (p_c), s	0.0	1.3	0.0	1.6	0.1	3.6	0.0	3.3				

Intersection Summary

HCM 6th Ctrl Delay	38.9
HCM 6th LOS	D

Notes

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

AM Existing + Cumulative + Project
3: Douglas Dr & El Camino Real

Timings

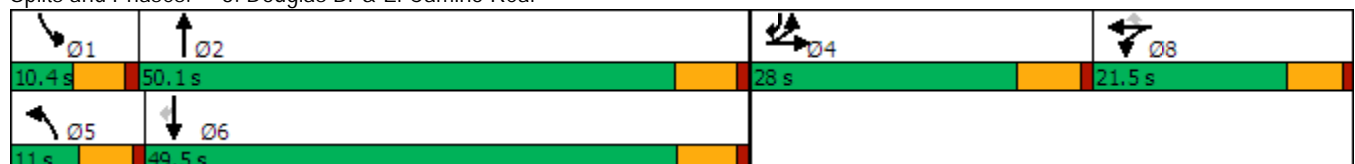


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖↗	↖↗
Traffic Volume (vph)	342	17	42	33	1	51	591	8	1149	1151
Future Volume (vph)	342	17	42	33	1	51	591	8	1149	1151
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	28.0	28.0		21.5	21.5	11.0	50.1	10.4	49.5	28.0
Total Split (%)	25.5%	25.5%		19.5%	19.5%	10.0%	45.5%	9.5%	45.0%	25.5%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	20.5	20.5	94.6	11.7	11.7	6.1	45.7	5.4	39.8	69.1
Actuated g/C Ratio	0.22	0.22	1.00	0.12	0.12	0.06	0.48	0.06	0.42	0.73
v/c Ratio	0.50	0.04	0.03	0.50	0.00	0.49	0.40	0.09	0.84	0.62
Control Delay	38.7	35.4	0.0	52.2	0.0	64.9	18.0	51.9	33.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	35.4	0.0	52.2	0.0	64.9	18.0	51.9	33.2	11.5
LOS	D	D	A	D	A	E	B	D	C	B
Approach Delay		34.5		51.7			21.5		22.4	
Approach LOS		C		D			C		C	

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 94.6
 Natural Cycle: 95
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 24.5
 Intersection LOS: C
 Intersection Capacity Utilization 67.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM Existing + Cumulative + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	342	17	42	70	33	1	51	591	37	8	1149	1151
Future Volume (veh/h)	342	17	42	70	33	1	51	591	37	8	1149	1151
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	372	18	0	76	36	1	55	642	40	9	1249	1251
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	491	266		99	47	128	75	1690	105	20	1657	1697
Arrive On Green	0.14	0.14	0.00	0.08	0.08	0.08	0.04	0.50	0.50	0.01	0.47	0.47
Sat Flow, veh/h	3456	1870	1585	1228	581	1585	1781	3398	211	1781	3554	2790
Grp Volume(v), veh/h	372	18	0	112	0	1	55	335	347	9	1249	1251
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1809	0	1585	1781	1777	1832	1781	1777	1395
Q Serve(g_s), s	9.0	0.7	0.0	5.3	0.0	0.1	2.6	10.1	10.2	0.4	25.1	27.6
Cycle Q Clear(g_c), s	9.0	0.7	0.0	5.3	0.0	0.1	2.6	10.1	10.2	0.4	25.1	27.6
Prop In Lane	1.00		1.00	0.68		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	491	266		146	0	128	75	884	911	20	1657	1697
V/C Ratio(X)	0.76	0.07		0.77	0.00	0.01	0.73	0.38	0.38	0.45	0.75	0.74
Avail Cap(c_a), veh/h	869	470		334	0	293	115	900	928	103	1783	1797
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	32.2	0.0	39.1	0.0	36.7	41.0	13.5	13.5	42.6	19.0	12.1
Incr Delay (d2), s/veh	2.4	0.1	0.0	8.3	0.0	0.0	12.6	0.3	0.3	15.0	1.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.3	0.0	2.6	0.0	0.0	1.4	3.9	4.0	0.3	10.0	11.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	32.3	0.0	47.3	0.0	36.7	53.6	13.8	13.8	57.6	20.8	13.6
LnGrp LOS	D	C		D	A	D	D	B	B	E	C	B
Approach Vol, veh/h		390	A		113			737			2509	
Approach Delay, s/veh		37.9			47.2			16.7			17.3	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	49.3		18.5	9.1	46.6		12.5				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	43.9		21.8	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.4	12.2		11.0	4.6	29.6		7.3				
Green Ext Time (p_c), s	0.0	3.0		1.4	0.0	10.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM Existing + Cumulative + Project
4: Douglas Dr & Pala Rd

Timings

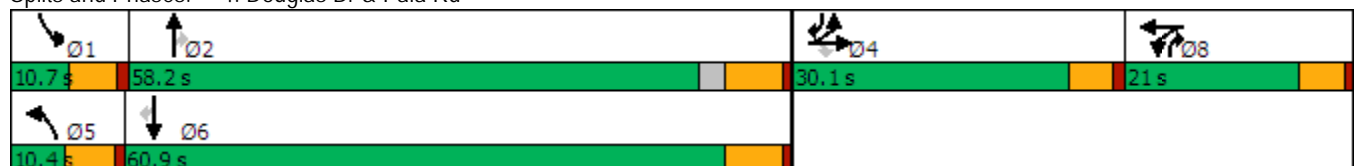


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↑↑	↖	↖	↑↑	↖
Traffic Volume (vph)	66	3	96	13	2	40	901	20	15	2040	67
Future Volume (vph)	66	3	96	13	2	40	901	20	15	2040	67
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	58.2	21.0	10.7	60.9	30.1
Total Split (%)	24.6%	24.6%	24.6%	17.2%	17.2%	8.5%	47.5%	17.2%	8.7%	49.8%	24.6%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.2	10.2	10.2	6.6	6.6	5.1	63.0	69.1	5.4	58.6	76.2
Actuated g/C Ratio	0.11	0.11	0.11	0.07	0.07	0.05	0.66	0.73	0.06	0.61	0.80
v/c Ratio	0.21	0.21	0.38	0.11	0.21	0.46	0.42	0.02	0.16	1.02	0.06
Control Delay	41.7	41.6	9.0	48.2	23.0	63.9	11.6	0.1	51.7	46.2	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	41.6	9.0	48.2	23.0	63.9	11.6	0.1	51.7	46.2	1.0
LOS	D	D	A	D	C	E	B	A	D	D	A
Approach Delay		22.7			31.4		13.5			44.8	
Approach LOS		C			C		B			D	

Intersection Summary
























Cycle Length: 122.4
 Actuated Cycle Length: 95.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 34.4
 Intersection LOS: C
 Intersection Capacity Utilization 81.0%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



AM Existing + Cumulative + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	3	96	13	2	24	40	901	20	15	2040	67
Future Volume (veh/h)	66	3	96	13	2	24	40	901	20	15	2040	67
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	74	0	104	14	2	26	43	979	22	16	2217	73
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	326	0	145	76	5	64	64	2172	1037	32	2108	1085
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.04	0.61	0.61	0.02	0.59	0.59
Sat Flow, veh/h	3563	0	1585	1781	114	1488	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	74	0	104	14	0	28	43	979	22	16	2217	73
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1603	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	1.8	0.0	5.9	0.7	0.0	1.6	2.2	13.6	0.4	0.8	54.7	1.4
Cycle Q Clear(g_c), s	1.8	0.0	5.9	0.7	0.0	1.6	2.2	13.6	0.4	0.8	54.7	1.4
Prop In Lane	1.00		1.00	1.00		0.93	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	326	0	145	76	0	69	64	2172	1037	32	2108	1085
V/C Ratio(X)	0.23	0.00	0.72	0.18	0.00	0.41	0.67	0.45	0.02	0.49	1.05	0.07
Avail Cap(c_a), veh/h	966	0	430	307	0	276	97	2172	1037	102	2108	1085
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	40.7	42.6	0.0	43.0	43.9	9.6	5.6	44.8	18.8	4.8
Incr Delay (d2), s/veh	0.4	0.0	6.5	1.1	0.0	3.8	11.2	0.1	0.0	11.1	34.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	2.5	0.3	0.0	0.7	1.2	4.8	0.2	0.5	29.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.2	0.0	47.2	43.7	0.0	46.8	55.1	9.8	5.6	55.9	53.7	4.8
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	F	A
Approach Vol, veh/h		178			42			1044			2306	
Approach Delay, s/veh		43.9			45.8			11.6			52.1	
Approach LOS		D			D			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	62.6		13.5	8.7	60.9		9.1				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.3	52.0		25.0	5.0	54.7		15.9				
Max Q Clear Time (g_c+I1), s	2.8	15.6		7.9	4.2	56.7		3.6				
Green Ext Time (p_c), s	0.0	5.7		0.6	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

AM Existing + Cumulative + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	15	2	109	68	4	6	979	33	2	1951	37
Future Volume (vph)	15	2	109	68	4	6	979	33	2	1951	37
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.9	12.9		12.9	12.9	59.2	59.2	5.0	60.9	60.9
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.69	0.69	0.06	0.71	0.71
v/c Ratio		0.08	0.37		0.38	0.02	0.43	0.03	0.02	0.84	0.04
Control Delay		27.8	11.5		35.3	0.2	9.0	0.5	41.5	15.1	4.5
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		27.8	11.5		35.3	0.2	9.0	0.5	41.5	15.1	4.5
LOS		C	B		D	A	A	A	D	B	A
Approach Delay		13.7			32.4		8.7			15.0	
Approach LOS		B			C		A			B	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 85.2
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 13.4
 Intersection Capacity Utilization 78.9%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 5: Douglas Dr & Rainer Way



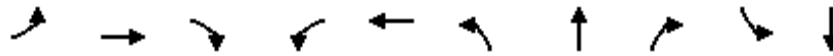
AM Existing + Cumulative + Project
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	2	109	68	4	6	0	979	33	2	1951	37
Future Volume (veh/h)	15	2	109	68	4	6	0	979	33	2	1951	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	2	118	74	4	7	0	1064	36	2	2121	40
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	0	2	2	2	2	2
Cap, veh/h	73	5	505	76	2	505	0	1817	810	5	2019	900
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.00	0.51	0.51	0.00	0.57	0.57
Sat Flow, veh/h	16	17	1585	17	7	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	18	0	118	78	0	7	0	1064	36	2	2121	40
Grp Sat Flow(s),veh/h/ln	33	0	1585	24	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.4	0.0	5.5	0.4	0.0	0.3	0.0	20.8	1.1	0.1	56.7	1.1
Cycle Q Clear(g_c), s	31.8	0.0	5.5	31.8	0.0	0.3	0.0	20.8	1.1	0.1	56.7	1.1
Prop In Lane	0.89		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	79	0	505	78	0	505	0	1817	810	5	2019	900
V/C Ratio(X)	0.23	0.00	0.23	1.00	0.00	0.01	0.00	0.59	0.04	0.42	1.05	0.04
Avail Cap(c_a), veh/h	81	0	508	80	0	508	0	1817	810	89	2019	900
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	25.0	49.1	0.0	23.3	0.0	17.0	12.2	49.7	21.6	9.6
Incr Delay (d2), s/veh	1.5	0.0	0.2	99.9	0.0	0.0	0.0	0.5	0.0	49.4	34.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	2.1	4.1	0.0	0.1	0.0	8.2	0.4	0.1	31.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	0.0	25.3	149.0	0.0	23.3	0.0	17.5	12.2	99.1	56.4	9.6
LnGrp LOS	D	A	C	F	A	C	A	B	B	F	F	A
Approach Vol, veh/h		136			85			1100			2163	
Approach Delay, s/veh		27.6			138.6			17.3			55.6	
Approach LOS		C			F			B			E	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.7	57.7		36.5		63.4		36.5				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.1	22.8		33.8		58.7		33.8				
Green Ext Time (p_c), s	0.0	6.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.5									
HCM 6th LOS			D									

AM Existing + Cumulative + Project
6: Douglas Dr & North River Rd

Timings

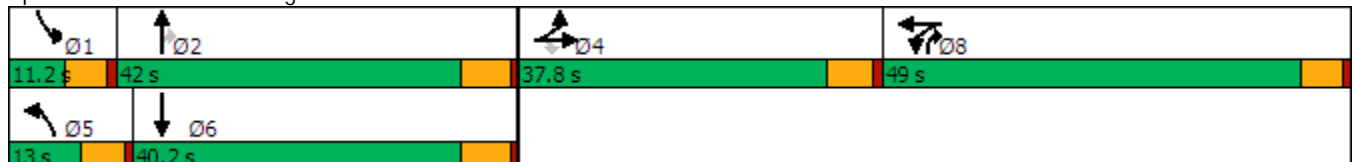


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↗	↙	↔	↙	↑↑	↗↗	↙	↑↑
Traffic Volume (vph)	53	95	187	1042	49	71	434	400	18	705
Future Volume (vph)	53	95	187	1042	49	71	434	400	18	705
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	49.0	49.0	13.0	42.0	49.0	11.2	40.2
Total Split (%)	27.0%	27.0%	27.0%	35.0%	35.0%	9.3%	30.0%	35.0%	8.0%	28.7%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	15.9	15.9	15.9	43.9	43.9	7.6	41.7	89.8	5.8	32.8
Actuated g/C Ratio	0.13	0.13	0.13	0.36	0.36	0.06	0.34	0.73	0.05	0.27
v/c Ratio	0.25	0.23	0.68	0.99	0.94dl	0.70	0.39	0.20	0.24	0.82
Control Delay	50.0	48.3	35.0	75.2	35.4	90.5	34.7	0.8	67.9	51.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.0	48.3	35.0	75.2	35.4	90.5	34.7	0.8	67.9	51.6
LOS	D	D	C	E	D	F	C	A	E	D
Approach Delay		41.2			54.0		24.1			52.0
Approach LOS		D			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 123.1
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 43.4
 Intersection LOS: D
 Intersection Capacity Utilization 74.7%
 ICU Level of Service D
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd



AM Existing + Cumulative + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	95	187	1042	49	21	71	434	400	18	705	9
Future Volume (veh/h)	53	95	187	1042	49	21	71	434	400	18	705	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	58	103	203	1133	53	23	77	472	435	20	766	10
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	280	558	249	1242	431	187	98	1012	1767	36	899	12
Arrive On Green	0.16	0.16	0.16	0.35	0.35	0.35	0.05	0.28	0.28	0.02	0.25	0.25
Sat Flow, veh/h	1781	3554	1585	3563	1237	537	1781	3554	2790	1781	3592	47
Grp Volume(v), veh/h	58	103	203	1133	0	76	77	472	435	20	379	397
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1774	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	3.4	3.0	14.9	36.6	0.0	3.5	5.1	13.2	8.2	1.3	24.5	24.5
Cycle Q Clear(g_c), s	3.4	3.0	14.9	36.6	0.0	3.5	5.1	13.2	8.2	1.3	24.5	24.5
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.03
Lane Grp Cap(c), veh/h	280	558	249	1242	0	618	98	1012	1767	36	445	466
V/C Ratio(X)	0.21	0.18	0.82	0.91	0.00	0.12	0.79	0.47	0.25	0.55	0.85	0.85
Avail Cap(c_a), veh/h	473	944	421	1289	0	642	112	1056	1801	86	501	525
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	44.1	49.1	37.5	0.0	26.7	56.2	35.5	9.6	58.5	43.0	43.0
Incr Delay (d2), s/veh	0.5	0.2	8.9	10.0	0.0	0.1	27.0	0.7	0.2	12.6	14.2	13.6
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	1.4	6.5	17.4	0.0	1.5	3.0	5.8	5.5	0.7	12.4	13.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.8	44.3	57.9	47.5	0.0	26.8	83.3	36.2	9.7	71.1	57.2	56.7
LnGrp LOS	D	D	E	D	A	C	F	D	A	E	E	E
Approach Vol, veh/h		364			1209			984			796	
Approach Delay, s/veh		52.0			46.2			28.2			57.3	
Approach LOS		D			D			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	40.5		24.7	12.0	36.3		47.4				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	5.8	35.8		32.0	7.6	34.0		43.6				
Max Q Clear Time (g_c+I1), s	3.3	15.2		16.9	7.1	26.5		38.6				
Green Ext Time (p_c), s	0.0	8.7		2.0	0.0	3.7		3.4				

Intersection Summary

HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM Existing + Cumulative + Project
7: Avenida Descanso & North River Rd

Timings

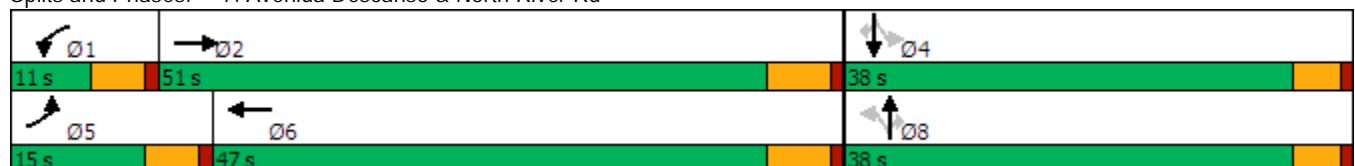


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	52	471	18	946	2	2	30	111	12	105
Future Volume (vph)	52	471	18	946	2	2	30	111	12	105
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	15.0	51.0	11.0	47.0	38.0	38.0	38.0	38.0	38.0	38.0
Total Split (%)	15.0%	51.0%	11.0%	47.0%	38.0%	38.0%	38.0%	38.0%	38.0%	38.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	8.4	30.0	6.8	26.5		14.2	14.2		14.2	14.2
Actuated g/C Ratio	0.14	0.50	0.11	0.44		0.24	0.24		0.24	0.24
v/c Ratio	0.23	0.29	0.10	0.69		0.01	0.07		0.41	0.25
Control Delay	34.1	10.6	37.1	18.0		22.2	0.3		27.1	6.7
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	34.1	10.6	37.1	18.0		22.2	0.3		27.1	6.7
LOS	C	B	D	B		C	A		C	A
Approach Delay		12.9		18.3		2.7			17.7	
Approach LOS		B		B		A			B	

Intersection Summary

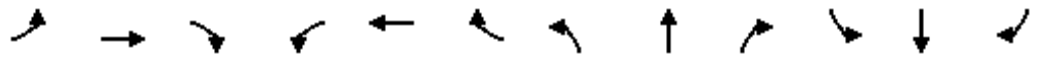
Cycle Length: 100
 Actuated Cycle Length: 59.7
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 16.4
 Intersection LOS: B
 Intersection Capacity Utilization 58.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



AM Existing + Cumulative + Project
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	52	471	5	18	946	44	2	2	30	111	12	105
Future Volume (veh/h)	52	471	5	18	946	44	2	2	30	111	12	105
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	57	512	5	20	1028	48	2	2	33	121	13	114
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	79	1357	13	40	1225	57	67	46	651	87	5	651
Arrive On Green	0.04	0.38	0.38	0.02	0.35	0.35	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1781	3606	35	1781	3457	161	1	113	1585	6	13	1585
Grp Volume(v), veh/h	57	252	265	20	528	548	4	0	33	134	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1841	114	0	1585	18	0	1585
Q Serve(g_s), s	2.6	8.4	8.4	0.9	22.2	22.2	0.0	0.0	1.0	0.2	0.0	3.7
Cycle Q Clear(g_c), s	2.6	8.4	8.4	0.9	22.2	22.2	33.4	0.0	1.0	33.4	0.0	3.7
Prop In Lane	1.00		0.02	1.00		0.09	0.50		1.00	0.90		1.00
Lane Grp Cap(c), veh/h	79	669	702	40	630	652	113	0	651	92	0	651
V/C Ratio(X)	0.72	0.38	0.38	0.50	0.84	0.84	0.04	0.00	0.05	1.46	0.00	0.18
Avail Cap(c_a), veh/h	217	988	1036	129	900	933	114	0	651	92	0	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.3	18.4	18.4	39.3	24.1	24.1	20.2	0.0	14.4	38.9	0.0	15.2
Incr Delay (d2), s/veh	11.6	0.4	0.3	9.5	4.9	4.8	0.1	0.0	0.0	256.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.4	3.5	0.5	9.7	10.0	0.0	0.0	0.4	8.4	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	18.8	18.8	48.8	29.1	28.9	20.3	0.0	14.5	295.5	0.0	15.3
LnGrp LOS	D	B	B	D	C	C	C	A	B	F	A	B
Approach Vol, veh/h		574			1096			37				248
Approach Delay, s/veh		21.9			29.3			15.1				166.7
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	36.4		38.0	8.7	34.6		38.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	45.2		33.4	9.9	41.2		33.4				
Max Q Clear Time (g_c+I1), s	2.9	10.4		35.4	4.6	24.2		35.4				
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	4.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				44.3								
HCM 6th LOS				D								

AM Existing + Cumulative + Project
8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	12	598	1014	7	9	26
Future Vol, veh/h	12	598	1014	7	9	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	13	650	1102	8	10	28

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1110	0	-	0	1457 555
Stage 1	-	-	-	-	1106 -
Stage 2	-	-	-	-	351 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	625	-	-	-	120 475
Stage 1	-	-	-	-	278 -
Stage 2	-	-	-	-	684 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	625	-	-	-	117 475
Mov Cap-2 Maneuver	-	-	-	-	117 -
Stage 1	-	-	-	-	272 -
Stage 2	-	-	-	-	684 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	625	-	-	-	266
HCM Lane V/C Ratio	0.021	-	-	-	0.143
HCM Control Delay (s)	10.9	-	-	-	20.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

LOS Engineering, Inc.

AM Existing + Cumulative + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	22	562	26	26	877	5	102	0	102	15	0	40
Future Vol, veh/h	22	562	26	26	877	5	102	0	102	15	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	611	28	28	953	5	111	0	111	16	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	958	0	0	639	0	0	1206	-	320	1366	1699	479
Stage 1	-	-	-	-	-	-	673	-	-	1012	1012	-
Stage 2	-	-	-	-	-	-	533	-	-	354	687	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	714	-	-	941	-	-	139	0	676	106	91	533
Stage 1	-	-	-	-	-	-	411	0	-	256	315	-
Stage 2	-	-	-	-	-	-	498	0	-	636	446	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	714	-	-	941	-	-	122	-	676	84	85	533
Mov Cap-2 Maneuver	-	-	-	-	-	-	122	-	-	84	85	-
Stage 1	-	-	-	-	-	-	397	-	-	247	306	-
Stage 2	-	-	-	-	-	-	444	-	-	514	431	-

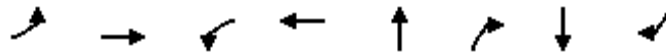
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.3			11.4			27.8		
HCM LOS							B			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	676	714	-	-	941	-	-	217
HCM Lane V/C Ratio	0.164	0.033	-	-	0.03	-	-	0.275
HCM Control Delay (s)	11.4	10.2	-	-	8.9	-	-	27.8
HCM Lane LOS	B	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	1.1

LOS Engineering, Inc.

AM Existing + Cumulative + Project
 10: Calle Montecito & North River Rd

Timings

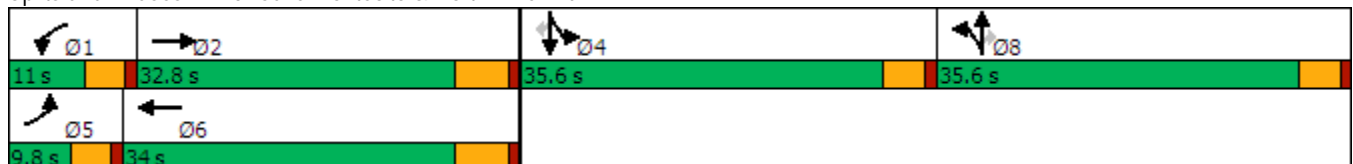


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	49	613	32	754	1	8	1	105
Future Volume (vph)	49	613	32	754	1	8	1	105
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.6	31.3	6.5	29.8	9.8	9.8	15.6	15.6
Actuated g/C Ratio	0.07	0.40	0.08	0.38	0.12	0.12	0.20	0.20
v/c Ratio	0.42	0.50	0.24	0.70	0.06	0.03	0.61	0.28
Control Delay	52.3	23.8	44.8	27.6	32.0	0.2	37.6	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.3	23.8	44.8	27.6	32.0	0.2	37.6	8.4
LOS	D	C	D	C	C	A	D	A
Approach Delay		25.8		28.2	19.0		27.5	
Approach LOS		C		C	B		C	

Intersection Summary

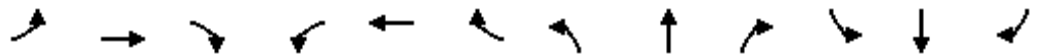
Cycle Length: 115
 Actuated Cycle Length: 78.5
 Natural Cycle: 115
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 27.1
 Intersection LOS: C
 Intersection Capacity Utilization 58.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



AM Existing + Cumulative + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	613	27	32	754	98	11	1	8	196	1	105
Future Volume (veh/h)	49	613	27	32	754	98	11	1	8	196	1	105
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	53	666	29	35	820	107	12	1	9	213	1	114
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	89	1192	52	67	1047	137	174	15	167	304	1	272
Arrive On Green	0.05	0.34	0.34	0.04	0.33	0.33	0.11	0.11	0.11	0.17	0.17	0.17
Sat Flow, veh/h	1781	3469	151	1781	3161	412	1650	138	1585	1773	8	1585
Grp Volume(v), veh/h	53	341	354	35	461	466	13	0	9	214	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	1843	1781	1777	1796	1788	0	1585	1782	0	1585
Q Serve(g_s), s	1.7	8.8	8.9	1.1	13.3	13.3	0.4	0.0	0.3	6.4	0.0	3.6
Cycle Q Clear(g_c), s	1.7	8.8	8.9	1.1	13.3	13.3	0.4	0.0	0.3	6.4	0.0	3.6
Prop In Lane	1.00		0.08	1.00		0.23	0.92		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	611	633	67	588	595	189	0	167	306	0	272
V/C Ratio(X)	0.60	0.56	0.56	0.53	0.78	0.78	0.07	0.00	0.05	0.70	0.00	0.42
Avail Cap(c_a), veh/h	166	848	880	204	886	895	976	0	865	973	0	865
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	15.1	15.1	26.8	17.1	17.2	22.9	0.0	22.8	22.1	0.0	21.0
Incr Delay (d2), s/veh	6.3	0.8	0.8	6.3	2.7	2.6	0.2	0.0	0.1	2.9	0.0	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	0.8	3.3	3.4	0.6	5.2	5.3	0.2	0.0	0.1	2.7	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	15.9	15.9	33.1	19.8	19.8	23.0	0.0	23.0	25.0	0.0	22.0
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		748			962			22				328
Approach Delay, s/veh		17.1			20.3			23.0				24.0
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	25.2		14.3	7.3	24.5		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.1	10.9		8.4	3.7	15.3		2.4				
Green Ext Time (p_c), s	0.0	2.7		1.3	0.0	3.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

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

AM Existing + Cumulative + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations								
Traffic Volume (vph)	43	792	834	1	0	83	0	
Future Volume (vph)	43	792	834	1	0	83	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.6	28.3	22.4		13.0	11.8	11.8	
Actuated g/C Ratio	0.14	0.52	0.41		0.24	0.22	0.22	
v/c Ratio	0.19	0.47	0.67		0.00	0.30	0.26	
Control Delay	32.3	9.1	17.0		0.0	23.9	2.4	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	32.3	9.1	17.0		0.0	23.9	2.4	
LOS	C	A	B		A	C	A	
Approach Delay		10.3	17.0				11.4	
Approach LOS		B	B				B	

Intersection Summary




















Cycle Length: 100
 Actuated Cycle Length: 54.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.67
 Intersection Signal Delay: 13.5
 Intersection Capacity Utilization 51.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: Redondo Dr & North River Rd



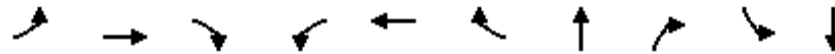
AM Existing + Cumulative + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	792	0	0	834	52	1	0	1	83	0	115
Future Volume (veh/h)	43	792	0	0	834	52	1	0	1	83	0	115
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	47	861	0	0	907	57	1	0	1	90	0	125
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	90	1950	0	4	1314	83	186	37	90	414	0	235
Arrive On Green	0.05	0.55	0.00	0.00	0.39	0.39	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3395	213	357	250	607	1416	0	1585
Grp Volume(v), veh/h	47	861	0	0	475	489	2	0	0	90	0	125
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1832	1214	0	0	1416	0	1585
Q Serve(g_s), s	1.0	5.9	0.0	0.0	9.1	9.1	0.0	0.0	0.0	0.0	0.0	3.0
Cycle Q Clear(g_c), s	1.0	5.9	0.0	0.0	9.1	9.1	3.0	0.0	0.0	1.8	0.0	3.0
Prop In Lane	1.00		0.00	1.00		0.12	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	90	1950	0	4	688	709	313	0	0	414	0	235
V/C Ratio(X)	0.52	0.44	0.00	0.00	0.69	0.69	0.01	0.00	0.00	0.22	0.00	0.53
Avail Cap(c_a), veh/h	329	4127	0	242	1976	2037	1201	0	0	1273	0	1196
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.8	5.4	0.0	0.0	10.4	10.4	14.8	0.0	0.0	15.5	0.0	16.0
Incr Delay (d2), s/veh	4.6	0.2	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.3	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.3	0.0	0.0	2.8	2.9	0.0	0.0	0.0	0.7	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.3	5.6	0.0	0.0	11.6	11.6	14.8	0.0	0.0	15.8	0.0	17.9
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		908			964			2				215
Approach Delay, s/veh		6.5			11.6			14.8				17.0
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	29.0		11.6	6.6	22.4		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	7.9		5.0	3.0	11.1		5.0				
Green Ext Time (p_c), s	0.0	4.8		0.9	0.0	4.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				10.0								
HCM 6th LOS				A								
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM Existing + Cumulative + Project
12: College Blvd & North River Rd

Timings

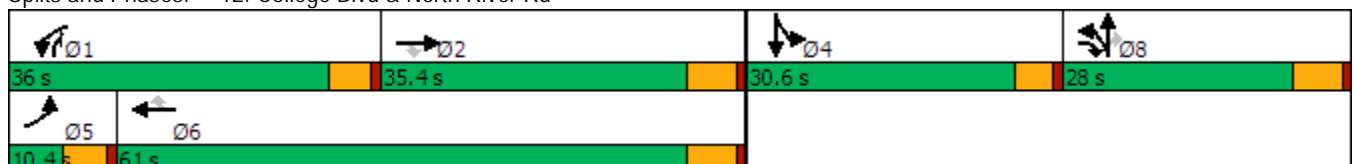


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	14	257	619	1148	543	70	21	1017	25	49
Future Volume (vph)	14	257	619	1148	543	70	21	1017	25	49
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	10.4	35.4	28.0	36.0	61.0	61.0	28.0	36.0	30.6	30.6
Total Split (%)	8.0%	27.2%	21.5%	27.7%	46.9%	46.9%	21.5%	27.7%	23.5%	23.5%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.4	14.9	39.1	31.7	48.1	48.1	22.7	60.4	10.7	10.7
Actuated g/C Ratio	0.05	0.15	0.39	0.32	0.48	0.48	0.23	0.61	0.11	0.11
v/c Ratio	0.16	0.53	0.78	1.14	0.34	0.09	0.92	0.53	0.14	0.31
Control Delay	55.6	43.3	14.0	107.2	18.7	2.0	68.1	3.3	43.1	42.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.6	43.3	14.0	107.2	18.7	2.0	68.1	3.3	43.1	42.4
LOS	E	D	B	F	B	A	E	A	D	D
Approach Delay		23.1			75.7		19.6			42.6
Approach LOS		C			E		B			D

Intersection Summary
























Cycle Length: 130
 Actuated Cycle Length: 99.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 45.0
 Intersection LOS: D
 Intersection Capacity Utilization 89.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd



AM Existing + Cumulative + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	257	619	1148	543	70	322	21	1017	25	49	9
Future Volume (veh/h)	14	257	619	1148	543	70	322	21	1017	25	49	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	15	279	673	1248	590	76	350	23	1105	27	53	10
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	30	959	749	974	1901	848	339	22	1351	92	79	15
Arrive On Green	0.02	0.27	0.27	0.28	0.53	0.53	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1676	110	2790	1781	1530	289
Grp Volume(v), veh/h	15	279	673	1248	590	76	373	0	1105	27	0	63
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1787	0	1395	1781	0	1818
Q Serve(g_s), s	0.9	6.8	29.6	30.9	10.2	2.6	22.2	0.0	22.2	1.6	0.0	3.7
Cycle Q Clear(g_c), s	0.9	6.8	29.6	30.9	10.2	2.6	22.2	0.0	22.2	1.6	0.0	3.7
Prop In Lane	1.00		1.00	1.00		1.00	0.94		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	30	959	749	974	1901	848	362	0	1351	92	0	94
V/C Ratio(X)	0.50	0.29	0.90	1.28	0.31	0.09	1.03	0.00	0.82	0.29	0.00	0.67
Avail Cap(c_a), veh/h	86	959	749	974	1901	848	362	0	1351	422	0	431
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	53.5	31.7	23.1	39.4	14.2	12.5	43.7	0.0	24.2	50.1	0.0	51.1
Incr Delay (d2), s/veh	12.5	0.2	13.8	134.6	0.1	0.0	55.6	0.0	4.1	1.8	0.0	8.0
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	0.5	3.0	21.4	31.1	4.0	0.9	15.3	0.0	12.5	0.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	31.9	36.9	174.0	14.3	12.5	99.3	0.0	28.2	51.8	0.0	59.1
LnGrp LOS	E	C	D	F	B	B	F	A	C	D	A	E
Approach Vol, veh/h		967			1914			1478				90
Approach Delay, s/veh		35.9			118.4			46.2				56.9
Approach LOS		D			F			D				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	36.0	35.4		10.3	6.9	64.5		28.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	30.9	29.6		26.0	5.3	55.2		22.2				
Max Q Clear Time (g_c+I1), s	32.9	31.6		5.7	2.9	12.2		24.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	3.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				75.2								
HCM 6th LOS				E								

AM Existing + Cumulative + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	50	27	27	1309	1727	74
Future Volume (vph)	50	27	27	1309	1727	74
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	11.4	16.5	6.3	57.0	50.7	50.7
Actuated g/C Ratio	0.16	0.23	0.09	0.81	0.72	0.72
v/c Ratio	0.19	0.08	0.10	0.50	0.74	0.07
Control Delay	27.2	16.4	34.6	6.4	16.5	6.8
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.2	16.4	34.6	6.4	16.5	6.8
LOS	C	B	C	A	B	A
Approach Delay	23.4			7.0	16.1	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 12.5
 Intersection LOS: B
 Intersection Capacity Utilization 63.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM Existing + Cumulative + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	27	27	1309	1727	74
Future Volume (veh/h)	50	27	27	1309	1727	74
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	54	29	29	1423	1877	80
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	177	218	132	2589	2154	961
Arrive On Green	0.10	0.10	0.04	0.73	0.61	0.61
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	54	29	29	1423	1877	80
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.7	1.0	0.5	11.0	26.7	1.3
Cycle Q Clear(g_c), s	1.7	1.0	0.5	11.0	26.7	1.3
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	177	218	132	2589	2154	961
V/C Ratio(X)	0.30	0.13	0.22	0.55	0.87	0.08
Avail Cap(c_a), veh/h	825	794	366	3032	2356	1051
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	25.3	22.9	28.2	3.7	9.9	4.9
Incr Delay (d2), s/veh	1.0	0.3	0.8	0.2	3.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.9	0.2	2.1	8.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.3	23.2	29.0	3.9	13.6	5.0
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	83			1452	1957	
Approach Delay, s/veh	25.2			4.4	13.2	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		49.9		10.6	7.4	42.5
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		13.0		3.7	2.5	28.7
Green Ext Time (p_c), s		9.9		0.3	0.0	8.0
Intersection Summary						
HCM 6th Ctrl Delay			9.8			
HCM 6th LOS			A			

AM Existing + Cumulative + Project
14: College Blvd & Adams St

Timings

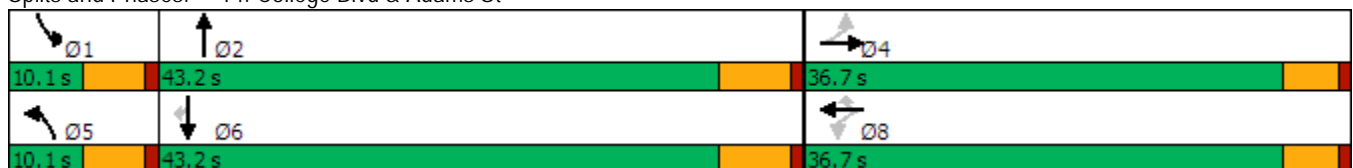


Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↖	↖	↕↕↕	↖	↕↕	↖
Traffic Volume (vph)	175	12	81	17	40	20	1112	16	1535	206
Future Volume (vph)	175	12	81	17	40	20	1112	16	1535	206
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	43.2	10.1	43.2	43.2
Total Split (%)	40.8%	40.8%	40.8%	40.8%	40.8%	11.2%	48.0%	11.2%	48.0%	48.0%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.5	16.5		16.5	16.5	5.1	41.1	5.1	39.3	39.3
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.07	0.59	0.07	0.56	0.56
v/c Ratio	0.63	0.25		0.35	0.10	0.17	0.42	0.13	0.84	0.24
Control Delay	33.5	7.5		25.3	0.4	39.0	10.4	38.6	21.8	8.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	7.5		25.3	0.4	39.0	10.4	38.6	21.8	8.3
LOS	C	A		C	A	D	B	D	C	A
Approach Delay		23.8		18.1			10.9		20.3	
Approach LOS		C		B			B		C	

Intersection Summary























Cycle Length: 90
 Actuated Cycle Length: 69.9
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 17.3
 Intersection LOS: B
 Intersection Capacity Utilization 67.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM Existing + Cumulative + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	12	92	81	17	40	20	1112	30	16	1535	206
Future Volume (veh/h)	175	12	92	81	17	40	20	1112	30	16	1535	206
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	190	13	100	88	18	43	22	1209	33	17	1668	224
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	329	53	408	347	63	453	43	2509	68	35	1729	771
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.49	0.49	0.02	0.49	0.49
Sat Flow, veh/h	1341	186	1428	914	222	1585	1781	5110	139	1781	3554	1585
Grp Volume(v), veh/h	190	0	113	106	0	43	22	805	437	17	1668	224
Grp Sat Flow(s),veh/h/ln	1341	0	1613	1135	0	1585	1781	1702	1845	1781	1777	1585
Q Serve(g_s), s	10.4	0.0	4.1	4.4	0.0	1.5	0.9	12.1	12.1	0.7	34.9	6.5
Cycle Q Clear(g_c), s	18.9	0.0	4.1	8.5	0.0	1.5	0.9	12.1	12.1	0.7	34.9	6.5
Prop In Lane	1.00		0.88	0.83		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	329	0	461	410	0	453	43	1672	906	35	1729	771
V/C Ratio(X)	0.58	0.00	0.25	0.26	0.00	0.09	0.51	0.48	0.48	0.48	0.96	0.29
Avail Cap(c_a), veh/h	505	0	673	588	0	661	116	1672	906	116	1732	772
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.4	0.0	21.0	23.7	0.0	20.1	37.0	13.0	13.0	37.2	19.1	11.8
Incr Delay (d2), s/veh	1.6	0.0	0.3	0.3	0.0	0.1	8.8	0.2	0.4	9.8	14.2	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	3.4	0.0	1.5	1.6	0.0	0.6	0.5	4.2	4.6	0.4	16.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	0.0	21.3	24.0	0.0	20.2	45.8	13.2	13.4	47.0	33.3	12.0
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	C	B
Approach Vol, veh/h		303			149			1264			1909	
Approach Delay, s/veh		28.0			22.9			13.9			30.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	43.5		26.6	7.0	43.1		26.6				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.0	37.4		* 32	5.0	37.4		* 32				
Max Q Clear Time (g_c+I1), s	2.7	14.1		20.9	2.9	36.9		10.5				
Green Ext Time (p_c), s	0.0	6.3		0.9	0.0	0.5		0.5				

Intersection Summary

HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

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

AM Existing + Cumulative + Project
15: College Blvd & Via Cupeno

Timings

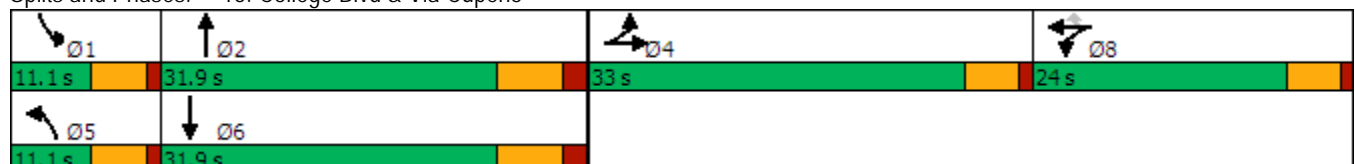


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	1	5	1	148	1109	1	1622
Future Volume (vph)	1	5	1	148	1109	1	1622
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	11.1	31.9	11.1	31.9
Total Split (%)	33.0%	24.0%	24.0%	11.1%	31.9%	11.1%	31.9%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.3	11.8	11.8	6.2	35.9	6.2	26.0
Actuated g/C Ratio	0.15	0.16	0.16	0.08	0.48	0.08	0.35
v/c Ratio	0.20	0.54	0.00	0.56	0.51	0.01	1.04
Control Delay	18.5	38.6	0.0	45.5	18.8	39.0	59.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	38.6	0.0	45.5	18.8	39.0	59.8
LOS	B	D	A	D	B	D	E
Approach Delay	18.5	38.4			21.8		59.8
Approach LOS	B	D			C		E

Intersection Summary






















Cycle Length: 100	
Actuated Cycle Length: 74.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 42.4	Intersection LOS: D
Intersection Capacity Utilization 66.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 15: College Blvd & Via Cupeno



AM Existing + Cumulative + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	1	45	135	5	1	148	1109	38	1	1622	70
Future Volume (veh/h)	53	1	45	135	5	1	148	1109	38	1	1622	70
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	58	1	49	147	5	1	161	1205	41	1	1763	76
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	3	161	192	7	177	294	2317	79	3	1875	81
Arrive On Green	0.10	0.10	0.10	0.11	0.11	0.11	0.09	0.46	0.46	0.00	0.37	0.37
Sat Flow, veh/h	1781	32	1558	1725	59	1585	3456	5071	172	1781	5019	216
Grp Volume(v), veh/h	58	0	50	152	0	1	161	809	437	1	1195	644
Grp Sat Flow(s),veh/h/ln	1781	0	1590	1784	0	1585	1728	1702	1839	1781	1702	1831
Q Serve(g_s), s	2.0	0.0	2.0	5.5	0.0	0.0	3.0	11.3	11.4	0.0	22.7	22.8
Cycle Q Clear(g_c), s	2.0	0.0	2.0	5.5	0.0	0.0	3.0	11.3	11.4	0.0	22.7	22.8
Prop In Lane	1.00		0.98	0.97		1.00	1.00		0.09	1.00		0.12
Lane Grp Cap(c), veh/h	184	0	164	199	0	177	294	1555	840	3	1272	684
V/C Ratio(X)	0.32	0.00	0.30	0.76	0.00	0.01	0.55	0.52	0.52	0.34	0.94	0.94
Avail Cap(c_a), veh/h	744	0	664	506	0	449	309	1555	840	159	1274	686
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	0.0	27.8	28.9	0.0	26.5	29.4	13.0	13.0	33.4	20.3	20.3
Incr Delay (d2), s/veh	1.0	0.0	1.0	6.0	0.0	0.0	1.8	0.3	0.6	57.1	13.4	21.2
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	0.9	0.0	0.8	2.6	0.0	0.0	1.3	3.9	4.3	0.1	10.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.8	0.0	28.9	34.9	0.0	26.5	31.3	13.3	13.5	90.6	33.6	41.4
LnGrp LOS	C	A	C	C	A	C	C	B	B	F	C	D
Approach Vol, veh/h		108			153			1407			1840	
Approach Delay, s/veh		28.8			34.9			15.4			36.4	
Approach LOS		C			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	37.4		11.9	10.8	31.8		12.5				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	25.1		28.0	6.0	25.1		19.0				
Max Q Clear Time (g_c+I1), s	2.0	13.4		4.0	5.0	24.8		7.5				
Green Ext Time (p_c), s	0.0	4.8		0.4	0.1	0.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				27.7								
HCM 6th LOS				C								

AM Existing + Cumulative + Project
16: College Blvd & SR-76

Timings

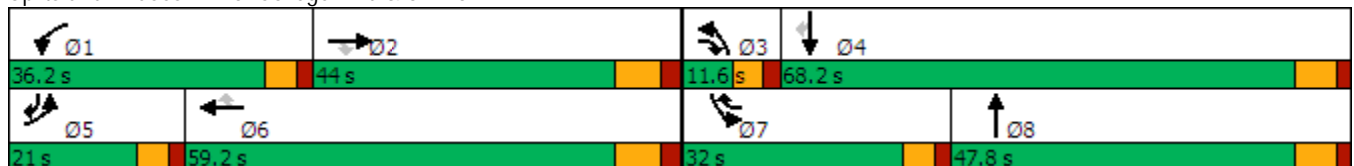


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	322	814	30	566	1401	487	54	493	576	843	378
Future Volume (vph)	322	814	30	566	1401	487	54	493	576	843	378
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.3	35.7	49.6	29.9	50.3	84.7	5.9	39.7	26.3	62.6	84.7
Actuated g/C Ratio	0.10	0.23	0.31	0.19	0.32	0.54	0.04	0.25	0.17	0.40	0.54
v/c Ratio	1.05	0.77	0.06	0.95	0.94	0.60	0.46	0.94	1.09	0.65	0.46
Control Delay	130.0	62.7	0.2	87.1	64.3	25.3	87.2	71.5	125.3	42.2	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	130.0	62.7	0.2	87.1	64.3	25.3	87.2	71.5	125.3	42.2	18.2
LOS	F	E	A	F	E	C	F	E	F	D	B
Approach Delay		79.7			61.8			72.5		63.8	
Approach LOS		E			E			E		E	

Intersection Summary


































Cycle Length: 160
 Actuated Cycle Length: 157.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 67.1
 Intersection LOS: E
 Intersection Capacity Utilization 97.0%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 16: College Blvd & SR-76



AM Existing + Cumulative + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	322	814	30	566	1401	487	54	493	275	576	843	378
Future Volume (veh/h)	322	814	30	566	1401	487	54	493	275	576	843	378
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	350	885	33	615	1523	529	59	536	299	626	916	411
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	333	1150	400	655	1626	767	95	562	313	572	1397	776
Arrive On Green	0.10	0.23	0.23	0.19	0.32	0.32	0.03	0.26	0.26	0.17	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2201	1226	3456	3554	1585
Grp Volume(v), veh/h	350	885	33	615	1523	529	59	432	403	626	916	411
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1650	1728	1777	1585
Q Serve(g_s), s	15.3	25.8	2.5	27.9	46.1	41.1	2.7	38.1	38.2	26.3	33.5	28.4
Cycle Q Clear(g_c), s	15.3	25.8	2.5	27.9	46.1	41.1	2.7	38.1	38.2	26.3	33.5	28.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.74	1.00		1.00
Lane Grp Cap(c), veh/h	333	1150	400	655	1626	767	95	453	421	572	1397	776
V/C Ratio(X)	1.05	0.77	0.08	0.94	0.94	0.69	0.62	0.95	0.96	1.10	0.66	0.53
Avail Cap(c_a), veh/h	333	1156	402	663	1644	773	128	458	425	572	1397	776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.9	57.7	45.4	63.6	52.6	31.8	76.5	58.3	58.3	66.4	39.4	28.0
Incr Delay (d2), s/veh	63.8	3.2	0.1	21.3	10.6	2.6	6.6	30.4	32.4	66.3	1.1	0.7
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	9.8	11.5	1.0	14.2	21.3	16.4	1.3	21.0	19.8	16.9	15.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	135.7	60.9	45.4	84.8	63.2	34.4	83.1	88.7	90.7	132.6	40.6	28.7
LnGrp LOS	F	E	D	F	E	C	F	F	F	F	D	C
Approach Vol, veh/h		1268			2667			894			1953	
Approach Delay, s/veh		81.2			62.5			89.2			67.6	
Approach LOS		F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.8	43.8	10.1	69.3	21.0	58.6	32.0	47.4				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	29.9	27.8	4.7	35.5	17.3	48.1	28.3	40.2				
Green Ext Time (p_c), s	0.2	3.0	0.0	7.5	0.0	2.6	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	71.0
HCM 6th LOS	E

Notes

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

AM Existing + Cumulative + Project
17: North River Rd/Vandergrift Blvd

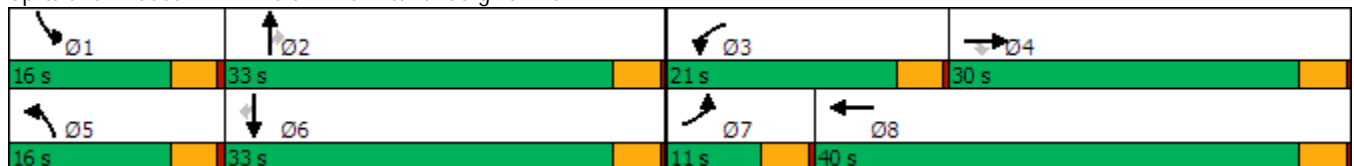
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	47	56	109	670	51	116	817	315	105	703	38	
Future Volume (vph)	47	56	109	670	51	116	817	315	105	703	38	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0	
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	6.7	10.6	10.6	17.2	25.5	10.2	31.9	31.9	10.0	29.3	29.3	
Actuated g/C Ratio	0.08	0.13	0.13	0.21	0.31	0.12	0.38	0.38	0.12	0.35	0.35	
v/c Ratio	0.36	0.26	0.36	1.03	0.49	0.58	0.46	0.42	0.54	0.62	0.06	
Control Delay	46.8	34.8	6.9	77.5	8.0	47.5	22.4	4.7	46.1	26.5	0.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.8	34.8	6.9	77.5	8.0	47.5	22.4	4.7	46.1	26.5	0.2	
LOS	D	C	A	E	A	D	C	A	D	C	A	
Approach Delay		23.1			55.2		20.3			27.7		
Approach LOS		C			E		C			C		

Intersection Summary
























Cycle Length: 100	
Actuated Cycle Length: 83.5	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 32.8	Intersection LOS: C
Intersection Capacity Utilization 63.3%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



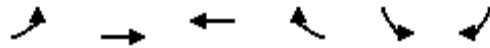
AM Existing + Cumulative + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	56	109	670	51	265	116	817	315	105	703	38
Future Volume (veh/h)	47	56	109	670	51	265	116	817	315	105	703	38
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	51	61	118	728	55	288	126	888	342	114	764	41
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	77	198	168	762	74	386	161	1961	609	146	1337	596
Arrive On Green	0.04	0.11	0.11	0.22	0.28	0.28	0.09	0.38	0.38	0.08	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	3456	261	1364	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	51	61	118	728	0	343	126	888	342	114	764	41
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1625	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	2.2	2.3	5.5	16.0	0.0	14.8	5.3	10.0	13.1	4.8	13.2	1.3
Cycle Q Clear(g_c), s	2.2	2.3	5.5	16.0	0.0	14.8	5.3	10.0	13.1	4.8	13.2	1.3
Prop In Lane	1.00		1.00	1.00		0.84	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	77	198	168	762	0	460	161	1961	609	146	1337	596
V/C Ratio(X)	0.66	0.31	0.70	0.96	0.00	0.75	0.78	0.45	0.56	0.78	0.57	0.07
Avail Cap(c_a), veh/h	162	631	534	762	0	759	277	1961	609	277	1337	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	31.9	33.3	29.7	0.0	25.1	34.3	17.7	18.7	34.7	19.1	15.4
Incr Delay (d2), s/veh	9.4	0.9	5.3	22.3	0.0	2.4	8.1	0.8	3.7	8.6	1.8	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	1.1	1.1	2.3	8.7	0.0	5.7	2.6	3.8	5.1	2.4	5.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	32.7	38.6	52.0	0.0	27.5	42.5	18.5	22.4	43.3	20.9	15.6
LnGrp LOS	D	C	D	D	A	C	D	B	C	D	C	B
Approach Vol, veh/h		230			1071			1356			919	
Approach Delay, s/veh		38.6			44.2			21.7			23.4	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	33.6	21.0	12.2	11.0	33.0	7.3	25.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	6.8	15.1	18.0	7.5	7.3	15.2	4.2	16.8				
Green Ext Time (p_c), s	0.1	6.4	0.0	0.6	0.1	4.6	0.0	2.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.0									
HCM 6th LOS			C									

PM Existing + Cumulative + Project
1: SR-76 & Douglas Dr

Timings

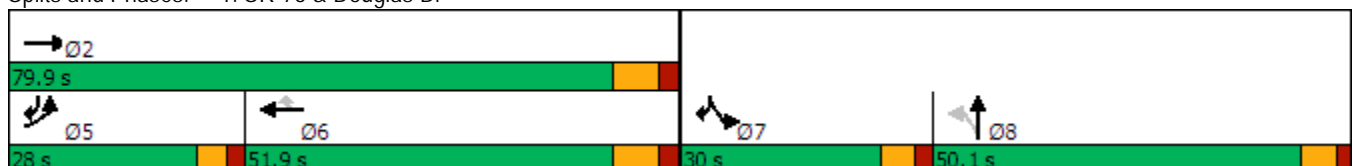


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↖	↗↗	↖↖	↗	↘	↘↘	
Traffic Volume (vph)	577	1768	1158	266	288	400	
Future Volume (vph)	577	1768	1158	266	288	400	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	79.9	51.9	51.9	30.0		50.1
Total Split (%)	17.5%	49.9%	32.4%	32.4%	18.8%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	22.3	71.9	43.9	43.9	23.9	52.3	
Actuated g/C Ratio	0.20	0.65	0.40	0.40	0.22	0.48	
v/c Ratio	0.90	0.83	0.89	0.36	0.82	0.28	
Control Delay	60.3	18.5	40.1	3.9	59.0	2.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	60.3	18.5	40.1	3.9	59.0	2.0	
LOS	E	B	D	A	E	A	
Approach Delay		28.8	33.4				
Approach LOS		C	C				

Intersection Summary




















Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 29.8
 Intersection LOS: C
 Intersection Capacity Utilization 79.2%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



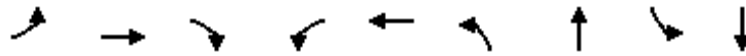
PM Existing + Cumulative + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	577	1768	0	0	1158	266	0	0	0	288	0	400
Future Volume (veh/h)	577	1768	0	0	1158	266	0	0	0	288	0	400
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	627	1922	0	0	1259	289	0	0	0	313	0	435
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	708	2355	0	0	1424	635	0	2	0	350	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.40	0.40	0.00	0.00	0.00	0.20	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	313	
Grp Volume(v), veh/h	627	1922	0	0	1259	289	0	0	0	313	57.5	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	E	
Q Serve(g_s), s	17.7	39.8	0.0	0.0	32.9	13.4	0.0	0.0	0.0	17.2		
Cycle Q Clear(g_c), s	17.7	39.8	0.0	0.0	32.9	13.4	0.0	0.0	0.0	17.2		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	708	2355	0	0	1424	635	0	2	0	350		
V/C Ratio(X)	0.89	0.82	0.00	0.00	0.88	0.45	0.00	0.00	0.00	0.89		
Avail Cap(c_a), veh/h	769	2551	0	0	1558	695	0	822	0	425		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	38.7	12.4	0.0	0.0	27.8	22.0	0.0	0.0	0.0	39.2		
Incr Delay (d2), s/veh	11.4	2.0	0.0	0.0	6.0	0.5	0.0	0.0	0.0	18.3		
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		
%ile BackOfQ(50%),veh/ln	8.5	14.3	0.0	0.0	14.6	5.0	0.0	0.0	0.0	9.2		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.1	14.5	0.0	0.0	33.9	22.5	0.0	0.0	0.0	57.5		
LnGrp LOS	D	B	A	A	C	C	A	A	A	E		
Approach Vol, veh/h		2549			1548			0				
Approach Delay, s/veh		23.2			31.8			0.0				
Approach LOS		C			C							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		74.4			26.2	48.1	25.8	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		71.9			* 22	43.9	23.9	44.0				
Max Q Clear Time (g_c+I1), s		41.8			19.7	34.9	19.2	0.0				
Green Ext Time (p_c), s		14.8			0.9	5.2	0.6	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					28.7							
HCM 6th LOS					C							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Cumulative + Project
2: Douglas Dr & Mission Ave

Timings

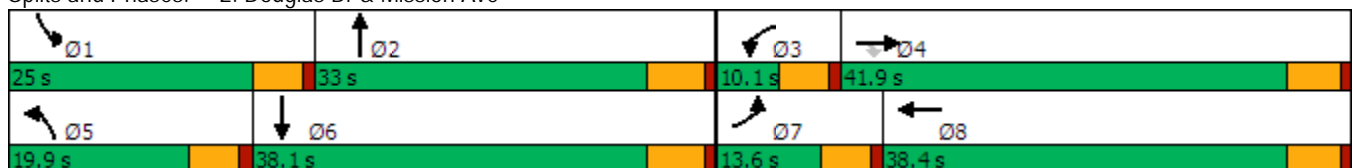


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	241	644	148	61	353	165	642	316	523
Future Volume (vph)	241	644	148	61	353	165	642	316	523
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.6	41.9	41.9	10.1	38.4	19.9	33.0	25.0	38.1
Total Split (%)	12.4%	38.1%	38.1%	9.2%	34.9%	18.1%	30.0%	22.7%	34.6%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.6	27.7	27.7	5.0	24.2	13.5	24.4	20.1	31.0
Actuated g/C Ratio	0.09	0.28	0.28	0.05	0.24	0.14	0.25	0.20	0.31
v/c Ratio	0.88	0.70	0.30	0.73	0.82	0.74	0.83	0.96	0.57
Control Delay	76.3	36.2	7.9	92.2	30.7	62.1	45.4	79.2	31.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.3	36.2	7.9	92.2	30.7	62.1	45.4	79.2	31.3
LOS	E	D	A	F	C	E	D	E	C
Approach Delay		41.5			35.3		48.7		48.3
Approach LOS		D			D		D		D

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 98.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 43.5
 Intersection LOS: D
 Intersection Capacity Utilization 83.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM Existing + Cumulative + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	644	148	61	353	397	165	642	25	316	523	53
Future Volume (veh/h)	241	644	148	61	353	397	165	642	25	316	523	53
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	262	700	161	66	384	432	179	698	27	343	568	58
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	1172	523	85	526	469	212	791	31	340	972	99
Arrive On Green	0.08	0.33	0.33	0.05	0.30	0.30	0.12	0.23	0.23	0.19	0.30	0.30
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3488	135	1781	3256	332
Grp Volume(v), veh/h	262	700	161	66	384	432	179	355	370	343	309	317
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1846	1781	1777	1811
Q Serve(g_s), s	7.9	17.2	7.9	3.8	20.3	27.5	10.3	20.2	20.2	19.9	15.4	15.5
Cycle Q Clear(g_c), s	7.9	17.2	7.9	3.8	20.3	27.5	10.3	20.2	20.2	19.9	15.4	15.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.18
Lane Grp Cap(c), veh/h	281	1172	523	85	526	469	212	403	419	340	531	541
V/C Ratio(X)	0.93	0.60	0.31	0.78	0.73	0.92	0.84	0.88	0.88	1.01	0.58	0.59
Avail Cap(c_a), veh/h	281	1243	554	85	562	501	253	463	481	340	550	560
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	29.2	26.1	49.2	33.0	35.6	45.0	39.0	39.0	42.2	31.1	31.1
Incr Delay (d2), s/veh	35.7	0.7	0.3	35.5	4.5	21.8	19.6	16.2	15.8	51.3	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	7.3	3.0	2.5	9.2	13.2	5.7	10.5	10.9	13.5	6.8	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	83.4	29.9	26.4	84.7	37.5	57.3	64.6	55.2	54.8	93.5	32.6	32.6
LnGrp LOS	F	C	C	F	D	E	E	E	D	F	C	C
Approach Vol, veh/h		1123			882			904			969	
Approach Delay, s/veh		41.9			50.7			56.9			54.2	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.0	29.5	10.1	39.8	17.5	37.0	13.6	36.3				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	19.9	27.2	5.0	36.5	14.8	32.3	8.5	33.0				
Max Q Clear Time (g_c+I1), s	21.9	22.2	5.8	19.2	12.3	17.5	9.9	29.5				
Green Ext Time (p_c), s	0.0	1.5	0.0	3.9	0.1	2.3	0.0	1.3				

Intersection Summary

HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Notes

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

PM Existing + Cumulative + Project
3: Douglas Dr & El Camino Real

Timings

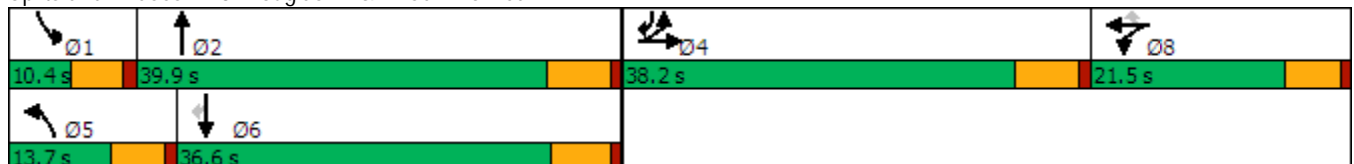


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1055	63	71	25	10	90	1083	7	744	640
Future Volume (vph)	1055	63	71	25	10	90	1083	7	744	640
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	38.2	38.2		21.5	21.5	13.7	39.9	10.4	36.6	38.2
Total Split (%)	34.7%	34.7%		19.5%	19.5%	12.5%	36.3%	9.5%	33.3%	34.7%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	32.4	32.4	98.7	10.1	10.1	8.1	39.0	5.1	27.5	66.0
Actuated g/C Ratio	0.33	0.33	1.00	0.10	0.10	0.08	0.40	0.05	0.28	0.67
v/c Ratio	1.02	0.11	0.05	0.47	0.04	0.68	0.90	0.09	0.82	0.37
Control Delay	66.4	27.3	0.1	52.1	0.2	70.3	39.0	51.1	42.0	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	27.3	0.1	52.1	0.2	70.3	39.0	51.1	42.0	8.8
LOS	E	C	A	D	A	E	D	D	D	A
Approach Delay		60.4		46.2			41.3		26.7	
Approach LOS		E		D			D		C	

Intersection Summary
























Cycle Length: 110
 Actuated Cycle Length: 98.7
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.1
 Intersection Capacity Utilization 87.7%
 Analysis Period (min) 15
 Intersection LOS: D
 ICU Level of Service E

Splits and Phases: 3: Douglas Dr & El Camino Real



PM Existing + Cumulative + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1055	63	71	54	25	10	90	1083	64	7	744	640
Future Volume (veh/h)	1055	63	71	54	25	10	90	1083	64	7	744	640
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	1147	68	0	59	27	11	98	1177	70	8	809	696
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	1150	623		80	36	102	124	1195	71	18	1033	1740
Arrive On Green	0.33	0.33	0.00	0.06	0.06	0.06	0.07	0.35	0.35	0.01	0.29	0.29
Sat Flow, veh/h	3456	1870	1585	1241	568	1585	1781	3408	203	1781	3554	2790
Grp Volume(v), veh/h	1147	68	0	86	0	11	98	613	634	8	809	696
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1808	0	1585	1781	1777	1834	1781	1777	1395
Q Serve(g_s), s	31.9	2.4	0.0	4.5	0.0	0.6	5.2	32.9	33.0	0.4	20.1	12.0
Cycle Q Clear(g_c), s	31.9	2.4	0.0	4.5	0.0	0.6	5.2	32.9	33.0	0.4	20.1	12.0
Prop In Lane	1.00		1.00	0.69		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	1150	623		116	0	102	124	623	643	18	1033	1740
V/C Ratio(X)	1.00	0.11		0.74	0.00	0.11	0.79	0.98	0.99	0.45	0.78	0.40
Avail Cap(c_a), veh/h	1150	623		301	0	264	154	623	643	93	1131	1817
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	22.2	0.0	44.2	0.0	42.4	44.0	31.0	31.0	47.3	31.3	9.1
Incr Delay (d2), s/veh	25.8	0.1	0.0	8.9	0.0	0.5	19.4	32.0	31.8	16.7	3.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.9	1.1	0.0	2.3	0.0	0.3	2.9	19.1	19.7	0.3	8.9	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	22.3	0.0	53.1	0.0	42.9	63.4	62.9	62.8	64.0	34.7	9.2
LnGrp LOS	E	C		D	A	D	E	E	E	E	C	A
Approach Vol, veh/h		1215	A		97			1345			1513	
Approach Delay, s/veh		55.8			51.9			62.9			23.1	
Approach LOS		E			D			E			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	39.9		38.2	12.1	34.2		11.7				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	33.7		32.0	8.3	* 31		16.0				
Max Q Clear Time (g_c+I1), s	2.4	35.0		33.9	7.2	22.1		6.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay	46.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM Existing + Cumulative + Project
4: Douglas Dr & Pala Rd

Timings

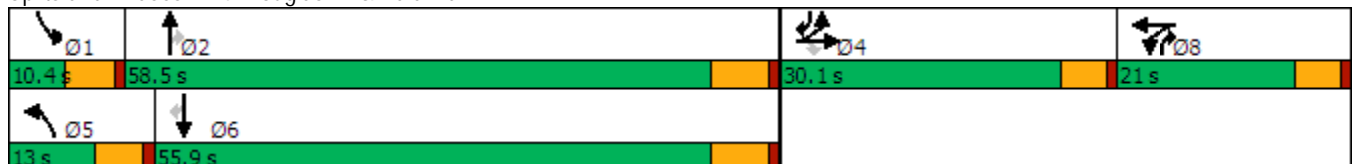


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	94	1	95	14	3	95	1942	22	21	1281	100
Future Volume (vph)	94	1	95	14	3	95	1942	22	21	1281	100
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	13.0	58.5	21.0	10.4	55.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.8%	48.8%	17.5%	8.7%	46.6%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effct Green (s)	10.6	10.6	10.6	6.7	6.7	7.9	55.2	61.1	5.2	45.3	62.3
Actuated g/C Ratio	0.12	0.12	0.12	0.08	0.08	0.09	0.63	0.70	0.06	0.52	0.71
v/c Ratio	0.27	0.24	0.34	0.11	0.20	0.65	0.95	0.02	0.22	0.76	0.09
Control Delay	40.3	39.8	7.7	46.6	22.9	63.5	29.5	0.0	51.8	22.3	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	39.8	7.7	46.6	22.9	63.5	29.5	0.0	51.8	22.3	1.2
LOS	D	D	A	D	C	E	C	A	D	C	A
Approach Delay		23.9			30.9		30.7			21.2	
Approach LOS		C			C		C			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 87.5
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 26.8
 Intersection LOS: C
 Intersection Capacity Utilization 81.1%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM Existing + Cumulative + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	94	1	95	14	3	24	95	1942	22	21	1281	100
Future Volume (veh/h)	94	1	95	14	3	24	95	1942	22	21	1281	100
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	103	0	103	15	3	26	103	2111	24	23	1392	109
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	334	0	149	80	7	65	131	2100	1008	43	1926	1007
Arrive On Green	0.09	0.00	0.09	0.04	0.04	0.04	0.07	0.59	0.59	0.02	0.54	0.54
Sat Flow, veh/h	3563	0	1585	1781	167	1444	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	103	0	103	15	0	29	103	2111	24	23	1392	109
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1610	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.4	0.0	5.6	0.7	0.0	1.6	5.0	52.3	0.5	1.1	26.1	2.4
Cycle Q Clear(g_c), s	2.4	0.0	5.6	0.7	0.0	1.6	5.0	52.3	0.5	1.1	26.1	2.4
Prop In Lane	1.00		1.00	1.00		0.90	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	334	0	149	80	0	72	131	2100	1008	43	1926	1007
V/C Ratio(X)	0.31	0.00	0.69	0.19	0.00	0.40	0.79	1.01	0.02	0.53	0.72	0.11
Avail Cap(c_a), veh/h	1006	0	448	320	0	289	153	2100	1008	101	1995	1038
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	38.9	40.7	0.0	41.1	40.3	18.1	6.0	42.7	15.3	6.3
Incr Delay (d2), s/veh	0.5	0.0	5.7	1.1	0.0	3.6	20.6	21.0	0.0	9.6	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	2.4	0.3	0.0	0.7	2.9	24.5	0.2	0.6	9.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	44.6	41.8	0.0	44.7	61.0	39.1	6.0	52.3	16.5	6.4
LnGrp LOS	D	A	D	D	A	D	E	F	A	D	B	A
Approach Vol, veh/h		206			44			2238			1524	
Approach Delay, s/veh		41.3			43.7			39.7			16.3	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	58.5		13.4	11.9	54.2		9.1				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	7.6	49.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	54.3		7.6	7.0	28.1		3.6				
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	8.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Cumulative + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	8	2	73	43	2	4	1874	82	4	1225	73
Future Volume (vph)	8	2	73	43	2	4	1874	82	4	1225	73
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	53.0	53.0	10.4	63.4	63.4
Total Split (%)	36.6%	36.6%	36.6%	36.6%	36.6%	36.6%	53.0%	53.0%	10.4%	63.4%	63.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		11.2	11.2		11.2	11.2	55.9	55.9	5.1	57.5	57.5
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.73	0.73	0.07	0.75	0.75
v/c Ratio		0.05	0.25		0.25	0.01	0.79	0.08	0.03	0.50	0.07
Control Delay		25.3	5.8		29.8	0.0	15.0	3.6	38.5	7.4	4.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		25.3	5.8		29.8	0.0	15.0	3.6	38.5	7.4	4.4
LOS		C	A		C	A	B	A	D	A	A
Approach Delay		8.2			27.6		14.6			7.3	
Approach LOS		A			C		B			A	

Intersection Summary






















Cycle Length: 100
 Actuated Cycle Length: 76.4
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 11.8
 Intersection LOS: B
 Intersection Capacity Utilization 75.1%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



PM Existing + Cumulative + Project
5: Douglas Dr & Rainer Way

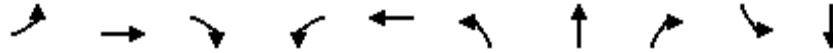
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	2	73	43	2	4	0	1874	82	4	1225	73
Future Volume (veh/h)	8	2	73	43	2	4	0	1874	82	4	1225	73
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	2	79	47	2	4	0	2037	89	4	1332	79
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	0	2	2	2	2	2
Cap, veh/h	87	12	390	101	3	390	0	1955	872	9	2202	982
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.55	0.55	0.01	0.62	0.62
Sat Flow, veh/h	37	48	1585	71	11	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	11	0	79	49	0	4	0	2037	89	4	1332	79
Grp Sat Flow(s),veh/h/ln	86	0	1585	82	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.1	0.0	3.3	1.2	0.0	0.2	0.0	46.3	2.3	0.2	19.2	1.7
Cycle Q Clear(g_c), s	20.2	0.0	3.3	20.7	0.0	0.2	0.0	46.3	2.3	0.2	19.2	1.7
Prop In Lane	0.82		1.00	0.96		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	99	0	390	104	0	390	0	1955	872	9	2202	982
V/C Ratio(X)	0.11	0.00	0.20	0.47	0.00	0.01	0.00	1.04	0.10	0.43	0.60	0.08
Avail Cap(c_a), veh/h	297	0	603	283	0	603	0	1955	872	106	2395	1068
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	25.2	41.1	0.0	24.0	0.0	18.9	9.0	41.7	9.7	6.4
Incr Delay (d2), s/veh	0.5	0.0	0.3	3.3	0.0	0.0	0.0	32.2	0.1	28.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	1.3	1.1	0.0	0.1	0.0	25.3	0.7	0.2	6.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	25.4	44.4	0.0	24.0	0.0	51.1	9.1	70.1	10.1	6.4
LnGrp LOS	C	A	C	D	A	C	A	F	A	E	B	A
Approach Vol, veh/h		90			53			2126			1415	
Approach Delay, s/veh		25.6			42.8			49.4			10.1	
Approach LOS		C			D			D			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	5.8	53.0		25.9		58.8		25.9				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	46.3		32.0		56.7		32.0				
Max Q Clear Time (g_c+I1), s	2.2	48.3		22.2		21.2		22.7				
Green Ext Time (p_c), s	0.0	0.0		0.2		9.3		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				33.6								
HCM 6th LOS				C								

LOS Engineering, Inc.

PM Existing + Cumulative + Project
6: Douglas Dr & North River Rd

Timings

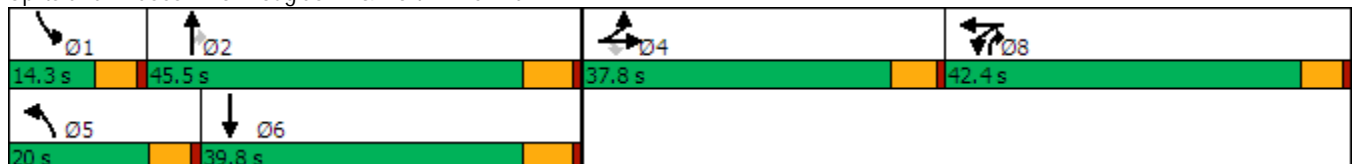


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘	↔	↘	↑↑	↗	↘	↑↑
Traffic Volume (vph)	38	96	68	607	65	147	669	971	39	572
Future Volume (vph)	38	96	68	607	65	147	669	971	39	572
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.0	45.5	42.4	14.3	39.8
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.3%	32.5%	30.3%	10.2%	28.4%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.2	13.2	13.2	35.0	35.0	14.1	38.5	75.7	7.7	29.3
Actuated g/C Ratio	0.11	0.11	0.11	0.30	0.30	0.12	0.34	0.66	0.07	0.26
v/c Ratio	0.20	0.26	0.23	0.67	0.45	0.74	0.61	0.48	0.36	0.75
Control Delay	49.5	48.7	1.8	45.0	35.0	71.7	37.2	1.3	64.8	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	48.7	1.8	45.0	35.0	71.7	37.2	1.3	64.8	46.2
LOS	D	D	A	D	D	E	D	A	E	D
Approach Delay		33.0			39.3		20.5			47.3
Approach LOS		C			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 114.8
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 30.5
 Intersection Capacity Utilization 63.1%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 6: Douglas Dr & North River Rd



PM Existing + Cumulative + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	96	68	607	65	40	147	669	971	39	572	46
Future Volume (veh/h)	38	96	68	607	65	40	147	669	971	39	572	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	104	74	660	71	43	160	727	1055	42	622	50
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	152	302	135	888	272	165	195	1375	1774	63	1042	84
Arrive On Green	0.09	0.09	0.09	0.25	0.25	0.25	0.11	0.39	0.39	0.04	0.31	0.31
Sat Flow, veh/h	1781	3554	1585	3563	1091	661	1781	3554	2790	1781	3332	267
Grp Volume(v), veh/h	41	104	74	660	0	114	160	727	1055	42	331	341
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1751	1781	1777	1395	1781	1777	1822
Q Serve(g_s), s	2.0	2.6	4.2	16.0	0.0	4.9	8.2	14.8	20.7	2.2	14.8	14.8
Cycle Q Clear(g_c), s	2.0	2.6	4.2	16.0	0.0	4.9	8.2	14.8	20.7	2.2	14.8	14.8
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		0.15
Lane Grp Cap(c), veh/h	152	302	135	888	0	436	195	1375	1774	63	556	570
V/C Ratio(X)	0.27	0.34	0.55	0.74	0.00	0.26	0.82	0.53	0.59	0.66	0.60	0.60
Avail Cap(c_a), veh/h	608	1214	541	1407	0	692	278	1491	1865	169	637	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.1	40.4	41.1	32.4	0.0	28.2	40.8	22.1	10.0	44.6	27.2	27.2
Incr Delay (d2), s/veh	1.4	1.0	4.9	1.8	0.0	0.4	12.2	0.7	0.8	11.3	2.3	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	0.9	1.2	1.8	7.0	0.0	2.1	4.2	6.1	11.3	1.2	6.5	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	41.4	46.0	34.2	0.0	28.7	53.0	22.8	10.8	56.0	29.5	29.5
LnGrp LOS	D	D	D	C	A	C	D	C	B	E	C	C
Approach Vol, veh/h		219			774			1942			714	
Approach Delay, s/veh		43.0			33.4			18.8			31.0	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.7	42.5		13.8	15.7	35.5		28.7				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	8.9	39.3		32.0	14.6	33.6		37.0				
Max Q Clear Time (g_c+I1), s	4.2	22.7		6.2	10.2	16.8		18.0				
Green Ext Time (p_c), s	0.0	13.5		1.4	0.2	5.4		5.3				

Intersection Summary

HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM Existing + Cumulative + Project
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	115	983	25	651	2	4	34	81	4	73
Future Volume (vph)	115	983	25	651	2	4	34	81	4	73
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	46.0	17.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	46.0%	17.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	10.7	29.3	7.4	21.2		12.2	12.2		12.2	12.2
Actuated g/C Ratio	0.19	0.51	0.13	0.37		0.21	0.21		0.21	0.21
v/c Ratio	0.38	0.60	0.12	0.62		0.02	0.09		0.32	0.20
Control Delay	30.2	14.1	32.8	19.2		21.5	0.4		25.3	6.5
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	30.2	14.1	32.8	19.2		21.5	0.4		25.3	6.5
LOS	C	B	C	B		C	A		C	A
Approach Delay		15.7		19.6		3.4			16.6	
Approach LOS		B		B		A			B	

Intersection Summary





















Cycle Length: 100
 Actuated Cycle Length: 57.6
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 17.0
 Intersection LOS: B
 Intersection Capacity Utilization 56.0%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



PM Existing + Cumulative + Project
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	983	12	25	651	85	2	4	34	81	4	73
Future Volume (veh/h)	115	983	12	25	651	85	2	4	34	81	4	73
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	125	1068	13	27	708	92	2	4	37	88	4	79
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	1532	19	58	1152	150	165	220	240	374	13	240
Arrive On Green	0.09	0.43	0.43	0.03	0.36	0.36	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	3596	44	1781	3163	411	290	1458	1585	1298	87	1585
Grp Volume(v), veh/h	125	528	553	27	398	402	6	0	37	92	0	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1862	1781	1777	1796	1748	0	1585	1386	0	1585
Q Serve(g_s), s	2.7	9.6	9.6	0.6	7.3	7.3	0.0	0.0	0.8	2.3	0.0	1.8
Cycle Q Clear(g_c), s	2.7	9.6	9.6	0.6	7.3	7.3	0.1	0.0	0.8	2.4	0.0	1.8
Prop In Lane	1.00		0.02	1.00		0.23	0.33		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	168	757	793	58	647	654	385	0	240	387	0	240
V/C Ratio(X)	0.74	0.70	0.70	0.47	0.61	0.62	0.02	0.00	0.15	0.24	0.00	0.33
Avail Cap(c_a), veh/h	713	1799	1886	534	1620	1638	1475	0	1294	1306	0	1294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.5	9.3	9.3	18.9	10.3	10.3	14.3	0.0	14.6	15.3	0.0	15.1
Incr Delay (d2), s/veh	6.4	1.2	1.1	5.8	1.0	0.9	0.0	0.0	0.3	0.3	0.0	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	1.3	2.8	3.0	0.3	2.3	2.3	0.0	0.0	0.3	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.9	10.5	10.4	24.6	11.3	11.3	14.4	0.0	14.9	15.6	0.0	15.8
LnGrp LOS	C	B	B	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1206			827			43				171
Approach Delay, s/veh		11.8			11.7			14.9				15.7
Approach LOS		B			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	22.7		10.6	8.8	20.3		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	11.9	40.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	2.6	11.6		4.4	4.7	9.3		2.8				
Green Ext Time (p_c), s	0.0	5.3		0.7	0.3	3.6		0.1				
Intersection Summary												
HCM 6th Ctrl Delay				12.2								
HCM 6th LOS				B								

PM Existing + Cumulative + Project
 8: North River Rd & Westwinds Mobile Home Park

HCM 6th TWSC

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	21	1090	742	15	3	13
Future Vol, veh/h	21	1090	742	15	3	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	23	1185	807	16	3	14

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	823	0	-	0	1454 412
Stage 1	-	-	-	-	815 -
Stage 2	-	-	-	-	639 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	803	-	-	-	121 589
Stage 1	-	-	-	-	396 -
Stage 2	-	-	-	-	488 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	803	-	-	-	117 589
Mov Cap-2 Maneuver	-	-	-	-	117 -
Stage 1	-	-	-	-	385 -
Stage 2	-	-	-	-	488 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	803	-	-	-	335
HCM Lane V/C Ratio	0.028	-	-	-	0.052
HCM Control Delay (s)	9.6	-	-	-	16.3
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

LOS Engineering, Inc.

