Appendix I
Local Transportation Study

Eddie Jones Industrial Redevelopment Project
D22-00001
250 Eddie Jones Way
City of Oceanside
August 25, 2023

Draft Local Transportation Study

Prepared for:

RAF Pacifica Group
111 C Street, Suite 200
Encinitas, CA 92024

Prepared by Justin Rasas (RCE 60690) with:

LOS Engineering, Inc.
11622 El Camino Real Suite100 San Diego, CA 92130
Phone 619-890-1253

Job #2112

Table of Contents

List of Figures

List of Tables

Appendices

Executive Summary
Eddie Jones Industrial Redevelopment

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.

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 project is located at 250 Eddie Jones Way in Oceanside, California. The project is a single building with up to 568,000 sf that will include 30% Manufacturing (170,400 sf) and 70% Warehousing (397,600 sf). The project site had a 172,305 SF building used for manufacturing that was vacated in the summer of 2021. The 172,305 SF building was removed in 2022. This analysis does not include a trip credit for the previous land use.

The traffic analysis included the analysis of AM peak hour, PM peak hour, and daily traffic volumes. The project trip generation is based on the ITE 11th Edition as shown in **Table E-1**.

TABLE E-1: PROJECT TRAFFIC GENERATION

ITE 11th Edition					AM Peak Hour			PM Peak Hour		
Land Use	**Rates & Size**			**Daily**	**IN**	**OUT**	**Total**	**IN**	**OUT**	**Total**
Proposed Project with Land Use 140: Manufacturing										
Car Trip Rates:	4.75	/KSF			76%	24%	0.68	31%	69%	0.74
Size:	170.400	KSF	Cars:	**809**	88	28	**116**	39	87	**126**
Truck Trip Rates:	0.45	/KSF			56%	44%	0.03	41%	59%	0.03
Size:	170.400	KSF	Trucks:	**77**	3	2	**5**	2	3	**5**
TOTAL Manufacturing Trips:				***886***	*91*	*30*	***121***	*41*	*90*	***131***
Proposed Project Land Use 154: High-Cube Transload and Short-Term Storage Warehouse										
Car Trip Rates:	1.40	/KSF			77%	23%	0.08	28%	72%	0.10
Size:	397.600	KSF	Cars:	**557**	24	7	**32**	11	29	**40**
Truck Trip Rates:	0.22	/KSF			49%	51%	0.02	47%	53%	0.01
Size:	397.600	KSF	Trucks:	**87**	4	4	**8**	2	2	**4**
TOTAL Warehouse and Distribution Trips:				***644***	*28*	*11*	***40***	*13*	*31*	***44***
Total car trips:				*1,366*	*112*	*35*	*148*	*50*	*116*	*166*
Total truck trips with PCE of 2 for daily trips:				*328*	*7*	*6*	*13*	*4*	*5*	*9*
Total Building SF:	568.000	**Project Total:**		**1,694**	119	41	**161**	54	121	**175**

Source: Institute of Transportation Engineers (ITE) 11th Edition *Trip Generation*. KSF: 1,000 Square Feet.
PCE: Passenger Car Equivalent multiplier of 2 applied to truck ADTs based on level terrain.

Six traffic scenarios were analyzed, which included Existing, Existing plus Project, Near Term (18 cumulative projects), Near Term plus Project, Horizon Year 2030, and Horizon Year 2030 plus Project. The City's Traffic Guidelines define how a project's non-CEQA traffic effect/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 is calculated to have one (1) transportation impact at the intersection of SR-76/Benet Rd. The proposed mitigation at the intersection of SR-76/Benet Rd is a fair share payment of 8.5% towards the provisions of converting the existing eastbound and westbound right turn lanes to a combination through-right lane in the eastbound and westbound direction resulting in three through lanes in each direction. The fair share payment shall be paid to the City's Thoroughfare and Signal Account. The funds will be used at the City's discretion for projects that will improve traffic safety and mobility in the City of Oceanside. The fair share contribution shall be paid in full prior to issuance of any permit for any phase of any component of the Project. Payment of the fair share shall satisfy the Project's offsite improvement obligations. A conceptual drawing of the proposed improvement and fair share calculations are included in Appendix P.

The multi-modal analysis covered pedestrian, bicycle, and transit elements. There are missing sidewalk segments adjacent to the project site; therefore, the project owner/permittee proposes to complete the following sidewalk improvements:

1) Construct a sidewalk from the project access on Alex Road north to the San Luis Rey River Trail (a distance of approximately 50 feet).

2) Construct a sidewalk along the project frontage on Benet Road from Eddie Jones Way north to the San Luis Rey River access path (a distance of approximately 600 feet).

There are no deficiencies on bike lanes and paths in the study area; therefore, no bike lane/path improvements are necessary. There are no bus stops within a ½ mile walking distance of the project site; therefore, no transit stop improvements are necessary.

1.0 Introduction

This 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 CEQA requirements. This LTS provides a non-CEQA analysis based on the City of Oceanside Traffic Guidelines, which states on pages 5 and 6.

> "The purpose of a Local Transportation Study is to ensure the goals, objectives, and policies adopted by the City are supported and implemented while monitoring the capacity for the roadway networks."
>
> "A Local Transportation Study (LTS) will be required if a project exceeds 1,000 ADT and is consistent with the adopted General Plan."

The project is located at 250 Eddie Jones Way in Oceanside, California. The project is a single building with up to 568,000 sf that will include 30% Manufacturing (170,400 sf) and 70% Warehousing (397,600 sf). The regional location of the project is shown in **Figure 1** with a site plan 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 AM peak hour, PM peak hour, 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
4.0	Conclusion

Figure 1: Project Location

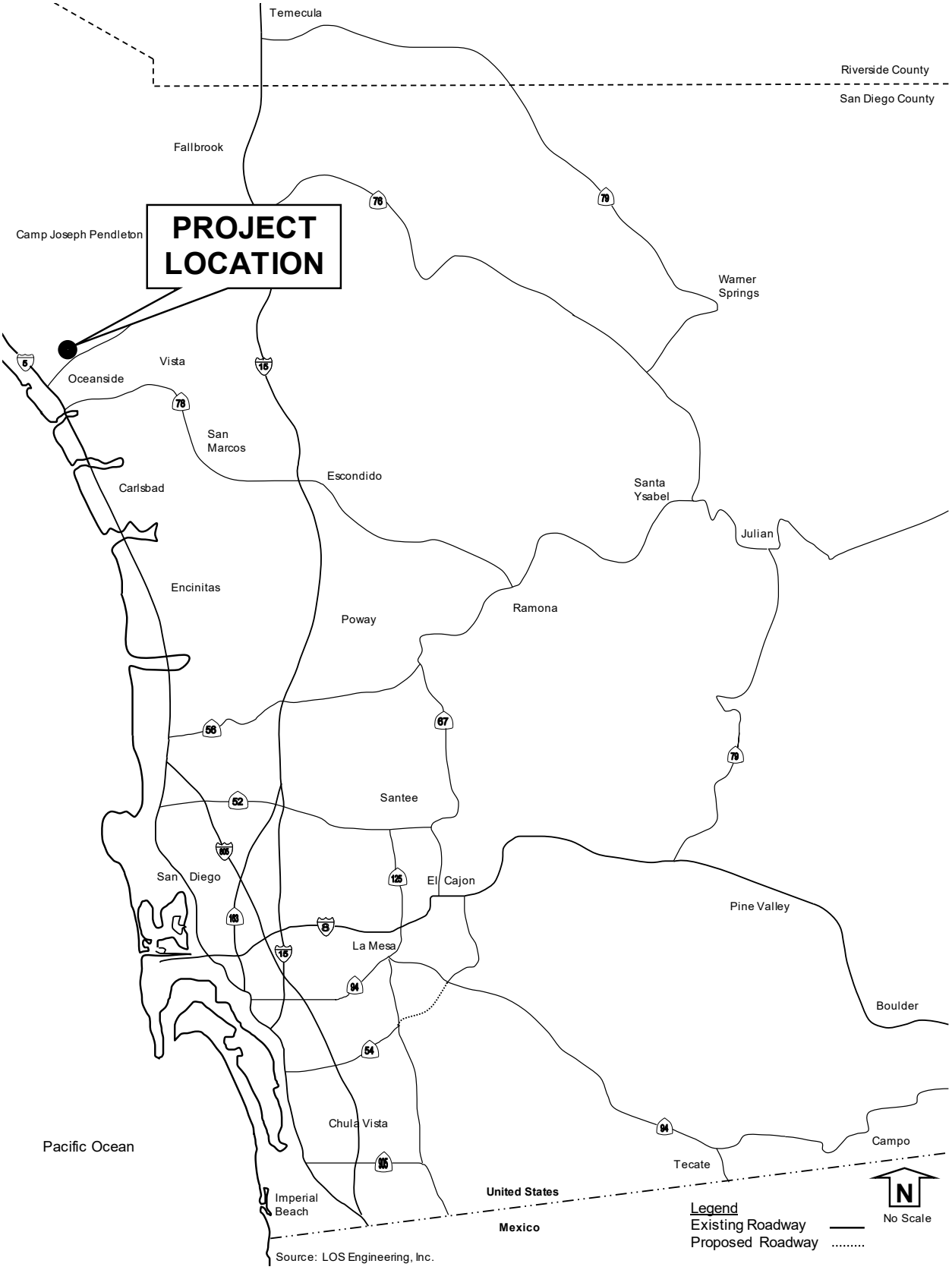
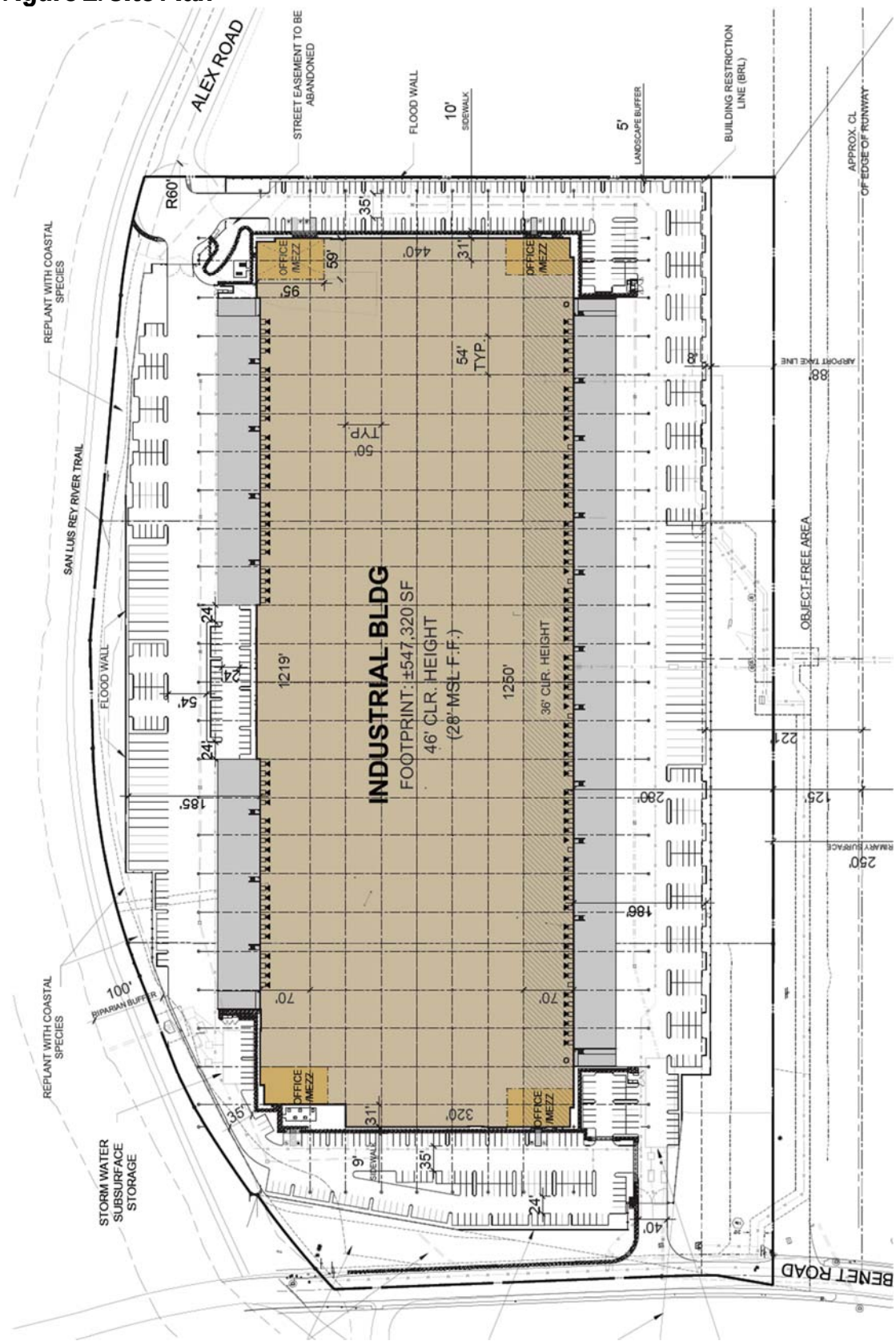


Figure 2: Site Plan



Source: Ware Malcomb

2.0 Alternative Transportation Analysis

The following alternative transportation modes were analyzed based on criteria outlined in the City of Oceanside Traffic Guidelines, which states on page 22:

1) Pedestrian:
    a. 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.
    b. 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.
    c. Facilities connecting to transit stops within two blocks of the project.
    d. Only facilities on the side of the project or along the walking route to transit stop.

2) Bicycle:
    a. 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:
        i. All roadways adjacent to the project, extending in each direction to the nearest intersection with a classified roadway or with a Class I path.
        ii. Both directions of travel should be evaluated.

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

Alex Road from Foussat Rd to the westerly cul-de-sac terminus does not have sidewalks on either side of the roadway. Existing and future project access will be from this cul-de-sac.

Benet Road from the San Luis Rey River Trail to Eddie Jones Way has a contiguous sidewalk on the west side of the roadway and no sidewalk on the east side of the roadway. From Eddie Jones Way to SR-76, Benet Road has no sidewalk on the west side of the roadway but has a contiguous sidewalk on the east side of the roadway. There were no major sidewalk obstructions observed along the sections that have sidewalks.

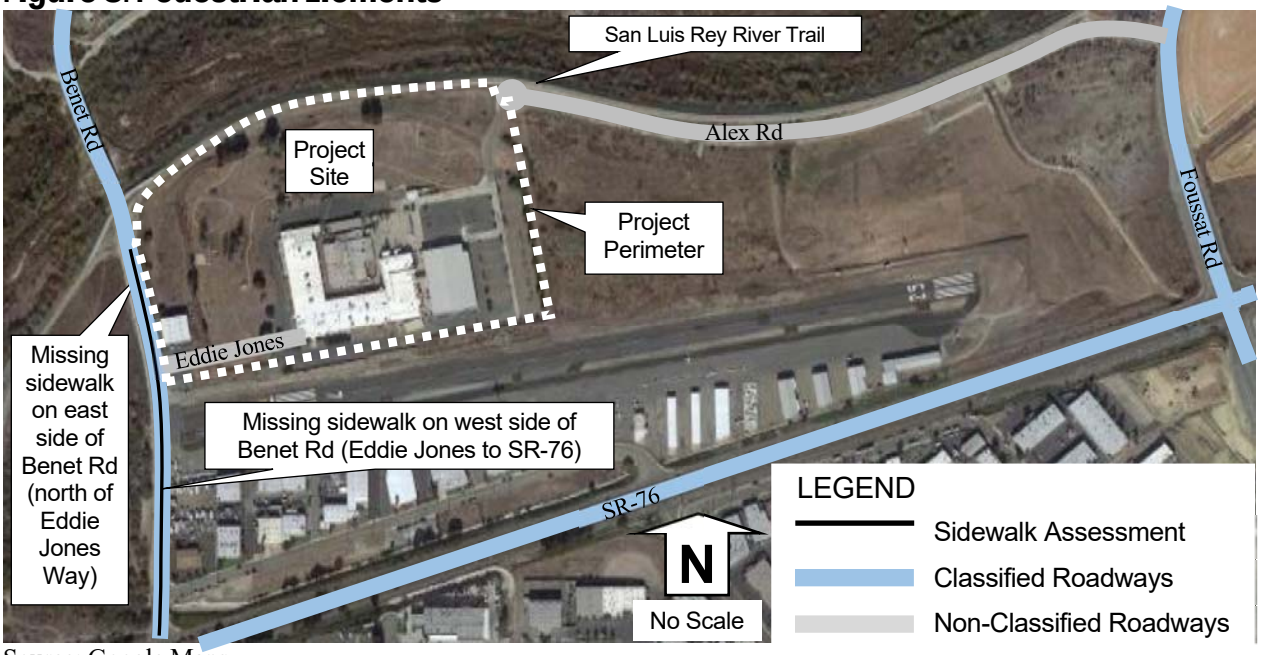
The project owner/permittee proposed to complete the following sidewalk improvements:

1) Construct a sidewalk from the project access on Alex Road north to the San Luis Rey River Trail (a distance of approximately 50 feet).

2) Construct a sidewalk along the project frontage on Benet Road from Eddie Jones Way north to the San Luis Rey River access path (a distance of approximately 600 feet).

The pedestrian elements are shown in **Figure 3**.