PM Existing + Cumulative + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	25	949	112	112	698	12	48	0	48	19	0	8
Future Vol, veh/h	25	949	112	112	698	12	48	0	48	19	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	1032	122	122	759	13	52	0	52	21	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	772	0	0	1154	0	0	1771	-	577	1580	2218	386
Stage 1	-	-	-	-	-	-	1147	-	-	1010	1010	-
Stage 2	-	-	-	-	-	-	624	-	-	570	1208	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	839	-	-	601	-	-	53	0	460	73	43	612
Stage 1	-	-	-	-	-	-	212	0	-	257	316	-
Stage 2	-	-	-	-	-	-	440	0	-	474	254	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	839	-	-	601	-	-	~ 43	-	460	53	33	612
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 43	-	-	53	33	-
Stage 1	-	-	-	-	-	-	205	-	-	249	252	-
Stage 2	-	-	-	-	-	-	346	-	-	407	246	-

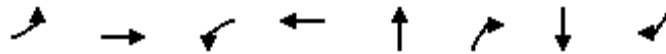
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.7	13.8	84.2
HCM LOS			B	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	460	839	-	-	601	-	-	73
HCM Lane V/C Ratio	0.113	0.032	-	-	0.203	-	-	0.402
HCM Control Delay (s)	13.8	9.4	-	-	12.5	-	-	84.2
HCM Lane LOS	B	A	-	-	B	-	-	F
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.8	-	-	1.6

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

PM Existing + Cumulative + Project
10: Calle Montecito & North River Rd

Timings

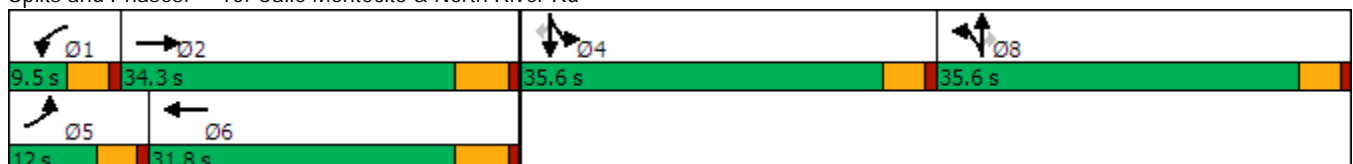


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↗	↕	↗
Traffic Volume (vph)	126	845	8	734	2	32	1	59
Future Volume (vph)	126	845	8	734	2	32	1	59
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.4	5.2	27.2	10.0	10.0	13.5	13.5
Actuated g/C Ratio	0.10	0.49	0.07	0.35	0.13	0.13	0.17	0.17
v/c Ratio	0.78	0.54	0.08	0.83	0.12	0.12	0.49	0.18
Control Delay	67.9	20.4	44.1	32.8	31.8	0.8	35.6	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.9	20.4	44.1	32.8	31.8	0.8	35.6	1.9
LOS	E	C	D	C	C	A	D	A
Approach Delay		26.5		32.9	14.3		25.4	
Approach LOS		C		C	B		C	

Intersection Summary

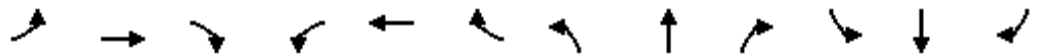
Cycle Length: 115
 Actuated Cycle Length: 78.7
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 28.8
 Intersection Capacity Utilization 59.6%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service B

Splits and Phases: 10: Calle Montecito & North River Rd



PM Existing + Cumulative + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	845	10	8	734	183	23	2	32	135	1	59
Future Volume (veh/h)	126	845	10	8	734	183	23	2	32	135	1	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	918	11	9	798	199	25	2	35	147	1	64
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	1554	19	21	974	243	168	13	161	224	2	201
Arrive On Green	0.10	0.43	0.43	0.01	0.35	0.35	0.10	0.10	0.10	0.13	0.13	0.13
Sat Flow, veh/h	1781	3596	43	1781	2818	703	1655	132	1585	1770	12	1585
Grp Volume(v), veh/h	137	454	475	9	503	494	27	0	35	148	0	64
Grp Sat Flow(s),veh/h/ln	1781	1777	1863	1781	1777	1744	1788	0	1585	1782	0	1585
Q Serve(g_s), s	4.4	11.5	11.5	0.3	15.3	15.3	0.8	0.0	1.2	4.7	0.0	2.2
Cycle Q Clear(g_c), s	4.4	11.5	11.5	0.3	15.3	15.3	0.8	0.0	1.2	4.7	0.0	2.2
Prop In Lane	1.00		0.02	1.00		0.40	0.93		1.00	0.99		1.00
Lane Grp Cap(c), veh/h	175	768	805	21	614	603	181	0	161	226	0	201
V/C Ratio(X)	0.78	0.59	0.59	0.43	0.82	0.82	0.15	0.00	0.22	0.66	0.00	0.32
Avail Cap(c_a), veh/h	226	859	901	151	784	770	937	0	831	934	0	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.0	12.8	12.8	29.0	17.7	17.7	24.2	0.0	24.4	24.6	0.0	23.5
Incr Delay (d2), s/veh	12.6	0.9	0.8	13.7	5.5	5.6	0.4	0.0	0.7	3.2	0.0	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	2.4	4.1	4.3	0.2	6.4	6.3	0.3	0.0	0.5	2.1	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	13.7	13.6	42.7	23.1	23.2	24.6	0.0	25.1	27.8	0.0	24.4
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1066			1006			62			212	
Approach Delay, s/veh		16.9			23.3			24.9			26.8	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	31.2		12.1	10.3	26.1		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.3	13.5		6.7	6.4	17.3		3.2				
Green Ext Time (p_c), s	0.0	3.7		0.8	0.0	3.1		0.2				

Intersection Summary

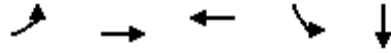
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

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

PM Existing + Cumulative + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations							
Traffic Volume (vph)	108	915	849	49	0		
Future Volume (vph)	108	915	849	49	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	26.0	43.4	38.4	35.6	35.6	21.0	35.6
Total Split (%)	26.0%	43.4%	38.4%	35.6%	35.6%	21%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	10.4	36.4	24.9	10.9	10.9		
Actuated g/C Ratio	0.17	0.60	0.41	0.18	0.18		
v/c Ratio	0.39	0.47	0.69	0.21	0.16		
Control Delay	31.7	8.3	20.4	25.7	0.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	31.7	8.3	20.4	25.7	0.6		
LOS	C	A	C	C	A		
Approach Delay		10.7	20.4		9.4		
Approach LOS		B	C		A		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 61
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 14.9
 Intersection Capacity Utilization 51.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A























Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

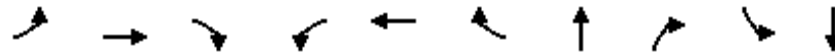
PM Existing + Cumulative + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 				
Traffic Volume (veh/h)	108	915	0	0	849	62	0	0	0	49	0	90
Future Volume (veh/h)	108	915	0	0	849	62	0	0	0	49	0	90
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	117	995	0	0	923	67	0	0	0	53	0	98
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	159	2045	0	4	1283	93	0	260	0	415	0	221
Arrive On Green	0.09	0.58	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.14	0.00	0.14
Sat Flow, veh/h	1781	3647	0	1781	3359	244	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	117	995	0	0	488	502	0	0	0	53	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1826	0	1870	0	1781	0	1585
Q Serve(g_s), s	2.8	7.1	0.0	0.0	10.1	10.1	0.0	0.0	0.0	1.1	0.0	2.4
Cycle Q Clear(g_c), s	2.8	7.1	0.0	0.0	10.1	10.1	0.0	0.0	0.0	1.1	0.0	2.4
Prop In Lane	1.00		0.00	1.00		0.13	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	2045	0	4	679	698	0	260	0	415	0	221
V/C Ratio(X)	0.74	0.49	0.00	0.00	0.72	0.72	0.00	0.00	0.00	0.13	0.00	0.44
Avail Cap(c_a), veh/h	889	3026	0	682	1307	1344	0	1345	0	1407	0	1103
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.1	5.4	0.0	0.0	11.3	11.3	0.0	0.0	0.0	16.5	0.0	17.0
Incr Delay (d2), s/veh	6.5	0.2	0.0	0.0	1.5	1.4	0.0	0.0	0.0	0.1	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.6	0.0	0.0	3.3	3.4	0.0	0.0	0.0	0.4	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	5.6	0.0	0.0	12.8	12.8	0.0	0.0	0.0	16.6	0.0	18.4
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		1112			990			0			151	
Approach Delay, s/veh		7.7			12.8			0.0			17.8	
Approach LOS		A			B						B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	31.5		11.6	8.3	23.2		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	16.5	36.7		30.0	21.5	31.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	9.1		4.4	4.8	12.1		0.0				
Green Ext Time (p_c), s	0.0	5.5		0.6	0.3	4.4		0.0				
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.												

PM Existing + Cumulative + Project
12: College Blvd & North River Rd

Timings

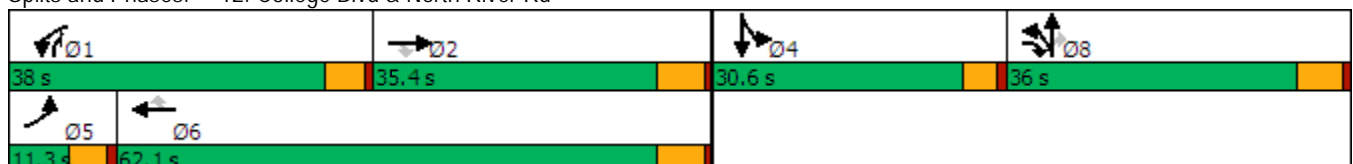


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	23	478	479	1085	424	58	30	1242	23	39
Future Volume (vph)	23	478	479	1085	424	58	30	1242	23	39
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.3	35.4	36.0	38.0	62.1	62.1	36.0	38.0	30.6	30.6
Total Split (%)	8.1%	25.3%	25.7%	27.1%	44.4%	44.4%	25.7%	27.1%	21.9%	21.9%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.1	21.8	53.9	33.4	54.0	54.0	30.7	70.0	10.7	10.7
Actuated g/C Ratio	0.05	0.19	0.47	0.29	0.47	0.47	0.27	0.61	0.09	0.09
v/c Ratio	0.27	0.78	0.55	1.19	0.28	0.08	1.15	0.68	0.15	0.26
Control Delay	65.5	54.3	5.5	132.3	21.7	1.7	131.1	8.8	51.4	51.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.5	54.3	5.5	132.3	21.7	1.7	131.1	8.8	51.4	51.7
LOS	E	D	A	F	C	A	F	A	D	D
Approach Delay		30.7			97.5		44.0			51.6
Approach LOS		C			F		D			D

Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 115.6	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 60.4	Intersection LOS: E
Intersection Capacity Utilization 92.4%	ICU Level of Service F
Analysis Period (min) 15	
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

PM Existing + Cumulative + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	478	479	1085	424	58	471	30	1242	23	39	2
Future Volume (veh/h)	23	478	479	1085	424	58	471	30	1242	23	39	2
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	25	520	521	1179	461	63	512	33	1350	25	42	2
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	42	881	794	952	1776	792	425	27	1474	80	80	4
Arrive On Green	0.02	0.25	0.25	0.28	0.50	0.50	0.25	0.25	0.25	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1678	108	2790	1781	1771	84
Grp Volume(v), veh/h	25	520	521	1179	461	63	545	0	1350	25	0	44
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1786	0	1395	1781	0	1855
Q Serve(g_s), s	1.7	15.4	29.2	32.9	8.9	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Cycle Q Clear(g_c), s	1.7	15.4	29.2	32.9	8.9	2.5	30.2	0.0	30.2	1.6	0.0	2.8
Prop In Lane	1.00		1.00	1.00		1.00	0.94		1.00	1.00		0.05
Lane Grp Cap(c), veh/h	42	881	794	952	1776	792	452	0	1474	80	0	84
V/C Ratio(X)	0.59	0.59	0.66	1.24	0.26	0.08	1.21	0.00	0.92	0.31	0.00	0.53
Avail Cap(c_a), veh/h	93	881	794	952	1776	792	452	0	1474	388	0	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.7	39.6	22.2	43.2	17.2	15.5	44.6	0.0	25.7	55.2	0.0	55.7
Incr Delay (d2), s/veh	12.7	1.0	2.0	116.2	0.1	0.0	112.0	0.0	9.2	2.2	0.0	5.0
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	6.8	16.2	29.3	3.6	0.9	27.3	0.0	18.6	0.8	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	40.6	24.1	159.5	17.2	15.6	156.6	0.0	35.0	57.4	0.0	60.8
LnGrp LOS	E	D	C	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		1066			1703			1895				69
Approach Delay, s/veh		33.2			115.6			70.0				59.5
Approach LOS		C			F			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	38.0	35.4		10.0	7.9	65.5		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	32.9	29.6		26.0	6.2	56.3		30.2				
Max Q Clear Time (g_c+I1), s	34.9	31.2		4.8	3.7	10.9		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.2	0.0	2.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				78.0								
HCM 6th LOS				E								

PM Existing + Cumulative + Project
 13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	80	95	1758	1474	55
Future Volume (vph)	28	80	95	1758	1474	55
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	16.1	6.9	57.8	42.1	42.1
Actuated g/C Ratio	0.16	0.23	0.10	0.83	0.60	0.60
v/c Ratio	0.10	0.23	0.31	0.65	0.75	0.06
Control Delay	29.5	19.8	38.3	8.2	15.7	5.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	29.5	19.8	38.3	8.3	15.7	5.9
LOS	C	B	D	A	B	A
Approach Delay	22.3			9.9	15.3	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 70
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 12.6
 Intersection LOS: B
 Intersection Capacity Utilization 63.9%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



PM Existing + Cumulative + Project
 13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	80	95	1758	1474	55
Future Volume (veh/h)	28	80	95	1758	1474	55
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	30	87	103	1911	1602	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	197	302	275	2572	2001	892
Arrive On Green	0.11	0.11	0.08	0.72	0.56	0.56
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	30	87	103	1911	1602	60
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.0	3.0	1.8	20.2	22.5	1.1
Cycle Q Clear(g_c), s	1.0	3.0	1.8	20.2	22.5	1.1
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	197	302	275	2572	2001	892
V/C Ratio(X)	0.15	0.29	0.37	0.74	0.80	0.07
Avail Cap(c_a), veh/h	793	832	357	3482	2827	1261
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	25.3	21.8	27.4	5.2	10.9	6.2
Incr Delay (d2), s/veh	0.4	0.5	0.8	0.6	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	2.8	0.7	4.2	7.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.6	22.3	28.3	5.8	12.1	6.3
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	117			2014	1662	
Approach Delay, s/veh	23.2			6.9	11.9	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		51.3		11.6	10.1	41.2
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		22.2		5.0	3.8	24.5
Green Ext Time (p_c), s		16.5		0.4	0.1	10.8
Intersection Summary						
HCM 6th Ctrl Delay			9.6			
HCM 6th LOS			A			

PM Existing + Cumulative + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↖	↖	↑↑↑	↖	↑↑	↖
Traffic Volume (vph)	149	20	49	10	30	74	1656	40	1434	117
Future Volume (vph)	149	20	49	10	30	74	1656	40	1434	117
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	12.0	51.5	11.8	51.3	51.3
Total Split (%)	36.7%	36.7%	36.7%	36.7%	36.7%	12.0%	51.5%	11.8%	51.3%	51.3%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	16.7	16.7		16.7	16.7	7.0	46.9	6.5	44.3	44.3
Actuated g/C Ratio	0.21	0.21		0.21	0.21	0.09	0.58	0.08	0.55	0.55
v/c Ratio	0.59	0.25		0.23	0.08	0.53	0.64	0.30	0.80	0.14
Control Delay	39.0	11.1		29.5	0.4	54.0	15.2	45.9	21.6	6.6
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	39.0	11.1		29.5	0.4	54.0	15.2	45.9	21.7	6.6
LOS	D	B		C	A	D	B	D	C	A
Approach Delay		28.3		19.6			16.7		21.2	
Approach LOS		C		B			B		C	

Intersection Summary























Cycle Length: 100
 Actuated Cycle Length: 80.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 19.5
 Intersection LOS: B
 Intersection Capacity Utilization 71.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM Existing + Cumulative + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	149	20	73	49	10	30	74	1656	83	40	1434	117
Future Volume (veh/h)	149	20	73	49	10	30	74	1656	83	40	1434	117
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	162	22	79	53	11	33	80	1800	90	43	1559	127
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	299	84	301	293	53	372	103	2626	131	69	1806	805
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.06	0.53	0.53	0.04	0.51	0.51
Sat Flow, veh/h	1362	357	1282	890	227	1585	1781	4981	249	1781	3554	1585
Grp Volume(v), veh/h	162	0	101	64	0	33	80	1229	661	43	1559	127
Grp Sat Flow(s),veh/h/ln	1362	0	1640	1117	0	1585	1781	1702	1826	1781	1777	1585
Q Serve(g_s), s	9.0	0.0	3.9	2.5	0.0	1.3	3.5	20.9	21.0	1.9	30.1	3.4
Cycle Q Clear(g_c), s	15.4	0.0	3.9	6.5	0.0	1.3	3.5	20.9	21.0	1.9	30.1	3.4
Prop In Lane	1.00		0.78	0.83		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	299	0	384	346	0	372	103	1795	962	69	1806	805
V/C Ratio(X)	0.54	0.00	0.26	0.18	0.00	0.09	0.78	0.69	0.69	0.62	0.86	0.16
Avail Cap(c_a), veh/h	537	0	671	585	0	649	157	1989	1067	153	2068	922
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	0.0	24.4	26.3	0.0	23.4	36.3	13.7	13.7	37.0	16.9	10.3
Incr Delay (d2), s/veh	1.5	0.0	0.4	0.3	0.0	0.1	12.4	0.9	1.6	8.8	3.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.5	1.0	0.0	0.5	1.8	7.3	8.1	1.0	11.7	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	24.8	26.5	0.0	23.5	48.7	14.6	15.3	45.8	20.5	10.4
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	C	B
Approach Vol, veh/h		263			97			1970			1729	
Approach Delay, s/veh		30.1			25.5			16.2			20.4	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.1	47.0		23.0	9.6	45.5		23.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.7	45.7		* 32	6.9	45.5		* 32				
Max Q Clear Time (g_c+I1), s	3.9	23.0		17.4	5.5	32.1		8.5				
Green Ext Time (p_c), s	0.0	10.9		0.9	0.0	7.7		0.3				

Intersection Summary

HCM 6th Ctrl Delay	19.1
HCM 6th LOS	B

Notes

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

PM Existing + Cumulative + Project
 15: College Blvd & Via Cupeno

Timings

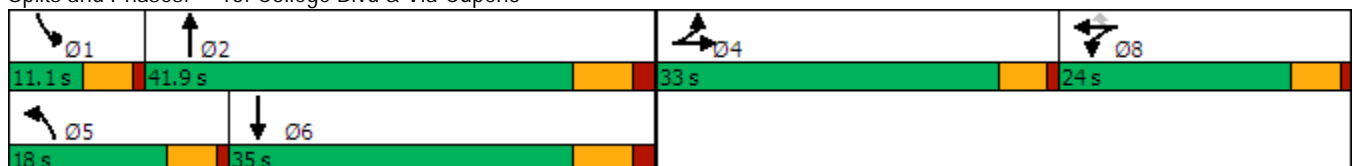


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	9	10	6	433	1568	2	1316
Future Volume (vph)	9	10	6	433	1568	2	1316
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	18.0	41.9	11.1	35.0
Total Split (%)	30.0%	21.8%	21.8%	16.4%	38.1%	10.1%	31.8%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	17.1	9.4	9.4	13.2	45.3	6.1	28.8
Actuated g/C Ratio	0.19	0.11	0.11	0.15	0.52	0.07	0.33
v/c Ratio	0.72	0.42	0.02	0.92	0.70	0.02	0.95
Control Delay	30.7	46.2	0.2	63.8	21.5	44.5	43.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.7	46.2	0.2	63.8	21.5	44.5	43.9
LOS	C	D	A	E	C	D	D
Approach Delay	30.7	42.5			30.2		43.9
Approach LOS	C	D			C		D

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 87.9
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 35.3
 Intersection LOS: D
 Intersection Capacity Utilization 78.4%
 ICU Level of Service D
 Analysis Period (min) 15






















Splits and Phases: 15: College Blvd & Via Cupeno



LOS Engineering, Inc.

PM Existing + Cumulative + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	283	9	191	63	10	6	433	1568	101	2	1316	122
Future Volume (veh/h)	283	9	191	63	10	6	433	1568	101	2	1316	122
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	308	10	208	68	11	7	471	1704	110	2	1430	133
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	374	15	320	93	15	95	519	2312	149	6	1543	144
Arrive On Green	0.21	0.21	0.21	0.06	0.06	0.06	0.15	0.47	0.47	0.00	0.32	0.32
Sat Flow, veh/h	1781	73	1523	1543	250	1585	3456	4902	316	1781	4753	442
Grp Volume(v), veh/h	308	0	218	79	0	7	471	1183	631	2	1024	539
Grp Sat Flow(s),veh/h/ln	1781	0	1596	1793	0	1585	1728	1702	1813	1781	1702	1791
Q Serve(g_s), s	14.2	0.0	10.7	3.7	0.0	0.4	11.5	24.1	24.2	0.1	24.9	25.0
Cycle Q Clear(g_c), s	14.2	0.0	10.7	3.7	0.0	0.4	11.5	24.1	24.2	0.1	24.9	25.0
Prop In Lane	1.00		0.95	0.86		1.00	1.00		0.17	1.00		0.25
Lane Grp Cap(c), veh/h	374	0	335	108	0	95	519	1606	855	6	1105	582
V/C Ratio(X)	0.82	0.00	0.65	0.73	0.00	0.07	0.91	0.74	0.74	0.34	0.93	0.93
Avail Cap(c_a), veh/h	581	0	521	397	0	351	519	1606	855	125	1118	588
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	0.0	31.0	39.7	0.0	38.1	35.9	18.4	18.4	42.7	28.0	28.0
Incr Delay (d2), s/veh	5.5	0.0	2.1	9.3	0.0	0.3	19.7	1.8	3.4	31.9	12.8	20.8
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	6.5	0.0	4.2	1.9	0.0	0.1	6.2	9.2	10.2	0.1	11.6	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	0.0	33.2	49.0	0.0	38.4	55.5	20.2	21.8	74.6	40.8	48.8
LnGrp LOS	D	A	C	D	A	D	E	C	C	E	D	D
Approach Vol, veh/h		526			86			2285			1565	
Approach Delay, s/veh		36.0			48.1			27.9			43.6	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	47.3		23.0	18.0	34.7		10.1				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	35.1		28.0	12.9	28.2		19.0				
Max Q Clear Time (g_c+I1), s	2.1	26.2		16.2	13.5	27.0		5.7				
Green Ext Time (p_c), s	0.0	5.8		1.8	0.0	0.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				34.8								
HCM 6th LOS				C								

PM Existing + Cumulative + Project
16: College Blvd & SR-76

Timings

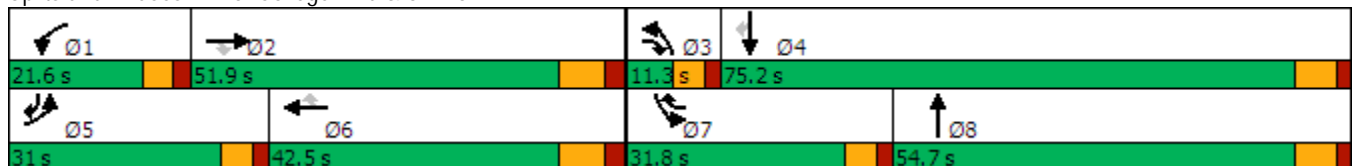


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑	↔↔	↑↑	↗
Traffic Volume (vph)	567	1357	58	332	928	668	51	843	572	788	444
Future Volume (vph)	567	1357	58	332	928	668	51	843	572	788	444
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	31.0	51.9	11.3	21.6	42.5	31.8	11.3	54.7	31.8	75.2	31.0
Total Split (%)	19.4%	32.4%	7.1%	13.5%	26.6%	19.9%	7.1%	34.2%	19.9%	47.0%	19.4%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	25.3	43.9	57.5	15.9	34.5	68.6	5.6	47.9	26.1	68.4	100.5
Actuated g/C Ratio	0.16	0.27	0.36	0.10	0.22	0.43	0.04	0.30	0.16	0.43	0.63
v/c Ratio	1.14	1.06	0.10	1.06	0.92	0.98	0.46	1.26	1.11	0.57	0.47
Control Delay	140.2	95.4	1.1	131.3	75.0	67.7	88.2	170.1	131.3	36.4	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	140.2	95.4	1.1	131.3	75.0	67.7	88.2	170.1	131.3	36.4	14.8
LOS	F	F	A	F	E	E	F	F	F	D	B
Approach Delay		105.5			82.1			166.8		61.2	
Approach LOS		F			F			F		E	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.26
 Intersection Signal Delay: 98.7
 Intersection Capacity Utilization 108.9%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service G



































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

PM Existing + Cumulative + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	567	1357	58	332	928	668	51	843	368	572	788	444
Future Volume (veh/h)	567	1357	58	332	928	668	51	843	368	572	788	444
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	616	1475	63	361	1009	726	55	916	400	622	857	483
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	546	1401	476	343	1101	600	89	723	313	564	1552	943
Arrive On Green	0.16	0.27	0.27	0.10	0.22	0.22	0.03	0.30	0.30	0.16	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2414	1045	3456	3554	1585
Grp Volume(v), veh/h	616	1475	63	361	1009	726	55	672	644	622	857	483
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1682	1728	1777	1585
Q Serve(g_s), s	25.3	43.9	4.6	15.9	30.9	34.5	2.5	47.9	47.9	26.1	28.6	28.4
Cycle Q Clear(g_c), s	25.3	43.9	4.6	15.9	30.9	34.5	2.5	47.9	47.9	26.1	28.6	28.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.62	1.00		1.00
Lane Grp Cap(c), veh/h	546	1401	476	343	1101	600	89	532	504	564	1552	943
V/C Ratio(X)	1.13	1.05	0.13	1.05	0.92	1.21	0.62	1.26	1.28	1.10	0.55	0.51
Avail Cap(c_a), veh/h	546	1401	476	343	1101	600	121	532	504	564	1552	943
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.3	58.0	40.8	72.1	61.3	49.7	77.1	56.0	56.1	66.9	33.5	18.9
Incr Delay (d2), s/veh	78.6	39.3	0.1	62.6	11.8	109.1	6.7	132.8	140.2	69.4	0.4	0.5
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	17.2	24.0	1.9	10.1	14.6	42.1	1.2	41.1	39.9	17.0	12.6	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.9	97.3	40.9	134.7	73.2	158.8	83.8	188.9	196.3	136.3	33.9	19.4
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	C	B
Approach Vol, veh/h		2154			2096			1371			1962	
Approach Delay, s/veh		109.6			113.4			188.1			62.8	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	51.9	9.8	76.7	31.0	42.5	31.8	54.7				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 16	43.9	* 5.6	68.4	* 25	34.5	* 26	47.9				
Max Q Clear Time (g_c+I1), s	17.9	45.9	4.5	30.6	27.3	36.5	28.1	49.9				
Green Ext Time (p_c), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			112.7									
HCM 6th LOS			F									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM Existing + Cumulative + Project
17: North River Rd/Vandergrift Blvd

Timings

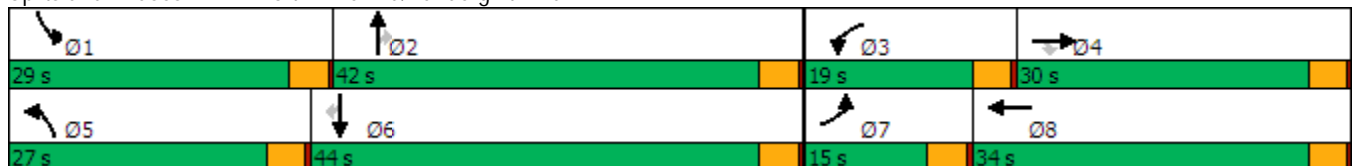


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↘	↙↘	↘	↙	↑↑↑	↘	↙	↑↑	↘
Traffic Volume (vph)	70	87	121	477	106	225	689	757	253	893	53
Future Volume (vph)	70	87	121	477	106	225	689	757	253	893	53
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	15.0	30.0	30.0	19.0	34.0	27.0	42.0	42.0	29.0	44.0	44.0
Total Split (%)	12.5%	25.0%	25.0%	15.8%	28.3%	22.5%	35.0%	35.0%	24.2%	36.7%	36.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effect Green (s)	9.2	13.5	13.5	15.2	21.9	18.7	38.7	38.7	20.4	40.4	40.4
Actuated g/C Ratio	0.09	0.13	0.13	0.15	0.21	0.18	0.37	0.37	0.20	0.39	0.39
v/c Ratio	0.49	0.39	0.41	1.04	0.59	0.77	0.40	0.88	0.79	0.71	0.09
Control Delay	58.7	46.1	10.9	94.6	38.7	58.5	26.4	23.9	57.9	32.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	46.1	10.9	94.6	38.7	58.5	26.4	23.9	57.9	32.0	3.0
LOS	E	D	B	F	D	E	C	C	E	C	A
Approach Delay		34.0			77.2		29.6			36.1	
Approach LOS		C			E		C			D	

Intersection Summary
























Cycle Length: 120	
Actuated Cycle Length: 103.9	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 40.5	Intersection LOS: D
Intersection Capacity Utilization 75.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM Existing + Cumulative + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	87	121	477	106	109	225	689	757	253	893	53
Future Volume (veh/h)	70	87	121	477	106	109	225	689	757	253	893	53
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	95	132	518	115	118	245	749	823	275	971	58
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	98	205	174	534	177	181	283	2015	626	314	1464	653
Arrive On Green	0.06	0.11	0.11	0.15	0.21	0.21	0.16	0.39	0.39	0.18	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	846	868	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	76	95	132	518	0	233	245	749	823	275	971	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1714	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	4.1	4.6	7.9	14.5	0.0	12.1	13.0	10.1	38.3	14.6	21.5	2.2
Cycle Q Clear(g_c), s	4.1	4.6	7.9	14.5	0.0	12.1	13.0	10.1	38.3	14.6	21.5	2.2
Prop In Lane	1.00		1.00	1.00		0.51	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	98	205	174	534	0	358	283	2015	626	314	1464	653
V/C Ratio(X)	0.77	0.46	0.76	0.97	0.00	0.65	0.87	0.37	1.32	0.88	0.66	0.09
Avail Cap(c_a), veh/h	202	501	424	534	0	530	422	2015	626	459	1464	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.3	40.5	42.0	40.8	0.0	35.1	39.8	20.8	29.4	38.9	23.1	17.4
Incr Delay (d2), s/veh	12.1	1.6	6.6	31.4	0.0	2.0	11.7	0.5	153.1	12.3	2.4	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	2.1	2.2	3.4	8.4	0.0	5.2	6.5	4.0	40.5	7.4	9.1	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	42.2	48.6	72.2	0.0	37.1	51.5	21.4	182.5	51.3	25.5	17.7
LnGrp LOS	E	D	D	E	A	D	D	C	F	D	C	B
Approach Vol, veh/h		303			751			1817			1304	
Approach Delay, s/veh		48.8			61.3			98.4			30.6	
Approach LOS		D			E			F			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.1	42.3	19.0	14.7	19.4	44.0	9.4	24.3				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	25.0	38.0	15.0	26.0	23.0	40.0	11.0	30.0				
Max Q Clear Time (g_c+I1), s	16.6	40.3	16.5	9.9	15.0	23.5	6.1	14.1				
Green Ext Time (p_c), s	0.5	0.0	0.0	0.8	0.4	6.6	0.1	1.2				
Intersection Summary												
HCM 6th Ctrl Delay				66.9								
HCM 6th LOS				E								

Appendix L

SANDAG Series 12 Select Zone Assignment (Proposed Network)

**SANDAG Series 12
2035 Highway Network
Select Zone Assignment**
OCEANSIDE Area

Map Date: 11/15/18
2035 - 2040 (10 Year)
2035 - 2040 (10 Year)

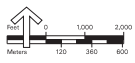
- Forecasted Volumes:
- Unadjusted Volume (in Thousands)
 - Select Link Volume
 - Select Link Percentage
 - Traffic Analysis Zone

Link Distributions:

- 100%
- 50.1% -> 99.9%
- 25.1% -> 50.0%
- 10.1% -> 25.0%
- 5.1% -> 10.0%
- 0.1% -> 5.0%
- 0%

Zonal Distributions:

- 100%
- 25.1% -> 99.9%
- 10.1% -> 25.0%
- 1.1% -> 10.0%
- 0.6% -> 1.0%
- 0.1% -> 0.5%
- Zero Tolls (0.0%)



Appendix M

Horizon Year 2035 Base MTP Segment Adjustments

2035 Base-MTP (new segments: Pala, Melrose) Post-Processing ADT Adjustr

Segment	2018			2030 Circ. Element			2035 Post-Processing Adjustments			
	ADT	Cap.	LOS	MTP + Project ADT	Cap.	LOS	MTP + N.River Farms + Project ADT		Cap.	LOS
Douglas Drive										
N. River Rd to Rainier Way	35,915	40,000	E	39,068	50,000	C	43,400	10%	50,000	D
Rainier Way to Pala Rd	36,579	40,000	E	39,068	50,000	C	43,400	10%	50,000	D
Pala Rd to El Camino Real	37,080	40,000	E	39,968	50,000	C	43,400	8%	50,000	D
El Camino Real to Mission Ave	23,305	30,000	D	24,828	40,000	C	24,900	0%	40,000	C
Mission Ave to SR-76	20,142	40,000	B	24,444	40,000	C	26,000	6%	40,000	C
North River Road										
Douglas Dr to Avenida Descanso	20,223	40,000	B	25,000	40,000	C	27,000	7%	40,000	C
Ave. Descanso to Riverview Way	18,195	40,000	B	25,000	40,000	C	27,000	7%	40,000	C
Riverview Way to Calle Montecito	19,589	40,000	B	25,000	40,000	C	27,900	10%	40,000	C
Calle Montecito to Redondo Dr	20,485	40,000	B	25,000	40,000	C	25,000	0%	40,000	C
Redondo Dr to College Blvd	20,383	40,000	B	24,840	40,000	C	25,000	1%	40,000	C
College Blvd to Vandergrift Blvd	31,503	45,000	C	38,620	45,000	D	39,000	1%	45,000	D
College Blvd										
N. River Rd to Buchanan Park	35,485	40,000	E	43,320	40,000	D	44,000	2%	50,000	D
Buchanon Park to Adams St	34,426	40,000	D	43,320	40,000	D	44,000	2%	50,000	D
Adams St to Via Cupeno	34,479	50,000	C	43,288	50,000	D	44,000	2%	50,000	D
Via Cupeno to SR-76	41,981	50,000	D	43,192	50,000	D	44,000	2%	50,000	D
SR-76										
Foussat Rd to Douglas Dr	41,500	60,000	C	60,312	60,000	F	61,000	1%	60,000	F
Douglas Dr to Rancho Del Oro	46,500	60,000	C	54,132	60,000	D	54,800	1%	60,000	D
Frazee Rd to College Blvd	41,000	60,000	C	51,532	60,000	D	52,700	2%	60,000	D
College Blvd to N. Santa Fe	46,000	60,000	C	56,488	60,000	E	57,000	1%	60,000	E

↑ % change from Circ Elem. ↑

Appendix N

Horizon Year 2035 Growth Factor Calculations

Growth Factors Calculated btw Existing and 2035 Base & Alt Scenarios

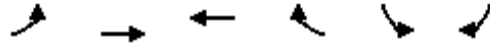
Segment	Existing Volume	2035 Base	Growth Factor	2035 Alt	Growth Factor
Douglas Drive		Average	15.3%	Average	17.1%
N. River Rd to Rainier Way	35,915	43,400	17.2%	44,000	18.4%
Rainier Way to Pala Rd	36,579	43,400	15.7%	44,000	16.9%
Pala Rd to El Camino Real	37,080	43,400	14.6%	44,000	15.7%
El Camino Real to Mission Ave	23,305	24,900	6.4%	26,000	10.4%
Mission Ave to SR-76	20,142	26,000	22.5%	26,600	24.3%
North River Road		Average	23.9%	Average	28.7%
Douglas Dr to Avenida Descanso	20,223	27,000	25.1%	28,300	28.5%
Avenida Descanso to Riverview Way	18,195	27,000	32.6%	28,300	35.7%
Riverview Way to Calle Montecito	19,589	27,900	29.8%	28,300	30.8%
Calle Montecito to Redondo Dr	20,485	25,000	18.1%	28,300	27.6%
Redondo Dr to College Blvd	20,383	25,000	18.5%	27,000	24.5%
College Blvd to Vandergrift Blvd	31,503	39,000	19.2%	42,000	25.0%
College Blvd		Average	16.8%	Average	22.1%
N. River Rd to Buchanon Park	35,485	44,000	19.4%	47,000	24.5%
Buchanon Park to Adams St	34,426	44,000	21.8%	47,000	26.8%
Adams St to Via Cupeno	34,479	44,000	21.6%	47,000	26.6%
Via Cupeno to SR-76	41,981	44,000	4.6%	47,000	10.7%

Appendix O

Horizon Year 2035 Base MTP Intersection LOS Worksheets

AM 2035 Base MTP
1: SR-76 & Douglas Dr

Timings



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	297	1110	2170	239	278	598	
Future Volume (vph)	297	1110	2170	239	278	598	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	10.3	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	16.0	33.0	33.0	33.0	22.1		50.1
Total Split (s)	16.0	86.0	70.0	70.0	23.9		50.1
Total Split (%)	10.0%	53.8%	43.8%	43.8%	14.9%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	10.3	78.0	62.0	62.0	17.8	34.2	
Actuated g/C Ratio	0.09	0.71	0.56	0.56	0.16	0.31	
v/c Ratio	1.01	0.48	1.18	0.26	1.06	0.50	
Control Delay	102.1	7.8	112.3	3.0	113.8	3.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	102.1	7.8	112.3	3.0	113.8	3.7	
LOS	F	A	F	A	F	A	
Approach Delay		27.7	101.4				
Approach LOS		C	F				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 67.6
 Intersection LOS: E
 Intersection Capacity Utilization 98.7%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



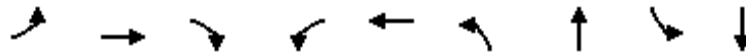
AM 2035 Base MTP
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	297	1110	0	0	2170	239	0	0	0	278	0	598
Future Volume (veh/h)	297	1110	0	0	2170	239	0	0	0	278	0	598
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	323	1207	0	0	2359	260	0	0	0	302	0	650
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	324	2522	0	0	2005	894	0	2	0	289	0	0
Arrive On Green	0.09	0.71	0.00	0.00	0.56	0.56	0.00	0.00	0.00	0.16	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	302	
Grp Volume(v), veh/h	323	1207	0	0	2359	260	0	0	0	302	111.8	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	10.3	16.4	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Cycle Q Clear(g_c), s	10.3	16.4	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	324	2522	0	0	2005	894	0	2	0	289		
V/C Ratio(X)	1.00	0.48	0.00	0.00	1.18	0.29	0.00	0.00	0.00	1.05		
Avail Cap(c_a), veh/h	324	2522	0	0	2005	894	0	749	0	289		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	49.8	7.0	0.0	0.0	23.9	12.5	0.0	0.0	0.0	46.1		
Incr Delay (d2), s/veh	49.2	0.1	0.0	0.0	85.1	0.2	0.0	0.0	0.0	65.7		
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		
%ile BackOfQ(50%),veh/ln	6.6	5.5	0.0	0.0	47.6	3.3	0.0	0.0	0.0	13.1		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	99.0	7.2	0.0	0.0	109.0	12.7	0.0	0.0	0.0	111.8		
LnGrp LOS	F	A	A	A	F	B	A	A	A	F		
Approach Vol, veh/h		1530			2619			0				
Approach Delay, s/veh		26.5			99.5			0.0				
Approach LOS		C			F							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		86.0			16.0	70.0	23.9	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		78.0			* 10	62.0	17.8	44.0				
Max Q Clear Time (g_c+I1), s		18.4			12.3	64.0	19.8	0.0				
Green Ext Time (p_c), s		7.8			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					75.2							
HCM 6th LOS					E							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM 2035 Base MTP
2: Douglas Dr & Mission Ave

Timings

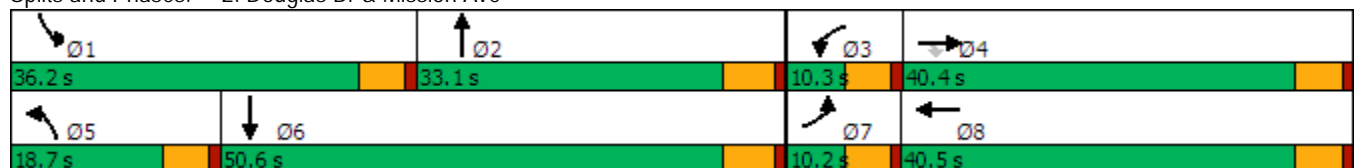


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	79	310	70	60	530	130	356	430	806
Future Volume (vph)	79	310	70	60	530	130	356	430	806
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.2	40.4	40.4	10.3	40.5	18.7	33.1	36.2	50.6
Total Split (%)	8.5%	33.7%	33.7%	8.6%	33.8%	15.6%	27.6%	30.2%	42.2%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.2	30.1	30.1	5.3	32.8	12.4	19.5	31.6	38.7
Actuated g/C Ratio	0.05	0.28	0.28	0.05	0.30	0.11	0.18	0.29	0.36
v/c Ratio	0.52	0.34	0.14	0.76	0.89	0.70	0.62	0.91	0.77
Control Delay	65.8	32.3	0.5	101.6	41.9	67.4	45.8	62.0	36.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	32.3	0.5	101.6	41.9	67.4	45.8	62.0	36.4
LOS	E	C	A	F	D	E	D	E	D
Approach Delay		33.2			45.6		51.4		44.7
Approach LOS		C			D		D		D

Intersection Summary






























Cycle Length: 120
 Actuated Cycle Length: 108.2
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 44.4
 Intersection LOS: D
 Intersection Capacity Utilization 82.7%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM 2035 Base MTP
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 		 	 		 		
Traffic Volume (veh/h)	79	310	70	60	530	375	130	356	10	430	806	86
Future Volume (veh/h)	79	310	70	60	530	375	130	356	10	430	806	86
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	86	337	76	65	576	408	141	387	11	467	876	93
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	156	1131	504	83	635	450	176	492	14	503	1046	111
Arrive On Green	0.05	0.32	0.32	0.05	0.32	0.32	0.10	0.14	0.14	0.28	0.32	0.32
Sat Flow, veh/h	3456	3554	1585	1781	1987	1407	1781	3529	100	1781	3241	344
Grp Volume(v), veh/h	86	337	76	65	515	469	141	195	203	467	480	489
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1617	1781	1777	1852	1781	1777	1808
Q Serve(g_s), s	2.4	7.2	3.4	3.6	27.9	27.9	7.8	10.6	10.7	25.6	25.2	25.2
Cycle Q Clear(g_c), s	2.4	7.2	3.4	3.6	27.9	27.9	7.8	10.6	10.7	25.6	25.2	25.2
Prop In Lane	1.00		1.00	1.00		0.87	1.00		0.05	1.00		0.19
Lane Grp Cap(c), veh/h	156	1131	504	83	568	517	176	248	258	503	574	584
V/C Ratio(X)	0.55	0.30	0.15	0.78	0.91	0.91	0.80	0.79	0.79	0.93	0.84	0.84
Avail Cap(c_a), veh/h	176	1239	553	92	621	565	241	483	504	552	793	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.9	25.8	24.5	47.3	32.7	32.7	44.3	41.7	41.8	35.0	31.5	31.5
Incr Delay (d2), s/veh	3.0	0.1	0.1	31.0	16.2	17.5	12.5	5.4	5.3	21.3	5.7	5.6
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	1.1	3.0	1.3	2.3	14.2	13.1	4.0	5.0	5.2	13.8	11.4	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.9	25.9	24.6	78.3	48.9	50.2	56.8	47.2	47.1	56.3	37.3	37.2
LnGrp LOS	D	C	C	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		499			1049			539			1436	
Approach Delay, s/veh		29.9			51.3			49.7			43.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.4	19.8	9.8	37.3	15.0	38.2	9.6	37.5				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	31.1	27.3	5.2	35.0	13.6	44.8	5.1	35.1				
Max Q Clear Time (g_c+I1), s	27.6	12.7	5.6	9.2	9.8	27.2	4.4	29.9				
Green Ext Time (p_c), s	0.7	1.3	0.0	1.9	0.1	4.1	0.0	2.2				

Intersection Summary

HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

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

AM 2035 Base MTP
3: Douglas Dr & El Camino Real

Timings

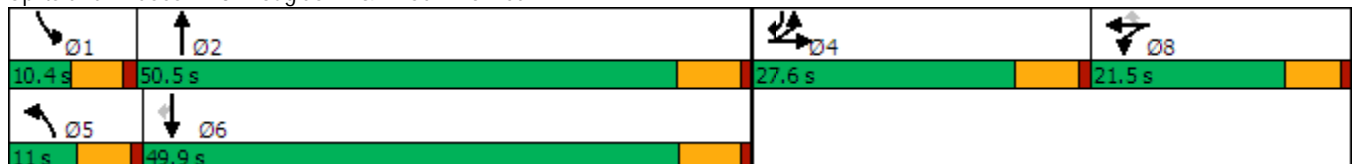





























Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	370	20	50	40	5	60	650	10	1221	1239
Future Volume (vph)	370	20	50	40	5	60	650	10	1221	1239
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	27.6	27.6		21.5	21.5	11.0	50.5	10.4	49.9	27.6
Total Split (%)	25.1%	25.1%		19.5%	19.5%	10.0%	45.9%	9.5%	45.4%	25.1%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	20.5	20.5	100.7	12.3	12.3	5.7	47.6	5.1	41.5	68.1
Actuated g/C Ratio	0.20	0.20	1.00	0.12	0.12	0.06	0.47	0.05	0.41	0.68
v/c Ratio	0.58	0.06	0.03	0.59	0.02	0.65	0.45	0.12	0.91	0.71
Control Delay	41.6	36.2	0.0	55.3	0.0	79.8	19.4	53.2	39.4	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	36.2	0.0	55.3	0.0	79.8	19.4	53.2	39.4	14.0
LOS	D	D	A	E	A	E	B	D	D	B
Approach Delay		36.7		53.3			24.2		26.7	
Approach LOS		D		D			C		C	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 100.7
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 28.2
 Intersection LOS: C
 Intersection Capacity Utilization 69.8%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 						 	 			 	 
Traffic Volume (veh/h)	370	20	50	80	40	5	60	650	40	10	1221	1239
Future Volume (veh/h)	370	20	50	80	40	5	60	650	40	10	1221	1239
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	402	22	0	87	43	5	65	707	43	11	1327	1347
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	512	277		111	55	145	84	1687	103	24	1642	1702
Arrive On Green	0.15	0.15	0.00	0.09	0.09	0.09	0.05	0.50	0.50	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1211	599	1585	1781	3403	207	1781	3554	2790
Grp Volume(v), veh/h	402	22	0	130	0	5	65	369	381	11	1327	1347
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1833	1781	1777	1395
Q Serve(g_s), s	10.4	0.9	0.0	6.5	0.0	0.3	3.3	12.3	12.3	0.6	29.7	33.7
Cycle Q Clear(g_c), s	10.4	0.9	0.0	6.5	0.0	0.3	3.3	12.3	12.3	0.6	29.7	33.7
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	512	277		166	0	145	84	881	908	24	1642	1702
V/C Ratio(X)	0.78	0.08		0.78	0.00	0.03	0.78	0.42	0.42	0.46	0.81	0.79
Avail Cap(c_a), veh/h	798	432		312	0	274	108	881	908	96	1683	1735
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	34.0	0.0	41.2	0.0	38.4	43.7	14.9	14.9	45.4	21.4	13.6
Incr Delay (d2), s/veh	2.8	0.1	0.0	7.9	0.0	0.1	23.3	0.3	0.3	13.5	3.0	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	4.5	0.4	0.0	3.2	0.0	0.1	2.0	4.8	4.9	0.3	12.3	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	34.1	0.0	49.1	0.0	38.5	67.0	15.2	15.2	58.9	24.4	16.1
LnGrp LOS	D	C		D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		424	A		135			815			2685	
Approach Delay, s/veh		40.5			48.7			19.3			20.4	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	52.1		19.9	9.7	49.0		14.0				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	44.3		21.4	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.6	14.3		12.4	5.3	35.7		8.5				
Green Ext Time (p_c), s	0.0	3.3		1.3	0.0	7.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	23.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM 2035 Base MTP
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	75	5	110	10	5	50	990	20	20	2160	60
Future Volume (vph)	75	5	110	10	5	50	990	20	20	2160	60
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	82.4	21.0	11.5	83.5	30.1
Total Split (%)	20.8%	20.8%	20.8%	14.5%	14.5%	7.2%	56.8%	14.5%	7.9%	57.6%	20.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.9	10.9	10.9	6.8	6.8	5.0	83.2	90.9	6.0	79.4	96.6
Actuated g/C Ratio	0.09	0.09	0.09	0.06	0.06	0.04	0.68	0.75	0.05	0.65	0.79
v/c Ratio	0.29	0.29	0.48	0.11	0.31	0.74	0.44	0.02	0.25	1.02	0.05
Control Delay	56.0	56.0	15.1	60.0	29.0	109.7	12.0	0.1	66.3	45.7	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	56.0	15.1	60.0	29.0	109.7	12.0	0.1	66.3	45.7	1.0
LOS	E	E	B	E	C	F	B	A	E	D	A
Approach Delay		32.3			36.0		16.3			44.7	
Approach LOS		C			D		B			D	

Intersection Summary
























Cycle Length: 145	
Actuated Cycle Length: 121.7	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 35.4	Intersection LOS: D
Intersection Capacity Utilization 85.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Douglas Dr & Pala Rd



AM 2035 Base MTP
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	5	110	10	5	30	50	990	20	20	2160	60
Future Volume (veh/h)	75	5	110	10	5	30	50	990	20	20	2160	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	86	0	120	11	5	33	54	1076	22	22	2348	65
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	343	0	153	72	9	56	69	2347	1111	39	2285	1172
Arrive On Green	0.10	0.00	0.10	0.04	0.04	0.04	0.04	0.66	0.66	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	86	0	120	11	0	38	54	1076	22	22	2348	65
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.7	0.0	8.9	0.7	0.0	2.8	3.6	17.7	0.5	1.5	77.3	1.3
Cycle Q Clear(g_c), s	2.7	0.0	8.9	0.7	0.0	2.8	3.6	17.7	0.5	1.5	77.3	1.3
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	343	0	153	72	0	65	69	2347	1111	39	2285	1172
V/C Ratio(X)	0.25	0.00	0.79	0.15	0.00	0.58	0.78	0.46	0.02	0.57	1.03	0.06
Avail Cap(c_a), veh/h	741	0	330	236	0	214	74	2347	1111	90	2285	1172
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.3	0.0	53.1	55.7	0.0	56.7	57.2	9.9	5.5	58.2	21.5	4.3
Incr Delay (d2), s/veh	0.4	0.0	8.6	1.0	0.0	8.1	37.8	0.1	0.0	12.6	26.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	3.9	0.3	0.0	1.3	2.4	6.6	0.2	0.8	37.3	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	0.0	61.7	56.7	0.0	64.8	95.0	10.1	5.5	70.8	47.7	4.3
LnGrp LOS	D	A	E	E	A	E	F	B	A	E	F	A
Approach Vol, veh/h		206			49			1152			2435	
Approach Delay, s/veh		57.1			63.0			14.0			46.7	
Approach LOS		E			E			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	85.6		16.7	10.1	83.5		9.9				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	6.1	76.2		25.0	5.0	77.3		15.9				
Max Q Clear Time (g_c+I1), s	3.5	19.7		10.9	5.6	79.3		4.8				
Green Ext Time (p_c), s	0.0	6.7		0.7	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

AM 2035 Base MTP
5: Douglas Dr & Rainer Way

Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	20	5	130	80	5	10	1075	40	5	2030	40	
Future Volume (vph)	20	5	130	80	5	10	1075	40	5	2030	40	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm	
Protected Phases		4			8		2		1	6		
Permitted Phases	4		4	8		8		2			6	
Detector Phase	4	4	4	8	8	8	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0	
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7	
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	73.0	73.0	10.4	83.4	83.4	
Total Split (%)	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%	60.8%	60.8%	8.7%	69.5%	69.5%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7	
Lead/Lag							Lag	Lag	Lead			
Lead-Lag Optimize?							Yes	Yes	Yes			
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min	
Act Effct Green (s)		14.3	14.3		14.3	14.3	70.8	70.8	5.1	72.5	72.5	
Actuated g/C Ratio		0.15	0.15		0.15	0.15	0.72	0.72	0.05	0.74	0.74	
v/c Ratio		0.13	0.47		0.47	0.04	0.46	0.04	0.05	0.85	0.04	
Control Delay		37.7	22.4		46.8	0.2	8.5	1.5	52.6	14.9	4.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		37.7	22.4		46.8	0.2	8.5	1.5	52.6	14.9	4.0	
LOS		D	C		D	A	A	A	D	B	A	
Approach Delay		24.8			41.8		8.2			14.8		
Approach LOS		C			D		A			B		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 98.3
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 13.9
 Intersection LOS: B
 Intersection Capacity Utilization 82.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way
























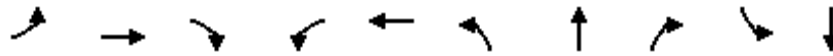
LOS Engineering, Inc.

AM 2035 Base MTP

5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	130	80	5	10	0	1075	40	5	2030	40
Future Volume (veh/h)	20	5	130	80	5	10	0	1075	40	5	2030	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	141	87	5	11	0	1168	43	5	2207	43
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	0	2	2	2	2	2
Cap, veh/h	55	7	424	59	2	424	0	2083	929	11	2267	1011
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.00	0.59	0.59	0.01	0.64	0.64
Sat Flow, veh/h	0	27	1585	0	7	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	27	0	141	92	0	11	0	1168	43	5	2207	43
Grp Sat Flow(s),veh/h/ln	27	0	1585	7	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	8.5	0.0	0.0	0.6	0.0	24.2	1.4	0.3	71.0	1.2
Cycle Q Clear(g_c), s	32.0	0.0	8.5	32.0	0.0	0.6	0.0	24.2	1.4	0.3	71.0	1.2
Prop In Lane	0.81		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	0	424	60	0	424	0	2083	929	11	2267	1011
V/C Ratio(X)	0.44	0.00	0.33	1.52	0.00	0.03	0.00	0.56	0.05	0.44	0.97	0.04
Avail Cap(c_a), veh/h	62	0	424	60	0	424	0	2083	929	74	2280	1017
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	0.0	35.2	58.8	0.0	32.3	0.0	15.2	10.5	59.2	20.7	8.1
Incr Delay (d2), s/veh	4.8	0.0	0.5	302.3	0.0	0.0	0.0	0.3	0.0	24.3	13.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.4	6.9	0.0	0.2	0.0	9.5	0.5	0.2	30.8	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.2	0.0	35.6	361.1	0.0	32.3	0.0	15.6	10.5	83.5	33.9	8.1
LnGrp LOS	E	A	D	F	A	C	A	B	B	F	C	A
Approach Vol, veh/h		168			103			1211			2255	
Approach Delay, s/veh		38.9			326.0			15.4			33.5	
Approach LOS		D			F			B			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	76.8		36.6		83.0		36.6				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	66.3		32.0		76.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	26.2		34.0		73.0		34.0				
Green Ext Time (p_c), s	0.0	7.6		0.0		3.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.9									
HCM 6th LOS			D									

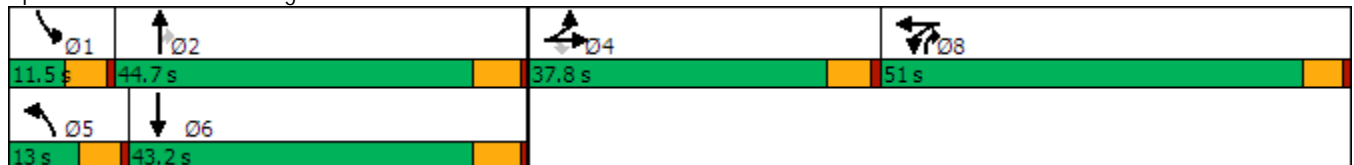


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	60	109	220	990	48	80	500	405	20	810
Future Volume (vph)	60	109	220	990	48	80	500	405	20	810
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	51.0	51.0	13.0	44.7	51.0	11.5	43.2
Total Split (%)	26.1%	26.1%	26.1%	35.2%	35.2%	9.0%	30.8%	35.2%	7.9%	29.8%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	18.9	18.9	18.9	45.8	45.8	7.6	43.5	92.4	6.0	37.1
Actuated g/C Ratio	0.14	0.14	0.14	0.35	0.35	0.06	0.33	0.70	0.05	0.28
v/c Ratio	0.26	0.23	0.76	0.97	0.92dl	0.86	0.47	0.21	0.28	0.90
Control Delay	51.6	50.2	45.0	74.1	38.0	119.7	39.2	0.9	73.0	59.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	50.2	45.0	74.1	38.0	119.7	39.2	0.9	73.0	59.1
LOS	D	D	D	E	D	F	D	A	E	E
Approach Delay		47.4			54.9		30.0			59.4
Approach LOS		D			D		C			E

Intersection Summary

Cycle Length: 145
 Actuated Cycle Length: 132.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 47.7
 Intersection LOS: D
 Intersection Capacity Utilization 78.3%
 ICU Level of Service D
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.
























Splits and Phases: 6: Douglas Dr & North River Rd



AM 2035 Base MTP

6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

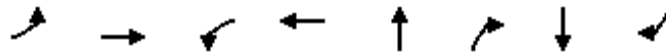
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	109	220	990	48	20	80	500	405	20	810	10
Future Volume (veh/h)	60	109	220	990	48	20	80	500	405	20	810	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	65	118	239	1076	52	22	87	543	440	22	880	11
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	627	280	1158	406	172	102	1085	1759	37	967	12
Arrive On Green	0.18	0.18	0.18	0.54	0.33	0.33	0.06	0.31	0.51	0.02	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	3563	1248	528	1781	3554	2790	1781	3594	45
Grp Volume(v), veh/h	65	118	239	1076	0	74	87	543	440	22	435	456
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1775	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	4.1	3.7	19.4	36.9	0.0	3.9	6.4	16.6	7.4	1.6	31.4	31.4
Cycle Q Clear(g_c), s	4.1	3.7	19.4	36.9	0.0	3.9	6.4	16.6	7.4	1.6	31.4	31.4
Prop In Lane	1.00		1.00	1.00		0.30	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	314	627	280	1158	0	577	102	1085	1759	37	478	501
V/C Ratio(X)	0.21	0.19	0.85	0.93	0.00	0.13	0.85	0.50	0.25	0.59	0.91	0.91
Avail Cap(c_a), veh/h	430	859	383	1227	0	611	102	1085	1759	82	496	520
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	46.5	52.9	28.9	0.0	31.5	61.9	37.7	7.3	64.3	46.9	46.9
Incr Delay (d2), s/veh	0.5	0.2	14.8	12.2	0.0	0.1	45.8	0.8	0.2	13.9	21.6	20.8
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	1.9	1.7	8.9	15.0	0.0	1.7	4.2	7.4	4.0	0.9	16.7	17.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	46.7	67.7	41.1	0.0	31.6	107.7	38.5	7.5	78.2	68.4	67.7
LnGrp LOS	D	D	E	D	A	C	F	D	A	E	E	E
Approach Vol, veh/h		422			1150			1070			913	
Approach Delay, s/veh		58.7			40.5			31.4			68.3	
Approach LOS		E			D			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	46.7		29.2	13.0	41.8		48.5				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	6.1	38.5		32.0	7.6	37.0		45.6				
Max Q Clear Time (g_c+I1), s	3.6	18.6		21.4	8.4	33.4		38.9				
Green Ext Time (p_c), s	0.0	9.3		2.0	0.0	2.2		4.2				

Intersection Summary

HCM 6th Ctrl Delay	47.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

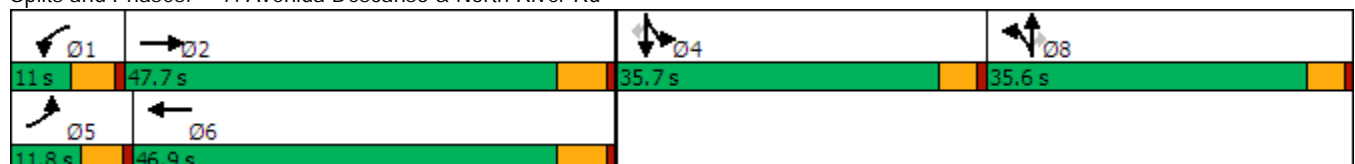


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	524	20	948	5	40	10	130
Future Volume (vph)	60	524	20	948	5	40	10	130
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6
Total Split (s)	11.8	47.7	11.0	46.9	35.6	35.6	35.7	35.7
Total Split (%)	9.1%	36.7%	8.5%	36.1%	27.4%	27.4%	27.5%	27.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.2	40.7	6.3	35.3	9.9	9.9	15.1	15.1
Actuated g/C Ratio	0.08	0.48	0.07	0.41	0.12	0.12	0.18	0.18
v/c Ratio	0.44	0.35	0.17	0.75	0.05	0.16	0.52	0.39
Control Delay	55.0	18.5	50.7	28.1	38.0	1.2	41.3	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.0	18.5	50.7	28.1	38.0	1.2	41.3	15.5
LOS	D	B	D	C	D	A	D	B
Approach Delay		22.2		28.5	8.1		29.3	
Approach LOS		C		C	A		C	

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 85.5
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 26.2
 Intersection LOS: C
 Intersection Capacity Utilization 59.8%
 ICU Level of Service B
 Analysis Period (min) 15

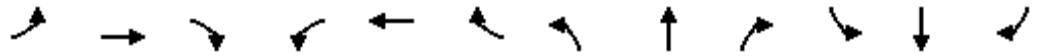
Splits and Phases: 7: Avenida Descanso & North River Rd



AM 2035 Base MTP

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	524	10	20	948	50	5	5	40	140	10	130
Future Volume (veh/h)	60	524	10	20	948	50	5	5	40	140	10	130
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	570	11	22	1030	54	5	5	43	152	11	141
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	97	1462	28	45	1309	69	89	89	155	232	17	221
Arrive On Green	0.05	0.41	0.41	0.03	0.38	0.38	0.10	0.10	0.10	0.14	0.14	0.14
Sat Flow, veh/h	1781	3566	69	1781	3435	180	912	912	1585	1666	121	1585
Grp Volume(v), veh/h	65	284	297	22	533	551	10	0	43	163	0	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1858	1781	1777	1838	1825	0	1585	1787	0	1585
Q Serve(g_s), s	2.2	6.9	6.9	0.7	16.3	16.3	0.3	0.0	1.5	5.3	0.0	5.2
Cycle Q Clear(g_c), s	2.2	6.9	6.9	0.7	16.3	16.3	0.3	0.0	1.5	5.3	0.0	5.2
Prop In Lane	1.00		0.04	1.00		0.10	0.50		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	97	729	762	45	677	700	178	0	155	249	0	221
V/C Ratio(X)	0.67	0.39	0.39	0.48	0.79	0.79	0.06	0.00	0.28	0.66	0.00	0.64
Avail Cap(c_a), veh/h	194	1213	1268	171	1190	1231	922	0	801	906	0	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.5	12.7	12.7	29.5	16.8	16.8	25.1	0.0	25.7	25.0	0.0	25.0
Incr Delay (d2), s/veh	7.7	0.3	0.3	7.8	2.1	2.0	0.1	0.0	1.0	2.9	0.0	3.1
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	1.1	2.5	2.6	0.4	6.2	6.4	0.1	0.0	0.6	2.3	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.1	13.0	13.0	37.3	18.9	18.8	25.2	0.0	26.6	27.9	0.0	28.0
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		646			1106			53				304
Approach Delay, s/veh		15.4			19.2			26.4				28.0
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	31.0		13.1	8.4	29.2		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	41.9		31.1	6.7	41.1		31.0				
Max Q Clear Time (g_c+I1), s	2.7	8.9		7.3	4.2	18.3		3.5				
Green Ext Time (p_c), s	0.0	2.4		1.2	0.0	5.1		0.2				

Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	684	1028	10	10	30
Future Vol, veh/h	10	684	1028	10	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	11	743	1117	11	11	33

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	1128	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	615	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	615	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach

	EB	WB	SB
HCM Control Delay, s	0.2	0	22
HCM LOS			C

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	615	-	-	-	255
HCM Lane V/C Ratio	0.018	-	-	-	0.171
HCM Control Delay (s)	11	-	-	-	22
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

AM 2035 Base MTP
9: North River Rd & Riverview Way

HCM 6th TWSC

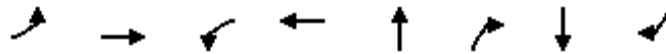
Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕↗		↖	↕↗				↖		↕↗	
Traffic Vol, veh/h	30	700	0	0	1090	10	0	0	0	20	0	50
Future Vol, veh/h	30	700	0	0	1090	10	0	0	0	20	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	761	0	0	1185	11	0	0	0	22	0	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1196	0	0	761	0	0	-	-	381	1638	2018	598
Stage 1	-	-	-	-	-	-	-	-	-	1191	1191	-
Stage 2	-	-	-	-	-	-	-	-	-	447	827	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	579	-	-	847	-	-	0	0	617	66	58	445
Stage 1	-	-	-	-	-	-	0	0	-	199	259	-
Stage 2	-	-	-	-	-	-	0	0	-	560	384	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	579	-	-	847	-	-	-	-	617	63	55	445
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	63	55	-
Stage 1	-	-	-	-	-	-	-	-	-	188	259	-
Stage 2	-	-	-	-	-	-	-	-	-	528	362	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	0	45.1
HCM LOS			A	E

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	579	-	-	847	-	-	163
HCM Lane V/C Ratio	-	0.056	-	-	-	-	-	0.467
HCM Control Delay (s)	-	0	11.6	-	-	0	-	45.1
HCM Lane LOS	-	A	B	-	-	A	-	E
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	2.2

LOS Engineering, Inc.

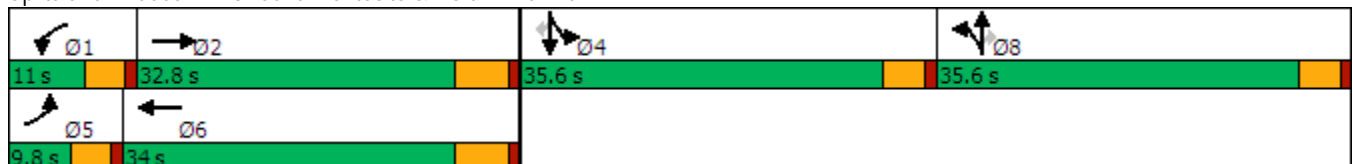


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	528	40	874	5	10	5	130
Future Volume (vph)	60	528	40	874	5	10	5	130
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.5	31.1	6.5	29.6	9.9	9.9	17.7	17.7
Actuated g/C Ratio	0.07	0.39	0.08	0.37	0.12	0.12	0.22	0.22
v/c Ratio	0.54	0.45	0.30	0.84	0.07	0.04	0.68	0.32
Control Delay	59.0	23.9	47.0	33.4	32.8	0.2	39.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	23.9	47.0	33.4	32.8	0.2	39.6	11.2
LOS	E	C	D	C	C	A	D	B
Approach Delay		27.3		33.9	19.5		29.8	
Approach LOS		C		C	B		C	

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 80.5
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 31.0
 Intersection Capacity Utilization 64.7%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

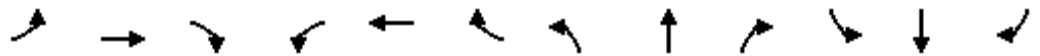
Splits and Phases: 10: Calle Montecito & North River Rd



AM 2035 Base MTP

10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	528	30	40	874	120	10	5	10	240	5	130
Future Volume (veh/h)	60	528	30	40	874	120	10	5	10	240	5	130
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	574	33	43	950	130	11	5	11	261	5	141
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	95	1266	73	74	1128	154	115	52	146	344	7	312
Arrive On Green	0.05	0.37	0.37	0.04	0.36	0.36	0.09	0.09	0.09	0.20	0.20	0.20
Sat Flow, veh/h	1781	3416	196	1781	3140	430	1243	565	1585	1749	34	1585
Grp Volume(v), veh/h	65	298	309	43	537	543	16	0	11	266	0	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1835	1781	1777	1793	1808	0	1585	1783	0	1585
Q Serve(g_s), s	2.3	8.2	8.3	1.5	18.1	18.1	0.5	0.0	0.4	9.2	0.0	5.1
Cycle Q Clear(g_c), s	2.3	8.2	8.3	1.5	18.1	18.1	0.5	0.0	0.4	9.2	0.0	5.1
Prop In Lane	1.00		0.11	1.00		0.24	0.69		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	95	659	680	74	638	644	167	0	146	351	0	312
V/C Ratio(X)	0.69	0.45	0.45	0.58	0.84	0.84	0.10	0.00	0.08	0.76	0.00	0.45
Avail Cap(c_a), veh/h	145	741	765	178	774	781	863	0	756	850	0	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.2	15.5	15.5	30.6	19.1	19.1	27.0	0.0	27.0	24.6	0.0	23.0
Incr Delay (d2), s/veh	8.5	0.5	0.5	7.0	7.1	7.1	0.2	0.0	0.2	3.4	0.0	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	1.2	3.1	3.2	0.8	8.0	8.0	0.2	0.0	0.2	4.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	15.9	15.9	37.6	26.3	26.2	27.3	0.0	27.2	28.0	0.0	24.0
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		672			1123			27				407
Approach Delay, s/veh		18.2			26.7			27.2				26.6
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	29.8		17.4	8.0	29.0		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.5	10.3		11.2	4.3	20.1		2.5				
Green Ext Time (p_c), s	0.0	2.3		1.6	0.0	3.3		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

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

AM 2035 Base MTP
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	30	778	977	5	0	100	0	
Future Volume (vph)	30	778	977	5	0	100	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.4	30.7	27.3		14.0	12.8	12.8	
Actuated g/C Ratio	0.13	0.53	0.47		0.24	0.22	0.22	
v/c Ratio	0.15	0.45	0.68		0.02	0.35	0.31	
Control Delay	34.7	9.0	15.8		0.1	26.1	6.1	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	34.7	9.0	15.8		0.1	26.1	6.1	
LOS	C	A	B		A	C	A	
Approach Delay		10.0	15.8		0.1		14.5	
Approach LOS		A	B		A		B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 57.9
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.68
 Intersection Signal Delay: 13.4
 Intersection LOS: B
 Intersection Capacity Utilization 48.9%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 11: Redondo Dr & North River Rd

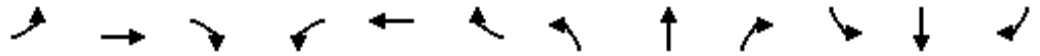


LOS Engineering, Inc.

AM 2035 Base MTP

11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷		↶	↷	
Traffic Volume (veh/h)	30	778	0	0	977	60	5	0	5	100	0	137
Future Volume (veh/h)	30	778	0	0	977	60	5	0	5	100	0	137
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	33	846	0	0	1062	65	5	0	5	109	0	149
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	67	2024	0	4	1467	90	168	35	82	411	0	247
Arrive On Green	0.04	0.57	0.00	0.00	0.43	0.43	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3647	0	1781	3402	208	304	224	528	1411	0	1585
Grp Volume(v), veh/h	33	846	0	0	555	572	10	0	0	109	0	149
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1833	1057	0	0	1411	0	1585
Q Serve(g_s), s	0.8	6.0	0.0	0.0	11.5	11.6	0.0	0.0	0.0	0.0	0.0	3.9
Cycle Q Clear(g_c), s	0.8	6.0	0.0	0.0	11.5	11.6	3.9	0.0	0.0	2.5	0.0	3.9
Prop In Lane	1.00		0.00	1.00		0.11	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	67	2024	0	4	766	790	285	0	0	411	0	247
V/C Ratio(X)	0.49	0.42	0.00	0.00	0.72	0.72	0.04	0.00	0.00	0.27	0.00	0.60
Avail Cap(c_a), veh/h	299	3741	0	219	1791	1848	1051	0	0	1157	0	1084
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.1	5.4	0.0	0.0	10.5	10.5	16.1	0.0	0.0	17.0	0.0	17.6
Incr Delay (d2), s/veh	5.5	0.1	0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.3	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.4	0.0	0.0	3.7	3.8	0.1	0.0	0.0	0.9	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	5.6	0.0	0.0	11.8	11.8	16.1	0.0	0.0	17.3	0.0	20.0
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		879			1127			10				258
Approach Delay, s/veh		6.4			11.8			16.1				18.9
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	32.2		12.6	6.2	26.0		12.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	8.0		5.9	2.8	13.6		5.9				
Green Ext Time (p_c), s	0.0	4.6		1.0	0.0	5.7		0.0				

Intersection Summary

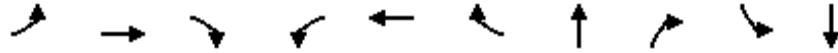
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

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

AM 2035 Base MTP
12: College Blvd & North River Rd

Timings

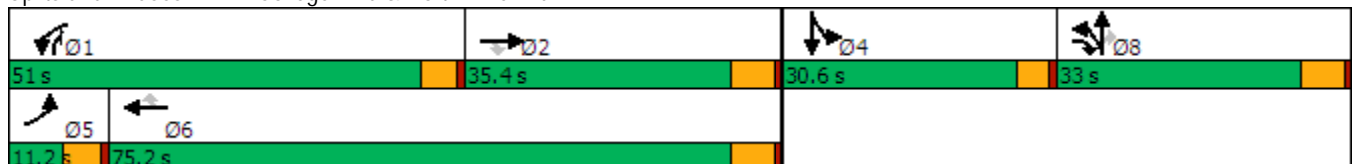


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	260	568	1340	625	80	20	1190	30	60
Future Volume (vph)	20	260	568	1340	625	80	20	1190	30	60
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.2	35.4	33.0	51.0	75.2	75.2	33.0	51.0	30.6	30.6
Total Split (%)	7.5%	23.6%	22.0%	34.0%	50.1%	50.1%	22.0%	34.0%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.1	16.4	45.5	46.6	61.9	61.9	27.6	80.2	11.9	11.9
Actuated g/C Ratio	0.05	0.13	0.37	0.38	0.51	0.51	0.23	0.66	0.10	0.10
v/c Ratio	0.25	0.59	0.82	1.11	0.38	0.10	0.98	0.61	0.19	0.42
Control Delay	68.9	55.6	23.9	95.6	21.0	4.2	87.1	5.8	54.4	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	55.6	23.9	95.6	21.0	4.2	87.1	5.8	54.4	56.3
LOS	E	E	C	F	C	A	F	A	D	E
Approach Delay		34.7			69.2		24.8			55.7
Approach LOS		C			E		C			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 121.6
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 47.3
 Intersection LOS: D
 Intersection Capacity Utilization 91.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd


























LOS Engineering, Inc.