Figure 3: Pedestrian Elements



Source: Google Maps

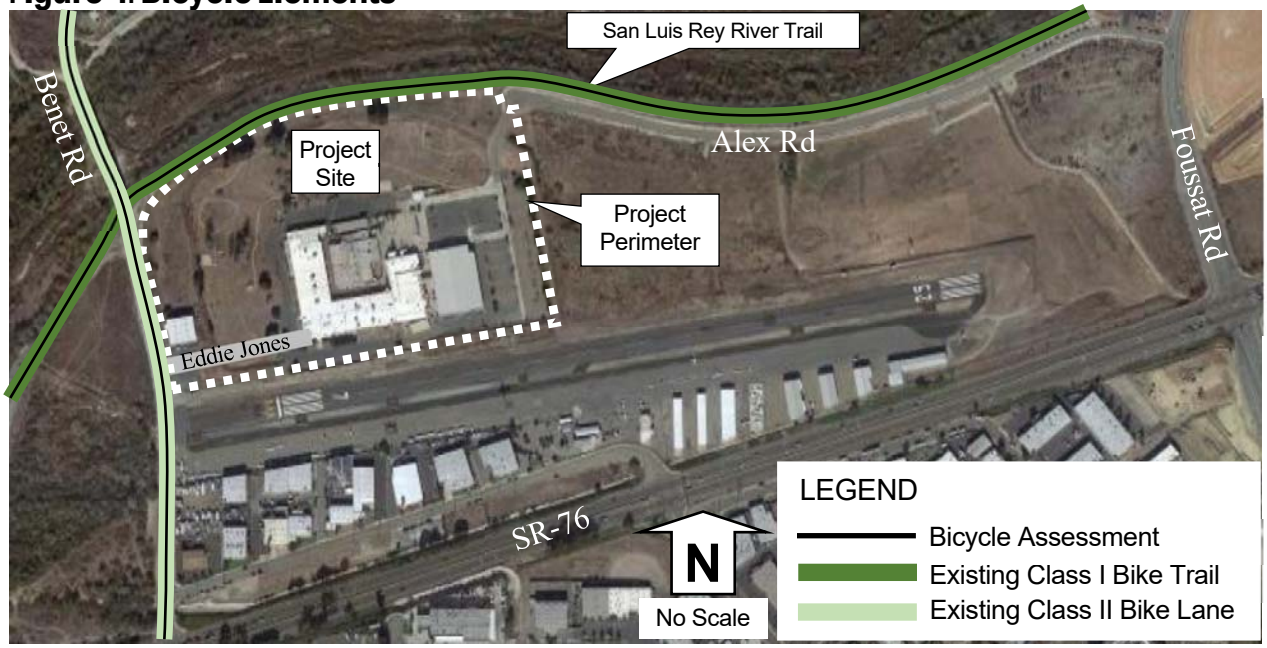
2.2 Bicycle

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. Additionally, this analysis must include a discussion of what is planned based on City and regional documentation. The study area has the following existing and planned bicycle infrastructure based on City documentation.

> Benet Road along the project frontage has an existing Class 2 bike lane shown in the *City of Oceanside Bicycle Master Plan 2017 Update.*
>
> San Luis Rey River Trail near the project site has an existing Class 1 bike path as shown in the *City of Oceanside Bicycle Master Plan 2017 Update.*

No deficiencies were observed on the above bike lanes and paths; therefore, no improvements are necessary. 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 (2,640 ft) walking distance of the project access, the condition of the closest stop amenities are described. There are no bus stops within a ½ mile walking distance of the project site. The closes bus service provided North County Transit District (NCTD) is Bus Route 303 with bus stops at the intersection of Foussat Rd/Mission Ave located approximately 4,300 ft walking distance from the project site via Alex Rd. Since the existing bus stops are greater than ½ mile from the project site, the conditions of bus top amenities are not required to be documented.

No transit improvements are necessary as part of this project. A summary of the service times for Bus Route 303 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.

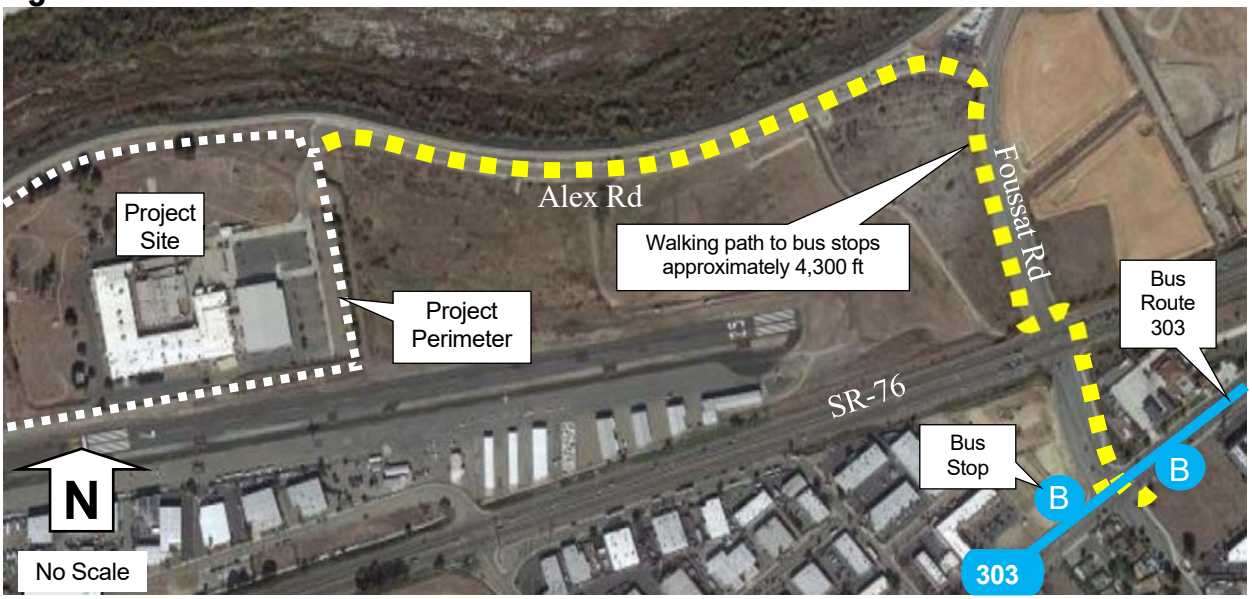
TABLE 2: WEEKEND BUS SERVICE OPERATIONS AND FREQUENCY

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

This vehicular analysis was 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, which states on page 6:

> A Local Transportation Assessment (LTA) will be required to analyze the following scenarios based on the thresholds 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

The City of Oceanside Traffic Guidelines also define the study area on page 22 as follows:

> 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

Additionally, the study area can be identified by City staff. Please note that the study area in this LTS exceeds the above criteria because it was initial determined based on a different mix of industrial uses that resulted in a higher trip generation that had a larger study area. To be conservative, the original study area is maintained for consistency.

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

1) SR-76/I-5 SB Ramps (Signalized)
2) SR-76/I-5 NB Ramps (Signalized)
3) SR-76/Loretta St (Signalized)
4) SR-76/Canyon Dr (Signalized)
5) SR-76/Benet Rd (Signalized)
6) SR-76/Foussat Rd (Signalized)
7) Benet Rd/Airport Rd (Un-Signalized)
8) Benet Rd/Eddie Jones Way (Un-Signalized)
9) Foussat Rd/Alex Rd (Un-Signalized)

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

1) Benet Rd from Eddie Jones Way to SR-76
2) Foussat Rd from Alex Rd to SR-76
3) SR-76 from I-5 to Loretta St
4) SR-76 from Loretta St to Canyon Dr
5) SR-76 from Canyon Dr to Benet Rd
6) SR-76 from Benet Rd to Foussat Rd
7) SR-76 Immediately East of Foussat Rd

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 2030 Conditions
6) Horizon Year 2030 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 ≤ 1)	Signalized Control Delay (sec/veh where v/c ≤ 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 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	
	Roadway Segments	Intersections
	V/C	Delay (sec.)
E & F	0.02	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 and State law. The Traffic Guidelines define how a project's non-CEQA traffic effect/transportation impact on the roadway system is considered to justify the need for roadway improvements. If a project causes the values identified in Table 5 above to be exceeded, the City will consider roadway improvements 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**).

Benet Road is classified as a 2 lane *Secondary Collector* from Eddie Jones Way to SR-76. This segment of Benet Rd is currently built as a 2 lane undivided roadway with a 45 MPH posted speed limit. This section of Benet Rd is generally constructed with 40 feet of pavement and two 12 foot travel lanes in each direction. There are striped Class II bike lanes on each side of the roadway. There is one no on-street parking signs posted on the east side of the roadway north of Eddie Jones Way. There is a sidewalk on the west side of the roadway from the bridge over the San Luis Rey River down to Eddie Jones Way and no sidewalk from Eddie Jones Way down to SR-76. There is no sidewalk on the east side of the roadway from the bridge over the San Luis Rey River down to Eddie

Jones Way while there is a sidewalk from Eddie Jones Way down to SR-76. These sidewalks are approximately 5 feet in width. There are unsignalized intersections along this segment with stop control on the minor street.

Foussat Road is classified as a 2 lane *Secondary Collector* from Alex Rd to SR-76. This segment of Foussat Rd is currently built as a 2 lane undivided roadway near Alex Rd and widens closer to SR-76 with additional lanes at the intersection. The pavement width varies from approximately 57 feet just south of Alex Road to approximately 125 feet just north of SR-76. There are no sidewalks on either side of this roadway. There are no posted speed limit signs along this segment between Alex Rd and SR-76. There are on parking signs posted on Foussat Rd just north of Alex Rd. There is one unsignalized intersection (Alex Rd) along this segment with stop control on the minor street.

SR-76 is classified as an *Expressway* and is currently built as a divided roadway with a center concrete barrier and a posted 55 Miles per Hour (MPH) speed limit. From I-5 to Loretta St, SR-76 is constructed as a 5 lane divided roadway with 3 eastbound travel lanes and 2 westbound travel lanes within approximately 115 feet of pavement. From Loretta St to Foussat Rd, SR-76 is constructed as a 4 lane divided roadway within approximately 100 feet of pavement. All of the intersecting streets along this segment have signalized traffic control. There are no sidewalks along this section of SR-76.

3.3.2 Existing Traffic Volumes and LOS Analyses

Existing 7-9 AM and 4-6 PM peak hour traffic volumes were collected for the following intersections with the date of collection noted below:

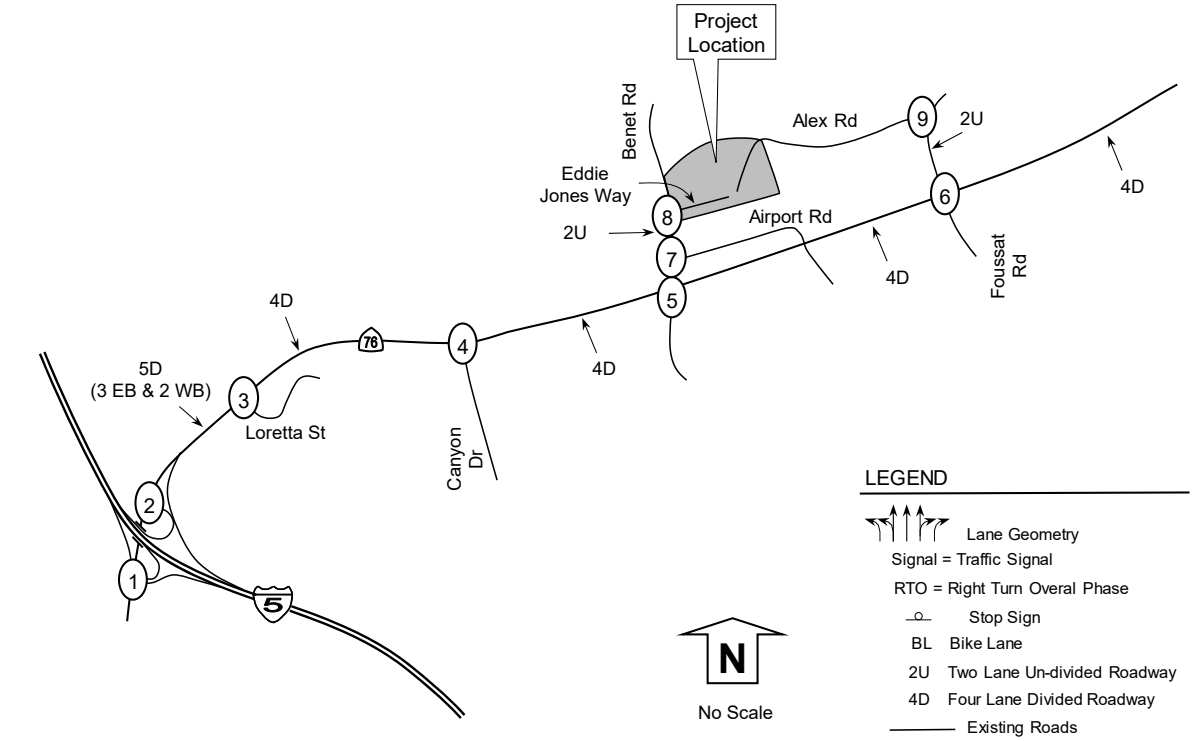
1) SR-76/I-5 SB Ramps (Wed. 10/6/21)
2) SR-76/I-5 NB Ramps (Wed. 10/6/21)
3) SR-76/Loretta St (Wed. 10/6/21)
4) SR-76/Canyon Dr (Wed. 10/6/21)
5) SR-76/Benet Rd (Wed. 10/6/21)
6) SR-76/Foussat Rd (Wed. 10/6/21)
7) Benet Rd/Airport Rd (Wed. 10/6/21)
8) Benet Rd/Eddie Jones Way (Wed. 10/6/21)
9) Foussat Rd/Alex Rd (Wed. 10/6/21)

Existing daily traffic volumes were collected or obtained from Caltrans with the date of collection noted below:

1) Benet Rd from Eddie Jones Way to SR-76 (Wed. 10/6/21)
2) Foussat Rd from Alex Rd to SR-76 (Wed. 10/6/21)
3) SR-76 from I-5 to Loretta St (highest Caltrans volume between 2015-2021)
4) SR-76 from Loretta St to Canyon Dr (highest Caltrans volume between 2015-2021)
5) SR-76 from Canyon Dr to Benet Rd (highest Caltrans volume between 2015-2021)
6) SR-76 from Benet Rd to Foussat Rd (highest Caltrans volume between 2015-2021)
7) SR-76 east of Foussat Rd (highest Caltrans volume between 2015-2021)

The last 7 years of Caltrans data from 2015 through 2021 was reviewed. Historical Caltrans data did not always increase year over year (for these segments), rather it has both increases and decreases over time. To represent a conservative volume for Caltrans segments, the higher volumes between 2015 and 2021 were applied. The applied highest Caltrans data between 2015 to 2021, existing traffic volumes, and signal timing data are included in **Appendix E**. The existing roadway conditions are shown in **Figure 6** and the existing AM peak hour, PM peak hour, and daily volumes are shown on **Figure 7.**

Figure 6: Existing Roadway Conditions



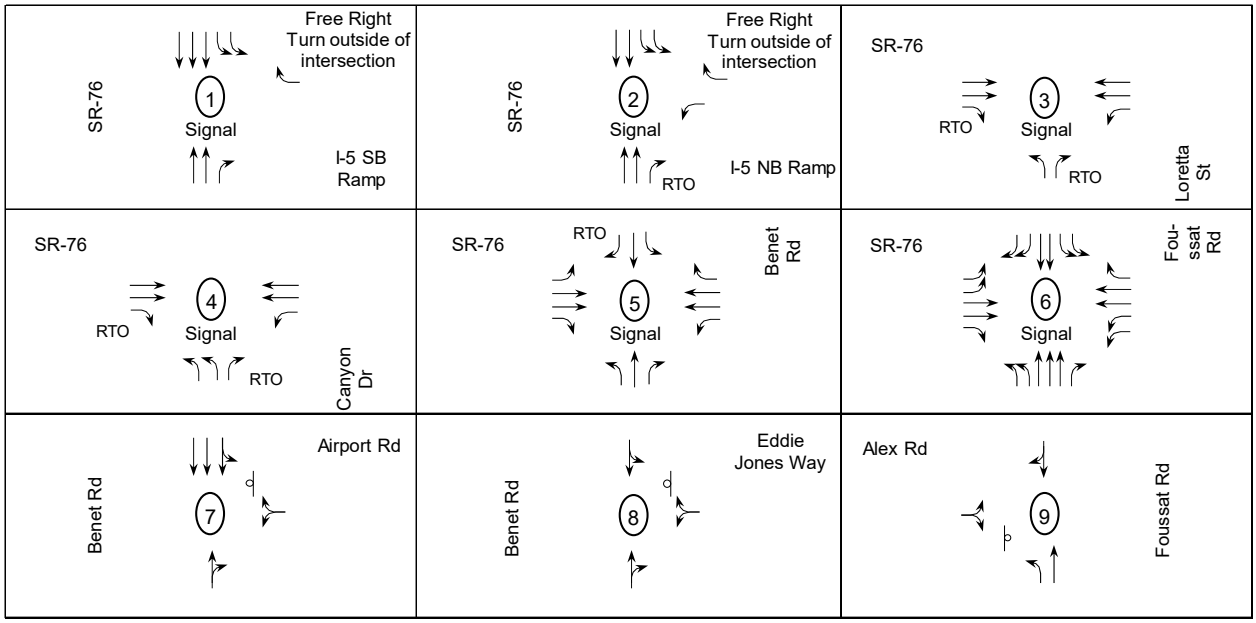
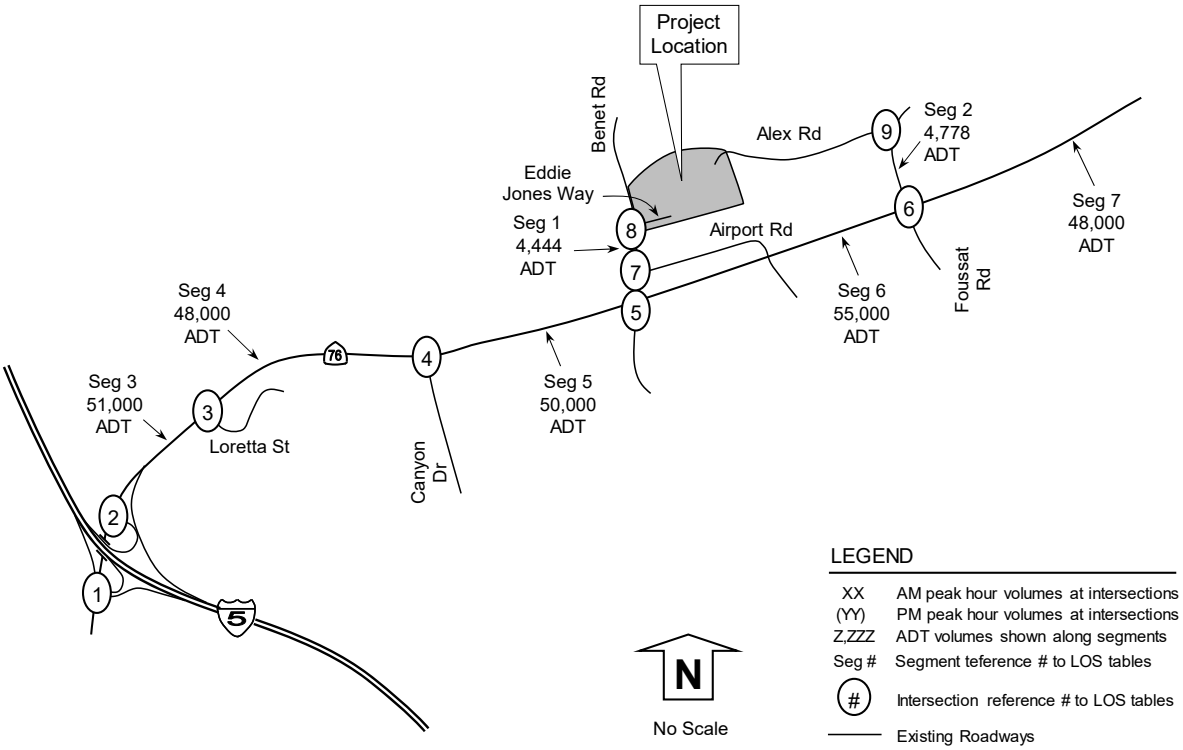
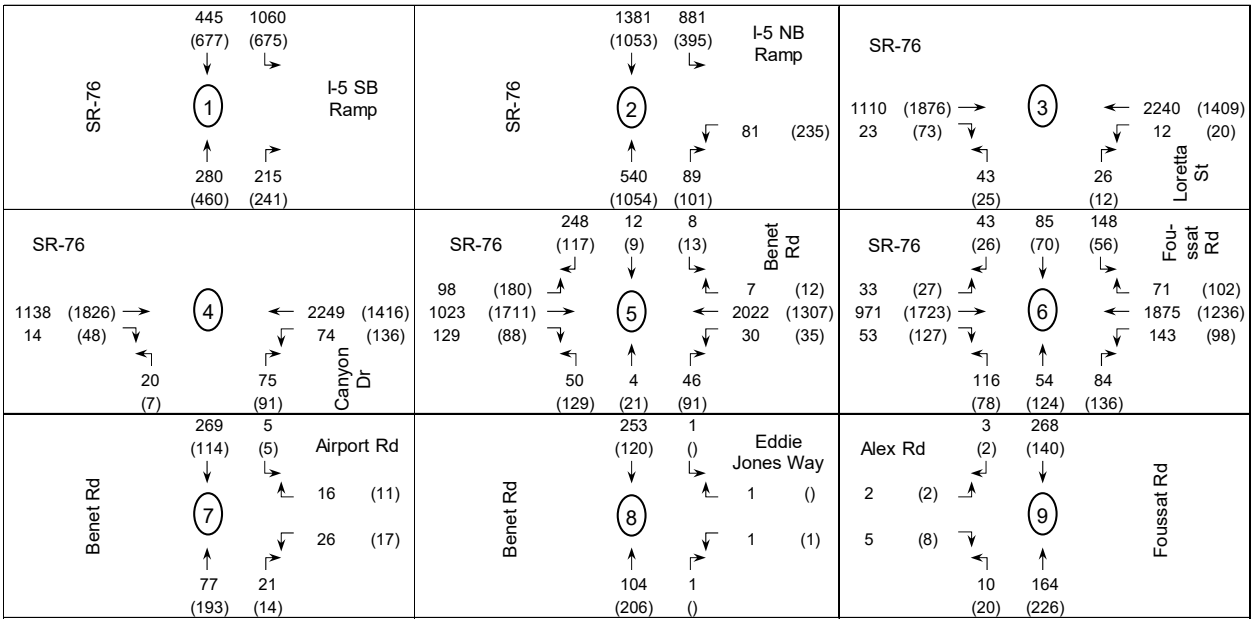