AM 2035 Base MTP

12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	260	568	1340	625	80	342	20	1190	30	60	10
Future Volume (veh/h)	20	260	568	1340	625	80	342	20	1190	30	60	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	22	283	617	1457	679	87	372	22	1293	33	65	11
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	37	799	684	1205	1964	876	348	21	1549	103	90	15
Arrive On Green	0.02	0.22	0.22	0.35	0.55	0.55	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1686	100	2790	1781	1559	264
Grp Volume(v), veh/h	22	283	617	1457	679	87	394	0	1293	33	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1786	0	1395	1781	0	1823
Q Serve(g_s), s	1.6	8.8	29.6	45.9	13.9	3.4	27.2	0.0	27.2	2.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	8.8	29.6	45.9	13.9	3.4	27.2	0.0	27.2	2.3	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	0.94		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	37	799	684	1205	1964	876	369	0	1549	103	0	106
V/C Ratio(X)	0.59	0.35	0.90	1.21	0.35	0.10	1.07	0.00	0.83	0.32	0.00	0.72
Avail Cap(c_a), veh/h	83	799	684	1205	1964	876	369	0	1549	352	0	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.9	43.0	29.7	42.9	16.3	13.9	52.2	0.0	24.3	59.5	0.0	60.9
Incr Delay (d2), s/veh	13.8	0.3	15.3	102.1	0.1	0.0	66.0	0.0	4.1	1.8	0.0	8.8
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	0.9	3.9	23.7	36.4	5.7	1.3	18.9	0.0	17.0	1.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	43.2	44.9	145.0	16.4	14.0	118.2	0.0	28.4	61.3	0.0	69.7
LnGrp LOS	E	D	D	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		922			2223			1687			109	
Approach Delay, s/veh		45.2			100.6			49.3			67.2	
Approach LOS		D			F			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.0	35.4		12.2	7.9	78.5		33.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	45.9	29.6		26.0	6.1	69.4		27.2				
Max Q Clear Time (g_c+I1), s	47.9	31.6		7.4	3.6	15.9		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	3.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				72.0								
HCM 6th LOS				E								

AM 2035 Base MTP
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	60	30	30	1492	1858	90
Future Volume (vph)	60	30	30	1492	1858	90
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.6	6.3	56.9	50.6	50.6
Actuated g/C Ratio	0.16	0.24	0.09	0.81	0.72	0.72
v/c Ratio	0.23	0.09	0.11	0.57	0.80	0.09
Control Delay	27.6	17.2	34.6	7.3	18.6	6.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.6	17.2	34.6	7.4	18.6	6.9
LOS	C	B	C	A	B	A
Approach Delay	24.1			7.9	18.1	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 13.9
 Intersection LOS: B
 Intersection Capacity Utilization 66.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM 2035 Base MTP
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	30	30	1492	1858	90
Future Volume (veh/h)	60	30	30	1492	1858	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	65	33	33	1622	2020	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	184	230	144	2609	2177	971
Arrive On Green	0.10	0.10	0.04	0.73	0.61	0.61
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	65	33	33	1622	2020	98
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	2.2	1.2	0.6	14.3	32.6	1.6
Cycle Q Clear(g_c), s	2.2	1.2	0.6	14.3	32.6	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	184	230	144	2609	2177	971
V/C Ratio(X)	0.35	0.14	0.23	0.62	0.93	0.10
Avail Cap(c_a), veh/h	781	760	346	2870	2230	995
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	26.7	23.9	29.6	4.2	11.1	5.1
Incr Delay (d2), s/veh	1.2	0.3	0.8	0.4	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.3	2.9	11.6	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.8	24.1	30.4	4.5	18.5	5.2
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	98			1655	2118	
Approach Delay, s/veh	26.6			5.0	17.9	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.7		11.2	7.8	44.9
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		16.3		4.2	2.6	34.6
Green Ext Time (p_c), s		12.0		0.3	0.0	4.5
Intersection Summary						
HCM 6th Ctrl Delay			12.6			
HCM 6th LOS			B			

AM 2035 Base MTP
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	199	10	90	20	50	20	1263	20	1640	238
Future Volume (vph)	199	10	90	20	50	20	1263	20	1640	238
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	62.6	10.7	63.2	63.2
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	9.2%	56.9%	9.7%	57.5%	57.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	21.5	21.5		21.5	21.5	5.2	52.7	5.8	52.9	52.9
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.06	0.59	0.07	0.60	0.60
v/c Ratio	0.72	0.28		0.41	0.12	0.21	0.47	0.19	0.85	0.27
Control Delay	46.6	12.0		34.9	3.7	52.6	12.3	51.0	21.9	8.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.6	0.0
Total Delay	46.6	12.0		34.9	3.7	52.6	12.3	51.0	22.5	8.3
LOS	D	B		C	A	D	B	D	C	A
Approach Delay		33.5		25.2			12.9		21.0	
Approach LOS		C		C			B		C	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 88.8
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 19.4
 Intersection LOS: B
 Intersection Capacity Utilization 71.8%
 ICU Level of Service C
 Analysis Period (min) 15























Splits and Phases: 14: College Blvd & Adams St



AM 2035 Base MTP

14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	199	10	110	90	20	50	20	1263	40	20	1640	238
Future Volume (veh/h)	199	10	110	90	20	50	20	1263	40	20	1640	238
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	216	11	120	98	22	54	22	1373	43	22	1783	259
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	293	41	442	322	66	477	40	2697	84	40	1884	840
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.53	0.53	0.02	0.53	0.53
Sat Flow, veh/h	1323	135	1471	868	221	1585	1781	5086	159	1781	3554	1585
Grp Volume(v), veh/h	216	0	131	120	0	54	22	919	497	22	1783	259
Grp Sat Flow(s),veh/h/ln	1323	0	1606	1089	0	1585	1781	1702	1842	1781	1777	1585
Q Serve(g_s), s	17.2	0.0	6.6	7.3	0.0	2.6	1.3	18.5	18.5	1.3	50.3	9.8
Cycle Q Clear(g_c), s	31.1	0.0	6.6	13.9	0.0	2.6	1.3	18.5	18.5	1.3	50.3	9.8
Prop In Lane	1.00		0.92	0.82		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	293	0	483	389	0	477	40	1805	976	40	1884	840
V/C Ratio(X)	0.74	0.00	0.27	0.31	0.00	0.11	0.55	0.51	0.51	0.55	0.95	0.31
Avail Cap(c_a), veh/h	293	0	483	389	0	477	84	1817	983	94	1917	855
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	28.3	33.0	0.0	26.9	51.5	16.1	16.1	51.5	23.6	14.0
Incr Delay (d2), s/veh	9.4	0.0	0.3	0.4	0.0	0.1	11.2	0.2	0.4	11.2	10.5	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	6.3	0.0	2.6	2.6	0.0	1.0	0.7	7.0	7.6	0.7	22.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	0.0	28.6	33.4	0.0	27.0	62.7	16.3	16.5	62.7	34.0	14.2
LnGrp LOS	D	A	C	C	A	C	E	B	B	E	C	B
Approach Vol, veh/h		347			174			1438			2064	
Approach Delay, s/veh		43.9			31.4			17.1			31.9	
Approach LOS		D			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	62.2		36.7	7.5	62.2		36.7				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.6	56.8		* 32	5.0	57.4		* 32				
Max Q Clear Time (g_c+I1), s	3.3	20.5		33.1	3.3	52.3		15.9				
Green Ext Time (p_c), s	0.0	8.3		0.0	0.0	4.1		0.6				

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

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

AM 2035 Base MTP
15: College Blvd & Via Cupeno

Timings

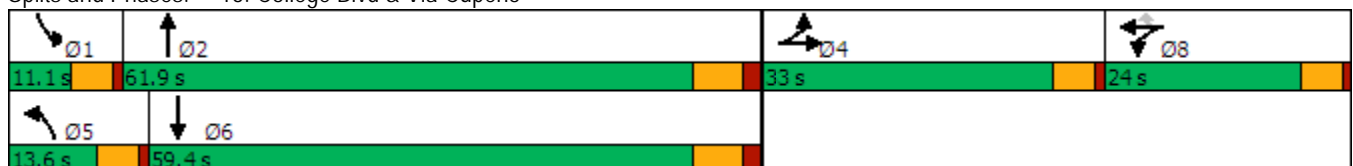


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	5	10	5	170	1264	5	1757
Future Volume (vph)	5	10	5	170	1264	5	1757
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	13.6	61.9	11.1	59.4
Total Split (%)	25.4%	18.5%	18.5%	10.5%	47.6%	8.5%	45.7%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.6	15.8	15.8	8.6	63.0	6.1	51.1
Actuated g/C Ratio	0.11	0.14	0.14	0.08	0.58	0.06	0.47
v/c Ratio	0.31	0.72	0.02	0.69	0.49	0.05	0.84
Control Delay	28.3	62.4	0.0	64.9	16.4	56.0	30.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	62.4	0.0	64.9	16.4	56.0	30.4
LOS	C	E	A	E	B	E	C
Approach Delay	28.3	60.8			22.0		30.4
Approach LOS	C	E			C		C

Intersection Summary






















Cycle Length: 130
 Actuated Cycle Length: 109.3
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 28.4
 Intersection LOS: C
 Intersection Capacity Utilization 70.5%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM 2035 Base MTP
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	5	50	160	10	5	170	1264	40	5	1757	64
Future Volume (veh/h)	58	5	50	160	10	5	170	1264	40	5	1757	64
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	5	54	174	11	5	185	1374	43	5	1910	70
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	147	12	128	213	13	201	260	2734	86	14	2377	87
Arrive On Green	0.08	0.08	0.08	0.13	0.13	0.13	0.08	0.54	0.54	0.01	0.47	0.47
Sat Flow, veh/h	1736	139	1507	1680	106	1585	3456	5087	159	1781	5056	185
Grp Volume(v), veh/h	65	0	57	185	0	5	185	920	497	5	1285	695
Grp Sat Flow(s),veh/h/ln	1784	0	1599	1786	0	1585	1728	1702	1842	1781	1702	1837
Q Serve(g_s), s	3.1	0.0	3.1	9.1	0.0	0.2	4.7	15.4	15.4	0.3	28.9	29.0
Cycle Q Clear(g_c), s	3.1	0.0	3.1	9.1	0.0	0.2	4.7	15.4	15.4	0.3	28.9	29.0
Prop In Lane	0.97		0.94	0.94		1.00	1.00		0.09	1.00		0.10
Lane Grp Cap(c), veh/h	151	0	135	226	0	201	260	1830	990	14	1601	864
V/C Ratio(X)	0.43	0.00	0.42	0.82	0.00	0.02	0.71	0.50	0.50	0.36	0.80	0.80
Avail Cap(c_a), veh/h	555	0	498	377	0	335	326	2084	1128	119	1990	1074
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	0.0	39.1	38.3	0.0	34.4	40.7	13.2	13.2	44.4	20.3	20.3
Incr Delay (d2), s/veh	1.9	0.0	2.1	7.1	0.0	0.0	5.3	0.2	0.4	14.8	2.0	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	1.4	0.0	1.3	4.4	0.0	0.1	2.2	5.5	6.0	0.2	11.1	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	41.2	45.4	0.0	34.5	45.9	13.4	13.6	59.2	22.3	24.0
LnGrp LOS	D	A	D	D	A	C	D	B	B	E	C	C
Approach Vol, veh/h		122			190			1602			1985	
Approach Delay, s/veh		41.1			45.1			17.2			23.0	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	55.2		12.6	11.9	49.1		16.4				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	55.1		28.0	8.5	52.6		19.0				
Max Q Clear Time (g_c+I1), s	2.3	17.4		5.1	6.7	31.0		11.1				
Green Ext Time (p_c), s	0.0	8.4		0.4	0.1	11.3		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								

AM 2035 Base MTP
16: College Blvd & SR-76

Timings

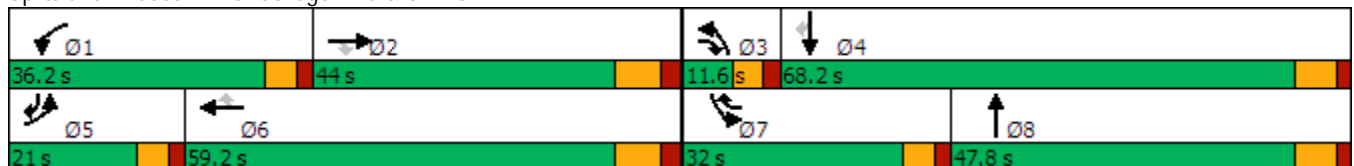


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑↔	↔↔	↑↑	↔
Traffic Volume (vph)	369	950	40	660	1640	555	60	549	632	887	438
Future Volume (vph)	369	950	40	660	1640	555	60	549	632	887	438
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.3	36.0	49.9	30.5	51.2	85.5	5.9	41.0	26.3	61.4	83.5
Actuated g/C Ratio	0.10	0.22	0.31	0.19	0.32	0.53	0.04	0.26	0.16	0.38	0.52
v/c Ratio	1.22	0.90	0.07	1.10	1.10	0.69	0.52	1.04	1.22	0.71	0.54
Control Delay	181.4	71.8	0.2	122.6	103.2	29.1	90.3	92.9	167.2	45.3	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	181.4	71.8	0.2	122.6	103.2	29.1	90.3	92.9	167.2	45.3	21.5
LOS	F	E	A	F	F	C	F	F	F	D	C
Approach Delay		99.5			93.3			92.8		79.3	
Approach LOS		F			F			F		E	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.22
 Intersection Signal Delay: 90.6
 Intersection Capacity Utilization 107.5%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service G



































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

AM 2035 Base MTP
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	369	950	40	660	1640	555	60	549	320	632	887	438
Future Volume (veh/h)	369	950	40	660	1640	555	60	549	320	632	887	438
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	401	1033	43	717	1783	603	65	597	348	687	964	476
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	330	1149	403	659	1634	768	102	554	323	568	1390	772
Arrive On Green	0.10	0.22	0.22	0.19	0.32	0.32	0.03	0.26	0.26	0.16	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2161	1260	3456	3554	1585
Grp Volume(v), veh/h	401	1033	43	717	1783	603	65	491	454	687	964	476
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1644	1728	1777	1585
Q Serve(g_s), s	15.3	31.4	3.3	30.5	51.2	50.7	3.0	41.0	41.0	26.3	36.3	35.2
Cycle Q Clear(g_c), s	15.3	31.4	3.3	30.5	51.2	50.7	3.0	41.0	41.0	26.3	36.3	35.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		1.00
Lane Grp Cap(c), veh/h	330	1149	403	659	1634	768	102	455	421	568	1390	772
V/C Ratio(X)	1.21	0.90	0.11	1.09	1.09	0.79	0.64	1.08	1.08	1.21	0.69	0.62
Avail Cap(c_a), veh/h	330	1149	403	659	1634	768	127	455	421	568	1390	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.3	60.2	45.7	64.8	54.4	34.3	76.8	59.5	59.5	66.9	40.7	30.1
Incr Delay (d2), s/veh	120.7	9.7	0.1	61.5	51.5	5.4	6.9	64.8	66.4	109.9	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	14.7	1.3	19.1	29.7	20.6	1.4	26.7	24.9	20.3	16.3	13.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	193.1	69.9	45.8	126.3	105.9	39.7	83.8	124.3	125.9	176.8	42.2	31.6
LnGrp LOS	F	E	D	F	F	D	F	F	F	F	D	C
Approach Vol, veh/h		1477			3103			1010			2127	
Approach Delay, s/veh		102.7			97.8			122.4			83.3	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.2	44.0	10.4	69.4	21.0	59.2	32.0	47.8				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	32.5	33.4	5.0	38.3	17.3	53.2	28.3	43.0				
Green Ext Time (p_c), s	0.0	1.4	0.0	8.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	97.9
HCM 6th LOS	F

Notes

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

AM 2035 Base MTP
17: North River Rd/Vandergrift Blvd

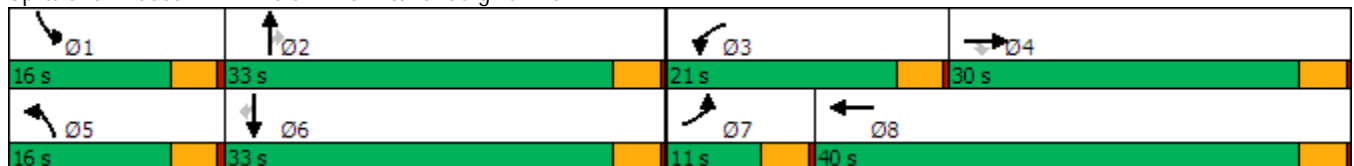
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	60	70	140	827	60	140	990	370	130	868	50	
Future Volume (vph)	60	70	140	827	60	140	990	370	130	868	50	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0	
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effect Green (s)	6.8	11.1	11.1	17.2	23.6	11.1	29.5	29.5	10.8	29.3	29.3	
Actuated g/C Ratio	0.08	0.13	0.13	0.20	0.28	0.13	0.35	0.35	0.13	0.35	0.35	
v/c Ratio	0.46	0.31	0.45	1.30	0.63	0.66	0.61	0.49	0.63	0.77	0.08	
Control Delay	51.0	35.9	9.9	174.0	12.1	51.4	25.8	5.1	49.7	31.4	0.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	51.0	35.9	9.9	174.0	12.1	51.4	25.8	5.1	49.7	31.4	0.3	
LOS	D	D	A	F	B	D	C	A	D	C	A	
Approach Delay		25.7			122.1		23.0			32.2		
Approach LOS		C			F		C			C		

Intersection Summary

Cycle Length: 100	
Actuated Cycle Length: 84.7	
Natural Cycle: 100	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 55.5	Intersection LOS: E
Intersection Capacity Utilization 73.7%	ICU Level of Service D
Analysis Period (min) 15	
























Splits and Phases: 17: North River Rd/Vandergrift Blvd



AM 2035 Base MTP

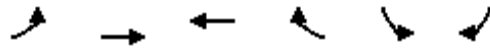
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	70	140	827	60	330	140	990	370	130	868	50
Future Volume (veh/h)	60	70	140	827	60	330	140	990	370	130	868	50
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	76	152	899	65	359	152	1076	402	141	943	54
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	84	265	224	713	75	414	188	1832	569	176	1251	558
Arrive On Green	0.05	0.14	0.14	0.21	0.30	0.30	0.11	0.36	0.36	0.10	0.35	0.35
Sat Flow, veh/h	1781	1870	1585	3456	249	1374	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	65	76	152	899	0	424	152	1076	402	141	943	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1623	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.0	3.0	7.5	17.0	0.0	20.4	6.9	14.1	17.9	6.4	19.3	1.9
Cycle Q Clear(g_c), s	3.0	3.0	7.5	17.0	0.0	20.4	6.9	14.1	17.9	6.4	19.3	1.9
Prop In Lane	1.00		1.00	1.00		0.85	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	265	224	713	0	488	188	1832	569	176	1251	558
V/C Ratio(X)	0.78	0.29	0.68	1.26	0.00	0.87	0.81	0.59	0.71	0.80	0.75	0.10
Avail Cap(c_a), veh/h	151	591	500	713	0	710	260	1832	569	260	1251	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	31.6	33.6	32.7	0.0	27.2	36.0	21.4	22.7	36.3	23.5	17.9
Incr Delay (d2), s/veh	14.2	0.6	3.6	128.3	0.0	7.9	12.3	1.4	7.2	10.4	4.2	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	1.6	1.4	3.0	19.6	0.0	8.6	3.6	5.6	7.5	3.2	8.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	32.2	37.1	160.9	0.0	35.1	48.3	22.8	29.9	46.7	27.8	18.2
LnGrp LOS	D	C	D	F	A	D	D	C	C	D	C	B
Approach Vol, veh/h		293			1323			1630			1138	
Approach Delay, s/veh		39.4			120.6			27.0			29.7	
Approach LOS		D			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	33.6	21.0	15.7	12.7	33.0	7.9	28.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	8.4	19.9	19.0	9.5	8.9	21.3	5.0	22.4				
Green Ext Time (p_c), s	0.1	5.6	0.0	0.8	0.1	3.9	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				56.7								
HCM 6th LOS				E								

PM 2035 Base MTP
1: SR-76 & Douglas Dr

Timings

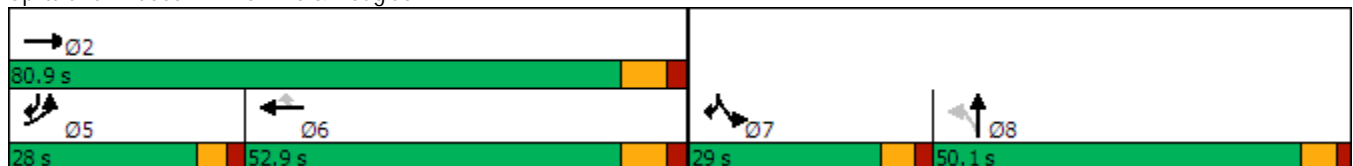


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↗	↕↗	↕↕	↖	↖	↖↗	
Traffic Volume (vph)	607	2040	1340	298	329	434	
Future Volume (vph)	607	2040	1340	298	329	434	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	80.9	52.9	52.9	29.0		50.1
Total Split (%)	17.5%	50.6%	33.1%	33.1%	18.1%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	22.3	72.9	44.9	44.9	22.9	51.3	
Actuated g/C Ratio	0.20	0.66	0.41	0.41	0.21	0.47	
v/c Ratio	0.95	0.94	1.01	0.39	0.97	0.31	
Control Delay	67.4	26.9	58.7	3.8	84.7	2.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	67.4	26.9	58.7	3.8	84.7	2.4	
LOS	E	C	E	A	F	A	
Approach Delay		36.2	48.7				
Approach LOS		D	D				

Intersection Summary




















Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 40.5
 Intersection LOS: D
 Intersection Capacity Utilization 87.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



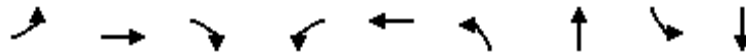
PM 2035 Base MTP
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	607	2040	0	0	1340	298	0	0	0	329	0	434
Future Volume (veh/h)	607	2040	0	0	1340	298	0	0	0	329	0	434
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	660	2217	0	0	1457	324	0	0	0	358	0	472
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	701	2357	0	0	1452	648	0	2	0	371	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.41	0.41	0.00	0.00	0.00	0.21	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	358	
Grp Volume(v), veh/h	660	2217	0	0	1457	324	0	0	0	358	80.4	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	20.7	61.4	0.0	0.0	44.9	16.7	0.0	0.0	0.0	21.9		
Cycle Q Clear(g_c), s	20.7	61.4	0.0	0.0	44.9	16.7	0.0	0.0	0.0	21.9		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	701	2357	0	0	1452	648	0	2	0	371		
V/C Ratio(X)	0.94	0.94	0.00	0.00	1.00	0.50	0.00	0.00	0.00	0.96		
Avail Cap(c_a), veh/h	701	2357	0	0	1452	648	0	749	0	371		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	43.2	16.6	0.0	0.0	32.5	24.2	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	20.9	8.3	0.0	0.0	24.5	0.6	0.0	0.0	0.0	37.3		
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		
%ile BackOfQ(50%),veh/ln	10.8	24.5	0.0	0.0	23.5	6.3	0.0	0.0	0.0	13.4		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.0	24.9	0.0	0.0	57.0	24.8	0.0	0.0	0.0	80.4		
LnGrp LOS	E	C	A	A	F	C	A	A	A	F		
Approach Vol, veh/h		2877			1781			0				
Approach Delay, s/veh		33.9			51.1			0.0				
Approach LOS		C			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		80.9			28.0	52.9	29.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		72.9			* 22	44.9	22.9	44.0				
Max Q Clear Time (g_c+I1), s		63.4			22.7	46.9	23.9	0.0				
Green Ext Time (p_c), s		7.7			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			43.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM 2035 Base MTP
2: Douglas Dr & Mission Ave

Timings

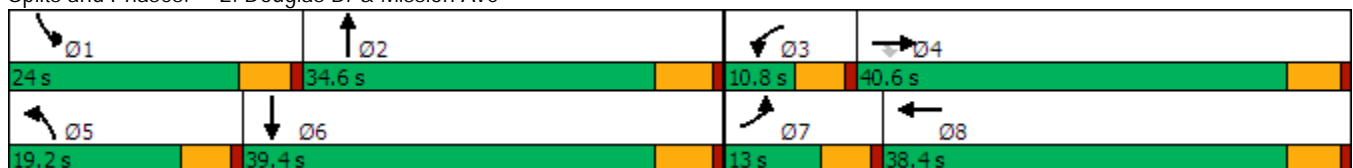


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	266	740	170	70	410	190	684	340	573
Future Volume (vph)	266	740	170	70	410	190	684	340	573
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.0	40.6	40.6	10.8	38.4	19.2	34.6	24.0	39.4
Total Split (%)	11.8%	36.9%	36.9%	9.8%	34.9%	17.5%	31.5%	21.8%	35.8%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	8.0	29.7	29.7	5.7	27.4	14.0	26.2	19.1	31.2
Actuated g/C Ratio	0.08	0.29	0.29	0.06	0.27	0.14	0.26	0.19	0.31
v/c Ratio	1.08	0.78	0.33	0.77	0.85	0.86	0.86	1.12	0.64
Control Delay	124.8	39.5	10.2	94.7	34.5	76.1	47.3	127.3	33.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.8	39.5	10.2	94.7	34.5	76.1	47.3	127.3	33.9
LOS	F	D	B	F	C	E	D	F	C
Approach Delay		54.5			39.2		53.4		66.6
Approach LOS		D			D		D		E

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 102.2
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 53.8
 Intersection LOS: D
 Intersection Capacity Utilization 88.6%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM 2035 Base MTP
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	266	740	170	70	410	408	190	684	30	340	573	58
Future Volume (veh/h)	266	740	170	70	410	408	190	684	30	340	573	58
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	289	804	185	76	446	443	207	743	33	370	623	63
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	259	1143	510	96	534	477	237	836	37	320	938	95
Arrive On Green	0.08	0.32	0.32	0.05	0.30	0.30	0.13	0.24	0.24	0.18	0.29	0.29
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3466	154	1781	3259	329
Grp Volume(v), veh/h	289	804	185	76	446	443	207	381	395	370	339	347
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1843	1781	1777	1811
Q Serve(g_s), s	7.9	20.9	9.4	4.4	24.7	28.5	12.0	21.8	21.8	18.9	17.7	17.7
Cycle Q Clear(g_c), s	7.9	20.9	9.4	4.4	24.7	28.5	12.0	21.8	21.8	18.9	17.7	17.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	259	1143	510	96	534	477	237	429	445	320	511	521
V/C Ratio(X)	1.11	0.70	0.36	0.79	0.83	0.93	0.87	0.89	0.89	1.16	0.66	0.67
Avail Cap(c_a), veh/h	259	1189	530	96	557	497	239	486	504	320	567	578
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	31.3	27.4	49.2	34.4	35.7	44.7	38.5	38.6	43.2	33.0	33.0
Incr Delay (d2), s/veh	90.0	1.8	0.4	34.1	10.3	23.7	27.8	16.5	16.1	99.8	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	6.6	9.1	3.6	2.9	12.0	13.9	7.1	11.3	11.7	17.1	7.9	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	138.7	33.1	27.9	83.2	44.6	59.4	72.6	55.1	54.7	143.0	35.5	35.5
LnGrp LOS	F	C	C	F	D	E	E	E	D	F	D	D
Approach Vol, veh/h		1278			965			983			1056	
Approach Delay, s/veh		56.2			54.5			58.6			73.2	
Approach LOS		E			D			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	31.2	10.8	39.2	19.1	36.1	13.0	37.0				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	18.9	28.8	5.7	35.2	14.1	33.6	7.9	33.0				
Max Q Clear Time (g_c+I1), s	20.9	23.8	6.4	22.9	14.0	19.7	9.9	30.5				
Green Ext Time (p_c), s	0.0	1.6	0.0	4.0	0.0	2.5	0.0	1.1				
Intersection Summary												
HCM 6th Ctrl Delay			60.6									
HCM 6th LOS			E									
Notes												
User approved pedestrian interval to be less than phase max green.												

PM 2035 Base MTP
3: Douglas Dr & El Camino Real

Timings



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1115	70	80	30	10	100	1127	10	812	701
Future Volume (vph)	1115	70	80	30	10	100	1127	10	812	701
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	55.0	55.0		21.5	21.5	18.8	58.1	10.4	49.7	55.0
Total Split (%)	37.9%	37.9%		14.8%	14.8%	13.0%	40.1%	7.2%	34.3%	37.9%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effct Green (s)	49.0	49.0	136.9	12.4	12.4	12.0	53.7	5.0	40.3	95.3
Actuated g/C Ratio	0.36	0.36	1.00	0.09	0.09	0.09	0.39	0.04	0.29	0.70
v/c Ratio	0.99	0.11	0.05	0.60	0.04	0.70	0.94	0.17	0.85	0.39
Control Delay	66.8	32.0	0.1	76.5	0.3	85.4	54.6	73.2	54.6	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.8	32.0	0.1	76.5	0.3	85.4	54.6	73.2	54.6	9.8
LOS	E	C	A	E	A	F	D	E	D	A
Approach Delay		60.6		68.8			57.0		34.1	
Approach LOS		E		E			E		C	

Intersection Summary

Cycle Length: 145
 Actuated Cycle Length: 136.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 50.1
 Intersection LOS: D
 Intersection Capacity Utilization 90.9%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real

Ø1	Ø2	Ø4	Ø8
10.4 s	58.1 s	55 s	21.5 s
Ø5	Ø6		
18.8 s	49.7 s		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	1115	70	80	60	30	10	100	1127	70	10	812	701	
Future Volume (veh/h)	1115	70	80	60	30	10	100	1127	70	10	812	701	
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	1212	76	0	65	33	11	109	1225	76	11	883	762	
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	1265	685		82	42	108	133	1279	79	22	1116	1897	
Arrive On Green	0.37	0.37	0.00	0.07	0.07	0.07	0.07	0.63	0.38	0.01	0.31	0.31	
Sat Flow, veh/h	3456	1870	1585	1201	610	1585	1781	3399	211	1781	3554	2790	
Grp Volume(v), veh/h	1212	76	0	98	0	11	109	640	661	11	883	762	
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1832	1781	1777	1395	
Q Serve(g_s), s	45.2	3.5	0.0	7.0	0.0	0.9	8.0	44.2	44.8	0.8	29.9	15.9	
Cycle Q Clear(g_c), s	45.2	3.5	0.0	7.0	0.0	0.9	8.0	44.2	44.8	0.8	29.9	15.9	
Prop In Lane	1.00		1.00	0.66		1.00	1.00		0.11	1.00		1.00	
Lane Grp Cap(c), veh/h	1265	685		124	0	108	133	669	690	22	1116	1897	
V/C Ratio(X)	0.96	0.11		0.79	0.00	0.10	0.82	0.96	0.96	0.49	0.79	0.40	
Avail Cap(c_a), veh/h	1279	692		220	0	192	181	699	721	68	1178	1946	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	40.8	27.6	0.0	60.5	0.0	57.6	60.1	23.5	25.4	64.7	41.3	9.3	
Incr Delay (d2), s/veh	16.1	0.1	0.0	10.7	0.0	0.4	18.7	23.4	23.4	15.7	3.6	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	21.8	1.6	0.0	3.6	0.0	0.4	4.3	18.4	20.2	0.5	13.6	11.7	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	57.0	27.7	0.0	71.1	0.0	58.0	78.8	46.9	48.9	80.4	44.8	9.4	
LnGrp LOS	E	C		E	A	E	E	D	D	F	D	A	
Approach Vol, veh/h		1288	A		109			1410			1656		
Approach Delay, s/veh		55.2			69.8			50.3			28.8		
Approach LOS		E			E			D			C		
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	7.1	55.8		54.5	15.3	47.6		14.5					
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5					
Max Green Setting (Gmax), s	5.0	51.9		48.8	13.4	* 44		16.0					
Max Q Clear Time (g_c+I1), s	2.8	46.8		47.2	10.0	31.9		9.0					
Green Ext Time (p_c), s	0.0	2.8		1.1	0.1	6.7		0.2					

Intersection Summary

HCM 6th Ctrl Delay	44.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM 2035 Base MTP
4: Douglas Dr & Pala Rd

Timings

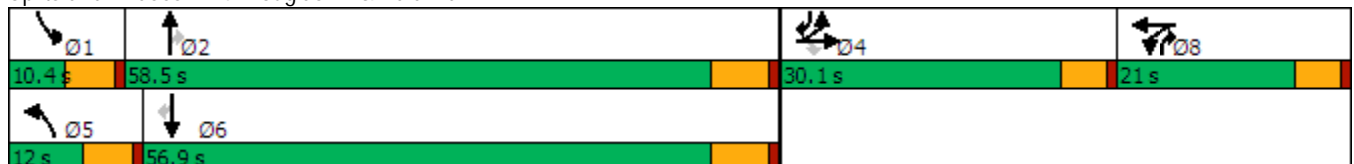


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	88	5	110	20	5	110	2023	30	20	1383	110
Future Volume (vph)	88	5	110	20	5	110	2023	30	20	1383	110
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	12.0	58.5	21.0	10.4	56.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.0%	48.8%	17.5%	8.7%	47.4%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	10.6	10.6	10.6	7.0	7.0	6.7	58.1	66.6	5.1	49.5	66.4
Actuated g/C Ratio	0.11	0.11	0.11	0.08	0.08	0.07	0.62	0.71	0.05	0.53	0.71
v/c Ratio	0.27	0.26	0.41	0.17	0.25	0.94	1.00	0.03	0.23	0.80	0.10
Control Delay	42.3	42.1	11.0	47.8	22.8	113.4	39.9	0.3	53.2	23.9	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	42.1	11.0	47.8	22.8	113.4	39.9	0.3	53.2	23.9	1.1
LOS	D	D	B	D	C	F	D	A	D	C	A
Approach Delay		25.2			31.9		43.1			22.6	
Approach LOS		C			C		D			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 93.2
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 34.1
 Intersection LOS: C
 Intersection Capacity Utilization 83.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM 2035 Base MTP
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	5	110	20	5	30	110	2023	30	20	1383	110
Future Volume (veh/h)	88	5	110	20	5	30	110	2023	30	20	1383	110
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	100	0	120	22	5	33	120	2199	33	22	1503	120
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	371	0	165	92	11	73	130	2059	1000	42	1882	1005
Arrive On Green	0.10	0.00	0.10	0.05	0.05	0.05	0.07	0.97	0.58	0.02	0.53	0.53
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	100	0	120	22	0	38	120	2199	33	22	1503	120
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.3	0.0	6.6	1.1	0.0	2.1	6.0	52.3	0.7	1.1	31.1	2.7
Cycle Q Clear(g_c), s	2.3	0.0	6.6	1.1	0.0	2.1	6.0	52.3	0.7	1.1	31.1	2.7
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	371	0	165	92	0	84	130	2059	1000	42	1882	1005
V/C Ratio(X)	0.27	0.00	0.73	0.24	0.00	0.45	0.92	1.07	0.03	0.53	0.80	0.12
Avail Cap(c_a), veh/h	986	0	439	314	0	285	130	2059	1000	99	1996	1055
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	39.2	41.1	0.0	41.6	41.6	1.5	6.3	43.6	17.3	6.6
Incr Delay (d2), s/veh	0.4	0.0	6.0	1.3	0.0	3.8	55.4	41.0	0.0	9.9	2.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	2.8	0.5	0.0	0.9	4.6	12.4	0.3	0.6	12.2	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	0.0	45.2	42.4	0.0	45.4	97.0	42.4	6.3	53.4	19.6	6.6
LnGrp LOS	D	A	D	D	A	D	F	F	A	D	B	A
Approach Vol, veh/h		220			60			2352			1645	
Approach Delay, s/veh		41.8			44.3			44.7			19.1	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	58.5		14.5	12.0	54.0		9.8				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	6.6	50.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	54.3		8.6	8.0	33.1		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.8	0.0	8.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	34.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Base MTP
5: Douglas Dr & Rainer Way

Timings
























Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	10	5	80	50	5	5	1920	90	5	1313	80
Future Volume (vph)	10	5	80	50	5	5	1920	90	5	1313	80
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	83.0	83.0	10.4	93.4	93.4
Total Split (%)	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	63.8%	63.8%	8.0%	71.8%	71.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.2	12.2		12.2	12.2	76.0	76.0	5.2	77.6	77.6
Actuated g/C Ratio		0.13	0.13		0.13	0.13	0.78	0.78	0.05	0.80	0.80
v/c Ratio		0.08	0.33		0.34	0.02	0.75	0.08	0.05	0.50	0.07
Control Delay		38.9	15.1		45.2	0.2	12.7	3.5	53.6	6.3	3.4
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		38.9	15.1		45.2	0.2	12.7	3.5	53.6	6.3	3.4
LOS		D	B		D	A	B	A	D	A	A
Approach Delay		18.7			41.7		12.2			6.3	
Approach LOS		B			D		B			A	

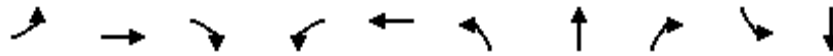
Intersection Summary

Cycle Length: 130	
Actuated Cycle Length: 96.9	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 10.6	Intersection LOS: B
Intersection Capacity Utilization 76.3%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Douglas Dr & Rainer Way



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	80	50	5	5	0	1920	90	5	1313	80
Future Volume (veh/h)	10	5	80	50	5	5	0	1920	90	5	1313	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	5	87	54	5	5	0	2087	98	5	1427	87
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	0	2	2	2	2	2
Cap, veh/h	58	18	395	73	4	395	0	2162	964	11	2340	1044
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.61	0.61	0.01	0.66	0.66
Sat Flow, veh/h	33	71	1585	65	17	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	16	0	87	59	0	5	0	2087	98	5	1427	87
Grp Sat Flow(s),veh/h/ln	103	0	1585	82	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	5.3	1.6	0.0	0.3	0.0	68.3	3.2	0.3	28.1	2.4
Cycle Q Clear(g_c), s	29.9	0.0	5.3	30.5	0.0	0.3	0.0	68.3	3.2	0.3	28.1	2.4
Prop In Lane	0.69		1.00	0.92		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	75	0	395	77	0	395	0	2162	964	11	2340	1044
V/C Ratio(X)	0.21	0.00	0.22	0.77	0.00	0.01	0.00	0.97	0.10	0.45	0.61	0.08
Avail Cap(c_a), veh/h	94	0	414	93	0	414	0	2214	987	73	2516	1122
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	0.0	36.5	59.5	0.0	34.6	0.0	22.8	10.0	60.6	11.9	7.6
Incr Delay (d2), s/veh	1.4	0.0	0.3	26.4	0.0	0.0	0.0	12.0	0.0	25.8	0.4	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	0.4	0.0	2.1	2.4	0.0	0.1	0.0	30.0	1.1	0.2	10.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	0.0	36.8	85.9	0.0	34.6	0.0	34.7	10.1	86.5	12.3	7.6
LnGrp LOS	D	A	D	F	A	C	A	C	B	F	B	A
Approach Vol, veh/h		103			64			2185			1519	
Approach Delay, s/veh		37.2			81.9			33.6			12.3	
Approach LOS		D			F			C			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	81.6		35.9		87.8		35.9				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	76.3		32.0		86.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	70.3		31.9		30.1		32.5				
Green Ext Time (p_c), s	0.0	5.0		0.0		11.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			26.2									
HCM 6th LOS			C									

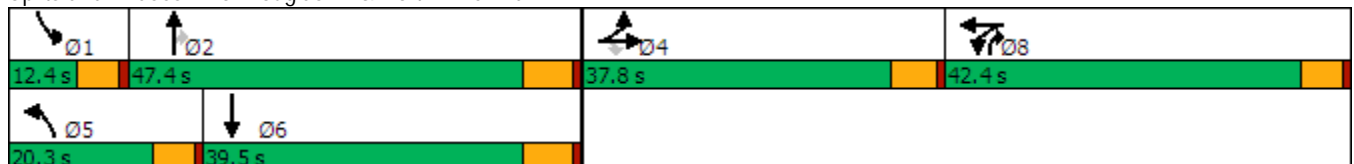

























Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	40	108	80	603	69	170	770	880	40	660
Future Volume (vph)	40	108	80	603	69	170	770	880	40	660
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.3	47.4	42.4	12.4	39.5
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.5%	33.9%	30.3%	8.9%	28.2%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.5	13.5	13.5	34.7	34.7	15.1	43.2	80.0	6.7	32.2
Actuated g/C Ratio	0.11	0.11	0.11	0.29	0.29	0.13	0.36	0.67	0.06	0.27
v/c Ratio	0.21	0.29	0.28	0.70	0.48	0.82	0.65	0.44	0.43	0.81
Control Delay	50.2	50.0	2.2	47.5	36.8	80.4	36.9	1.2	71.8	48.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.2	50.0	2.2	47.5	36.8	80.4	36.9	1.2	71.8	48.7
LOS	D	D	A	D	D	F	D	A	E	D
Approach Delay		33.2			41.3		23.7			49.9
Approach LOS		C			D		C			D

Intersection Summary

Cycle Length: 140	
Actuated Cycle Length: 118.6	
Natural Cycle: 135	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.82	
Intersection Signal Delay: 33.5	Intersection LOS: C
Intersection Capacity Utilization 66.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 6: Douglas Dr & North River Rd



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	108	80	603	69	50	170	770	880	40	660	50
Future Volume (veh/h)	40	108	80	603	69	50	170	770	880	40	660	50
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	43	117	87	655	75	54	185	837	957	43	717	54
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	160	320	143	882	250	180	220	1373	1768	64	1000	75
Arrive On Green	0.09	0.09	0.09	0.25	0.25	0.25	0.12	0.39	0.39	0.04	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	3563	1011	728	1781	3554	2790	1781	3350	252
Grp Volume(v), veh/h	43	117	87	655	0	129	185	837	957	43	380	391
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1739	1781	1777	1395	1781	1777	1825
Q Serve(g_s), s	2.1	2.9	5.0	16.1	0.0	5.7	9.6	17.9	18.1	2.3	18.1	18.1
Cycle Q Clear(g_c), s	2.1	2.9	5.0	16.1	0.0	5.7	9.6	17.9	18.1	2.3	18.1	18.1
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	160	320	143	882	0	431	220	1373	1768	64	530	545
V/C Ratio(X)	0.27	0.37	0.61	0.74	0.00	0.30	0.84	0.61	0.54	0.68	0.72	0.72
Avail Cap(c_a), veh/h	601	1199	535	1389	0	678	280	1543	1902	131	624	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	40.6	41.6	32.9	0.0	29.0	40.6	23.4	9.7	45.2	29.7	29.7
Incr Delay (d2), s/veh	1.3	1.0	5.9	1.8	0.0	0.5	16.3	1.0	0.6	11.8	4.8	4.7
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	1.0	1.3	2.2	7.0	0.0	2.4	5.2	7.5	9.8	1.2	8.2	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	41.6	47.4	34.7	0.0	29.6	57.0	24.4	10.2	57.0	34.5	34.4
LnGrp LOS	D	D	D	C	A	C	E	C	B	E	C	C
Approach Vol, veh/h		247			784			1979			814	
Approach Delay, s/veh		43.6			33.9			20.6			35.7	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	42.9		14.3	17.1	34.5		28.9				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	7.0	41.2		32.0	14.9	33.3		37.0				
Max Q Clear Time (g_c+I1), s	4.3	20.1		7.0	11.6	20.1		18.1				
Green Ext Time (p_c), s	0.0	16.5		1.5	0.2	5.4		5.4				
Intersection Summary												
HCM 6th Ctrl Delay				28.0								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	140	968	30	702	5	5	40	100	5	90
Future Volume (vph)	140	968	30	702	5	5	40	100	5	90
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	51.0	12.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	51.0%	12.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	11.3	35.9	6.8	22.9		13.1	13.1		13.1	13.1
Actuated g/C Ratio	0.18	0.56	0.11	0.36		0.20	0.20		0.20	0.20
v/c Ratio	0.49	0.54	0.18	0.71		0.03	0.10		0.41	0.22
Control Delay	33.9	12.7	36.4	21.9		22.8	0.5		28.6	2.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	33.9	12.7	36.4	21.9		22.8	0.5		28.6	2.9
LOS	C	B	D	C		C	A		C	A
Approach Delay		15.4		22.4		4.7			16.7	
Approach LOS		B		C		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 64.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 17.9
 Intersection LOS: B
 Intersection Capacity Utilization 56.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



PM 2035 Base MTP

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	968	10	30	702	110	5	5	40	100	5	90
Future Volume (veh/h)	140	968	10	30	702	110	5	5	40	100	5	90
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	152	1052	11	33	763	120	5	5	43	109	5	98
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	191	1348	14	57	920	145	68	47	636	91	2	636
Arrive On Green	0.11	0.37	0.37	0.03	0.30	0.30	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	3603	38	1781	3076	484	2	118	1585	9	6	1585
Grp Volume(v), veh/h	152	519	544	33	441	442	10	0	43	114	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1783	120	0	1585	15	0	1585
Q Serve(g_s), s	6.7	20.8	20.8	1.5	18.6	18.6	0.1	0.0	1.3	0.2	0.0	3.2
Cycle Q Clear(g_c), s	6.7	20.8	20.8	1.5	18.6	18.6	32.4	0.0	1.3	32.4	0.0	3.2
Prop In Lane	1.00		0.02	1.00		0.27	0.50		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	191	665	697	57	531	533	115	0	636	93	0	636
V/C Ratio(X)	0.80	0.78	0.78	0.57	0.83	0.83	0.09	0.00	0.07	1.22	0.00	0.15
Avail Cap(c_a), veh/h	351	996	1045	152	798	801	116	0	637	94	0	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.1	22.3	22.3	38.5	26.3	26.3	20.2	0.0	14.8	39.6	0.0	15.4
Incr Delay (d2), s/veh	7.3	2.3	2.2	8.7	4.6	4.6	0.3	0.0	0.0	164.8	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	8.6	9.0	0.8	8.2	8.2	0.1	0.0	0.5	6.1	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	24.7	24.6	47.2	31.0	31.0	20.6	0.0	14.9	204.4	0.0	15.5
LnGrp LOS	D	C	C	D	C	C	C	A	B	F	A	B
Approach Vol, veh/h		1215			916			53				212
Approach Delay, s/veh		26.8			31.6			16.0				117.1
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	36.0		37.0	13.8	30.0		37.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	6.9	45.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	3.5	22.8		34.4	8.7	20.6		34.4				
Green Ext Time (p_c), s	0.0	4.9		0.0	0.3	3.6		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				36.4								
HCM 6th LOS				D								

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1098	812	20	5	20
Future Vol, veh/h	30	1098	812	20	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	33	1193	883	22	5	22

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	905	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	747	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	747	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach

	EB	WB	SB
HCM Control Delay, s	0.3	0	18.9
HCM LOS			C

Minor Lane/Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	747	-	-	-	287
HCM Lane V/C Ratio	0.044	-	-	-	0.095
HCM Control Delay (s)	10	-	-	-	18.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

PM 2035 Base MTP
9: North River Rd & Riverview Way

HCM 6th TWSC

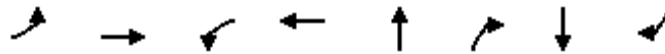
Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1180	0	0	860	10	0	0	0	20	0	10
Future Vol, veh/h	30	1180	0	0	860	10	0	0	0	20	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	1283	0	0	935	11	0	0	0	22	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	946	0	0	1283	0	0	-	-	642	1649	2290	473
Stage 1	-	-	-	-	-	-	-	-	-	941	941	-
Stage 2	-	-	-	-	-	-	-	-	-	708	1349	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	721	-	-	537	-	-	0	0	417	65	39	538
Stage 1	-	-	-	-	-	-	0	0	-	283	340	-
Stage 2	-	-	-	-	-	-	0	0	-	392	217	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	721	-	-	537	-	-	-	-	417	63	37	538
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	63	37	-
Stage 1	-	-	-	-	-	-	-	-	-	270	340	-
Stage 2	-	-	-	-	-	-	-	-	-	374	207	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	67.2
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	721	-	-	537	-	-	89
HCM Lane V/C Ratio	-	0.045	-	-	-	-	-	0.366
HCM Control Delay (s)	-	0	10.2	-	-	0	-	67.2
HCM Lane LOS	-	A	B	-	-	A	-	F
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.4

LOS Engineering, Inc.

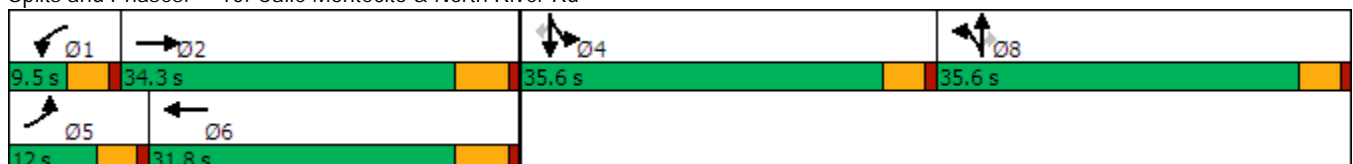


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	160	942	10	658	5	40	5	70
Future Volume (vph)	160	942	10	658	5	40	5	70
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.2	5.2	27.1	10.4	10.4	15.0	15.0
Actuated g/C Ratio	0.10	0.48	0.06	0.34	0.13	0.13	0.19	0.19
v/c Ratio	1.02	0.62	0.10	0.82	0.17	0.14	0.57	0.20
Control Delay	114.8	22.2	45.1	33.0	32.9	1.0	37.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.8	22.2	45.1	33.0	32.9	1.0	37.5	3.4
LOS	F	C	D	C	C	A	D	A
Approach Delay		35.5		33.2	16.0		27.8	
Approach LOS		D		C	B		C	

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 80.4
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 33.2
 Intersection LOS: C
 Intersection Capacity Utilization 63.1%
 ICU Level of Service B
 Analysis Period (min) 15

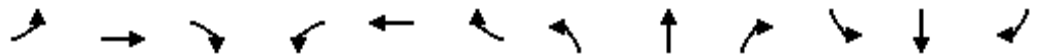
Splits and Phases: 10: Calle Montecito & North River Rd



PM 2035 Base MTP

10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	942	10	10	658	230	30	5	40	170	5	70
Future Volume (veh/h)	160	942	10	10	658	230	30	5	40	170	5	70
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	174	1024	11	11	715	250	33	5	43	185	5	76
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	211	1572	17	25	858	300	147	22	150	259	7	237
Arrive On Green	0.12	0.44	0.44	0.01	0.33	0.33	0.09	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	3602	39	1781	2582	903	1557	236	1585	1737	47	1585
Grp Volume(v), veh/h	174	505	530	11	492	473	38	0	43	190	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1863	1781	1777	1708	1793	0	1585	1784	0	1585
Q Serve(g_s), s	6.1	14.2	14.2	0.4	16.2	16.2	1.2	0.0	1.6	6.4	0.0	2.7
Cycle Q Clear(g_c), s	6.1	14.2	14.2	0.4	16.2	16.2	1.2	0.0	1.6	6.4	0.0	2.7
Prop In Lane	1.00		0.02	1.00		0.53	0.87		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	211	776	813	25	590	567	170	0	150	266	0	237
V/C Ratio(X)	0.83	0.65	0.65	0.44	0.83	0.83	0.22	0.00	0.29	0.71	0.00	0.32
Avail Cap(c_a), veh/h	211	801	840	140	731	703	876	0	774	871	0	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	14.1	14.1	31.0	19.6	19.6	26.6	0.0	26.7	25.7	0.0	24.1
Incr Delay (d2), s/veh	22.9	1.8	1.7	12.0	6.8	7.1	0.7	0.0	1.0	3.5	0.0	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	3.8	5.4	5.6	0.2	7.2	6.9	0.5	0.0	0.6	2.8	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	15.9	15.8	43.1	26.4	26.6	27.2	0.0	27.8	29.2	0.0	24.9
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1209			976			81				266
Approach Delay, s/veh		20.8			26.7			27.5				28.0
Approach LOS		C			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	33.4		14.1	12.0	26.8		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.4	16.2		8.4	8.1	18.2		3.6				
Green Ext Time (p_c), s	0.0	3.8		1.0	0.0	2.9		0.3				

Intersection Summary

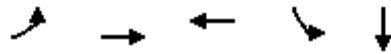
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

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

PM 2035 Base MTP
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↗	↖	↗		
Traffic Volume (vph)	125	1037	829	60	0		
Future Volume (vph)	125	1037	829	60	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	19.0	54.9	45.4	35.6	35.6	9.5	35.6
Total Split (%)	19.0%	54.9%	45.4%	35.6%	35.6%	10%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effect Green (s)	11.0	37.4	25.5	11.4	11.4		
Actuated g/C Ratio	0.18	0.60	0.41	0.18	0.18		
v/c Ratio	0.44	0.53	0.69	0.25	0.19		
Control Delay	34.1	8.8	20.2	27.6	0.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	34.1	8.8	20.2	27.6	0.9		
LOS	C	A	C	C	A		
Approach Delay		11.6	20.2		11.6		
Approach LOS		B	C		B		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 62.8
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 15.1
 Intersection LOS: B
 Intersection Capacity Utilization 52.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 11: Redondo Dr & North River Rd

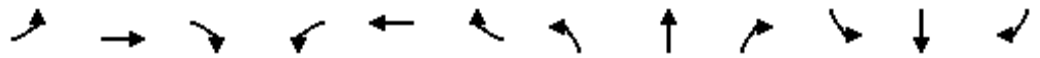


LOS Engineering, Inc.

PM 2035 Base MTP

11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕		↖	↕	
Traffic Volume (veh/h)	125	1037	0	0	829	80	0	0	0	60	0	89
Future Volume (veh/h)	125	1037	0	0	829	80	0	0	0	60	0	89
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	136	1127	0	0	901	87	0	0	0	65	0	97
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	2088	0	4	1258	121	0	253	0	403	0	214
Arrive On Green	0.10	0.59	0.00	0.00	0.38	0.38	0.00	0.00	0.00	0.14	0.00	0.14
Sat Flow, veh/h	1781	3647	0	1781	3274	316	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	136	1127	0	0	489	499	0	0	0	65	0	97
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1813	0	1870	0	1781	0	1585
Q Serve(g_s), s	3.3	8.5	0.0	0.0	10.4	10.4	0.0	0.0	0.0	1.5	0.0	2.5
Cycle Q Clear(g_c), s	3.3	8.5	0.0	0.0	10.4	10.4	0.0	0.0	0.0	1.5	0.0	2.5
Prop In Lane	1.00		0.00	1.00		0.17	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	2088	0	4	683	697	0	253	0	403	0	214
V/C Ratio(X)	0.75	0.54	0.00	0.00	0.72	0.72	0.00	0.00	0.00	0.16	0.00	0.45
Avail Cap(c_a), veh/h	582	3860	0	201	1549	1581	0	1306	0	1366	0	1071
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	5.5	0.0	0.0	11.6	11.6	0.0	0.0	0.0	17.2	0.0	17.7
Incr Delay (d2), s/veh	6.0	0.2	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.2	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.9	0.0	0.0	3.4	3.5	0.0	0.0	0.0	0.5	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	5.7	0.0	0.0	13.0	13.0	0.0	0.0	0.0	17.4	0.0	19.2
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		1263			988			0				162
Approach Delay, s/veh		7.9			13.0			0.0				18.5
Approach LOS		A			B							B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	32.8		11.6	9.0	23.7		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.0	48.2		30.0	14.5	38.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	10.5		4.5	5.3	12.4		0.0				
Green Ext Time (p_c), s	0.0	6.9		0.6	0.3	4.7		0.0				

Intersection Summary

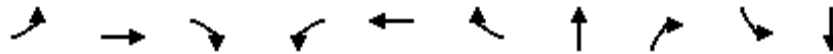
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

PM 2035 Base MTP
12: College Blvd & North River Rd

Timings

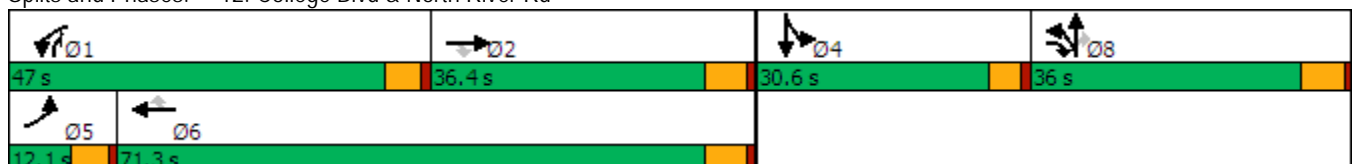


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	540	486	1270	448	70	40	1450	30	50
Future Volume (vph)	30	540	486	1270	448	70	40	1450	30	50
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	12.1	36.4	36.0	47.0	71.3	71.3	36.0	47.0	30.6	30.6
Total Split (%)	8.1%	24.3%	24.0%	31.3%	47.5%	47.5%	24.0%	31.3%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.7	25.8	57.8	42.4	66.6	66.6	30.6	78.8	11.5	11.5
Actuated g/C Ratio	0.05	0.20	0.45	0.33	0.52	0.52	0.24	0.61	0.09	0.09
v/c Ratio	0.37	0.83	0.60	1.23	0.27	0.09	1.09	0.80	0.21	0.36
Control Delay	75.6	61.5	9.9	147.9	20.4	3.3	116.4	15.2	58.7	59.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.6	61.5	9.9	147.9	20.4	3.3	116.4	15.2	58.7	59.7
LOS	E	E	A	F	C	A	F	B	E	E
Approach Delay		38.2			110.3		38.0			59.3
Approach LOS		D			F		D			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 129.3
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 65.3
 Intersection Capacity Utilization 95.0%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F
























Splits and Phases: 12: College Blvd & North River Rd



PM 2035 Base MTP

12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	540	486	1270	448	70	382	40	1450	30	50	5
Future Volume (veh/h)	30	540	486	1270	448	70	382	40	1450	30	50	5
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	33	587	528	1380	487	76	415	43	1576	33	54	5
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	48	835	740	1112	1884	840	376	39	1545	85	80	7
Arrive On Green	0.03	0.24	0.24	0.32	0.53	0.53	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1621	168	2790	1781	1686	156
Grp Volume(v), veh/h	33	587	528	1380	487	76	458	0	1576	33	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1789	0	1395	1781	0	1842
Q Serve(g_s), s	2.4	19.7	30.6	41.9	9.7	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Cycle Q Clear(g_c), s	2.4	19.7	30.6	41.9	9.7	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	0.91		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	48	835	740	1112	1884	840	415	0	1545	85	0	87
V/C Ratio(X)	0.69	0.70	0.71	1.24	0.26	0.09	1.10	0.00	1.02	0.39	0.00	0.67
Avail Cap(c_a), veh/h	96	835	740	1112	1884	840	415	0	1545	356	0	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	45.6	26.6	44.1	16.7	15.1	50.0	0.0	29.0	60.2	0.0	61.0
Incr Delay (d2), s/veh	16.4	2.7	3.2	116.1	0.1	0.0	75.2	0.0	28.1	2.9	0.0	8.7
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	1.3	9.0	18.2	35.7	4.0	1.1	22.1	0.0	28.9	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.2	48.3	29.9	160.2	16.7	15.1	125.1	0.0	57.1	63.1	0.0	69.7
LnGrp LOS	E	D	C	F	B	B	F	A	F	E	A	E
Approach Vol, veh/h		1148			1943			2034				92
Approach Delay, s/veh		40.7			118.6			72.4				67.3
Approach LOS		D			F			E				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.0	36.4		10.8	8.6	74.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	41.9	30.6		26.0	7.0	65.5		30.2				
Max Q Clear Time (g_c+I1), s	43.9	32.6		6.1	4.4	11.7		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	2.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				82.6								
HCM 6th LOS				F								

PM 2035 Base MTP
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	30	90	110	1882	1646	60
Future Volume (vph)	30	90	110	1882	1646	60
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	16.9	6.6	66.4	51.9	51.9
Actuated g/C Ratio	0.14	0.21	0.08	0.83	0.65	0.65
v/c Ratio	0.13	0.29	0.42	0.70	0.78	0.06
Control Delay	31.0	23.6	42.3	9.0	16.3	6.0
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	31.0	23.6	42.3	9.3	16.3	6.0
LOS	C	C	D	A	B	A
Approach Delay	25.5			11.1	16.0	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 79.9
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.78
 Intersection Signal Delay: 13.7
 Intersection LOS: B
 Intersection Capacity Utilization 67.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



PM 2035 Base MTP
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	90	110	1882	1646	60
Future Volume (veh/h)	30	90	110	1882	1646	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	33	98	120	2046	1789	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	188	290	268	2650	2114	943
Arrive On Green	0.11	0.11	0.08	0.75	0.60	0.60
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	33	98	120	2046	1789	65
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.2	3.8	2.3	24.1	28.7	1.2
Cycle Q Clear(g_c), s	1.2	3.8	2.3	24.1	28.7	1.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	188	290	268	2650	2114	943
V/C Ratio(X)	0.18	0.34	0.45	0.77	0.85	0.07
Avail Cap(c_a), veh/h	714	758	322	3134	2544	1135
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	28.5	24.8	30.8	5.3	11.5	6.0
Incr Delay (d2), s/veh	0.4	0.7	1.2	1.0	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	1.0	5.3	9.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.9	25.5	32.0	6.4	14.0	6.0
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	131			2166	1854	
Approach Delay, s/veh	26.4			7.8	13.7	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		57.9		12.0	10.5	47.4
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		26.1		5.8	4.3	30.7
Green Ext Time (p_c), s		17.8		0.5	0.1	10.9
Intersection Summary						
HCM 6th Ctrl Delay			11.0			
HCM 6th LOS			B			

PM 2035 Base MTP
14: College Blvd & Adams St

Timings

























Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	168	20	60	10	40	90	1774	50	1607	139
Future Volume (vph)	168	20	60	10	40	90	1774	50	1607	139
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	11.9	62.1	11.2	61.4	61.4
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	10.8%	56.5%	10.2%	55.8%	55.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	19.2	19.2		19.2	19.2	6.9	57.0	6.1	53.5	53.5
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.07	0.60	0.06	0.56	0.56
v/c Ratio	0.69	0.30		0.29	0.11	0.77	0.67	0.48	0.88	0.16
Control Delay	49.6	11.3		35.4	2.2	83.3	16.2	61.7	25.9	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	2.3	0.0
Total Delay	49.6	11.3		35.4	2.2	83.3	16.2	61.7	28.2	7.3
LOS	D	B		D	A	F	B	E	C	A
Approach Delay		34.4		23.4			19.3		27.5	
Approach LOS		C		C			B		C	

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 95.4
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 24.0
 Intersection LOS: C
 Intersection Capacity Utilization 78.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	20	90	60	10	40	90	1774	100	50	1607	139
Future Volume (veh/h)	168	20	90	60	10	40	90	1774	100	50	1607	139
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	183	22	98	65	11	43	98	1928	109	54	1747	151
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	283	78	346	294	45	412	117	2722	153	69	1861	830
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.07	0.55	0.55	0.04	0.52	0.52
Sat Flow, veh/h	1350	299	1332	883	173	1585	1781	4945	279	1781	3554	1585
Grp Volume(v), veh/h	183	0	120	76	0	43	98	1325	712	54	1747	151
Grp Sat Flow(s),veh/h/ln	1350	0	1631	1056	0	1585	1781	1702	1820	1781	1777	1585
Q Serve(g_s), s	13.7	0.0	6.1	4.5	0.0	2.1	5.6	29.6	29.8	3.1	47.6	5.2
Cycle Q Clear(g_c), s	24.2	0.0	6.1	10.6	0.0	2.1	5.6	29.6	29.8	3.1	47.6	5.2
Prop In Lane	1.00		0.82	0.86		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	423	339	0	412	117	1874	1002	69	1861	830
V/C Ratio(X)	0.65	0.00	0.28	0.22	0.00	0.10	0.84	0.71	0.71	0.78	0.94	0.18
Avail Cap(c_a), veh/h	350	0	505	405	0	490	117	1874	1002	105	1910	852
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.4	0.0	30.6	34.1	0.0	29.1	47.8	17.1	17.2	49.3	23.1	13.0
Incr Delay (d2), s/veh	2.9	0.0	0.4	0.3	0.0	0.1	38.5	1.2	2.4	18.2	9.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	2.4	1.6	0.0	0.8	3.7	11.2	12.4	1.7	21.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	0.0	31.0	34.5	0.0	29.2	86.3	18.4	19.5	67.5	32.6	13.1
LnGrp LOS	D	A	C	C	A	C	F	B	B	E	C	B
Approach Vol, veh/h		303			119			2135			1952	
Approach Delay, s/veh		39.6			32.6			21.9			32.0	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.1	62.7		31.5	11.9	60.0		31.5				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.1	56.3		* 32	6.8	55.6		* 32				
Max Q Clear Time (g_c+I1), s	5.1	31.8		26.2	7.6	49.6		12.6				
Green Ext Time (p_c), s	0.0	12.6		0.6	0.0	4.5		0.4				

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

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

PM 2035 Base MTP
15: College Blvd & Via Cupeno

Timings



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	10	10	10	510	1681	5	1470
Future Volume (vph)	10	10	10	510	1681	5	1470
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	31.0	81.9	11.1	62.0
Total Split (%)	22.0%	16.0%	16.0%	20.7%	54.6%	7.4%	41.3%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	25.6	12.1	12.1	25.2	81.8	6.0	53.5
Actuated g/C Ratio	0.18	0.09	0.09	0.18	0.59	0.04	0.39
v/c Ratio	0.87	0.56	0.04	0.89	0.66	0.06	0.90
Control Delay	60.7	75.7	0.3	73.0	21.5	69.6	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	75.7	0.3	73.0	21.5	69.6	47.5
LOS	E	E	A	E	C	E	D
Approach Delay	60.7	67.3			32.9		47.5
Approach LOS	E	E			C		D

Intersection Summary

Cycle Length: 150	
Actuated Cycle Length: 138.5	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 42.0	Intersection LOS: D
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	




















Splits and Phases: 15: College Blvd & Via Cupeno



LOS Engineering, Inc.

PM 2035 Base MTP
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	313	10	220	70	10	10	510	1681	120	5	1470	137
Future Volume (veh/h)	313	10	220	70	10	10	510	1681	120	5	1470	137
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	340	11	239	76	11	11	554	1827	130	5	1598	149
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	368	14	315	98	14	100	620	2700	192	14	1820	170
Arrive On Green	0.21	0.21	0.21	0.06	0.06	0.06	0.18	0.55	0.55	0.01	0.38	0.38
Sat Flow, veh/h	1781	70	1526	1565	227	1585	3456	4867	345	1781	4752	443
Grp Volume(v), veh/h	340	0	250	87	0	11	554	1276	681	5	1144	603
Grp Sat Flow(s),veh/h/ln	1781	0	1596	1792	0	1585	1728	1702	1808	1781	1702	1791
Q Serve(g_s), s	24.4	0.0	19.2	6.2	0.0	0.9	20.4	34.7	35.0	0.4	40.6	40.7
Cycle Q Clear(g_c), s	24.4	0.0	19.2	6.2	0.0	0.9	20.4	34.7	35.0	0.4	40.6	40.7
Prop In Lane	1.00		0.96	0.87		1.00	1.00		0.19	1.00		0.25
Lane Grp Cap(c), veh/h	368	0	329	113	0	100	620	1889	1003	14	1304	686
V/C Ratio(X)	0.92	0.00	0.76	0.77	0.00	0.11	0.89	0.68	0.68	0.37	0.88	0.88
Avail Cap(c_a), veh/h	383	0	343	262	0	231	688	1965	1044	82	1444	760
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	0.0	48.6	60.0	0.0	57.5	52.2	20.6	20.7	64.2	37.3	37.3
Incr Delay (d2), s/veh	27.4	0.0	9.1	10.6	0.0	0.5	13.3	0.9	1.7	15.8	6.0	10.8
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	13.6	0.0	8.5	3.2	0.0	0.4	10.0	13.7	14.9	0.2	17.8	19.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.0	0.0	57.7	70.7	0.0	58.0	65.4	21.5	22.4	80.0	43.3	48.1
LnGrp LOS	E	A	E	E	A	E	E	C	C	F	D	D
Approach Vol, veh/h		590			98			2511			1752	
Approach Delay, s/veh		69.4			69.3			31.4			45.1	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	79.0		31.9	28.4	56.6		13.2				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	75.1		28.0	25.9	55.2		19.0				
Max Q Clear Time (g_c+I1), s	2.4	37.0		26.4	22.4	42.7		8.2				
Green Ext Time (p_c), s	0.0	14.3		0.5	1.0	7.1		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				41.5								
HCM 6th LOS				D								

PM 2035 Base MTP
16: College Blvd & SR-76

Timings

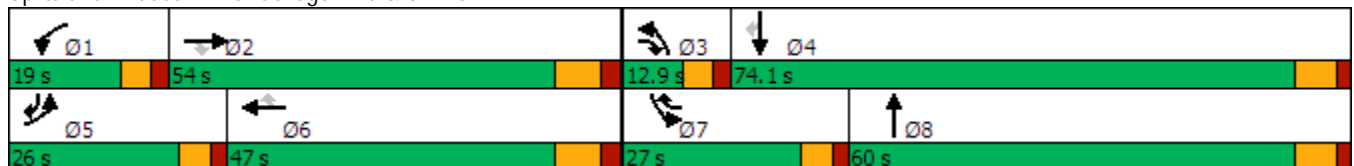


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	658	1580	70	390	1070	740	60	883	651	880	519
Future Volume (vph)	658	1580	70	390	1070	740	60	883	651	880	519
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	26.0	54.0	12.9	19.0	47.0	27.0	12.9	60.0	27.0	74.1	26.0
Total Split (%)	16.3%	33.8%	8.1%	11.9%	29.4%	16.9%	8.1%	37.5%	16.9%	46.3%	16.3%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	20.3	46.0	61.0	13.3	39.0	68.3	7.0	53.2	21.3	67.5	94.6
Actuated g/C Ratio	0.13	0.29	0.38	0.08	0.24	0.43	0.04	0.33	0.13	0.42	0.59
v/c Ratio	1.64	1.18	0.11	1.49	0.94	1.09	0.43	1.24	1.55	0.64	0.58
Control Delay	340.0	135.2	2.4	283.6	73.6	99.1	83.7	156.2	300.4	39.1	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	340.0	135.2	2.4	283.6	73.6	99.1	83.7	156.2	300.4	39.1	20.4
LOS	F	F	A	F	E	F	F	F	F	D	C
Approach Delay		189.6			119.4			153.0		117.4	
Approach LOS		F			F			F		F	

Intersection Summary


































Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.64
 Intersection Signal Delay: 145.1
 Intersection LOS: F
 Intersection Capacity Utilization 120.2%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 16: College Blvd & SR-76



PM 2035 Base MTP
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	658	1580	70	390	1070	740	60	883	430	651	880	519
Future Volume (veh/h)	658	1580	70	390	1070	740	60	883	430	651	880	519
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	715	1717	76	424	1163	804	65	960	467	708	957	564
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	438	1468	503	287	1245	597	102	775	371	460	1550	892
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.03	0.33	0.33	0.13	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2332	1114	3456	3554	1585
Grp Volume(v), veh/h	715	1717	76	424	1163	804	65	727	700	708	957	564
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1670	1728	1777	1585
Q Serve(g_s), s	20.3	46.0	5.5	13.3	35.7	39.0	3.0	53.2	53.2	21.3	33.3	38.6
Cycle Q Clear(g_c), s	20.3	46.0	5.5	13.3	35.7	39.0	3.0	53.2	53.2	21.3	33.3	38.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	438	1468	503	287	1245	597	102	591	555	460	1550	892
V/C Ratio(X)	1.63	1.17	0.15	1.48	0.93	1.35	0.64	1.23	1.26	1.54	0.62	0.63
Avail Cap(c_a), veh/h	438	1468	503	287	1245	597	156	591	555	460	1550	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	57.0	39.2	73.3	59.2	49.8	76.8	53.4	53.4	69.3	34.8	23.7
Incr Delay (d2), s/veh	294.1	84.0	0.1	232.1	12.9	166.6	6.4	118.2	131.2	253.2	0.7	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.9	31.2	2.2	15.2	16.9	51.4	1.4	43.1	42.5	25.6	14.7	14.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	363.9	141.0	39.3	305.5	72.1	216.5	83.2	171.6	184.6	322.6	35.6	25.2
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	D	C
Approach Vol, veh/h		2508			2391			1492			2229	
Approach Delay, s/veh		201.5			162.0			173.8			124.1	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	54.0	10.4	76.6	26.0	47.0	27.0	60.0				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 13	46.0	* 7.2	67.3	* 20	39.0	* 21	53.2				
Max Q Clear Time (g_c+I1), s	15.3	48.0	5.0	40.6	22.3	41.0	23.3	55.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	165.8
HCM 6th LOS	F

Notes

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

PM 2035 Base MTP
 17: North River Rd/Vandergrift Blvd

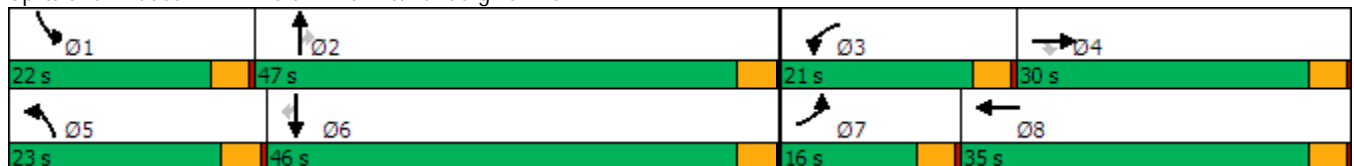
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	90	110	150	569	130	280	845	925	310	1079	70	
Future Volume (vph)	90	110	150	569	130	280	845	925	310	1079	70	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	16.0	30.0	30.0	21.0	35.0	23.0	47.0	47.0	22.0	46.0	46.0	
Total Split (%)	13.3%	25.0%	25.0%	17.5%	29.2%	19.2%	39.2%	39.2%	18.3%	38.3%	38.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	10.3	15.7	15.7	17.1	22.4	19.1	43.1	43.1	18.1	42.1	42.1	
Actuated g/C Ratio	0.09	0.14	0.14	0.16	0.20	0.17	0.39	0.39	0.16	0.38	0.38	
v/c Ratio	0.59	0.45	0.45	1.16	0.76	0.99	0.46	1.08	1.16	0.87	0.11	
Control Delay	64.1	47.9	10.2	134.1	48.4	96.5	26.5	71.3	145.7	40.3	1.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	64.1	47.9	10.2	134.1	48.4	96.5	26.5	71.3	145.7	40.3	1.6	
LOS	E	D	B	F	D	F	C	E	F	D	A	
Approach Delay		35.9			106.5		56.3			60.8		
Approach LOS		D			F		E			E		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 110
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 65.2
 Intersection LOS: E
 Intersection Capacity Utilization 90.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 17: North River Rd/Vandergrift Blvd


























LOS Engineering, Inc.

PM 2035 Base MTP

17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

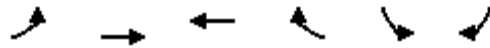
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	110	150	569	130	140	280	845	925	310	1079	70
Future Volume (veh/h)	90	110	150	569	130	140	280	845	925	310	1079	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	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	98	120	163	618	141	152	304	918	1005	337	1173	76
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	124	238	202	545	178	191	314	2038	633	298	1385	618
Arrive On Green	0.07	0.13	0.13	0.16	0.22	0.22	0.18	0.40	0.40	0.17	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	3456	823	887	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	98	120	163	618	0	293	304	918	1005	337	1173	76
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1711	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	5.8	6.4	10.8	17.0	0.0	17.5	18.3	14.2	43.0	18.0	32.4	3.3
Cycle Q Clear(g_c), s	5.8	6.4	10.8	17.0	0.0	17.5	18.3	14.2	43.0	18.0	32.4	3.3
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	238	202	545	0	369	314	2038	633	298	1385	618
V/C Ratio(X)	0.79	0.50	0.81	1.13	0.00	0.79	0.97	0.45	1.59	1.13	0.85	0.12
Avail Cap(c_a), veh/h	198	451	383	545	0	492	314	2038	633	298	1385	618
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	43.8	45.7	45.4	0.0	40.0	44.1	23.7	32.4	44.9	29.9	21.1
Incr Delay (d2), s/veh	10.7	1.6	7.4	80.8	0.0	6.4	41.9	0.7	272.3	92.8	6.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.1	4.6	13.3	0.0	7.9	11.6	5.8	63.7	15.5	14.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	45.5	53.1	126.2	0.0	46.4	86.0	24.4	304.7	137.6	36.5	21.5
LnGrp LOS	E	D	D	F	A	D	F	C	F	F	D	C
Approach Vol, veh/h		381			911			2227			1586	
Approach Delay, s/veh		52.5			100.5			159.3			57.3	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	47.0	21.0	17.7	23.0	46.0	11.5	27.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	18.0	43.0	17.0	26.0	19.0	42.0	12.0	31.0				
Max Q Clear Time (g_c+I1), s	20.0	45.0	19.0	12.8	20.3	34.4	7.8	19.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	4.7	0.1	1.3				
Intersection Summary												
HCM 6th Ctrl Delay	109.1											
HCM 6th LOS	F											

Appendix P

Horizon Year 2035 MTP + Project Intersection LOS Worksheets

AM 2035 Base MTP + Project
1: SR-76 & Douglas Dr

Timings

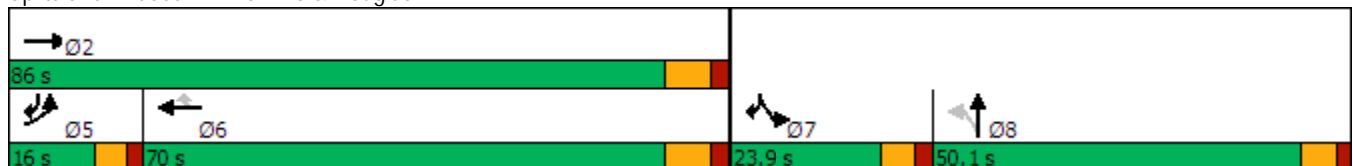


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↗	↕	↕	↖	↗	↖↗	
Traffic Volume (vph)	300	1110	2170	240	280	610	
Future Volume (vph)	300	1110	2170	240	280	610	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	10.3	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	16.0	33.0	33.0	33.0	22.1		50.1
Total Split (s)	16.0	86.0	70.0	70.0	23.9		50.1
Total Split (%)	10.0%	53.8%	43.8%	43.8%	14.9%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	10.3	78.0	62.0	62.0	17.8	34.2	
Actuated g/C Ratio	0.09	0.71	0.56	0.56	0.16	0.31	
v/c Ratio	1.02	0.48	1.18	0.26	1.06	0.50	
Control Delay	104.1	7.8	112.3	3.0	115.6	3.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	104.1	7.8	112.3	3.0	115.6	3.8	
LOS	F	A	F	A	F	A	
Approach Delay		28.3	101.4				
Approach LOS		C	F				

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 67.7
 Intersection LOS: E
 Intersection Capacity Utilization 98.8%
 ICU Level of Service F
 Analysis Period (min) 15




















Splits and Phases: 1: SR-76 & Douglas Dr



LOS Engineering, Inc.