Figure 7: Existing Volumes





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]	Existing LOS[3]
1) SR-76 at	All	AM	11.2	B
I-5 SB Ramp (S)	All	PM	10.4	B
2) SR-76 at	All	AM	9.4	A
I-5 NB Ramp (S)	All	PM	8.0	A
3) SR-76 at	All	AM	23.9	C
Loretta St (S)	All	PM	22.8	C
4) SR-76 at	All	AM	9.7	A
Canyon Dr (S)	All	PM	15.2	B
5) SR-76 at	All	AM	45.8	D
Benet Rd (S)	All	PM	37.8	D
6) SR-76 at	All	AM	33.3	C
Foussat Rd (S)	All	PM	34.8	C
7) Benet Rd at	WB	AM	9.7	A
Airport Rd (U)	WB	PM	10.0	B
8) Benet Rd at	WB	AM	9.9	A
Eddie Jones Way (U)	WB	PM	10.6	B
9) Foussat Rd at	EB	AM	10.5	B
Alex Rd (U)	EB	PM	9.6	A

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

TABLE 7: EXISTING SEGMENT LEVEL OF SERVICE

Segment	Functional Classification	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS
Benet Road					
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,444	0.444	B
Foussat Rd					
2) Alex Rd to SR-76	2 Lane Collector	10,000	4,778	0.478	B
State Route 76					
3) I-5 to Loretta St	5 Lane Expressway	70,000	51,000	0.729	C
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	48,000	0.800	C
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	50,000	0.833	D
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	55,000	0.917	**E**
7) East of Foussat Rd	4 Lane Expressway	60,000	48,000	0.800	C

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

Under Existing conditions, the study elements are calculated to operate at LOS D or better except for segment #6: SR-76 from Benet Rd to Foussat Rd (LOS E).

3.4 Project Traffic Generation

The project is located at 250 Eddie Jones Way in Oceanside, California. The project is a single building with up to 568,000 sf that will include 30% Manufacturing (170,400 sf) and 70% Warehousing (397,600 sf). The project site had a 172,305 SF building used for manufacturing that was vacated in the summer of 2021. The 172,305 SF building was removed in 2022. This analysis does not include a trip credit for the previous land use.

The project traffic generation is calculated using the Institute of Transportation Engineers (ITE) *11th Edition Trip Generation*, Sept 2021 (**Appendix G**). The project is calculated to generate 1,694 daily trips, 161 AM peak hour trips (119 inbound and 41 outbound), and 175 PM peak hour trips (54 inbound and 121 outbound) as shown in **Table 8**.

TABLE 8: PROJECT TRAFFIC GENERATION

ITE 11th Edition					AM Peak Hour			PM Peak Hour		
Land Use	**Rates & Size**		**Daily**	**IN**	**OUT**	**Total**	**IN**	**OUT**	**Total**
Proposed Project with Land Use 140: Manufacturing									
Car Trip Rates:	4.75	/KSF		76%	24%	0.68	31%	69%	0.74
Size:	170.400	KSF Cars:	**809**	88	28	**116**	39	87	**126**
Truck Trip Rates:	0.45	/KSF		56%	44%	0.03	41%	59%	0.03
Size:	170.400	KSF Trucks:	**77**	3	2	**5**	2	3	**5**
TOTAL Manufacturing Trips:			***886***	*91*	*30*	***121***	*41*	*90*	***131***
Proposed Project Land Use 154: High-Cube Transload and Short-Term Storage Warehouse									
Car Trip Rates:	1.40	/KSF		77%	23%	0.08	28%	72%	0.10
Size:	397.600	KSF Cars:	**557**	24	7	**32**	11	29	**40**
Truck Trip Rates:	0.22	/KSF		49%	51%	0.02	47%	53%	0.01
Size:	397.600	KSF Trucks:	**87**	4	4	**8**	2	2	**4**
TOTAL Warehouse and Distribution Trips:			***644***	*28*	*11*	***40***	*13*	*31*	***44***
		Total car trips:	*1,366*	*112*	*35*	*148*	*50*	*116*	*166*
Total truck trips with PCE of 2 for daily trips:			*328*	*7*	*6*	*13*	*4*	*5*	*9*
Total Building SF:	568.000	**Project Total:**	**1,694**	119	41	**161**	54	121	**175**

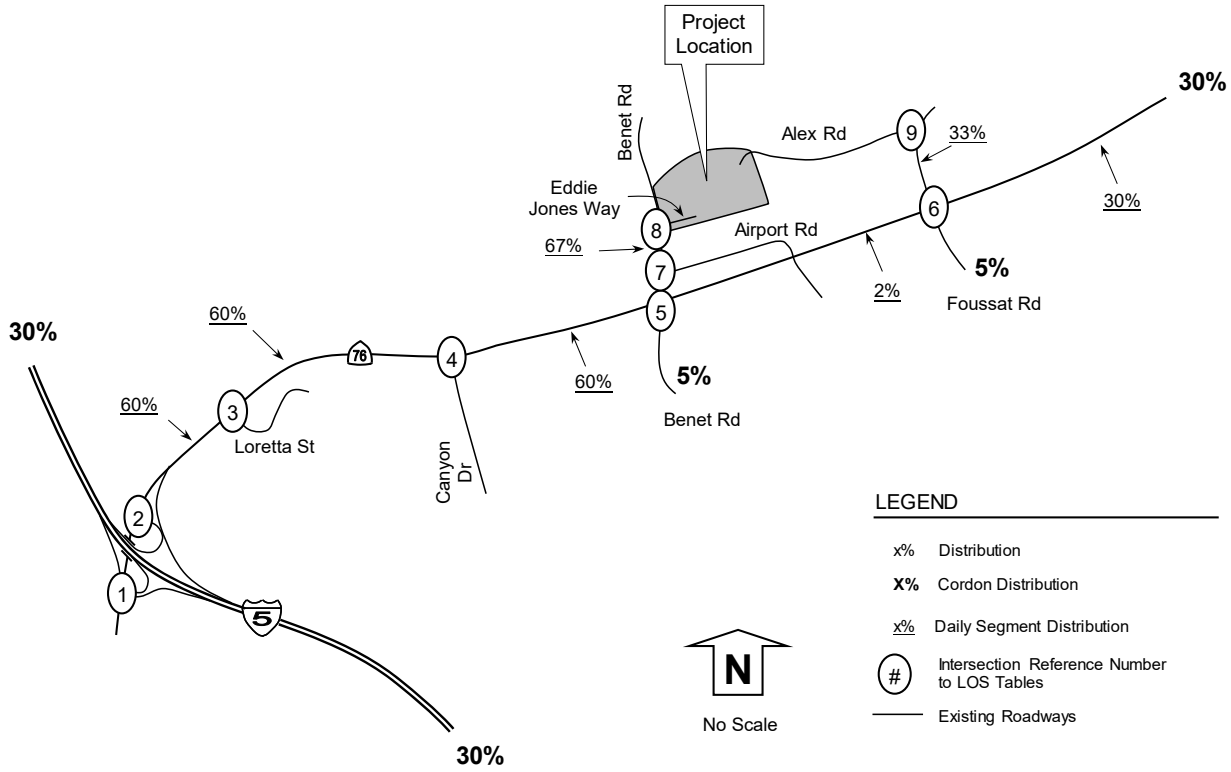
Source: Institute of Transportation Engineers (ITE) 11th Edition *Trip Generation*. KSF: 1,000 Square Feet.
PCE: Passenger Car Equivalent multiplier of 2 applied to truck ADTs based on level terrain.

A Passenger Car Equivalent (PCE) factor is used to convert a mixed stream of cars and trucks to a single uniform PCE stream for analysis. However, a PCE is applied only to the segment ADT analysis and not the intersection peak hour analysis because the intersection analysis already incorporates a heavy vehicle factor. According to the HCM, adding a PCE to a simulation analysis that already accounts for heavy vehicles (such as the intersection analysis) would result in duplicative adjustments. A PCE factor of 2 (based on the HCM 6th Edition Exhibit 12-25 for level terrain) is applied to the 164 daily trucks resulting in 328 truck ADT as shown above.

3.5 Project Distribution and Assignment

Project trips were distributed to the adjacent roadway network using traffic engineering judgement and factors such as proximity to regional freeways and local productions and attractions. The project distribution is shown in **Figure 8** while the project assignment is shown in **Figure 9.**

Figure 8: Project Distribution



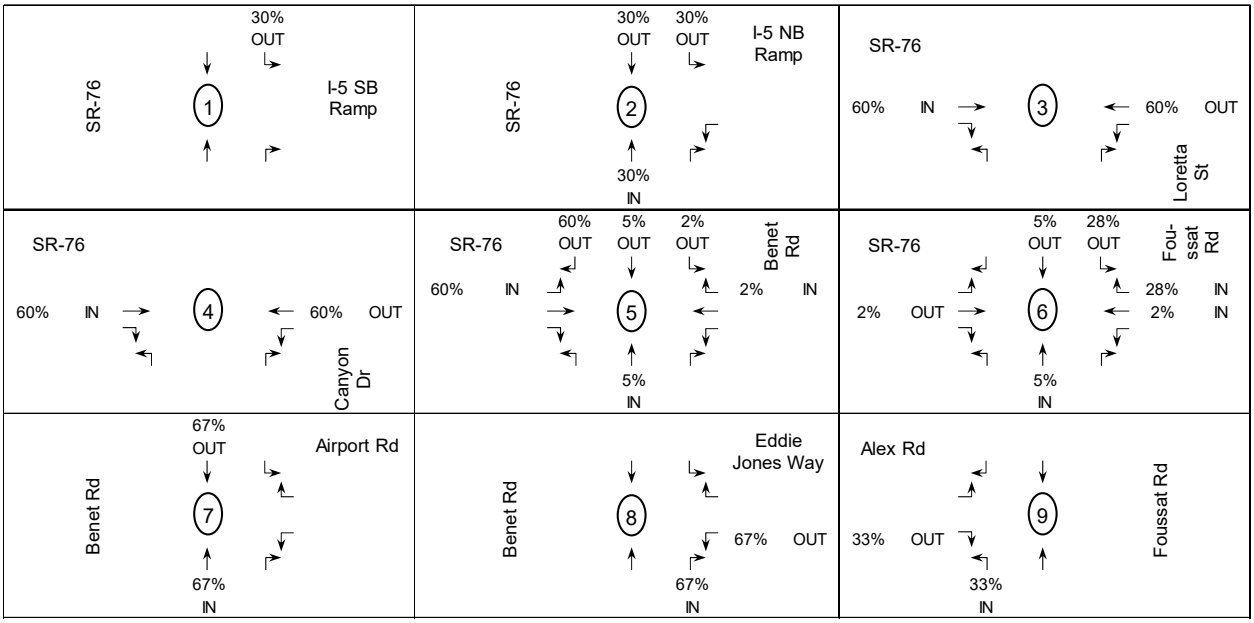
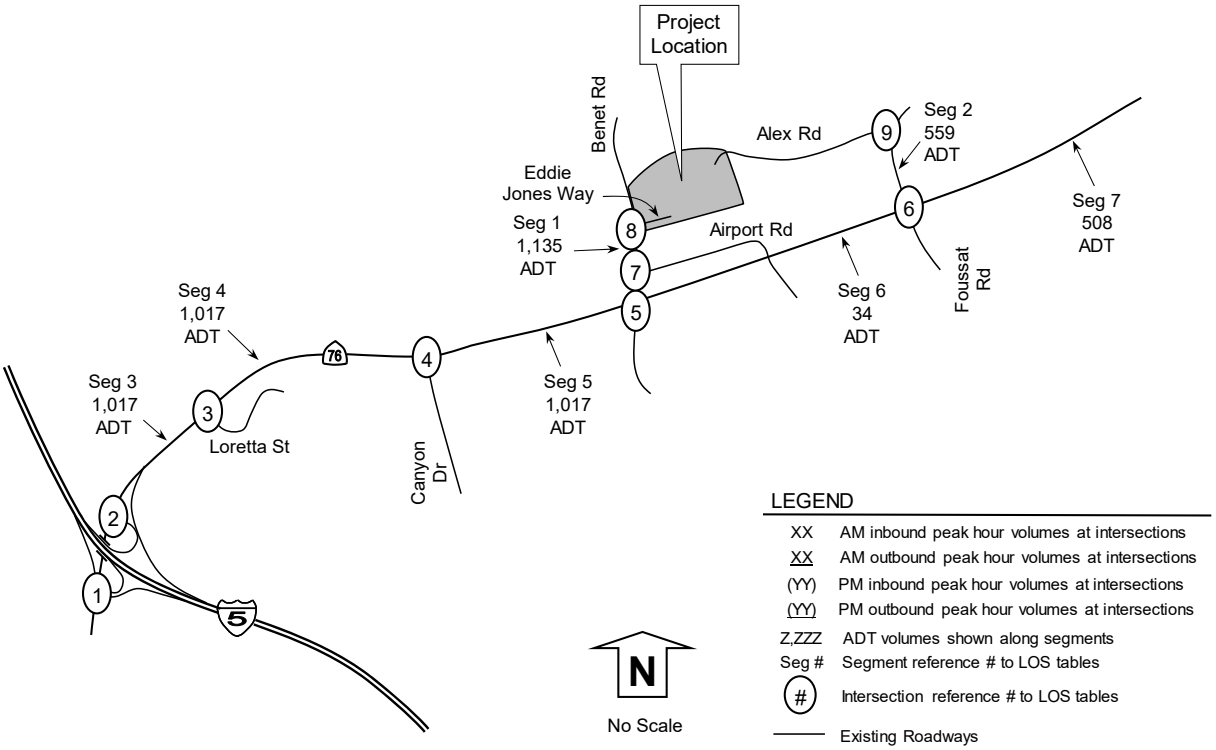
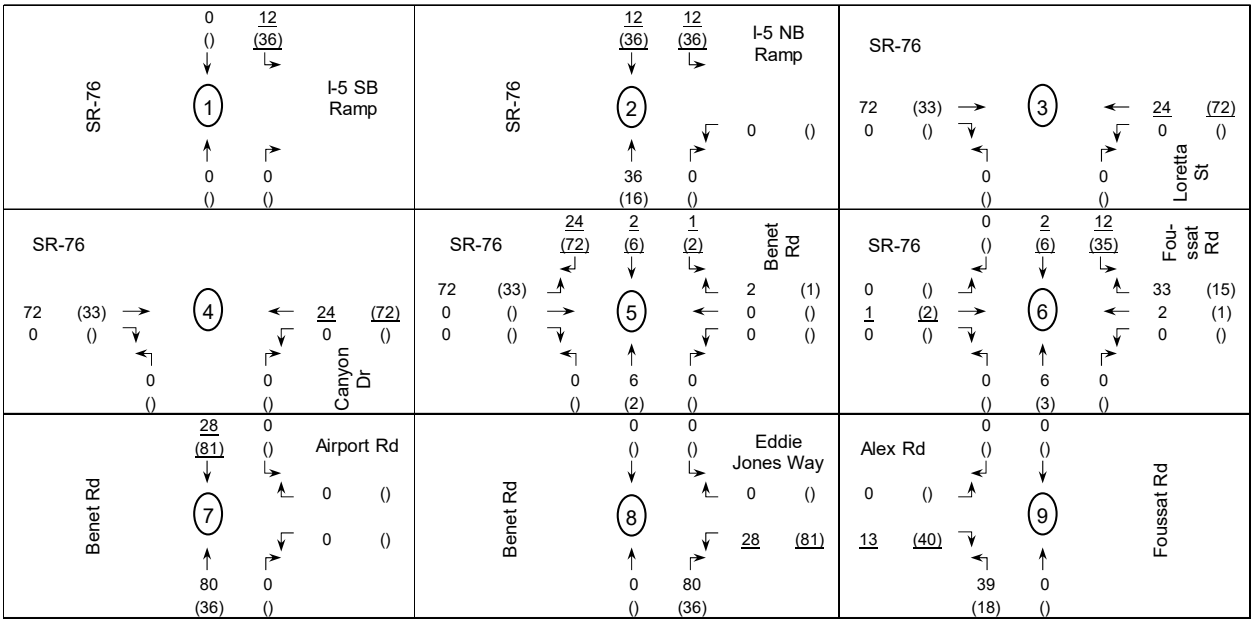


Figure 9: Project Volumes





3.6 Construction Traffic Generation

Construction traffic includes, without limitation, haul trips, deliveries, and workers based on the different construction phases. Hours of construction will adhere to the City's permitted hours for construction operations. The number of construction workers and trucks are from the California Emissions Estimator Model (CalEEMod) and were provided by Dudek.

Construction workers will use the project driveway on Benet Rd and on Alex Rd while construction trucks will only the project driveway on Benet Rd. Construction parking will occur on-site.

The overall project construction is forecasted to require up to 12 months. Two specific construction phases have the highest concentration of construction workers and trucks as described below.

The grading phase has up to 10 daily workers and up to 30 daily vendor and haul trucks. A Passenger Car Equivalent (PCE) is used to convert a mixed stream of cars and construction trucks to a single uniform PCE stream for analysis. However, a construction truck PCE is applied only to the segment ADT analysis and not the intersection peak hour analysis because the intersection analysis already incorporates a heavy vehicle factor. According to the HCM, adding a PCE to a simulation analysis that already accounts for heavy vehicles (such as the intersection analysis) would result in duplicative adjustments. A PCE factor of 2 (based on the HCM 6th Edition Exhibit 12-25 for level terrain) is applied to the 30 vendor and haul trucks resulting in 120 construction truck ADT ((30 inbound + 30 outbound) x PCE of 2). The combined worker 20 ADT (10 x 2) and 120 truck ADT results in a total of 140 construction ADT during the grading phase over a period of approximately 2 months.

The building phase has up to 280 daily workers and up to 109 daily vendors/deliveries. A PCE factor of 2 (based on level terrain) is applied to the 109 vendor/delivery construction trucks resulting in 436 truck ADT ((109 inbound + 109 outbound) x PCE of 2). The combined worker 560 ADT (280 x 2) and 436 truck ADT results in a total of 996 construction ADT during the building phase over a period of approximately 5-6 months.

Construction work does not start until 7 AM; however, workers arrive before 7 AM for pre-work task meetings and/or coordination. Since workers arrive before 7 AM, there will not be construction worker traffic added to the 7-9 AM peak hour analysis; however, there will be deliveries and to account for an occasional late worker (estimated at 5 during the grading phase and 10 during the building phase), there are construction related trips during the AM peak hour. The construction workers will typically leave around 3:30 PM; however, a few workers (estimated at 5 during the grading phase and 10 during the building phase) may stay late due to unforeseeable circumstances, which is not anticipated to occur on a regular basis. To account for the unforeseeable circumstances, the estimated number of workers staying later is also added to the PM peak hour. Work is anticipated to occur Monday through Friday. There may be some limited weekend construction work, which would adhere to City of Oceanside ordinances; however, this is not anticipated to occur on any regular basis.

As shown in **Table 9**, the highest number of construction workers, deliveries, and haul trips occur during the building phase and are forecasted at 996 ADT, 38 AM peak hour trips, and 38 PM peak hour trips.

TABLE 9: PROJECT CONSTRUCTION TRAFFIC GENERATION (HIGHEST PHASE)

Construction Phase Name	Approximate Duration by Phase	Daily On-Site Construction Workers	Daily Haul or Delivery Trucks	Truck ADT with PCE Conversion	Total ADT	AM Pk Hr 1hr btw 7-9 IN	AM Pk Hr 1hr btw 7-9 OUT	PM Pk Hr 1hr btw 4-6 IN	PM Pk Hr 1hr btw 4-6 OUT
Grading	around 2 months	up to 10	30	120	140	9	4	4	9
Building	up to 6 months	up to 280	109	436	**996**	**24**	**14**	**14**	**24**
				Maximums:	***996***	***24***	***14***	***14***	***24***

Daily and peak hour data based on client provided data based on similar facilities. PCE: Passenger Car Equivalent of 2.0 (based on level terrain) applied to daily truck trips. ADT: Average Daily Traffic.

The ADT, AM, and PM peak hour construction trips are less than what was analyzed for the project; therefore, no further construction traffic analysis is necessary.

3.7 Existing plus Project Conditions

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

TABLE 10: EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and	Movement	Study	Existing		Existing + Project			
(Analysis)[1]		Period	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Impact?[5]
1) SR-76 at	All	AM	11.2	B	11.3	B	0.1	No
I-5 SB Ramp (S)	All	PM	10.4	B	10.6	B	0.2	No
2) SR-76 at	All	AM	9.4	A	9.5	A	0.1	No
I-5 NB Ramp (S)	All	PM	8.0	A	8.7	A	0.7	No
3) SR-76 at	All	AM	23.9	C	24.9	C	1.0	No
Loretta St (S)	All	PM	22.8	C	23.7	C	0.9	No
4) SR-76 at	All	AM	9.7	A	9.8	A	0.1	No
Canyon Dr (S)	All	PM	15.2	B	15.3	B	0.1	No
5) SR-76 at	All	AM	45.8	D	53.2	D	7.4	No
Benet Rd (S)	All	PM	37.8	D	48.7	D	10.9	No
6) SR-76 at	All	AM	33.3	C	34.2	C	0.9	No
Foussat Rd (S)	All	PM	34.8	C	35.8	D	1.0	No
7) Benet Rd at	WB	AM	9.7	A	10.3	B	0.6	No
Airport Rd (U)	WB	PM	10.0	B	10.5	B	0.5	No
8) Benet Rd at	WB	AM	9.9	A	11.1	B	1.2	No
Eddie Jones Way (U)	WB	PM	10.6	B	11.5	B	0.9	No
9) Foussat Rd at	EB	AM	10.5	B	10.5	B	0.0	No
Alex Rd (U)	EB	PM	9.6	A	9.7	A	0.1	No

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

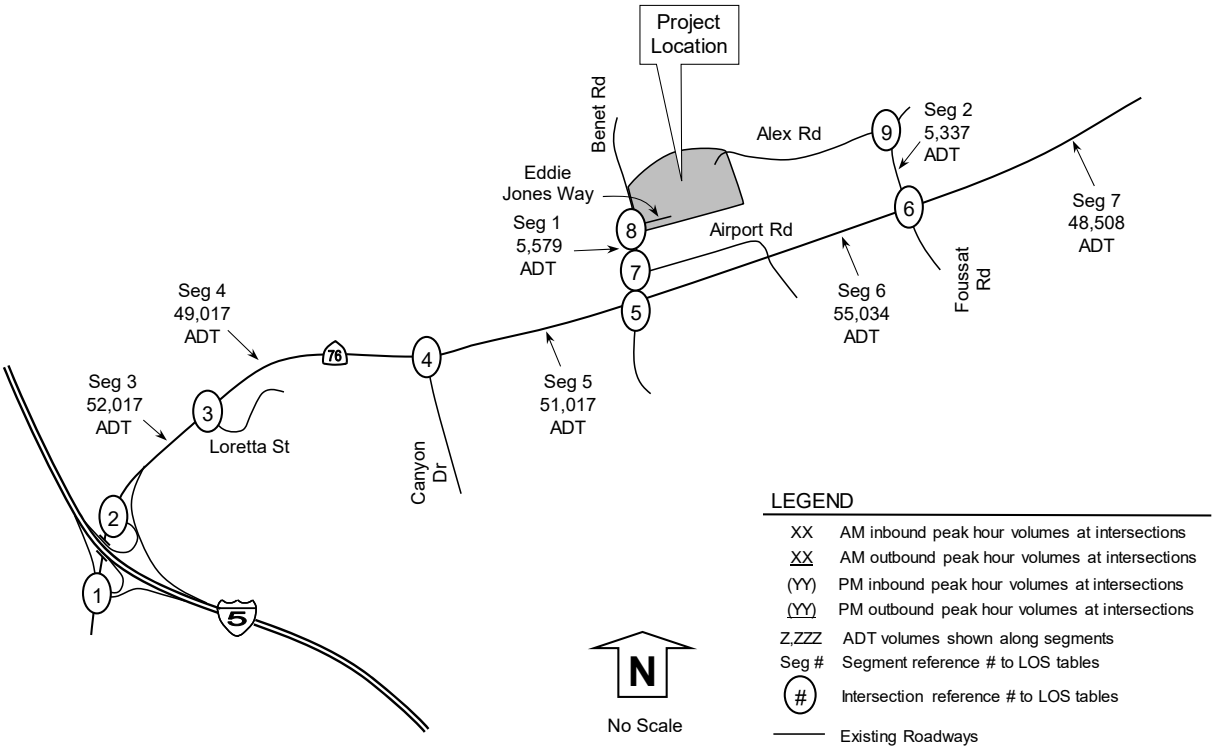
TABLE 11: EXISTING PLUS PROJECT SEGMENT LEVEL OF SERVICE

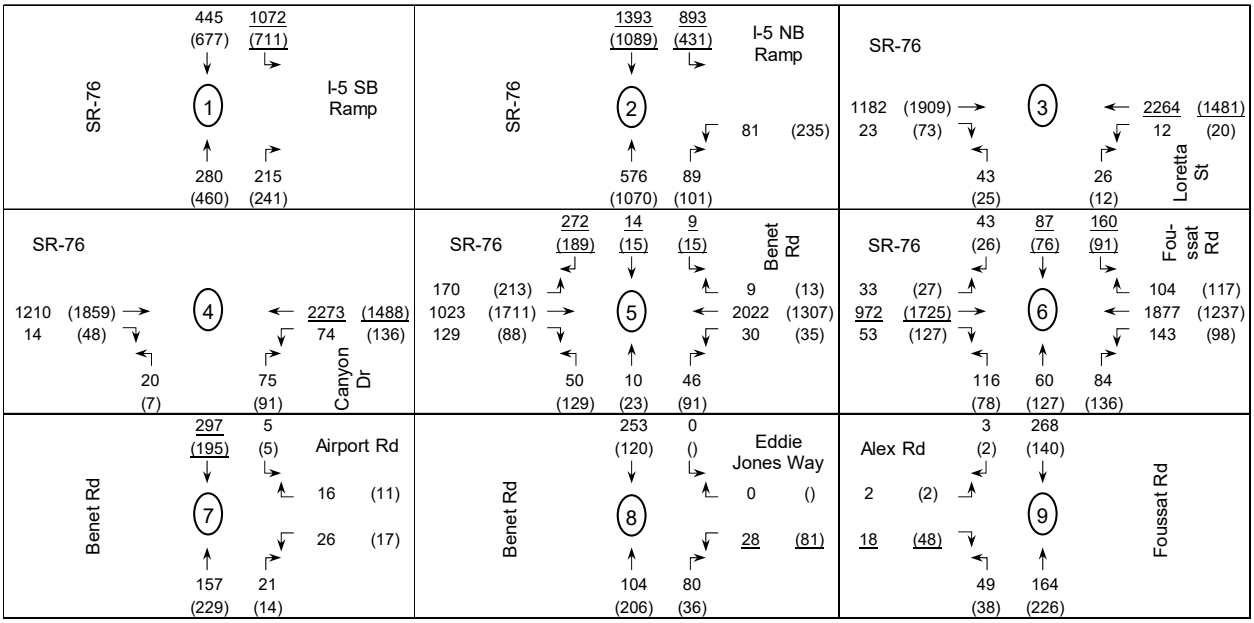
Segment	Functional Classification	LOS E Capacity	Existing			Project	Existing + Project				
			Daily Volume	V/C	LOS	Daily Volume	Daily Volume	V/C	LOS	Change in V/C	Impact ?
Benet Road											
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,444	0.444	B	1,135	5,579	0.558	C	0.114	No
Foussat Rd											
2) Alex Rd to SR-76	2 Lane Collector	10,000	4,778	0.478	B	559	5,337	0.534	B	0.056	No
State Route 76											
3) I-5 to Loretta St	5 Lane Expressway	70,000	51,000	0.729	C	1,017	52,017	0.743	C	0.015	No
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	48,000	0.800	C	1,017	49,017	0.817	C	0.017	No
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	50,000	0.833	D	1,017	51,017	0.850	D	0.017	No
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	55,000	0.917	**E**	34	55,034	0.917	**E**	0.001	No
7) East of Foussat Rd	4 Lane Expressway	60,000	48,000	0.800	C	508	48,508	0.808	C	0.008	No

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

Under Existing plus Project conditions, the study elements are calculated to operate at LOS D or better except for segment #6: SR-76 from Benet Rd to Foussat Rd (LOS E). The project will not result in traffic impacts as defined in the Traffic Guidelines; therefore, no off-site improvements are necessary.

Figure 10: Existing plus Project Volumes





3.8 Cumulative Projects

Cumulative projects are other proposed projects within the study area that once completed will add traffic to the study roadways. The following cumulative projects are anticipated to add traffic to the study area.

1) Airport Hotel: a hotel project with 86 rooms to be located on the southwest corner of SR-76 and Airport Rd. The project is calculated to generate 688 daily trips with 34 AM peak hour trips, and 48 PM peak hour trips. The Airport Hotel trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

2) Airport Road Industrial: Industrial buildings totaling 20,007 sf located at 555 Airport Rd. The project is calculated to generate 160 daily trips with 18 AM peak hour trips, and 19 PM peak hour trips. The project assignment is included in **Appendix I**.

3) Alta Oceanside: a mixed-use project with 309 multi-family units and 5,800 sf of high-turnover restaurant located on the west side of North Coast Highway adjacent to Costa Pacifica Way. According to the traffic study prepared by Dudek (2020), this cumulative project is calculated to generate 2,504 daily trips with 199 AM peak hour trips, and 202 PM peak hour trips. Excerpts from the Alta traffic study are included in **Appendix I**.

4) Concordia Collection at Cypress Point: a residential subdivision with 54 homes to be located at the terminus of Pala Road and Los Arbolitos Blvd. According to the traffic study prepared by LLG (2020), this cumulative project is calculated to generate 540 daily trips with 42 AM peak hour trips, and 53 PM peak hour trips. The Concordia Collection trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

5) 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 15,498 daily trips with 715 AM trips and 1,534 PM trips. The El Corazon trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

6) Liberty RV and Boat Storage: a 2.13 acre storage facility located at 507 Jones Rd. The project is calculated to generate 64 daily trips with 4 AM peak hour trips, and 6 PM peak hour trips. The project assignment is included in **Appendix I**.

7) Melrose Heights: a mixed-use project with 313 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 121 AM peak hour trips, and 150 PM peak hour trips. The Oceanside + Melrose trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

8) Mission Flats: a mixed-use project with approximately 137 apartment units, up to 4,200 square feet of retail/commercial space, and other supporting amenities on a 4.73-acre site located on 3907 Mission Avenue in the City of Oceanside. According to the traffic study prepared by Dudek (2020), this cumulative project is calculated to generate 990 daily trips with 71 AM peak hour trips, and 89 PM peak hour trips. The trip assignment was obtained from the Mission Flats traffic study with excerpts included in **Appendix I**.

9) Modera Melrose: a mixed-use project with up to 324 apartments and 2,338 sf of local serving retail located on the southeast corner of Oceanside Blvd at N. Melrose Drive. According to the traffic study prepared by LLG (2022), this cumulative project is calculated to generate 2,038 daily trips with 159 AM peak hour trips, and 183 PM peak hour trips. The trip assignment was obtained from the Modera Melrose traffic study with excerpts included in **Appendix I**.

10) Modera Neptune: a mixed-use project with 62 hotel guestrooms and 360 residential units located west of the N. Coast Highway / SR-76 intersection. According to the traffic study prepared by LLG (2022), this cumulative project is calculated to generate 1,966 net daily trips with 157 AM peak hour trips, and 177 PM peak hour trips. The trip assignment was obtained from the Modera Neptune traffic study with excerpts included in **Appendix I**.

11) Nitto Denko Building Addition: an addition of 16,500 sf of Research and Development use located at 501 Via del Monte. The project is calculated to generate 132 daily trips with 21 AM peak hour trips, and 19 PM peak hour trips. The project assignment is included in **Appendix I**.

12) 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 562 AM peak hour trips, and 777 PM peak hour trips. Please note that this cumulative project is included based on the May 2021 Superior Court ruling upholding the project approval and to keep the analysis more conservative. Excerpts from the North River Farms traffic study are included in **Appendix I**.

13) Ocean Kamp: a mixed use project with 700 residential units, a 300 room hotel, approximately 126,000 sf of retail/commercial uses, and a wave lagoon. According to the traffic study prepared by LLG (2021), this cumulative project is calculated to generate 19,040 daily trips with 1,057 AM peak hour trips, and 1,834 PM peak hour trips. Excerpts from the Ocean Kamp traffic study are included in **Appendix I**.