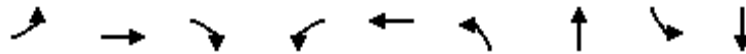
AM 2035 Base MTP + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	1110	0	0	2170	240	0	0	0	280	0	610
Future Volume (veh/h)	300	1110	0	0	2170	240	0	0	0	280	0	610
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	326	1207	0	0	2359	261	0	0	0	304	0	663
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	324	2522	0	0	2005	894	0	2	0	289	0	0
Arrive On Green	0.09	0.71	0.00	0.00	0.56	0.56	0.00	0.00	0.00	0.16	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	304	
Grp Volume(v), veh/h	326	1207	0	0	2359	261	0	0	0	304	113.8	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	10.3	16.4	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Cycle Q Clear(g_c), s	10.3	16.4	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	324	2522	0	0	2005	894	0	2	0	289		
V/C Ratio(X)	1.01	0.48	0.00	0.00	1.18	0.29	0.00	0.00	0.00	1.05		
Avail Cap(c_a), veh/h	324	2522	0	0	2005	894	0	749	0	289		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	49.8	7.0	0.0	0.0	23.9	12.5	0.0	0.0	0.0	46.1		
Incr Delay (d2), s/veh	51.7	0.1	0.0	0.0	85.1	0.2	0.0	0.0	0.0	67.8		
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		
%ile BackOfQ(50%),veh/ln	6.8	5.5	0.0	0.0	47.6	3.3	0.0	0.0	0.0	13.3		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	7.2	0.0	0.0	109.0	12.7	0.0	0.0	0.0	113.8		
LnGrp LOS	F	A	A	A	F	B	A	A	A	F		
Approach Vol, veh/h		1533			2620			0				
Approach Delay, s/veh		27.2			99.4			0.0				
Approach LOS		C			F							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		86.0			16.0	70.0	23.9	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		78.0			* 10	62.0	17.8	44.0				
Max Q Clear Time (g_c+I1), s		18.4			12.3	64.0	19.8	0.0				
Green Ext Time (p_c), s		7.8			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					75.6							
HCM 6th LOS					E							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM 2035 Base MTP + Project
2: Douglas Dr & Mission Ave

Timings

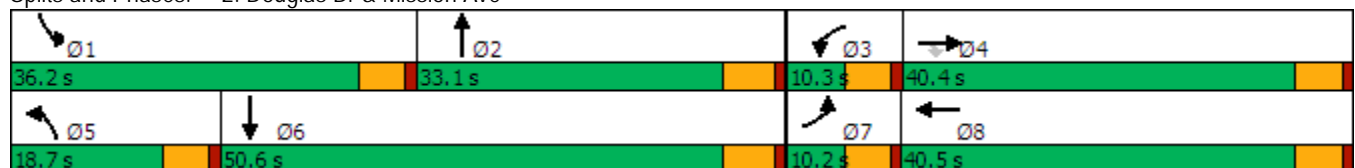


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	80	310	70	60	530	130	360	450	820
Future Volume (vph)	80	310	70	60	530	130	360	450	820
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.2	40.4	40.4	10.3	40.5	18.7	33.1	36.2	50.6
Total Split (%)	8.5%	33.7%	33.7%	8.6%	33.8%	15.6%	27.6%	30.2%	42.2%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.2	30.3	30.3	5.3	33.0	12.4	19.9	31.6	39.1
Actuated g/C Ratio	0.05	0.28	0.28	0.05	0.30	0.11	0.18	0.29	0.36
v/c Ratio	0.53	0.34	0.14	0.76	0.89	0.70	0.62	0.95	0.78
Control Delay	66.5	32.5	0.5	102.9	42.5	68.1	45.6	70.5	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.5	32.5	0.5	102.9	42.5	68.1	45.6	70.5	36.9
LOS	E	C	A	F	D	E	D	E	D
Approach Delay		33.5			46.2		51.4		48.0
Approach LOS		C			D		D		D

Intersection Summary































Cycle Length: 120
 Actuated Cycle Length: 108.8
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 46.0
 Intersection LOS: D
 Intersection Capacity Utilization 84.0%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM 2035 Base MTP + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 	 	 	 		 	 		 	 	
Traffic Volume (veh/h)	80	310	70	60	530	380	130	360	10	450	820	90
Future Volume (veh/h)	80	310	70	60	530	380	130	360	10	450	820	90
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	87	337	76	65	576	413	141	391	11	489	891	98
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	1121	500	83	628	450	175	493	14	518	1073	118
Arrive On Green	0.04	0.32	0.32	0.05	0.32	0.32	0.10	0.14	0.14	0.29	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	1781	1976	1417	1781	3530	99	1781	3228	355
Grp Volume(v), veh/h	87	337	76	65	518	471	141	196	206	489	490	499
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1615	1781	1777	1853	1781	1777	1806
Q Serve(g_s), s	2.6	7.4	3.6	3.7	29.0	29.0	8.0	11.1	11.1	27.7	26.3	26.3
Cycle Q Clear(g_c), s	2.6	7.4	3.6	3.7	29.0	29.0	8.0	11.1	11.1	27.7	26.3	26.3
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.05	1.00		0.20
Lane Grp Cap(c), veh/h	153	1121	500	83	565	514	175	248	259	518	591	600
V/C Ratio(X)	0.57	0.30	0.15	0.78	0.92	0.92	0.81	0.79	0.79	0.94	0.83	0.83
Avail Cap(c_a), veh/h	171	1203	537	90	603	549	234	469	489	536	770	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.4	26.8	25.4	48.7	33.9	33.9	45.6	43.0	43.0	35.8	31.8	31.8
Incr Delay (d2), s/veh	3.5	0.1	0.1	32.5	18.3	19.7	13.8	5.6	5.5	25.1	6.0	5.9
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	1.2	3.1	1.4	2.4	15.1	13.9	4.2	5.2	5.4	15.4	12.0	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.9	26.9	25.6	81.3	52.3	53.6	59.5	48.6	48.5	61.0	37.8	37.7
LnGrp LOS	D	C	C	F	D	D	E	D	D	E	D	D
Approach Vol, veh/h		500			1054			543			1478	
Approach Delay, s/veh		31.1			54.7			51.4			45.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.2	20.2	9.9	38.0	15.3	40.2	9.7	38.3				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	31.1	27.3	5.2	35.0	13.6	44.8	5.1	35.1				
Max Q Clear Time (g_c+I1), s	29.7	13.1	5.7	9.4	10.0	28.3	4.6	31.0				
Green Ext Time (p_c), s	0.3	1.3	0.0	1.9	0.1	4.2	0.0	1.9				
Intersection Summary												
HCM 6th Ctrl Delay			47.0									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

AM 2035 Base MTP + Project
3: Douglas Dr & El Camino Real

Timings

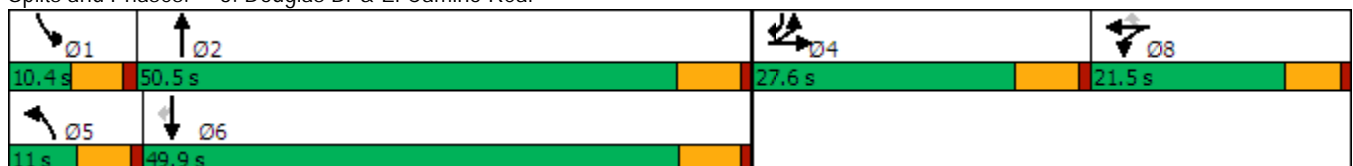


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	380	20	50	40	5	60	660	10	1260	1280
Future Volume (vph)	380	20	50	40	5	60	660	10	1260	1280
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	27.6	27.6		21.5	21.5	11.0	50.5	10.4	49.9	27.6
Total Split (%)	25.1%	25.1%		19.5%	19.5%	10.0%	45.9%	9.5%	45.4%	25.1%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	20.5	20.5	101.5	12.3	12.3	5.7	48.5	5.1	42.4	69.0
Actuated g/C Ratio	0.20	0.20	1.00	0.12	0.12	0.06	0.48	0.05	0.42	0.68
v/c Ratio	0.60	0.06	0.03	0.59	0.02	0.66	0.45	0.12	0.93	0.73
Control Delay	42.2	36.2	0.0	55.6	0.0	81.1	19.4	53.3	41.5	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	36.2	0.0	55.6	0.0	81.1	19.4	53.3	41.5	14.6
LOS	D	D	A	E	A	F	B	D	D	B
Approach Delay		37.3		53.6			24.3		28.0	
Approach LOS		D		D			C		C	

Intersection Summary
























Cycle Length: 110
 Actuated Cycle Length: 101.5
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 29.2
 Intersection LOS: C
 Intersection Capacity Utilization 71.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM 2035 Base MTP + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	20	50	80	40	5	60	660	40	10	1260	1280
Future Volume (veh/h)	380	20	50	80	40	5	60	660	40	10	1260	1280
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	413	22	0	87	43	5	65	717	43	11	1370	1391
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	522	282		111	55	145	84	1689	101	24	1643	1711
Arrive On Green	0.15	0.15	0.00	0.09	0.09	0.09	0.05	0.50	0.50	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1211	599	1585	1781	3406	204	1781	3554	2790
Grp Volume(v), veh/h	413	22	0	130	0	5	65	374	386	11	1370	1391
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1834	1781	1777	1395
Q Serve(g_s), s	10.8	0.9	0.0	6.6	0.0	0.3	3.4	12.6	12.6	0.6	31.6	36.1
Cycle Q Clear(g_c), s	10.8	0.9	0.0	6.6	0.0	0.3	3.4	12.6	12.6	0.6	31.6	36.1
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	522	282		165	0	145	84	881	909	24	1643	1711
V/C Ratio(X)	0.79	0.08		0.79	0.00	0.03	0.78	0.42	0.42	0.46	0.83	0.81
Avail Cap(c_a), veh/h	789	427		309	0	271	106	881	909	95	1664	1728
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	34.2	0.0	41.7	0.0	38.8	44.2	15.1	15.1	45.9	22.1	14.0
Incr Delay (d2), s/veh	3.2	0.1	0.0	8.0	0.0	0.1	23.8	0.3	0.3	13.5	3.8	3.1
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	4.7	0.4	0.0	3.3	0.0	0.1	2.0	4.9	5.1	0.3	13.3	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.6	34.3	0.0	49.7	0.0	38.9	68.0	15.4	15.4	59.4	25.9	17.1
LnGrp LOS	D	C		D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		435	A		135			825			2772	
Approach Delay, s/veh		41.2			49.3			19.6			21.6	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	52.7		20.4	9.8	49.5		14.1				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	44.3		21.4	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.6	14.6		12.8	5.4	38.1		8.6				
Green Ext Time (p_c), s	0.0	3.4		1.4	0.0	5.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM 2035 Base MTP + Project
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	80	5	110	10	5	50	1010	20	20	2240	80
Future Volume (vph)	80	5	110	10	5	50	1010	20	20	2240	80
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	82.4	21.0	11.5	83.5	30.1
Total Split (%)	20.8%	20.8%	20.8%	14.5%	14.5%	7.2%	56.8%	14.5%	7.9%	57.6%	20.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	11.0	11.0	11.0	6.8	6.8	5.0	82.1	89.7	6.0	78.2	95.4
Actuated g/C Ratio	0.09	0.09	0.09	0.06	0.06	0.04	0.68	0.74	0.05	0.65	0.79
v/c Ratio	0.30	0.30	0.47	0.11	0.31	0.74	0.46	0.02	0.25	1.06	0.07
Control Delay	56.3	56.2	15.0	60.0	28.9	108.1	12.2	0.1	66.2	60.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	56.2	15.0	60.0	28.9	108.1	12.2	0.1	66.2	60.0	1.0
LOS	E	E	B	E	C	F	B	A	E	E	A
Approach Delay		32.9			35.9		16.4			58.0	
Approach LOS		C			D		B			E	

Intersection Summary























Cycle Length: 145
 Actuated Cycle Length: 120.5
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 44.1
 Intersection LOS: D
 Intersection Capacity Utilization 87.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



AM 2035 Base MTP + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	110	10	5	30	50	1010	20	20	2240	80
Future Volume (veh/h)	80	5	110	10	5	30	50	1010	20	20	2240	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	0	120	11	5	33	54	1098	22	22	2435	87
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	344	0	153	72	9	56	69	2347	1110	39	2285	1172
Arrive On Green	0.10	0.00	0.10	0.04	0.04	0.04	0.04	0.66	0.66	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	91	0	120	11	0	38	54	1098	22	22	2435	87
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.8	0.0	8.9	0.7	0.0	2.8	3.6	18.3	0.5	1.5	77.3	1.8
Cycle Q Clear(g_c), s	2.8	0.0	8.9	0.7	0.0	2.8	3.6	18.3	0.5	1.5	77.3	1.8
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	0	153	72	0	65	69	2347	1110	39	2285	1172
V/C Ratio(X)	0.26	0.00	0.78	0.15	0.00	0.58	0.78	0.47	0.02	0.57	1.07	0.07
Avail Cap(c_a), veh/h	741	0	330	236	0	214	74	2347	1110	90	2285	1172
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.4	0.0	53.1	55.7	0.0	56.7	57.3	10.0	5.5	58.3	21.5	4.3
Incr Delay (d2), s/veh	0.4	0.0	8.5	1.0	0.0	8.1	37.8	0.1	0.0	12.6	39.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.9	0.3	0.0	1.3	2.4	6.8	0.2	0.8	41.4	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	0.0	61.6	56.7	0.0	64.8	95.1	10.2	5.5	70.9	60.7	4.3
LnGrp LOS	D	A	E	E	A	E	F	B	A	E	F	A
Approach Vol, veh/h		211			49			1174			2544	
Approach Delay, s/veh		56.9			63.0			14.0			58.8	
Approach LOS		E			E			B			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	85.6		16.7	10.1	83.5		9.9				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	6.1	76.2		25.0	5.0	77.3		15.9				
Max Q Clear Time (g_c+I1), s	3.5	20.3		10.9	5.6	79.3		4.8				
Green Ext Time (p_c), s	0.0	6.9		0.7	0.0	0.0		0.1				

Intersection Summary												
HCM 6th Ctrl Delay				45.5								
HCM 6th LOS				D								

Notes

User approved volume balancing among the lanes for turning movement.

AM 2035 Base MTP + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↕	↗	↖	↕↕	↗
Traffic Volume (vph)	20	5	130	80	5	10	1100	40	5	2130	40
Future Volume (vph)	20	5	130	80	5	10	1100	40	5	2130	40
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	73.0	73.0	10.4	83.4	83.4
Total Split (%)	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%	60.8%	60.8%	8.7%	69.5%	69.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		14.7	14.7		14.7	14.7	78.2	78.2	5.0	80.0	80.0
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.74	0.74	0.05	0.75	0.75
v/c Ratio		0.14	0.48		0.50	0.04	0.46	0.04	0.06	0.87	0.04
Control Delay		38.3	22.8		49.4	0.2	8.3	1.5	52.8	15.9	4.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		38.3	22.8		49.4	0.2	8.3	1.5	52.8	15.9	4.0
LOS		D	C		D	A	A	A	D	B	A
Approach Delay		25.3			44.2		8.1			15.8	
Approach LOS		C			D		A			B	

Intersection Summary






















Cycle Length: 120
 Actuated Cycle Length: 106.1
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 14.5
 Intersection LOS: B
 Intersection Capacity Utilization 85.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



AM 2035 Base MTP + Project
5: Douglas Dr & Rainer Way

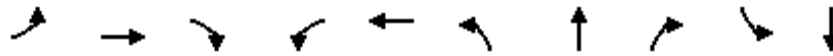
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	130	80	5	10	0	1100	40	5	2130	40
Future Volume (veh/h)	20	5	130	80	5	10	0	1100	40	5	2130	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	141	87	5	11	0	1196	43	5	2315	43
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	0	2	2	2	2	2
Cap, veh/h	54	7	423	58	2	423	0	2089	932	11	2271	1013
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.00	0.59	0.59	0.01	0.64	0.64
Sat Flow, veh/h	0	27	1585	0	7	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	27	0	141	92	0	11	0	1196	43	5	2315	43
Grp Sat Flow(s),veh/h/ln	27	0	1585	7	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	8.6	0.0	0.0	0.6	0.0	25.1	1.4	0.3	76.7	1.2
Cycle Q Clear(g_c), s	32.0	0.0	8.6	32.0	0.0	0.6	0.0	25.1	1.4	0.3	76.7	1.2
Prop In Lane	0.81		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	0	423	60	0	423	0	2089	932	11	2271	1013
V/C Ratio(X)	0.44	0.00	0.33	1.53	0.00	0.03	0.00	0.57	0.05	0.44	1.02	0.04
Avail Cap(c_a), veh/h	62	0	423	60	0	423	0	2089	932	74	2271	1013
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	0.0	35.4	59.0	0.0	32.5	0.0	15.4	10.5	59.4	21.6	8.0
Incr Delay (d2), s/veh	4.8	0.0	0.5	305.0	0.0	0.0	0.0	0.4	0.0	24.3	23.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.4	6.9	0.0	0.2	0.0	9.9	0.5	0.2	36.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	0.0	35.9	364.1	0.0	32.5	0.0	15.7	10.5	83.7	45.5	8.0
LnGrp LOS	E	A	D	F	A	C	A	B	B	F	F	A
Approach Vol, veh/h		168			103			1239			2363	
Approach Delay, s/veh		39.2			328.7			15.6			44.9	
Approach LOS		D			F			B			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	77.2		36.6		83.4		36.6				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	66.3		32.0		76.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	27.1		34.0		78.7		34.0				
Green Ext Time (p_c), s	0.0	7.8		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			42.8									
HCM 6th LOS			D									

LOS Engineering, Inc.

AM 2035 Base MTP + Project
6: Douglas Dr & North River Rd

Timings

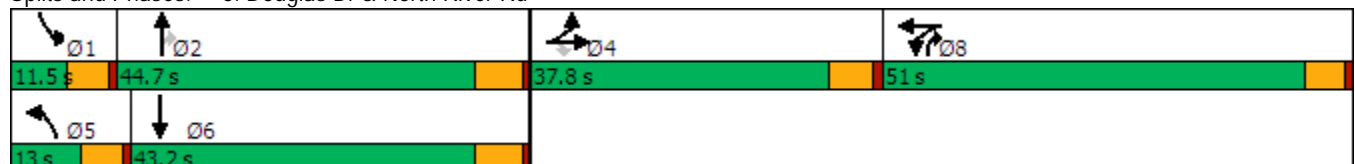


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	60	110	220	1090	50	80	500	430	20	810
Future Volume (vph)	60	110	220	1090	50	80	500	430	20	810
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	51.0	51.0	13.0	44.7	51.0	11.5	43.2
Total Split (%)	26.1%	26.1%	26.1%	35.2%	35.2%	9.0%	30.8%	35.2%	7.9%	29.8%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	18.9	18.9	18.9	45.8	45.8	7.6	43.5	92.4	6.0	37.1
Actuated g/C Ratio	0.14	0.14	0.14	0.35	0.35	0.06	0.33	0.70	0.05	0.28
v/c Ratio	0.26	0.24	0.76	1.06	1.02dl	0.86	0.47	0.22	0.28	0.90
Control Delay	51.6	50.3	45.0	98.1	39.3	119.7	39.2	0.9	73.0	59.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	50.3	45.0	98.1	39.3	119.7	39.2	0.9	73.0	59.1
LOS	D	D	D	F	D	F	D	A	E	E
Approach Delay		47.5			66.9		29.2			59.4
Approach LOS		D			E		C			E

Intersection Summary




























Cycle Length: 145
 Actuated Cycle Length: 132.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 51.7
 Intersection LOS: D
 Intersection Capacity Utilization 81.0%
 ICU Level of Service D
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd



AM 2035 Base MTP + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 	 		 	
Traffic Volume (veh/h)	60	110	220	1090	50	20	80	500	430	20	810	10
Future Volume (veh/h)	60	110	220	1090	50	20	80	500	430	20	810	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	65	120	239	1185	54	22	87	543	467	22	880	11
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	312	623	278	1196	424	173	100	1068	1774	37	953	12
Arrive On Green	0.18	0.18	0.18	0.56	0.34	0.34	0.06	0.30	0.50	0.02	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	3563	1263	515	1781	3554	2790	1781	3594	45
Grp Volume(v), veh/h	65	120	239	1185	0	76	87	543	467	22	435	456
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1778	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	4.2	3.9	19.9	44.7	0.0	4.0	6.6	17.1	8.2	1.7	32.4	32.4
Cycle Q Clear(g_c), s	4.2	3.9	19.9	44.7	0.0	4.0	6.6	17.1	8.2	1.7	32.4	32.4
Prop In Lane	1.00		1.00	1.00		0.29	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	312	623	278	1196	0	597	100	1068	1774	37	471	494
V/C Ratio(X)	0.21	0.19	0.86	0.99	0.00	0.13	0.87	0.51	0.26	0.59	0.92	0.92
Avail Cap(c_a), veh/h	419	837	373	1196	0	597	100	1068	1774	80	484	507
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	47.8	54.4	29.7	0.0	31.3	63.7	39.2	7.5	66.0	48.6	48.6
Incr Delay (d2), s/veh	0.5	0.2	15.9	23.8	0.0	0.1	52.1	0.8	0.2	14.3	24.1	23.3
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	1.9	1.8	9.2	19.6	0.0	1.8	4.4	7.7	4.6	0.9	17.5	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.4	48.0	70.3	53.5	0.0	31.5	115.8	40.1	7.6	80.3	72.6	71.8
LnGrp LOS	D	D	E	D	A	C	F	D	A	F	E	E
Approach Vol, veh/h		424			1261			1097			913	
Approach Delay, s/veh		60.6			52.2			32.3			72.4	
Approach LOS		E			D			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	47.0		29.6	13.0	42.2		51.0				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	6.1	38.5		32.0	7.6	37.0		45.6				
Max Q Clear Time (g_c+I1), s	3.7	19.1		21.9	8.6	34.4		46.7				
Green Ext Time (p_c), s	0.0	9.4		1.9	0.0	1.7		0.0				

Intersection Summary

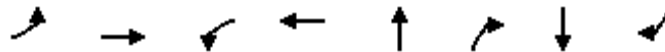
HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM 2035 Base MTP + Project
7: Avenida Descanso & North River Rd

Timings

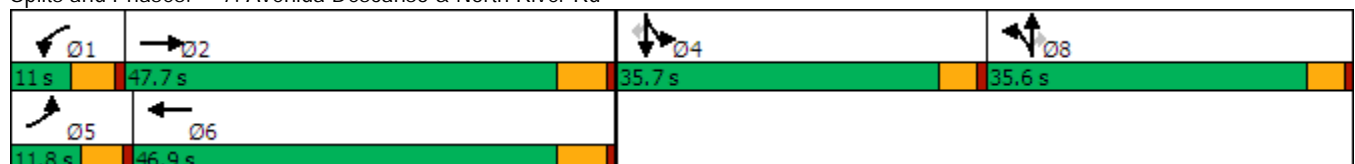


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	550	20	1050	5	40	10	130
Future Volume (vph)	60	550	20	1050	5	40	10	130
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6
Total Split (s)	11.8	47.7	11.0	46.9	35.6	35.6	35.7	35.7
Total Split (%)	9.1%	36.7%	8.5%	36.1%	27.4%	27.4%	27.5%	27.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	6.9	48.1	6.0	42.7	9.9	9.9	15.0	15.0
Actuated g/C Ratio	0.07	0.52	0.06	0.46	0.11	0.11	0.16	0.16
v/c Ratio	0.49	0.33	0.19	0.73	0.05	0.16	0.57	0.41
Control Delay	59.9	17.8	52.6	27.1	39.0	1.4	44.9	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	17.8	52.6	27.1	39.0	1.4	44.9	16.0
LOS	E	B	D	C	D	A	D	B
Approach Delay		21.9		27.5	8.5		31.5	
Approach LOS		C		C	A		C	

Intersection Summary





















Cycle Length: 130
 Actuated Cycle Length: 92.4
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 25.9
 Intersection LOS: C
 Intersection Capacity Utilization 62.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



AM 2035 Base MTP + Project
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	550	10	20	1050	50	5	5	40	140	10	130
Future Volume (veh/h)	60	550	10	20	1050	50	5	5	40	140	10	130
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	598	11	22	1141	54	5	5	43	152	11	141
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	95	1560	29	45	1413	67	84	84	146	227	16	216
Arrive On Green	0.05	0.44	0.44	0.03	0.41	0.41	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1781	3570	66	1781	3454	163	912	912	1585	1666	121	1585
Grp Volume(v), veh/h	65	298	311	22	587	608	10	0	43	163	0	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1841	1825	0	1585	1787	0	1585
Q Serve(g_s), s	2.3	7.4	7.4	0.8	18.9	19.0	0.3	0.0	1.6	5.6	0.0	5.5
Cycle Q Clear(g_c), s	2.3	7.4	7.4	0.8	18.9	19.0	0.3	0.0	1.6	5.6	0.0	5.5
Prop In Lane	1.00		0.04	1.00		0.09	0.50		1.00	0.93		1.00
Lane Grp Cap(c), veh/h	95	776	812	45	727	753	168	0	146	244	0	216
V/C Ratio(X)	0.69	0.38	0.38	0.49	0.81	0.81	0.06	0.00	0.29	0.67	0.00	0.65
Avail Cap(c_a), veh/h	184	1145	1198	162	1123	1164	870	0	756	855	0	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.3	12.4	12.4	31.3	17.0	17.0	26.9	0.0	27.5	26.7	0.0	26.6
Incr Delay (d2), s/veh	8.5	0.3	0.3	8.0	2.5	2.5	0.1	0.0	1.1	3.2	0.0	3.3
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	1.2	2.7	2.8	0.4	7.3	7.6	0.1	0.0	0.6	2.5	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	12.7	12.7	39.3	19.5	19.4	27.1	0.0	28.6	29.8	0.0	29.9
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		674			1217			53			304	
Approach Delay, s/veh		15.2			19.8			28.3			29.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	34.2		13.5	8.6	32.4		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	41.9		31.1	6.7	41.1		31.0				
Max Q Clear Time (g_c+I1), s	2.8	9.4		7.6	4.3	21.0		3.6				
Green Ext Time (p_c), s	0.0	2.6		1.2	0.0	5.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				20.0								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	710	1130	10	10	30
Future Vol, veh/h	10	710	1130	10	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	11	772	1228	11	11	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1239	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	558	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	558	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	25.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	558	-	-	-	220
HCM Lane V/C Ratio	0.019	-	-	-	0.198
HCM Control Delay (s)	11.6	-	-	-	25.4
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

AM 2035 Base MTP + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection

Int Delay, s/veh 44

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗			↔			↔	
Traffic Vol, veh/h	30	700	26	26	1090	10	102	0	102	20	0	50
Future Vol, veh/h	30	700	26	26	1090	10	102	0	102	20	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	761	28	28	1185	11	111	0	111	22	0	54

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1196	0	0	789
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	579	-	-	827
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	579	-	-	827
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

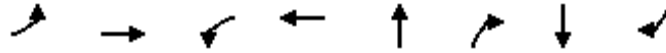
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	\$ 438.8	67.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	125	579	-	-	827	-	-	128
HCM Lane V/C Ratio	1.774	0.056	-	-	0.034	-	-	0.594
HCM Control Delay (s)	\$ 438.8	11.6	-	-	9.5	-	-	67.8
HCM Lane LOS	F	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	17	0.2	-	-	0.1	-	-	3

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

AM 2035 Base MTP + Project
 10: Calle Montecito & North River Rd

Timings

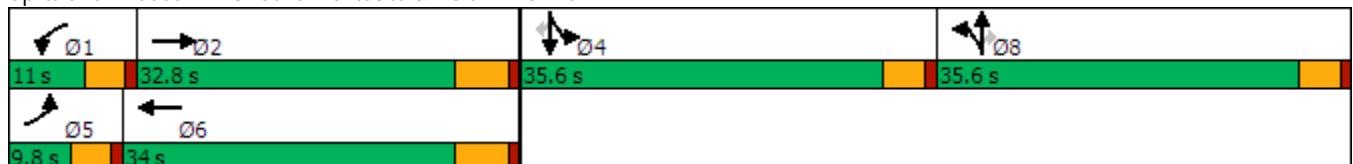


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	630	40	900	5	10	5	130
Future Volume (vph)	60	630	40	900	5	10	5	130
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.5	31.1	6.5	29.6	9.9	9.9	17.7	17.7
Actuated g/C Ratio	0.07	0.39	0.08	0.37	0.12	0.12	0.22	0.22
v/c Ratio	0.54	0.53	0.30	0.86	0.07	0.04	0.68	0.32
Control Delay	59.0	25.2	47.0	34.7	32.8	0.2	39.6	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	25.2	47.0	34.7	32.8	0.2	39.6	11.2
LOS	E	C	D	C	C	A	D	B
Approach Delay		28.0		35.1	19.5		29.8	
Approach LOS		C		D	B		C	

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 80.5
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 31.6
 Intersection LOS: C
 Intersection Capacity Utilization 65.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



AM 2035 Base MTP + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	60	630	30	40	900	120	10	5	10	240	5	130
Future Volume (veh/h)	60	630	30	40	900	120	10	5	10	240	5	130
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	685	33	43	978	130	11	5	11	261	5	141
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	94	1297	62	74	1149	153	113	52	145	343	7	311
Arrive On Green	0.05	0.38	0.38	0.04	0.36	0.36	0.09	0.09	0.09	0.20	0.20	0.20
Sat Flow, veh/h	1781	3451	166	1781	3153	419	1243	565	1585	1749	34	1585
Grp Volume(v), veh/h	65	352	366	43	551	557	16	0	11	266	0	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1840	1781	1777	1795	1808	0	1585	1783	0	1585
Q Serve(g_s), s	2.4	10.2	10.2	1.6	18.8	18.8	0.5	0.0	0.4	9.3	0.0	5.2
Cycle Q Clear(g_c), s	2.4	10.2	10.2	1.6	18.8	18.8	0.5	0.0	0.4	9.3	0.0	5.2
Prop In Lane	1.00		0.09	1.00		0.23	0.69		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	94	668	692	74	648	654	165	0	145	350	0	311
V/C Ratio(X)	0.69	0.53	0.53	0.58	0.85	0.85	0.10	0.00	0.08	0.76	0.00	0.45
Avail Cap(c_a), veh/h	144	732	759	176	765	773	853	0	747	841	0	747
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.6	16.0	16.0	31.0	19.2	19.2	27.4	0.0	27.3	25.0	0.0	23.3
Incr Delay (d2), s/veh	8.7	0.6	0.6	7.1	8.0	7.9	0.3	0.0	0.2	3.4	0.0	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	1.2	3.9	4.0	0.8	8.4	8.5	0.2	0.0	0.2	4.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	16.6	16.6	38.1	27.2	27.2	27.6	0.0	27.6	28.4	0.0	24.3
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		783			1151			27			407	
Approach Delay, s/veh		18.5			27.6			27.6			27.0	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	30.4		17.5	8.0	29.7		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.6	12.2		11.3	4.4	20.8		2.5				
Green Ext Time (p_c), s	0.0	2.7		1.6	0.0	3.2		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

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

AM 2035 Base MTP + Project
 11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	40	870	1000	5	0	100	0	
Future Volume (vph)	40	870	1000	5	0	100	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.5	33.4	27.5		14.1	12.9	12.9	
Actuated g/C Ratio	0.12	0.55	0.45		0.23	0.21	0.21	
v/c Ratio	0.20	0.49	0.72		0.02	0.37	0.33	
Control Delay	36.3	9.1	17.8		0.1	27.9	6.7	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	36.3	9.1	17.8		0.1	27.9	6.7	
LOS	D	A	B		A	C	A	
Approach Delay		10.3	17.8		0.1		15.6	
Approach LOS		B	B		A		B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 60.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 14.4
 Intersection Capacity Utilization 53.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

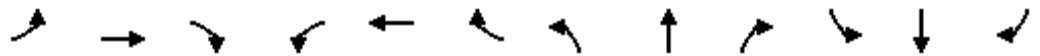
Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

AM 2035 Base MTP + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕			↕		↗	↕	↘
Traffic Volume (veh/h)	40	870	0	0	1000	60	5	0	5	100	0	140
Future Volume (veh/h)	40	870	0	0	1000	60	5	0	5	100	0	140
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	43	946	0	0	1087	65	5	0	5	109	0	152
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	82	2056	0	4	1484	89	163	34	80	401	0	247
Arrive On Green	0.05	0.58	0.00	0.00	0.44	0.44	0.16	0.00	0.16	0.16	0.00	0.16
Sat Flow, veh/h	1781	3647	0	1781	3407	204	295	219	513	1411	0	1585
Grp Volume(v), veh/h	43	946	0	0	567	585	10	0	0	109	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1834	1027	0	0	1411	0	1585
Q Serve(g_s), s	1.1	7.1	0.0	0.0	12.2	12.2	0.0	0.0	0.0	0.0	0.0	4.1
Cycle Q Clear(g_c), s	1.1	7.1	0.0	0.0	12.2	12.2	4.2	0.0	0.0	2.7	0.0	4.1
Prop In Lane	1.00		0.00	1.00		0.11	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	82	2056	0	4	774	799	276	0	0	401	0	247
V/C Ratio(X)	0.53	0.46	0.00	0.00	0.73	0.73	0.04	0.00	0.00	0.27	0.00	0.62
Avail Cap(c_a), veh/h	289	3617	0	212	1732	1787	1008	0	0	1114	0	1048
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.6	5.6	0.0	0.0	10.8	10.8	16.7	0.0	0.0	17.6	0.0	18.2
Incr Delay (d2), s/veh	5.2	0.2	0.0	0.0	1.4	1.3	0.1	0.0	0.0	0.4	0.0	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	0.5	1.7	0.0	0.0	3.9	4.1	0.1	0.0	0.0	1.0	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	5.8	0.0	0.0	12.2	12.2	16.7	0.0	0.0	18.0	0.0	20.7
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	C
Approach Vol, veh/h		989			1152			10				261
Approach Delay, s/veh		6.7			12.2			16.7				19.6
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	33.5		12.8	6.6	26.9		12.8				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	9.1		6.1	3.1	14.2		6.2				
Green Ext Time (p_c), s	0.0	5.4		1.1	0.0	5.9		0.0				

Intersection Summary

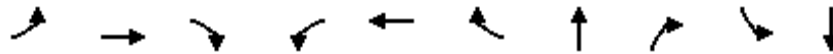
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

AM 2035 Base MTP + Project
12: College Blvd & North River Rd

Timings

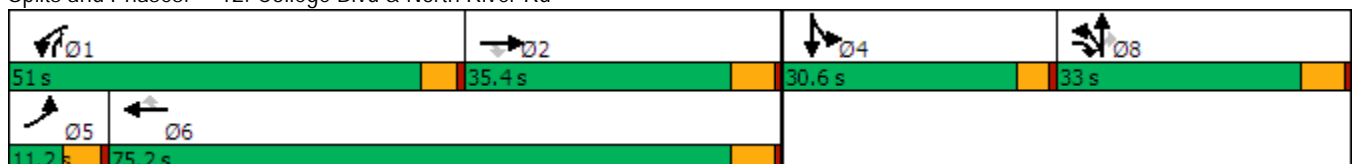


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	280	640	1340	630	80	20	1190	30	60
Future Volume (vph)	20	280	640	1340	630	80	20	1190	30	60
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.2	35.4	33.0	51.0	75.2	75.2	33.0	51.0	30.6	30.6
Total Split (%)	7.5%	23.6%	22.0%	34.0%	50.1%	50.1%	22.0%	34.0%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.0	17.0	46.0	46.6	62.5	62.5	27.6	80.1	12.0	12.0
Actuated g/C Ratio	0.05	0.14	0.38	0.38	0.51	0.51	0.23	0.66	0.10	0.10
v/c Ratio	0.25	0.62	0.91	1.11	0.38	0.10	1.03	0.61	0.19	0.42
Control Delay	69.2	56.0	35.6	98.2	21.0	4.1	99.8	6.1	54.6	56.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	56.0	35.6	98.2	21.0	4.1	99.8	6.1	54.6	56.6
LOS	E	E	D	F	C	A	F	A	D	E
Approach Delay		42.4			70.8		28.8			56.0
Approach LOS		D			E		C			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 122.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.11
 Intersection Signal Delay: 50.6
 Intersection LOS: D
 Intersection Capacity Utilization 95.8%
 ICU Level of Service F
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

AM 2035 Base MTP + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	280	640	1340	630	80	360	20	1190	30	60	10
Future Volume (veh/h)	20	280	640	1340	630	80	360	20	1190	30	60	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	22	304	696	1457	685	87	391	22	1293	33	65	11
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	37	799	684	1205	1964	876	349	20	1549	103	90	15
Arrive On Green	0.02	0.22	0.22	0.35	0.55	0.55	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1691	95	2790	1781	1559	264
Grp Volume(v), veh/h	22	304	696	1457	685	87	413	0	1293	33	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1786	0	1395	1781	0	1823
Q Serve(g_s), s	1.6	9.5	29.6	45.9	14.1	3.4	27.2	0.0	27.2	2.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	9.5	29.6	45.9	14.1	3.4	27.2	0.0	27.2	2.3	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	0.95		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	37	799	684	1205	1964	876	369	0	1549	103	0	106
V/C Ratio(X)	0.59	0.38	1.02	1.21	0.35	0.10	1.12	0.00	0.83	0.32	0.00	0.72
Avail Cap(c_a), veh/h	83	799	684	1205	1964	876	369	0	1549	352	0	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.9	43.2	29.7	42.9	16.3	13.9	52.2	0.0	24.3	59.5	0.0	60.9
Incr Delay (d2), s/veh	13.8	0.3	38.9	102.1	0.1	0.0	83.2	0.0	4.1	1.8	0.0	8.8
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	0.9	4.3	30.4	36.4	5.7	1.3	20.7	0.0	17.0	1.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	43.5	68.6	145.0	16.4	14.0	135.4	0.0	28.4	61.3	0.0	69.7
LnGrp LOS	E	D	F	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		1022			2229			1706			109	
Approach Delay, s/veh		61.3			100.3			54.3			67.2	
Approach LOS		E			F			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.0	35.4		12.2	7.9	78.5		33.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	45.9	29.6		26.0	6.1	69.4		27.2				
Max Q Clear Time (g_c+I1), s	47.9	31.6		7.4	3.6	16.1		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	3.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				76.3								
HCM 6th LOS				E								

AM 2035 Base MTP + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	60	30	30	1510	1930	90
Future Volume (vph)	60	30	30	1510	1930	90
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.6	6.3	56.9	50.6	50.6
Actuated g/C Ratio	0.16	0.24	0.09	0.81	0.72	0.72
v/c Ratio	0.23	0.09	0.11	0.57	0.83	0.09
Control Delay	27.6	17.6	34.6	7.4	20.0	7.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.6	17.6	34.6	7.5	20.0	7.0
LOS	C	B	C	A	B	A
Approach Delay	24.2			8.0	19.4	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 68.7%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 13: College Blvd & Buchanon Park



AM 2035 Base MTP + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	30	30	1510	1930	90
Future Volume (veh/h)	60	30	30	1510	1930	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	65	33	33	1641	2098	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	183	228	143	2618	2190	977
Arrive On Green	0.10	0.10	0.04	0.74	0.62	0.62
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	65	33	33	1641	2098	98
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	2.2	1.2	0.6	14.6	35.8	1.6
Cycle Q Clear(g_c), s	2.2	1.2	0.6	14.6	35.8	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	183	228	143	2618	2190	977
V/C Ratio(X)	0.36	0.14	0.23	0.63	0.96	0.10
Avail Cap(c_a), veh/h	772	752	342	2837	2204	983
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	27.0	24.2	30.0	4.2	11.6	5.1
Incr Delay (d2), s/veh	1.2	0.3	0.8	0.4	11.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.3	3.0	13.6	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.2	24.5	30.8	4.6	22.6	5.1
LnGrp LOS	C	C	C	A	C	A
Approach Vol, veh/h	98			1674	2196	
Approach Delay, s/veh	26.9			5.1	21.8	
Approach LOS	C			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.4		11.2	7.8	45.6
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		16.6		4.2	2.6	37.8
Green Ext Time (p_c), s		12.2		0.3	0.0	2.1
Intersection Summary						
HCM 6th Ctrl Delay			14.9			
HCM 6th LOS			B			

AM 2035 Base MTP + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↕	↖	↕	↗
Traffic Volume (vph)	200	10	90	20	50	20	1280	20	1710	240
Future Volume (vph)	200	10	90	20	50	20	1280	20	1710	240
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	62.6	10.7	63.2	63.2
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	9.2%	56.9%	9.7%	57.5%	57.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	21.2	21.2		21.2	21.2	5.1	57.5	5.7	57.7	57.7
Actuated g/C Ratio	0.23	0.23		0.23	0.23	0.05	0.62	0.06	0.62	0.62
v/c Ratio	0.78	0.30		0.44	0.13	0.23	0.46	0.20	0.85	0.26
Control Delay	53.3	12.2		36.6	3.8	53.3	11.9	51.6	21.9	8.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	2.6	0.0
Total Delay	53.3	12.2		36.6	3.8	53.3	11.9	51.6	24.5	8.2
LOS	D	B		D	A	D	B	D	C	A
Approach Delay		37.8		26.4			12.5		22.8	
Approach LOS		D		C			B		C	

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 93.1
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 20.6
 Intersection LOS: C
 Intersection Capacity Utilization 73.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM 2035 Base MTP + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	10	110	90	20	50	20	1280	40	20	1710	240
Future Volume (veh/h)	200	10	110	90	20	50	20	1280	40	20	1710	240
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	217	11	120	98	22	54	22	1391	43	22	1859	261
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	288	40	438	319	66	472	40	2718	84	40	1898	847
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.53	0.53	0.02	0.53	0.53
Sat Flow, veh/h	1323	135	1471	865	220	1585	1781	5089	157	1781	3554	1585
Grp Volume(v), veh/h	217	0	131	120	0	54	22	930	504	22	1859	261
Grp Sat Flow(s),veh/h/ln	1323	0	1606	1085	0	1585	1781	1702	1842	1781	1777	1585
Q Serve(g_s), s	17.5	0.0	6.7	7.4	0.0	2.7	1.3	18.8	18.8	1.3	54.9	9.9
Cycle Q Clear(g_c), s	31.6	0.0	6.7	14.1	0.0	2.7	1.3	18.8	18.8	1.3	54.9	9.9
Prop In Lane	1.00		0.92	0.82		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	288	0	479	384	0	472	40	1818	984	40	1898	847
V/C Ratio(X)	0.75	0.00	0.27	0.31	0.00	0.11	0.55	0.51	0.51	0.55	0.98	0.31
Avail Cap(c_a), veh/h	288	0	479	384	0	472	83	1818	984	93	1900	848
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.6	0.0	28.8	33.5	0.0	27.4	51.9	16.0	16.0	51.9	24.4	13.9
Incr Delay (d2), s/veh	10.7	0.0	0.3	0.5	0.0	0.1	11.3	0.2	0.4	11.3	16.0	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	6.6	0.0	2.6	2.7	0.0	1.0	0.7	7.1	7.8	0.7	25.7	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.2	0.0	29.1	34.0	0.0	27.5	63.3	16.3	16.5	63.3	40.4	14.1
LnGrp LOS	E	A	C	C	A	C	E	B	B	E	D	B
Approach Vol, veh/h		348			174			1456			2142	
Approach Delay, s/veh		45.4			32.0			17.1			37.4	
Approach LOS		D			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	63.1		36.7	7.5	63.1		36.7				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.6	56.8		* 32	5.0	57.4		* 32				
Max Q Clear Time (g_c+I1), s	3.3	20.8		33.6	3.3	56.9		16.1				
Green Ext Time (p_c), s	0.0	8.5		0.0	0.0	0.5		0.6				

Intersection Summary

HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Notes

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

AM 2035 Base MTP + Project
15: College Blvd & Via Cupeno

Timings

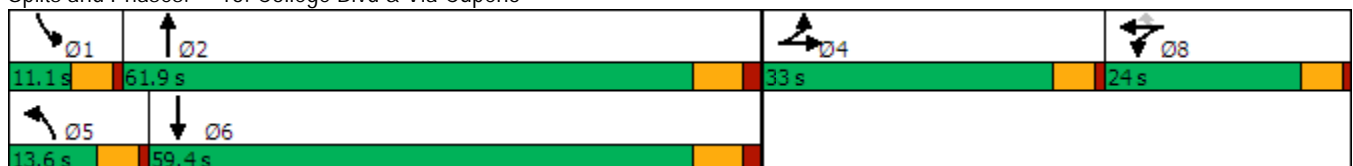


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	5	10	5	170	1280	5	1820
Future Volume (vph)	5	10	5	170	1280	5	1820
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	13.6	61.9	11.1	59.4
Total Split (%)	25.4%	18.5%	18.5%	10.5%	47.6%	8.5%	45.7%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.7	15.9	15.9	8.6	64.8	6.0	53.0
Actuated g/C Ratio	0.11	0.14	0.14	0.08	0.58	0.05	0.48
v/c Ratio	0.32	0.73	0.02	0.70	0.49	0.05	0.85
Control Delay	28.5	63.7	0.0	66.3	16.3	56.0	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	63.7	0.0	66.3	16.3	56.0	31.0
LOS	C	E	A	E	B	E	C
Approach Delay	28.5	62.1			22.0		31.1
Approach LOS	C	E			C		C

Intersection Summary




















Cycle Length: 130
 Actuated Cycle Length: 111.1
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 28.8
 Intersection LOS: C
 Intersection Capacity Utilization 71.9%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM 2035 Base MTP + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	50	160	10	5	170	1280	40	5	1820	70
Future Volume (veh/h)	60	5	50	160	10	5	170	1280	40	5	1820	70
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	5	54	174	11	5	185	1391	43	5	1978	76
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	146	11	123	212	13	200	258	2779	86	14	2418	93
Arrive On Green	0.08	0.08	0.08	0.13	0.13	0.13	0.07	0.55	0.55	0.01	0.48	0.48
Sat Flow, veh/h	1762	137	1486	1680	106	1585	3456	5089	157	1781	5046	193
Grp Volume(v), veh/h	66	0	58	185	0	5	185	930	504	5	1333	721
Grp Sat Flow(s),veh/h/ln	1782	0	1603	1786	0	1585	1728	1702	1842	1781	1702	1836
Q Serve(g_s), s	3.2	0.0	3.2	9.3	0.0	0.3	4.8	15.8	15.8	0.3	31.0	31.1
Cycle Q Clear(g_c), s	3.2	0.0	3.2	9.3	0.0	0.3	4.8	15.8	15.8	0.3	31.0	31.1
Prop In Lane	0.99		0.93	0.94		1.00	1.00		0.09	1.00		0.11
Lane Grp Cap(c), veh/h	148	0	133	225	0	200	258	1859	1006	14	1631	880
V/C Ratio(X)	0.44	0.00	0.44	0.82	0.00	0.03	0.72	0.50	0.50	0.36	0.82	0.82
Avail Cap(c_a), veh/h	540	0	486	368	0	326	318	2031	1099	116	1939	1046
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.3	0.0	40.3	39.4	0.0	35.4	41.8	13.1	13.1	45.6	20.6	20.6
Incr Delay (d2), s/veh	2.1	0.0	2.3	7.5	0.0	0.1	5.8	0.2	0.4	14.9	2.4	4.5
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	0.0	1.3	4.5	0.0	0.1	2.2	5.7	6.2	0.2	12.0	13.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	0.0	42.5	46.8	0.0	35.4	47.6	13.3	13.5	60.4	23.0	25.1
LnGrp LOS	D	A	D	D	A	D	D	B	B	E	C	C
Approach Vol, veh/h		124			190			1619			2059	
Approach Delay, s/veh		42.5			46.5			17.3			23.9	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	57.2		12.7	12.0	51.1		16.6				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	55.1		28.0	8.5	52.6		19.0				
Max Q Clear Time (g_c+I1), s	2.3	17.8		5.2	6.8	33.1		11.3				
Green Ext Time (p_c), s	0.0	8.5		0.4	0.1	11.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				22.8								
HCM 6th LOS				C								

AM 2035 Base MTP + Project
16: College Blvd & SR-76

Timings

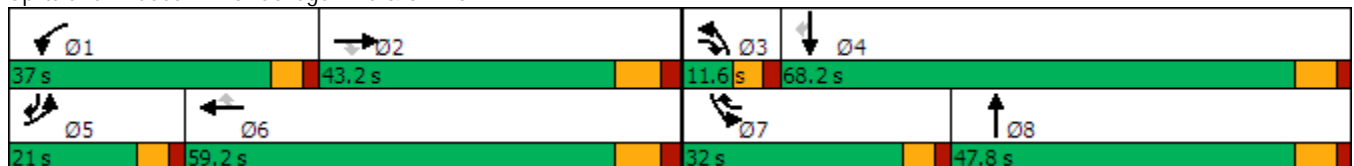


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑↑	↖	↖↗	↑↔	↖↗	↑↑	↖
Traffic Volume (vph)	370	950	40	660	1640	560	60	560	650	930	440
Future Volume (vph)	370	950	40	660	1640	560	60	560	650	930	440
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	43.2	11.6	37.0	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.0%	7.3%	23.1%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.3	35.2	49.1	31.3	51.2	85.5	5.9	41.0	26.3	61.4	83.5
Actuated g/C Ratio	0.10	0.22	0.31	0.20	0.32	0.53	0.04	0.26	0.16	0.38	0.52
v/c Ratio	1.23	0.92	0.07	1.07	1.10	0.70	0.52	1.06	1.25	0.74	0.54
Control Delay	182.4	74.8	0.2	113.8	103.2	29.4	90.3	97.8	180.3	46.7	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.4	74.8	0.2	113.8	103.2	29.4	90.3	97.8	180.3	46.7	21.6
LOS	F	E	A	F	F	C	F	F	F	D	C
Approach Delay		101.9			91.2			97.3		84.2	
Approach LOS		F			F			F		F	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.25
 Intersection Signal Delay: 92.1
 Intersection LOS: F
 Intersection Capacity Utilization 108.3%
 ICU Level of Service G
 Analysis Period (min) 15


































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

AM 2035 Base MTP + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	370	950	40	660	1640	560	60	560	320	650	930	440
Future Volume (veh/h)	370	950	40	660	1640	560	60	560	320	650	930	440
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	402	1033	43	717	1783	609	65	609	348	707	1011	478
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	330	1123	395	676	1634	768	102	558	319	568	1390	772
Arrive On Green	0.10	0.22	0.22	0.20	0.32	0.32	0.03	0.26	0.26	0.16	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2178	1245	3456	3554	1585
Grp Volume(v), veh/h	402	1033	43	717	1783	609	65	497	460	707	1011	478
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1646	1728	1777	1585
Q Serve(g_s), s	15.3	31.7	3.3	31.3	51.2	51.2	3.0	41.0	41.0	26.3	38.7	35.5
Cycle Q Clear(g_c), s	15.3	31.7	3.3	31.3	51.2	51.2	3.0	41.0	41.0	26.3	38.7	35.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	330	1123	395	676	1634	768	102	455	422	568	1390	772
V/C Ratio(X)	1.22	0.92	0.11	1.06	1.09	0.79	0.64	1.09	1.09	1.24	0.73	0.62
Avail Cap(c_a), veh/h	330	1123	395	676	1634	768	127	455	422	568	1390	772
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.3	61.0	46.3	64.3	54.4	34.5	76.8	59.5	59.5	66.9	41.4	30.2
Incr Delay (d2), s/veh	121.9	12.0	0.1	51.8	51.5	5.7	6.9	69.0	70.6	124.4	1.9	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	15.0	1.4	18.7	29.7	21.0	1.4	27.2	25.4	21.4	17.5	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	194.2	73.0	46.4	116.2	105.9	40.3	83.8	128.5	130.1	191.2	43.4	31.7
LnGrp LOS	F	E	D	F	F	D	F	F	F	F	D	C
Approach Vol, veh/h		1478			3109			1022			2196	
Approach Delay, s/veh		105.2			95.4			126.4			88.4	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	43.2	10.4	69.4	21.0	59.2	32.0	47.8				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	35.2	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	33.3	33.7	5.0	40.7	17.3	53.2	28.3	43.0				
Green Ext Time (p_c), s	0.0	0.9	0.0	8.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	99.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

AM 2035 Base MTP + Project
17: North River Rd/Vandergrift Blvd

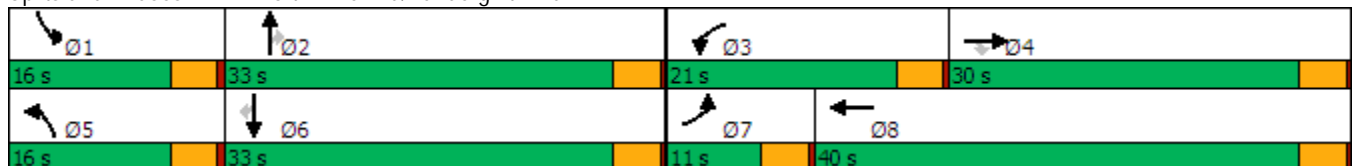
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	60	70	140	830	60	140	1000	380	130	870	50	
Future Volume (vph)	60	70	140	830	60	140	1000	380	130	870	50	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0	
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	6.8	11.1	11.1	17.2	23.6	11.1	29.5	29.5	10.8	29.3	29.3	
Actuated g/C Ratio	0.08	0.13	0.13	0.20	0.28	0.13	0.35	0.35	0.13	0.35	0.35	
v/c Ratio	0.46	0.31	0.45	1.30	0.63	0.66	0.61	0.50	0.63	0.77	0.08	
Control Delay	51.0	35.9	9.9	175.8	12.1	51.4	25.9	5.1	49.7	31.5	0.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	51.0	35.9	9.9	175.8	12.1	51.4	25.9	5.1	49.7	31.5	0.3	
LOS	D	D	A	F	B	D	C	A	D	C	A	
Approach Delay		25.7			123.5		23.0			32.3		
Approach LOS		C			F		C			C		

Intersection Summary
























Cycle Length: 100
 Actuated Cycle Length: 84.7
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.30
 Intersection Signal Delay: 55.8
 Intersection Capacity Utilization 73.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D

Splits and Phases: 17: North River Rd/Vandergrift Blvd



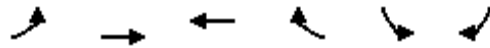
AM 2035 Base MTP + Project
 17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	70	140	830	60	330	140	1000	380	130	870	50
Future Volume (veh/h)	60	70	140	830	60	330	140	1000	380	130	870	50
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	76	152	902	65	359	152	1087	413	141	946	54
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	84	265	224	713	75	414	188	1832	569	176	1251	558
Arrive On Green	0.05	0.14	0.14	0.21	0.30	0.30	0.11	0.36	0.36	0.10	0.35	0.35
Sat Flow, veh/h	1781	1870	1585	3456	249	1374	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	65	76	152	902	0	424	152	1087	413	141	946	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1623	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.0	3.0	7.5	17.0	0.0	20.4	6.9	14.3	18.6	6.4	19.4	1.9
Cycle Q Clear(g_c), s	3.0	3.0	7.5	17.0	0.0	20.4	6.9	14.3	18.6	6.4	19.4	1.9
Prop In Lane	1.00		1.00	1.00		0.85	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	265	224	713	0	488	188	1832	569	176	1251	558
V/C Ratio(X)	0.78	0.29	0.68	1.26	0.00	0.87	0.81	0.59	0.73	0.80	0.76	0.10
Avail Cap(c_a), veh/h	151	591	500	713	0	710	260	1832	569	260	1251	558
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	31.6	33.6	32.7	0.0	27.2	36.0	21.5	22.9	36.3	23.6	17.9
Incr Delay (d2), s/veh	14.2	0.6	3.6	130.0	0.0	7.9	12.3	1.4	7.9	10.4	4.3	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	1.6	1.4	3.0	19.7	0.0	8.6	3.6	5.7	7.8	3.2	8.4	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	32.2	37.1	162.7	0.0	35.1	48.3	22.9	30.8	46.7	27.8	18.2
LnGrp LOS	D	C	D	F	A	D	D	C	C	D	C	B
Approach Vol, veh/h		293			1326			1652			1141	
Approach Delay, s/veh		39.4			121.9			27.2			29.7	
Approach LOS		D			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	33.6	21.0	15.7	12.7	33.0	7.9	28.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	8.4	20.6	19.0	9.5	8.9	21.4	5.0	22.4				
Green Ext Time (p_c), s	0.1	5.4	0.0	0.8	0.1	3.9	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				57.1								
HCM 6th LOS				E								

PM 2035 Base MTP + Project
1: SR-76 & Douglas Dr

Timings

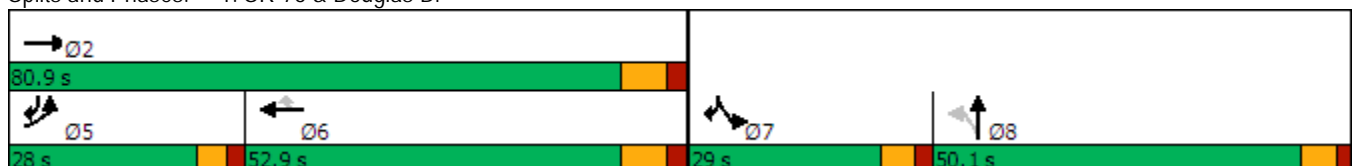


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↖	↗↗	↖↖	↗	↘	↘↘	
Traffic Volume (vph)	620	2040	1340	300	330	440	
Future Volume (vph)	620	2040	1340	300	330	440	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	80.9	52.9	52.9	29.0		50.1
Total Split (%)	17.5%	50.6%	33.1%	33.1%	18.1%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	22.3	72.9	44.9	44.9	22.9	51.3	
Actuated g/C Ratio	0.20	0.66	0.41	0.41	0.21	0.47	
v/c Ratio	0.97	0.94	1.01	0.39	0.98	0.31	
Control Delay	71.3	26.9	58.7	3.8	85.4	2.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	71.3	26.9	58.7	3.8	85.4	2.4	
LOS	E	C	E	A	F	A	
Approach Delay		37.2	48.6				
Approach LOS		D	D				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 41.0
 Intersection LOS: D
 Intersection Capacity Utilization 87.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



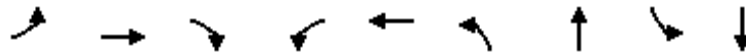
PM 2035 Base MTP + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	620	2040	0	0	1340	300	0	0	0	330	0	440
Future Volume (veh/h)	620	2040	0	0	1340	300	0	0	0	330	0	440
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	674	2217	0	0	1457	326	0	0	0	359	0	478
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	701	2357	0	0	1452	648	0	2	0	371	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.41	0.41	0.00	0.00	0.00	0.21	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	359	
Grp Volume(v), veh/h	674	2217	0	0	1457	326	0	0	0	359	81.1	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	21.2	61.4	0.0	0.0	44.9	16.8	0.0	0.0	0.0	22.0		
Cycle Q Clear(g_c), s	21.2	61.4	0.0	0.0	44.9	16.8	0.0	0.0	0.0	22.0		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	701	2357	0	0	1452	648	0	2	0	371		
V/C Ratio(X)	0.96	0.94	0.00	0.00	1.00	0.50	0.00	0.00	0.00	0.97		
Avail Cap(c_a), veh/h	701	2357	0	0	1452	648	0	749	0	371		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	43.4	16.6	0.0	0.0	32.5	24.2	0.0	0.0	0.0	43.1		
Incr Delay (d2), s/veh	24.7	8.3	0.0	0.0	24.5	0.6	0.0	0.0	0.0	38.0		
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		
%ile BackOfQ(50%),veh/ln	11.4	24.5	0.0	0.0	23.5	6.3	0.0	0.0	0.0	13.5		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.1	24.9	0.0	0.0	57.0	24.8	0.0	0.0	0.0	81.1		
LnGrp LOS	E	C	A	A	F	C	A	A	A	F		
Approach Vol, veh/h		2891			1783			0				
Approach Delay, s/veh		35.0			51.1			0.0				
Approach LOS		C			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		80.9			28.0	52.9	29.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		72.9			* 22	44.9	22.9	44.0				
Max Q Clear Time (g_c+I1), s		63.4			23.2	46.9	24.0	0.0				
Green Ext Time (p_c), s		7.7			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.0									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM 2035 Base MTP + Project
2: Douglas Dr & Mission Ave

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	270	740	170	70	410	190	700	350	580
Future Volume (vph)	270	740	170	70	410	190	700	350	580
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.0	40.6	40.6	10.8	38.4	19.2	34.6	24.0	39.4
Total Split (%)	11.8%	36.9%	36.9%	9.8%	34.9%	17.5%	31.5%	21.8%	35.8%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.0	30.0	30.0	5.7	27.8	14.0	26.5	19.0	31.5
Actuated g/C Ratio	0.08	0.29	0.29	0.06	0.27	0.14	0.26	0.18	0.31
v/c Ratio	1.11	0.78	0.33	0.78	0.86	0.86	0.87	1.16	0.65
Control Delay	131.9	39.4	10.1	95.5	35.1	77.2	48.6	140.5	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	131.9	39.4	10.1	95.5	35.1	77.2	48.6	140.5	34.2
LOS	F	D	B	F	D	E	D	F	C
Approach Delay		56.3			39.7		54.5		71.8
Approach LOS		E			D		D		E

Intersection Summary

Cycle Length: 110
 Actuated Cycle Length: 102.9
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 55.9
 Intersection LOS: E
 Intersection Capacity Utilization 90.4%
 ICU Level of Service E
 Analysis Period (min) 15























Splits and Phases: 2: Douglas Dr & Mission Ave



LOS Engineering, Inc.

PM 2035 Base MTP + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	740	170	70	410	430	190	700	30	350	580	60
Future Volume (veh/h)	270	740	170	70	410	430	190	700	30	350	580	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	293	804	185	76	446	467	207	761	33	380	630	65
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	254	1165	519	95	546	487	234	846	37	313	939	97
Arrive On Green	0.07	0.33	0.33	0.05	0.31	0.31	0.13	0.24	0.24	0.18	0.29	0.29
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3470	150	1781	3252	335
Grp Volume(v), veh/h	293	804	185	76	446	467	207	390	404	380	344	351
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1843	1781	1777	1810
Q Serve(g_s), s	7.9	21.1	9.5	4.5	24.9	31.1	12.3	22.8	22.8	18.9	18.3	18.4
Cycle Q Clear(g_c), s	7.9	21.1	9.5	4.5	24.9	31.1	12.3	22.8	22.8	18.9	18.3	18.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.19
Lane Grp Cap(c), veh/h	254	1165	519	95	546	487	234	433	450	313	513	522
V/C Ratio(X)	1.15	0.69	0.36	0.80	0.82	0.96	0.89	0.90	0.90	1.21	0.67	0.67
Avail Cap(c_a), veh/h	254	1165	519	95	546	487	234	476	494	313	556	566
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	31.4	27.5	50.3	34.4	36.5	45.9	39.3	39.3	44.3	33.7	33.7
Incr Delay (d2), s/veh	104.0	1.8	0.4	37.8	9.4	30.5	30.6	18.7	18.2	121.3	2.8	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	7.1	9.2	3.7	3.0	12.0	15.9	7.4	12.1	12.5	18.8	8.2	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	153.8	33.1	27.9	88.1	43.8	67.0	76.4	58.0	57.5	165.6	36.5	36.5
LnGrp LOS	F	C	C	F	D	E	E	E	E	F	D	D
Approach Vol, veh/h		1282			989			1001			1075	
Approach Delay, s/veh		59.9			58.2			61.6			82.1	
Approach LOS		E			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	32.0	10.8	40.6	19.2	36.8	13.0	38.4				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	18.9	28.8	5.7	35.2	14.1	33.6	7.9	33.0				
Max Q Clear Time (g_c+I1), s	20.9	24.8	6.5	23.1	14.3	20.4	9.9	33.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	3.9	0.0	2.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	65.4
HCM 6th LOS	E

Notes

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

PM 2035 Base MTP + Project
3: Douglas Dr & El Camino Real

Timings



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1160	70	80	30	10	100	1170	10	830	720
Future Volume (vph)	1160	70	80	30	10	100	1170	10	830	720
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	55.0	55.0		21.5	21.5	18.8	58.1	10.4	49.7	55.0
Total Split (%)	37.9%	37.9%		14.8%	14.8%	13.0%	40.1%	7.2%	34.3%	37.9%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	49.0	49.0	137.4	12.4	12.4	12.0	54.1	5.0	40.8	95.8
Actuated g/C Ratio	0.36	0.36	1.00	0.09	0.09	0.09	0.39	0.04	0.30	0.70
v/c Ratio	1.03	0.11	0.05	0.60	0.04	0.70	0.97	0.17	0.86	0.40
Control Delay	77.4	32.2	0.1	76.7	0.3	85.9	59.4	73.5	55.3	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	32.2	0.1	76.7	0.3	85.9	59.4	73.5	55.3	9.9
LOS	E	C	A	E	A	F	E	E	E	A
Approach Delay		70.3		69.0			61.4		34.5	
Approach LOS		E		E			E		C	

Intersection Summary



























Cycle Length: 145
 Actuated Cycle Length: 137.4
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 54.5
 Intersection LOS: D
 Intersection Capacity Utilization 93.3%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real

Ø1	Ø2	Ø4	Ø8
10.4 s	58.1 s	55 s	21.5 s
Ø5	Ø6		
18.8 s	49.7 s		

PM 2035 Base MTP + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	1160	70	80	60	30	10	100	1170	70	10	830	720
Future Volume (veh/h)	1160	70	80	60	30	10	100	1170	70	10	830	720
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	1261	76	0	65	33	11	109	1272	76	11	902	783
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	1255	679		82	42	108	133	1304	78	22	1139	1908
Arrive On Green	0.36	0.36	0.00	0.07	0.07	0.07	0.07	0.64	0.38	0.01	0.32	0.32
Sat Flow, veh/h	3456	1870	1585	1201	610	1585	1781	3407	203	1781	3554	2790
Grp Volume(v), veh/h	1261	76	0	98	0	11	109	662	686	11	902	783
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1834	1781	1777	1395
Q Serve(g_s), s	48.8	3.6	0.0	7.2	0.0	0.9	8.1	47.9	48.5	0.8	31.1	16.6
Cycle Q Clear(g_c), s	48.8	3.6	0.0	7.2	0.0	0.9	8.1	47.9	48.5	0.8	31.1	16.6
Prop In Lane	1.00		1.00	0.66		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	1255	679		124	0	108	133	680	702	22	1139	1908
V/C Ratio(X)	1.00	0.11		0.79	0.00	0.10	0.82	0.97	0.98	0.49	0.79	0.41
Avail Cap(c_a), veh/h	1255	679		216	0	189	178	686	708	66	1156	1920
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.8	28.4	0.0	61.7	0.0	58.7	61.3	23.6	25.6	65.9	41.6	9.3
Incr Delay (d2), s/veh	26.6	0.1	0.0	10.8	0.0	0.4	19.7	27.8	28.0	15.8	3.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	25.2	1.7	0.0	3.7	0.0	0.4	4.4	20.4	22.3	0.5	14.2	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.4	28.5	0.0	72.5	0.0	59.1	81.0	51.4	53.5	81.8	45.3	9.5
LnGrp LOS	F	C		E	A	E	F	D	D	F	D	A
Approach Vol, veh/h		1337	A		109			1457			1696	
Approach Delay, s/veh		67.0			71.1			54.6			29.0	
Approach LOS		E			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	57.6		55.0	15.4	49.3		14.7				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	51.9		48.8	13.4	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.8	50.5		50.8	10.1	33.1		9.2				
Green Ext Time (p_c), s	0.0	0.9		0.0	0.1	6.4		0.2				

Intersection Summary

HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM 2035 Base MTP + Project
4: Douglas Dr & Pala Rd

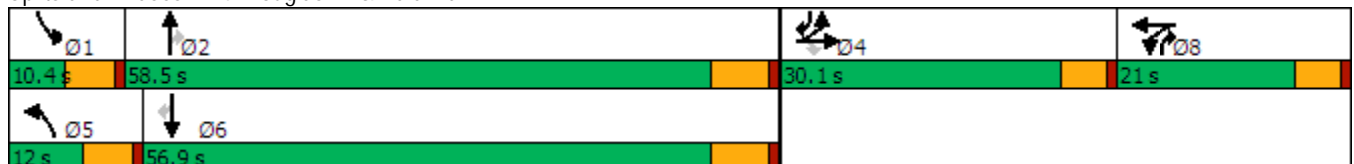
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	110	5	110	20	5	110	2110	30	20	1420	120	
Future Volume (vph)	110	5	110	20	5	110	2110	30	20	1420	120	
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov	
Protected Phases	4	4		8	8	5	2	8	1	6	4	
Permitted Phases			4					2			6	
Detector Phase	4	4	4	8	8	5	2	8	1	6	4	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0	
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1	
Total Split (s)	30.1	30.1	30.1	21.0	21.0	12.0	58.5	21.0	10.4	56.9	30.1	
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.0%	48.8%	17.5%	8.7%	47.4%	25.1%	
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1	
Lead/Lag						Lead	Lag		Lead	Lag		
Lead-Lag Optimize?						Yes	Yes		Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None	
Act Effect Green (s)	11.0	11.0	11.0	6.9	6.9	6.7	59.7	68.4	5.1	51.3	68.6	
Actuated g/C Ratio	0.12	0.12	0.12	0.07	0.07	0.07	0.63	0.72	0.05	0.54	0.72	
v/c Ratio	0.33	0.31	0.41	0.17	0.26	0.97	1.04	0.03	0.24	0.81	0.11	
Control Delay	43.6	43.1	10.8	48.2	23.1	122.1	50.7	0.3	53.9	24.6	1.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	43.6	43.1	10.8	48.2	23.1	122.1	50.7	0.3	53.9	24.6	1.1	
LOS	D	D	B	D	C	F	D	A	D	C	A	
Approach Delay		27.4			32.3		53.6			23.1		
Approach LOS		C			C		D			C		

Intersection Summary

Cycle Length: 120	
Actuated Cycle Length: 95.4	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 40.2	Intersection LOS: D
Intersection Capacity Utilization 86.3%	ICU Level of Service E
Analysis Period (min) 15	
























Splits and Phases: 4: Douglas Dr & Pala Rd



LOS Engineering, Inc.

PM 2035 Base MTP + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	5	110	20	5	30	110	2110	30	20	1420	120
Future Volume (veh/h)	110	5	110	20	5	30	110	2110	30	20	1420	120
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	124	0	120	22	5	33	120	2293	33	22	1543	130
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	375	0	167	92	11	73	130	2056	999	42	1880	1005
Arrive On Green	0.11	0.00	0.11	0.05	0.05	0.05	0.07	0.97	0.58	0.02	0.53	0.53
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	0	120	22	0	38	120	2293	33	22	1543	130
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	32.7	3.0
Cycle Q Clear(g_c), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	32.7	3.0
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	0	167	92	0	84	130	2056	999	42	1880	1005
V/C Ratio(X)	0.33	0.00	0.72	0.24	0.00	0.45	0.92	1.12	0.03	0.53	0.82	0.13
Avail Cap(c_a), veh/h	985	0	438	313	0	284	130	2056	999	99	1993	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	39.1	41.2	0.0	41.6	41.7	1.5	6.3	43.7	17.7	6.6
Incr Delay (d2), s/veh	0.5	0.0	5.7	1.3	0.0	3.8	55.8	59.4	0.0	9.9	2.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.8	0.5	0.0	0.9	4.6	17.6	0.3	0.6	12.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	44.8	42.5	0.0	45.5	97.5	60.9	6.3	53.5	20.5	6.6
LnGrp LOS	D	A	D	D	A	D	F	F	A	D	C	A
Approach Vol, veh/h		244			60			2446			1695	
Approach Delay, s/veh		41.4			44.4			62.0			19.8	
Approach LOS		D			D			E			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	58.5		14.6	12.0	54.0		9.8				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	6.6	50.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	54.3		8.6	8.1	34.7		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	8.5		0.1				

Intersection Summary

HCM 6th Ctrl Delay	44.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Base MTP + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	10	5	80	50	5	5	2030	90	5	1360	80
Future Volume (vph)	10	5	80	50	5	5	2030	90	5	1360	80
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	83.0	83.0	10.4	93.4	93.4
Total Split (%)	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	63.8%	63.8%	8.0%	71.8%	71.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.5	12.5		12.5	12.5	84.1	84.1	5.1	85.8	85.8
Actuated g/C Ratio		0.12	0.12		0.12	0.12	0.79	0.79	0.05	0.81	0.81
v/c Ratio		0.09	0.34		0.37	0.02	0.79	0.08	0.06	0.52	0.07
Control Delay		40.3	15.3		47.9	0.2	13.4	3.3	54.6	6.3	3.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.3	15.3		47.9	0.2	13.4	3.3	54.6	6.3	3.3
LOS		D	B		D	A	B	A	D	A	A
Approach Delay		19.2			44.2		12.9			6.3	
Approach LOS		B			D		B			A	

Intersection Summary






















Cycle Length: 130
 Actuated Cycle Length: 106
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 11.0
 Intersection LOS: B
 Intersection Capacity Utilization 79.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



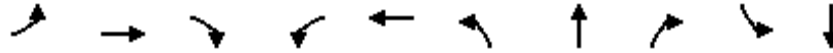
PM 2035 Base MTP + Project
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	80	50	5	5	0	2030	90	5	1360	80
Future Volume (veh/h)	10	5	80	50	5	5	0	2030	90	5	1360	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	5	87	54	5	5	0	2207	98	5	1478	87
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	0	2	2	2	2	2
Cap, veh/h	55	17	397	69	4	397	0	2166	966	11	2342	1045
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.61	0.61	0.01	0.66	0.66
Sat Flow, veh/h	27	66	1585	57	16	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	16	0	87	59	0	5	0	2207	98	5	1478	87
Grp Sat Flow(s),veh/h/ln	93	0	1585	74	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	5.4	1.5	0.0	0.3	0.0	76.3	3.2	0.3	30.4	2.5
Cycle Q Clear(g_c), s	30.9	0.0	5.4	31.4	0.0	0.3	0.0	76.3	3.2	0.3	30.4	2.5
Prop In Lane	0.69		1.00	0.92		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	397	74	0	397	0	2166	966	11	2342	1045
V/C Ratio(X)	0.22	0.00	0.22	0.80	0.00	0.01	0.00	1.02	0.10	0.45	0.63	0.08
Avail Cap(c_a), veh/h	80	0	405	80	0	405	0	2167	967	71	2463	1098
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	0.0	37.2	60.9	0.0	35.2	0.0	24.4	10.2	61.9	12.4	7.7
Incr Delay (d2), s/veh	1.5	0.0	0.3	39.9	0.0	0.0	0.0	24.2	0.0	25.4	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.2	2.7	0.0	0.1	0.0	36.9	1.1	0.2	11.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	37.4	100.8	0.0	35.3	0.0	48.6	10.2	87.3	12.9	7.7
LnGrp LOS	D	A	D	F	A	D	A	F	B	F	B	A
Approach Vol, veh/h		103			64			2305			1570	
Approach Delay, s/veh		37.9			95.6			47.0			12.9	
Approach LOS		D			F			D			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	83.0		36.3		89.2		36.3				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	76.3		32.0		86.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	78.3		32.9		32.4		33.4				
Green Ext Time (p_c), s	0.0	0.0		0.0		11.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			C									

PM 2035 Base MTP + Project
6: Douglas Dr & North River Rd

Timings

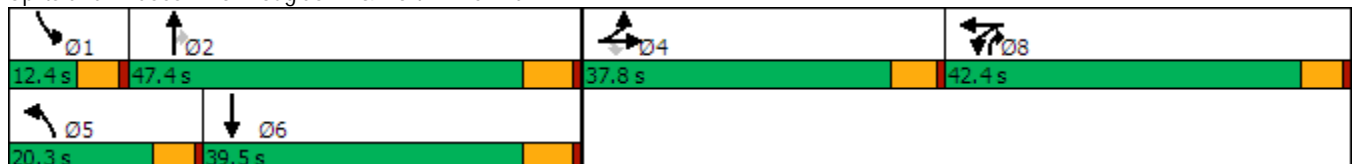


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↵	↑↑	↗	↵	↕	↵	↑↑	↗↗	↵	↑↑
Traffic Volume (vph)	40	110	80	650	70	170	770	990	40	660
Future Volume (vph)	40	110	80	650	70	170	770	990	40	660
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.3	47.4	42.4	12.4	39.5
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.5%	33.9%	30.3%	8.9%	28.2%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.6	13.6	13.6	36.0	36.0	15.0	43.2	81.3	6.7	32.4
Actuated g/C Ratio	0.11	0.11	0.11	0.30	0.30	0.12	0.36	0.68	0.06	0.27
v/c Ratio	0.21	0.30	0.28	0.73	0.50	0.84	0.66	0.49	0.44	0.81
Control Delay	50.3	50.3	2.2	49.2	37.2	82.9	37.5	1.8	72.4	49.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	50.3	2.2	49.2	37.2	82.9	37.5	1.8	72.4	49.4
LOS	D	D	A	D	D	F	D	A	E	D
Approach Delay		33.6			42.2		23.2			50.6
Approach LOS		C			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 120.1
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 33.4
 Intersection LOS: C
 Intersection Capacity Utilization 68.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: Douglas Dr & North River Rd



PM 2035 Base MTP + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	110	80	650	70	50	170	770	990	40	660	50
Future Volume (veh/h)	40	110	80	650	70	50	170	770	990	40	660	50
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	43	120	87	707	76	54	185	837	1076	43	717	54
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	158	315	141	923	264	187	219	1378	1804	62	1004	76
Arrive On Green	0.09	0.09	0.09	0.26	0.26	0.26	0.12	0.39	0.39	0.03	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	3563	1017	723	1781	3554	2790	1781	3350	252
Grp Volume(v), veh/h	43	120	87	707	0	130	185	837	1076	43	380	391
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1740	1781	1777	1395	1781	1777	1825
Q Serve(g_s), s	2.2	3.2	5.3	18.2	0.0	5.9	10.1	18.7	22.0	2.4	18.9	19.0
Cycle Q Clear(g_c), s	2.2	3.2	5.3	18.2	0.0	5.9	10.1	18.7	22.0	2.4	18.9	19.0
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	158	315	141	923	0	451	219	1378	1804	62	533	547
V/C Ratio(X)	0.27	0.38	0.62	0.77	0.00	0.29	0.85	0.61	0.60	0.69	0.71	0.71
Avail Cap(c_a), veh/h	574	1145	511	1327	0	648	267	1474	1880	126	596	612
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.3	42.7	43.6	34.0	0.0	29.5	42.6	24.4	10.1	47.4	31.0	31.0
Incr Delay (d2), s/veh	1.3	1.1	6.2	2.2	0.0	0.5	18.5	1.1	0.8	12.7	4.9	4.8
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	1.0	1.4	2.3	8.0	0.0	2.5	5.5	7.9	12.5	1.3	8.7	8.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	43.8	49.8	36.2	0.0	30.0	61.1	25.4	10.9	60.1	35.9	35.8
LnGrp LOS	D	D	D	D	A	C	E	C	B	E	D	D
Approach Vol, veh/h		250			837			2098			814	
Approach Delay, s/veh		45.8			35.2			21.1			37.2	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.9	44.7		14.6	17.6	36.0		31.1				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	7.0	41.2		32.0	14.9	33.3		37.0				
Max Q Clear Time (g_c+I1), s	4.4	24.0		7.3	12.1	21.0		20.2				
Green Ext Time (p_c), s	0.0	14.5		1.6	0.2	5.2		5.5				
Intersection Summary												
HCM 6th Ctrl Delay				28.9								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												

PM 2035 Base MTP + Project
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	140	1080	30	750	5	5	40	100	5	90
Future Volume (vph)	140	1080	30	750	5	5	40	100	5	90
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	51.0	12.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	51.0%	12.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	11.4	37.4	6.8	24.3		13.3	13.3		13.3	13.3
Actuated g/C Ratio	0.17	0.57	0.10	0.37		0.20	0.20		0.20	0.20
v/c Ratio	0.50	0.59	0.18	0.72		0.03	0.10		0.42	0.23
Control Delay	34.8	13.4	37.3	22.3		23.2	0.5		29.4	2.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	34.8	13.4	37.3	22.3		23.2	0.5		29.4	2.9
LOS	C	B	D	C		C	A		C	A
Approach Delay		15.8		22.8		4.7			17.1	
Approach LOS		B		C		A			B	

Intersection Summary





















Cycle Length: 100
 Actuated Cycle Length: 65.7
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.4
 Intersection LOS: B
 Intersection Capacity Utilization 59.7%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



PM 2035 Base MTP + Project
7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	1080	10	30	750	110	5	5	40	100	5	90
Future Volume (veh/h)	140	1080	10	30	750	110	5	5	40	100	5	90
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	152	1174	11	33	815	120	5	5	43	109	5	98
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	191	1397	13	57	970	143	66	46	623	88	2	623
Arrive On Green	0.11	0.39	0.39	0.03	0.31	0.31	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1781	3607	34	1781	3107	458	2	117	1585	7	6	1585
Grp Volume(v), veh/h	152	578	607	33	466	469	10	0	43	114	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1788	119	0	1585	13	0	1585
Q Serve(g_s), s	6.9	24.4	24.4	1.5	20.2	20.2	0.1	0.0	1.4	0.2	0.0	3.3
Cycle Q Clear(g_c), s	6.9	24.4	24.4	1.5	20.2	20.2	32.4	0.0	1.4	32.4	0.0	3.3
Prop In Lane	1.00		0.02	1.00		0.26	0.50		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	191	688	722	57	555	558	112	0	623	91	0	623
V/C Ratio(X)	0.80	0.84	0.84	0.58	0.84	0.84	0.09	0.00	0.07	1.26	0.00	0.16
Avail Cap(c_a), veh/h	344	974	1022	149	780	785	113	0	623	91	0	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	22.9	23.0	39.3	26.4	26.4	20.9	0.0	15.6	40.5	0.0	16.2
Incr Delay (d2), s/veh	7.4	4.7	4.5	8.9	5.8	5.8	0.3	0.0	0.0	179.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	10.5	10.9	0.8	9.0	9.1	0.1	0.0	0.5	6.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.4	27.6	27.4	48.3	32.2	32.2	21.2	0.0	15.7	219.7	0.0	16.3
LnGrp LOS	D	C	C	D	C	C	C	A	B	F	A	B
Approach Vol, veh/h		1337			968			53				212
Approach Delay, s/veh		29.3			32.8			16.7				125.7
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	37.8		37.0	13.9	31.6		37.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	6.9	45.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	3.5	26.4		34.4	8.9	22.2		34.4				
Green Ext Time (p_c), s	0.0	5.4		0.0	0.3	3.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				38.3								
HCM 6th LOS				D								

LOS Engineering, Inc.

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1210	860	20	5	20
Future Vol, veh/h	30	1210	860	20	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	33	1315	935	22	5	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	957	0	-	0	1670
Stage 1	-	-	-	-	946
Stage 2	-	-	-	-	724
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	714	-	-	-	87
Stage 1	-	-	-	-	338
Stage 2	-	-	-	-	441
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	714	-	-	-	83
Mov Cap-2 Maneuver	-	-	-	-	83
Stage 1	-	-	-	-	322
Stage 2	-	-	-	-	441

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	256
HCM Lane V/C Ratio	0.046	-	-	-	0.106
HCM Control Delay (s)	10.3	-	-	-	20.7
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

PM 2035 Base MTP + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	40.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Vol, veh/h	30	1180	112	112	860	10	48	0	48	20	0	10
Future Vol, veh/h	30	1180	112	112	860	10	48	0	48	20	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	1283	122	122	935	11	52	0	52	22	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	946	0	0	1405	0	0	2122	2600	703	1893	2656	473
Stage 1	-	-	-	-	-	-	1410	1410	-	1185	1185	-
Stage 2	-	-	-	-	-	-	712	1190	-	708	1471	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	721	-	-	482	-	-	~ 28	24	380	43	22	538
Stage 1	-	-	-	-	-	-	145	203	-	201	261	-
Stage 2	-	-	-	-	-	-	389	259	-	392	190	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	721	-	-	482	-	-	~ 21	17	380	29	16	538
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 21	17	-	29	16	-
Stage 1	-	-	-	-	-	-	138	194	-	192	195	-
Stage 2	-	-	-	-	-	-	285	193	-	323	181	-

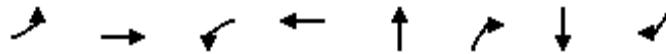
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	1.7	\$ 943.4	220.6
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	40	721	-	-	482	-	-	42
HCM Lane V/C Ratio	2.609	0.045	-	-	0.253	-	-	0.776
HCM Control Delay (s)	\$ 943.4	10.2	-	-	15	-	-	220.6
HCM Lane LOS	F	B	-	-	B	-	-	F
HCM 95th %tile Q(veh)	11.5	0.1	-	-	1	-	-	3

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

PM 2035 Base MTP + Project
10: Calle Montecito & North River Rd

Timings

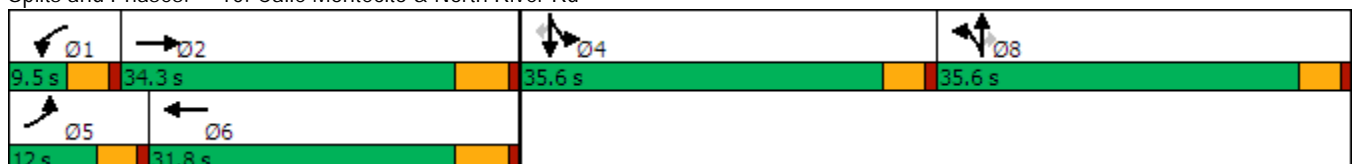


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↕	↗	↕	↗
Traffic Volume (vph)	160	990	10	770	5	40	5	70
Future Volume (vph)	160	990	10	770	5	40	5	70
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.2	5.2	27.1	10.4	10.4	15.0	15.0
Actuated g/C Ratio	0.10	0.48	0.06	0.34	0.13	0.13	0.19	0.19
v/c Ratio	1.02	0.65	0.10	0.93	0.17	0.14	0.57	0.20
Control Delay	114.8	22.6	45.1	41.4	32.9	1.0	37.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.8	22.6	45.1	41.4	32.9	1.0	37.5	3.4
LOS	F	C	D	D	C	A	D	A
Approach Delay		35.4		41.5	16.0		27.8	
Approach LOS		D		D	B		C	

Intersection Summary





















Cycle Length: 115
 Actuated Cycle Length: 80.4
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 36.5
 Intersection LOS: D
 Intersection Capacity Utilization 66.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



PM 2035 Base MTP + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	990	10	10	770	230	30	5	40	170	5	70
Future Volume (veh/h)	160	990	10	10	770	230	30	5	40	170	5	70
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	174	1076	11	11	837	250	33	5	43	185	5	76
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	202	1639	17	25	959	286	141	21	144	256	7	234
Arrive On Green	0.11	0.45	0.45	0.01	0.36	0.36	0.09	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	3604	37	1781	2697	805	1557	236	1585	1737	47	1585
Grp Volume(v), veh/h	174	531	556	11	551	536	38	0	43	190	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1725	1793	0	1585	1784	0	1585
Q Serve(g_s), s	6.4	15.4	15.4	0.4	19.2	19.2	1.3	0.0	1.7	6.7	0.0	2.8
Cycle Q Clear(g_c), s	6.4	15.4	15.4	0.4	19.2	19.2	1.3	0.0	1.7	6.7	0.0	2.8
Prop In Lane	1.00		0.02	1.00		0.47	0.87		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	202	808	848	25	631	613	163	0	144	263	0	234
V/C Ratio(X)	0.86	0.66	0.66	0.45	0.87	0.87	0.23	0.00	0.30	0.72	0.00	0.33
Avail Cap(c_a), veh/h	202	808	848	135	701	681	840	0	742	835	0	742
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.8	14.0	14.0	32.4	19.9	19.9	28.0	0.0	28.1	26.9	0.0	25.3
Incr Delay (d2), s/veh	29.5	1.9	1.8	12.1	10.9	11.3	0.7	0.0	1.2	3.7	0.0	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	4.2	5.8	6.1	0.3	9.1	8.9	0.6	0.0	0.7	3.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.4	16.0	15.9	44.5	30.9	31.2	28.7	0.0	29.3	30.7	0.0	26.1
LnGrp LOS	E	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1261			1098			81			266	
Approach Delay, s/veh		21.8			31.2			29.0			29.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	35.8		14.4	12.0	29.2		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.4	17.4		8.7	8.4	21.2		3.7				
Green Ext Time (p_c), s	0.0	3.9		1.0	0.0	2.3		0.3				

Intersection Summary

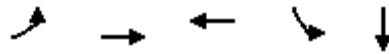
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

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

PM 2035 Base MTP + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↖	↖	↗		
Traffic Volume (vph)	130	1080	930	60	0		
Future Volume (vph)	130	1080	930	60	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	19.0	54.9	45.4	35.6	35.6	9.5	35.6
Total Split (%)	19.0%	54.9%	45.4%	35.6%	35.6%	10%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effect Green (s)	11.0	43.5	27.7	11.4	11.4		
Actuated g/C Ratio	0.16	0.64	0.41	0.17	0.17		
v/c Ratio	0.49	0.52	0.77	0.28	0.23		
Control Delay	36.6	8.5	22.6	29.4	1.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	36.6	8.5	22.6	29.4	1.1		
LOS	D	A	C	C	A		
Approach Delay		11.5	22.6		11.7		
Approach LOS		B	C		B		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 68
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 16.2
 Intersection LOS: B
 Intersection Capacity Utilization 55.6%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

PM 2035 Base MTP + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↕		↗	↘	
Traffic Volume (veh/h)	130	1080	0	0	930	80	0	0	0	60	0	100
Future Volume (veh/h)	130	1080	0	0	930	80	0	0	0	60	0	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1174	0	0	1011	87	0	0	0	65	0	109
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	188	2180	0	4	1366	118	0	237	0	378	0	201
Arrive On Green	0.11	0.61	0.00	0.00	0.41	0.41	0.00	0.00	0.00	0.13	0.00	0.13
Sat Flow, veh/h	1781	3647	0	1781	3311	285	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	141	1174	0	0	542	556	0	0	0	65	0	109
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1819	0	1870	0	1781	0	1585
Q Serve(g_s), s	3.6	9.0	0.0	0.0	12.2	12.2	0.0	0.0	0.0	1.6	0.0	3.1
Cycle Q Clear(g_c), s	3.6	9.0	0.0	0.0	12.2	12.2	0.0	0.0	0.0	1.6	0.0	3.1
Prop In Lane	1.00		0.00	1.00		0.16	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	2180	0	4	733	751	0	237	0	378	0	201
V/C Ratio(X)	0.75	0.54	0.00	0.00	0.74	0.74	0.00	0.00	0.00	0.17	0.00	0.54
Avail Cap(c_a), veh/h	546	3619	0	188	1453	1487	0	1225	0	1281	0	1005
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	5.3	0.0	0.0	11.8	11.8	0.0	0.0	0.0	18.7	0.0	19.4
Incr Delay (d2), s/veh	5.9	0.2	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.2	0.0	2.3
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	1.7	2.0	0.0	0.0	4.1	4.2	0.0	0.0	0.0	0.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.4	5.5	0.0	0.0	13.2	13.2	0.0	0.0	0.0	18.9	0.0	21.6
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	C
Approach Vol, veh/h		1315			1098			0				174
Approach Delay, s/veh		7.7			13.2			0.0				20.6
Approach LOS		A			B							C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	35.7		11.6	9.5	26.2		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.0	48.2		30.0	14.5	38.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	11.0		5.1	5.6	14.2		0.0				
Green Ext Time (p_c), s	0.0	7.3		0.7	0.3	5.3		0.0				

Intersection Summary

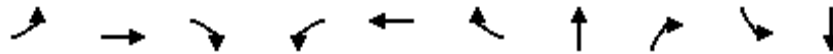
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

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

PM 2035 Base MTP + Project
12: College Blvd & North River Rd

Timings

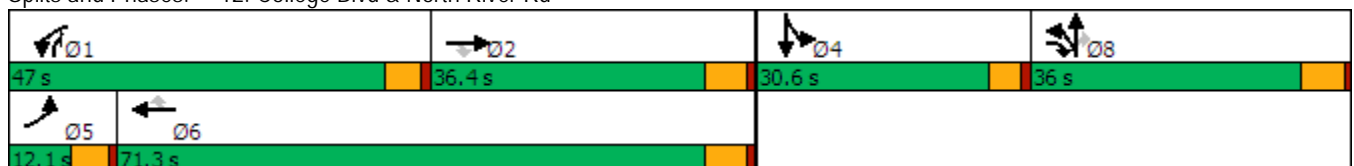


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	550	520	1270	470	70	40	1450	30	50
Future Volume (vph)	30	550	520	1270	470	70	40	1450	30	50
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	12.1	36.4	36.0	47.0	71.3	71.3	36.0	47.0	30.6	30.6
Total Split (%)	8.1%	24.3%	24.0%	31.3%	47.5%	47.5%	24.0%	31.3%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.7	26.2	58.1	42.4	66.9	66.9	30.6	78.8	11.5	11.5
Actuated g/C Ratio	0.05	0.20	0.45	0.33	0.52	0.52	0.24	0.61	0.09	0.09
v/c Ratio	0.37	0.84	0.64	1.23	0.28	0.09	1.30	0.80	0.21	0.36
Control Delay	75.7	61.8	11.3	149.4	20.5	3.3	189.7	15.3	58.8	59.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	61.8	11.3	149.4	20.5	3.3	189.7	15.3	58.8	59.8
LOS	E	E	B	F	C	A	F	B	E	E
Approach Delay		38.4			110.3		60.0			59.4
Approach LOS		D			F		E			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 129.7
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.30
 Intersection Signal Delay: 73.6
 Intersection Capacity Utilization 99.6%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

PM 2035 Base MTP + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	550	520	1270	470	70	460	40	1450	30	50	5
Future Volume (veh/h)	30	550	520	1270	470	70	460	40	1450	30	50	5
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	33	598	565	1380	511	76	500	43	1576	33	54	5
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	48	835	740	1112	1884	840	382	33	1545	85	80	7
Arrive On Green	0.03	0.24	0.24	0.32	0.53	0.53	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1646	142	2790	1781	1686	156
Grp Volume(v), veh/h	33	598	565	1380	511	76	543	0	1576	33	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1788	0	1395	1781	0	1842
Q Serve(g_s), s	2.4	20.1	30.6	41.9	10.3	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Cycle Q Clear(g_c), s	2.4	20.1	30.6	41.9	10.3	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	0.92		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	48	835	740	1112	1884	840	415	0	1545	85	0	87
V/C Ratio(X)	0.69	0.72	0.76	1.24	0.27	0.09	1.31	0.00	1.02	0.39	0.00	0.67
Avail Cap(c_a), veh/h	96	835	740	1112	1884	840	415	0	1545	356	0	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	45.8	26.6	44.1	16.8	15.1	50.0	0.0	29.0	60.2	0.0	61.0
Incr Delay (d2), s/veh	16.4	2.9	4.7	116.1	0.1	0.0	155.5	0.0	28.1	2.9	0.0	8.7
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	1.3	9.2	19.8	35.7	4.2	1.1	31.4	0.0	28.9	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.2	48.7	31.4	160.2	16.9	15.1	205.5	0.0	57.1	63.1	0.0	69.7
LnGrp LOS	E	D	C	F	B	B	F	A	F	E	A	E
Approach Vol, veh/h		1196			1967			2119				92
Approach Delay, s/veh		41.4			117.4			95.1				67.3
Approach LOS		D			F			F				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.0	36.4		10.8	8.6	74.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	41.9	30.6		26.0	7.0	65.5		30.2				
Max Q Clear Time (g_c+I1), s	43.9	32.6		6.1	4.4	12.3		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	2.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				90.8								
HCM 6th LOS				F								

PM 2035 Base MTP + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	30	90	110	1960	1680	60
Future Volume (vph)	30	90	110	1960	1680	60
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	17.1	6.6	68.1	53.8	53.8
Actuated g/C Ratio	0.14	0.21	0.08	0.83	0.66	0.66
v/c Ratio	0.13	0.29	0.44	0.72	0.79	0.06
Control Delay	31.2	24.4	43.1	9.6	16.6	6.1
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	31.2	24.4	43.1	10.0	16.6	6.1
LOS	C	C	D	B	B	A
Approach Delay	26.1			11.8	16.2	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 81.9
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 14.2
 Intersection Capacity Utilization 69.5%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 13: College Blvd & Buchanon Park



PM 2035 Base MTP + Project
13: College Blvd & Buchanon Park

HCM 6th Signalized Intersection Summary



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	90	110	1960	1680	60
Future Volume (veh/h)	30	90	110	1960	1680	60
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	33	98	120	2130	1826	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	186	287	265	2663	2135	952
Arrive On Green	0.10	0.10	0.08	0.75	0.60	0.60
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	33	98	120	2130	1826	65
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.2	3.8	2.4	26.6	29.9	1.2
Cycle Q Clear(g_c), s	1.2	3.8	2.4	26.6	29.9	1.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	186	287	265	2663	2135	952
V/C Ratio(X)	0.18	0.34	0.45	0.80	0.86	0.07
Avail Cap(c_a), veh/h	703	747	317	3085	2504	1117
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	29.0	25.4	31.3	5.6	11.6	5.9
Incr Delay (d2), s/veh	0.5	0.7	1.2	1.4	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.6	1.0	6.0	10.2	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.5	26.1	32.6	6.9	14.4	5.9
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	131			2250	1891	
Approach Delay, s/veh	26.9			8.3	14.1	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		59.0		12.0	10.5	48.4
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		28.6		5.8	4.4	31.9
Green Ext Time (p_c), s		18.3		0.5	0.1	10.7
Intersection Summary						
HCM 6th Ctrl Delay			11.4			
HCM 6th LOS			B			

LOS Engineering, Inc.

PM 2035 Base MTP + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	170	20	60	10	40	90	1850	50	1640	140
Future Volume (vph)	170	20	60	10	40	90	1850	50	1640	140
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	11.9	62.1	11.2	61.4	61.4
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	10.8%	56.5%	10.2%	55.8%	55.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	19.4	19.4		19.4	19.4	6.8	58.5	6.0	55.3	55.3
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.07	0.60	0.06	0.57	0.57
v/c Ratio	0.71	0.30		0.30	0.11	0.79	0.70	0.50	0.89	0.16
Control Delay	50.8	11.2		35.4	2.2	86.5	16.8	62.9	26.3	7.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	5.5	0.0
Total Delay	50.8	11.2		35.4	2.2	86.5	16.8	62.9	31.9	7.2
LOS	D	B		D	A	F	B	E	C	A
Approach Delay		35.2		23.4			19.8		30.8	
Approach LOS		D		C			B		C	

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 97.2
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 25.7
 Intersection LOS: C
 Intersection Capacity Utilization 79.4%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM 2035 Base MTP + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	20	90	60	10	40	90	1850	100	50	1640	140
Future Volume (veh/h)	170	20	90	60	10	40	90	1850	100	50	1640	140
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	185	22	98	65	11	43	98	2011	109	54	1783	152
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	283	78	347	294	45	413	116	2733	148	69	1867	833
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.07	0.55	0.55	0.04	0.53	0.53
Sat Flow, veh/h	1350	299	1332	884	173	1585	1781	4958	268	1781	3554	1585
Grp Volume(v), veh/h	185	0	120	76	0	43	98	1378	742	54	1783	152
Grp Sat Flow(s),veh/h/ln	1350	0	1631	1057	0	1585	1781	1702	1822	1781	1777	1585
Q Serve(g_s), s	14.0	0.0	6.1	4.5	0.0	2.2	5.7	31.9	32.2	3.1	50.0	5.3
Cycle Q Clear(g_c), s	24.6	0.0	6.1	10.7	0.0	2.2	5.7	31.9	32.2	3.1	50.0	5.3
Prop In Lane	1.00		0.82	0.86		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	283	0	425	339	0	413	116	1877	1005	69	1867	833
V/C Ratio(X)	0.65	0.00	0.28	0.22	0.00	0.10	0.85	0.73	0.74	0.78	0.96	0.18
Avail Cap(c_a), veh/h	345	0	499	400	0	485	116	1877	1005	104	1890	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	0.0	30.9	34.5	0.0	29.4	48.4	17.7	17.8	49.8	23.6	13.0
Incr Delay (d2), s/veh	3.2	0.0	0.4	0.3	0.0	0.1	40.8	1.5	2.9	18.8	11.8	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	2.5	1.7	0.0	0.8	3.8	12.2	13.5	1.8	22.6	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.1	0.0	31.2	34.8	0.0	29.5	89.1	19.2	20.7	68.6	35.5	13.1
LnGrp LOS	D	A	C	C	A	C	F	B	C	E	D	B
Approach Vol, veh/h		305			119			2218			1989	
Approach Delay, s/veh		40.2			32.9			22.8			34.7	
Approach LOS		D			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	63.4		31.9	11.9	60.7		31.9				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.1	56.3		* 32	6.8	55.6		* 32				
Max Q Clear Time (g_c+I1), s	5.1	34.2		26.6	7.7	52.0		12.7				
Green Ext Time (p_c), s	0.0	12.5		0.6	0.0	2.9		0.4				

Intersection Summary

HCM 6th Ctrl Delay	29.3
HCM 6th LOS	C

Notes

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

PM 2035 Base MTP + Project
15: College Blvd & Via Cupeno

Timings



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	10	10	10	510	1750	5	1500
Future Volume (vph)	10	10	10	510	1750	5	1500
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	31.0	81.9	11.1	62.0
Total Split (%)	22.0%	16.0%	16.0%	20.7%	54.6%	7.4%	41.3%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	25.9	12.2	12.2	25.2	82.3	6.0	54.0
Actuated g/C Ratio	0.19	0.09	0.09	0.18	0.59	0.04	0.39
v/c Ratio	0.88	0.56	0.04	0.89	0.68	0.07	0.91
Control Delay	62.6	76.0	0.3	73.9	22.2	69.6	48.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.6	76.0	0.3	73.9	22.2	69.6	48.9
LOS	E	E	A	E	C	E	D
Approach Delay	62.6	67.5			33.3		49.0
Approach LOS	E	E			C		D

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 139.3
 Natural Cycle: 140
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 42.9
 Intersection LOS: D
 Intersection Capacity Utilization 87.0%
 ICU Level of Service E
 Analysis Period (min) 15






















Splits and Phases: 15: College Blvd & Via Cupeno



LOS Engineering, Inc.

PM 2035 Base MTP + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	10	220	70	10	10	510	1750	120	5	1500	140
Future Volume (veh/h)	320	10	220	70	10	10	510	1750	120	5	1500	140
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	348	11	239	76	11	11	554	1902	130	5	1630	152
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	371	15	318	98	14	99	617	2715	185	14	1831	170
Arrive On Green	0.21	0.21	0.21	0.06	0.06	0.06	0.18	0.56	0.56	0.01	0.39	0.39
Sat Flow, veh/h	1781	70	1526	1565	227	1585	3456	4882	333	1781	4752	442
Grp Volume(v), veh/h	348	0	250	87	0	11	554	1324	708	5	1167	615
Grp Sat Flow(s),veh/h/ln	1781	0	1596	1792	0	1585	1728	1702	1811	1781	1702	1791
Q Serve(g_s), s	25.5	0.0	19.5	6.3	0.0	0.9	20.8	37.5	37.8	0.4	42.5	42.7
Cycle Q Clear(g_c), s	25.5	0.0	19.5	6.3	0.0	0.9	20.8	37.5	37.8	0.4	42.5	42.7
Prop In Lane	1.00		0.96	0.87		1.00	1.00		0.18	1.00		0.25
Lane Grp Cap(c), veh/h	371	0	333	112	0	99	617	1893	1007	14	1312	690
V/C Ratio(X)	0.94	0.00	0.75	0.77	0.00	0.11	0.90	0.70	0.70	0.37	0.89	0.89
Avail Cap(c_a), veh/h	376	0	337	257	0	227	675	1927	1025	81	1417	745
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	0.0	49.3	61.2	0.0	58.7	53.3	21.4	21.5	65.5	38.1	38.2
Incr Delay (d2), s/veh	30.6	0.0	9.0	10.8	0.0	0.5	14.2	1.1	2.1	15.9	7.0	12.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.5	0.0	8.6	3.2	0.0	0.4	10.2	14.9	16.2	0.2	18.8	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.2	0.0	58.3	72.0	0.0	59.2	67.5	22.5	23.6	81.4	45.1	50.6
LnGrp LOS	F	A	E	E	A	E	E	C	C	F	D	D
Approach Vol, veh/h		598			98			2586			1787	
Approach Delay, s/veh		72.2			70.6			32.4			47.1	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	80.6		32.7	28.8	57.9		13.3				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	75.1		28.0	25.9	55.2		19.0				
Max Q Clear Time (g_c+I1), s	2.4	39.8		27.5	22.8	44.7		8.3				
Green Ext Time (p_c), s	0.0	14.8		0.2	0.9	6.4		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				43.0								
HCM 6th LOS				D								

PM 2035 Base MTP + Project
16: College Blvd & SR-76

Timings

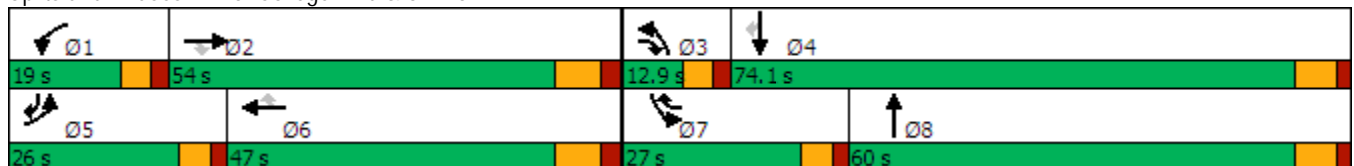


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑	↔↔	↑↑	↗
Traffic Volume (vph)	660	1580	70	390	1070	760	60	930	660	900	520
Future Volume (vph)	660	1580	70	390	1070	760	60	930	660	900	520
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	26.0	54.0	12.9	19.0	47.0	27.0	12.9	60.0	27.0	74.1	26.0
Total Split (%)	16.3%	33.8%	8.1%	11.9%	29.4%	16.9%	8.1%	37.5%	16.9%	46.3%	16.3%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effect Green (s)	20.3	46.0	61.0	13.3	39.0	68.3	7.0	53.2	21.3	67.5	94.6
Actuated g/C Ratio	0.13	0.29	0.38	0.08	0.24	0.43	0.04	0.33	0.13	0.42	0.59
v/c Ratio	1.65	1.18	0.11	1.49	0.94	1.12	0.43	1.28	1.57	0.66	0.59
Control Delay	341.9	135.2	2.4	283.6	73.6	109.5	83.7	174.0	308.5	39.6	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	341.9	135.2	2.4	283.6	73.6	109.5	83.7	174.0	308.5	39.6	20.4
LOS	F	F	A	F	E	F	F	F	F	D	C
Approach Delay		190.3			122.8			170.2		120.1	
Approach LOS		F			F			F		F	

Intersection Summary

































Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.65
 Intersection Signal Delay: 149.9
 Intersection Capacity Utilization 121.8%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service H

Splits and Phases: 16: College Blvd & SR-76



PM 2035 Base MTP + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 		
Traffic Volume (veh/h)	660	1580	70	390	1070	760	60	930	430	660	900	520
Future Volume (veh/h)	660	1580	70	390	1070	760	60	930	430	660	900	520
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	717	1717	76	424	1163	826	65	1011	467	717	978	565
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	438	1468	503	287	1245	597	102	791	358	460	1550	892
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.03	0.33	0.33	0.13	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2378	1076	3456	3554	1585
Grp Volume(v), veh/h	717	1717	76	424	1163	826	65	750	728	717	978	565
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1677	1728	1777	1585
Q Serve(g_s), s	20.3	46.0	5.5	13.3	35.7	39.0	3.0	53.2	53.2	21.3	34.3	38.7
Cycle Q Clear(g_c), s	20.3	46.0	5.5	13.3	35.7	39.0	3.0	53.2	53.2	21.3	34.3	38.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	438	1468	503	287	1245	597	102	591	558	460	1550	892
V/C Ratio(X)	1.64	1.17	0.15	1.48	0.93	1.38	0.64	1.27	1.31	1.56	0.63	0.63
Avail Cap(c_a), veh/h	438	1468	503	287	1245	597	156	591	558	460	1550	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	57.0	39.2	73.3	59.2	49.8	76.8	53.4	53.4	69.3	35.1	23.7
Incr Delay (d2), s/veh	296.1	84.0	0.1	232.1	12.9	182.5	6.4	134.2	150.3	261.8	0.8	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	31.2	2.2	15.2	16.9	54.1	1.4	45.7	45.6	26.2	15.1	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	366.0	141.0	39.3	305.5	72.1	232.4	83.2	187.6	203.7	331.2	35.9	25.2
LnGrp LOS	F	F	D	F	E	F	F	F	F	F	D	C
Approach Vol, veh/h		2510			2413			1543			2260	
Approach Delay, s/veh		202.2			168.0			190.8			126.9	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	54.0	10.4	76.6	26.0	47.0	27.0	60.0				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 13	46.0	* 7.2	67.3	* 20	39.0	* 21	53.2				
Max Q Clear Time (g_c+I1), s	15.3	48.0	5.0	40.7	22.3	41.0	23.3	55.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	171.2
HCM 6th LOS	F

Notes

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

PM 2035 Base MTP + Project
17: North River Rd/Vandergrift Blvd

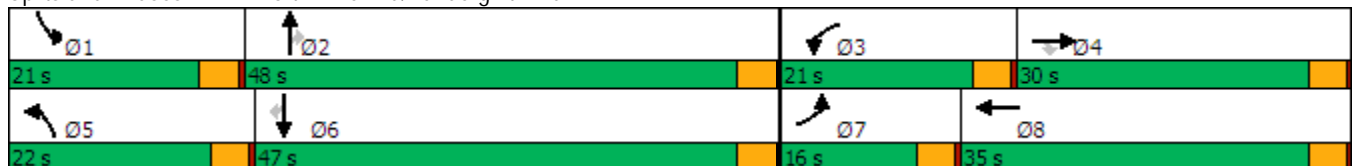
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	90	110	150	580	130	280	850	930	310	1090	70	
Future Volume (vph)	90	110	150	580	130	280	850	930	310	1090	70	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	16.0	30.0	30.0	21.0	35.0	22.0	48.0	48.0	21.0	47.0	47.0	
Total Split (%)	13.3%	25.0%	25.0%	17.5%	29.2%	18.3%	40.0%	40.0%	17.5%	39.2%	39.2%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	10.3	15.7	15.7	17.1	22.4	18.1	44.2	44.2	17.1	43.1	43.1	
Actuated g/C Ratio	0.09	0.14	0.14	0.16	0.20	0.16	0.40	0.40	0.16	0.39	0.39	
v/c Ratio	0.59	0.45	0.45	1.18	0.76	1.05	0.45	1.07	1.23	0.85	0.11	
Control Delay	64.1	47.9	10.2	142.2	48.4	111.6	25.8	68.0	171.4	38.8	1.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	64.1	47.9	10.2	142.2	48.4	111.6	25.8	68.0	171.4	38.8	1.6	
LOS	E	D	B	F	D	F	C	E	F	D	A	
Approach Delay		35.9			112.4		56.5			65.0		
Approach LOS		D			F		E			E		

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 110
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.23
 Intersection Signal Delay: 67.7
 Intersection Capacity Utilization 90.5%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service E

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM 2035 Base MTP + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	110	150	580	130	140	280	850	930	310	1090	70
Future Volume (veh/h)	90	110	150	580	130	140	280	850	930	310	1090	70
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	98	120	163	630	141	152	304	924	1011	337	1185	76
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	124	238	202	545	178	191	298	2085	647	281	1418	633
Arrive On Green	0.07	0.13	0.13	0.16	0.22	0.22	0.17	0.41	0.41	0.16	0.40	0.40
Sat Flow, veh/h	1781	1870	1585	3456	823	887	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	98	120	163	630	0	293	304	924	1011	337	1185	76
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1711	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	5.8	6.4	10.8	17.0	0.0	17.5	18.0	14.1	44.0	17.0	32.4	3.3
Cycle Q Clear(g_c), s	5.8	6.4	10.8	17.0	0.0	17.5	18.0	14.1	44.0	17.0	32.4	3.3
Prop In Lane	1.00		1.00	1.00		0.52	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	238	202	545	0	369	298	2085	647	281	1418	633
V/C Ratio(X)	0.79	0.50	0.81	1.16	0.00	0.79	1.02	0.44	1.56	1.20	0.84	0.12
Avail Cap(c_a), veh/h	198	451	383	545	0	492	298	2085	647	281	1418	633
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	43.8	45.7	45.4	0.0	40.0	44.9	23.0	31.9	45.4	29.2	20.4
Incr Delay (d2), s/veh	10.7	1.6	7.4	89.1	0.0	6.4	57.8	0.7	260.3	118.6	6.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.1	4.6	14.0	0.0	7.9	12.7	5.7	63.0	16.7	14.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	45.5	53.1	134.5	0.0	46.4	102.6	23.7	292.1	164.0	35.1	20.8
LnGrp LOS	E	D	D	F	A	D	F	C	F	F	D	C
Approach Vol, veh/h		381			923			2239			1598	
Approach Delay, s/veh		52.5			106.5			155.6			61.6	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	48.0	21.0	17.7	22.0	47.0	11.5	27.2				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	17.0	44.0	17.0	26.0	18.0	43.0	12.0	31.0				
Max Q Clear Time (g_c+I1), s	19.0	46.0	19.0	12.8	20.0	34.4	7.8	19.5				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	5.3	0.1	1.3				
Intersection Summary												
HCM 6th Ctrl Delay				110.0								
HCM 6th LOS				F								

Appendix Q

Horizon Year 2035 Alternative Segment Adjustments

2035 Alternative (no Pala and no Melrose) ADT Post-Processing Adjustments

Segment	2018			2030 Circ. Element			2035 Post-Processing Adjustments			
	ADT	Cap.	LOS	Alt + Project ADT	Cap.	LOS	Alt + N.River Farms + Project ADT	Cap.	LOS	
Douglas Drive										
N. River Rd to Rainier Way	35,915	40,000	E	41,568	50,000	D	44,000	6%	50,000	D
Rainier Way to Pala Rd	36,579	40,000	E	41,568	50,000	D	44,000	6%	50,000	D
Pala Rd to El Camino Real	37,080	40,000	E	43,768	50,000	D	44,000	1%	50,000	D
El Camino Real to Mission Ave	23,305	30,000	D	25,628	40,000	C	26,000	1%	40,000	C
Mission Ave to SR-76	20,142	40,000	B	25,644	40,000	C	26,600	4%	40,000	C
North River Road										
Douglas Dr to Avenida Descanso	20,223	40,000	B	26,200	40,000	C	28,300	7%	40,000	C
Ave. Descanso to Riverview Way	18,195	40,000	B	26,200	40,000	C	28,300	7%	40,000	C
Riverview Way to Calle Montecito	19,589	40,000	B	26,200	40,000	C	28,300	7%	40,000	C
Calle Montecito to Redondo Dr	20,485	40,000	B	26,200	40,000	C	28,300	7%	40,000	C
Redondo Dr to College Blvd	20,383	40,000	B	26,040	40,000	C	27,000	4%	40,000	C
College Blvd to Vandergrift Blvd	31,503	45,000	C	41,920	45,000	E	42,000	0%	45,000	E
College Blvd										
N. River Rd to Buchanan Park	35,485	40,000	E	46,520	40,000	E	47,000	1%	50,000	E
Buchanan Park to Adams St	34,426	40,000	D	46,520	40,000	E	47,000	1%	50,000	E
Adams St to Via Cupeno	34,479	50,000	C	46,488	50,000	E	47,000	1%	50,000	E
Via Cupeno to SR-76	41,981	50,000	D	46,488	50,000	E	47,000	1%	50,000	E
SR-76										
Foussat Rd to Douglas Dr	41,500	60,000	C	62,612	60,000	F	63,000	1%	60,000	F
Douglas Dr to Rancho Del Oro	46,500	60,000	C	55,732	60,000	E	56,000	0%	60,000	E
Frazee Rd to College Blvd	41,000	60,000	C	53,562	60,000	D	54,200	1%	60,000	D
College Blvd to N. Santa Fe	46,000	60,000	C	62,788	60,000	F	63,000	0%	60,000	F

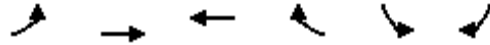
↑ % change from Circ Elem. ↑

Appendix R

Horizon Year 2035 Alternative Intersection LOS Worksheets

AM 2035 Alt
1: SR-76 & Douglas Dr

Timings

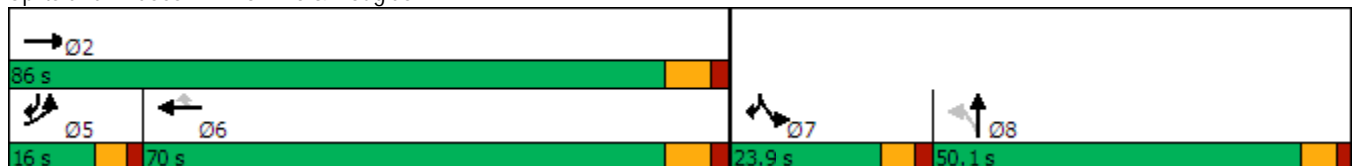


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations							
Traffic Volume (vph)	292	1130	2200	239	288	587	
Future Volume (vph)	292	1130	2200	239	288	587	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	10.3	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	16.0	33.0	33.0	33.0	22.1		50.1
Total Split (s)	16.0	86.0	70.0	70.0	23.9		50.1
Total Split (%)	10.0%	53.8%	43.8%	43.8%	14.9%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	10.3	78.0	62.0	62.0	17.8	34.2	
Actuated g/C Ratio	0.09	0.71	0.56	0.56	0.16	0.31	
v/c Ratio	0.99	0.49	1.20	0.26	1.09	0.49	
Control Delay	97.7	7.9	119.2	3.1	124.6	4.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	97.7	7.9	119.2	3.1	124.6	4.3	
LOS	F	A	F	A	F	A	
Approach Delay		26.3	107.8				
Approach LOS		C	F				

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 71.5
 Intersection LOS: E
 Intersection Capacity Utilization 100.1%
 ICU Level of Service G
 Analysis Period (min) 15

























Splits and Phases: 1: SR-76 & Douglas Dr



LOS Engineering, Inc.

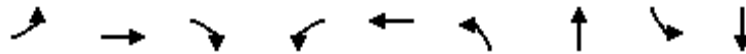
AM 2035 Alt
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	292	1130	0	0	2200	239	0	0	0	288	0	587
Future Volume (veh/h)	292	1130	0	0	2200	239	0	0	0	288	0	587
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	317	1228	0	0	2391	260	0	0	0	313	0	638
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	324	2522	0	0	2005	894	0	2	0	289	0	0
Arrive On Green	0.09	0.71	0.00	0.00	0.56	0.56	0.00	0.00	0.00	0.16	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	313	
Grp Volume(v), veh/h	317	1228	0	0	2391	260	0	0	0	313	123.6	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	10.1	16.8	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Cycle Q Clear(g_c), s	10.1	16.8	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	324	2522	0	0	2005	894	0	2	0	289		
V/C Ratio(X)	0.98	0.49	0.00	0.00	1.19	0.29	0.00	0.00	0.00	1.08		
Avail Cap(c_a), veh/h	324	2522	0	0	2005	894	0	749	0	289		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	49.7	7.1	0.0	0.0	23.9	12.5	0.0	0.0	0.0	46.1		
Incr Delay (d2), s/veh	44.1	0.1	0.0	0.0	91.9	0.2	0.0	0.0	0.0	77.5		
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		
%ile BackOfQ(50%),veh/ln	6.3	5.7	0.0	0.0	49.5	3.3	0.0	0.0	0.0	14.0		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	93.8	7.2	0.0	0.0	115.9	12.7	0.0	0.0	0.0	123.6		
LnGrp LOS	F	A	A	A	F	B	A	A	A	F		
Approach Vol, veh/h		1545			2651			0				
Approach Delay, s/veh		25.0			105.8			0.0				
Approach LOS		C			F							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		86.0			16.0	70.0	23.9	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		78.0			* 10	62.0	17.8	44.0				
Max Q Clear Time (g_c+I1), s		18.8			12.1	64.0	19.8	0.0				
Green Ext Time (p_c), s		8.1			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					79.3							
HCM 6th LOS					E							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM 2035 Alt
2: Douglas Dr & Mission Ave

Timings

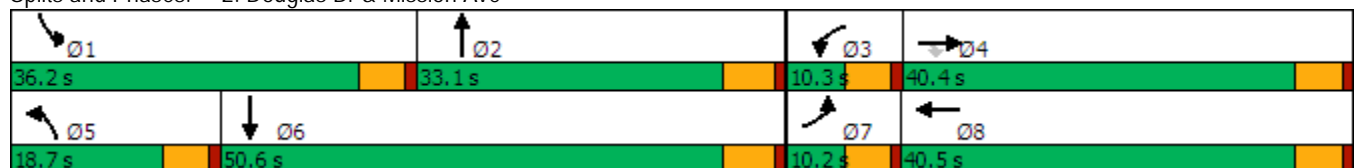


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	79	320	70	60	540	130	361	430	795
Future Volume (vph)	79	320	70	60	540	130	361	430	795
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.2	40.4	40.4	10.3	40.5	18.7	33.1	36.2	50.6
Total Split (%)	8.5%	33.7%	33.7%	8.6%	33.8%	15.6%	27.6%	30.2%	42.2%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.2	30.8	30.8	5.3	33.5	12.4	19.4	31.5	38.6
Actuated g/C Ratio	0.05	0.28	0.28	0.05	0.31	0.11	0.18	0.29	0.36
v/c Ratio	0.53	0.35	0.13	0.76	0.89	0.70	0.64	0.91	0.77
Control Delay	66.0	32.2	0.5	102.6	42.4	67.6	46.4	63.0	36.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.0	32.2	0.5	102.6	42.4	67.6	46.4	63.0	36.6
LOS	E	C	A	F	D	E	D	E	D
Approach Delay		33.2			46.1		51.9		45.2
Approach LOS		C			D		D		D

Intersection Summary

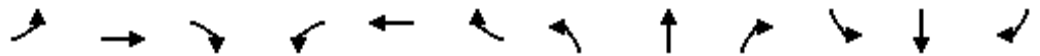
Cycle Length: 120
 Actuated Cycle Length: 108.7
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 44.8
 Intersection LOS: D
 Intersection Capacity Utilization 83.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM 2035 Alt
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑	↗	↖	↑↑		↖	↑↑		↖	↑↑	
Traffic Volume (veh/h)	79	320	70	60	540	385	130	361	10	430	795	86
Future Volume (veh/h)	79	320	70	60	540	385	130	361	10	430	795	86
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	86	348	76	65	587	418	141	392	11	467	864	93
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	155	1141	509	83	640	456	176	496	14	501	1046	113
Arrive On Green	0.04	0.32	0.32	0.05	0.32	0.32	0.10	0.14	0.14	0.28	0.32	0.32
Sat Flow, veh/h	3456	3554	1585	1781	1982	1411	1781	3530	99	1781	3236	348
Grp Volume(v), veh/h	86	348	76	65	526	479	141	197	206	467	474	483
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1616	1781	1777	1853	1781	1777	1808
Q Serve(g_s), s	2.5	7.5	3.5	3.7	29.0	29.0	7.9	10.9	11.0	26.0	25.1	25.1
Cycle Q Clear(g_c), s	2.5	7.5	3.5	3.7	29.0	29.0	7.9	10.9	11.0	26.0	25.1	25.1
Prop In Lane	1.00		1.00	1.00		0.87	1.00		0.05	1.00		0.19
Lane Grp Cap(c), veh/h	155	1141	509	83	574	522	176	249	260	501	575	584
V/C Ratio(X)	0.56	0.31	0.15	0.78	0.92	0.92	0.80	0.79	0.79	0.93	0.83	0.83
Avail Cap(c_a), veh/h	173	1222	545	91	613	557	238	476	497	544	782	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	26.0	24.6	48.0	33.1	33.1	44.9	42.3	42.3	35.6	31.8	31.8
Incr Delay (d2), s/veh	3.1	0.1	0.1	31.7	18.1	19.5	13.2	5.5	5.4	22.1	5.3	5.2
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	1.1	3.2	1.3	2.4	15.1	13.9	4.1	5.1	5.4	14.1	11.4	11.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.7	26.2	24.8	79.7	51.3	52.6	58.1	47.8	47.7	57.7	37.1	37.0
LnGrp LOS	D	C	C	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		510			1070			544			1424	
Approach Delay, s/veh		30.1			53.6			50.4			43.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.8	20.1	9.9	38.1	15.1	38.7	9.7	38.3				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	31.1	27.3	5.2	35.0	13.6	44.8	5.1	35.1				
Max Q Clear Time (g_c+I1), s	28.0	13.0	5.7	9.5	9.9	27.1	4.5	31.0				
Green Ext Time (p_c), s	0.7	1.3	0.0	1.9	0.1	4.1	0.0	1.9				

Intersection Summary												
HCM 6th Ctrl Delay											45.8	
HCM 6th LOS											D	

Notes

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

AM 2035 Alt
3: Douglas Dr & El Camino Real

Timings

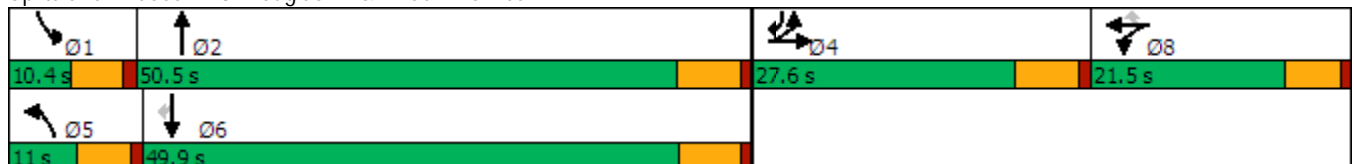


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	380	20	50	40	5	60	655	10	1221	1259
Future Volume (vph)	380	20	50	40	5	60	655	10	1221	1259
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	27.6	27.6		21.5	21.5	11.0	50.5	10.4	49.9	27.6
Total Split (%)	25.1%	25.1%		19.5%	19.5%	10.0%	45.9%	9.5%	45.4%	25.1%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	20.5	20.5	100.7	12.3	12.3	5.7	47.6	5.1	41.5	68.2
Actuated g/C Ratio	0.20	0.20	1.00	0.12	0.12	0.06	0.47	0.05	0.41	0.68
v/c Ratio	0.59	0.06	0.03	0.59	0.02	0.65	0.45	0.12	0.91	0.73
Control Delay	42.0	36.2	0.0	55.3	0.0	79.8	19.5	53.2	39.4	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	36.2	0.0	55.3	0.0	79.8	19.5	53.2	39.4	14.3
LOS	D	D	A	E	A	E	B	D	D	B
Approach Delay		37.1		53.3			24.3		26.8	
Approach LOS		D		D			C		C	

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 100.7
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 28.3
 Intersection LOS: C
 Intersection Capacity Utilization 70.1%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM 2035 Alt
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			 	 
Traffic Volume (veh/h)	380	20	50	80	40	5	60	655	40	10	1221	1259
Future Volume (veh/h)	380	20	50	80	40	5	60	655	40	10	1221	1259
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	413	22	0	87	43	5	65	712	43	11	1327	1368
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	522	283		111	55	145	84	1684	102	24	1639	1708
Arrive On Green	0.15	0.15	0.00	0.09	0.09	0.09	0.05	0.49	0.49	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1211	599	1585	1781	3405	206	1781	3554	2790
Grp Volume(v), veh/h	413	22	0	130	0	5	65	371	384	11	1327	1368
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1833	1781	1777	1395
Q Serve(g_s), s	10.8	0.9	0.0	6.6	0.0	0.3	3.4	12.5	12.5	0.6	30.0	34.9
Cycle Q Clear(g_c), s	10.8	0.9	0.0	6.6	0.0	0.3	3.4	12.5	12.5	0.6	30.0	34.9
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	522	283		165	0	145	84	879	907	24	1639	1708
V/C Ratio(X)	0.79	0.08		0.79	0.00	0.03	0.78	0.42	0.42	0.46	0.81	0.80
Avail Cap(c_a), veh/h	792	428		310	0	271	107	879	907	95	1670	1733
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	34.1	0.0	41.5	0.0	38.7	44.0	15.1	15.1	45.8	21.6	13.8
Incr Delay (d2), s/veh	3.1	0.1	0.0	8.0	0.0	0.1	23.6	0.3	0.3	13.5	3.1	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	4.7	0.4	0.0	3.3	0.0	0.1	2.0	4.9	5.0	0.3	12.5	15.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.4	34.2	0.0	49.5	0.0	38.8	67.7	15.4	15.4	59.3	24.7	16.5
LnGrp LOS	D	C		D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		435	A		135			820			2706	
Approach Delay, s/veh		41.0			49.1			19.5			20.7	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	52.4		20.3	9.8	49.3		14.0				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	44.3		21.4	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.6	14.5		12.8	5.4	36.9		8.6				
Green Ext Time (p_c), s	0.0	3.3		1.4	0.0	6.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM 2035 Alt
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↖	↖	↑↑	↖	↖	↑↑	↖
Traffic Volume (vph)	80	5	110	20	5	50	1005	20	20	2170	80
Future Volume (vph)	80	5	110	20	5	50	1005	20	20	2170	80
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	82.4	21.0	11.5	83.5	30.1
Total Split (%)	20.8%	20.8%	20.8%	14.5%	14.5%	7.2%	56.8%	14.5%	7.9%	57.6%	20.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effct Green (s)	11.0	11.0	11.0	7.2	7.2	5.0	82.1	90.0	6.0	78.2	95.4
Actuated g/C Ratio	0.09	0.09	0.09	0.06	0.06	0.04	0.68	0.75	0.05	0.65	0.79
v/c Ratio	0.30	0.30	0.47	0.21	0.30	0.74	0.45	0.02	0.25	1.03	0.07
Control Delay	56.5	56.4	15.0	62.1	28.3	109.1	12.3	0.1	66.5	49.9	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	56.4	15.0	62.1	28.3	109.1	12.3	0.1	66.5	49.9	0.9
LOS	E	E	B	E	C	F	B	A	E	D	A
Approach Delay		33.0			40.7		16.6			48.3	
Approach LOS		C			D		B			D	

Intersection Summary
























Cycle Length: 145
 Actuated Cycle Length: 120.8
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 37.9
 Intersection LOS: D
 Intersection Capacity Utilization 85.5%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



AM 2035 Alt
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	5	110	20	5	30	50	1005	20	20	2170	80
Future Volume (veh/h)	80	5	110	20	5	30	50	1005	20	20	2170	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	0	120	22	5	33	54	1092	22	22	2359	87
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	344	0	153	77	9	61	69	2339	1111	39	2277	1169
Arrive On Green	0.10	0.00	0.10	0.04	0.04	0.04	0.04	0.66	0.66	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	91	0	120	22	0	38	54	1092	22	22	2359	87
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	8.9	1.4	0.0	2.8	3.6	18.3	0.5	1.5	77.3	1.8
Cycle Q Clear(g_c), s	2.9	0.0	8.9	1.4	0.0	2.8	3.6	18.3	0.5	1.5	77.3	1.8
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	0	153	77	0	70	69	2339	1111	39	2277	1169
V/C Ratio(X)	0.26	0.00	0.78	0.29	0.00	0.55	0.78	0.47	0.02	0.57	1.04	0.07
Avail Cap(c_a), veh/h	738	0	328	235	0	213	74	2339	1111	90	2277	1169
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	53.3	55.9	0.0	56.6	57.4	10.2	5.5	58.5	21.7	4.4
Incr Delay (d2), s/veh	0.4	0.0	8.5	2.0	0.0	6.5	38.0	0.1	0.0	12.6	28.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.9	0.7	0.0	1.3	2.4	6.8	0.2	0.8	38.2	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	61.8	57.9	0.0	63.1	95.5	10.3	5.5	71.1	50.6	4.4
LnGrp LOS	D	A	E	E	A	E	F	B	A	E	F	A
Approach Vol, veh/h		211			60			1168			2468	
Approach Delay, s/veh		57.1			61.2			14.2			49.2	
Approach LOS		E			E			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	85.6		16.7	10.1	83.5		10.3				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	6.1	76.2		25.0	5.0	77.3		15.9				
Max Q Clear Time (g_c+I1), s	3.5	20.3		10.9	5.6	79.3		4.8				
Green Ext Time (p_c), s	0.0	6.9		0.7	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

AM 2035 Alt
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↕	↗	↖	↕↕	↗
Traffic Volume (vph)	20	5	130	80	5	10	1095	40	5	2070	40
Future Volume (vph)	20	5	130	80	5	10	1095	40	5	2070	40
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	73.0	73.0	10.4	83.4	83.4
Total Split (%)	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%	60.8%	60.8%	8.7%	69.5%	69.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		14.5	14.5		14.5	14.5	74.9	74.9	5.0	76.7	76.7
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.73	0.73	0.05	0.75	0.75
v/c Ratio		0.14	0.48		0.49	0.04	0.46	0.04	0.06	0.85	0.04
Control Delay		38.1	22.7		48.4	0.2	8.4	1.5	52.6	15.1	4.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		38.1	22.7		48.4	0.2	8.4	1.5	52.6	15.1	4.0
LOS		D	C		D	A	A	A	D	B	A
Approach Delay		25.2			43.2		8.2			15.0	
Approach LOS		C			D		A			B	

Intersection Summary






















Cycle Length: 120
 Actuated Cycle Length: 102.6
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.85
 Intersection Signal Delay: 14.0
 Intersection LOS: B
 Intersection Capacity Utilization 83.5%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



AM 2035 Alt
5: Douglas Dr & Rainer Way

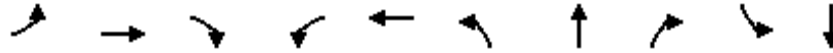
HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	130	80	5	10	0	1095	40	5	2070	40
Future Volume (veh/h)	20	5	130	80	5	10	0	1095	40	5	2070	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	141	87	5	11	0	1190	43	5	2250	43
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	0	2	2	2	2	2
Cap, veh/h	54	7	423	58	2	423	0	2089	932	11	2271	1013
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.00	0.59	0.59	0.01	0.64	0.64
Sat Flow, veh/h	0	27	1585	0	7	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	27	0	141	92	0	11	0	1190	43	5	2250	43
Grp Sat Flow(s),veh/h/ln	27	0	1585	7	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	8.6	0.0	0.0	0.6	0.0	24.9	1.4	0.3	74.7	1.2
Cycle Q Clear(g_c), s	32.0	0.0	8.6	32.0	0.0	0.6	0.0	24.9	1.4	0.3	74.7	1.2
Prop In Lane	0.81		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	0	423	60	0	423	0	2089	932	11	2271	1013
V/C Ratio(X)	0.44	0.00	0.33	1.53	0.00	0.03	0.00	0.57	0.05	0.44	0.99	0.04
Avail Cap(c_a), veh/h	62	0	423	60	0	423	0	2089	932	74	2271	1013
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	0.0	35.4	59.0	0.0	32.5	0.0	15.3	10.5	59.4	21.3	8.0
Incr Delay (d2), s/veh	4.8	0.0	0.5	304.9	0.0	0.0	0.0	0.4	0.0	24.4	16.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.4	6.9	0.0	0.2	0.0	9.8	0.5	0.2	33.3	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	0.0	35.9	363.9	0.0	32.5	0.0	15.7	10.5	83.8	37.9	8.0
LnGrp LOS	E	A	D	F	A	C	A	B	B	F	D	A
Approach Vol, veh/h		168			103			1233			2298	
Approach Delay, s/veh		39.2			328.5			15.5			37.5	
Approach LOS		D			F			B			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	77.2		36.6		83.4		36.6				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	66.3		32.0		76.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	26.9		34.0		76.7		34.0				
Green Ext Time (p_c), s	0.0	7.8		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.3									
HCM 6th LOS			D									

LOS Engineering, Inc.

AM 2035 Alt
6: Douglas Dr & North River Rd

Timings

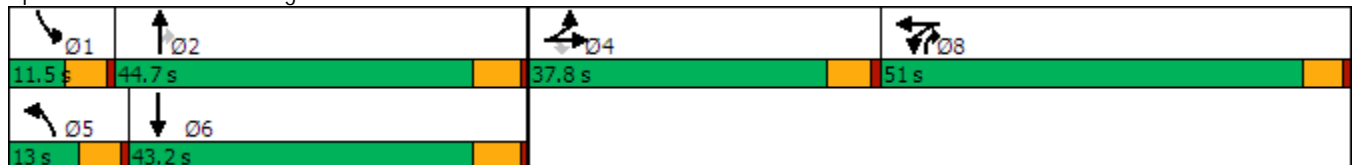


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↘	↖	↗	↖	↗	↘	↖	↗
Traffic Volume (vph)	60	109	220	1000	58	80	510	415	20	830
Future Volume (vph)	60	109	220	1000	58	80	510	415	20	830
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	51.0	51.0	13.0	44.7	51.0	11.5	43.2
Total Split (%)	26.1%	26.1%	26.1%	35.2%	35.2%	9.0%	30.8%	35.2%	7.9%	29.8%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	18.9	18.9	18.9	45.8	45.8	7.6	43.5	92.4	6.0	37.1
Actuated g/C Ratio	0.14	0.14	0.14	0.35	0.35	0.06	0.33	0.70	0.05	0.28
v/c Ratio	0.26	0.23	0.76	0.98	0.93dl	0.86	0.48	0.22	0.28	0.92
Control Delay	51.6	50.2	45.0	76.1	38.4	119.7	39.4	0.9	73.0	61.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	50.2	45.0	76.1	38.4	119.7	39.4	0.9	73.0	61.6
LOS	D	D	D	E	D	F	D	A	E	E
Approach Delay		47.4			55.9		29.9			61.9
Approach LOS		D			E		C			E

Intersection Summary

Cycle Length: 145
 Actuated Cycle Length: 132.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 48.6
 Intersection LOS: D
 Intersection Capacity Utilization 79.1%
 ICU Level of Service D
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	109	220	1000	58	20	80	510	415	20	830	10
Future Volume (veh/h)	60	109	220	1000	58	20	80	510	415	20	830	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	65	118	239	1087	63	22	87	554	451	22	902	11
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	625	279	1161	432	151	101	1090	1765	37	973	12
Arrive On Green	0.18	0.18	0.18	0.54	0.33	0.33	0.06	0.31	0.51	0.02	0.27	0.27
Sat Flow, veh/h	1781	3554	1585	3563	1325	463	1781	3554	2790	1781	3595	44
Grp Volume(v), veh/h	65	118	239	1087	0	85	87	554	451	22	446	467
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1787	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	4.2	3.8	19.6	37.9	0.0	4.5	6.5	17.1	7.7	1.6	32.7	32.7
Cycle Q Clear(g_c), s	4.2	3.8	19.6	37.9	0.0	4.5	6.5	17.1	7.7	1.6	32.7	32.7
Prop In Lane	1.00		1.00	1.00		0.26	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	313	625	279	1161	0	583	101	1090	1765	37	481	504
V/C Ratio(X)	0.21	0.19	0.86	0.94	0.00	0.15	0.86	0.51	0.26	0.59	0.93	0.93
Avail Cap(c_a), veh/h	426	850	379	1215	0	609	101	1090	1765	81	492	515
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	47.0	53.5	29.2	0.0	31.9	62.5	38.1	7.3	64.9	47.5	47.5
Incr Delay (d2), s/veh	0.5	0.2	15.2	13.3	0.0	0.2	48.1	0.8	0.2	14.1	24.5	23.7
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	1.9	1.7	9.0	15.6	0.0	2.0	4.3	7.6	4.2	0.9	17.7	18.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.6	47.2	68.7	42.4	0.0	32.1	110.6	38.9	7.5	79.0	71.9	71.1
LnGrp LOS	D	D	E	D	A	C	F	D	A	E	E	E
Approach Vol, veh/h		422			1172			1092			935	
Approach Delay, s/veh		59.4			41.7			31.6			71.7	
Approach LOS		E			D			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	47.2		29.3	13.0	42.4		49.0				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	6.1	38.5		32.0	7.6	37.0		45.6				
Max Q Clear Time (g_c+I1), s	3.6	19.1		21.6	8.5	34.7		39.9				
Green Ext Time (p_c), s	0.0	9.4		2.0	0.0	1.5		3.7				

Intersection Summary

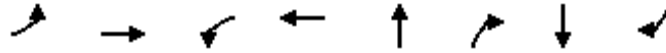
HCM 6th Ctrl Delay	48.5
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

AM 2035 Alt
7: Avenida Descanso & North River Rd

Timings

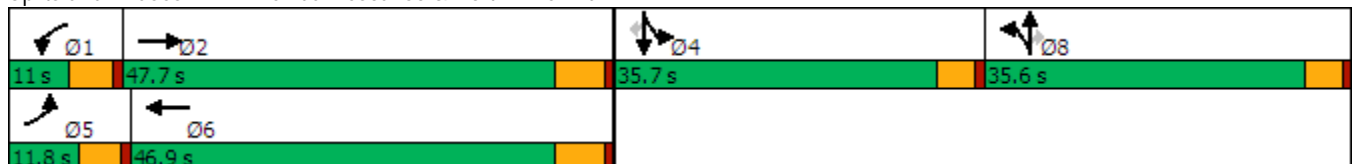


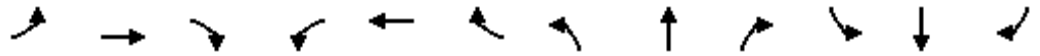
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	70	544	20	988	5	40	20	140
Future Volume (vph)	70	544	20	988	5	40	20	140
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6
Total Split (s)	11.8	47.7	11.0	46.9	35.6	35.6	35.7	35.7
Total Split (%)	9.1%	36.7%	8.5%	36.1%	27.4%	27.4%	27.5%	27.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	6.9	49.8	6.0	41.6	9.9	9.9	15.6	15.6
Actuated g/C Ratio	0.07	0.53	0.06	0.44	0.10	0.10	0.16	0.16
v/c Ratio	0.59	0.32	0.20	0.74	0.05	0.17	0.59	0.44
Control Delay	65.9	17.8	52.9	28.0	39.0	1.4	45.8	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	17.8	52.9	28.0	39.0	1.4	45.8	17.3
LOS	E	B	D	C	D	A	D	B
Approach Delay		23.2		28.5	8.5		32.5	
Approach LOS		C		C	A		C	

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 94.7
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 27.0
 Intersection LOS: C
 Intersection Capacity Utilization 61.8%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	70	544	10	20	988	60	5	5	40	140	20	140
Future Volume (veh/h)	70	544	10	20	988	60	5	5	40	140	20	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	591	11	22	1074	65	5	5	43	152	22	152
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	103	1521	28	45	1340	81	85	85	148	225	33	228
Arrive On Green	0.06	0.43	0.43	0.03	0.39	0.39	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1781	3569	66	1781	3404	206	912	912	1585	1565	227	1585
Grp Volume(v), veh/h	76	294	308	22	560	579	10	0	43	174	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	1858	1781	1777	1833	1825	0	1585	1792	0	1585
Q Serve(g_s), s	2.7	7.3	7.3	0.8	18.0	18.0	0.3	0.0	1.6	5.9	0.0	5.9
Cycle Q Clear(g_c), s	2.7	7.3	7.3	0.8	18.0	18.0	0.3	0.0	1.6	5.9	0.0	5.9
Prop In Lane	1.00		0.04	1.00		0.11	0.50		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	103	757	792	45	700	722	170	0	148	258	0	228
V/C Ratio(X)	0.74	0.39	0.39	0.49	0.80	0.80	0.06	0.00	0.29	0.68	0.00	0.67
Avail Cap(c_a), veh/h	185	1155	1208	163	1133	1169	877	0	762	865	0	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.9	12.7	12.7	31.0	17.3	17.3	26.7	0.0	27.3	26.2	0.0	26.1
Incr Delay (d2), s/veh	9.9	0.3	0.3	8.0	2.2	2.1	0.1	0.0	1.1	3.1	0.0	3.3
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	1.4	2.7	2.8	0.4	6.9	7.2	0.1	0.0	0.6	2.6	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	13.0	13.0	39.0	19.5	19.4	26.8	0.0	28.3	29.2	0.0	29.5
LnGrp LOS	D	B	B	D	B	B	C	A	C	C	A	C
Approach Vol, veh/h		678			1161			53				326
Approach Delay, s/veh		16.0			19.8			28.0				29.4
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	33.3		13.9	8.8	31.2		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	41.9		31.1	6.7	41.1		31.0				
Max Q Clear Time (g_c+I1), s	2.8	9.3		7.9	4.7	20.0		3.6				
Green Ext Time (p_c), s	0.0	2.5		1.3	0.0	5.4		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		20.3
HCM 6th LOS		C

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	714	1068	10	10	30
Future Vol, veh/h	20	714	1068	10	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	22	776	1161	11	11	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1172	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	592	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	592	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	24.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	592	-	-	-	230
HCM Lane V/C Ratio	0.037	-	-	-	0.189
HCM Control Delay (s)	11.3	-	-	-	24.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	30	720	0	0	1130	10	0	0	0	20	0	50
Future Vol, veh/h	30	720	0	0	1130	10	0	0	0	20	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	783	0	0	1228	11	0	0	0	22	0	54

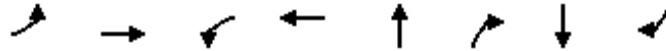
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1239	0	0	783	0	0	-	-	392	1692	2083	620
Stage 1	-	-	-	-	-	-	-	-	-	1234	1234	-
Stage 2	-	-	-	-	-	-	-	-	-	458	849	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	558	-	-	831	-	-	0	0	607	60	52	431
Stage 1	-	-	-	-	-	-	0	0	-	187	247	-
Stage 2	-	-	-	-	-	-	0	0	-	552	375	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	558	-	-	831	-	-	-	-	607	57	49	431
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	57	49	-
Stage 1	-	-	-	-	-	-	-	-	-	176	247	-
Stage 2	-	-	-	-	-	-	-	-	-	519	353	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0	0	51.4
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	558	-	-	831	-	-	150
HCM Lane V/C Ratio	-	0.058	-	-	-	-	-	0.507
HCM Control Delay (s)	0	11.9	-	-	0	-	-	51.4
HCM Lane LOS	A	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	-	0.2	-	-	0	-	-	2.4

AM 2035 Alt
10: Calle Montecito & North River Rd

Timings

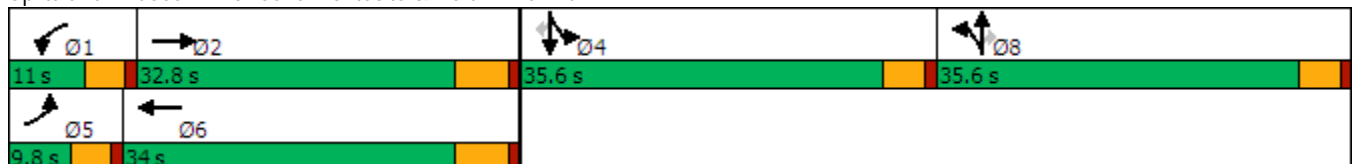


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	558	40	914	5	10	5	140
Future Volume (vph)	60	558	40	914	5	10	5	140
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	5.5	31.0	6.5	29.6	9.9	9.9	18.2	18.2
Actuated g/C Ratio	0.07	0.38	0.08	0.37	0.12	0.12	0.22	0.22
v/c Ratio	0.54	0.47	0.30	0.89	0.07	0.04	0.69	0.34
Control Delay	59.5	24.5	47.2	36.8	33.0	0.2	40.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	24.5	47.2	36.8	33.0	0.2	40.0	12.1
LOS	E	C	D	D	C	A	D	B
Approach Delay		27.7		37.2	19.6		30.1	
Approach LOS		C		D	B		C	

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 80.9
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 32.8
 Intersection LOS: C
 Intersection Capacity Utilization 66.7%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



AM 2035 Alt
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	60	558	30	40	914	130	10	5	10	250	5	140
Future Volume (veh/h)	60	558	30	40	914	130	10	5	10	250	5	140
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	607	33	43	993	141	11	5	11	272	5	152
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	93	1300	71	73	1150	163	111	50	141	354	7	320
Arrive On Green	0.05	0.38	0.38	0.04	0.37	0.37	0.09	0.09	0.09	0.20	0.20	0.20
Sat Flow, veh/h	1781	3428	186	1781	3124	443	1243	565	1585	1751	32	1585
Grp Volume(v), veh/h	65	314	326	43	564	570	16	0	11	277	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	1837	1781	1777	1791	1808	0	1585	1783	0	1585
Q Serve(g_s), s	2.4	9.0	9.0	1.6	19.8	19.8	0.5	0.0	0.4	9.9	0.0	5.7
Cycle Q Clear(g_c), s	2.4	9.0	9.0	1.6	19.8	19.8	0.5	0.0	0.4	9.9	0.0	5.7
Prop In Lane	1.00		0.10	1.00		0.25	0.69		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	93	674	697	73	654	659	161	0	141	360	0	320
V/C Ratio(X)	0.70	0.47	0.47	0.59	0.86	0.86	0.10	0.00	0.08	0.77	0.00	0.47
Avail Cap(c_a), veh/h	140	716	740	172	747	753	833	0	730	821	0	730
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.4	15.7	15.8	31.7	19.7	19.7	28.2	0.0	28.1	25.4	0.0	23.7
Incr Delay (d2), s/veh	9.1	0.5	0.5	7.3	9.3	9.3	0.3	0.0	0.2	3.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.4	3.5	0.8	9.1	9.2	0.2	0.0	0.2	4.3	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	16.3	16.2	39.0	29.0	29.0	28.4	0.0	28.3	28.8	0.0	24.8
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		705			1177			27				429
Approach Delay, s/veh		18.5			29.4			28.4				27.4
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	31.2		18.2	8.0	30.5		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.6	11.0		11.9	4.4	21.8		2.5				
Green Ext Time (p_c), s	0.0	2.4		1.7	0.0	2.9		0.1				

Intersection Summary

HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

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

AM 2035 Alt
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↙	↕	↕		↕	↙	↕	
Traffic Volume (vph)	30	808	1017	5	0	110	0	
Future Volume (vph)	30	808	1017	5	0	110	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effect Green (s)	7.4	32.0	28.5		14.6	13.4	13.4	
Actuated g/C Ratio	0.12	0.54	0.48		0.24	0.22	0.22	
v/c Ratio	0.15	0.46	0.70		0.02	0.38	0.31	
Control Delay	35.7	9.2	16.4		0.1	27.0	6.5	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	35.7	9.2	16.4		0.1	27.0	6.5	
LOS	D	A	B		A	C	A	
Approach Delay		10.2	16.4		0.1		15.7	
Approach LOS		B	B		A		B	

Intersection Summary

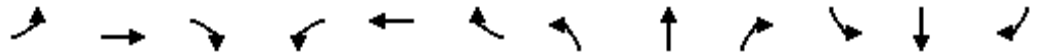
Cycle Length: 100
 Actuated Cycle Length: 59.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 13.9
 Intersection Capacity Utilization 51.3%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 11: Redondo Dr & North River Rd



AM 2035 Alt
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Volume (veh/h)	30	808	0	0	1017	70	5	0	5	110	0	137
Future Volume (veh/h)	30	808	0	0	1017	70	5	0	5	110	0	137
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	33	878	0	0	1105	76	5	0	5	120	0	149
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	67	2062	0	4	1503	103	163	34	80	400	0	245
Arrive On Green	0.04	0.58	0.00	0.00	0.45	0.45	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3374	232	300	220	520	1411	0	1585
Grp Volume(v), veh/h	33	878	0	0	582	599	10	0	0	120	0	149
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1829	1040	0	0	1411	0	1585
Q Serve(g_s), s	0.8	6.4	0.0	0.0	12.5	12.5	0.0	0.0	0.0	0.0	0.0	4.1
Cycle Q Clear(g_c), s	0.8	6.4	0.0	0.0	12.5	12.5	4.1	0.0	0.0	2.9	0.0	4.1
Prop In Lane	1.00		0.00	1.00		0.13	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	67	2062	0	4	792	815	277	0	0	400	0	245
V/C Ratio(X)	0.50	0.43	0.00	0.00	0.73	0.74	0.04	0.00	0.00	0.30	0.00	0.61
Avail Cap(c_a), veh/h	288	3612	0	211	1729	1780	1011	0	0	1114	0	1047
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	5.4	0.0	0.0	10.6	10.6	16.7	0.0	0.0	17.8	0.0	18.3
Incr Delay (d2), s/veh	5.6	0.1	0.0	0.0	1.3	1.3	0.1	0.0	0.0	0.4	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	1.5	0.0	0.0	4.0	4.1	0.1	0.0	0.0	1.1	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	5.6	0.0	0.0	11.9	11.9	16.8	0.0	0.0	18.2	0.0	20.7
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	C
Approach Vol, veh/h		911			1181			10				269
Approach Delay, s/veh		6.4			11.9			16.8				19.6
Approach LOS		A			B			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	33.6		12.8	6.2	27.4		12.8				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	8.4		6.1	2.8	14.5		6.1				
Green Ext Time (p_c), s	0.0	4.9		1.1	0.0	6.1		0.0				

Intersection Summary

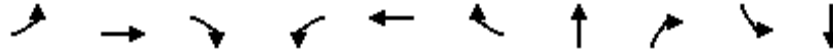
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

AM 2035 Alt
12: College Blvd & North River Rd

Timings

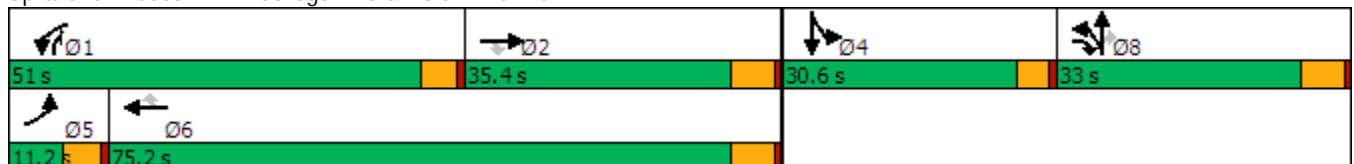


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	270	598	1400	655	90	30	1240	30	60
Future Volume (vph)	20	270	598	1400	655	90	30	1240	30	60
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.2	35.4	33.0	51.0	75.2	75.2	33.0	51.0	30.6	30.6
Total Split (%)	7.5%	23.6%	22.0%	34.0%	50.1%	50.1%	22.0%	34.0%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.1	16.7	45.7	46.6	62.2	62.2	27.6	80.2	11.9	11.9
Actuated g/C Ratio	0.05	0.14	0.37	0.38	0.51	0.51	0.23	0.66	0.10	0.10
v/c Ratio	0.25	0.60	0.86	1.16	0.39	0.12	1.03	0.63	0.19	0.42
Control Delay	69.0	55.8	28.1	115.8	21.2	5.2	100.2	6.6	54.5	56.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	55.8	28.1	115.8	21.2	5.2	100.2	6.6	54.5	56.4
LOS	E	E	C	F	C	A	F	A	D	E
Approach Delay		37.5			82.3		28.7			55.8
Approach LOS		D			F		C			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 121.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.16
 Intersection Signal Delay: 55.1
 Intersection LOS: E
 Intersection Capacity Utilization 94.9%
 ICU Level of Service F
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