14) 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. The Oceanpointe trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

15) Onpoint Oceanside: a commercial center with a gas station including 3,000 sf food mart and car wash, 7,980 sf retail space, 2,500 sf fast food restaurant space, and 2,320 sf high turnover restaurant space generally located on the southwest corner of SR-76 at Foussat Rd. According to the traffic study prepared by Kimley Horn (2019), this cumulative project is calculated to generate 5,068 daily trips with 213 AM peak hour trips, and 273 PM peak hour trips. The Onpoint Oceanside trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

16) Rio Rockwell: a residential project with 104 homes located near Old Grove Rd at Frazee Rd. According to the traffic study prepared by LLG (2020), this cumulative project is calculated to generate 932 daily trips with 75 AM peak hour trips, and 93 PM peak hour trips. The trip assignment was obtained from the Rio Rockwell traffic study with excerpts included in **Appendix I**.

17) Tierra Norte Residential Development Plan: a residential project with up to 400 homes located at 4617 and 4665 N. River Rd. According to the traffic study prepared by LOS Engineering, Inc. (2021), this cumulative project is calculated to generate 3,200 daily trips, 256 AM peak hour trips, and 320 PM peak hour trips. The Tierra Norte trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**. Please note that Tierra Norte was previously referred to as North River Road Residential Subdivision (Kawano-Nagata) and is referenced as such in the Ocean Kamp traffic study from which this cumulative trip assignment was obtained.

18) Villas at Mission San Luis Rey: a 222-unit retirement community to be located on the north side of Mission Ave between Douglas Dr and Rancho Del Oro. According to a traffic study prepared by Darnell & Associates, this cumulative project is calculated to generate 694 daily trips with 32 AM peak hour trips, and 49 PM peak hour trips. The Villas at Mission San Luis Rey trip assignment was obtained from the Ocean Kamp traffic study cumulative project section with excerpts included in **Appendix I**.

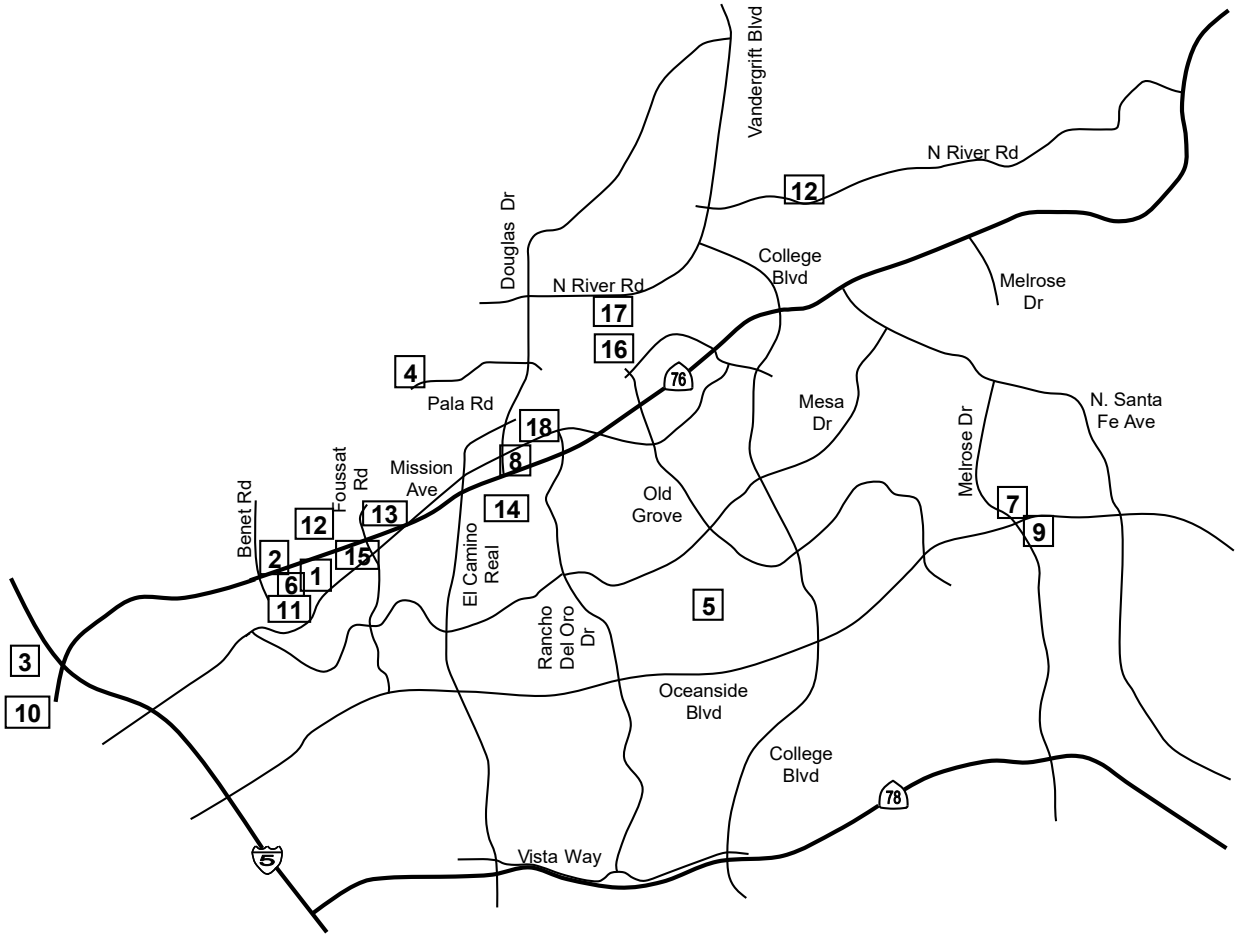
The traffic generated from the proposed cumulative projects is summarized in **Table 12**:

TABLE 12: CUMULATIVE PROJECT TRAFFIC GENERATION

Cumulative Project	ADT	AM Peak Hour Trips	PM Peak Hour Trips
1) Airport Hotel (86 rooms), from Ocean Kamp traffic study	688	34	48
2) Airport Rd Industrial (20,007 sf)	160	18	19
3) Alta Oceanside (mixed use), from Alta traffic study	2,504	199	202
4) Concordia Collection (54 homes), from Ocean Kamp traffic study	540	42	53
5) El Corazon (mixed use), from Ocean Kamp traffic study	15,498	715	1,534
6) Liberty RV and Boat Storage (2.13 acres)	64	4	6
7) Melrose Heights (mixed use), from LLG traffic study	4,059	121	150
8) Mission Flats (mixed use), from Dudek traffic study	990	71	89
9) Modera Melrose (mixed use), from LLG traffic study	2,038	159	183
10) Modera Neptune (mixed use), from LLG traffic study	1,966	157	177
11) Nitto Denko Addition 16,500 sf Research and Development	132	21	19
12) North River Farms (mixed use), from North River Farms traffic study	7,921	562	777
13) Ocean Kamp (mixed use), from Ocean Kamp traffic study	19,040	1,057	1,834
14) Oceanpointe Development (200 multi-family homes), from Ocean Kamp traffic study	1,600	128	160
15) Onpoint Oceanside (commercial center), from Ocean Kamp traffic study	5,068	213	273
16) Rio Rockwell (104 homes), from LLG traffic study	932	75	93
17) Tierra Norte (400 homes), from Ocean Kamp traffic study	3,200	256	320
18) Villas at Mission San Luis Rey (222 retirement homes), from Ocean Kamp traffic study	694	32	49
TOTALS	**67,094**	**3,864**	**5,986**

The cumulative project locations are shown in **Figure 11.** The Ocean Kamp cumulative project is proposing roadway and access improvements along Foussat Rd and SR-76. Ocean Kamp's improvements along Foussat Rd were included in the near-term roadway conditions as these improvements are within the City of Oceanside jurisdiction and required for their access. Ocean Kamp's SR-76 proposed improvements on SR-76 were not included as this is within Caltrans' jurisdiction and cannot be assured to be implemented. The near-term roadway conditions are shown in **Figure 12**. The cumulative project traffic volumes are shown in **Figure 13**.

Figure 11: Cumulative Project Locations



LEGEND

Cumulative Projects:

1) Airport Hotel
2) Airport Rd Industrial
3) Alta Oceanside
4) Concordia Collection
5) El Corazon
6) Liberty RV and Boat Storage
7) Melrose Heights
8) Mission Flats
9) Modera Melrose
10) Modera Neptune
11) Nitto Denko
12) N. River Farms
13) Ocean Kamp
14) Oceanpointe
15) Onpointe Oceanside
16) Rio Rockwell
17) Tierra Norte
18) Villas at Mission San Luis Rey

N

No Scale

Figure 12: Near-Term Roadway Conditions with Cumulative Project Improvements

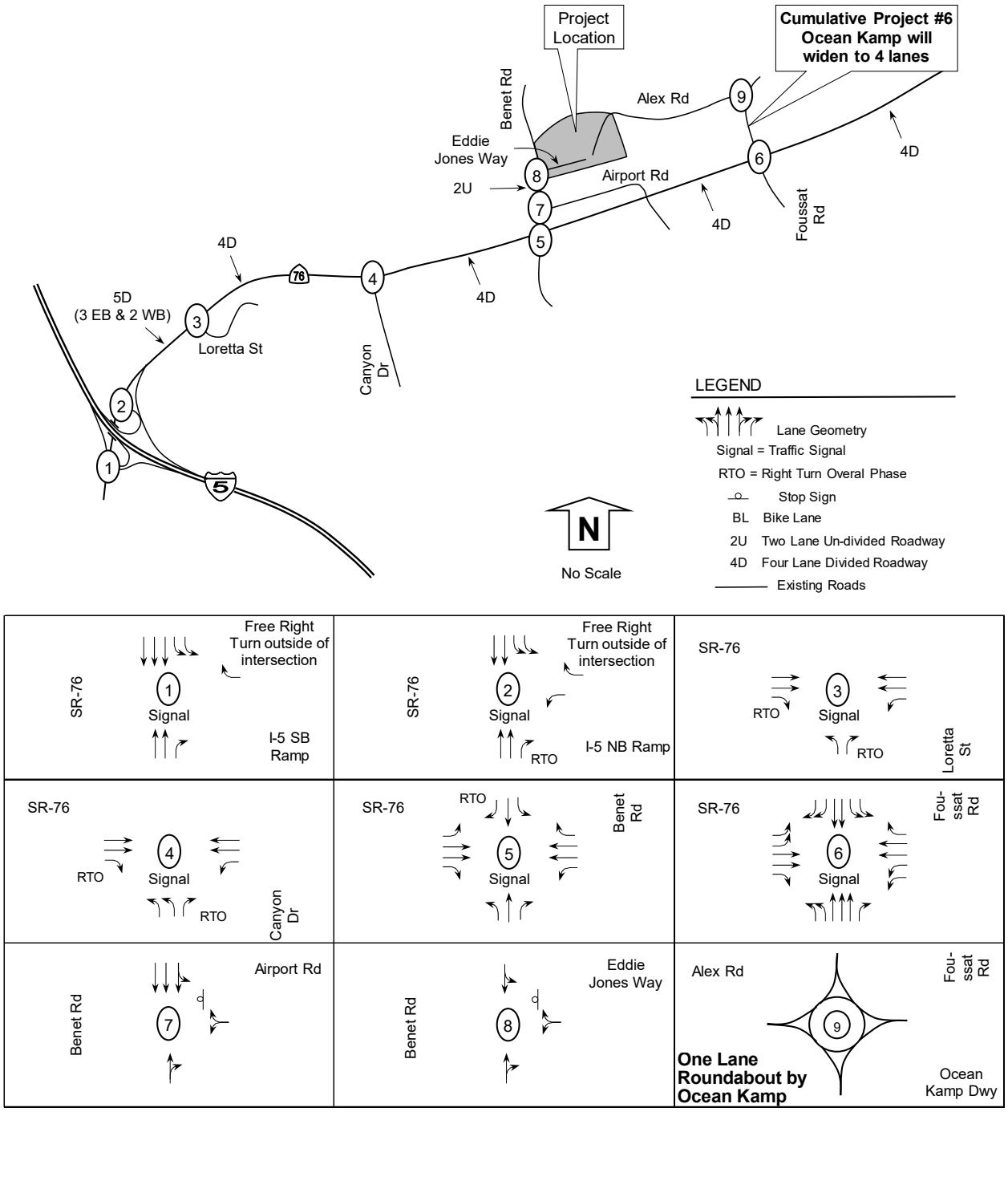
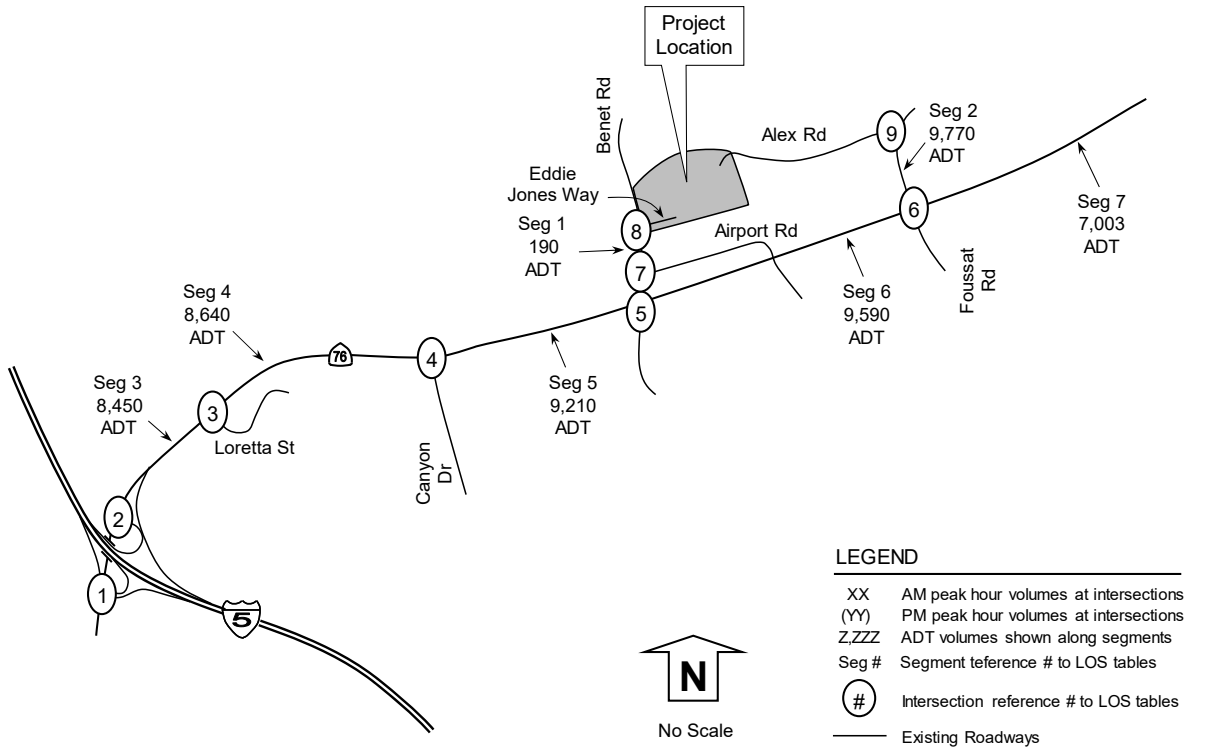
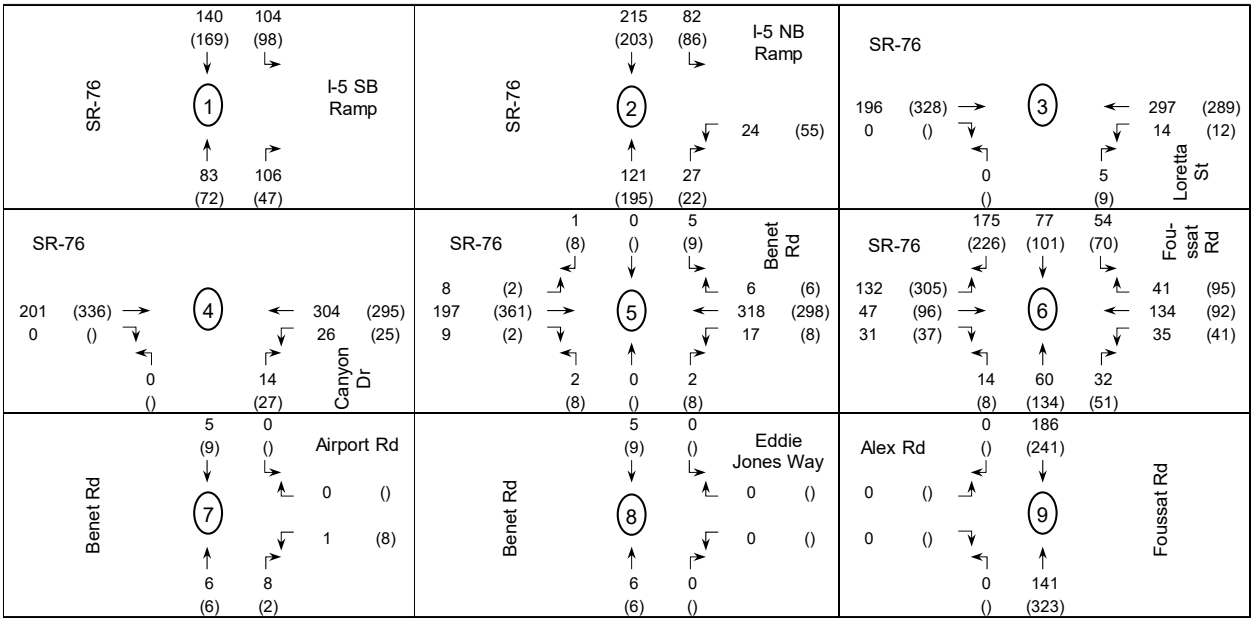


Figure 13: Cumulative Project Volumes





3.9 Near Term (Existing + Cumulative) Conditions

This scenario analyzes the addition of cumulative project traffic onto the existing traffic for AM peak hour, PM peak hour, and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario are shown in **Figure 14**. The intersection LOS calculated with the addition of cumulative traffic is shown in **Table 13** with segment LOS shown in **Table 14.** Intersection LOS worksheets are included in **Appendix J**. Please note the cumulative project Ocean Kamp is proposing a roundabout at intersection #9 (Foussat Rd/Alex Rd) and widening Foussat Rd, which are incorporated in the LOS calculations below.