AM 2035 Alt
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	270	598	1400	655	90	352	30	1240	30	60	10
Future Volume (veh/h)	20	270	598	1400	655	90	352	30	1240	30	60	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	22	293	650	1522	712	98	383	33	1348	33	65	11
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	37	799	684	1205	1964	876	340	29	1549	103	90	15
Arrive On Green	0.02	0.22	0.22	0.35	0.55	0.55	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1646	142	2790	1781	1559	264
Grp Volume(v), veh/h	22	293	650	1522	712	98	416	0	1348	33	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1788	0	1395	1781	0	1823
Q Serve(g_s), s	1.6	9.2	29.6	45.9	14.8	3.9	27.2	0.0	27.2	2.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	9.2	29.6	45.9	14.8	3.9	27.2	0.0	27.2	2.3	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	0.92		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	37	799	684	1205	1964	876	369	0	1549	103	0	106
V/C Ratio(X)	0.59	0.37	0.95	1.26	0.36	0.11	1.13	0.00	0.87	0.32	0.00	0.72
Avail Cap(c_a), veh/h	83	799	684	1205	1964	876	369	0	1549	352	0	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.9	43.1	29.7	42.9	16.5	14.0	52.2	0.0	25.2	59.5	0.0	60.9
Incr Delay (d2), s/veh	13.8	0.3	22.9	125.2	0.1	0.1	85.5	0.0	5.7	1.8	0.0	8.8
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	0.9	4.1	26.2	40.3	6.0	1.4	21.0	0.0	18.7	1.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	43.4	52.6	168.0	16.6	14.1	137.8	0.0	30.8	61.3	0.0	69.7
LnGrp LOS	E	D	D	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		965			2332			1764			109	
Approach Delay, s/veh		50.4			115.3			56.1			67.2	
Approach LOS		D			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.0	35.4		12.2	7.9	78.5		33.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	45.9	29.6		26.0	6.1	69.4		27.2				
Max Q Clear Time (g_c+I1), s	47.9	31.6		7.4	3.6	16.8		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			82.0									
HCM 6th LOS			F									

AM 2035 Alt
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	60	30	30	1562	1948	90
Future Volume (vph)	60	30	30	1562	1948	90
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.6	6.3	56.9	50.6	50.6
Actuated g/C Ratio	0.16	0.24	0.09	0.81	0.72	0.72
v/c Ratio	0.23	0.09	0.11	0.59	0.83	0.09
Control Delay	27.6	17.6	34.6	7.7	20.3	7.0
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.6	17.6	34.6	7.8	20.3	7.0
LOS	C	B	C	A	C	A
Approach Delay	24.2			8.3	19.7	
Approach LOS	C			A	B	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 15.0
 Intersection LOS: B
 Intersection Capacity Utilization 69.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM 2035 Alt
 13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	30	30	1562	1948	90
Future Volume (veh/h)	60	30	30	1562	1948	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	65	33	33	1698	2117	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	182	228	143	2619	2192	978
Arrive On Green	0.10	0.10	0.04	0.74	0.62	0.62
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	65	33	33	1698	2117	98
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	2.2	1.2	0.6	15.6	36.6	1.6
Cycle Q Clear(g_c), s	2.2	1.2	0.6	15.6	36.6	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	182	228	143	2619	2192	978
V/C Ratio(X)	0.36	0.14	0.23	0.65	0.97	0.10
Avail Cap(c_a), veh/h	770	751	341	2831	2200	981
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	27.1	24.2	30.0	4.3	11.8	5.1
Incr Delay (d2), s/veh	1.2	0.3	0.8	0.5	12.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.1	0.3	3.2	14.2	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.3	24.5	30.8	4.8	23.9	5.1
LnGrp LOS	C	C	C	A	C	A
Approach Vol, veh/h	98			1731	2215	
Approach Delay, s/veh	27.0			5.3	23.1	
Approach LOS	C			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.5		11.2	7.8	45.8
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		17.6		4.2	2.6	38.6
Green Ext Time (p_c), s		12.8		0.3	0.0	1.4
Intersection Summary						
HCM 6th Ctrl Delay			15.6			
HCM 6th LOS			B			

AM 2035 Alt
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖↗↘	↖	↖↗	↗
Traffic Volume (vph)	209	10	100	20	50	20	1323	20	1720	248
Future Volume (vph)	209	10	100	20	50	20	1323	20	1720	248
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	62.6	10.7	63.2	63.2
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	9.2%	56.9%	9.7%	57.5%	57.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	22.3	22.3		22.3	22.3	5.1	58.1	5.7	58.3	58.3
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.05	0.61	0.06	0.61	0.61
v/c Ratio	0.81	0.29		0.47	0.12	0.23	0.48	0.21	0.86	0.27
Control Delay	57.4	12.1		37.2	3.8	54.1	12.5	52.2	23.1	8.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	4.4	0.0
Total Delay	57.4	12.1		37.2	3.8	54.1	12.5	52.2	27.5	8.5
LOS	E	B		D	A	D	B	D	C	A
Approach Delay		40.8		27.4			13.1		25.4	
Approach LOS		D		C			B		C	

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 94.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 22.4
 Intersection LOS: C
 Intersection Capacity Utilization 74.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM 2035 Alt
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	10	110	100	20	50	20	1323	40	20	1720	248
Future Volume (veh/h)	209	10	110	100	20	50	20	1323	40	20	1720	248
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	227	11	120	109	22	54	22	1438	43	22	1870	270
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	276	40	438	323	60	472	40	2723	81	40	1899	847
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.53	0.53	0.02	0.53	0.53
Sat Flow, veh/h	1323	135	1471	876	200	1585	1781	5095	152	1781	3554	1585
Grp Volume(v), veh/h	227	0	131	131	0	54	22	961	520	22	1870	270
Grp Sat Flow(s),veh/h/ln	1323	0	1606	1077	0	1585	1781	1702	1843	1781	1777	1585
Q Serve(g_s), s	17.0	0.0	6.7	8.3	0.0	2.7	1.3	19.7	19.7	1.3	55.5	10.3
Cycle Q Clear(g_c), s	32.0	0.0	6.7	15.0	0.0	2.7	1.3	19.7	19.7	1.3	55.5	10.3
Prop In Lane	1.00		0.92	0.83		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	276	0	478	382	0	472	40	1819	985	40	1899	847
V/C Ratio(X)	0.82	0.00	0.27	0.34	0.00	0.11	0.55	0.53	0.53	0.55	0.98	0.32
Avail Cap(c_a), veh/h	276	0	478	382	0	472	83	1819	985	93	1899	847
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	28.8	34.0	0.0	27.4	52.0	16.2	16.2	52.0	24.6	14.0
Incr Delay (d2), s/veh	17.7	0.0	0.3	0.5	0.0	0.1	11.3	0.3	0.5	11.3	17.1	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	7.5	0.0	2.6	2.9	0.0	1.0	0.7	7.5	8.1	0.7	26.2	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	0.0	29.1	34.5	0.0	27.5	63.3	16.5	16.7	63.3	41.7	14.2
LnGrp LOS	E	A	C	C	A	C	E	B	B	E	D	B
Approach Vol, veh/h		358			185			1503			2162	
Approach Delay, s/veh		51.0			32.5			17.3			38.5	
Approach LOS		D			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	63.2		36.7	7.5	63.2		36.7				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.6	56.8		* 32	5.0	57.4		* 32				
Max Q Clear Time (g_c+I1), s	3.3	21.7		34.0	3.3	57.5		17.0				
Green Ext Time (p_c), s	0.0	8.9		0.0	0.0	0.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay	31.7
HCM 6th LOS	C

Notes

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

AM 2035 Alt
15: College Blvd & Via Cupeno

Timings

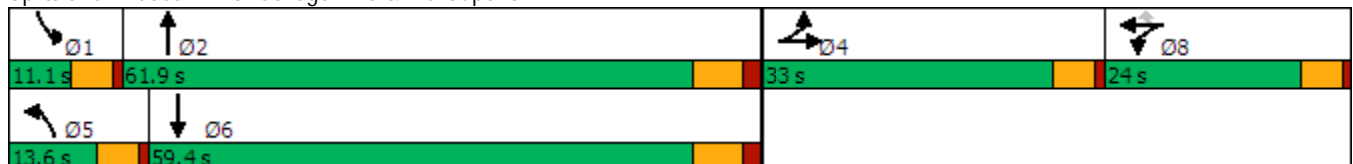


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	5	10	5	180	1314	5	1837
Future Volume (vph)	5	10	5	180	1314	5	1837
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	13.6	61.9	11.1	59.4
Total Split (%)	25.4%	18.5%	18.5%	10.5%	47.6%	8.5%	45.7%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.6	15.9	15.9	8.6	64.8	6.0	53.0
Actuated g/C Ratio	0.10	0.14	0.14	0.08	0.58	0.05	0.48
v/c Ratio	0.32	0.73	0.02	0.74	0.50	0.05	0.86
Control Delay	28.2	63.7	0.0	69.0	16.6	56.0	31.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	63.7	0.0	69.0	16.6	56.0	31.5
LOS	C	E	A	E	B	E	C
Approach Delay	28.2	62.0			22.7		31.5
Approach LOS	C	E			C		C

Intersection Summary






















Cycle Length: 130
 Actuated Cycle Length: 111.1
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.86
 Intersection Signal Delay: 29.2
 Intersection LOS: C
 Intersection Capacity Utilization 72.4%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM 2035 Alt
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	5	50	160	10	5	180	1314	50	5	1837	74
Future Volume (veh/h)	58	5	50	160	10	5	180	1314	50	5	1837	74
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	5	54	174	11	5	196	1428	54	5	1997	80
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	142	11	123	211	13	199	268	2780	105	14	2422	97
Arrive On Green	0.08	0.08	0.08	0.13	0.13	0.13	0.08	0.55	0.55	0.01	0.48	0.48
Sat Flow, veh/h	1736	139	1507	1680	106	1585	3456	5049	191	1781	5037	201
Grp Volume(v), veh/h	65	0	57	185	0	5	196	963	519	5	1348	729
Grp Sat Flow(s),veh/h/ln	1784	0	1599	1786	0	1585	1728	1702	1836	1781	1702	1834
Q Serve(g_s), s	3.2	0.0	3.2	9.5	0.0	0.3	5.2	16.6	16.6	0.3	31.8	32.0
Cycle Q Clear(g_c), s	3.2	0.0	3.2	9.5	0.0	0.3	5.2	16.6	16.6	0.3	31.8	32.0
Prop In Lane	0.97		0.94	0.94		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	146	0	131	224	0	199	268	1874	1011	14	1637	882
V/C Ratio(X)	0.44	0.00	0.44	0.82	0.00	0.03	0.73	0.51	0.51	0.36	0.82	0.83
Avail Cap(c_a), veh/h	534	0	479	363	0	322	314	2005	1081	114	1914	1031
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.9	0.0	40.9	39.9	0.0	35.9	42.2	13.2	13.2	46.2	20.9	20.9
Incr Delay (d2), s/veh	2.1	0.0	2.3	7.9	0.0	0.1	7.1	0.2	0.4	14.9	2.7	4.9
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	0.0	1.3	4.6	0.0	0.1	2.5	6.0	6.5	0.2	12.4	14.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.0	0.0	43.2	47.8	0.0	35.9	49.3	13.4	13.6	61.1	23.5	25.9
LnGrp LOS	D	A	D	D	A	D	D	B	B	E	C	C
Approach Vol, veh/h		122			190			1678			2082	
Approach Delay, s/veh		43.1			47.5			17.7			24.4	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	58.3		12.7	12.3	51.8		16.8				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	55.1		28.0	8.5	52.6		19.0				
Max Q Clear Time (g_c+I1), s	2.3	18.6		5.2	7.2	34.0		11.5				
Green Ext Time (p_c), s	0.0	9.0		0.4	0.1	11.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				23.3								
HCM 6th LOS				C								

AM 2035 Alt
16: College Blvd & SR-76

Timings

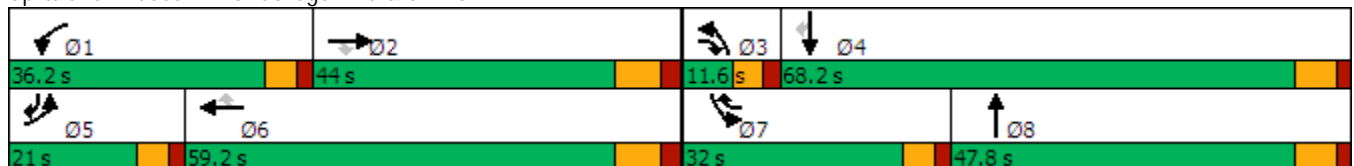


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	389	990	40	690	1710	585	70	579	662	937	458
Future Volume (vph)	389	990	40	690	1710	585	70	579	662	937	458
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	44.0	11.6	36.2	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.5%	7.3%	22.6%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	15.3	36.0	49.9	30.5	51.2	85.5	5.9	41.0	26.3	61.4	83.5
Actuated g/C Ratio	0.10	0.22	0.31	0.19	0.32	0.53	0.04	0.26	0.16	0.38	0.52
v/c Ratio	1.29	0.94	0.07	1.15	1.14	0.73	0.60	1.10	1.28	0.75	0.57
Control Delay	205.1	76.3	0.2	138.7	120.2	31.0	95.7	110.6	188.9	46.9	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	205.1	76.3	0.2	138.7	120.2	31.0	95.7	110.6	188.9	46.9	22.4
LOS	F	E	A	F	F	C	F	F	F	D	C
Approach Delay		109.5			107.0			109.6		87.2	
Approach LOS		F			F			F		F	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.29
 Intersection Signal Delay: 102.4
 Intersection Capacity Utilization 111.8%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service H



































Splits and Phases: 16: College Blvd & SR-76



LOS Engineering, Inc.

AM 2035 Alt
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	389	990	40	690	1710	585	70	579	340	662	937	458
Future Volume (veh/h)	389	990	40	690	1710	585	70	579	340	662	937	458
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	423	1076	43	750	1859	636	76	629	370	720	1018	498
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	330	1149	409	659	1634	768	114	552	324	568	1377	766
Arrive On Green	0.10	0.22	0.22	0.19	0.32	0.32	0.03	0.26	0.26	0.16	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2153	1266	3456	3554	1585
Grp Volume(v), veh/h	423	1076	43	750	1859	636	76	519	480	720	1018	498
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1642	1728	1777	1585
Q Serve(g_s), s	15.3	33.1	3.3	30.5	51.2	51.2	3.5	41.0	41.0	26.3	39.3	37.9
Cycle Q Clear(g_c), s	15.3	33.1	3.3	30.5	51.2	51.2	3.5	41.0	41.0	26.3	39.3	37.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.77	1.00		1.00
Lane Grp Cap(c), veh/h	330	1149	409	659	1634	768	114	455	421	568	1377	766
V/C Ratio(X)	1.28	0.94	0.11	1.14	1.14	0.83	0.66	1.14	1.14	1.27	0.74	0.65
Avail Cap(c_a), veh/h	330	1149	409	659	1634	768	127	455	421	568	1377	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.3	60.9	45.3	64.8	54.4	35.5	76.5	59.5	59.5	66.9	42.1	31.2
Incr Delay (d2), s/veh	147.3	14.0	0.1	79.9	70.0	7.5	10.7	86.5	88.0	133.9	2.2	2.0
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	13.6	15.8	1.3	20.8	32.5	22.9	1.7	29.4	27.4	22.2	17.8	15.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.7	74.9	45.4	144.6	124.4	43.1	87.1	146.0	147.5	200.7	44.2	33.1
LnGrp LOS	F	E	D	F	F	D	F	F	F	F	D	C
Approach Vol, veh/h		1542			3245			1075			2236	
Approach Delay, s/veh		113.8			113.2			142.5			92.1	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.2	44.0	11.0	68.8	21.0	59.2	32.0	47.8				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	36.0	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	32.5	35.1	5.5	41.3	17.3	53.2	28.3	43.0				
Green Ext Time (p_c), s	0.0	0.5	0.0	8.1	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	111.4
HCM 6th LOS	F

Notes

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

AM 2035 Alt
17: North River Rd/Vandergrift Blvd

Timings

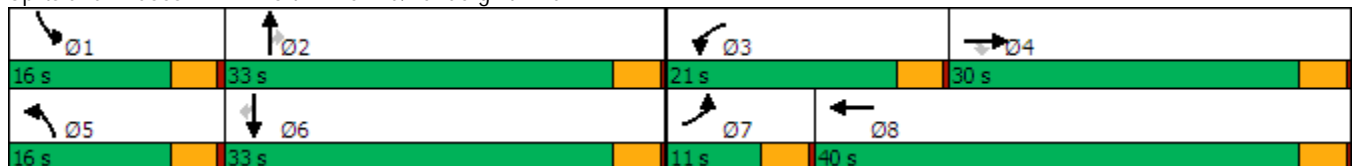


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙↗	↖	↙	↑↑↑	↗	↙	↑↑	↗
Traffic Volume (vph)	60	70	140	857	70	150	1030	380	140	898	50
Future Volume (vph)	60	70	140	857	70	150	1030	380	140	898	50
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effect Green (s)	6.7	11.3	11.3	17.1	23.8	11.3	29.5	29.5	11.0	29.2	29.2
Actuated g/C Ratio	0.08	0.13	0.13	0.20	0.28	0.13	0.35	0.35	0.13	0.34	0.34
v/c Ratio	0.46	0.31	0.45	1.35	0.68	0.69	0.64	0.50	0.66	0.80	0.08
Control Delay	51.3	35.7	9.8	196.9	16.5	53.5	26.4	5.1	51.9	32.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	35.7	9.8	196.9	16.5	53.5	26.4	5.1	51.9	32.9	0.3
LOS	D	D	A	F	B	D	C	A	D	C	A
Approach Delay		25.7			138.5		23.8			33.9	
Approach LOS		C			F		C			C	

Intersection Summary
























Cycle Length: 100
 Actuated Cycle Length: 85.1
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.35
 Intersection Signal Delay: 61.3
 Intersection Capacity Utilization 75.9%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D

Splits and Phases: 17: North River Rd/Vandergrift Blvd



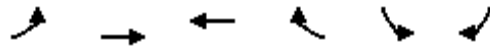
AM 2035 Alt
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	70	140	857	70	340	150	1030	380	140	898	50
Future Volume (veh/h)	60	70	140	857	70	340	150	1030	380	140	898	50
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	76	152	932	76	370	163	1120	413	152	976	54
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	84	296	251	692	86	421	199	1776	551	187	1213	541
Arrive On Green	0.05	0.16	0.16	0.20	0.31	0.31	0.11	0.35	0.35	0.11	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	3456	277	1350	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	65	76	152	932	0	446	163	1120	413	152	976	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1627	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.1	3.0	7.6	17.0	0.0	22.1	7.6	15.6	19.5	7.1	21.2	2.0
Cycle Q Clear(g_c), s	3.1	3.0	7.6	17.0	0.0	22.1	7.6	15.6	19.5	7.1	21.2	2.0
Prop In Lane	1.00		1.00	1.00		0.83	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	296	251	692	0	507	199	1776	551	187	1213	541
V/C Ratio(X)	0.78	0.26	0.61	1.35	0.00	0.88	0.82	0.63	0.75	0.81	0.80	0.10
Avail Cap(c_a), veh/h	147	572	485	692	0	690	252	1776	551	252	1213	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	31.4	33.3	34.0	0.0	27.7	36.9	23.1	24.4	37.2	25.4	19.1
Incr Delay (d2), s/veh	14.2	0.5	2.3	166.0	0.0	9.8	15.4	1.7	9.0	13.5	5.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.4	3.0	22.9	0.0	9.6	4.1	6.3	8.4	3.7	9.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	31.8	35.6	199.9	0.0	37.5	52.3	24.9	33.4	50.7	31.1	19.4
LnGrp LOS	D	C	D	F	A	D	D	C	C	D	C	B
Approach Vol, veh/h		293			1378			1696			1182	
Approach Delay, s/veh		38.8			147.4			29.6			33.1	
Approach LOS		D			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	33.6	21.0	17.5	13.5	33.0	8.0	30.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	9.1	21.5	19.0	9.6	9.6	23.2	5.1	24.1				
Green Ext Time (p_c), s	0.1	5.0	0.0	0.8	0.1	3.3	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				66.8								
HCM 6th LOS				E								

PM 2035 Alt
1: SR-76 & Douglas Dr

Timings

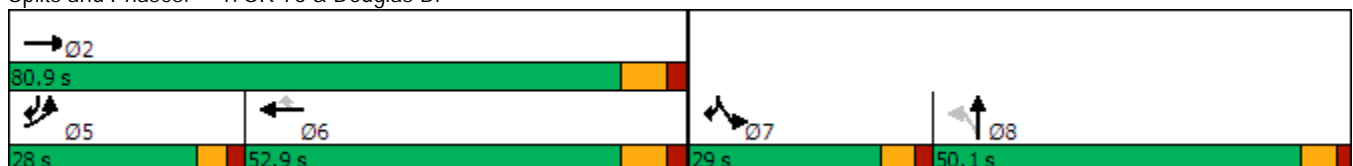


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖ ↗	↕	↖ ↗	↖	↖	↖ ↗	
Traffic Volume (vph)	594	2070	1360	308	339	435	
Future Volume (vph)	594	2070	1360	308	339	435	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	80.9	52.9	52.9	29.0		50.1
Total Split (%)	17.5%	50.6%	33.1%	33.1%	18.1%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effct Green (s)	22.3	72.9	44.9	44.9	22.9	51.3	
Actuated g/C Ratio	0.20	0.66	0.41	0.41	0.21	0.47	
v/c Ratio	0.93	0.96	1.02	0.40	1.00	0.31	
Control Delay	64.1	29.0	62.4	3.8	91.4	2.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	64.1	29.0	62.4	3.8	91.4	2.7	
LOS	E	C	E	A	F	A	
Approach Delay		36.8	51.6				
Approach LOS		D	D				

Intersection Summary




















Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 42.3
 Intersection LOS: D
 Intersection Capacity Utilization 88.1%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



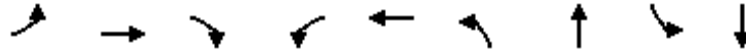
PM 2035 Alt
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	594	2070	0	0	1360	308	0	0	0	339	0	435
Future Volume (veh/h)	594	2070	0	0	1360	308	0	0	0	339	0	435
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	646	2250	0	0	1478	335	0	0	0	368	0	473
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	699	2356	0	0	1453	648	0	2	0	372	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.41	0.41	0.00	0.00	0.00	0.21	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	368	
Grp Volume(v), veh/h	646	2250	0	0	1478	335	0	0	0	368	87.4	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	20.1	63.9	0.0	0.0	44.9	17.4	0.0	0.0	0.0	22.6		
Cycle Q Clear(g_c), s	20.1	63.9	0.0	0.0	44.9	17.4	0.0	0.0	0.0	22.6		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	699	2356	0	0	1453	648	0	2	0	372		
V/C Ratio(X)	0.92	0.95	0.00	0.00	1.02	0.52	0.00	0.00	0.00	0.99		
Avail Cap(c_a), veh/h	702	2359	0	0	1453	648	0	749	0	372		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	43.0	17.0	0.0	0.0	32.5	24.3	0.0	0.0	0.0	43.3		
Incr Delay (d2), s/veh	18.0	10.0	0.0	0.0	28.0	0.7	0.0	0.0	0.0	44.1		
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		
%ile BackOfQ(50%),veh/ln	10.3	25.9	0.0	0.0	24.3	6.6	0.0	0.0	0.0	14.4		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.0	27.0	0.0	0.0	60.4	25.0	0.0	0.0	0.0	87.4		
LnGrp LOS	E	C	A	A	F	C	A	A	A	F		
Approach Vol, veh/h		2896			1813			0				
Approach Delay, s/veh		34.6			53.9			0.0				
Approach LOS		C			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		80.8			27.9	52.9	29.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		72.9			* 22	44.9	22.9	44.0				
Max Q Clear Time (g_c+I1), s		65.9			22.1	46.9	24.6	0.0				
Green Ext Time (p_c), s		5.9			0.1	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			45.3									
HCM 6th LOS			D									
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM 2035 Alt
2: Douglas Dr & Mission Ave

Timings

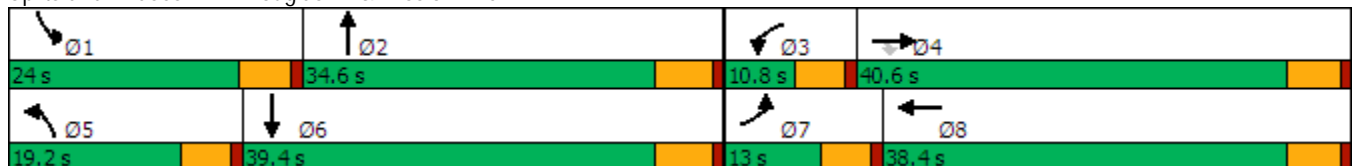


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	276	750	170	70	410	190	672	350	574
Future Volume (vph)	276	750	170	70	410	190	672	350	574
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.0	40.6	40.6	10.8	38.4	19.2	34.6	24.0	39.4
Total Split (%)	11.8%	36.9%	36.9%	9.8%	34.9%	17.5%	31.5%	21.8%	35.8%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.0	29.8	29.8	5.8	27.6	14.0	26.0	19.1	31.0
Actuated g/C Ratio	0.08	0.29	0.29	0.06	0.27	0.14	0.25	0.19	0.30
v/c Ratio	1.12	0.79	0.33	0.77	0.85	0.86	0.85	1.15	0.64
Control Delay	136.9	39.7	10.4	94.5	34.6	76.2	46.8	136.8	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	136.9	39.7	10.4	94.5	34.6	76.2	46.8	136.8	34.1
LOS	F	D	B	F	C	E	D	F	C
Approach Delay		58.0			39.3		53.0		70.7
Approach LOS		E			D		D		E

Intersection Summary



























Cycle Length: 110
 Actuated Cycle Length: 102.2
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.15
 Intersection Signal Delay: 55.8
 Intersection LOS: E
 Intersection Capacity Utilization 89.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM 2035 Alt
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 			 	
Traffic Volume (veh/h)	276	750	170	70	410	418	190	672	30	350	574	58
Future Volume (veh/h)	276	750	170	70	410	418	190	672	30	350	574	58
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	300	815	185	76	446	454	207	730	33	380	624	63
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	259	1158	516	96	542	483	237	825	37	319	927	93
Arrive On Green	0.07	0.33	0.33	0.05	0.30	0.30	0.13	0.24	0.24	0.18	0.28	0.28
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3463	156	1781	3259	329
Grp Volume(v), veh/h	300	815	185	76	446	454	207	374	389	380	340	347
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1842	1781	1777	1811
Q Serve(g_s), s	7.9	21.2	9.4	4.4	24.6	29.4	12.0	21.5	21.5	18.9	17.9	17.9
Cycle Q Clear(g_c), s	7.9	21.2	9.4	4.4	24.6	29.4	12.0	21.5	21.5	18.9	17.9	17.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	259	1158	516	96	542	483	237	423	439	319	505	515
V/C Ratio(X)	1.16	0.70	0.36	0.79	0.82	0.94	0.87	0.88	0.89	1.19	0.67	0.67
Avail Cap(c_a), veh/h	259	1186	529	96	556	496	238	485	503	319	566	577
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	31.1	27.1	49.3	34.0	35.7	44.9	38.8	38.8	43.3	33.4	33.4
Incr Delay (d2), s/veh	105.9	1.9	0.4	34.5	9.5	25.7	28.0	16.1	15.7	112.7	2.7	2.7
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	7.2	9.2	3.6	2.9	11.9	14.6	7.1	11.1	11.5	18.2	8.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	154.7	33.0	27.6	83.8	43.5	61.4	72.9	54.8	54.5	156.0	36.1	36.1
LnGrp LOS	F	C	C	F	D	E	E	D	D	F	D	D
Approach Vol, veh/h		1300			976			970			1067	
Approach Delay, s/veh		60.3			55.0			58.5			78.8	
Approach LOS		E			E			E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	30.9	10.8	39.8	19.1	35.8	13.0	37.6				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	18.9	28.8	5.7	35.2	14.1	33.6	7.9	33.0				
Max Q Clear Time (g_c+I1), s	20.9	23.5	6.4	23.2	14.0	19.9	9.9	31.4				
Green Ext Time (p_c), s	0.0	1.6	0.0	4.0	0.0	2.5	0.0	0.7				

Intersection Summary												
HCM 6th Ctrl Delay											63.3	
HCM 6th LOS											E	

Notes

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

PM 2035 Alt
3: Douglas Dr & El Camino Real

Timings



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	1135	70	80	30	10	110	1125	10	812	711
Future Volume (vph)	1135	70	80	30	10	110	1125	10	812	711
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	55.0	55.0		21.5	21.5	18.8	58.1	10.4	49.7	55.0
Total Split (%)	37.9%	37.9%		14.8%	14.8%	13.0%	40.1%	7.2%	34.3%	37.9%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	48.9	48.9	137.1	12.4	12.4	12.4	53.9	5.0	40.2	95.1
Actuated g/C Ratio	0.36	0.36	1.00	0.09	0.09	0.09	0.39	0.04	0.29	0.69
v/c Ratio	1.01	0.11	0.05	0.60	0.04	0.75	0.94	0.17	0.85	0.40
Control Delay	71.5	32.1	0.1	76.6	0.3	89.1	54.0	73.3	55.1	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	32.1	0.1	76.6	0.3	89.1	54.0	73.3	55.1	10.0
LOS	E	C	A	E	A	F	D	E	E	A
Approach Delay		64.9		68.9			56.9		34.3	
Approach LOS		E		E			E		C	

Intersection Summary
























Cycle Length: 145
 Actuated Cycle Length: 137.1
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 51.4
 Intersection LOS: D
 Intersection Capacity Utilization 91.4%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real

10.4 s	58.1 s	55 s	21.5 s
18.8 s	49.7 s		

PM 2035 Alt
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1135	70	80	60	30	10	110	1125	70	10	812	711
Future Volume (veh/h)	1135	70	80	60	30	10	110	1125	70	10	812	711
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	1234	76	0	65	33	11	120	1223	76	11	883	773
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	1271	688		82	42	108	144	1276	79	22	1090	1882
Arrive On Green	0.37	0.37	0.00	0.07	0.07	0.07	0.08	0.63	0.38	0.01	0.31	0.31
Sat Flow, veh/h	3456	1870	1585	1201	610	1585	1781	3398	211	1781	3554	2790
Grp Volume(v), veh/h	1234	76	0	98	0	11	120	639	660	11	883	773
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1832	1781	1777	1395
Q Serve(g_s), s	46.5	3.5	0.0	7.1	0.0	0.9	8.8	44.5	45.0	0.8	30.4	16.5
Cycle Q Clear(g_c), s	46.5	3.5	0.0	7.1	0.0	0.9	8.8	44.5	45.0	0.8	30.4	16.5
Prop In Lane	1.00		1.00	0.66		1.00	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	1271	688		124	0	108	144	667	688	22	1090	1882
V/C Ratio(X)	0.97	0.11		0.79	0.00	0.10	0.83	0.96	0.96	0.49	0.81	0.41
Avail Cap(c_a), veh/h	1273	689		219	0	191	180	696	718	67	1172	1946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.2	27.6	0.0	60.8	0.0	57.9	60.0	23.7	25.7	65.0	42.3	9.7
Incr Delay (d2), s/veh	18.6	0.1	0.0	10.7	0.0	0.4	22.5	23.7	23.7	15.7	4.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.8	1.6	0.0	3.6	0.0	0.4	4.9	18.6	20.3	0.5	13.9	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.8	27.7	0.0	71.5	0.0	58.3	82.4	47.4	49.4	80.7	46.5	9.8
LnGrp LOS	E	C		E	A	E	F	D	D	F	D	A
Approach Vol, veh/h		1310	A		109			1419			1667	
Approach Delay, s/veh		57.9			70.1			51.3			29.7	
Approach LOS		E			E			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	55.9		54.9	16.1	46.9		14.6				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	51.9		48.8	13.4	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.8	47.0		48.5	10.8	32.4		9.1				
Green Ext Time (p_c), s	0.0	2.7		0.2	0.1	6.6		0.2				

Intersection Summary

HCM 6th Ctrl Delay	45.7
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM 2035 Alt
4: Douglas Dr & Pala Rd

Timings

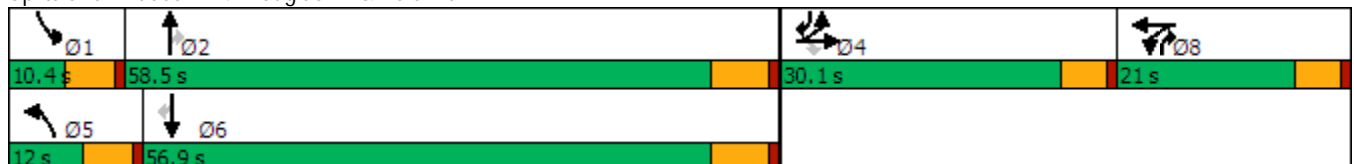


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	110	5	110	20	5	110	2040	30	20	1403	120
Future Volume (vph)	110	5	110	20	5	110	2040	30	20	1403	120
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	12.0	58.5	21.0	10.4	56.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.0%	48.8%	17.5%	8.7%	47.4%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	11.0	11.0	11.0	7.0	7.0	6.7	59.1	67.8	5.1	50.7	68.0
Actuated g/C Ratio	0.12	0.12	0.12	0.07	0.07	0.07	0.62	0.72	0.05	0.53	0.72
v/c Ratio	0.33	0.31	0.41	0.17	0.26	0.96	1.00	0.03	0.23	0.81	0.11
Control Delay	43.5	43.0	10.8	48.1	23.0	119.5	41.8	0.3	53.8	24.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.5	43.0	10.8	48.1	23.0	119.5	41.8	0.3	53.8	24.4	1.1
LOS	D	D	B	D	C	F	D	A	D	C	A
Approach Delay		27.4			32.2		45.2			22.9	
Approach LOS		C			C		D			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 94.8
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 35.4
 Intersection LOS: D
 Intersection Capacity Utilization 84.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM 2035 Alt
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	5	110	20	5	30	110	2040	30	20	1403	120
Future Volume (veh/h)	110	5	110	20	5	30	110	2040	30	20	1403	120
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	124	0	120	22	5	33	120	2217	33	22	1525	130
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	375	0	167	92	11	73	130	2056	999	42	1880	1005
Arrive On Green	0.11	0.00	0.11	0.05	0.05	0.05	0.07	0.97	0.58	0.02	0.53	0.53
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	0	120	22	0	38	120	2217	33	22	1525	130
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	32.0	3.0
Cycle Q Clear(g_c), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	32.0	3.0
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	0	167	92	0	84	130	2056	999	42	1880	1005
V/C Ratio(X)	0.33	0.00	0.72	0.24	0.00	0.45	0.92	1.08	0.03	0.53	0.81	0.13
Avail Cap(c_a), veh/h	985	0	438	313	0	284	130	2056	999	99	1993	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	39.1	41.2	0.0	41.6	41.7	1.5	6.3	43.7	17.6	6.6
Incr Delay (d2), s/veh	0.5	0.0	5.7	1.3	0.0	3.8	55.8	44.8	0.0	9.9	2.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.8	0.5	0.0	0.9	4.6	13.5	0.3	0.6	12.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	44.8	42.5	0.0	45.5	97.5	46.4	6.3	53.5	20.1	6.6
LnGrp LOS	D	A	D	D	A	D	F	F	A	D	C	A
Approach Vol, veh/h		244			60			2370			1677	
Approach Delay, s/veh		41.4			44.4			48.4			19.5	
Approach LOS		D			D			D			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	58.5		14.6	12.0	54.0		9.8				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	6.6	50.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	54.3		8.6	8.1	34.0		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	8.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Alt
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	10	5	90	50	5	5	1960	100	5	1333	90
Future Volume (vph)	10	5	90	50	5	5	1960	100	5	1333	90
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	83.0	83.0	10.4	93.4	93.4
Total Split (%)	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	63.8%	63.8%	8.0%	71.8%	71.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		12.6	12.6		12.6	12.6	80.9	80.9	5.1	82.6	82.6
Actuated g/C Ratio		0.12	0.12		0.12	0.12	0.76	0.76	0.05	0.77	0.77
v/c Ratio		0.09	0.39		0.37	0.02	0.79	0.09	0.06	0.53	0.08
Control Delay		39.9	17.9		47.5	0.2	13.7	3.5	54.4	6.6	3.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		39.9	17.9		47.5	0.2	13.7	3.5	54.4	6.6	3.3
LOS		D	B		D	A	B	A	D	A	A
Approach Delay		20.9			43.8		13.2			6.6	
Approach LOS		C			D		B			A	

Intersection Summary





















Cycle Length: 130
 Actuated Cycle Length: 106.6
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.79
 Intersection Signal Delay: 11.3
 Intersection Capacity Utilization 77.4%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service D

Splits and Phases: 5: Douglas Dr & Rainer Way



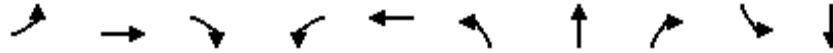
PM 2035 Alt
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	90	50	5	5	0	1960	100	5	1333	90
Future Volume (veh/h)	10	5	90	50	5	5	0	1960	100	5	1333	90
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	5	98	54	5	5	0	2130	109	5	1449	98
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	0	2	2	2	2	2
Cap, veh/h	56	17	399	70	4	399	0	2161	964	11	2338	1043
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.61	0.61	0.01	0.66	0.66
Sat Flow, veh/h	27	67	1585	58	16	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	16	0	98	59	0	5	0	2130	109	5	1449	98
Grp Sat Flow(s),veh/h/ln	94	0	1585	74	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	6.1	1.5	0.0	0.3	0.0	73.0	3.6	0.3	29.4	2.8
Cycle Q Clear(g_c), s	30.8	0.0	6.1	31.3	0.0	0.3	0.0	73.0	3.6	0.3	29.4	2.8
Prop In Lane	0.69		1.00	0.92		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	0	399	74	0	399	0	2161	964	11	2338	1043
V/C Ratio(X)	0.22	0.00	0.25	0.80	0.00	0.01	0.00	0.99	0.11	0.45	0.62	0.09
Avail Cap(c_a), veh/h	80	0	407	81	0	407	0	2176	971	71	2473	1103
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.8	0.0	37.2	60.6	0.0	35.0	0.0	23.9	10.3	61.7	12.3	7.8
Incr Delay (d2), s/veh	1.5	0.0	0.3	38.6	0.0	0.0	0.0	15.9	0.1	25.6	0.4	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	0.4	0.0	2.4	2.7	0.0	0.1	0.0	33.2	1.3	0.2	11.1	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	37.5	99.2	0.0	35.0	0.0	39.8	10.3	87.3	12.8	7.8
LnGrp LOS	D	A	D	F	A	D	A	D	B	F	B	A
Approach Vol, veh/h		114			64			2239			1552	
Approach Delay, s/veh		37.9			94.2			38.4			12.7	
Approach LOS		D			F			D			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	82.7		36.3		88.9		36.3				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	76.3		32.0		86.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	75.0		32.8		31.4		33.3				
Green Ext Time (p_c), s	0.0	1.1		0.0		11.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

PM 2035 Alt
6: Douglas Dr & North River Rd

Timings

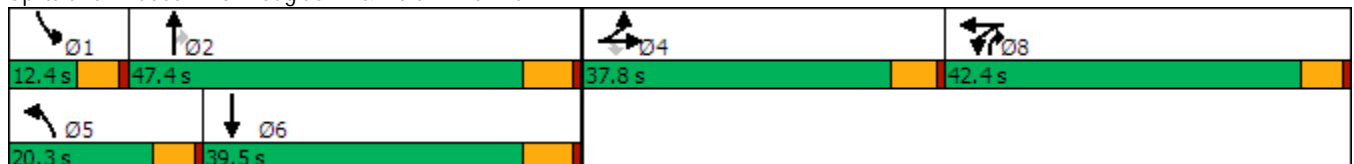


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↘	↑↑	↗	↘	↔	↘	↑↑	↗↘	↘	↑↑
Traffic Volume (vph)	40	108	80	613	69	170	780	900	50	670
Future Volume (vph)	40	108	80	613	69	170	780	900	50	670
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.3	47.4	42.4	12.4	39.5
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.5%	33.9%	30.3%	8.9%	28.2%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.5	13.5	13.5	35.2	35.2	15.1	43.3	80.6	6.9	32.4
Actuated g/C Ratio	0.11	0.11	0.11	0.30	0.30	0.13	0.36	0.68	0.06	0.27
v/c Ratio	0.21	0.29	0.28	0.70	0.48	0.83	0.66	0.45	0.53	0.82
Control Delay	50.3	50.1	2.2	47.8	36.9	81.3	37.3	1.4	77.3	49.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	50.1	2.2	47.8	36.9	81.3	37.3	1.4	77.3	49.3
LOS	D	D	A	D	D	F	D	A	E	D
Approach Delay		33.3			41.5		23.9			51.2
Approach LOS		C			D		C			D

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 119.2
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 33.9
 Intersection LOS: C
 Intersection Capacity Utilization 67.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: Douglas Dr & North River Rd



PM 2035 Alt
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↔		↘	↑↑	↗	↘	↑↑	
Traffic Volume (veh/h)	40	108	80	613	69	50	170	780	900	50	670	50
Future Volume (veh/h)	40	108	80	613	69	50	170	780	900	50	670	50
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	43	117	87	666	75	54	185	848	978	54	728	54
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	159	318	142	889	252	182	220	1369	1770	71	1011	75
Arrive On Green	0.09	0.09	0.09	0.25	0.25	0.25	0.12	0.39	0.39	0.04	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	3563	1011	728	1781	3554	2790	1781	3354	249
Grp Volume(v), veh/h	43	117	87	666	0	129	185	848	978	54	386	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1739	1781	1777	1395	1781	1777	1826
Q Serve(g_s), s	2.2	3.0	5.1	16.7	0.0	5.8	9.8	18.6	19.0	2.9	18.7	18.7
Cycle Q Clear(g_c), s	2.2	3.0	5.1	16.7	0.0	5.8	9.8	18.6	19.0	2.9	18.7	18.7
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	159	318	142	889	0	434	220	1369	1770	71	536	550
V/C Ratio(X)	0.27	0.37	0.61	0.75	0.00	0.30	0.84	0.62	0.55	0.76	0.72	0.72
Avail Cap(c_a), veh/h	591	1179	526	1366	0	667	275	1517	1887	129	613	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	41.4	42.3	33.4	0.0	29.4	41.4	24.0	9.9	45.9	30.1	30.1
Incr Delay (d2), s/veh	1.3	1.0	6.0	1.8	0.0	0.5	17.1	1.1	0.6	15.6	5.0	4.9
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	1.0	1.3	2.2	7.3	0.0	2.5	5.3	7.8	10.4	1.6	8.5	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.3	42.4	48.3	35.3	0.0	29.9	58.5	25.1	10.5	61.5	35.1	35.0
LnGrp LOS	D	D	D	D	A	C	E	C	B	E	D	C
Approach Vol, veh/h		247			795			2011			836	
Approach Delay, s/veh		44.4			34.4			21.1			36.7	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	43.4		14.4	17.3	35.3		29.5				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	7.0	41.2		32.0	14.9	33.3		37.0				
Max Q Clear Time (g_c+I1), s	4.9	21.0		7.1	11.8	20.7		18.7				
Green Ext Time (p_c), s	0.0	16.1		1.5	0.2	5.3		5.4				

Intersection Summary

HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Alt
7: Avenida Descanso & North River Rd

Timings



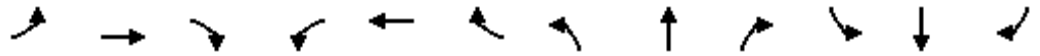
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕	↙	↕		↕	↗		↕	↗
Traffic Volume (vph)	150	1008	30	732	5	5	40	100	5	90
Future Volume (vph)	150	1008	30	732	5	5	40	100	5	90
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	51.0	12.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	51.0%	12.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effect Green (s)	11.7	37.0	6.8	23.6		13.2	13.2		13.2	13.2
Actuated g/C Ratio	0.18	0.57	0.10	0.36		0.20	0.20		0.20	0.20
v/c Ratio	0.51	0.56	0.18	0.72		0.03	0.10		0.42	0.23
Control Delay	34.6	12.9	37.0	22.5		23.1	0.5		29.2	2.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	34.6	12.9	37.0	22.5		23.1	0.5		29.2	2.9
LOS	C	B	D	C		C	A		C	A
Approach Delay		15.7		23.0		4.7			17.0	
Approach LOS		B		C		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 65.2
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.72
 Intersection Signal Delay: 18.4
 Intersection LOS: B
 Intersection Capacity Utilization 58.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1008	20	30	732	110	5	5	40	100	5	90
Future Volume (veh/h)	150	1008	20	30	732	110	5	5	40	100	5	90
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	163	1096	22	33	796	120	5	5	43	109	5	98
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	202	1384	28	57	950	143	66	46	621	88	2	621
Arrive On Green	0.11	0.39	0.39	0.03	0.31	0.31	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1781	3563	72	1781	3096	467	2	117	1585	7	6	1585
Grp Volume(v), veh/h	163	547	571	33	457	459	10	0	43	114	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	1857	1781	1777	1786	119	0	1585	13	0	1585
Q Serve(g_s), s	7.4	22.4	22.5	1.5	19.8	19.8	0.1	0.0	1.4	0.2	0.0	3.3
Cycle Q Clear(g_c), s	7.4	22.4	22.5	1.5	19.8	19.8	32.4	0.0	1.4	32.4	0.0	3.3
Prop In Lane	1.00		0.04	1.00		0.26	0.50		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	202	690	721	57	545	548	112	0	621	90	0	621
V/C Ratio(X)	0.81	0.79	0.79	0.58	0.84	0.84	0.09	0.00	0.07	1.26	0.00	0.16
Avail Cap(c_a), veh/h	343	972	1016	149	779	783	112	0	622	91	0	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	22.3	22.3	39.4	26.7	26.7	20.9	0.0	15.7	40.6	0.0	16.3
Incr Delay (d2), s/veh	7.3	3.0	2.9	8.9	5.6	5.6	0.3	0.0	0.0	180.6	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	9.4	9.8	0.8	8.9	8.9	0.1	0.0	0.5	6.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	25.3	25.2	48.4	32.3	32.3	21.3	0.0	15.7	221.2	0.0	16.4
LnGrp LOS	D	C	C	D	C	C	C	A	B	F	A	B
Approach Vol, veh/h		1281			949			53				212
Approach Delay, s/veh		27.5			32.8			16.8				126.5
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	37.9		37.0	14.5	31.2		37.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	6.9	45.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	3.5	24.5		34.4	9.4	21.8		34.4				
Green Ext Time (p_c), s	0.0	5.2		0.0	0.3	3.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	37.7
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1148	842	20	5	20
Future Vol, veh/h	30	1148	842	20	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	33	1248	915	22	5	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	937	0	-	0	1616 469
Stage 1	-	-	-	-	926 -
Stage 2	-	-	-	-	690 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	727	-	-	-	94 541
Stage 1	-	-	-	-	346 -
Stage 2	-	-	-	-	459 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	727	-	-	-	90 541
Mov Cap-2 Maneuver	-	-	-	-	90 -
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	459 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	19.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	727	-	-	-	270
HCM Lane V/C Ratio	0.045	-	-	-	0.101
HCM Control Delay (s)	10.2	-	-	-	19.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	1220	0	0	900	20	0	0	0	20	0	10
Future Vol, veh/h	30	1220	0	0	900	20	0	0	0	20	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	1326	0	0	978	22	0	0	0	22	0	11

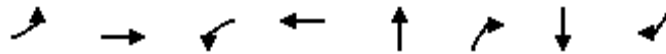
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1000	0	0	1326	0	0	-	-	663	1718	2381	500
Stage 1	-	-	-	-	-	-	-	-	-	989	989	-
Stage 2	-	-	-	-	-	-	-	-	-	729	1392	-
Critical Hdwy	4.14	-	-	4.14	-	-	-	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	-	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	688	-	-	517	-	-	0	0	404	58	34	516
Stage 1	-	-	-	-	-	-	0	0	-	265	323	-
Stage 2	-	-	-	-	-	-	0	0	-	380	207	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	688	-	-	517	-	-	-	-	404	56	32	516
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	56	32	-
Stage 1	-	-	-	-	-	-	-	-	-	252	323	-
Stage 2	-	-	-	-	-	-	-	-	-	362	197	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	0	78
HCM LOS			A	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	688	-	-	517	-	-	80
HCM Lane V/C Ratio	-	0.047	-	-	-	-	-	0.408
HCM Control Delay (s)	0	10.5	-	-	0	-	-	78
HCM Lane LOS	A	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	-	0.1	-	-	0	-	-	1.6

PM 2035 Alt
10: Calle Montecito & North River Rd

Timings

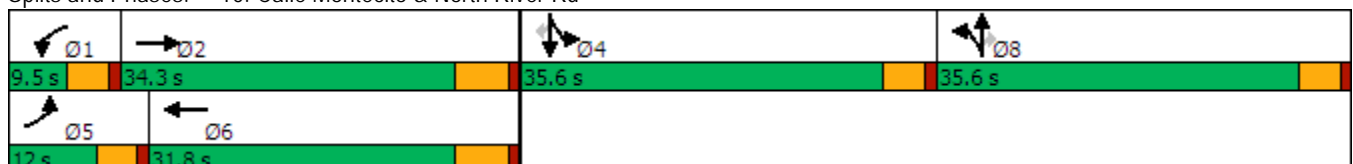


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	160	982	10	688	5	40	5	80
Future Volume (vph)	160	982	10	688	5	40	5	80
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases						8		4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.2	5.2	27.1	10.4	10.4	15.0	15.0
Actuated g/C Ratio	0.10	0.48	0.06	0.34	0.13	0.13	0.19	0.19
v/c Ratio	1.02	0.64	0.10	0.86	0.17	0.14	0.57	0.23
Control Delay	114.8	22.6	45.1	35.2	32.9	1.0	37.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.8	22.6	45.1	35.2	32.9	1.0	37.5	5.1
LOS	F	C	D	D	C	A	D	A
Approach Delay		35.4		35.3	16.0		27.3	
Approach LOS		D		D	B		C	

Intersection Summary

Cycle Length: 115
 Actuated Cycle Length: 80.4
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 33.9
 Intersection LOS: C
 Intersection Capacity Utilization 64.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



PM 2035 Alt
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↖	↖		↖	↖
Traffic Volume (veh/h)	160	982	10	10	688	240	30	5	40	170	5	80
Future Volume (veh/h)	160	982	10	10	688	240	30	5	40	170	5	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	1067	11	11	748	261	33	5	43	185	5	87
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	207	1599	16	25	882	308	145	22	147	259	7	237
Arrive On Green	0.12	0.44	0.44	0.01	0.34	0.34	0.09	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	3603	37	1781	2584	901	1557	236	1585	1737	47	1585
Grp Volume(v), veh/h	174	526	552	11	514	495	38	0	43	190	0	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1708	1793	0	1585	1784	0	1585
Q Serve(g_s), s	6.2	15.1	15.1	0.4	17.3	17.3	1.3	0.0	1.6	6.6	0.0	3.2
Cycle Q Clear(g_c), s	6.2	15.1	15.1	0.4	17.3	17.3	1.3	0.0	1.6	6.6	0.0	3.2
Prop In Lane	1.00		0.02	1.00		0.53	0.87		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	207	788	827	25	607	583	167	0	147	266	0	237
V/C Ratio(X)	0.84	0.67	0.67	0.45	0.85	0.85	0.23	0.00	0.29	0.71	0.00	0.37
Avail Cap(c_a), veh/h	207	788	827	138	718	690	860	0	761	856	0	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.0	14.2	14.2	31.6	19.7	19.7	27.1	0.0	27.3	26.2	0.0	24.7
Incr Delay (d2), s/veh	25.5	2.2	2.1	12.1	8.2	8.5	0.7	0.0	1.1	3.5	0.0	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	4.0	5.8	6.0	0.2	7.9	7.6	0.6	0.0	0.6	2.9	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.5	16.4	16.3	43.7	27.9	28.2	27.8	0.0	28.4	29.7	0.0	25.7
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1252			1020			81			277	
Approach Delay, s/veh		21.5			28.3			28.1			28.4	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	34.4		14.2	12.0	27.7		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.4	17.1		8.6	8.2	19.3		3.6				
Green Ext Time (p_c), s	0.0	3.9		1.1	0.0	2.7		0.3				

Intersection Summary

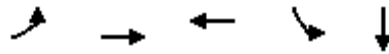
HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

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

PM 2035 Alt
 11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↗	↖	↗		
Traffic Volume (vph)	125	1077	859	60	0		
Future Volume (vph)	125	1077	859	60	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	19.0	54.9	45.4	35.6	35.6	9.5	35.6
Total Split (%)	19.0%	54.9%	45.4%	35.6%	35.6%	10%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	11.0	38.2	26.3	11.5	11.5		
Actuated g/C Ratio	0.17	0.60	0.41	0.18	0.18		
v/c Ratio	0.44	0.55	0.70	0.26	0.20		
Control Delay	34.6	9.0	20.4	28.0	0.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	34.6	9.0	20.4	28.0	0.9		
LOS	C	A	C	C	A		
Approach Delay		11.7	20.4		11.8		
Approach LOS		B	C		B		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 63.6
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 15.3
 Intersection LOS: B
 Intersection Capacity Utilization 53.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕		↖	↗	
Traffic Volume (veh/h)	125	1077	0	0	859	80	0	0	0	60	0	89
Future Volume (veh/h)	125	1077	0	0	859	80	0	0	0	60	0	89
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	136	1171	0	0	934	87	0	0	0	65	0	97
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	2114	0	4	1291	120	0	249	0	396	0	211
Arrive On Green	0.10	0.59	0.00	0.00	0.39	0.39	0.00	0.00	0.00	0.13	0.00	0.13
Sat Flow, veh/h	1781	3647	0	1781	3286	306	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	136	1171	0	0	505	516	0	0	0	65	0	97
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1815	0	1870	0	1781	0	1585
Q Serve(g_s), s	3.4	9.0	0.0	0.0	10.9	10.9	0.0	0.0	0.0	1.5	0.0	2.6
Cycle Q Clear(g_c), s	3.4	9.0	0.0	0.0	10.9	10.9	0.0	0.0	0.0	1.5	0.0	2.6
Prop In Lane	1.00		0.00	1.00		0.17	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	182	2114	0	4	698	713	0	249	0	396	0	211
V/C Ratio(X)	0.75	0.55	0.00	0.00	0.72	0.72	0.00	0.00	0.00	0.16	0.00	0.46
Avail Cap(c_a), veh/h	572	3793	0	197	1523	1556	0	1284	0	1343	0	1053
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.7	5.5	0.0	0.0	11.6	11.6	0.0	0.0	0.0	17.6	0.0	18.1
Incr Delay (d2), s/veh	6.0	0.2	0.0	0.0	1.4	1.4	0.0	0.0	0.0	0.2	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.0	0.0	0.0	3.6	3.7	0.0	0.0	0.0	0.6	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.7	5.8	0.0	0.0	13.1	13.0	0.0	0.0	0.0	17.8	0.0	19.7
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	B
Approach Vol, veh/h		1307			1021			0				162
Approach Delay, s/veh		7.8			13.0			0.0				18.9
Approach LOS		A			B							B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	33.6		11.6	9.1	24.4		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.0	48.2		30.0	14.5	38.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	11.0		4.6	5.4	12.9		0.0				
Green Ext Time (p_c), s	0.0	7.2		0.6	0.3	4.9		0.0				

Intersection Summary

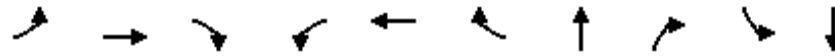
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

PM 2035 Alt
12: College Blvd & North River Rd

Timings

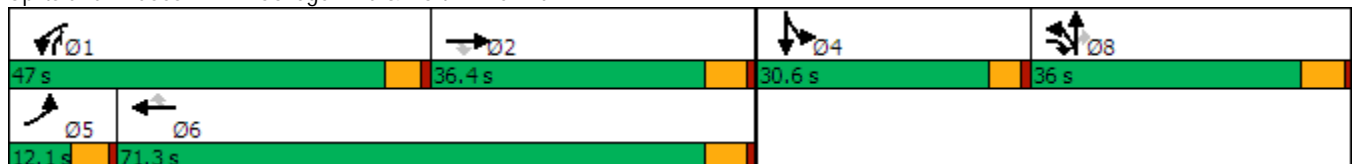


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	560	506	1320	468	70	40	1520	30	50
Future Volume (vph)	30	560	506	1320	468	70	40	1520	30	50
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	12.1	36.4	36.0	47.0	71.3	71.3	36.0	47.0	30.6	30.6
Total Split (%)	8.1%	24.3%	24.0%	31.3%	47.5%	47.5%	24.0%	31.3%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.7	26.7	58.7	42.4	67.4	67.4	30.5	78.8	11.6	11.6
Actuated g/C Ratio	0.05	0.21	0.45	0.33	0.52	0.52	0.23	0.61	0.09	0.09
v/c Ratio	0.37	0.84	0.62	1.28	0.28	0.09	1.15	0.84	0.21	0.36
Control Delay	76.1	61.7	10.7	171.9	20.4	3.3	136.6	17.6	59.1	60.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.1	61.7	10.7	171.9	20.4	3.3	136.6	17.6	59.1	60.0
LOS	E	E	B	F	C	A	F	B	E	E
Approach Delay		38.5			127.4		44.4			59.7
Approach LOS		D			F		D			E

Intersection Summary
























Cycle Length: 150
 Actuated Cycle Length: 130.2
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.28
 Intersection Signal Delay: 74.2
 Intersection LOS: E
 Intersection Capacity Utilization 98.1%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 12: College Blvd & North River Rd



PM 2035 Alt
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	560	506	1320	468	70	402	40	1520	30	50	5
Future Volume (veh/h)	30	560	506	1320	468	70	402	40	1520	30	50	5
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	33	609	550	1435	509	76	437	43	1652	33	54	5
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	48	835	740	1112	1884	840	378	37	1545	85	80	7
Arrive On Green	0.03	0.24	0.24	0.32	0.53	0.53	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1629	160	2790	1781	1686	156
Grp Volume(v), veh/h	33	609	550	1435	509	76	480	0	1652	33	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1789	0	1395	1781	0	1842
Q Serve(g_s), s	2.4	20.6	30.6	41.9	10.2	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Cycle Q Clear(g_c), s	2.4	20.6	30.6	41.9	10.2	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	0.91		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	48	835	740	1112	1884	840	415	0	1545	85	0	87
V/C Ratio(X)	0.69	0.73	0.74	1.29	0.27	0.09	1.16	0.00	1.07	0.39	0.00	0.67
Avail Cap(c_a), veh/h	96	835	740	1112	1884	840	415	0	1545	356	0	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	46.0	26.6	44.1	16.8	15.1	50.0	0.0	29.0	60.2	0.0	61.0
Incr Delay (d2), s/veh	16.4	3.2	4.1	137.4	0.1	0.0	94.4	0.0	43.9	2.9	0.0	8.7
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	1.3	9.5	19.1	39.0	4.2	1.1	24.3	0.0	32.3	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.2	49.2	30.7	181.5	16.8	15.1	144.4	0.0	72.9	63.1	0.0	69.7
LnGrp LOS	E	D	C	F	B	B	F	A	F	E	A	E
Approach Vol, veh/h		1192			2020			2132				92
Approach Delay, s/veh		41.5			133.8			89.0				67.3
Approach LOS		D			F			F				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.0	36.4		10.8	8.6	74.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	41.9	30.6		26.0	7.0	65.5		30.2				
Max Q Clear Time (g_c+I1), s	43.9	32.6		6.1	4.4	12.2		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	2.8		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				94.9								
HCM 6th LOS				F								

PM 2035 Alt
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	30	100	120	1972	1726	70
Future Volume (vph)	30	100	120	1972	1726	70
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effct Green (s)	11.4	17.1	6.6	68.2	53.8	53.8
Actuated g/C Ratio	0.14	0.21	0.08	0.83	0.66	0.66
v/c Ratio	0.13	0.33	0.47	0.73	0.81	0.07
Control Delay	31.2	25.6	43.9	9.7	17.3	6.0
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	31.2	25.6	43.9	10.1	17.3	6.0
LOS	C	C	D	B	B	A
Approach Delay	26.9			12.0	16.9	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 82
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 14.7
 Intersection Capacity Utilization 69.8%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 13: College Blvd & Buchanon Park



LOS Engineering, Inc.

PM 2035 Alt
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	100	120	1972	1726	70
Future Volume (veh/h)	30	100	120	1972	1726	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	33	109	130	2143	1876	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	185	285	264	2678	2157	962
Arrive On Green	0.10	0.10	0.08	0.75	0.61	0.61
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	33	109	130	2143	1876	76
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.2	4.4	2.6	27.3	32.0	1.4
Cycle Q Clear(g_c), s	1.2	4.4	2.6	27.3	32.0	1.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	185	285	264	2678	2157	962
V/C Ratio(X)	0.18	0.38	0.49	0.80	0.87	0.08
Avail Cap(c_a), veh/h	685	731	309	3007	2440	1088
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	29.8	26.3	32.3	5.6	11.9	5.9
Incr Delay (d2), s/veh	0.5	0.8	1.4	1.5	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.1	1.1	6.2	11.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.3	27.1	33.7	7.0	15.3	5.9
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	142			2273	1952	
Approach Delay, s/veh	27.8			8.6	14.9	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		60.7		12.1	10.7	50.0
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		29.3		6.4	4.6	34.0
Green Ext Time (p_c), s		18.2		0.5	0.1	10.2
Intersection Summary						
HCM 6th Ctrl Delay			12.0			
HCM 6th LOS			B			

PM 2035 Alt
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↕	↖	↖	↑↑↑	↖	↑↑	↖
Traffic Volume (vph)	178	20	60	10	40	90	1854	50	1677	139
Future Volume (vph)	178	20	60	10	40	90	1854	50	1677	139
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	11.9	62.1	11.2	61.4	61.4
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	10.8%	56.5%	10.2%	55.8%	55.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	19.9	19.9		19.9	19.9	6.8	59.1	6.0	55.9	55.9
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.07	0.60	0.06	0.57	0.57
v/c Ratio	0.72	0.29		0.29	0.11	0.80	0.70	0.50	0.91	0.16
Control Delay	52.0	11.1		35.2	2.2	88.9	17.0	63.5	28.2	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	11.8	0.0
Total Delay	52.0	11.1		35.2	2.2	88.9	17.0	63.5	40.0	7.3
LOS	D	B		D	A	F	B	E	D	A
Approach Delay		36.3		23.3			20.2		38.2	
Approach LOS		D		C			C		D	

Intersection Summary

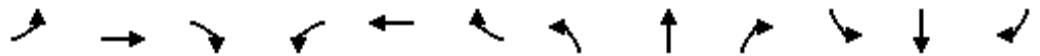
Cycle Length: 110
 Actuated Cycle Length: 98.3
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 29.1
 Intersection LOS: C
 Intersection Capacity Utilization 80.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM 2035 Alt
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	178	20	90	60	10	40	90	1854	100	50	1677	139
Future Volume (veh/h)	178	20	90	60	10	40	90	1854	100	50	1677	139
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	193	22	98	65	11	43	98	2015	109	54	1823	151
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	289	79	353	299	46	420	114	2723	147	70	1862	830
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.06	0.55	0.55	0.04	0.52	0.52
Sat Flow, veh/h	1350	299	1332	890	173	1585	1781	4959	267	1781	3554	1585
Grp Volume(v), veh/h	193	0	120	76	0	43	98	1381	743	54	1823	151
Grp Sat Flow(s),veh/h/ln	1350	0	1631	1063	0	1585	1781	1702	1822	1781	1777	1585
Q Serve(g_s), s	14.8	0.0	6.2	4.6	0.0	2.2	5.8	32.6	32.9	3.2	53.2	5.3
Cycle Q Clear(g_c), s	25.5	0.0	6.2	10.7	0.0	2.2	5.8	32.6	32.9	3.2	53.2	5.3
Prop In Lane	1.00		0.82	0.86		1.00	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	289	0	432	345	0	420	114	1869	1000	70	1862	830
V/C Ratio(X)	0.67	0.00	0.28	0.22	0.00	0.10	0.86	0.74	0.74	0.78	0.98	0.18
Avail Cap(c_a), veh/h	339	0	492	394	0	478	114	1869	1000	102	1863	831
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	0.0	30.9	34.5	0.0	29.5	49.1	18.1	18.2	50.5	24.7	13.3
Incr Delay (d2), s/veh	4.0	0.0	0.3	0.3	0.0	0.1	43.9	1.6	3.0	19.5	16.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	2.5	1.7	0.0	0.8	4.0	12.5	13.9	1.8	25.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.2	0.0	31.3	34.9	0.0	29.6	93.0	19.7	21.2	70.0	40.8	13.4
LnGrp LOS	D	A	C	C	A	C	F	B	C	E	D	B
Approach Vol, veh/h		313			119			2222			2028	
Approach Delay, s/veh		41.1			32.9			23.5			39.5	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	64.0		32.8	11.9	61.4		32.8				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.1	56.3		* 32	6.8	55.6		* 32				
Max Q Clear Time (g_c+I1), s	5.2	34.9		27.5	7.8	55.2		12.7				
Green Ext Time (p_c), s	0.0	12.3		0.5	0.0	0.4		0.4				

Intersection Summary

HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

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

PM 2035 Alt
15: College Blvd & Via Cupeno

Timings



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	10	10	10	530	1761	5	1540
Future Volume (vph)	10	10	10	530	1761	5	1540
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	31.0	81.9	11.1	62.0
Total Split (%)	22.0%	16.0%	16.0%	20.7%	54.6%	7.4%	41.3%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	26.8	13.1	13.1	25.9	84.2	6.0	55.3
Actuated g/C Ratio	0.19	0.09	0.09	0.18	0.59	0.04	0.39
v/c Ratio	0.91	0.60	0.04	0.93	0.69	0.07	0.94
Control Delay	66.9	78.0	0.3	80.0	23.1	70.4	53.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	78.0	0.3	80.0	23.1	70.4	53.1
LOS	E	E	A	F	C	E	D
Approach Delay	66.9	70.1			35.6		53.2
Approach LOS	E	E			D		D

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 143.1
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.94
 Intersection Signal Delay: 46.3
 Intersection LOS: D
 Intersection Capacity Utilization 89.8%
 ICU Level of Service E
 Analysis Period (min) 15






















Splits and Phases: 15: College Blvd & Via Cupeno



LOS Engineering, Inc.

PM 2035 Alt
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	333	10	230	80	10	10	530	1761	120	5	1540	147
Future Volume (veh/h)	333	10	230	80	10	10	530	1761	120	5	1540	147
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	362	11	250	87	11	11	576	1914	130	5	1674	160
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	363	14	312	110	14	109	627	2736	185	14	1830	175
Arrive On Green	0.20	0.20	0.20	0.07	0.07	0.07	0.18	0.56	0.56	0.01	0.39	0.39
Sat Flow, veh/h	1781	67	1528	1590	201	1585	3456	4884	331	1781	4741	452
Grp Volume(v), veh/h	362	0	261	98	0	11	576	1332	712	5	1201	633
Grp Sat Flow(s),veh/h/ln	1781	0	1595	1791	0	1585	1728	1702	1811	1781	1702	1789
Q Serve(g_s), s	27.9	0.0	21.4	7.4	0.0	0.9	22.5	38.8	39.2	0.4	46.0	46.2
Cycle Q Clear(g_c), s	27.9	0.0	21.4	7.4	0.0	0.9	22.5	38.8	39.2	0.4	46.0	46.2
Prop In Lane	1.00		0.96	0.89		1.00	1.00		0.18	1.00		0.25
Lane Grp Cap(c), veh/h	363	0	325	123	0	109	627	1907	1014	14	1314	691
V/C Ratio(X)	1.00	0.00	0.80	0.79	0.00	0.10	0.92	0.70	0.70	0.37	0.91	0.92
Avail Cap(c_a), veh/h	363	0	325	248	0	219	652	1907	1014	78	1368	719
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	54.6	0.0	52.0	63.0	0.0	59.9	55.2	21.8	21.9	67.8	40.0	40.0
Incr Delay (d2), s/veh	46.2	0.0	13.5	10.9	0.0	0.4	17.7	1.1	2.2	16.0	9.4	16.2
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	17.2	0.0	9.8	3.8	0.0	0.4	11.3	15.5	16.9	0.2	20.8	23.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	100.9	0.0	65.5	73.8	0.0	60.3	72.9	23.0	24.1	83.8	49.4	56.3
LnGrp LOS	F	A	E	E	A	E	E	C	C	F	D	E
Approach Vol, veh/h		623			109			2620			1839	
Approach Delay, s/veh		86.0			72.5			34.3			51.9	
Approach LOS		F			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	83.7		33.0	30.0	59.8		14.5				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	75.1		28.0	25.9	55.2		19.0				
Max Q Clear Time (g_c+I1), s	2.4	41.2		29.9	24.5	48.2		9.4				
Green Ext Time (p_c), s	0.0	14.7		0.0	0.5	4.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				47.5								
HCM 6th LOS				D								

PM 2035 Alt
16: College Blvd & SR-76

Timings

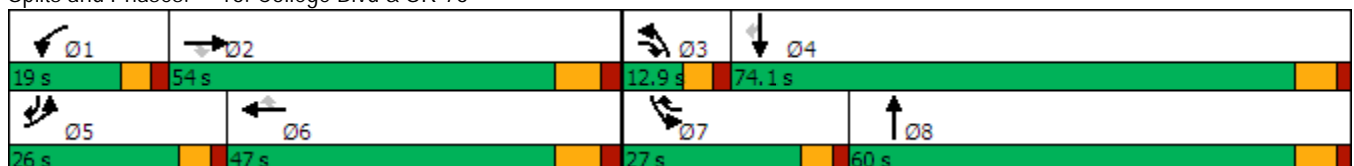


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	688	1650	70	410	1120	770	60	923	681	920	539
Future Volume (vph)	688	1650	70	410	1120	770	60	923	681	920	539
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	26.0	54.0	12.9	19.0	47.0	27.0	12.9	60.0	27.0	74.1	26.0
Total Split (%)	16.3%	33.8%	8.1%	11.9%	29.4%	16.9%	8.1%	37.5%	16.9%	46.3%	16.3%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	20.3	46.0	61.0	13.3	39.0	68.3	7.0	53.2	21.3	67.5	94.6
Actuated g/C Ratio	0.13	0.29	0.38	0.08	0.24	0.43	0.04	0.33	0.13	0.42	0.59
v/c Ratio	1.72	1.23	0.11	1.56	0.98	1.14	0.43	1.29	1.62	0.67	0.61
Control Delay	371.6	155.4	2.4	314.4	81.2	115.0	83.7	178.3	329.2	40.1	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	371.6	155.4	2.4	314.4	81.2	115.0	83.7	178.3	329.2	40.1	21.1
LOS	F	F	A	F	F	F	F	F	F	D	C
Approach Delay		212.8			134.1			174.4		127.3	
Approach LOS		F			F			F		F	

Intersection Summary



































Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.72
 Intersection Signal Delay: 162.2
 Intersection LOS: F
 Intersection Capacity Utilization 124.8%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 16: College Blvd & SR-76



PM 2035 Alt
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	688	1650	70	410	1120	770	60	923	450	681	920	539
Future Volume (veh/h)	688	1650	70	410	1120	770	60	923	450	681	920	539
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	748	1793	76	446	1217	837	65	1003	489	740	1000	586
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	438	1468	503	287	1245	597	102	776	370	460	1550	892
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.03	0.33	0.33	0.13	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2335	1112	3456	3554	1585
Grp Volume(v), veh/h	748	1793	76	446	1217	837	65	758	734	740	1000	586
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1670	1728	1777	1585
Q Serve(g_s), s	20.3	46.0	5.5	13.3	37.9	39.0	3.0	53.2	53.2	21.3	35.3	41.0
Cycle Q Clear(g_c), s	20.3	46.0	5.5	13.3	37.9	39.0	3.0	53.2	53.2	21.3	35.3	41.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	438	1468	503	287	1245	597	102	591	555	460	1550	892
V/C Ratio(X)	1.71	1.22	0.15	1.55	0.98	1.40	0.64	1.28	1.32	1.61	0.65	0.66
Avail Cap(c_a), veh/h	438	1468	503	287	1245	597	156	591	555	460	1550	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	57.0	39.2	73.3	60.1	49.8	76.8	53.4	53.4	69.3	35.4	24.2
Incr Delay (d2), s/veh	327.3	106.0	0.1	265.2	20.3	190.5	6.4	139.6	157.4	283.8	0.9	1.8
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	28.9	34.2	2.2	16.5	18.7	55.4	1.4	46.6	46.6	27.6	15.6	15.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	397.2	163.0	39.3	338.5	80.4	240.3	83.2	193.0	210.8	353.2	36.3	26.0
LnGrp LOS	F	F	D	F	F	F	F	F	F	F	D	C
Approach Vol, veh/h		2617			2500			1557			2326	
Approach Delay, s/veh		226.3			180.0			196.8			134.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	54.0	10.4	76.6	26.0	47.0	27.0	60.0				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 13	46.0	* 7.2	67.3	* 20	39.0	* 21	53.2				
Max Q Clear Time (g_c+I1), s	15.3	48.0	5.0	43.0	22.3	41.0	23.3	55.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.4	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	184.6
HCM 6th LOS	F

Notes

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

PM 2035 Alt
17: North River Rd/Vandergrift Blvd

Timings

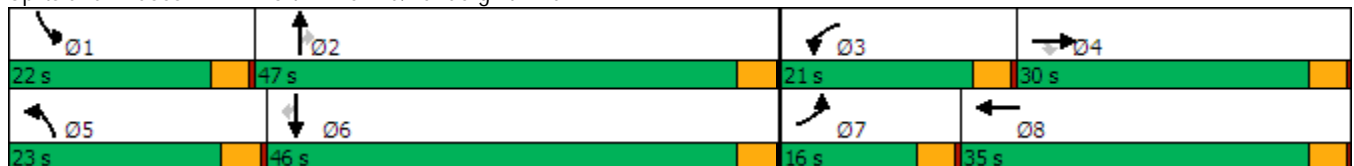


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑	↗	↙↗	↗	↙	↑↑↑	↗	↙	↑↑	↗
Traffic Volume (vph)	90	110	160	589	140	290	875	965	330	1129	70
Future Volume (vph)	90	110	160	589	140	290	875	965	330	1129	70
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	16.0	30.0	30.0	21.0	35.0	23.0	47.0	47.0	22.0	46.0	46.0
Total Split (%)	13.3%	25.0%	25.0%	17.5%	29.2%	19.2%	39.2%	39.2%	18.3%	38.3%	38.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	10.3	16.3	16.3	17.1	23.0	19.1	43.2	43.2	18.1	42.2	42.2
Actuated g/C Ratio	0.09	0.15	0.15	0.15	0.21	0.17	0.39	0.39	0.16	0.38	0.38
v/c Ratio	0.59	0.44	0.46	1.21	0.78	1.03	0.48	1.13	1.24	0.91	0.11
Control Delay	64.6	47.2	10.0	151.8	50.4	106.6	27.1	91.6	174.9	44.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.6	47.2	10.0	151.8	50.4	106.6	27.1	91.6	174.9	44.4	1.6
LOS	E	D	A	F	D	F	C	F	F	D	A
Approach Delay		35.0			119.2		67.1			70.7	
Approach LOS		D			F		E			E	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 110.6
 Natural Cycle: 150
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.24
 Intersection Signal Delay: 75.1
 Intersection Capacity Utilization 93.8%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service F

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM 2035 Alt
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

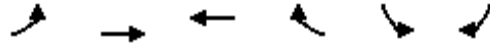
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	110	160	589	140	140	290	875	965	330	1129	70
Future Volume (veh/h)	90	110	160	589	140	140	290	875	965	330	1129	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	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	98	120	174	640	152	152	315	951	1049	359	1227	76
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	124	251	213	541	190	190	312	2023	628	295	1375	613
Arrive On Green	0.07	0.13	0.13	0.16	0.22	0.22	0.18	0.40	0.40	0.17	0.39	0.39
Sat Flow, veh/h	1781	1870	1585	3456	858	858	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	98	120	174	640	0	304	315	951	1049	359	1227	76
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1716	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	5.9	6.4	11.6	17.0	0.0	18.2	19.0	15.0	43.0	18.0	35.1	3.4
Cycle Q Clear(g_c), s	5.9	6.4	11.6	17.0	0.0	18.2	19.0	15.0	43.0	18.0	35.1	3.4
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	124	251	213	541	0	380	312	2023	628	295	1375	613
V/C Ratio(X)	0.79	0.48	0.82	1.18	0.00	0.80	1.01	0.47	1.67	1.22	0.89	0.12
Avail Cap(c_a), veh/h	197	448	380	541	0	490	312	2023	628	295	1375	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.7	43.5	45.7	45.8	0.0	40.0	44.8	24.3	32.8	45.3	31.2	21.4
Incr Delay (d2), s/veh	10.8	1.4	7.6	99.9	0.0	7.1	53.6	0.8	308.8	123.9	9.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	3.1	5.0	14.7	0.0	8.4	13.0	6.1	69.8	18.0	16.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5	44.9	53.3	145.7	0.0	47.1	98.4	25.1	341.6	169.1	40.3	21.8
LnGrp LOS	E	D	D	F	A	D	F	C	F	F	D	C
Approach Vol, veh/h		392			944			2315			1662	
Approach Delay, s/veh		52.5			113.9			178.5			67.3	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	22.0	47.0	21.0	18.6	23.0	46.0	11.5	28.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	18.0	43.0	17.0	26.0	19.0	42.0	12.0	31.0				
Max Q Clear Time (g_c+I1), s	20.0	45.0	19.0	13.6	21.0	37.1	7.9	20.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	3.4	0.1	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	122.9											
HCM 6th LOS	F											

Appendix S

Horizon Year 2035 Alternative + Project Intersection LOS Worksheets

AM 2035 Alt + Project
1: SR-76 & Douglas Dr

Timings

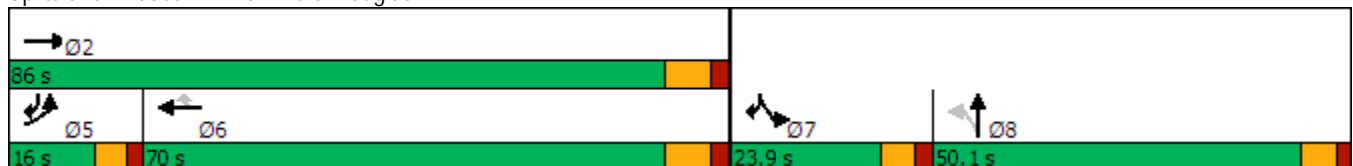


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖↗	↕	↕	↖	↗	↖↗	
Traffic Volume (vph)	300	1130	2200	240	290	620	
Future Volume (vph)	300	1130	2200	240	290	620	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	10.3	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	16.0	33.0	33.0	33.0	22.1		50.1
Total Split (s)	16.0	86.0	70.0	70.0	23.9		50.1
Total Split (%)	10.0%	53.8%	43.8%	43.8%	14.9%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	10.3	78.0	62.0	62.0	17.8	34.2	
Actuated g/C Ratio	0.09	0.71	0.56	0.56	0.16	0.31	
v/c Ratio	1.02	0.49	1.20	0.26	1.10	0.51	
Control Delay	104.1	7.9	119.2	3.1	126.7	4.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	104.1	7.9	119.2	3.1	126.7	4.5	
LOS	F	A	F	A	F	A	
Approach Delay		28.1	107.7				
Approach LOS		C	F				

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 71.7
 Intersection LOS: E
 Intersection Capacity Utilization 100.2%
 ICU Level of Service G
 Analysis Period (min) 15




















Splits and Phases: 1: SR-76 & Douglas Dr



LOS Engineering, Inc.

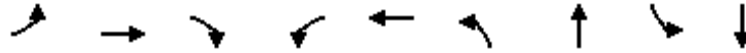
AM 2035 Alt + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	300	1130	0	0	2200	240	0	0	0	290	0	620
Future Volume (veh/h)	300	1130	0	0	2200	240	0	0	0	290	0	620
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	326	1228	0	0	2391	261	0	0	0	315	0	674
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	324	2522	0	0	2005	894	0	2	0	289	0	0
Arrive On Green	0.09	0.71	0.00	0.00	0.56	0.56	0.00	0.00	0.00	0.16	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	315	
Grp Volume(v), veh/h	326	1228	0	0	2391	261	0	0	0	315	125.8	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	10.3	16.8	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Cycle Q Clear(g_c), s	10.3	16.8	0.0	0.0	62.0	9.4	0.0	0.0	0.0	17.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	324	2522	0	0	2005	894	0	2	0	289		
V/C Ratio(X)	1.01	0.49	0.00	0.00	1.19	0.29	0.00	0.00	0.00	1.09		
Avail Cap(c_a), veh/h	324	2522	0	0	2005	894	0	749	0	289		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	49.8	7.1	0.0	0.0	23.9	12.5	0.0	0.0	0.0	46.1		
Incr Delay (d2), s/veh	51.7	0.1	0.0	0.0	91.9	0.2	0.0	0.0	0.0	79.8		
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		
%ile BackOfQ(50%),veh/ln	6.8	5.7	0.0	0.0	49.5	3.3	0.0	0.0	0.0	14.2		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	7.2	0.0	0.0	115.9	12.7	0.0	0.0	0.0	125.8		
LnGrp LOS	F	A	A	A	F	B	A	A	A	F		
Approach Vol, veh/h		1554			2652			0				
Approach Delay, s/veh		27.0			105.7			0.0				
Approach LOS		C			F							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		86.0			16.0	70.0	23.9	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		78.0			* 10	62.0	17.8	44.0				
Max Q Clear Time (g_c+I1), s		18.8			12.3	64.0	19.8	0.0				
Green Ext Time (p_c), s		8.1			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					80.1							
HCM 6th LOS					F							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

AM 2035 Alt + Project
2: Douglas Dr & Mission Ave

Timings

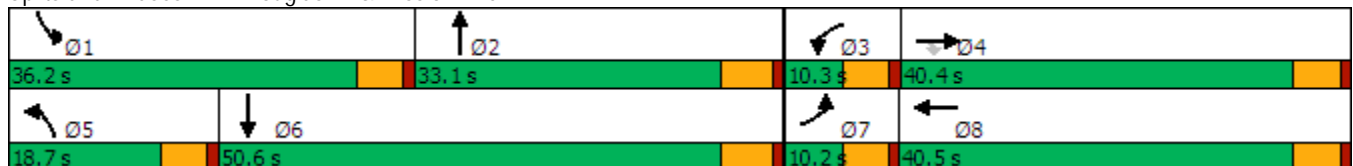


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↗	↑↑	↖	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	80	320	70	60	540	130	370	450	830
Future Volume (vph)	80	320	70	60	540	130	370	450	830
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	10.2	40.4	40.4	10.3	40.5	18.7	33.1	36.2	50.6
Total Split (%)	8.5%	33.7%	33.7%	8.6%	33.8%	15.6%	27.6%	30.2%	42.2%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.2	31.0	31.0	5.3	33.7	12.4	20.3	31.5	39.5
Actuated g/C Ratio	0.05	0.28	0.28	0.05	0.31	0.11	0.18	0.29	0.36
v/c Ratio	0.54	0.35	0.13	0.77	0.90	0.71	0.63	0.96	0.79
Control Delay	67.2	32.6	0.5	104.6	43.5	69.0	46.0	73.3	37.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	32.6	0.5	104.6	43.5	69.0	46.0	73.3	37.5
LOS	E	C	A	F	D	E	D	E	D
Approach Delay		33.7			47.2		51.8		49.3
Approach LOS		C			D		D		D

Intersection Summary























Cycle Length: 120
 Actuated Cycle Length: 109.8
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 46.9
 Intersection LOS: D
 Intersection Capacity Utilization 84.9%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



AM 2035 Alt + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	320	70	60	540	390	130	370	10	450	830	90
Future Volume (veh/h)	80	320	70	60	540	390	130	370	10	450	830	90
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	87	348	76	65	587	424	141	402	11	489	902	98
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	151	1128	503	83	631	456	174	503	14	516	1080	117
Arrive On Green	0.04	0.32	0.32	0.05	0.32	0.32	0.10	0.14	0.14	0.29	0.33	0.33
Sat Flow, veh/h	3456	3554	1585	1781	1969	1422	1781	3533	97	1781	3233	351
Grp Volume(v), veh/h	87	348	76	65	530	481	141	202	211	489	496	504
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1614	1781	1777	1853	1781	1777	1807
Q Serve(g_s), s	2.6	7.8	3.6	3.8	30.3	30.3	8.2	11.6	11.6	28.3	27.1	27.1
Cycle Q Clear(g_c), s	2.6	7.8	3.6	3.8	30.3	30.3	8.2	11.6	11.6	28.3	27.1	27.1
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.05	1.00		0.19
Lane Grp Cap(c), veh/h	151	1128	503	83	570	518	174	253	264	516	594	604
V/C Ratio(X)	0.57	0.31	0.15	0.78	0.93	0.93	0.81	0.80	0.80	0.95	0.83	0.83
Avail Cap(c_a), veh/h	168	1183	528	88	593	539	230	461	481	527	757	770
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.3	27.1	25.7	49.6	34.6	34.6	46.5	43.6	43.7	36.5	32.3	32.3
Incr Delay (d2), s/veh	3.9	0.2	0.1	33.5	20.9	22.5	14.6	5.7	5.6	26.3	6.5	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.3	1.4	2.5	16.1	14.9	4.3	5.4	5.7	15.8	12.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.2	27.3	25.9	83.0	55.5	57.0	61.1	49.4	49.2	62.9	38.8	38.7
LnGrp LOS	D	C	C	F	E	E	E	D	D	E	D	D
Approach Vol, veh/h		511			1076			554			1489	
Approach Delay, s/veh		31.5			57.9			52.3			46.7	
Approach LOS		C			E			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.6	20.8	10.0	38.8	15.4	40.9	9.7	39.1				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	31.1	27.3	5.2	35.0	13.6	44.8	5.1	35.1				
Max Q Clear Time (g_c+I1), s	30.3	13.6	5.8	9.8	10.2	29.1	4.6	32.3				
Green Ext Time (p_c), s	0.2	1.4	0.0	1.9	0.1	4.1	0.0	1.4				
Intersection Summary												
HCM 6th Ctrl Delay			48.7									
HCM 6th LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

AM 2035 Alt + Project
3: Douglas Dr & El Camino Real

Timings

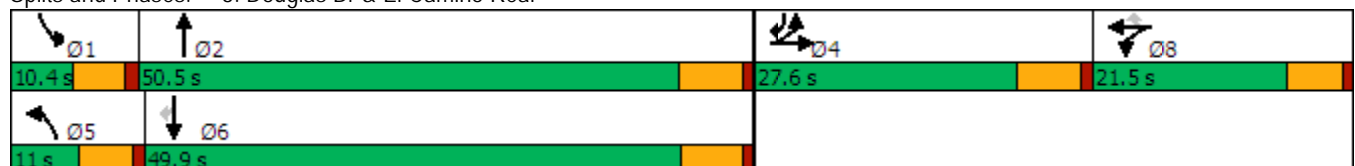


Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	390	20	50	40	5	60	670	10	1280	1300
Future Volume (vph)	390	20	50	40	5	60	670	10	1280	1300
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	27.6	27.6		21.5	21.5	11.0	50.5	10.4	49.9	27.6
Total Split (%)	25.1%	25.1%		19.5%	19.5%	10.0%	45.9%	9.5%	45.4%	25.1%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effect Green (s)	20.5	20.5	102.3	12.3	12.3	5.7	49.4	5.1	43.1	69.7
Actuated g/C Ratio	0.20	0.20	1.00	0.12	0.12	0.06	0.48	0.05	0.42	0.68
v/c Ratio	0.62	0.06	0.03	0.60	0.02	0.66	0.45	0.13	0.93	0.74
Control Delay	42.9	36.2	0.0	56.0	0.0	82.2	19.4	53.4	42.0	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	36.2	0.0	56.0	0.0	82.2	19.4	53.4	42.0	14.9
LOS	D	D	A	E	A	F	B	D	D	B
Approach Delay		38.0		53.9			24.3		28.4	
Approach LOS		D		D			C		C	

Intersection Summary
























Cycle Length: 110
 Actuated Cycle Length: 102.3
 Natural Cycle: 105
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 29.5
 Intersection LOS: C
 Intersection Capacity Utilization 72.0%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real



AM 2035 Alt + Project
 3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	20	50	80	40	5	60	670	40	10	1280	1300
Future Volume (veh/h)	390	20	50	80	40	5	60	670	40	10	1280	1300
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	424	22	0	87	43	5	65	728	43	11	1391	1413
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	532	288		111	55	145	84	1687	100	24	1639	1716
Arrive On Green	0.15	0.15	0.00	0.09	0.09	0.09	0.05	0.49	0.49	0.01	0.46	0.46
Sat Flow, veh/h	3456	1870	1585	1211	599	1585	1781	3410	201	1781	3554	2790
Grp Volume(v), veh/h	424	22	0	130	0	5	65	379	392	11	1391	1413
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1834	1781	1777	1395
Q Serve(g_s), s	11.2	1.0	0.0	6.6	0.0	0.3	3.4	12.9	13.0	0.6	32.7	37.3
Cycle Q Clear(g_c), s	11.2	1.0	0.0	6.6	0.0	0.3	3.4	12.9	13.0	0.6	32.7	37.3
Prop In Lane	1.00		1.00	0.67		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	532	288		165	0	145	84	879	907	24	1639	1716
V/C Ratio(X)	0.80	0.08		0.79	0.00	0.03	0.78	0.43	0.43	0.47	0.85	0.82
Avail Cap(c_a), veh/h	783	424		307	0	269	106	879	907	94	1653	1727
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.5	34.2	0.0	42.0	0.0	39.1	44.5	15.3	15.3	46.2	22.5	14.2
Incr Delay (d2), s/veh	3.6	0.1	0.0	8.0	0.0	0.1	24.1	0.3	0.3	13.6	4.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.4	0.0	3.3	0.0	0.1	2.1	5.1	5.2	0.3	13.8	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.1	34.3	0.0	50.0	0.0	39.2	68.6	15.7	15.6	59.8	26.9	17.5
LnGrp LOS	D	C		D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		446	A		135			836			2815	
Approach Delay, s/veh		41.7			49.6			19.8			22.3	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.7	52.9		20.7	9.8	49.7		14.1				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	44.3		21.4	5.6	* 44		16.0				
Max Q Clear Time (g_c+I1), s	2.6	15.0		13.2	5.4	39.3		8.6				
Green Ext Time (p_c), s	0.0	3.4		1.4	0.0	4.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

AM 2035 Alt + Project
4: Douglas Dr & Pala Rd

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	80	5	110	20	5	50	1030	20	20	2270	80
Future Volume (vph)	80	5	110	20	5	50	1030	20	20	2270	80
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	82.4	21.0	11.5	83.5	30.1
Total Split (%)	20.8%	20.8%	20.8%	14.5%	14.5%	7.2%	56.8%	14.5%	7.9%	57.6%	20.8%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	11.0	11.0	11.0	7.2	7.2	5.0	82.1	90.0	6.0	78.2	95.4
Actuated g/C Ratio	0.09	0.09	0.09	0.06	0.06	0.04	0.68	0.75	0.05	0.65	0.79
v/c Ratio	0.30	0.30	0.47	0.21	0.30	0.74	0.47	0.02	0.25	1.08	0.07
Control Delay	56.5	56.4	15.0	62.1	28.3	109.1	12.5	0.1	66.5	66.5	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.5	56.4	15.0	62.1	28.3	109.1	12.5	0.1	66.5	66.5	1.0
LOS	E	E	B	E	C	F	B	A	E	E	A
Approach Delay		33.0			40.7		16.6			64.3	
Approach LOS		C			D		B			E	

Intersection Summary

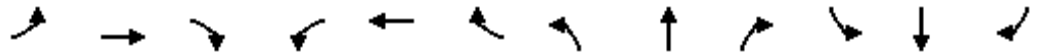
Cycle Length: 145
 Actuated Cycle Length: 120.8
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 48.2
 Intersection LOS: D
 Intersection Capacity Utilization 88.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



AM 2035 Alt + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↗	↖	↗		↖	↑↑	↗	↖	↑↑	↗
Traffic Volume (veh/h)	80	5	110	20	5	30	50	1030	20	20	2270	80
Future Volume (veh/h)	80	5	110	20	5	30	50	1030	20	20	2270	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	91	0	120	22	5	33	54	1120	22	22	2467	87
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	344	0	153	77	9	61	69	2339	1111	39	2277	1169
Arrive On Green	0.10	0.00	0.10	0.04	0.04	0.04	0.04	0.66	0.66	0.02	0.64	0.64
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	91	0	120	22	0	38	54	1120	22	22	2467	87
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	8.9	1.4	0.0	2.8	3.6	19.0	0.5	1.5	77.3	1.8
Cycle Q Clear(g_c), s	2.9	0.0	8.9	1.4	0.0	2.8	3.6	19.0	0.5	1.5	77.3	1.8
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	344	0	153	77	0	70	69	2339	1111	39	2277	1169
V/C Ratio(X)	0.26	0.00	0.78	0.29	0.00	0.55	0.78	0.48	0.02	0.57	1.08	0.07
Avail Cap(c_a), veh/h	738	0	328	235	0	213	74	2339	1111	90	2277	1169
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	53.3	55.9	0.0	56.6	57.4	10.3	5.5	58.5	21.7	4.4
Incr Delay (d2), s/veh	0.4	0.0	8.5	2.0	0.0	6.5	38.0	0.2	0.0	12.6	45.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	3.9	0.7	0.0	1.3	2.4	7.1	0.2	0.8	43.6	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.9	0.0	61.8	57.9	0.0	63.1	95.5	10.4	5.5	71.1	67.6	4.4
LnGrp LOS	D	A	E	E	A	E	F	B	A	E	F	A
Approach Vol, veh/h		211			60			1196			2576	
Approach Delay, s/veh		57.1			61.2			14.2			65.5	
Approach LOS		E			E			B			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	85.6		16.7	10.1	83.5		10.3				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	6.1	76.2		25.0	5.0	77.3		15.9				
Max Q Clear Time (g_c+I1), s	3.5	21.0		10.9	5.6	79.3		4.8				
Green Ext Time (p_c), s	0.0	7.1		0.7	0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

AM 2035 Alt + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↑↑	↗	↖	↑↑	↗
Traffic Volume (vph)	20	5	130	80	5	10	1120	40	5	2170	40
Future Volume (vph)	20	5	130	80	5	10	1120	40	5	2170	40
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	73.0	73.0	10.4	83.4	83.4
Total Split (%)	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%	60.8%	60.8%	8.7%	69.5%	69.5%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effct Green (s)		14.7	14.7		14.7	14.7	78.2	78.2	5.0	80.0	80.0
Actuated g/C Ratio		0.14	0.14		0.14	0.14	0.74	0.74	0.05	0.75	0.75
v/c Ratio		0.14	0.48		0.50	0.04	0.47	0.04	0.06	0.88	0.04
Control Delay		38.3	22.8		49.4	0.2	8.4	1.5	52.8	16.8	4.0
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		38.3	22.8		49.4	0.2	8.4	1.5	52.8	16.8	4.0
LOS		D	C		D	A	A	A	D	B	A
Approach Delay		25.3			44.2		8.2			16.7	
Approach LOS		C			D		A			B	

Intersection Summary






















Cycle Length: 120
 Actuated Cycle Length: 106.1
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 15.0
 Intersection LOS: B
 Intersection Capacity Utilization 86.3%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 5: Douglas Dr & Rainer Way



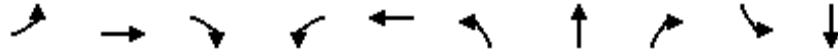
AM 2035 Alt + Project
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	130	80	5	10	0	1120	40	5	2170	40
Future Volume (veh/h)	20	5	130	80	5	10	0	1120	40	5	2170	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	5	141	87	5	11	0	1217	43	5	2359	43
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	0	2	2	2	2	2
Cap, veh/h	54	7	423	58	2	423	0	2089	932	11	2271	1013
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.00	0.59	0.59	0.01	0.64	0.64
Sat Flow, veh/h	0	27	1585	0	7	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	27	0	141	92	0	11	0	1217	43	5	2359	43
Grp Sat Flow(s),veh/h/ln	27	0	1585	7	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.0	0.0	8.6	0.0	0.0	0.6	0.0	25.8	1.4	0.3	76.7	1.2
Cycle Q Clear(g_c), s	32.0	0.0	8.6	32.0	0.0	0.6	0.0	25.8	1.4	0.3	76.7	1.2
Prop In Lane	0.81		1.00	0.95		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	0	423	60	0	423	0	2089	932	11	2271	1013
V/C Ratio(X)	0.44	0.00	0.33	1.53	0.00	0.03	0.00	0.58	0.05	0.44	1.04	0.04
Avail Cap(c_a), veh/h	62	0	423	60	0	423	0	2089	932	74	2271	1013
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	0.0	35.4	59.0	0.0	32.5	0.0	15.5	10.5	59.4	21.6	8.0
Incr Delay (d2), s/veh	4.8	0.0	0.5	305.1	0.0	0.0	0.0	0.4	0.0	24.3	29.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	3.4	6.9	0.0	0.2	0.0	10.2	0.5	0.2	38.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.5	0.0	35.9	364.2	0.0	32.5	0.0	15.9	10.5	83.7	51.4	8.0
LnGrp LOS	E	A	D	F	A	C	A	B	B	F	F	A
Approach Vol, veh/h		168			103			1260			2407	
Approach Delay, s/veh		39.2			328.7			15.7			50.7	
Approach LOS		D			F			B			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	77.2		36.6		83.4		36.6				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	66.3		32.0		76.7		32.0				
Max Q Clear Time (g_c+I1), s	2.3	27.8		34.0		78.7		34.0				
Green Ext Time (p_c), s	0.0	8.0		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			46.3									
HCM 6th LOS			D									

AM 2035 Alt + Project
6: Douglas Dr & North River Rd

Timings

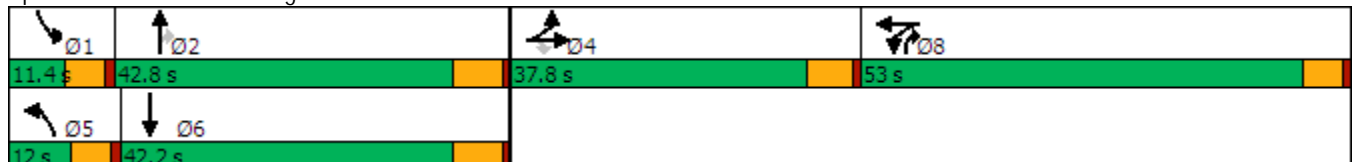


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations	↙	↑↑	↘	↙	↔	↙	↑↑	↗↗	↙	↑↑
Traffic Volume (vph)	60	110	220	1100	60	80	510	440	20	830
Future Volume (vph)	60	110	220	1100	60	80	510	440	20	830
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	53.0	53.0	12.0	42.8	53.0	11.4	42.2
Total Split (%)	26.1%	26.1%	26.1%	36.6%	36.6%	8.3%	29.5%	36.6%	7.9%	29.1%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	18.9	18.9	18.9	47.8	47.8	6.6	41.6	92.4	5.9	36.1
Actuated g/C Ratio	0.14	0.14	0.14	0.36	0.36	0.05	0.31	0.70	0.04	0.27
v/c Ratio	0.26	0.24	0.76	1.03	0.98dl	0.99	0.50	0.23	0.28	0.95
Control Delay	51.6	50.3	45.0	87.0	37.7	155.6	41.2	0.9	73.3	66.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	50.3	45.0	87.0	37.7	155.6	41.2	0.9	73.3	66.1
LOS	D	D	D	F	D	F	D	A	E	E
Approach Delay		47.5			60.7		32.8			66.3
Approach LOS		D			E		C			E

Intersection Summary
























Cycle Length: 145
 Actuated Cycle Length: 132.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 52.3
 Intersection LOS: D
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: Douglas Dr & North River Rd



AM 2035 Alt + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

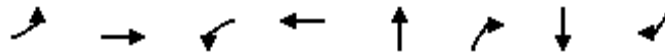
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	110	220	1100	60	20	80	510	440	20	830	10
Future Volume (veh/h)	60	110	220	1100	60	20	80	510	440	20	830	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	65	120	239	1196	65	22	87	554	478	22	902	11
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	312	623	278	1233	463	157	86	1033	1777	37	946	12
Arrive On Green	0.18	0.18	0.18	0.58	0.35	0.35	0.05	0.29	0.49	0.02	0.26	0.26
Sat Flow, veh/h	1781	3554	1585	3563	1337	452	1781	3554	2790	1781	3595	44
Grp Volume(v), veh/h	65	120	239	1196	0	87	87	554	478	22	446	467
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1789	1781	1777	1395	1781	1777	1862
Q Serve(g_s), s	4.3	3.9	20.0	44.0	0.0	4.6	6.6	17.9	8.6	1.7	33.7	33.7
Cycle Q Clear(g_c), s	4.3	3.9	20.0	44.0	0.0	4.6	6.6	17.9	8.6	1.7	33.7	33.7
Prop In Lane	1.00		1.00	1.00		0.25	1.00		1.00	1.00		0.02
Lane Grp Cap(c), veh/h	312	623	278	1233	0	619	86	1033	1777	37	468	490
V/C Ratio(X)	0.21	0.19	0.86	0.97	0.00	0.14	1.01	0.54	0.27	0.60	0.95	0.95
Avail Cap(c_a), veh/h	418	833	372	1243	0	624	86	1033	1777	78	469	491
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	48.0	54.6	28.1	0.0	30.7	64.9	40.7	7.7	66.2	49.4	49.4
Incr Delay (d2), s/veh	0.5	0.2	16.1	18.7	0.0	0.1	99.6	1.0	0.2	14.4	30.4	29.6
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	2.0	1.8	9.2	18.4	0.0	2.0	5.4	8.0	4.9	0.9	18.9	19.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.6	48.2	70.7	46.8	0.0	30.8	164.5	41.7	7.8	80.6	79.9	79.0
LnGrp LOS	D	D	E	D	A	C	F	D	A	F	E	E
Approach Vol, veh/h		424			1283			1119			935	
Approach Delay, s/veh		61.0			45.7			36.8			79.5	
Approach LOS		E			D			D			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	45.9		29.7	12.0	42.1		52.6				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	6.0	36.6		32.0	6.6	36.0		47.6				
Max Q Clear Time (g_c+I1), s	3.7	19.9		22.0	8.6	35.7		46.0				
Green Ext Time (p_c), s	0.0	8.8		1.9	0.0	0.2		1.2				

Intersection Summary												
HCM 6th Ctrl Delay				53.2								
HCM 6th LOS				D								

Notes
 User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.

AM 2035 Alt + Project
7: Avenida Descanso & North River Rd

Timings

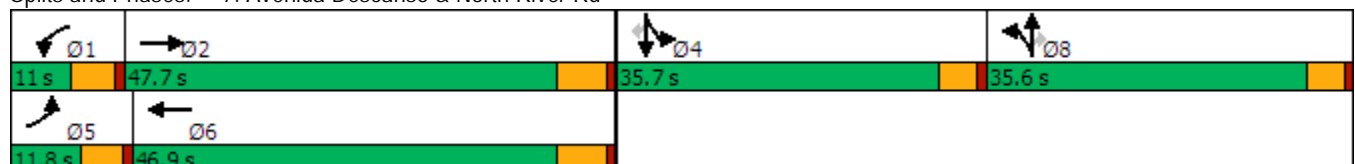


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	70	570	20	1090	5	40	20	140
Future Volume (vph)	70	570	20	1090	5	40	20	140
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6
Total Split (s)	11.8	47.7	11.0	46.9	35.6	35.6	35.7	35.7
Total Split (%)	9.1%	36.7%	8.5%	36.1%	27.4%	27.4%	27.5%	27.5%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	6.9	50.4	6.0	42.2	9.9	9.9	15.6	15.6
Actuated g/C Ratio	0.07	0.53	0.06	0.44	0.10	0.10	0.16	0.16
v/c Ratio	0.60	0.34	0.20	0.80	0.05	0.17	0.60	0.44
Control Delay	66.4	17.9	53.1	30.1	39.1	1.4	46.2	17.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	17.9	53.1	30.1	39.1	1.4	46.2	17.4
LOS	E	B	D	C	D	A	D	B
Approach Delay		23.1		30.5	8.5		32.8	
Approach LOS		C		C	A		C	

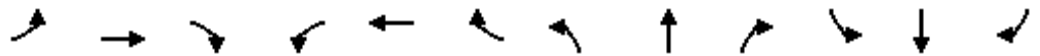
Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 95.3
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 28.1
 Intersection LOS: C
 Intersection Capacity Utilization 64.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 7: Avenida Descanso & North River Rd



LOS Engineering, Inc.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕		↔	↕			↕	↕		↕	↕
Traffic Volume (veh/h)	70	570	10	20	1090	60	5	5	40	140	20	140
Future Volume (veh/h)	70	570	10	20	1090	60	5	5	40	140	20	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	620	11	22	1185	65	5	5	43	152	22	152
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	100	1613	29	45	1441	79	80	80	139	221	32	224
Arrive On Green	0.06	0.45	0.45	0.02	0.42	0.42	0.09	0.09	0.09	0.14	0.14	0.14
Sat Flow, veh/h	1781	3572	63	1781	3426	188	912	912	1585	1565	227	1585
Grp Volume(v), veh/h	76	308	323	22	614	636	10	0	43	174	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1837	1825	0	1585	1792	0	1585
Q Serve(g_s), s	2.9	7.9	7.9	0.8	20.9	20.9	0.3	0.0	1.7	6.3	0.0	6.2
Cycle Q Clear(g_c), s	2.9	7.9	7.9	0.8	20.9	20.9	0.3	0.0	1.7	6.3	0.0	6.2
Prop In Lane	1.00		0.03	1.00		0.10	0.50		1.00	0.87		1.00
Lane Grp Cap(c), veh/h	100	802	840	45	748	773	160	0	139	253	0	224
V/C Ratio(X)	0.76	0.38	0.38	0.49	0.82	0.82	0.06	0.00	0.31	0.69	0.00	0.68
Avail Cap(c_a), veh/h	175	1090	1141	154	1070	1106	829	0	720	816	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.8	12.4	12.4	32.9	17.5	17.5	28.6	0.0	29.2	27.9	0.0	27.9
Incr Delay (d2), s/veh	11.4	0.3	0.3	8.2	3.5	3.5	0.2	0.0	1.2	3.3	0.0	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	1.5	2.9	3.0	0.4	8.3	8.6	0.2	0.0	0.7	2.8	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	12.7	12.7	41.1	21.0	21.0	28.7	0.0	30.4	31.2	0.0	31.5
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		707			1272			53				326
Approach Delay, s/veh		16.0			21.4			30.1				31.3
Approach LOS		B			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	36.6		14.2	8.9	34.5		10.6				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	5.9	41.9		31.1	6.7	41.1		31.0				
Max Q Clear Time (g_c+I1), s	2.8	9.9		8.3	4.9	22.9		3.7				
Green Ext Time (p_c), s	0.0	2.7		1.3	0.0	5.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	740	1170	10	10	30
Future Vol, veh/h	20	740	1170	10	10	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	22	804	1272	11	11	33

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1283	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.14	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.22	-	-
Pot Cap-1 Maneuver	537	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	537	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	28.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	537	-	-	-	198
HCM Lane V/C Ratio	0.04	-	-	-	0.22
HCM Control Delay (s)	12	-	-	-	28.2
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	0.8

AM 2035 Alt + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕				↖		↕	
Traffic Vol, veh/h	30	720	26	26	1130	10	102	0	102	20	0	50
Future Vol, veh/h	30	720	26	26	1130	10	102	0	102	20	0	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	783	28	28	1228	11	111	0	111	22	0	54

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1239	0	0	811
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.14	-	-	4.14
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.22	-	-	2.22
Pot Cap-1 Maneuver	558	-	-	811
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	558	-	-	811
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	0.2	12.4	79
HCM LOS			B	F

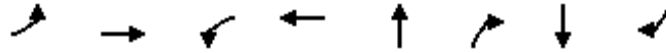
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	594	558	-	-	811	-	-	118
HCM Lane V/C Ratio	0.187	0.058	-	-	0.035	-	-	0.645
HCM Control Delay (s)	12.4	11.9	-	-	9.6	-	-	79
HCM Lane LOS	B	B	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0.1	-	-	3.3

Notes

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

AM 2035 Alt + Project
 10: Calle Montecito & North River Rd

Timings

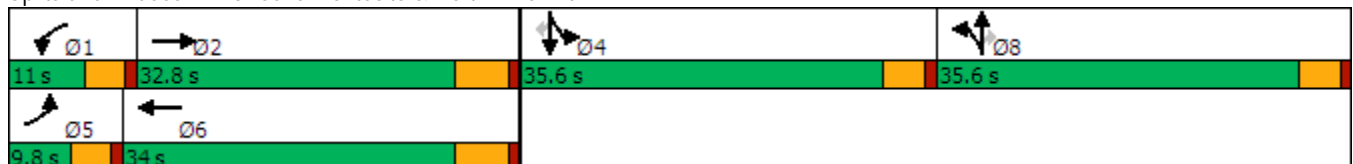


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations								
Traffic Volume (vph)	60	660	40	940	5	10	5	140
Future Volume (vph)	60	660	40	940	5	10	5	140
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	9.8	32.8	11.0	34.0	35.6	35.6	35.6	35.6
Total Split (%)	8.5%	28.5%	9.6%	29.6%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effct Green (s)	5.5	31.0	6.5	29.6	9.9	9.9	18.2	18.2
Actuated g/C Ratio	0.07	0.38	0.08	0.37	0.12	0.12	0.22	0.22
v/c Ratio	0.54	0.56	0.30	0.91	0.07	0.04	0.69	0.34
Control Delay	59.5	25.8	47.2	38.9	33.0	0.2	40.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.5	25.8	47.2	38.9	33.0	0.2	40.0	12.1
LOS	E	C	D	D	C	A	D	B
Approach Delay		28.5		39.2	19.6		30.1	
Approach LOS		C		D	B		C	

Intersection Summary

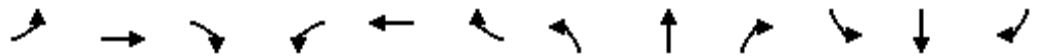
Cycle Length: 115
 Actuated Cycle Length: 80.9
 Natural Cycle: 125
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 33.9
 Intersection Capacity Utilization 67.4%
 Analysis Period (min) 15
 Intersection LOS: C
 ICU Level of Service C

Splits and Phases: 10: Calle Montecito & North River Rd



AM 2035 Alt + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕			↕	↗		↖	↗
Traffic Volume (veh/h)	60	660	30	40	940	130	10	5	10	250	5	140
Future Volume (veh/h)	60	660	30	40	940	130	10	5	10	250	5	140
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	717	33	43	1022	141	11	5	11	272	5	152
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	93	1329	61	73	1170	161	110	50	140	353	6	320
Arrive On Green	0.05	0.38	0.38	0.04	0.37	0.37	0.09	0.09	0.09	0.20	0.20	0.20
Sat Flow, veh/h	1781	3459	159	1781	3137	432	1243	565	1585	1751	32	1585
Grp Volume(v), veh/h	65	368	382	43	578	585	16	0	11	277	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	1842	1781	1777	1793	1808	0	1585	1783	0	1585
Q Serve(g_s), s	2.4	10.9	11.0	1.6	20.6	20.6	0.6	0.0	0.4	10.0	0.0	5.8
Cycle Q Clear(g_c), s	2.4	10.9	11.0	1.6	20.6	20.6	0.6	0.0	0.4	10.0	0.0	5.8
Prop In Lane	1.00		0.09	1.00		0.24	0.69		1.00	0.98		1.00
Lane Grp Cap(c), veh/h	93	682	707	73	663	669	160	0	140	360	0	320
V/C Ratio(X)	0.70	0.54	0.54	0.59	0.87	0.87	0.10	0.00	0.08	0.77	0.00	0.48
Avail Cap(c_a), veh/h	139	708	734	170	739	746	824	0	722	813	0	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	16.3	16.3	32.1	19.8	19.8	28.5	0.0	28.5	25.7	0.0	24.0
Incr Delay (d2), s/veh	9.3	0.8	0.7	7.4	10.4	10.5	0.3	0.0	0.2	3.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.2	4.4	0.8	9.6	9.7	0.2	0.0	0.2	4.4	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	17.0	17.0	39.5	30.2	30.3	28.8	0.0	28.7	29.2	0.0	25.1
LnGrp LOS	D	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		815			1206			27			429	
Approach Delay, s/veh		18.9			30.6			28.8			27.7	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	31.8		18.3	8.0	31.1		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	6.5	27.1		31.0	5.3	28.3		31.0				
Max Q Clear Time (g_c+I1), s	3.6	13.0		12.0	4.4	22.6		2.6				
Green Ext Time (p_c), s	0.0	2.8		1.7	0.0	2.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	26.2
HCM 6th LOS	C

Notes

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

AM 2035 Alt + Project
11: Redondo Dr & North River Rd

Timings

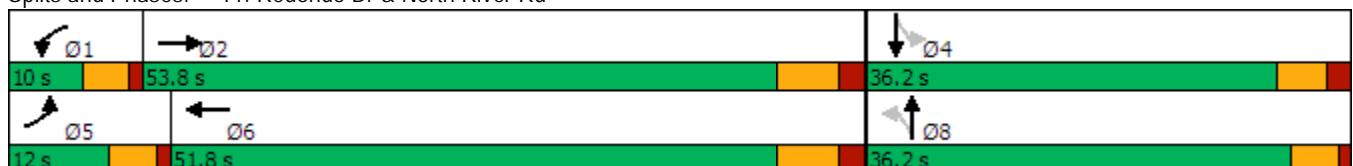


Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT	Ø1
Lane Configurations	↖	↗	↗		↔	↖	↗	
Traffic Volume (vph)	40	900	1040	5	0	110	0	
Future Volume (vph)	40	900	1040	5	0	110	0	
Turn Type	Prot	NA	NA	Perm	NA	Perm	NA	
Protected Phases	5	2	6		8		4	1
Permitted Phases				8		4		
Detector Phase	5	2	6	8	8	4	4	
Switch Phase								
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	6.0	6.0	5.0
Minimum Split (s)	9.5	32.7	29.7	35.6	35.6	21.6	21.6	9.5
Total Split (s)	12.0	53.8	51.8	36.2	36.2	36.2	36.2	10.0
Total Split (%)	12.0%	53.8%	51.8%	36.2%	36.2%	36.2%	36.2%	10%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.6	3.6	3.5
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	2.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.5	6.7	6.7		4.6	5.6	5.6	
Lead/Lag	Lead	Lag	Lag					Lead
Lead-Lag Optimize?	Yes	Yes	Yes					Yes
Recall Mode	None	None	None	Min	Min	Min	Min	None
Act Effct Green (s)	7.5	34.7	28.9		14.7	13.5	13.5	
Actuated g/C Ratio	0.12	0.56	0.46		0.24	0.22	0.22	
v/c Ratio	0.20	0.50	0.74		0.02	0.40	0.33	
Control Delay	37.2	9.4	18.5		0.1	28.9	7.1	
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	
Total Delay	37.2	9.4	18.5		0.1	28.9	7.1	
LOS	D	A	B		A	C	A	
Approach Delay		10.5	18.5		0.1		16.7	
Approach LOS		B	B		A		B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 62.5
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 15.0
 Intersection LOS: B
 Intersection Capacity Utilization 54.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

AM 2035 Alt + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	900	0	0	1040	70	5	0	5	110	0	140
Future Volume (veh/h)	40	900	0	0	1040	70	5	0	5	110	0	140
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	43	978	0	0	1130	76	5	0	5	120	0	152
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	81	2093	0	4	1520	102	158	33	78	390	0	245
Arrive On Green	0.05	0.59	0.00	0.00	0.45	0.45	0.15	0.00	0.15	0.15	0.00	0.15
Sat Flow, veh/h	1781	3647	0	1781	3379	227	291	214	505	1411	0	1585
Grp Volume(v), veh/h	43	978	0	0	594	612	10	0	0	120	0	152
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1829	1010	0	0	1411	0	1585
Q Serve(g_s), s	1.1	7.5	0.0	0.0	13.2	13.3	0.0	0.0	0.0	0.0	0.0	4.3
Cycle Q Clear(g_c), s	1.1	7.5	0.0	0.0	13.2	13.3	4.3	0.0	0.0	3.2	0.0	4.3
Prop In Lane	1.00		0.00	1.00		0.12	0.50		0.50	1.00		1.00
Lane Grp Cap(c), veh/h	81	2093	0	4	799	823	269	0	0	390	0	245
V/C Ratio(X)	0.53	0.47	0.00	0.00	0.74	0.74	0.04	0.00	0.00	0.31	0.00	0.62
Avail Cap(c_a), veh/h	279	3491	0	204	1671	1721	969	0	0	1073	0	1012
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	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.4	5.6	0.0	0.0	10.9	10.9	17.3	0.0	0.0	18.5	0.0	19.0
Incr Delay (d2), s/veh	5.3	0.2	0.0	0.0	1.4	1.4	0.1	0.0	0.0	0.4	0.0	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	0.6	1.8	0.0	0.0	4.3	4.4	0.1	0.0	0.0	1.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.7	5.7	0.0	0.0	12.3	12.3	17.4	0.0	0.0	18.9	0.0	21.5
LnGrp LOS	C	A	A	A	B	B	B	A	A	B	A	C
Approach Vol, veh/h		1021			1206			10				272
Approach Delay, s/veh		6.7			12.3			17.4				20.4
Approach LOS		A			B			B				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	34.9		13.0	6.7	28.3		13.0				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	5.5	47.1		30.6	7.5	45.1		* 32				
Max Q Clear Time (g_c+I1), s	0.0	9.5		6.3	3.1	15.3		6.3				
Green Ext Time (p_c), s	0.0	5.6		1.1	0.0	6.3		0.0				

Intersection Summary

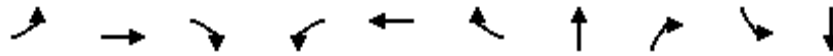
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

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

AM 2035 Alt + Project
12: College Blvd & North River Rd

Timings

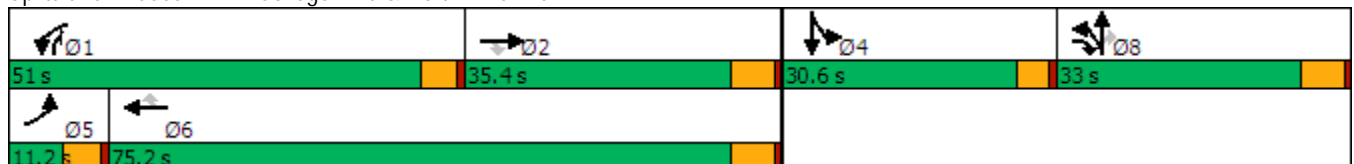


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	20	290	670	1400	660	90	30	1240	30	60
Future Volume (vph)	20	290	670	1400	660	90	30	1240	30	60
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	11.2	35.4	33.0	51.0	75.2	75.2	33.0	51.0	30.6	30.6
Total Split (%)	7.5%	23.6%	22.0%	34.0%	50.1%	50.1%	22.0%	34.0%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effect Green (s)	6.0	17.4	46.4	46.6	62.8	62.8	27.6	80.1	12.0	12.0
Actuated g/C Ratio	0.05	0.14	0.38	0.38	0.51	0.51	0.23	0.65	0.10	0.10
v/c Ratio	0.25	0.63	0.96	1.17	0.40	0.11	1.08	0.64	0.19	0.42
Control Delay	69.3	56.3	42.8	118.8	21.2	5.2	114.9	7.0	54.7	56.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	56.3	42.8	118.8	21.2	5.2	114.9	7.0	54.7	56.7
LOS	E	E	D	F	C	A	F	A	D	E
Approach Delay		47.3			84.1		33.3			56.1
Approach LOS		D			F		C			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 122.5
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.17
 Intersection Signal Delay: 59.0
 Intersection LOS: E
 Intersection Capacity Utilization 99.3%
 ICU Level of Service F
 Analysis Period (min) 15
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

AM 2035 Alt + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	290	670	1400	660	90	370	30	1240	30	60	10
Future Volume (veh/h)	20	290	670	1400	660	90	370	30	1240	30	60	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	22	315	728	1522	717	98	402	33	1348	33	65	11
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	37	799	684	1205	1964	876	341	28	1549	103	90	15
Arrive On Green	0.02	0.22	0.22	0.35	0.55	0.55	0.21	0.21	0.21	0.06	0.06	0.06
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1652	136	2790	1781	1559	264
Grp Volume(v), veh/h	22	315	728	1522	717	98	435	0	1348	33	0	76
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1788	0	1395	1781	0	1823
Q Serve(g_s), s	1.6	9.9	29.6	45.9	14.9	3.9	27.2	0.0	27.2	2.3	0.0	5.4
Cycle Q Clear(g_c), s	1.6	9.9	29.6	45.9	14.9	3.9	27.2	0.0	27.2	2.3	0.0	5.4
Prop In Lane	1.00		1.00	1.00		1.00	0.92		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	37	799	684	1205	1964	876	369	0	1549	103	0	106
V/C Ratio(X)	0.59	0.39	1.06	1.26	0.37	0.11	1.18	0.00	0.87	0.32	0.00	0.72
Avail Cap(c_a), veh/h	83	799	684	1205	1964	876	369	0	1549	352	0	360
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	63.9	43.4	29.7	42.9	16.5	14.0	52.2	0.0	25.2	59.5	0.0	60.9
Incr Delay (d2), s/veh	13.8	0.3	52.8	125.2	0.1	0.1	104.6	0.0	5.7	1.8	0.0	8.8
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	0.9	4.4	33.1	40.3	6.1	1.4	22.9	0.0	18.7	1.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.7	43.7	82.5	168.0	16.6	14.1	156.8	0.0	30.8	61.3	0.0	69.7
LnGrp LOS	E	D	F	F	B	B	F	A	C	E	A	E
Approach Vol, veh/h		1065			2337			1783			109	
Approach Delay, s/veh		70.9			115.1			61.6			67.2	
Approach LOS		E			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	51.0	35.4		12.2	7.9	78.5		33.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	45.9	29.6		26.0	6.1	69.4		27.2				
Max Q Clear Time (g_c+I1), s	47.9	31.6		7.4	3.6	16.9		29.2				
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	4.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				87.2								
HCM 6th LOS				F								

AM 2035 Alt + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	60	30	30	1580	2020	90
Future Volume (vph)	60	30	30	1580	2020	90
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.5	11.5	57.4	45.9	45.9
Total Split (%)	36.2%	12.8%	12.8%	63.8%	51.0%	51.0%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.5	16.6	6.3	56.9	50.6	50.6
Actuated g/C Ratio	0.16	0.24	0.09	0.81	0.72	0.72
v/c Ratio	0.23	0.09	0.11	0.60	0.87	0.09
Control Delay	27.6	17.6	34.6	7.9	21.9	7.1
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	27.6	17.6	34.6	8.0	21.9	7.1
LOS	C	B	C	A	C	A
Approach Delay	24.2			8.5	21.3	
Approach LOS	C			A	C	

Intersection Summary

Cycle Length: 90
 Actuated Cycle Length: 70.5
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.87
 Intersection Signal Delay: 15.9
 Intersection LOS: B
 Intersection Capacity Utilization 71.2%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 13: College Blvd & Buchanon Park



AM 2035 Alt + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	30	30	1580	2020	90
Future Volume (veh/h)	60	30	30	1580	2020	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	65	33	33	1717	2196	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	182	228	143	2621	2195	979
Arrive On Green	0.10	0.10	0.04	0.74	0.62	0.62
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	65	33	33	1717	2196	98
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	2.2	1.2	0.6	15.9	40.1	1.6
Cycle Q Clear(g_c), s	2.2	1.2	0.6	15.9	40.1	1.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	182	228	143	2621	2195	979
V/C Ratio(X)	0.36	0.14	0.23	0.66	1.00	0.10
Avail Cap(c_a), veh/h	768	749	341	2824	2195	979
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	27.2	24.3	30.1	4.3	12.4	5.1
Incr Delay (d2), s/veh	1.2	0.3	0.8	0.5	19.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.3	3.3	17.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.3	24.6	30.9	4.8	31.7	5.1
LnGrp LOS	C	C	C	A	F	A
Approach Vol, veh/h	98			1750	2294	
Approach Delay, s/veh	27.1			5.3	30.6	
Approach LOS	C			A	C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		53.7		11.2	7.8	45.9
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		51.6		28.0	6.4	40.1
Max Q Clear Time (g_c+I1), s		17.9		4.2	2.6	42.1
Green Ext Time (p_c), s		13.0		0.3	0.0	0.0
Intersection Summary						
HCM 6th Ctrl Delay			19.8			
HCM 6th LOS			B			

AM 2035 Alt + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↑↑↑	↖	↑↑	↗
Traffic Volume (vph)	210	10	100	20	50	20	1340	20	1790	250
Future Volume (vph)	210	10	100	20	50	20	1340	20	1790	250
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	62.6	10.7	63.2	63.2
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	9.2%	56.9%	9.7%	57.5%	57.5%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effect Green (s)	22.4	22.4		22.4	22.4	5.1	58.0	5.7	58.2	58.2
Actuated g/C Ratio	0.24	0.24		0.24	0.24	0.05	0.61	0.06	0.61	0.61
v/c Ratio	0.82	0.29		0.47	0.12	0.23	0.48	0.21	0.90	0.27
Control Delay	57.6	12.2		37.2	3.8	54.1	12.6	52.3	25.4	8.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	9.3	0.0
Total Delay	57.6	12.2		37.2	3.8	54.1	12.6	52.3	34.6	8.7
LOS	E	B		D	A	D	B	D	C	A
Approach Delay		41.1		27.4			13.2		31.6	
Approach LOS		D		C			B		C	

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 94.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 25.7
 Intersection LOS: C
 Intersection Capacity Utilization 76.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



AM 2035 Alt + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	110	100	20	50	20	1340	40	20	1790	250
Future Volume (veh/h)	210	10	110	100	20	50	20	1340	40	20	1790	250
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	228	11	120	109	22	54	22	1457	43	22	1946	272
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	276	40	438	323	60	472	40	2724	80	40	1899	847
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.53	0.53	0.02	0.53	0.53
Sat Flow, veh/h	1323	135	1471	876	200	1585	1781	5097	150	1781	3554	1585
Grp Volume(v), veh/h	228	0	131	131	0	54	22	973	527	22	1946	272
Grp Sat Flow(s),veh/h/ln	1323	0	1606	1077	0	1585	1781	1702	1843	1781	1777	1585
Q Serve(g_s), s	17.0	0.0	6.7	8.3	0.0	2.7	1.3	20.0	20.0	1.3	57.4	10.4
Cycle Q Clear(g_c), s	32.0	0.0	6.7	15.0	0.0	2.7	1.3	20.0	20.0	1.3	57.4	10.4
Prop In Lane	1.00		0.92	0.83		1.00	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	276	0	478	382	0	472	40	1819	985	40	1899	847
V/C Ratio(X)	0.83	0.00	0.27	0.34	0.00	0.11	0.55	0.53	0.53	0.55	1.02	0.32
Avail Cap(c_a), veh/h	276	0	478	382	0	472	83	1819	985	93	1899	847
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	28.8	34.0	0.0	27.4	52.0	16.3	16.3	52.0	25.0	14.1
Incr Delay (d2), s/veh	18.2	0.0	0.3	0.5	0.0	0.1	11.3	0.3	0.6	11.3	27.2	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	7.5	0.0	2.6	2.9	0.0	1.0	0.7	7.6	8.3	0.7	29.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	29.1	34.5	0.0	27.5	63.3	16.6	16.9	63.3	52.2	14.3
LnGrp LOS	E	A	C	C	A	C	E	B	B	E	F	B
Approach Vol, veh/h		359			185			1522			2240	
Approach Delay, s/veh		51.3			32.5			17.4			47.7	
Approach LOS		D			C			B			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	63.2		36.7	7.5	63.2		36.7				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	5.6	56.8		* 32	5.0	57.4		* 32				
Max Q Clear Time (g_c+I1), s	3.3	22.0		34.0	3.3	59.4		17.0				
Green Ext Time (p_c), s	0.0	9.0		0.0	0.0	0.0		0.6				

Intersection Summary

HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

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

AM 2035 Alt + Project
15: College Blvd & Via Cupeno

Timings

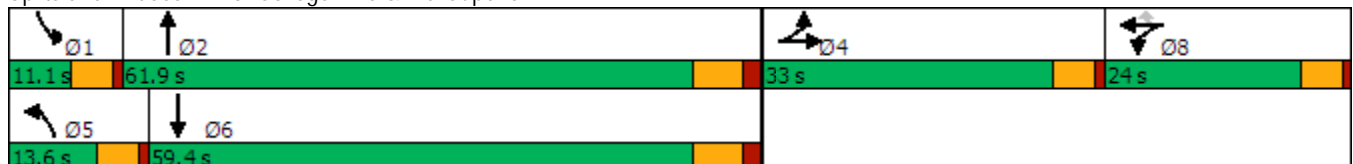


Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	5	10	5	180	1330	5	1900
Future Volume (vph)	5	10	5	180	1330	5	1900
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	13.6	61.9	11.1	59.4
Total Split (%)	25.4%	18.5%	18.5%	10.5%	47.6%	8.5%	45.7%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	11.7	15.9	15.9	8.6	64.8	6.0	53.0
Actuated g/C Ratio	0.11	0.14	0.14	0.08	0.58	0.05	0.48
v/c Ratio	0.32	0.73	0.02	0.74	0.51	0.05	0.89
Control Delay	28.5	63.7	0.0	69.0	16.7	56.0	33.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	63.7	0.0	69.0	16.7	56.0	33.3
LOS	C	E	A	E	B	E	C
Approach Delay	28.5	62.1			22.7		33.3
Approach LOS	C	E			C		C

Intersection Summary





















Cycle Length: 130
 Actuated Cycle Length: 111.1
 Natural Cycle: 130
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 30.2
 Intersection LOS: C
 Intersection Capacity Utilization 73.8%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



AM 2035 Alt + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	5	50	160	10	5	180	1330	50	5	1900	80
Future Volume (veh/h)	60	5	50	160	10	5	180	1330	50	5	1900	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	5	54	174	11	5	196	1446	54	5	2065	87
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	142	11	120	210	13	198	266	2818	105	14	2456	103
Arrive On Green	0.08	0.08	0.08	0.13	0.13	0.13	0.08	0.56	0.56	0.01	0.49	0.49
Sat Flow, veh/h	1762	137	1486	1680	106	1585	3456	5052	189	1781	5025	211
Grp Volume(v), veh/h	66	0	58	185	0	5	196	974	526	5	1397	755
Grp Sat Flow(s),veh/h/ln	1782	0	1603	1786	0	1585	1728	1702	1836	1781	1702	1832
Q Serve(g_s), s	3.4	0.0	3.3	9.7	0.0	0.3	5.3	17.0	17.0	0.3	34.1	34.3
Cycle Q Clear(g_c), s	3.4	0.0	3.3	9.7	0.0	0.3	5.3	17.0	17.0	0.3	34.1	34.3
Prop In Lane	0.99		0.93	0.94		1.00	1.00		0.10	1.00		0.12
Lane Grp Cap(c), veh/h	143	0	129	224	0	198	266	1899	1024	14	1663	895
V/C Ratio(X)	0.46	0.00	0.45	0.83	0.00	0.03	0.74	0.51	0.51	0.36	0.84	0.84
Avail Cap(c_a), veh/h	521	0	469	355	0	315	307	1959	1057	112	1870	1007
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	0.0	42.0	40.9	0.0	36.7	43.2	13.1	13.1	47.3	21.2	21.3
Incr Delay (d2), s/veh	2.3	0.0	2.5	8.7	0.0	0.1	7.7	0.2	0.4	14.9	3.3	6.1
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	1.6	0.0	1.4	4.7	0.0	0.1	2.5	6.1	6.7	0.2	13.4	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	0.0	44.5	49.6	0.0	36.8	51.0	13.3	13.5	62.2	24.5	27.4
LnGrp LOS	D	A	D	D	A	D	D	B	B	E	C	C
Approach Vol, veh/h		124			190			1696			2157	
Approach Delay, s/veh		44.4			49.2			17.7			25.6	
Approach LOS		D			D			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	60.2		12.7	12.5	53.6		17.0				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	55.1		28.0	8.5	52.6		19.0				
Max Q Clear Time (g_c+I1), s	2.3	19.0		5.4	7.3	36.3		11.7				
Green Ext Time (p_c), s	0.0	9.1		0.4	0.1	10.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				24.0								
HCM 6th LOS				C								

LOS Engineering, Inc.

AM 2035 Alt + Project
16: College Blvd & SR-76

Timings

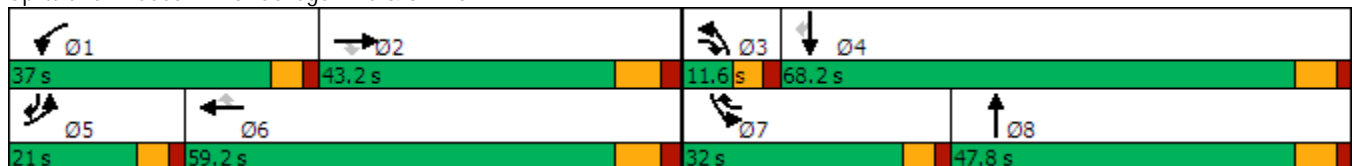


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↖	↖↗	↑↑↑	↖	↖↗	↑↔	↖↗	↑↑	↖
Traffic Volume (vph)	390	990	40	690	1710	590	70	590	680	980	460
Future Volume (vph)	390	990	40	690	1710	590	70	590	680	980	460
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	21.0	43.2	11.6	37.0	59.2	32.0	11.6	47.8	32.0	68.2	21.0
Total Split (%)	13.1%	27.0%	7.3%	23.1%	37.0%	20.0%	7.3%	29.9%	20.0%	42.6%	13.1%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effect Green (s)	15.3	35.2	49.1	31.3	51.2	85.5	5.9	41.0	26.3	61.4	83.5
Actuated g/C Ratio	0.10	0.22	0.31	0.20	0.32	0.53	0.04	0.26	0.16	0.38	0.52
v/c Ratio	1.29	0.96	0.07	1.12	1.14	0.73	0.60	1.11	1.31	0.78	0.57
Control Delay	206.2	80.5	0.2	128.5	120.2	31.3	95.7	115.6	201.8	48.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	206.2	80.5	0.2	128.5	120.2	31.3	95.7	115.6	201.8	48.5	22.5
LOS	F	F	A	F	F	C	F	F	F	D	C
Approach Delay		112.8			104.6			114.2		92.0	
Approach LOS		F			F			F		F	

Intersection Summary

Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.31
 Intersection Signal Delay: 103.9
 Intersection Capacity Utilization 112.6%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service H


































Splits and Phases: 16: College Blvd & SR-76



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AM 2035 Alt + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		  	  		 	 		 	 	
Traffic Volume (veh/h)	390	990	40	690	1710	590	70	590	340	680	980	460
Future Volume (veh/h)	390	990	40	690	1710	590	70	590	340	680	980	460
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	424	1076	43	750	1859	641	76	641	370	739	1065	500
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	330	1123	401	676	1634	768	114	556	321	568	1377	766
Arrive On Green	0.10	0.22	0.22	0.20	0.32	0.32	0.03	0.26	0.26	0.16	0.39	0.39
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2170	1252	3456	3554	1585
Grp Volume(v), veh/h	424	1076	43	750	1859	641	76	525	486	739	1065	500
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1645	1728	1777	1585
Q Serve(g_s), s	15.3	33.3	3.3	31.3	51.2	51.2	3.5	41.0	41.0	26.3	41.9	38.1
Cycle Q Clear(g_c), s	15.3	33.3	3.3	31.3	51.2	51.2	3.5	41.0	41.0	26.3	41.9	38.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	330	1123	401	676	1634	768	114	455	422	568	1377	766
V/C Ratio(X)	1.28	0.96	0.11	1.11	1.14	0.83	0.66	1.15	1.15	1.30	0.77	0.65
Avail Cap(c_a), veh/h	330	1123	401	676	1634	768	127	455	422	568	1377	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.3	61.7	45.9	64.3	54.4	35.7	76.5	59.5	59.5	66.9	42.9	31.2
Incr Delay (d2), s/veh	148.6	17.6	0.1	68.6	70.0	7.9	10.7	91.3	92.8	148.0	2.8	2.0
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	13.6	16.3	1.4	20.2	32.5	23.2	1.7	30.0	28.0	23.3	19.0	15.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	220.9	79.3	46.0	133.0	124.4	43.6	87.1	150.8	152.3	214.8	45.7	33.2
LnGrp LOS	F	E	D	F	F	D	F	F	F	F	D	C
Approach Vol, veh/h		1543			3250			1087			2304	
Approach Delay, s/veh		117.3			110.5			147.0			97.2	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	37.0	43.2	11.0	68.8	21.0	59.2	32.0	47.8				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 31	35.2	* 5.9	61.4	* 15	51.2	* 26	41.0				
Max Q Clear Time (g_c+I1), s	33.3	35.3	5.5	43.9	17.3	53.2	28.3	43.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	7.9	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	112.9
HCM 6th LOS	F

Notes

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

AM 2035 Alt + Project
17: North River Rd/Vandergrift Blvd

Timings

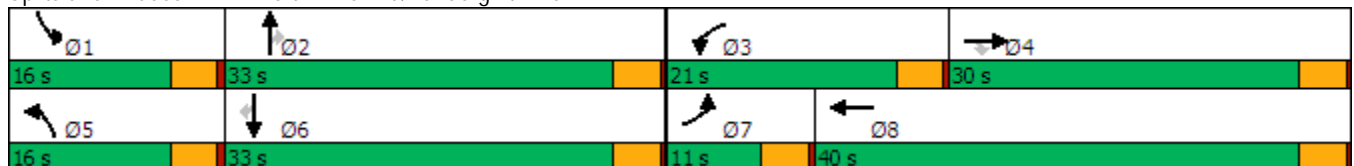


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	60	70	140	860	70	150	1040	390	140	900	50
Future Volume (vph)	60	70	140	860	70	150	1040	390	140	900	50
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	5	2		1	6	
Permitted Phases			4					2			6
Detector Phase	7	4	4	3	8	5	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0
Total Split (s)	11.0	30.0	30.0	21.0	40.0	16.0	33.0	33.0	16.0	33.0	33.0
Total Split (%)	11.0%	30.0%	30.0%	21.0%	40.0%	16.0%	33.0%	33.0%	16.0%	33.0%	33.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max
Act Effct Green (s)	6.7	11.3	11.3	17.1	23.8	11.3	29.5	29.5	11.0	29.2	29.2
Actuated g/C Ratio	0.08	0.13	0.13	0.20	0.28	0.13	0.35	0.35	0.13	0.34	0.34
v/c Ratio	0.46	0.31	0.45	1.35	0.68	0.69	0.64	0.51	0.66	0.80	0.08
Control Delay	51.3	35.7	9.8	198.7	16.5	53.5	26.5	5.1	51.9	33.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	35.7	9.8	198.7	16.5	53.5	26.5	5.1	51.9	33.0	0.3
LOS	D	D	A	F	B	D	C	A	D	C	A
Approach Delay		25.7			139.8		23.8			33.9	
Approach LOS		C			F		C			C	

Intersection Summary
























Cycle Length: 100
 Actuated Cycle Length: 85.1
 Natural Cycle: 110
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.35
 Intersection Signal Delay: 61.6
 Intersection Capacity Utilization 76.1%
 Analysis Period (min) 15
 Intersection LOS: E
 ICU Level of Service D

Splits and Phases: 17: North River Rd/Vandergrift Blvd



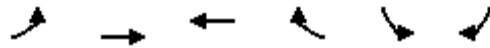
AM 2035 Alt + Project
 17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	70	140	860	70	340	150	1040	390	140	900	50
Future Volume (veh/h)	60	70	140	860	70	340	150	1040	390	140	900	50
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	76	152	935	76	370	163	1130	424	152	978	54
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	84	296	251	692	86	421	199	1776	551	187	1213	541
Arrive On Green	0.05	0.16	0.16	0.20	0.31	0.31	0.11	0.35	0.35	0.11	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	3456	277	1350	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	65	76	152	935	0	446	163	1130	424	152	978	54
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1627	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	3.1	3.0	7.6	17.0	0.0	22.1	7.6	15.7	20.2	7.1	21.2	2.0
Cycle Q Clear(g_c), s	3.1	3.0	7.6	17.0	0.0	22.1	7.6	15.7	20.2	7.1	21.2	2.0
Prop In Lane	1.00		1.00	1.00		0.83	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	84	296	251	692	0	507	199	1776	551	187	1213	541
V/C Ratio(X)	0.78	0.26	0.61	1.35	0.00	0.88	0.82	0.64	0.77	0.81	0.81	0.10
Avail Cap(c_a), veh/h	147	572	485	692	0	690	252	1776	551	252	1213	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	31.4	33.3	34.0	0.0	27.7	36.9	23.2	24.7	37.2	25.4	19.1
Incr Delay (d2), s/veh	14.2	0.5	2.3	167.8	0.0	9.8	15.4	1.8	9.9	13.5	5.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.4	3.0	23.0	0.0	9.6	4.1	6.3	8.8	3.7	9.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.3	31.8	35.6	201.8	0.0	37.5	52.3	24.9	34.6	50.7	31.2	19.4
LnGrp LOS	D	C	D	F	A	D	D	C	C	D	C	B
Approach Vol, veh/h		293			1381			1717			1184	
Approach Delay, s/veh		38.8			148.7			29.9			33.2	
Approach LOS		D			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.9	33.6	21.0	17.5	13.5	33.0	8.0	30.5				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	12.0	29.0	17.0	26.0	12.0	29.0	7.0	36.0				
Max Q Clear Time (g_c+I1), s	9.1	22.2	19.0	9.6	9.6	23.2	5.1	24.1				
Green Ext Time (p_c), s	0.1	4.7	0.0	0.8	0.1	3.2	0.0	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				67.2								
HCM 6th LOS				E								

PM 2035 Alt + Project
1: SR-76 & Douglas Dr

Timings

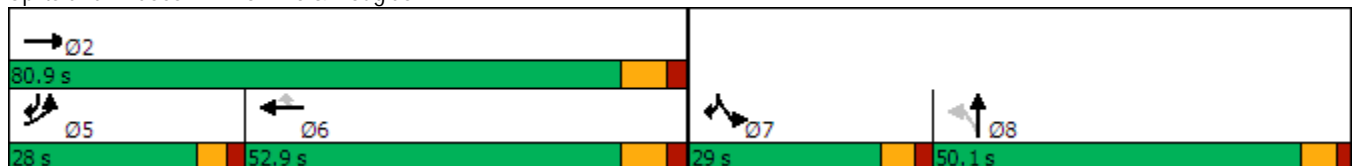


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø8
Lane Configurations	↖ ↗	↕	↖ ↗	↖	↖	↖ ↗	
Traffic Volume (vph)	630	2070	1360	310	340	450	
Future Volume (vph)	630	2070	1360	310	340	450	
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov	
Protected Phases	5	2	6		7	5 7	8
Permitted Phases				6			
Detector Phase	5	2	6	6	7	5 7	
Switch Phase							
Minimum Initial (s)	13.0	25.0	25.0	25.0	13.0		5.0
Minimum Split (s)	21.7	33.0	33.0	33.0	22.1		50.1
Total Split (s)	28.0	80.9	52.9	52.9	29.0		50.1
Total Split (%)	17.5%	50.6%	33.1%	33.1%	18.1%		31%
Yellow Time (s)	3.7	5.5	5.5	5.5	4.1		4.1
All-Red Time (s)	2.0	2.5	2.5	2.5	2.0		2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.7	8.0	8.0	8.0	6.1		
Lead/Lag	Lead		Lag	Lag	Lead		Lag
Lead-Lag Optimize?	Yes		Yes	Yes	Yes		Yes
Recall Mode	None	None	None	None	None		None
Act Effect Green (s)	22.3	72.9	44.9	44.9	22.9	51.3	
Actuated g/C Ratio	0.20	0.66	0.41	0.41	0.21	0.47	
v/c Ratio	0.98	0.96	1.02	0.40	1.01	0.32	
Control Delay	74.7	29.0	62.4	3.8	92.6	2.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	74.7	29.0	62.4	3.8	92.6	2.8	
LOS	E	C	E	A	F	A	
Approach Delay		39.7	51.5				
Approach LOS		D	D				

Intersection Summary

























Cycle Length: 160
 Actuated Cycle Length: 109.9
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 43.8
 Intersection LOS: D
 Intersection Capacity Utilization 89.2%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 1: SR-76 & Douglas Dr



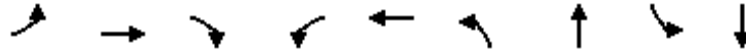
PM 2035 Alt + Project
1: SR-76 & Douglas Dr

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	 			 			 				 
Traffic Volume (veh/h)	630	2070	0	0	1360	310	0	0	0	340	0	450
Future Volume (veh/h)	630	2070	0	0	1360	310	0	0	0	340	0	450
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	0	1870	1870	1870	1870	1870	1870	0	1870
Adj Flow Rate, veh/h	685	2250	0	0	1478	337	0	0	0	370	0	489
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	0	2	2	2	2	2	2	0	2
Cap, veh/h	701	2357	0	0	1452	648	0	2	0	371	0	0
Arrive On Green	0.20	0.66	0.00	0.00	0.41	0.41	0.00	0.00	0.00	0.21	0.00	0.00
Sat Flow, veh/h	3456	3647	0	0	3647	1585	0	-114092	0	1781	370	
Grp Volume(v), veh/h	685	2250	0	0	1478	337	0	0	0	370	89.3	
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	0	1870	0	1781	F	
Q Serve(g_s), s	21.7	63.9	0.0	0.0	44.9	17.6	0.0	0.0	0.0	22.8		
Cycle Q Clear(g_c), s	21.7	63.9	0.0	0.0	44.9	17.6	0.0	0.0	0.0	22.8		
Prop In Lane	1.00		0.00	0.00		1.00	0.00		0.00	1.00		
Lane Grp Cap(c), veh/h	701	2357	0	0	1452	648	0	2	0	371		
V/C Ratio(X)	0.98	0.95	0.00	0.00	1.02	0.52	0.00	0.00	0.00	1.00		
Avail Cap(c_a), veh/h	701	2357	0	0	1452	648	0	749	0	371		
HCM Platoon Ratio	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	0.00	1.00	1.00	0.00	0.00	0.00	1.00		
Uniform Delay (d), s/veh	43.5	17.0	0.0	0.0	32.5	24.4	0.0	0.0	0.0	43.5		
Incr Delay (d2), s/veh	28.2	10.0	0.0	0.0	28.2	0.7	0.0	0.0	0.0	45.8		
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		
%ile BackOfQ(50%),veh/ln	11.9	25.9	0.0	0.0	24.3	6.6	0.0	0.0	0.0	14.7		
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.7	27.0	0.0	0.0	60.7	25.2	0.0	0.0	0.0	89.3		
LnGrp LOS	E	C	A	A	F	C	A	A	A	F		
Approach Vol, veh/h		2935			1815			0				
Approach Delay, s/veh		37.4			54.1			0.0				
Approach LOS		D			D							
Timer - Assigned Phs		2			5	6	7	8				
Phs Duration (G+Y+Rc), s		80.9			28.0	52.9	29.0	0.0				
Change Period (Y+Rc), s		8.0			* 5.7	8.0	6.1	6.1				
Max Green Setting (Gmax), s		72.9			* 22	44.9	22.9	44.0				
Max Q Clear Time (g_c+I1), s		65.9			23.7	46.9	24.8	0.0				
Green Ext Time (p_c), s		5.9			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay					47.1							
HCM 6th LOS					D							
Notes												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

PM 2035 Alt + Project
2: Douglas Dr & Mission Ave

Timings

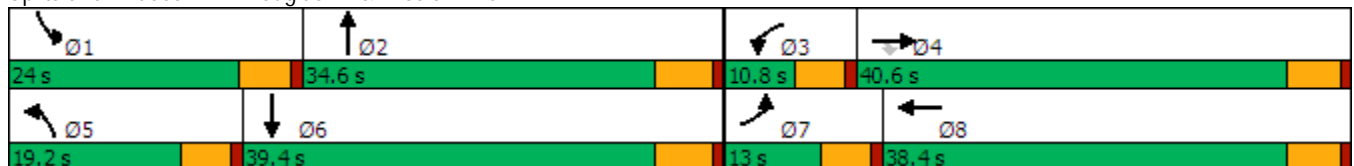


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations	↖↖	↑↑	↗	↖	↑↑	↖	↑↑	↖	↑↑
Traffic Volume (vph)	280	750	170	70	410	190	710	360	590
Future Volume (vph)	280	750	170	70	410	190	710	360	590
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4		3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	4	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	5.0	8.0	8.0	5.0	8.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.1	40.4	40.4	10.1	38.4	10.1	32.8	10.1	34.8
Total Split (s)	13.0	40.6	40.6	10.8	38.4	19.2	34.6	24.0	39.4
Total Split (%)	11.8%	36.9%	36.9%	9.8%	34.9%	17.5%	31.5%	21.8%	35.8%
Yellow Time (s)	4.1	4.4	4.4	4.1	4.4	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.4	5.4	5.1	5.4	5.1	5.8	5.1	5.8
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	8.0	30.4	30.4	5.7	28.2	14.0	26.8	19.0	31.8
Actuated g/C Ratio	0.08	0.29	0.29	0.06	0.27	0.14	0.26	0.18	0.31
v/c Ratio	1.16	0.78	0.33	0.78	0.86	0.87	0.88	1.20	0.65
Control Delay	147.6	39.6	10.4	96.6	35.1	78.4	49.6	155.5	34.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	147.6	39.6	10.4	96.6	35.1	78.4	49.6	155.5	34.5
LOS	F	D	B	F	D	E	D	F	C
Approach Delay		60.7			39.8		55.5		77.7
Approach LOS		E			D		E		E

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 103.5
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.20
 Intersection Signal Delay: 59.0
 Intersection LOS: E
 Intersection Capacity Utilization 91.8%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 2: Douglas Dr & Mission Ave



PM 2035 Alt + Project
2: Douglas Dr & Mission Ave

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	750	170	70	410	440	190	710	30	360	590	60
Future Volume (veh/h)	280	750	170	70	410	440	190	710	30	360	590	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	304	815	185	76	446	478	207	772	33	391	641	65
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	1161	518	94	544	486	233	855	37	313	947	96
Arrive On Green	0.07	0.33	0.33	0.05	0.31	0.31	0.13	0.25	0.25	0.18	0.29	0.29
Sat Flow, veh/h	3456	3554	1585	1781	1777	1585	1781	3472	148	1781	3258	330
Grp Volume(v), veh/h	304	815	185	76	446	478	207	395	410	391	349	357
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1781	1777	1585	1781	1777	1844	1781	1777	1811
Q Serve(g_s), s	7.9	21.6	9.6	4.5	25.0	32.3	12.3	23.2	23.2	18.9	18.7	18.7
Cycle Q Clear(g_c), s	7.9	21.6	9.6	4.5	25.0	32.3	12.3	23.2	23.2	18.9	18.7	18.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.08	1.00		0.18
Lane Grp Cap(c), veh/h	253	1161	518	94	544	486	233	437	454	313	517	526
V/C Ratio(X)	1.20	0.70	0.36	0.81	0.82	0.98	0.89	0.90	0.90	1.25	0.68	0.68
Avail Cap(c_a), veh/h	253	1161	518	94	544	486	233	475	493	313	554	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.9	31.7	27.6	50.5	34.6	37.1	46.0	39.4	39.4	44.4	33.7	33.7
Incr Delay (d2), s/veh	121.3	1.9	0.4	38.4	9.6	36.6	31.1	19.5	19.0	136.7	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	7.7	9.4	3.7	3.0	12.1	17.2	7.4	12.4	12.8	20.1	8.4	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	171.2	33.6	28.0	88.9	44.2	73.7	77.2	58.9	58.4	181.1	36.7	36.7
LnGrp LOS	F	C	C	F	D	E	E	E	E	F	D	D
Approach Vol, veh/h		1304			1000			1012			1097	
Approach Delay, s/veh		64.9			61.7			62.4			88.2	
Approach LOS		E			E			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.0	32.3	10.8	40.6	19.2	37.1	13.0	38.4				
Change Period (Y+Rc), s	5.1	5.8	5.1	5.4	5.1	5.8	5.1	5.4				
Max Green Setting (Gmax), s	18.9	28.8	5.7	35.2	14.1	33.6	7.9	33.0				
Max Q Clear Time (g_c+I1), s	20.9	25.2	6.5	23.6	14.3	20.7	9.9	34.3				
Green Ext Time (p_c), s	0.0	1.3	0.0	3.9	0.0	2.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	69.4
HCM 6th LOS	E

Notes

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

PM 2035 Alt + Project
3: Douglas Dr & El Camino Real

Timings



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖	↖	↖	↖↗	↖	↖↗	↖↗
Traffic Volume (vph)	1180	70	80	30	10	110	1190	10	840	730
Future Volume (vph)	1180	70	80	30	10	110	1190	10	840	730
Turn Type	Split	NA	Free	NA	Perm	Prot	NA	Prot	NA	pm+ov
Protected Phases	4	4		8		5	2	1	6	4
Permitted Phases			Free		8					6
Detector Phase	4	4		8	8	5	2	1	6	4
Switch Phase										
Minimum Initial (s)	4.0	4.0		4.0	4.0	5.0	10.0	5.0	10.0	4.0
Minimum Split (s)	27.2	27.2		21.5	21.5	10.4	34.2	10.4	33.0	27.2
Total Split (s)	55.0	55.0		21.5	21.5	17.4	58.1	10.4	51.1	55.0
Total Split (%)	37.9%	37.9%		14.8%	14.8%	12.0%	40.1%	7.2%	35.2%	37.9%
Yellow Time (s)	5.2	5.2		4.5	4.5	4.4	5.2	4.4	5.0	5.2
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.2	6.2		5.5	5.5	5.4	6.2	5.4	6.0	6.2
Lead/Lag						Lead	Lag	Lead	Lag	
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	Min	None	Min	None
Act Effct Green (s)	48.9	48.9	137.3	12.4	12.4	11.6	54.1	5.0	41.2	96.1
Actuated g/C Ratio	0.36	0.36	1.00	0.09	0.09	0.08	0.39	0.04	0.30	0.70
v/c Ratio	1.05	0.11	0.05	0.60	0.04	0.81	0.99	0.17	0.86	0.41
Control Delay	82.4	32.2	0.1	76.6	0.3	97.9	62.7	73.3	55.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.4	32.2	0.1	76.6	0.3	97.9	62.7	73.3	55.0	9.6
LOS	F	C	A	E	A	F	E	E	E	A
Approach Delay		74.8		68.9			65.5		34.2	
Approach LOS		E		E			E		C	

Intersection Summary
























Cycle Length: 145
 Actuated Cycle Length: 137.3
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 57.1
 Intersection LOS: E
 Intersection Capacity Utilization 94.5%
 ICU Level of Service F
 Analysis Period (min) 15