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

Intersection and (Analysis)[1]	Movement	Peak Hour	Near Term (Existing + Cumulative) Delay[2]	LOS[3]
1) SR-76 at	All	AM	14.2	B
I-5 SB Ramp (S)	All	PM	11.6	B
2) SR-76 at	All	AM	10.0	B
I-5 NB Ramp (S)	All	PM	10.7	B
3) SR-76 at	All	AM	49.6	D
Loretta St (S)	All	PM	45.3	D
4) SR-76 at	All	AM	13.1	B
Canyon Dr (S)	All	PM	20.1	C
5) SR-76 at	All	AM	91.6	**F**
Benet Rd (S)	All	PM	57.8	**E**
6) SR-76 at	All	AM	57.3	**E**
Foussat Rd (S)	All	PM	58.5	**E**
7) Benet Rd at	WB	AM	9.7	A
Airport Rd (U)	WB	PM	10.2	B
8) Benet Rd at	WB	AM	9.9	A
Eddie Jones Way (U)	WB	PM	10.7	B
9) Foussat Rd at	All	AM	6.8	A
Alex Rd (Roundabout)	All	PM	10.7	B

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. DNE: Does Not Exist. NA: Not Applicable.

TABLE 14: NEAR TERM (EXISTING + CUMULATIVE) SEGMENT LEVEL OF SERVICE

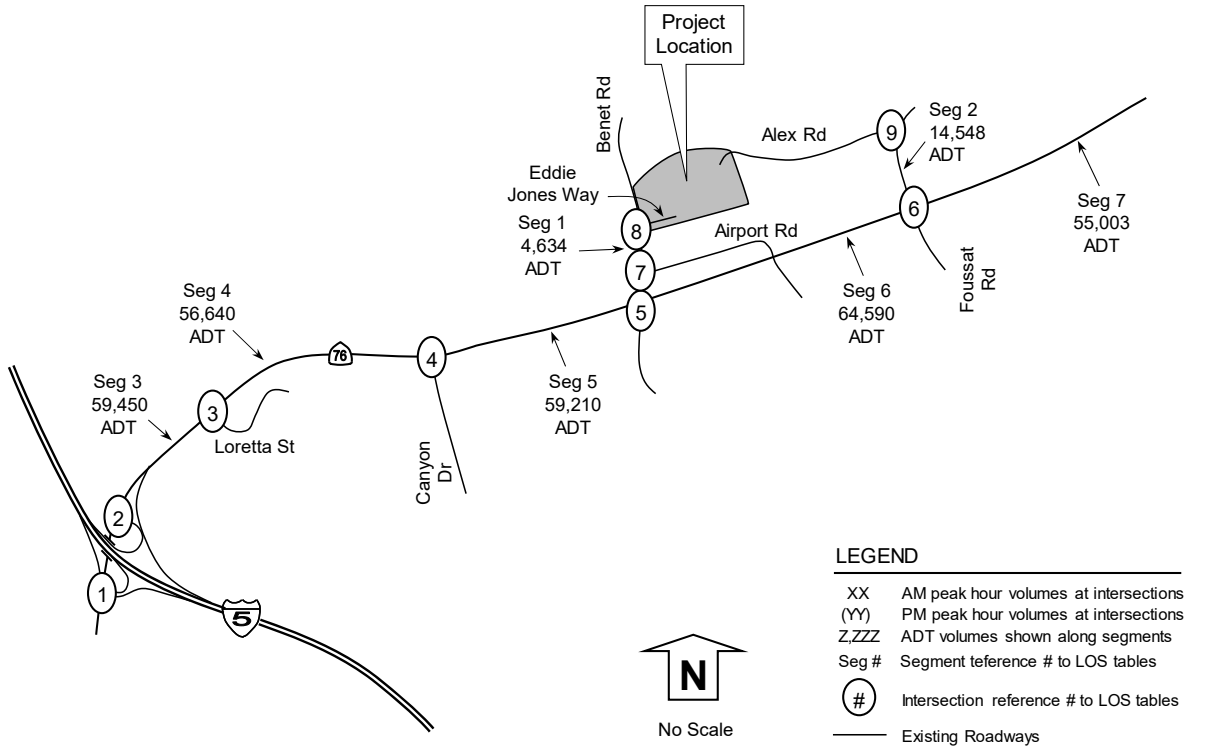
Segment	Current Classification	LOS E Capacity	Near-Term (E+C) Daily Volume	V/C	LOS
Benet Road					
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,634	0.463	B
Foussat Rd					
2) Alex Rd to SR-76	4 Lane Secondary Collector	25,000	14,548	0.582	C
State Route 76					
3) I-5 to Loretta St	5 Lane Expressway	70,000	59,450	0.849	D
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	56,640	0.944	**E**
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	59,210	0.987	**E**
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	64,590	1.077	**F**
7) East of Foussat Rd	4 Lane Expressway	60,000	55,003	0.917	**E**

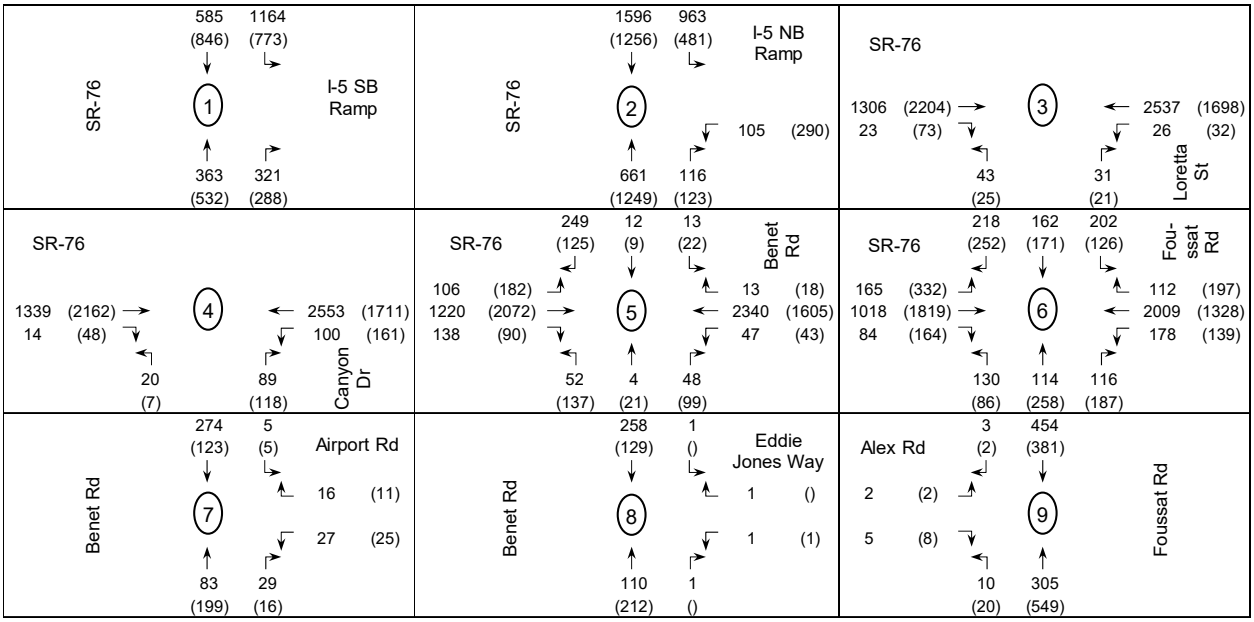
Notes: Daily volume is a 24 hour volume. LOS: Level of Service. V/C: Volume to Capacity Ratio.

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

1) Intersection #5: SR-76/Benet Rd
2) Intersection #6: SR-76/Foussat Rd
3) Segment #4: SR-76 from Loretta St to Canyon Dr
4) Segment #5: SR-76 from Canyon Dr to Benet Rd
5) Segment #6: SR-76 from Benet Rd to Foussat Rd
6) Segment #7: SR-76 east of Foussat Rd

Figure 14: Near Term (Existing + Cumulative) Volumes





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 peak hour, PM peak hour, and daily traffic conditions. The peak hour intersection volumes and daily traffic volumes for this scenario are shown in **Figure 15**. The intersection LOS is shown in **Table 15** and the segment LOS is shown in **Table 16**. LOS worksheets are included in **Appendix K**.

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

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing + Cumulative Delay[2]	Existing + Cumulative LOS[3]	Existing + Cumulative + Project Delay[2]	Existing + Cumulative + Project LOS[3]	Delta[4]	Impact[5]
1) SR-76 at	All	AM	14.2	B	14.3	B	0.1	No
I-5 SB Ramp (S)	All	PM	11.6	B	11.8	B	0.2	No
2) SR-76 at	All	AM	10.0	B	10.2	B	0.2	No
I-5 NB Ramp (S)	All	PM	10.7	B	12.8	B	2.1	No
3) SR-76 at	All	AM	49.6	D	52.2	D	2.6	No
Loretta St (S)	All	PM	45.3	D	48.6	D	3.3	No
4) SR-76 at	All	AM	13.1	B	13.4	B	0.3	No
Canyon Dr (S)	All	PM	20.1	C	20.7	C	0.6	No
5) SR-76 at	All	AM	91.6	**F**	105.8	**F**	14.2	**Yes**
Benet Rd (S)	All	PM	57.8	**E**	85.5	**F**	27.7	**Yes**
6) SR-76 at	All	AM	57.3	**E**	57.6	**E**	0.3	No
Foussat Rd (S)	All	PM	58.5	**E**	58.8	**E**	0.3	No
7) Benet Rd at	WB	AM	9.7	A	10.4	B	0.7	No
Airport Rd (U)	WB	PM	10.2	B	10.7	B	0.5	No
8) Benet Rd at	WB	AM	9.9	A	11.7	B	1.8	No
Eddie Jones Way (U)	WB	PM	10.7	B	11.8	B	1.1	No
9) Foussat Rd at	All	AM	6.8	A	7.2	A	0.4	No
Alex Rd (Roundabout)	All	PM	10.7	B	11.0	B	0.3	No

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

TABLE 16: NEAR TERM (EXISTING + CUMULATIVE) PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Functional Classification	LOS E Capacity	Near-Term (E+C) Daily Volume	Near-Term (E+C) V/C	Near-Term (E+C) LOS	Project Daily Volume	Near-Term with Project (E+C+P) Daily Volume	Near-Term with Project (E+C+P) V/C	Near-Term with Project (E+C+P) LOS	Change in V/C	Impact ?
Benet Road											
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,634	0.463	B	1,135	5,769	0.577	C	0.114	No
Foussat Rd											
2) Alex Rd to SR-76	4 Ln Secondary Coll.	25,000	14,548	0.582	C	559	15,107	0.604	C	0.022	No
State Route 76											
3) I-5 to Loretta St	5 Lane Expressway	70,000	59,450	0.849	D	1,017	60,467	0.864	D	0.015	No
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	56,640	0.944	**E**	1,017	57,657	0.961	**E**	0.017	No
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	59,210	0.987	**E**	1,017	60,227	1.004	**F**	0.017	No
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	64,590	1.077	**F**	34	64,624	1.077	**F**	0.001	No
7) East of Foussat Rd	4 Lane Expressway	60,000	55,003	0.917	**E**	508	55,511	0.925	**E**	0.008	No

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

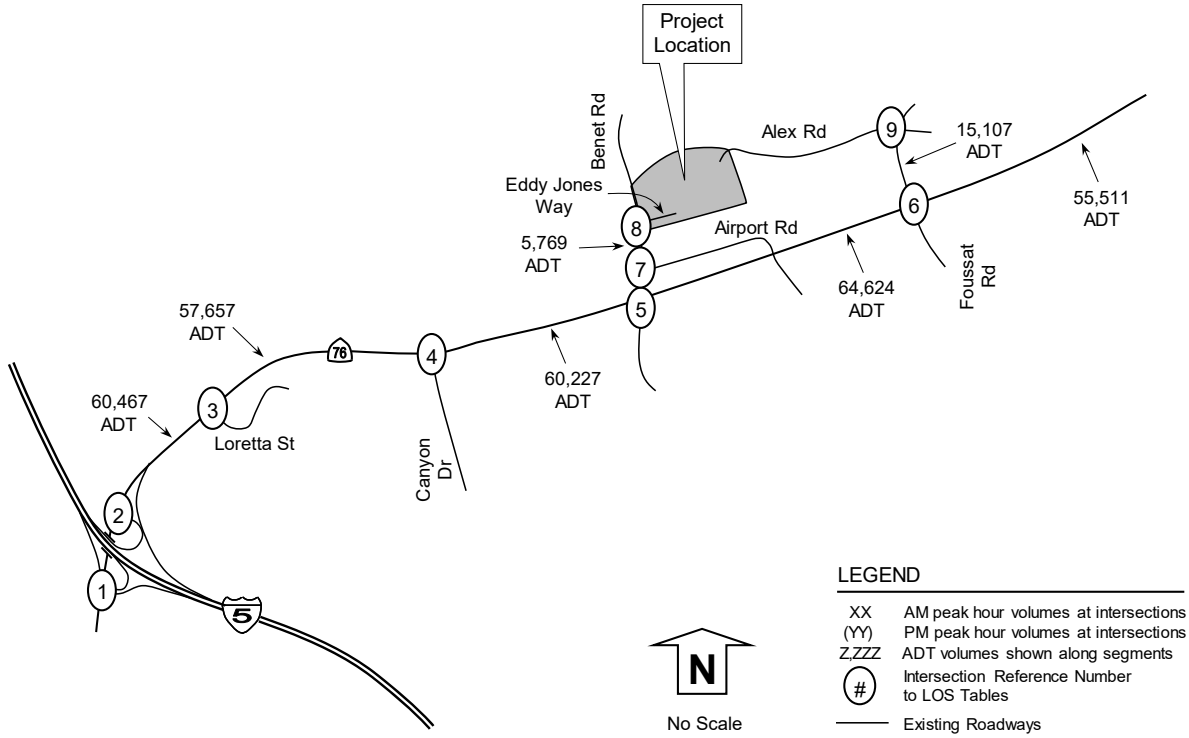
Under Near Term (Existing + Cumulative) plus Project conditions, the following study locations are calculated to operate at LOS E/F AND the project has a transportation impact:

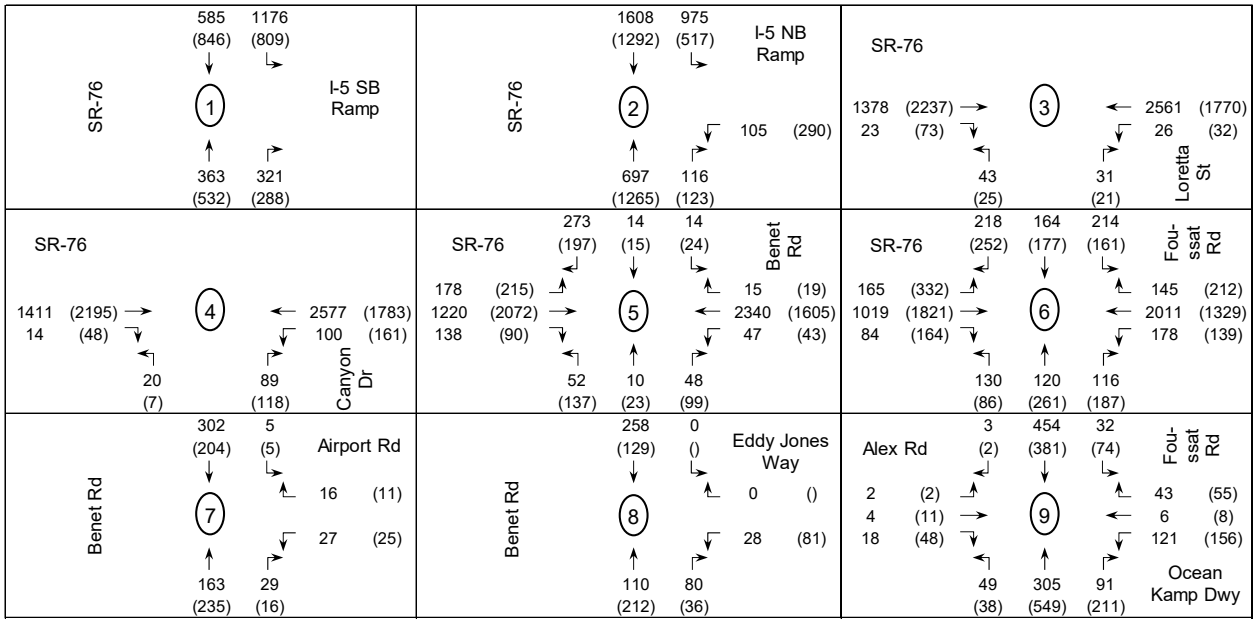
1) Intersection #5: SR-76/Benet Rd

The following study locations are calculated to operate at LOS E/F without impacts because the project traffic does not exceed the transportation impact thresholds defined in the Traffic Guidelines; therefore, no off-site improvements are necessary:

2) Intersection #6: SR-76/Foussat Rd
3) Segment #4: SR-76 from Loretta St to Canyon Dr
4) Segment #5: SR-76 from Canyon Dr to Benet Rd
5) Segment #6: SR-76 from Benet Rd to Foussat Rd
6) Segment #7: SR-76 east of Foussat Rd

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





3.11 Horizon Year 2030 Conditions

This scenario represents horizon year 2030 conditions based on SANDAG forecast segment volumes. Two sets of volumes were reviewed, which included the City of Oceanside Circulation Element Year 2030 Master Transportation Plan volumes and SANDAG Series 13 Year 2035 traffic model volumes. SANDAG does not provide a Series 13 Year 2030 volume; therefore, the closest Year 2035 volumes were applied.

Horizon year segment volumes were obtained from both the Circulation Element and the SANDAG Series 13 model. The applied horizon year volumes for this analysis are shown in **Table 17.** Horizon Year segment volumes are included in **Appendix L**.

TABLE 17: HORIZON YEAR ADT VOLUME SOURCES, ADJUSTMENTS, AND APPLICATION

Segment	Year & ADT	2030 City Circ. Series 11	2035 SANDAG Series 13	Horizon Year Applied ADT	Applied Horizon Year Change Over Existing
Benet Road	Year 2021				
1) Eddy Jones to SR-76	4,444	No Vol.	4,600	**4,700 ***	5.8%
Foussat Rd	Year 2021				
2) Alex Rd to SR-76	4,778	No Vol.	8,500	**14,600****	205.6%
State Route 76	Year 2019				
3) I-5 to Loretta St	50,000	60,700	SR-76	**60,700**	21.4%
4) Loretta St to Canyon Dr	45,000	60,700	volumes	**60,700**	34.9%
5) Canyon Dr to Benet Rd	46,500	65,900	lower than	**65,900**	41.7%
6) Benet Rd to Foussat Rd	46,500	65,900	existing, thus	**65,900**	41.7%
7) East of Foussat Rd	46,500	59,800	not used	**59,800**	28.6%
				SR-76 Average:	**33.7%**

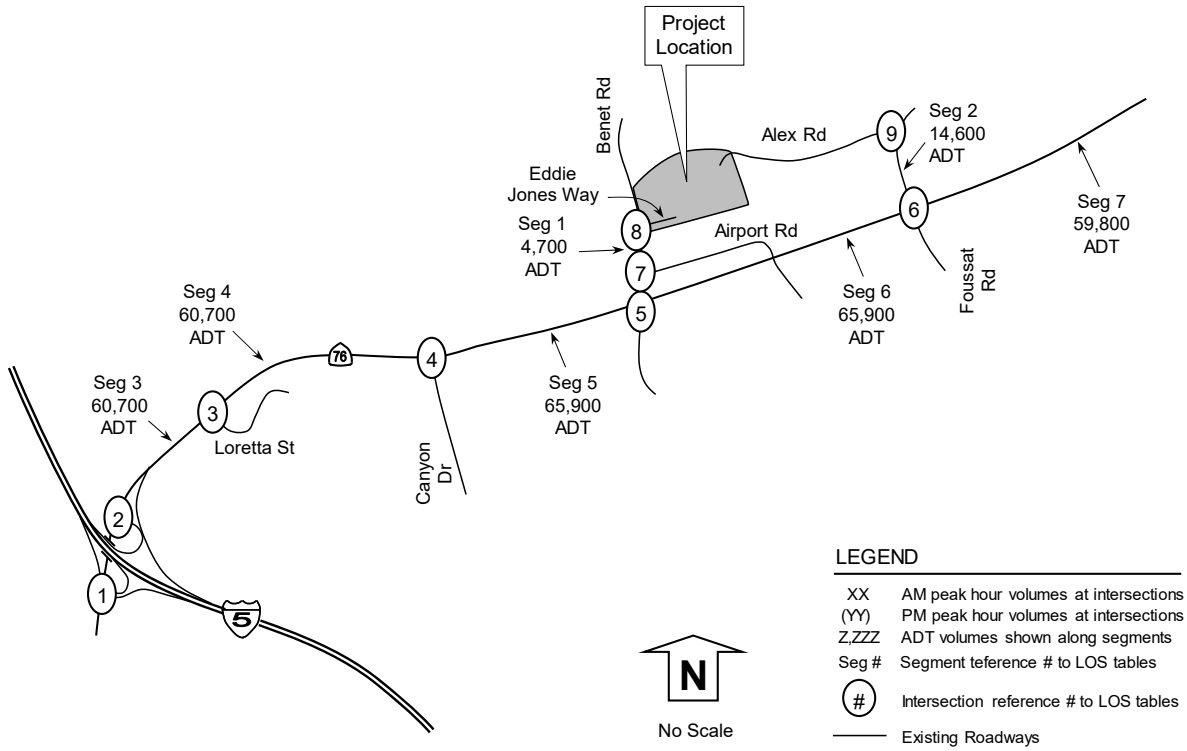
City Circ. = City Circulation Element. *Series 13 ADT of 4,600 increased to 4,700 to be higher than Existing + Cumulative ADT of 4,634. **Series 13 ADT of 8,500 increased to 14,600 to be higher than Existing + Cumulative ADT of 14,548.

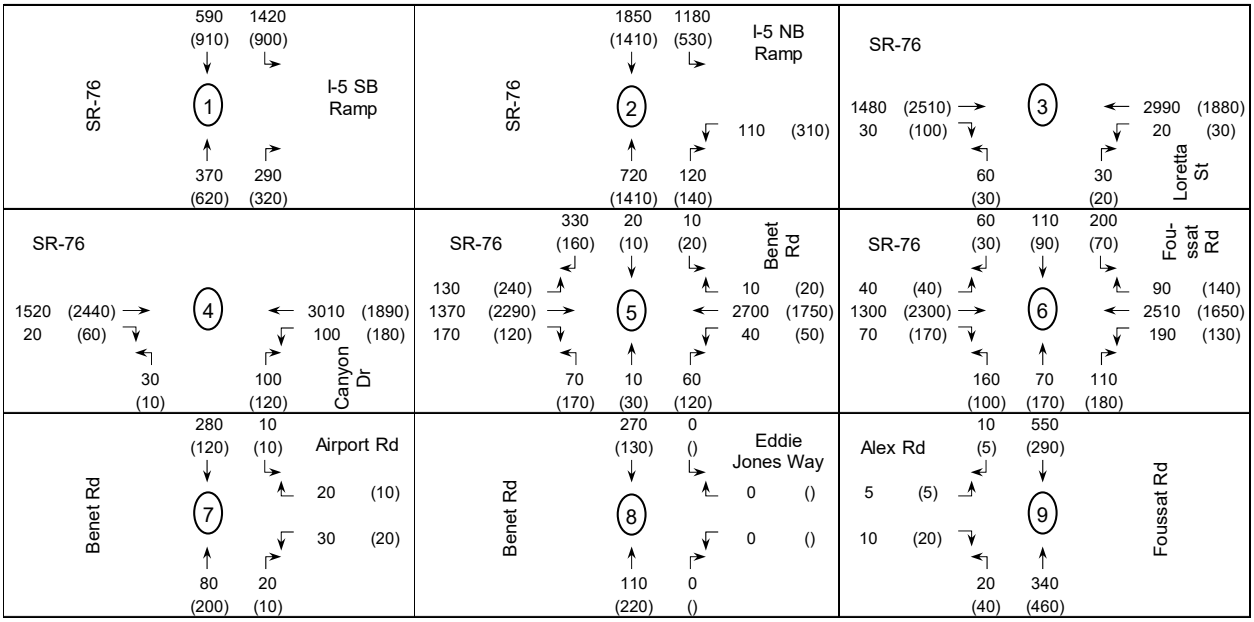
Horizon year 2030 intersection volumes were forecasted based on the growth factors noted in Table 19 by intersection location. For example, intersections along SR-76 (Int #1 thru #6) had existing volumes increased by an average growth factor of 33.7% to represent 2030 volumes. Intersections #7 and #8 had existing volumes increase by 5.8%. Intersection #9 had existing volumes increase by 205.6%. The applied growth factors for future intersection volumes are shown below.

1) SR-76/I-5 SB Ramps (33.7% growth)
2) SR-76/I-5 NB Ramps (33.7% growth)
3) SR-76/Loretta St (33.7% growth)
4) SR-76/Canyon Dr (33.7% growth)
5) SR-76/Benet Rd (33.7% growth)
6) SR-76/Foussat Rd (33.7% growth)
7) Benet Rd/Airport Rd (5.8% growth)
8) Benet Rd/Eddie Jones Way (5.8% growth)
9) Foussat Rd/Alex Rd (205.6% growth)

The horizon year 2030 peak hour intersection volumes and daily traffic volumes are shown in **Figure 16**.

Figure 16: Horizon Year 2030 Volumes





The Horizon Year 2030 scenario reflects the current roadway network with Ocean Kamp improvements planned along Foussat Rd that are required for their access as shown previously in Figure 12. The intersection LOS calculated is shown in **Table 18** with segment LOS shown in **Table 19.** Intersection LOS worksheets are included in **Appendix M**.

TABLE 18: HORIZON YEAR 2030 INTERSECTION LOS

Intersection and (Analysis)[1]	Movement	Study Period	Horizon Year 2030 Delay[2]	Horizon Year 2030 LOS[3]
1) SR-76 at	All	AM	16.3	B
I-5 SB Ramp (S)	All	PM	13.1	B
2) SR-76 at	All	AM	12.3	B
I-5 NB Ramp (S)	All	PM	14.5	B
3) SR-76 at	All	AM	106.2	**F**
Loretta St (S)	All	PM	80.1	**E**
4) SR-76 at	All	AM	45.3	D
Canyon Dr (S)	All	PM	40.1	D
5) SR-76 at	All	AM	183.7	**F**
Benet Rd (S)	All	PM	121.9	**F**
6) SR-76 at	All	AM	105.1	**F**
Foussat Rd (S)	All	PM	103.1	**F**
7) Benet Rd at	WB	AM	9.8	A
Airport Rd (U)	WB	PM	10.2	B
8) Benet Rd at	WB	AM	0.0	A
Eddy Jones Way (U)	WB	PM	0.0	A
9) Foussat Rd at	All	AM	8.2	A
Alex Rd (Roundabout)	All	PM	9.6	A

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

TABLE 19: HORIZON YEAR 2030 SEGMENT VOLUMES AND LOS

Segment	Applied Classification	LOS E Capacity	Horizon Year (2030) Daily Volume	V/C	LOS
Benet Road					
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,700	0.470	B
Foussat Rd					
2) Alex Rd to SR-76	4 Ln Secondary Coll.	10,000	14,600	1.460	C
State Route 76					
3) I-5 to Loretta St	5 Lane Expressway	70,000	60,700	0.867	D
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	60,700	1.012	**F**
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	65,900	1.098	**F**
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	65,900	1.098	**F**
7) East of Foussat Rd	4 Lane Expressway	60,000	59,800	0.997	**E**

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

Under Horizon Year 2030 conditions, the following study locations are calculated to operate at LOS E/F:

1) Intersection #3: SR-76/Loretta St
2) Intersection #5: SR-76/Benet Rd
3) Intersection #6: SR-76/Foussat Rd
4) Segment #4: SR-76 from Loretta St to Canyon Dr
5) Segment #5: SR-76 from Canyon Dr to Benet Rd
6) Segment #6: SR-76 from Benet Rd to Foussat Rd
7) Segment #7: SR-76 east of Foussat Rd

3.12 Horizon Year 2030 plus Project Conditions

This scenario documents the addition of project traffic onto Horizon Year 2030 conditions. The horizon year + project volumes are shown in **Figure 17**. The intersection LOS is shown in **Table 20** with segment LOS shown in **Table 21.** Intersection LOS worksheets are included in **Appendix N**.

TABLE 20: HORIZON YEAR 2030 PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and	Movement	Study	Horizon Year 2030		Horizon Year 2030 + Project			
(Analysis)[1]		Period	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Impact?[5]
1) SR-76 at	All	AM	16.3	B	16.5	B	0.2	No
I-5 SB Ramp (S)	All	PM	13.1	B	13.4	B	0.3	No
2) SR-76 at	All	AM	12.3	B	12.6	B	0.3	No
I-5 NB Ramp (S)	All	PM	14.5	B	17.8	B	3.3	No
3) SR-76 at	All	AM	106.2	**F**	107.9	**F**	1.7	No
Loretta St (S)	All	PM	80.1	**E**	81.5	**F**	1.4	No
4) SR-76 at	All	AM	45.3	D	47.5	D	2.2	No
Canyon Dr (S)	All	PM	40.1	D	43.2	D	3.1	No
5) SR-76 at	All	AM	183.7	**F**	202.1	**F**	18.4	**Yes**
Benet Rd (S)	All	PM	121.9	**F**	166.0	**F**	44.1	**Yes**
6) SR-76 at	All	AM	105.1	**F**	105.3	**F**	0.2	No
Foussat Rd (S)	All	PM	103.1	**F**	104.3	**F**	1.2	No
7) Benet Rd at	WB	AM	9.8	A	10.4	B	0.6	No
Airport Rd (U)	WB	PM	10.2	B	10.7	B	0.5	No
8) Benet Rd at	WB	AM	0.0	A	11.4	B	11.4	No
Eddy Jones Way (U)	WB	PM	0.0	A	11.7	B	11.7	No
9) Foussat Rd at	All	AM	8.2	A	8.7	A	0.5	No
Alex Rd (Roundabout)	All	PM	9.6	A	9.8	B	0.2	No

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

TABLE 21: HORIZON YEAR 2030 PLUS PROJECT SEGMENT LEVEL OF SERVICE

Segment	Applied Classification	LOS E Capacity	Horizon Year (2030) Daily Volume	V/C	LOS	Project Daily Volume	Horizon Year (2030) with Project Daily Volume	V/C	LOS	Change In V/C	Impact ?
Benet Road											
1) Eddy Jones to SR-76	2 Lane Collector	10,000	4,700	0.470	B	1,135	5,835	0.584	C	0.114	No
Foussat Rd											
2) Alex Rd to SR-76	4 Ln Secondary Coll.	25,000	14,600	0.584	C	559	15,159	0.606	C	0.022	No
State Route 76											
3) I-5 to Loretta St	5 Lane Expressway	70,000	60,700	0.867	D	1,017	61,717	0.882	D	0.015	No
4) Loretta St to Canyon Dr	4 Lane Expressway	60,000	60,700	1.012	**F**	1,017	61,717	1.029	**F**	0.017	No
5) Canyon Dr to Benet Rd	4 Lane Expressway	60,000	65,900	1.098	**F**	1,017	66,917	1.115	**F**	0.017	No
6) Benet Rd to Foussat Rd	4 Lane Expressway	60,000	65,900	1.098	**F**	34	65,934	1.099	**F**	0.001	No
7) East of Foussat Rd	4 Lane Expressway	60,000	59,800	0.997	**E**	508	60,308	1.005	**F**	0.008	No

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

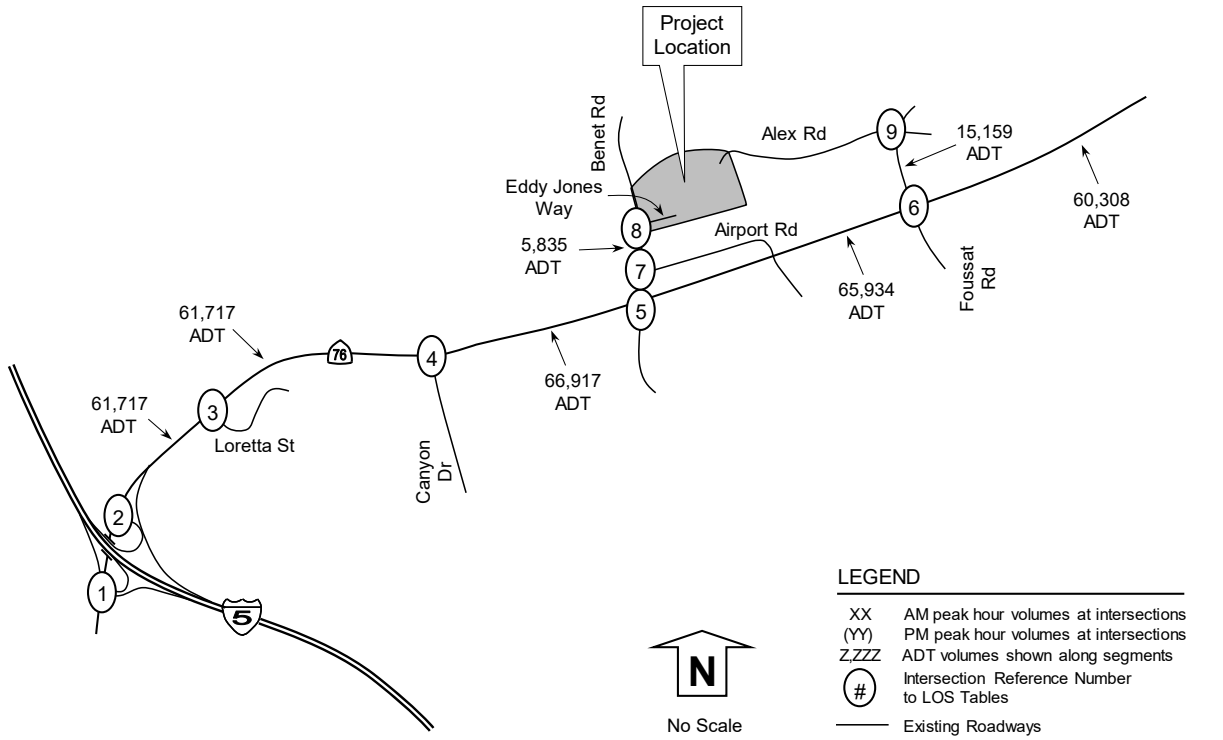
Under Horizon Year 2030 plus Project conditions, the following study location is calculated to operate at LOS E/F AND the project has a transportation impact:

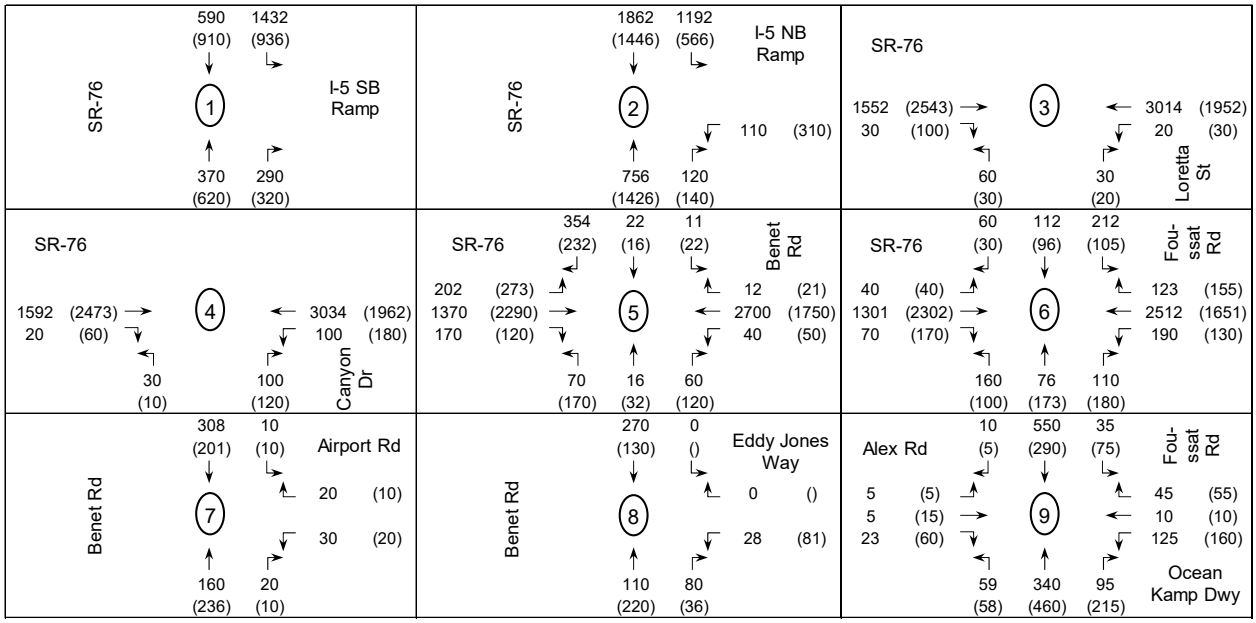
1) Intersection #5: SR-76/Benet Rd

The following locations are calculated to operate at LOS E/F without impacts because the project traffic does not exceed the transportation impact thresholds defined in the Traffic Guidelines; therefore, no off-site improvements are necessary:

2) Intersection #3: SR-76/Loretta St
3) Intersection #6: SR-76/Foussat R
4) Segment #4: SR-76 from Loretta St to Canyon Dr
5) Segment #5: SR-76 from Canyon Dr to Benet Rd
6) Segment #6: SR-76 from Benet Rd to Foussat Rd
7) Segment #7: SR-76 east of Foussat Rd

Figure 17: Horizon Year 2030 plus Project Volumes





3.13 Summary of Transportation Impacts and Necessary Improvements

Based on the City of Oceanside traffic significance criteria, the project is calculated to have a transportation impact under Near Term, and Horizon Year conditions as shown in **Table 22**.