Splits and Phases: 3: Douglas Dr & El Camino Real

Ø1	Ø2	Ø4	Ø8
10.4 s	58.1 s	55 s	21.5 s
Ø5	Ø6		
17.4 s	51.1 s		

PM 2035 Alt + Project
3: Douglas Dr & El Camino Real

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1180	70	80	60	30	10	110	1190	70	10	840	730
Future Volume (veh/h)	1180	70	80	60	30	10	110	1190	70	10	840	730
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	1283	76	0	65	33	11	120	1293	76	11	913	793
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	1250	677		82	42	108	144	1312	77	22	1125	1893
Arrive On Green	0.36	0.36	0.00	0.07	0.07	0.07	0.08	0.64	0.38	0.01	0.32	0.32
Sat Flow, veh/h	3456	1870	1585	1201	610	1585	1781	3411	200	1781	3554	2790
Grp Volume(v), veh/h	1283	76	0	98	0	11	120	673	696	11	913	793
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1810	0	1585	1781	1777	1834	1781	1777	1395
Q Serve(g_s), s	48.8	3.6	0.0	7.2	0.0	0.9	9.0	49.6	50.2	0.8	31.9	17.2
Cycle Q Clear(g_c), s	48.8	3.6	0.0	7.2	0.0	0.9	9.0	49.6	50.2	0.8	31.9	17.2
Prop In Lane	1.00		1.00	0.66		1.00	1.00		0.11	1.00		1.00
Lane Grp Cap(c), veh/h	1250	677		123	0	108	144	684	706	22	1125	1893
V/C Ratio(X)	1.03	0.11		0.79	0.00	0.10	0.84	0.98	0.99	0.49	0.81	0.42
Avail Cap(c_a), veh/h	1250	677		215	0	188	158	684	706	66	1188	1942
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.0	28.6	0.0	61.9	0.0	59.0	61.1	23.7	25.7	66.2	42.4	9.7
Incr Delay (d2), s/veh	32.4	0.1	0.0	10.9	0.0	0.4	28.5	30.2	30.5	15.9	4.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.2	1.7	0.0	3.7	0.0	0.4	5.2	21.4	23.4	0.5	14.6	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.4	28.7	0.0	72.8	0.0	59.4	89.7	53.9	56.1	82.0	46.5	9.9
LnGrp LOS	F	C		E	A	E	F	D	E	F	D	A
Approach Vol, veh/h		1359	A		109			1489			1717	
Approach Delay, s/veh		72.8			71.4			57.8			29.8	
Approach LOS		E			E			E			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	58.1		55.0	16.3	48.9		14.7				
Change Period (Y+Rc), s	5.4	6.2		6.2	5.4	* 6.2		5.5				
Max Green Setting (Gmax), s	5.0	51.9		48.8	12.0	* 45		16.0				
Max Q Clear Time (g_c+I1), s	2.8	52.2		50.8	11.0	33.9		9.2				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	6.7		0.2				

Intersection Summary

HCM 6th Ctrl Delay	52.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

PM 2035 Alt + Project
4: Douglas Dr & Pala Rd

Timings

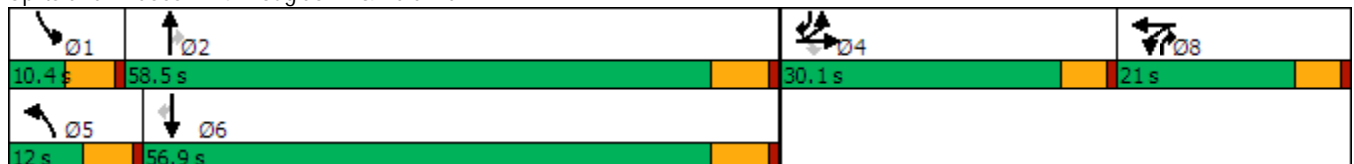


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	110	5	110	20	5	110	2150	30	20	1450	120
Future Volume (vph)	110	5	110	20	5	110	2150	30	20	1450	120
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	4	4		8	8	5	2	8	1	6	4
Permitted Phases			4					2			6
Detector Phase	4	4	4	8	8	5	2	8	1	6	4
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	5.0	10.0	6.0	5.0	10.0	6.0
Minimum Split (s)	30.1	30.1	30.1	21.0	21.0	10.4	24.0	21.0	10.4	30.2	30.1
Total Split (s)	30.1	30.1	30.1	21.0	21.0	12.0	58.5	21.0	10.4	56.9	30.1
Total Split (%)	25.1%	25.1%	25.1%	17.5%	17.5%	10.0%	48.8%	17.5%	8.7%	47.4%	25.1%
Yellow Time (s)	4.1	4.1	4.1	4.1	4.1	4.4	5.2	4.1	4.4	5.2	4.1
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.1	5.1	5.1	5.1	5.4	6.2	5.1	5.4	6.2	5.1
Lead/Lag						Lead	Lag		Lead	Lag	
Lead-Lag Optimize?						Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	Min	None	None	Min	None
Act Effect Green (s)	11.0	11.0	11.0	6.9	6.9	6.7	59.7	68.4	5.1	51.3	68.6
Actuated g/C Ratio	0.12	0.12	0.12	0.07	0.07	0.07	0.63	0.72	0.05	0.54	0.72
v/c Ratio	0.33	0.31	0.41	0.17	0.26	0.97	1.06	0.03	0.24	0.83	0.11
Control Delay	43.6	43.1	10.8	48.2	23.1	122.1	57.4	0.3	53.9	25.3	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	43.1	10.8	48.2	23.1	122.1	57.4	0.3	53.9	25.3	1.1
LOS	D	D	B	D	C	F	E	A	D	C	A
Approach Delay		27.4			32.3		59.8			23.8	
Approach LOS		C			C		E			C	

Intersection Summary
























Cycle Length: 120
 Actuated Cycle Length: 95.4
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.06
 Intersection Signal Delay: 43.9
 Intersection LOS: D
 Intersection Capacity Utilization 87.4%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 4: Douglas Dr & Pala Rd



PM 2035 Alt + Project
4: Douglas Dr & Pala Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	5	110	20	5	30	110	2150	30	20	1450	120
Future Volume (veh/h)	110	5	110	20	5	30	110	2150	30	20	1450	120
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	124	0	120	22	5	33	120	2337	33	22	1576	130
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	375	0	167	92	11	73	130	2056	999	42	1880	1005
Arrive On Green	0.11	0.00	0.11	0.05	0.05	0.05	0.07	0.97	0.58	0.02	0.53	0.53
Sat Flow, veh/h	3563	0	1585	1781	213	1405	1781	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	124	0	120	22	0	38	120	2337	33	22	1576	130
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1618	1781	1777	1585	1781	1777	1585
Q Serve(g_s), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	33.9	3.0
Cycle Q Clear(g_c), s	2.9	0.0	6.6	1.1	0.0	2.1	6.1	52.3	0.7	1.1	33.9	3.0
Prop In Lane	1.00		1.00	1.00		0.87	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	375	0	167	92	0	84	130	2056	999	42	1880	1005
V/C Ratio(X)	0.33	0.00	0.72	0.24	0.00	0.45	0.92	1.14	0.03	0.53	0.84	0.13
Avail Cap(c_a), veh/h	985	0	438	313	0	284	130	2056	999	99	1993	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.5	0.0	39.1	41.2	0.0	41.6	41.7	1.5	6.3	43.7	18.0	6.6
Incr Delay (d2), s/veh	0.5	0.0	5.7	1.3	0.0	3.8	55.8	68.2	0.0	9.9	3.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.8	0.5	0.0	0.9	4.6	20.1	0.3	0.6	13.5	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.0	0.0	44.8	42.5	0.0	45.5	97.5	69.7	6.3	53.5	21.2	6.6
LnGrp LOS	D	A	D	D	A	D	F	F	A	D	C	A
Approach Vol, veh/h		244			60			2490			1728	
Approach Delay, s/veh		41.4			44.4			70.2			20.5	
Approach LOS		D			D			E			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	58.5		14.6	12.0	54.0		9.8				
Change Period (Y+Rc), s	5.4	6.2		5.1	5.4	6.2		5.1				
Max Green Setting (Gmax), s	5.0	52.3		25.0	6.6	50.7		15.9				
Max Q Clear Time (g_c+I1), s	3.1	54.3		8.6	8.1	35.9		4.1				
Green Ext Time (p_c), s	0.0	0.0		0.9	0.0	8.2		0.1				

Intersection Summary

HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Alt + Project
5: Douglas Dr & Rainer Way

Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕↗	↗	↖	↕↗	↗
Traffic Volume (vph)	10	5	90	50	5	5	2070	100	5	1380	90
Future Volume (vph)	10	5	90	50	5	5	2070	100	5	1380	90
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	Prot	NA	Perm
Protected Phases		4			8		2		1	6	
Permitted Phases	4		4	8		8		2			6
Detector Phase	4	4	4	8	8	8	2	2	1	6	6
Switch Phase											
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	5.0	8.0	8.0
Minimum Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	28.7	28.7	10.4	28.7	28.7
Total Split (s)	36.6	36.6	36.6	36.6	36.6	36.6	83.0	83.0	10.4	93.4	93.4
Total Split (%)	28.2%	28.2%	28.2%	28.2%	28.2%	28.2%	63.8%	63.8%	8.0%	71.8%	71.8%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	5.2	5.2	4.4	5.2	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.5	1.5	1.0	1.5	1.5
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)		4.6	4.6		4.6	4.6	6.7	6.7	5.4	6.7	6.7
Lead/Lag							Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes		
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min	Min
Act Effect Green (s)		12.6	12.6		12.6	12.6	81.8	81.8	5.1	83.5	83.5
Actuated g/C Ratio		0.12	0.12		0.12	0.12	0.76	0.76	0.05	0.78	0.78
v/c Ratio		0.09	0.39		0.37	0.02	0.84	0.09	0.06	0.55	0.08
Control Delay		40.1	17.9		47.9	0.2	15.1	3.5	54.6	6.8	3.3
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay		40.1	17.9		47.9	0.2	15.1	3.5	54.6	6.8	3.3
LOS		D	B		D	A	B	A	D	A	A
Approach Delay		21.1			44.2		14.5			6.7	
Approach LOS		C			D		B			A	

Intersection Summary






















Cycle Length: 130	
Actuated Cycle Length: 107.5	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 12.1	Intersection LOS: B
Intersection Capacity Utilization 80.5%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: Douglas Dr & Rainer Way



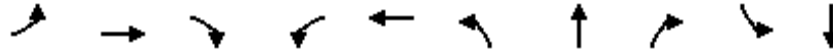
PM 2035 Alt + Project
5: Douglas Dr & Rainer Way

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	5	90	50	5	5	0	2070	100	5	1380	90
Future Volume (veh/h)	10	5	90	50	5	5	0	2070	100	5	1380	90
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	0	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	5	98	54	5	5	0	2250	109	5	1500	98
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	0	2	2	2	2	2
Cap, veh/h	53	16	400	66	4	400	0	2161	964	11	2337	1042
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.00	0.61	0.61	0.01	0.66	0.66
Sat Flow, veh/h	19	62	1585	45	15	1585	0	3647	1585	1781	3554	1585
Grp Volume(v), veh/h	16	0	98	59	0	5	0	2250	109	5	1500	98
Grp Sat Flow(s),veh/h/ln	81	0	1585	60	0	1585	0	1777	1585	1781	1777	1585
Q Serve(g_s), s	0.3	0.0	6.2	1.2	0.0	0.3	0.0	76.3	3.6	0.4	31.4	2.8
Cycle Q Clear(g_c), s	31.4	0.0	6.2	31.7	0.0	0.3	0.0	76.3	3.6	0.4	31.4	2.8
Prop In Lane	0.69		1.00	0.92		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	69	0	400	70	0	400	0	2161	964	11	2337	1042
V/C Ratio(X)	0.23	0.00	0.24	0.84	0.00	0.01	0.00	1.04	0.11	0.44	0.64	0.09
Avail Cap(c_a), veh/h	73	0	404	74	0	404	0	2161	964	71	2456	1095
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	0.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	0.0	37.4	61.1	0.0	35.2	0.0	24.6	10.3	62.1	12.7	7.8
Incr Delay (d2), s/veh	1.7	0.0	0.3	53.8	0.0	0.0	0.0	31.1	0.1	25.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	2.5	2.9	0.0	0.1	0.0	39.0	1.3	0.2	11.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.7	0.0	37.7	115.0	0.0	35.2	0.0	55.6	10.4	87.2	13.3	7.9
LnGrp LOS	D	A	D	F	A	D	A	F	B	F	B	A
Approach Vol, veh/h		114			64			2359			1603	
Approach Delay, s/veh		38.1			108.7			53.6			13.2	
Approach LOS		D			F			D			B	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.2	83.0		36.4		89.2		36.4				
Change Period (Y+Rc), s	5.4	6.7		4.6		6.7		4.6				
Max Green Setting (Gmax), s	5.0	76.3		32.0		86.7		32.0				
Max Q Clear Time (g_c+I1), s	2.4	78.3		33.4		33.4		33.7				
Green Ext Time (p_c), s	0.0	0.0		0.0		12.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			38.3									
HCM 6th LOS			D									

PM 2035 Alt + Project
6: Douglas Dr & North River Rd

Timings

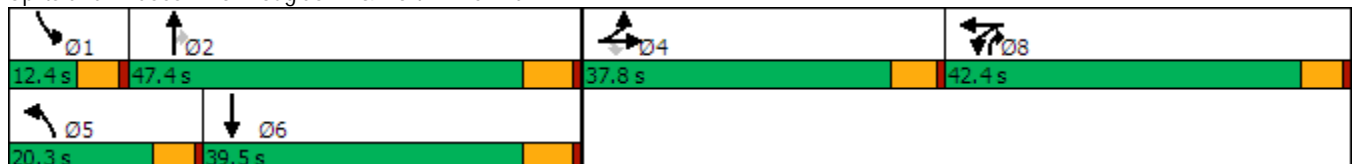


Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	40	110	80	660	70	170	780	1010	50	670
Future Volume (vph)	40	110	80	660	70	170	780	1010	50	670
Turn Type	Split	NA	Perm	Split	NA	Prot	NA	pm+ov	Prot	NA
Protected Phases	4	4		8	8	5	2	8	1	6
Permitted Phases			4					2		
Detector Phase	4	4	4	8	8	5	2	8	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	8.0	8.0	5.0	8.0
Minimum Split (s)	37.8	37.8	37.8	42.4	42.4	10.4	40.2	42.4	10.4	39.2
Total Split (s)	37.8	37.8	37.8	42.4	42.4	20.3	47.4	42.4	12.4	39.5
Total Split (%)	27.0%	27.0%	27.0%	30.3%	30.3%	14.5%	33.9%	30.3%	8.9%	28.2%
Yellow Time (s)	4.8	4.8	4.8	4.4	4.4	4.4	5.2	4.4	4.4	5.2
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.8	5.8	5.8	5.4	5.4	5.4	6.2	5.4	5.4	6.2
Lead/Lag						Lead	Lag		Lead	Lag
Lead-Lag Optimize?						Yes	Yes		Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	None	Min
Act Effect Green (s)	13.6	13.6	13.6	36.1	36.1	15.0	43.4	81.5	6.9	32.6
Actuated g/C Ratio	0.11	0.11	0.11	0.30	0.30	0.12	0.36	0.68	0.06	0.27
v/c Ratio	0.21	0.30	0.28	0.74	0.50	0.84	0.67	0.51	0.54	0.82
Control Delay	50.3	50.3	2.2	49.7	37.3	83.3	37.7	2.1	77.9	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	50.3	2.2	49.7	37.3	83.3	37.7	2.1	77.9	49.9
LOS	D	D	A	D	D	F	D	A	E	D
Approach Delay		33.6			42.6		23.3			51.7
Approach LOS		C			D		C			D

Intersection Summary
























Cycle Length: 140
 Actuated Cycle Length: 120.3
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 33.8
 Intersection LOS: C
 Intersection Capacity Utilization 68.6%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 6: Douglas Dr & North River Rd



PM 2035 Alt + Project
6: Douglas Dr & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	110	80	660	70	50	170	780	1010	50	670	50
Future Volume (veh/h)	40	110	80	660	70	50	170	780	1010	50	670	50
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	43	120	87	717	76	54	185	848	1098	54	728	54
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	157	313	140	929	265	188	218	1371	1804	70	1015	75
Arrive On Green	0.09	0.09	0.09	0.26	0.26	0.26	0.12	0.39	0.39	0.04	0.30	0.30
Sat Flow, veh/h	1781	3554	1585	3563	1017	723	1781	3554	2790	1781	3354	249
Grp Volume(v), veh/h	43	120	87	717	0	130	185	848	1098	54	386	396
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	0	1740	1781	1777	1395	1781	1777	1826
Q Serve(g_s), s	2.3	3.2	5.3	18.8	0.0	6.0	10.3	19.4	23.1	3.0	19.5	19.5
Cycle Q Clear(g_c), s	2.3	3.2	5.3	18.8	0.0	6.0	10.3	19.4	23.1	3.0	19.5	19.5
Prop In Lane	1.00		1.00	1.00		0.42	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	157	313	140	929	0	454	218	1371	1804	70	537	552
V/C Ratio(X)	0.27	0.38	0.62	0.77	0.00	0.29	0.85	0.62	0.61	0.78	0.72	0.72
Avail Cap(c_a), veh/h	565	1128	503	1308	0	639	263	1452	1867	124	587	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.9	43.4	44.3	34.5	0.0	29.8	43.3	25.0	10.4	48.0	31.3	31.3
Incr Delay (d2), s/veh	1.3	1.1	6.3	2.4	0.0	0.5	19.2	1.2	0.9	16.7	5.2	5.0
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	1.5	2.3	8.3	0.0	2.6	5.6	8.2	13.2	1.7	9.0	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.3	44.5	50.6	36.9	0.0	30.3	62.5	26.1	11.2	64.7	36.5	36.4
LnGrp LOS	D	D	D	D	A	C	E	C	B	E	D	D
Approach Vol, veh/h		250			847			2131			836	
Approach Delay, s/veh		46.6			35.9			21.6			38.2	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	45.1		14.7	17.7	36.7		31.7				
Change Period (Y+Rc), s	5.4	6.2		5.8	5.4	6.2		5.4				
Max Green Setting (Gmax), s	7.0	41.2		32.0	14.9	33.3		37.0				
Max Q Clear Time (g_c+I1), s	5.0	25.1		7.3	12.3	21.5		20.8				
Green Ext Time (p_c), s	0.0	13.8		1.6	0.2	5.1		5.5				

Intersection Summary

HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

PM 2035 Alt + Project
7: Avenida Descanso & North River Rd

Timings



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	150	1120	30	780	5	5	40	100	5	90
Future Volume (vph)	150	1120	30	780	5	5	40	100	5	90
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2	1	6		8			4	
Permitted Phases					8		8	4		4
Detector Phase	5	2	1	6	8	8	8	4	4	4
Switch Phase										
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0	6.0	6.0
Minimum Split (s)	10.1	24.8	10.1	24.8	35.6	35.6	35.6	35.6	35.6	35.6
Total Split (s)	21.0	51.0	12.0	42.0	37.0	37.0	37.0	37.0	37.0	37.0
Total Split (%)	21.0%	51.0%	12.0%	42.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%
Yellow Time (s)	4.1	4.8	4.1	4.8	3.6	3.6	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Lost Time (s)	5.1	5.8	5.1	5.8		4.6	4.6		4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag						
Lead-Lag Optimize?	Yes	Yes	Yes	Yes						
Recall Mode	None	None	None	None	Min	Min	Min	Min	Min	Min
Act Effct Green (s)	11.8	38.4	6.7	24.9		13.4	13.4		13.4	13.4
Actuated g/C Ratio	0.18	0.57	0.10	0.37		0.20	0.20		0.20	0.20
v/c Ratio	0.52	0.61	0.19	0.74		0.03	0.10		0.42	0.23
Control Delay	35.6	13.7	37.7	23.0		23.7	0.5		30.0	2.9
Queue Delay	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
Total Delay	35.6	13.7	37.7	23.0		23.7	0.5		30.0	2.9
LOS	D	B	D	C		C	A		C	A
Approach Delay		16.2		23.4		4.9			17.5	
Approach LOS		B		C		A			B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 66.8
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.74
 Intersection Signal Delay: 18.8
 Intersection LOS: B
 Intersection Capacity Utilization 61.1%
 ICU Level of Service B
 Analysis Period (min) 15

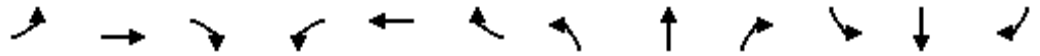
Splits and Phases: 7: Avenida Descanso & North River Rd



PM 2035 Alt + Project

7: Avenida Descanso & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	1120	20	30	780	110	5	5	40	100	5	90
Future Volume (veh/h)	150	1120	20	30	780	110	5	5	40	100	5	90
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	163	1217	22	33	848	120	5	5	43	109	5	98
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	202	1432	26	57	999	141	65	45	608	86	2	608
Arrive On Green	0.11	0.40	0.40	0.03	0.32	0.32	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1781	3571	65	1781	3125	442	2	117	1585	6	6	1585
Grp Volume(v), veh/h	163	605	634	33	482	486	10	0	43	114	0	98
Grp Sat Flow(s),veh/h/ln	1781	1777	1859	1781	1777	1791	119	0	1585	12	0	1585
Q Serve(g_s), s	7.5	26.1	26.2	1.5	21.4	21.4	0.1	0.0	1.5	0.1	0.0	3.4
Cycle Q Clear(g_c), s	7.5	26.1	26.2	1.5	21.4	21.4	32.4	0.0	1.5	32.4	0.0	3.4
Prop In Lane	1.00		0.03	1.00		0.25	0.50		1.00	0.96		1.00
Lane Grp Cap(c), veh/h	202	713	746	57	568	572	109	0	608	88	0	608
V/C Ratio(X)	0.81	0.85	0.85	0.58	0.85	0.85	0.09	0.00	0.07	1.30	0.00	0.16
Avail Cap(c_a), veh/h	335	951	995	146	762	768	110	0	608	88	0	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.5	23.0	23.0	40.3	26.8	26.8	21.6	0.0	16.5	41.5	0.0	17.1
Incr Delay (d2), s/veh	7.4	5.7	5.4	9.1	6.9	6.8	0.4	0.0	0.0	195.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	11.4	11.8	0.8	9.7	9.8	0.1	0.0	0.5	6.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.0	28.6	28.4	49.5	33.7	33.6	21.9	0.0	16.5	236.7	0.0	17.2
LnGrp LOS	D	C	C	D	C	C	C	A	B	F	A	B
Approach Vol, veh/h		1402			1001			53				212
Approach Delay, s/veh		30.3			34.2			17.6				135.2
Approach LOS		C			C			B				F
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	39.7		37.0	14.7	32.8		37.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		4.6				
Max Green Setting (Gmax), s	6.9	45.2		32.4	15.9	36.2		32.4				
Max Q Clear Time (g_c+I1), s	3.5	28.2		34.4	9.5	23.4		34.4				
Green Ext Time (p_c), s	0.0	5.5		0.0	0.3	3.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	39.9
HCM 6th LOS	D

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	1260	890	20	5	20
Future Vol, veh/h	30	1260	890	20	5	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	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	33	1370	967	22	5	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	989	0	-	0	1729 495
Stage 1	-	-	-	-	978 -
Stage 2	-	-	-	-	751 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	695	-	-	-	79 520
Stage 1	-	-	-	-	325 -
Stage 2	-	-	-	-	427 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	695	-	-	-	75 520
Mov Cap-2 Maneuver	-	-	-	-	75 -
Stage 1	-	-	-	-	310 -
Stage 2	-	-	-	-	427 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	22.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	695	-	-	-	238
HCM Lane V/C Ratio	0.047	-	-	-	0.114
HCM Control Delay (s)	10.4	-	-	-	22.1
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

PM 2035 Alt + Project
9: North River Rd & Riverview Way

HCM 6th TWSC

Intersection												
Int Delay, s/veh	4.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↗		↵	↕↗				↕		↕↗	
Traffic Vol, veh/h	30	1220	112	112	900	20	48	0	48	20	0	10
Future Vol, veh/h	30	1220	112	112	900	20	48	0	48	20	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	100	-	-	140	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	1326	122	122	978	22	52	0	52	22	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1000	0	0	1448	0	0	2186	-	724	1962	2747	500
Stage 1	-	-	-	-	-	-	1453	-	-	1233	1233	-
Stage 2	-	-	-	-	-	-	733	-	-	729	1514	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	-	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	-	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	-	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	688	-	-	464	-	-	~ 25	0	368	38	20	516
Stage 1	-	-	-	-	-	-	137	0	-	187	247	-
Stage 2	-	-	-	-	-	-	378	0	-	380	181	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	688	-	-	464	-	-	~ 19	-	368	25	14	516
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 19	-	-	25	14	-
Stage 1	-	-	-	-	-	-	130	-	-	178	182	-
Stage 2	-	-	-	-	-	-	273	-	-	310	172	-

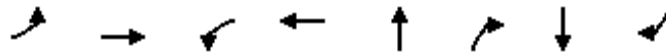
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			1.7			16.4			273.8		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	368	688	-	-	464	-	-	37
HCM Lane V/C Ratio	0.142	0.047	-	-	0.262	-	-	0.881
HCM Control Delay (s)	16.4	10.5	-	-	15.5	-	-	273.8
HCM Lane LOS	C	B	-	-	C	-	-	F
HCM 95th %tile Q(veh)	0.5	0.1	-	-	1	-	-	3.2

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

PM 2035 Alt + Project
10: Calle Montecito & North River Rd

Timings

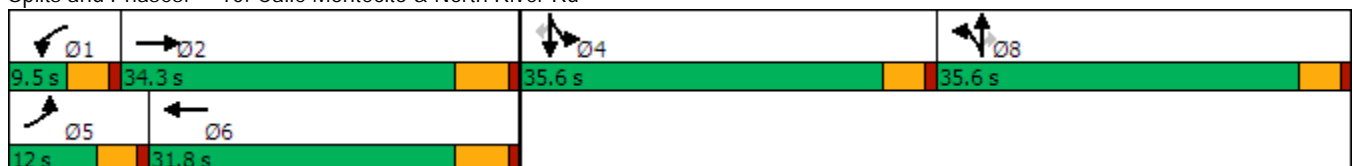


Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Configurations	↙	↕	↙	↕	↖	↗	↖	↗
Traffic Volume (vph)	160	1030	10	800	5	40	5	80
Future Volume (vph)	160	1030	10	800	5	40	5	80
Turn Type	Prot	NA	Prot	NA	NA	Perm	NA	Perm
Protected Phases	5	2	1	6	8		4	
Permitted Phases							8	4
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	8.0	5.0	8.0	6.0	6.0	6.0	6.0
Minimum Split (s)	9.5	31.7	9.5	28.7	35.6	35.6	35.6	35.6
Total Split (s)	12.0	34.3	9.5	31.8	35.6	35.6	35.6	35.6
Total Split (%)	10.4%	29.8%	8.3%	27.7%	31.0%	31.0%	31.0%	31.0%
Yellow Time (s)	3.5	4.7	3.5	4.7	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.7	4.5	5.7	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	Min	Min	Min	Min
Act Effect Green (s)	7.8	38.2	5.2	27.1	10.4	10.4	15.0	15.0
Actuated g/C Ratio	0.10	0.48	0.06	0.34	0.13	0.13	0.19	0.19
v/c Ratio	1.02	0.67	0.10	0.97	0.17	0.14	0.57	0.23
Control Delay	114.8	23.1	45.1	47.4	32.9	1.0	37.5	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	114.8	23.1	45.1	47.4	32.9	1.0	37.5	5.1
LOS	F	C	D	D	C	A	D	A
Approach Delay		35.3		47.4	16.0		27.3	
Approach LOS		D		D	B		C	

Intersection Summary

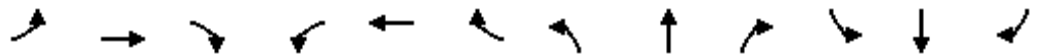
Cycle Length: 115
 Actuated Cycle Length: 80.4
 Natural Cycle: 135
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.02
 Intersection Signal Delay: 38.9
 Intersection LOS: D
 Intersection Capacity Utilization 67.3%
 ICU Level of Service C
 Analysis Period (min) 15

Splits and Phases: 10: Calle Montecito & North River Rd



PM 2035 Alt + Project
10: Calle Montecito & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1030	10	10	800	240	30	5	40	170	5	80
Future Volume (veh/h)	160	1030	10	10	800	240	30	5	40	170	5	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	174	1120	11	11	870	261	33	5	43	185	5	87
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	199	1660	16	25	977	293	139	21	142	256	7	234
Arrive On Green	0.11	0.46	0.46	0.01	0.36	0.36	0.09	0.09	0.09	0.15	0.15	0.15
Sat Flow, veh/h	1781	3605	35	1781	2695	807	1557	236	1585	1737	47	1585
Grp Volume(v), veh/h	174	552	579	11	573	558	38	0	43	190	0	87
Grp Sat Flow(s),veh/h/ln	1781	1777	1864	1781	1777	1725	1793	0	1585	1784	0	1585
Q Serve(g_s), s	6.5	16.3	16.3	0.4	20.4	20.5	1.3	0.0	1.7	6.8	0.0	3.3
Cycle Q Clear(g_c), s	6.5	16.3	16.3	0.4	20.4	20.5	1.3	0.0	1.7	6.8	0.0	3.3
Prop In Lane	1.00		0.02	1.00		0.47	0.87		1.00	0.97		1.00
Lane Grp Cap(c), veh/h	199	818	858	25	644	625	160	0	142	263	0	234
V/C Ratio(X)	0.87	0.67	0.67	0.45	0.89	0.89	0.24	0.00	0.30	0.72	0.00	0.37
Avail Cap(c_a), veh/h	199	818	858	133	691	670	827	0	732	823	0	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.4	14.2	14.2	32.9	20.1	20.2	28.4	0.0	28.6	27.3	0.0	25.8
Incr Delay (d2), s/veh	32.3	2.2	2.1	12.2	13.1	13.6	0.8	0.0	1.2	3.7	0.0	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	4.4	6.2	6.5	0.3	10.0	9.8	0.6	0.0	0.7	3.0	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.6	16.4	16.3	45.0	33.2	33.8	29.2	0.0	29.8	31.0	0.0	26.8
LnGrp LOS	E	B	B	D	C	C	C	A	C	C	A	C
Approach Vol, veh/h		1305			1142			81				277
Approach Delay, s/veh		22.4			33.6			29.5				29.7
Approach LOS		C			C			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	36.6		14.5	12.0	30.0		10.6				
Change Period (Y+Rc), s	4.5	5.7		4.6	4.5	5.7		4.6				
Max Green Setting (Gmax), s	5.0	28.6		31.0	7.5	26.1		31.0				
Max Q Clear Time (g_c+I1), s	2.4	18.3		8.8	8.5	22.5		3.7				
Green Ext Time (p_c), s	0.0	3.9		1.1	0.0	1.9		0.3				

Intersection Summary

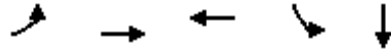
HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Notes

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

PM 2035 Alt + Project
11: Redondo Dr & North River Rd

Timings



Lane Group	EBL	EBT	WBT	SBL	SBT	Ø1	Ø8
Lane Configurations	↖	↗	↗	↖	↗		
Traffic Volume (vph)	130	1120	960	60	0		
Future Volume (vph)	130	1120	960	60	0		
Turn Type	Prot	NA	NA	Perm	NA		
Protected Phases	5	2	6		4	1	8
Permitted Phases				4			
Detector Phase	5	2	6	4	4		
Switch Phase							
Minimum Initial (s)	5.0	10.0	10.0	6.0	6.0	5.0	6.0
Minimum Split (s)	9.5	32.7	29.7	21.6	21.6	9.5	35.6
Total Split (s)	24.0	45.4	40.4	35.6	35.6	19.0	35.6
Total Split (%)	24.0%	45.4%	40.4%	35.6%	35.6%	19%	36%
Yellow Time (s)	3.5	4.7	4.7	3.6	3.6	3.5	3.6
All-Red Time (s)	1.0	2.0	2.0	2.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	6.7	6.7	5.6	5.6		
Lead/Lag	Lead	Lag	Lag			Lead	
Lead-Lag Optimize?	Yes	Yes	Yes			Yes	
Recall Mode	None	None	None	Min	Min	None	Min
Act Effct Green (s)	11.3	46.3	30.3	11.3	11.3		
Actuated g/C Ratio	0.16	0.66	0.43	0.16	0.16		
v/c Ratio	0.50	0.52	0.75	0.29	0.20		
Control Delay	36.3	8.4	22.8	30.2	0.8		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	36.3	8.4	22.8	30.2	0.8		
LOS	D	A	C	C	A		
Approach Delay		11.3	22.8		11.8		
Approach LOS		B	C		B		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 70.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 16.2
 Intersection LOS: B
 Intersection Capacity Utilization 56.5%
 ICU Level of Service B
 Analysis Period (min) 15

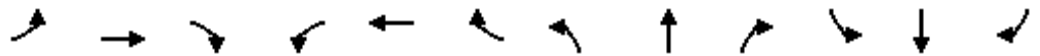
Splits and Phases: 11: Redondo Dr & North River Rd



LOS Engineering, Inc.

PM 2035 Alt + Project
11: Redondo Dr & North River Rd

HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↗↘		↗	↗↘			↕		↗	↘	
Traffic Volume (veh/h)	130	1120	0	0	960	80	0	0	0	60	0	100
Future Volume (veh/h)	130	1120	0	0	960	80	0	0	0	60	0	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	1217	0	0	1043	87	0	0	0	65	0	109
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	191	2195	0	4	1383	115	0	234	0	374	0	199
Arrive On Green	0.11	0.62	0.00	0.00	0.42	0.42	0.00	0.00	0.00	0.13	0.00	0.13
Sat Flow, veh/h	1781	3647	0	1781	3320	277	0	1870	0	1781	0	1585
Grp Volume(v), veh/h	141	1217	0	0	558	572	0	0	0	65	0	109
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1821	0	1870	0	1781	0	1585
Q Serve(g_s), s	3.7	9.5	0.0	0.0	12.8	12.8	0.0	0.0	0.0	1.6	0.0	3.1
Cycle Q Clear(g_c), s	3.7	9.5	0.0	0.0	12.8	12.8	0.0	0.0	0.0	1.6	0.0	3.1
Prop In Lane	1.00		0.00	1.00		0.15	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	191	2195	0	4	740	758	0	234	0	374	0	199
V/C Ratio(X)	0.74	0.55	0.00	0.00	0.75	0.75	0.00	0.00	0.00	0.17	0.00	0.55
Avail Cap(c_a), veh/h	726	2873	0	540	1251	1282	0	1211	0	1267	0	993
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	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.7	5.3	0.0	0.0	11.9	11.9	0.0	0.0	0.0	19.0	0.0	19.7
Incr Delay (d2), s/veh	5.5	0.2	0.0	0.0	1.6	1.6	0.0	0.0	0.0	0.2	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.1	0.0	0.0	4.3	4.4	0.0	0.0	0.0	0.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	5.5	0.0	0.0	13.5	13.4	0.0	0.0	0.0	19.2	0.0	22.0
LnGrp LOS	C	A	A	A	B	B	A	A	A	B	A	C
Approach Vol, veh/h		1358			1130			0				174
Approach Delay, s/veh		7.7			13.4			0.0				21.0
Approach LOS		A			B							C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.0	36.3		11.6	9.6	26.6		11.6				
Change Period (Y+Rc), s	4.5	6.7		5.6	4.5	6.7		* 5.6				
Max Green Setting (Gmax), s	14.5	38.7		30.0	19.5	33.7		* 31				
Max Q Clear Time (g_c+I1), s	0.0	11.5		5.1	5.7	14.8		0.0				
Green Ext Time (p_c), s	0.0	7.2		0.7	0.4	5.1		0.0				

Intersection Summary

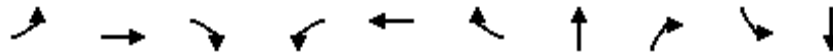
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

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

PM 2035 Alt + Project
12: College Blvd & North River Rd

Timings

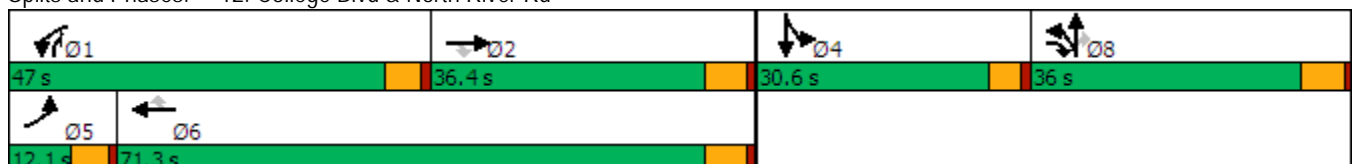


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	30	570	540	1320	490	70	40	1520	30	50
Future Volume (vph)	30	570	540	1320	490	70	40	1520	30	50
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	NA	pm+ov	Split	NA
Protected Phases	5	2	8	1	6		8	1	4	4
Permitted Phases			2			6		8		
Detector Phase	5	2	8	1	6	6	8	1	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	4.0	5.0	10.0	10.0	4.0	5.0	6.0	6.0
Minimum Split (s)	10.1	34.8	20.5	10.1	24.8	24.8	20.5	10.1	30.6	30.6
Total Split (s)	12.1	36.4	36.0	47.0	71.3	71.3	36.0	47.0	30.6	30.6
Total Split (%)	8.1%	24.3%	24.0%	31.3%	47.5%	47.5%	24.0%	31.3%	20.4%	20.4%
Yellow Time (s)	4.1	4.8	4.8	4.1	4.8	4.8	4.8	4.1	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.1	5.8	5.8	5.1	5.8	5.8	5.8	5.1	4.6	4.6
Lead/Lag	Lead	Lag		Lead	Lag	Lag		Lead		
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes		Yes		
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.7	27.1	59.0	42.3	67.8	67.8	30.5	78.7	11.6	11.6
Actuated g/C Ratio	0.05	0.21	0.45	0.32	0.52	0.52	0.23	0.60	0.09	0.09
v/c Ratio	0.37	0.84	0.67	1.29	0.29	0.09	1.36	0.84	0.21	0.36
Control Delay	76.3	62.0	12.1	173.5	20.6	3.3	214.8	17.8	59.2	60.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.3	62.0	12.1	173.5	20.6	3.3	214.8	17.8	59.2	60.2
LOS	E	E	B	F	C	A	F	B	E	E
Approach Delay		38.8			127.3		68.0			59.8
Approach LOS		D			F		E			E

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 130.5
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.36
 Intersection Signal Delay: 83.1
 Intersection Capacity Utilization 102.7%
 Analysis Period (min) 15
 Intersection LOS: F
 ICU Level of Service G
























Splits and Phases: 12: College Blvd & North River Rd



LOS Engineering, Inc.

PM 2035 Alt + Project
12: College Blvd & North River Rd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	570	540	1320	490	70	480	40	1520	30	50	5
Future Volume (veh/h)	30	570	540	1320	490	70	480	40	1520	30	50	5
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	33	620	587	1435	533	76	522	43	1652	33	54	5
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	48	835	740	1112	1884	840	383	32	1545	85	80	7
Arrive On Green	0.03	0.24	0.24	0.32	0.53	0.53	0.23	0.23	0.23	0.05	0.05	0.05
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	1652	136	2790	1781	1686	156
Grp Volume(v), veh/h	33	620	587	1435	533	76	565	0	1652	33	0	59
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1788	0	1395	1781	0	1842
Q Serve(g_s), s	2.4	21.0	30.6	41.9	10.8	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Cycle Q Clear(g_c), s	2.4	21.0	30.6	41.9	10.8	3.1	30.2	0.0	30.2	2.3	0.0	4.1
Prop In Lane	1.00		1.00	1.00		1.00	0.92		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	48	835	740	1112	1884	840	415	0	1545	85	0	87
V/C Ratio(X)	0.69	0.74	0.79	1.29	0.28	0.09	1.36	0.00	1.07	0.39	0.00	0.67
Avail Cap(c_a), veh/h	96	835	740	1112	1884	840	415	0	1545	356	0	368
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	46.1	26.6	44.1	16.9	15.1	50.0	0.0	29.0	60.2	0.0	61.0
Incr Delay (d2), s/veh	16.4	3.6	5.9	137.4	0.1	0.0	178.0	0.0	43.9	2.9	0.0	8.7
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	1.3	9.7	20.7	39.0	4.4	1.1	33.9	0.0	32.3	1.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.2	49.7	32.6	181.5	17.0	15.1	228.0	0.0	72.9	63.1	0.0	69.7
LnGrp LOS	E	D	C	F	B	B	F	A	F	E	A	E
Approach Vol, veh/h		1240			2044			2217				92
Approach Delay, s/veh		42.4			132.4			112.5				67.3
Approach LOS		D			F			F				E
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.0	36.4		10.8	8.6	74.8		36.0				
Change Period (Y+Rc), s	5.1	5.8		4.6	5.1	5.8		5.8				
Max Green Setting (Gmax), s	41.9	30.6		26.0	7.0	65.5		30.2				
Max Q Clear Time (g_c+I1), s	43.9	32.6		6.1	4.4	12.8		32.2				
Green Ext Time (p_c), s	0.0	0.0		0.3	0.0	3.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay	103.5											
HCM 6th LOS	F											

PM 2035 Alt + Project
13: College Blvd & Buchanon Park

Timings



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖↗	↑↑	↑↑	↗
Traffic Volume (vph)	30	100	120	2050	1760	70
Future Volume (vph)	30	100	120	2050	1760	70
Turn Type	Prot	pm+ov	Prot	NA	NA	Perm
Protected Phases	4	5	5	2	6	
Permitted Phases		4				6
Detector Phase	4	5	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	6.0	6.0	10.0	10.0	10.0
Minimum Split (s)	32.6	11.5	11.5	21.7	33.8	33.8
Total Split (s)	32.6	11.6	11.6	67.4	55.8	55.8
Total Split (%)	32.6%	11.6%	11.6%	67.4%	55.8%	55.8%
Yellow Time (s)	3.6	4.1	4.1	4.8	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	5.1	5.1	5.8	5.8	5.8
Lead/Lag		Lead	Lead		Lag	Lag
Lead-Lag Optimize?		Yes	Yes		Yes	Yes
Recall Mode	None	None	None	Min	Min	Min
Act Effect Green (s)	11.4	17.1	6.6	68.2	53.8	53.8
Actuated g/C Ratio	0.14	0.21	0.08	0.83	0.66	0.66
v/c Ratio	0.13	0.33	0.47	0.76	0.82	0.07
Control Delay	31.2	25.9	43.9	10.4	17.9	6.0
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	31.2	25.9	43.9	10.9	17.9	6.0
LOS	C	C	D	B	B	A
Approach Delay	27.1			12.7	17.4	
Approach LOS	C			B	B	

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 82
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.82
 Intersection Signal Delay: 15.2
 Intersection Capacity Utilization 72.0%
 Analysis Period (min) 15
 Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 13: College Blvd & Buchanon Park



PM 2035 Alt + Project
13: College Blvd & Buchanon Park



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	100	120	2050	1760	70
Future Volume (veh/h)	30	100	120	2050	1760	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
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	1870	1870
Adj Flow Rate, veh/h	33	109	130	2228	1913	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	183	282	261	2689	2174	970
Arrive On Green	0.10	0.10	0.08	0.76	0.61	0.61
Sat Flow, veh/h	1781	1585	3456	3647	3647	1585
Grp Volume(v), veh/h	33	109	130	2228	1913	76
Grp Sat Flow(s),veh/h/ln	1781	1585	1728	1777	1777	1585
Q Serve(g_s), s	1.3	4.5	2.7	30.2	33.4	1.4
Cycle Q Clear(g_c), s	1.3	4.5	2.7	30.2	33.4	1.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	183	282	261	2689	2174	970
V/C Ratio(X)	0.18	0.39	0.50	0.83	0.88	0.08
Avail Cap(c_a), veh/h	676	721	304	2966	2408	1074
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	30.3	26.8	32.8	5.9	12.0	5.8
Incr Delay (d2), s/veh	0.5	0.9	1.5	1.9	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	4.1	1.1	7.0	11.7	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	27.6	34.2	7.8	15.9	5.9
LnGrp LOS	C	C	C	A	B	A
Approach Vol, veh/h	142			2358	1989	
Approach Delay, s/veh	28.4			9.2	15.5	
Approach LOS	C			A	B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		61.6		12.2	10.7	50.9
Change Period (Y+Rc), s		5.8		4.6	5.1	5.8
Max Green Setting (Gmax), s		61.6		28.0	6.5	50.0
Max Q Clear Time (g_c+I1), s		32.2		6.5	4.7	35.4
Green Ext Time (p_c), s		18.3		0.5	0.1	9.7
Intersection Summary						
HCM 6th Ctrl Delay			12.6			
HCM 6th LOS			B			

PM 2035 Alt + Project
14: College Blvd & Adams St

Timings



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖	↖↗↘	↖	↖↗	↗
Traffic Volume (vph)	180	20	60	10	40	90	1930	50	1710	140
Future Volume (vph)	180	20	60	10	40	90	1930	50	1710	140
Turn Type	Perm	NA	Perm	NA	Perm	Prot	NA	Prot	NA	Perm
Protected Phases		4		8		5	2	1	6	
Permitted Phases	4		8		8					6
Detector Phase	4	4	8	8	8	5	2	1	6	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	5.0	10.0	5.0	10.0	10.0
Minimum Split (s)	36.7	36.7	36.7	36.7	36.7	10.1	27.8	10.1	24.8	24.8
Total Split (s)	36.7	36.7	36.7	36.7	36.7	11.9	62.1	11.2	61.4	61.4
Total Split (%)	33.4%	33.4%	33.4%	33.4%	33.4%	10.8%	56.5%	10.2%	55.8%	55.8%
Yellow Time (s)	3.7	3.7	3.7	3.7	3.7	4.1	4.8	4.1	4.8	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.7	4.7		4.7	4.7	5.1	5.8	5.1	5.8	5.8
Lead/Lag						Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?						Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	None	Min	Min
Act Effct Green (s)	20.1	20.1		20.1	20.1	6.8	59.0	6.0	55.9	55.9
Actuated g/C Ratio	0.20	0.20		0.20	0.20	0.07	0.60	0.06	0.57	0.57
v/c Ratio	0.73	0.29		0.29	0.11	0.80	0.73	0.50	0.93	0.16
Control Delay	52.3	11.1		35.0	2.2	89.5	17.8	63.8	30.2	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	17.2	0.0
Total Delay	52.3	11.1		35.0	2.2	89.5	17.8	63.8	47.4	7.3
LOS	D	B		D	A	F	B	E	D	A
Approach Delay		36.6		23.2			20.9		44.9	
Approach LOS		D		C			C		D	

Intersection Summary























Cycle Length: 110
 Actuated Cycle Length: 98.5
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 32.3
 Intersection LOS: C
 Intersection Capacity Utilization 81.9%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 14: College Blvd & Adams St



PM 2035 Alt + Project
14: College Blvd & Adams St

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	20	90	60	10	40	90	1930	100	50	1710	140
Future Volume (veh/h)	180	20	90	60	10	40	90	1930	100	50	1710	140
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	196	22	98	65	11	43	98	2098	109	54	1859	152
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	291	80	355	301	46	422	114	2723	141	70	1858	829
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.06	0.55	0.55	0.04	0.52	0.52
Sat Flow, veh/h	1350	299	1332	892	173	1585	1781	4971	257	1781	3554	1585
Grp Volume(v), veh/h	196	0	120	76	0	43	98	1434	773	54	1859	152
Grp Sat Flow(s),veh/h/ln	1350	0	1631	1066	0	1585	1781	1702	1824	1781	1777	1585
Q Serve(g_s), s	15.1	0.0	6.2	4.6	0.0	2.2	5.8	35.0	35.4	3.2	55.6	5.4
Cycle Q Clear(g_c), s	25.8	0.0	6.2	10.7	0.0	2.2	5.8	35.0	35.4	3.2	55.6	5.4
Prop In Lane	1.00		0.82	0.86		1.00	1.00		0.14	1.00		1.00
Lane Grp Cap(c), veh/h	291	0	434	347	0	422	114	1865	999	70	1858	829
V/C Ratio(X)	0.67	0.00	0.28	0.22	0.00	0.10	0.86	0.77	0.77	0.78	1.00	0.18
Avail Cap(c_a), veh/h	338	0	491	393	0	477	114	1865	999	102	1858	829
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	0.0	30.9	34.5	0.0	29.4	49.3	18.8	18.9	50.6	25.4	13.4
Incr Delay (d2), s/veh	4.2	0.0	0.3	0.3	0.0	0.1	44.5	2.0	3.8	19.6	21.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	2.5	1.7	0.0	0.8	4.0	13.5	15.1	1.8	27.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	31.2	34.8	0.0	29.5	93.8	20.8	22.7	70.3	46.3	13.5
LnGrp LOS	D	A	C	C	A	C	F	C	C	E	F	B
Approach Vol, veh/h		316			119			2305			2065	
Approach Delay, s/veh		41.3			32.9			24.5			44.5	
Approach LOS		D			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	64.1		33.0	11.9	61.4		33.0				
Change Period (Y+Rc), s	5.1	5.8		* 4.7	5.1	5.8		* 4.7				
Max Green Setting (Gmax), s	6.1	56.3		* 32	6.8	55.6		* 32				
Max Q Clear Time (g_c+I1), s	5.2	37.4		27.8	7.8	57.6		12.7				
Green Ext Time (p_c), s	0.0	11.9		0.5	0.0	0.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

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

PM 2035 Alt + Project
15: College Blvd & Via Cupeno

Timings



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations	↔	↔	↔	↔↔	↔↔↔	↔	↔↔↔
Traffic Volume (vph)	10	10	10	530	1830	5	1570
Future Volume (vph)	10	10	10	530	1830	5	1570
Turn Type	NA	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	8		5	2	1	6
Permitted Phases			8				
Detector Phase	4	8	8	5	2	1	6
Switch Phase							
Minimum Initial (s)	8.0	4.0	4.0	6.0	10.0	6.0	10.0
Minimum Split (s)	33.0	24.0	24.0	11.1	28.8	11.1	31.8
Total Split (s)	33.0	24.0	24.0	31.0	81.9	11.1	62.0
Total Split (%)	22.0%	16.0%	16.0%	20.7%	54.6%	7.4%	41.3%
Yellow Time (s)	4.0	4.0	4.0	4.1	4.8	4.1	4.8
All-Red Time (s)	1.0	1.0	1.0	1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.1	6.8	5.1	6.8
Lead/Lag				Lead	Lag	Lead	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	None	Min
Act Effect Green (s)	27.1	13.1	13.1	25.9	84.1	6.0	55.3
Actuated g/C Ratio	0.19	0.09	0.09	0.18	0.59	0.04	0.39
v/c Ratio	0.92	0.60	0.04	0.93	0.72	0.07	0.96
Control Delay	68.7	78.1	0.3	80.4	24.0	70.4	56.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	78.1	0.3	80.4	24.0	70.4	56.3
LOS	E	E	A	F	C	E	E
Approach Delay	68.7	70.2			36.0		56.3
Approach LOS	E	E			D		E

Intersection Summary






















Cycle Length: 150
 Actuated Cycle Length: 143.3
 Natural Cycle: 150
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 47.8
 Intersection LOS: D
 Intersection Capacity Utilization 90.8%
 ICU Level of Service E
 Analysis Period (min) 15

Splits and Phases: 15: College Blvd & Via Cupeno



PM 2035 Alt + Project
15: College Blvd & Via Cupeno

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	10	230	80	10	10	530	1830	120	5	1570	150
Future Volume (veh/h)	340	10	230	80	10	10	530	1830	120	5	1570	150
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	370	11	250	87	11	11	576	1989	130	5	1707	163
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	361	14	310	109	14	109	626	2755	179	14	1843	176
Arrive On Green	0.20	0.20	0.20	0.07	0.07	0.07	0.18	0.56	0.56	0.01	0.39	0.39
Sat Flow, veh/h	1781	67	1528	1590	201	1585	3456	4898	319	1781	4741	452
Grp Volume(v), veh/h	370	0	261	98	0	11	576	1380	739	5	1224	646
Grp Sat Flow(s),veh/h/ln	1781	0	1595	1791	0	1585	1728	1702	1813	1781	1702	1789
Q Serve(g_s), s	28.0	0.0	21.5	7.4	0.0	0.9	22.6	41.2	41.6	0.4	47.4	47.7
Cycle Q Clear(g_c), s	28.0	0.0	21.5	7.4	0.0	0.9	22.6	41.2	41.6	0.4	47.4	47.7
Prop In Lane	1.00		0.96	0.89		1.00	1.00		0.18	1.00		0.25
Lane Grp Cap(c), veh/h	361	0	323	123	0	109	626	1914	1020	14	1323	696
V/C Ratio(X)	1.02	0.00	0.81	0.79	0.00	0.10	0.92	0.72	0.73	0.37	0.93	0.93
Avail Cap(c_a), veh/h	361	0	323	246	0	218	648	1914	1020	77	1360	715
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	0.0	52.5	63.4	0.0	60.3	55.6	22.2	22.3	68.2	40.3	40.4
Incr Delay (d2), s/veh	53.9	0.0	14.0	10.9	0.0	0.4	18.1	1.3	2.6	16.0	10.8	18.2
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	17.9	0.0	9.9	3.8	0.0	0.4	11.4	16.5	18.1	0.2	21.7	24.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.9	0.0	66.5	74.3	0.0	60.7	73.7	23.6	24.9	84.2	51.1	58.6
LnGrp LOS	F	A	E	E	A	E	E	C	C	F	D	E
Approach Vol, veh/h		631			109			2695			1875	
Approach Delay, s/veh		91.4			72.9			34.7			53.7	
Approach LOS		F			E			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.1	84.5		33.0	30.1	60.5		14.5				
Change Period (Y+Rc), s	5.1	6.8		5.0	5.1	6.8		5.0				
Max Green Setting (Gmax), s	6.0	75.1		28.0	25.9	55.2		19.0				
Max Q Clear Time (g_c+I1), s	2.4	43.6		30.0	24.6	49.7		9.4				
Green Ext Time (p_c), s	0.0	15.0		0.0	0.4	4.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			48.9									
HCM 6th LOS			D									

PM 2035 Alt + Project
16: College Blvd & SR-76

Timings

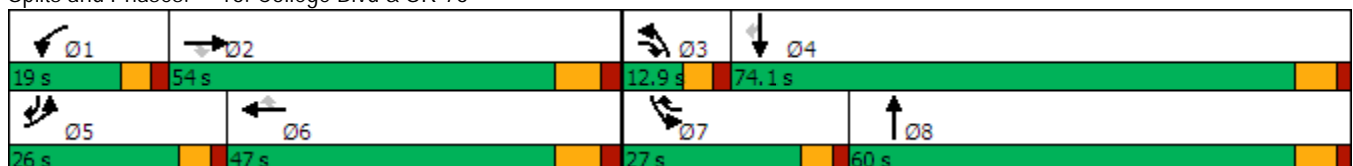


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑	↖↗	↑↑	↗
Traffic Volume (vph)	690	1650	70	410	1120	790	60	970	690	940	540
Future Volume (vph)	690	1650	70	410	1120	790	60	970	690	940	540
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6	7	3	8	7	4	5
Permitted Phases			2			6					4
Detector Phase	5	2	3	1	6	7	3	8	7	4	5
Switch Phase											
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.0	41.0	9.7	9.7	41.0	9.7	9.7	47.8	9.7	49.8	10.0
Total Split (s)	26.0	54.0	12.9	19.0	47.0	27.0	12.9	60.0	27.0	74.1	26.0
Total Split (%)	16.3%	33.8%	8.1%	11.9%	29.4%	16.9%	8.1%	37.5%	16.9%	46.3%	16.3%
Yellow Time (s)	3.7	5.5	3.7	3.7	5.5	3.7	3.7	4.8	3.7	4.8	3.7
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.7	8.0	5.7	5.7	8.0	5.7	5.7	6.8	5.7	6.8	5.7
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Min	None	Min	None
Act Effct Green (s)	20.3	46.0	61.0	13.3	39.0	68.3	7.0	53.2	21.3	67.5	94.6
Actuated g/C Ratio	0.13	0.29	0.38	0.08	0.24	0.43	0.04	0.33	0.13	0.42	0.59
v/c Ratio	1.72	1.23	0.11	1.56	0.98	1.17	0.43	1.34	1.64	0.68	0.61
Control Delay	373.5	155.4	2.4	314.4	81.2	126.2	83.7	197.5	338.3	40.6	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	373.5	155.4	2.4	314.4	81.2	126.2	83.7	197.5	338.3	40.6	21.2
LOS	F	F	A	F	F	F	F	F	F	D	C
Approach Delay		213.4			137.8			192.9		130.4	
Approach LOS		F			F			F		F	

Intersection Summary

































Cycle Length: 160
 Actuated Cycle Length: 160
 Natural Cycle: 145
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.72
 Intersection Signal Delay: 167.3
 Intersection LOS: F
 Intersection Capacity Utilization 126.3%
 ICU Level of Service H
 Analysis Period (min) 15

Splits and Phases: 16: College Blvd & SR-76



PM 2035 Alt + Project
16: College Blvd & SR-76

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  		 	  		 	 		 	 	
Traffic Volume (veh/h)	690	1650	70	410	1120	790	60	970	450	690	940	540
Future Volume (veh/h)	690	1650	70	410	1120	790	60	970	450	690	940	540
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	750	1793	76	446	1217	859	65	1054	489	750	1022	587
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	438	1468	503	287	1245	597	102	791	357	460	1550	892
Arrive On Green	0.13	0.29	0.29	0.08	0.24	0.24	0.03	0.33	0.33	0.13	0.44	0.44
Sat Flow, veh/h	3456	5106	1585	3456	5106	1585	3456	2379	1075	3456	3554	1585
Grp Volume(v), veh/h	750	1793	76	446	1217	859	65	780	763	750	1022	587
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1728	1702	1585	1728	1777	1677	1728	1777	1585
Q Serve(g_s), s	20.3	46.0	5.5	13.3	37.9	39.0	3.0	53.2	53.2	21.3	36.4	41.1
Cycle Q Clear(g_c), s	20.3	46.0	5.5	13.3	37.9	39.0	3.0	53.2	53.2	21.3	36.4	41.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.64	1.00		1.00
Lane Grp Cap(c), veh/h	438	1468	503	287	1245	597	102	591	558	460	1550	892
V/C Ratio(X)	1.71	1.22	0.15	1.55	0.98	1.44	0.64	1.32	1.37	1.63	0.66	0.66
Avail Cap(c_a), veh/h	438	1468	503	287	1245	597	156	591	558	460	1550	892
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.8	57.0	39.2	73.3	60.1	49.8	76.8	53.4	53.4	69.3	35.7	24.3
Incr Delay (d2), s/veh	329.4	106.0	0.1	265.2	20.3	206.5	6.4	155.6	177.1	293.4	1.0	1.8
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	29.1	34.2	2.2	16.5	18.7	58.0	1.4	49.2	49.8	28.2	16.1	15.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	399.2	163.0	39.3	338.5	80.4	256.4	83.2	209.0	230.5	362.8	36.8	26.0
LnGrp LOS	F	F	D	F	F	F	F	F	F	F	D	C
Approach Vol, veh/h		2619			2522			1608			2359	
Approach Delay, s/veh		227.0			186.0			214.1			137.7	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.0	54.0	10.4	76.6	26.0	47.0	27.0	60.0				
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.8	* 5.7	8.0	* 5.7	6.8				
Max Green Setting (Gmax), s	* 13	46.0	* 7.2	67.3	* 20	39.0	* 21	53.2				
Max Q Clear Time (g_c+I1), s	15.3	48.0	5.0	43.1	22.3	41.0	23.3	55.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	9.5	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	190.3
HCM 6th LOS	F

Notes

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

PM 2035 Alt + Project
17: North River Rd/Vandergrift Blvd

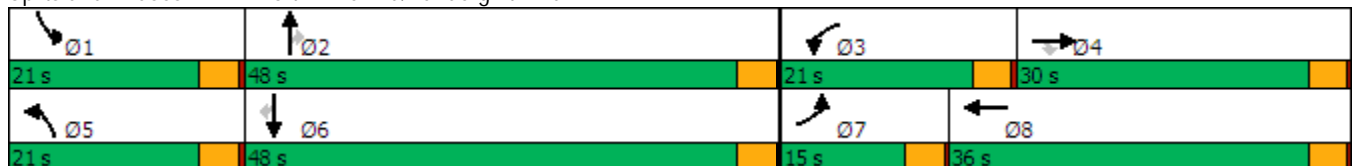
Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations												
Traffic Volume (vph)	90	110	160	600	140	290	880	970	330	1140	70	
Future Volume (vph)	90	110	160	600	140	290	880	970	330	1140	70	
Turn Type	Prot	NA	Perm	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	
Protected Phases	7	4		3	8	5	2		1	6		
Permitted Phases			4					2			6	
Detector Phase	7	4	4	3	8	5	2	2	1	6	6	
Switch Phase												
Minimum Initial (s)	5.0	6.0	6.0	5.0	8.0	5.0	10.0	10.0	5.0	10.0	10.0	
Minimum Split (s)	9.0	30.0	30.0	9.0	28.0	9.0	31.0	31.0	9.0	27.0	27.0	
Total Split (s)	15.0	30.0	30.0	21.0	36.0	21.0	48.0	48.0	21.0	48.0	48.0	
Total Split (%)	12.5%	25.0%	25.0%	17.5%	30.0%	17.5%	40.0%	40.0%	17.5%	40.0%	40.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max	Max	
Act Effct Green (s)	9.9	15.9	15.9	17.1	23.0	17.1	44.2	44.2	17.1	44.2	44.2	
Actuated g/C Ratio	0.09	0.14	0.14	0.16	0.21	0.16	0.40	0.40	0.16	0.40	0.40	
v/c Ratio	0.62	0.45	0.46	1.23	0.78	1.15	0.47	1.12	1.32	0.87	0.11	
Control Delay	66.9	47.7	10.1	158.6	49.5	144.6	26.1	86.5	202.7	39.6	1.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	66.9	47.7	10.1	158.6	49.5	144.6	26.1	86.5	202.7	39.6	1.5	
LOS	E	D	B	F	D	F	C	F	F	D	A	
Approach Delay		35.8			123.9		69.5			72.8		
Approach LOS		D			F		E			E		

Intersection Summary
























Cycle Length: 120	
Actuated Cycle Length: 110.2	
Natural Cycle: 150	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.32	
Intersection Signal Delay: 77.8	Intersection LOS: E
Intersection Capacity Utilization 94.1%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 17: North River Rd/Vandergrift Blvd



PM 2035 Alt + Project
17: North River Rd/Vandergrift Blvd

HCM 6th Signalized Intersection Summary

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	110	160	600	140	140	290	880	970	330	1140	70
Future Volume (veh/h)	90	110	160	600	140	140	290	880	970	330	1140	70
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	98	120	174	652	152	152	315	957	1054	359	1239	76
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	123	251	213	541	190	190	279	2070	642	279	1440	642
Arrive On Green	0.07	0.13	0.13	0.16	0.22	0.22	0.16	0.41	0.41	0.16	0.41	0.41
Sat Flow, veh/h	1781	1870	1585	3456	858	858	1781	5106	1585	1781	3554	1585
Grp Volume(v), veh/h	98	120	174	652	0	304	315	957	1054	359	1239	76
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	0	1716	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	5.9	6.4	11.6	17.0	0.0	18.2	17.0	14.9	44.0	17.0	34.6	3.3
Cycle Q Clear(g_c), s	5.9	6.4	11.6	17.0	0.0	18.2	17.0	14.9	44.0	17.0	34.6	3.3
Prop In Lane	1.00		1.00	1.00		0.50	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	123	251	213	541	0	380	279	2070	642	279	1440	642
V/C Ratio(X)	0.79	0.48	0.82	1.20	0.00	0.80	1.13	0.46	1.64	1.29	0.86	0.12
Avail Cap(c_a), veh/h	180	448	380	541	0	506	279	2070	642	279	1440	642
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.8	43.5	45.7	45.8	0.0	40.0	45.8	23.6	32.3	45.8	29.5	20.2
Incr Delay (d2), s/veh	13.8	1.4	7.6	108.7	0.0	6.6	93.3	0.7	295.3	153.5	6.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	3.1	5.0	15.4	0.0	8.3	14.7	6.1	68.9	19.3	15.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	44.9	53.3	154.5	0.0	46.6	139.1	24.4	327.6	199.3	36.4	20.5
LnGrp LOS	E	D	D	F	A	D	F	C	F	F	D	C
Approach Vol, veh/h		392			956			2326			1674	
Approach Delay, s/veh		53.3			120.2			177.3			70.6	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	48.0	21.0	18.6	21.0	48.0	11.5	28.0				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	17.0	44.0	17.0	26.0	17.0	44.0	11.0	32.0				
Max Q Clear Time (g_c+I1), s	19.0	46.0	19.0	13.6	19.0	36.6	7.9	20.2				
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.0	4.9	0.1	1.4				
Intersection Summary												
HCM 6th Ctrl Delay	124.6											
HCM 6th LOS	F											

Appendix T

Signal Warrant Worksheet

**Figure 4C-103 (CA). Traffic Signal Warrants Worksheet
 (Average Traffic Estimate Form)**

COUNT DATE _____
 CALC _____ DATE _____
 CHK _____ DATE _____

DIST _____ CO _____ RTE _____ PM _____

Major St: N. RIVER ROAD
 Minor St: PROTECT DWY / RIVERVIEW WAY

Critical Approach Speed POSTED 45 mph
 Critical Approach Speed _____ mph

Speed limit or critical speed on major street traffic > 40 mph..... }
 or } **RURAL (R)**
 In built up area of isolated community of < 10,000 population..... }
 URBAN (U)

(Based on Estimated Average Daily Traffic - See Note)

URBAN.....				RURAL..... <input checked="" type="checkbox"/>				Minimum Requirements EADT							
CONDITION A - Minimum Vehicular Volume								Vehicles Per Day on Major Street (Total of Both Approaches)				Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)			
Satisfied _____ Not Satisfied <input checked="" type="checkbox"/>															
Number of lanes for moving traffic on each approach								Urban				Rural			
Major Street		Minor Street		Major Street		Minor Street									
1.....		1.....		1.....		1.....		8,000		5,600		2,400		1,680	
2 or More.....		1.....		2 or More.....		1.....		9,600		6,720		2,400		1,680	
2 or More..... <u>E = 19,132</u>		2 or More..... <u>1,600</u>		2 or More..... <u>1,600</u>		1.....		9,600		6,720 <input checked="" type="checkbox"/>		3,200		2,240 X	
1.....		2 or More.....		1.....		2 or More.....		8,000		5,600		3,200		2,240	
CONDITION B - Interruption of Continuous Traffic								Vehicles Per Day on Major Street (Total of Both Approaches)				Vehicles Per Day on Higher-Volume Minor Street Approach (One Direction Only)			
Satisfied <input checked="" type="checkbox"/> Not Satisfied _____															
Number of lanes for moving traffic on each approach								Urban				Rural			
Major Street		Minor Street		Major Street		Minor Street									
1.....		1.....		1.....		1.....		12,000		8,400		1,200		850	
2 or More.....		1.....		2 or More.....		1.....		14,400		10,080		1,200		850	
2 or More..... <u>E = 19,132</u>		2 or More..... <u>1,600</u>		2 or More..... <u>1,600</u>		1.....		14,400		10,080 <input checked="" type="checkbox"/>		1,600		1,120 <input checked="" type="checkbox"/>	
1.....		2 or More.....		1.....		2 or More.....		12,000		8,400		1,600		1,120	
Combination of CONDITIONS A + B								2 CONDITIONS 80%				2 CONDITIONS 80%			
Satisfied _____ Not Satisfied <input checked="" type="checkbox"/>															
No one condition satisfied, but following conditions fulfilled 80% or more.....															
				NO		YES									
				A		B									

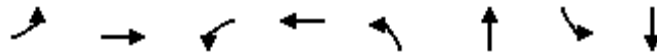
80% = 1,792

Note: To be used only for NEW INTERSECTIONS or other locations where it is not reasonable to count actual traffic volumes.

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

PROJECT ADT = 3,200 (IN + OUT)

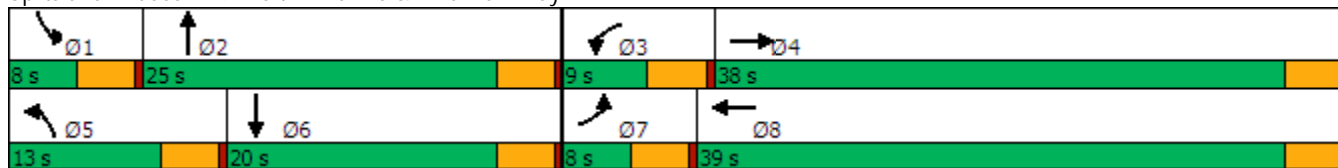
OUT = 1/2 (3,200) = 1,600 ADT



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	720	26	1130	102	0	20	0
Future Volume (vph)	30	720	26	1130	102	0	20	0
Lane Group Flow (vph)	33	811	28	1239	111	111	22	54
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	8.0	38.0	9.0	39.0	13.0	25.0	8.0	20.0
Total Split (%)	10.0%	47.5%	11.3%	48.8%	16.3%	31.3%	10.0%	25.0%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	4.5	26.2	5.6	26.5	8.6	12.9	4.5	6.2
Actuated g/C Ratio	0.08	0.49	0.10	0.50	0.16	0.24	0.08	0.12
v/c Ratio	0.22	0.47	0.15	0.71	0.39	0.20	0.15	0.16
Control Delay	33.5	10.9	30.9	13.9	29.9	0.8	32.4	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.5	10.9	30.9	13.9	29.9	0.8	32.4	1.0
LOS	C	B	C	B	C	A	C	A
Approach Delay		11.8		14.3		15.3		10.1
Approach LOS		B		B		B		B
Queue Length 50th (ft)	11	78	9	142	34	0	7	0
Queue Length 95th (ft)	40	156	35	267	91	0	30	0
Internal Link Dist (ft)		330		1076		405		819
Turn Bay Length (ft)	100		140					
Base Capacity (vph)	149	2341	187	2397	336	835	149	652
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	0.22	0.35	0.15	0.52	0.33	0.13	0.15	0.08

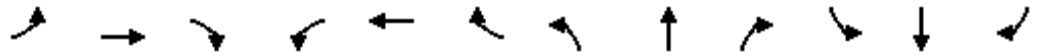
Intersection Summary	
Cycle Length:	80
Actuated Cycle Length:	53.4
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	13.4
Intersection LOS:	B
Intersection Capacity Utilization:	50.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 9: North River Rd & Riverview Way



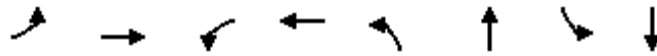
AM 2035 Alt + Project
9: North River Rd & Riverview Way

With Improvement
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	30	720	26	26	1130	10	102	0	102	20	0	50
Future Volume (veh/h)	30	720	26	26	1130	10	102	0	102	20	0	50
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	33	783	28	28	1228	11	111	0	111	22	0	54
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	53	1600	57	47	1636	15	144	0	233	38	0	138
Arrive On Green	0.03	0.46	0.46	0.03	0.45	0.45	0.08	0.00	0.15	0.02	0.00	0.09
Sat Flow, veh/h	1781	3500	125	1781	3609	32	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	33	397	414	28	605	634	111	0	111	22	0	54
Grp Sat Flow(s),veh/h/ln	1781	1777	1848	1781	1777	1865	1781	0	1585	1781	0	1585
Q Serve(g_s), s	0.8	7.2	7.2	0.7	12.9	12.9	2.8	0.0	2.9	0.6	0.0	1.5
Cycle Q Clear(g_c), s	0.8	7.2	7.2	0.7	12.9	12.9	2.8	0.0	2.9	0.6	0.0	1.5
Prop In Lane	1.00		0.07	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	53	812	845	47	806	845	144	0	233	38	0	138
V/C Ratio(X)	0.62	0.49	0.49	0.60	0.75	0.75	0.77	0.00	0.48	0.58	0.00	0.39
Avail Cap(c_a), veh/h	155	1316	1368	194	1354	1421	349	0	725	155	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.0	8.7	8.7	22.1	10.4	10.4	20.7	0.0	18.0	22.3	0.0	19.8
Incr Delay (d2), s/veh	11.1	0.5	0.4	11.8	1.4	1.4	8.3	0.0	1.5	13.2	0.0	1.8
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	0.5	2.2	2.3	0.4	4.0	4.2	1.4	0.0	1.1	0.4	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.1	9.2	9.2	33.9	11.8	11.8	29.0	0.0	19.5	35.5	0.0	21.6
LnGrp LOS	C	A	A	C	B	B	C	A	B	D	A	C
Approach Vol, veh/h		844			1267			222				76
Approach Delay, s/veh		10.1			12.3			24.2				25.6
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	10.7	5.2	25.0	7.7	8.0	5.4	24.8				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	21.0	5.0	34.0	9.0	16.0	4.0	35.0				
Max Q Clear Time (g_c+I1), s	2.6	4.9	2.7	9.2	4.8	3.5	2.8	14.9				
Green Ext Time (p_c), s	0.0	0.3	0.0	3.5	0.1	0.1	0.0	5.9				

Intersection Summary												
HCM 6th Ctrl Delay				13.0								
HCM 6th LOS				B								



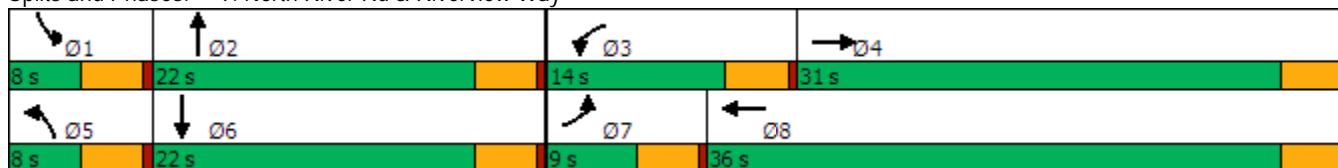
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	30	1220	112	900	48	0	20	0
Future Volume (vph)	30	1220	112	900	48	0	20	0
Lane Group Flow (vph)	33	1448	122	1000	52	52	22	11
Turn Type	Prot	NA	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	3	8	5	2	1	6
Permitted Phases								
Detector Phase	7	4	3	8	5	2	1	6
Switch Phase								
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	20.0	8.0	20.0	8.0	20.0
Total Split (s)	9.0	31.0	14.0	36.0	8.0	22.0	8.0	22.0
Total Split (%)	12.0%	41.3%	18.7%	48.0%	10.7%	29.3%	10.7%	29.3%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	Min	None	Min
Act Effct Green (s)	5.1	27.8	8.6	34.5	4.1	8.5	4.1	5.7
Actuated g/C Ratio	0.09	0.50	0.15	0.62	0.07	0.15	0.07	0.10
v/c Ratio	0.20	0.83	0.45	0.46	0.40	0.11	0.17	0.03
Control Delay	30.0	21.0	29.3	8.1	38.3	0.5	30.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	21.0	29.3	8.1	38.3	0.5	30.9	0.2
LOS	C	C	C	A	D	A	C	A
Approach Delay		21.2		10.4		19.4		20.6
Approach LOS		C		B		B		C
Queue Length 50th (ft)	12	259	42	78	19	0	8	0
Queue Length 95th (ft)	36	#417	87	173	#58	0	28	0
Internal Link Dist (ft)		330		1076		405		819
Turn Bay Length (ft)	100		140		100		100	
Base Capacity (vph)	162	1741	325	2266	130	692	130	670
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	0.20	0.83	0.38	0.44	0.40	0.08	0.17	0.02

Intersection Summary

Cycle Length: 75
 Actuated Cycle Length: 55.9
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 16.7
 Intersection Capacity Utilization 62.8%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.

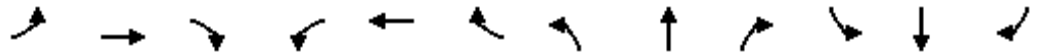
Queue shown is maximum after two cycles.

Splits and Phases: 9: North River Rd & Riverview Way



PM 2035 Alt + Project
9: North River Rd & Riverview Way

With Improvement
HCM 6th Signalized Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷		↶	↷		↶	↷	
Traffic Volume (veh/h)	30	1220	112	112	900	20	48	0	48	20	0	10
Future Volume (veh/h)	30	1220	112	112	900	20	48	0	48	20	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	33	1326	122	122	978	22	52	0	52	22	0	11
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	52	1561	143	160	1899	43	73	0	157	37	0	125
Arrive On Green	0.03	0.47	0.47	0.09	0.53	0.53	0.04	0.00	0.10	0.02	0.00	0.08
Sat Flow, veh/h	1781	3291	302	1781	3553	80	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	33	714	734	122	489	511	52	0	52	22	0	11
Grp Sat Flow(s),veh/h/ln	1781	1777	1816	1781	1777	1856	1781	0	1585	1781	0	1585
Q Serve(g_s), s	0.9	17.9	18.1	3.4	8.9	8.9	1.5	0.0	1.5	0.6	0.0	0.3
Cycle Q Clear(g_c), s	0.9	17.9	18.1	3.4	8.9	8.9	1.5	0.0	1.5	0.6	0.0	0.3
Prop In Lane	1.00		0.17	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	843	861	160	950	992	73	0	157	37	0	125
V/C Ratio(X)	0.63	0.85	0.85	0.76	0.51	0.51	0.71	0.00	0.33	0.59	0.00	0.09
Avail Cap(c_a), veh/h	176	948	969	352	1123	1173	141	0	564	141	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.3	11.7	11.7	22.5	7.6	7.6	24.0	0.0	21.2	24.6	0.0	21.6
Incr Delay (d2), s/veh	11.9	6.6	6.8	7.4	0.4	0.4	12.1	0.0	1.2	13.8	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	0.5	6.9	7.2	1.6	2.6	2.7	0.8	0.0	0.6	0.4	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.2	18.3	18.5	29.9	8.0	8.0	36.0	0.0	22.5	38.3	0.0	21.9
LnGrp LOS	D	B	B	C	A	A	D	A	C	D	A	C
Approach Vol, veh/h		1481			1122			104				33
Approach Delay, s/veh		18.8			10.4			29.3				32.9
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.1	9.0	8.5	28.0	6.1	8.0	5.5	31.1				
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Max Green Setting (Gmax), s	4.0	18.0	10.0	27.0	4.0	18.0	5.0	32.0				
Max Q Clear Time (g_c+I1), s	2.6	3.5	5.4	20.1	3.5	2.3	2.9	10.9				
Green Ext Time (p_c), s	0.0	0.1	0.1	3.9	0.0	0.0	0.0	4.5				
Intersection Summary												
HCM 6th Ctrl Delay				15.9								
HCM 6th LOS				B								