TABLE 22: PROJECT TRANSPORTATION IMPACT BY SCENARIO

Intersection	Existing + Project	Near Term + Project	Horizon Year 2030 + Project
T-1 (Int #5): SR-76/Benet Rd	No Impact	Transportation Impact	Transportation Impact

Notes: Transportation impact if project traffic is calculated to exceed the allowable thresholds under LOS E or F conditions.

3.13.1 T-1: Intersection #5 SR-76/Benet Rd

The project impact is calculated to occur under near term (existing + cumulative) and horizon year conditions. The poor LOS at SR-76/Benet Rd is from cumulative project traffic being added to this intersection. Therefore, the proposed improvement is a fair share payment toward a future improvement based on the project's roughly proportional share of project traffic added to background traffic. Future improvements may include an adaptive signal system or converting the existing eastbound and westbound right turn lanes to a combination through-right lane resulting in three through lanes in each direction. With three through lanes in the eastbound and westbound directions, the intersection is calculated to operate at better than pre-project conditions as shown in **Table 23** for near term and horizon year conditions (LOS calculations included in **Appendix O**).

TABLE 23: INTERSECTION #5 SR-76/BENET RD OPERATIONS WITH IMPROVEMENT

Intersection and Scenario	Move-ment	Study Period	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delta[3]	Impact?[4]
Near Term + Project			*Without Improvement*			*With Improvement*		
5) SR-76 at	All	AM	105.8	**F**	25.7	C	-80.1	No
Benet Rd (S)	All	PM	85.5	**F**	43.0	D	-42.5	No
Horizon Year + Project			*Without Improvement*			*With Improvement*		
5) SR-76 at	All	AM	202.1	**F**	69.8	**E**	-132.3	No
Benet Rd (S)	All	PM	166.0	**F**	63.9	**E**	-102.1	No

Notes: (S) Traffic Signal. 1) Delay - HCM Average Control Delay in seconds. 2) LOS: Level of Service. 3) Delta is the increase in delay from project. 4) Impact if project traffic exceeds threshold.

The proposed mitigation at the intersection of SR-76/Benet Rd is a fair share payment of 8.5% towards the provisions of converting the existing eastbound and westbound right turn lanes to a combination through-right lane in the eastbound and westbound direction resulting in three through lanes in each direction. The fair share payment shall be paid to the City's Thoroughfare and Signal Account. The funds will be used at the City's discretion for projects that will improve traffic safety and mobility in the City of Oceanside. The fair share contribution shall be paid in full prior to issuance of any permit for any phase of any component of the Project. Payment of the fair share shall satisfy the Project's offsite improvement obligations. A conceptual drawing of the proposed improvement and fair share calculations are included in **Appendix P**.

4.0 Conclusion

This LTS determined if there were measurable transportation impacts based on the City of Oceanside local impact thresholds. Pedestrian, Bicycle, Transit, and Traffic study elements were analyzed based on the City of Oceanside Traffic Guidelines.

The traffic analysis included the analysis of AM peak hour, PM peak hour, and daily traffic volumes. The project is calculated to generate 1,694 daily trips, 161 AM peak hour trips (119 inbound and 41 outbound), and 175 PM peak hour trips (54 inbound and 121 outbound). Six traffic scenarios were analyzed, which included Existing, Existing plus Project, Near Term (18 cumulative projects), Near Term plus Project, Horizon Year 2030, and Horizon Year 2030 plus Project. The City's Traffic Guidelines define how a project's non-CEQA traffic effect/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 is calculated to have one (1) transportation impact at the intersection of SR-76/Benet Rd. The proposed mitigation at the intersection of SR-76/Benet Rd is a fair share payment of 8.5% towards the provisions of converting the existing eastbound and westbound right turn lanes to a combination through-right lane in the eastbound and westbound direction resulting in three through lanes in each direction. The fair share payment shall be paid to the City's Thoroughfare and Signal Account. The funds will be used at the City's discretion for projects that will improve traffic safety and mobility in the City of Oceanside. The fair share contribution shall be paid in full prior to issuance of any permit for any phase of any component of the Project. Payment of the fair share shall satisfy the Project's offsite improvement obligations. A conceptual drawing of the proposed improvement and fair share calculations are included in Appendix P.

The multi-modal analysis covered pedestrian, bicycle, and transit elements. There are missing sidewalk segments adjacent to the project site; therefore, the project owner/permittee proposes to complete the following sidewalk improvements:

1) Construct a sidewalk from the project access on Alex Road north to the San Luis Rey River Trail (a distance of approximately 50 feet).

2) Construct a sidewalk along the project frontage on Benet Road from Eddie Jones Way north to the San Luis Rey River access path (a distance of approximately 600 feet).

There are no deficiencies on bike lanes and paths in the study area; therefore, no bike lane/path improvements are necessary. There are no bus stops within a ½ mile walking distance of the project site; therefore, no transit stop improvements are necessary.

###

Appendix A

Excerpts from City of Oceanside Bicycle Master Plan 2017 Update

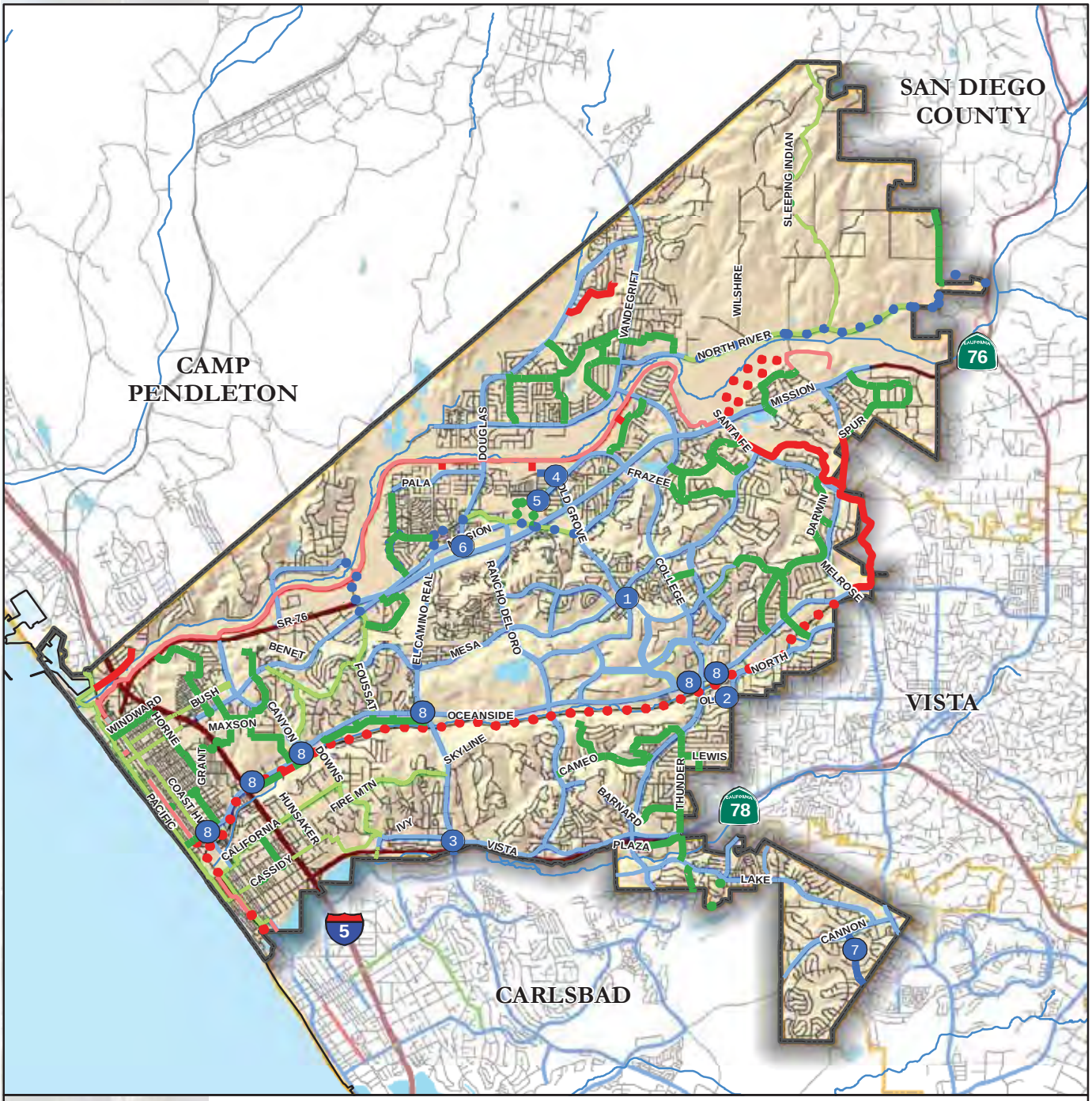
City of Oceanside
Bicycle Master Plan

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



Existing Bicycle Facilities
- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

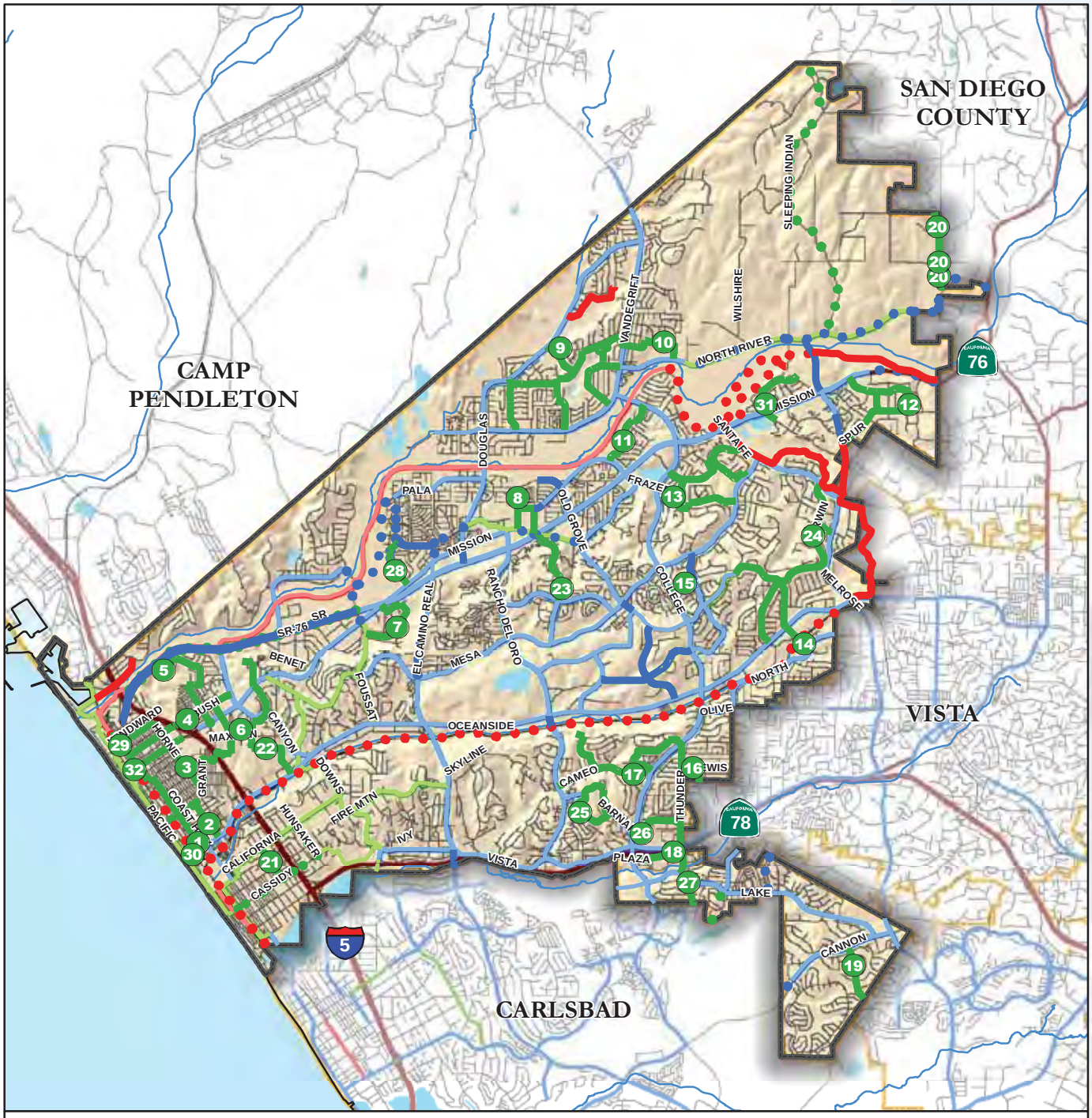
Planned Bicycle Facilities
- Class 1: Bike Path
- Class 2: Bike Lane
- Class 3: Bike Route

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

Data Source: City of Oceanside

Figure 4.2 A: Class 2 Bike Lane Recommended Projects
(2017 Update)

0 0.5 1
Miles



Existing Bicycle Facilities

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

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

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

0 0.5 1 Miles

~~***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

COASTER SPRINTER BREEZE FLEX LIFT

303

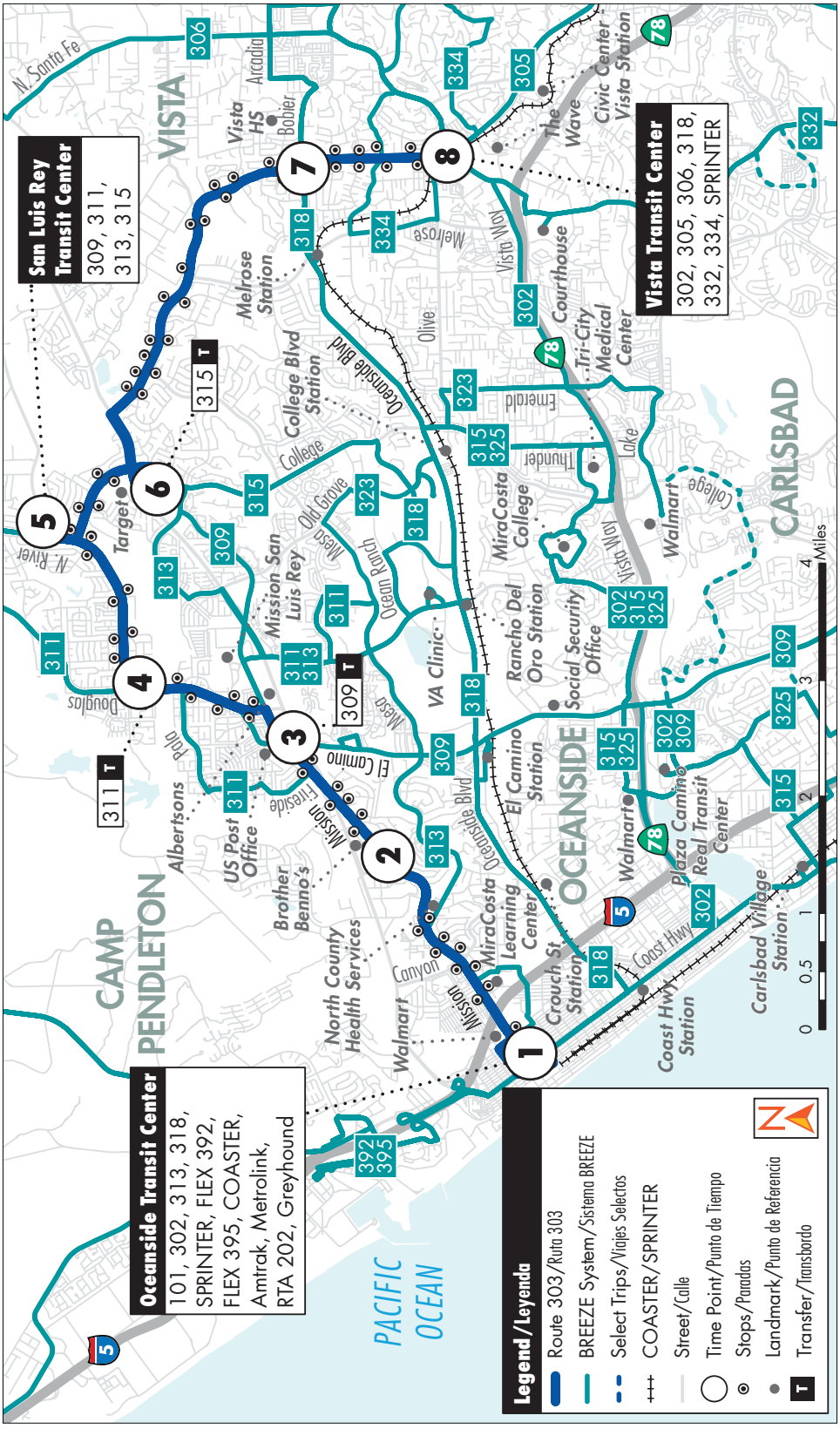
Oceanside to Vista via Town Center North

Oceanside a Vista vía 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



303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Monday - Friday
Eastbound to Vista
Lunes a Viernes • Dirección hacia el este a Vista

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	4:51a
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**

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Monday - Friday
Eastbound to Vista
Lunes a Viernes • Dirección hacia el este a Vista

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.

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Monday - Friday
Westbound to Oceanside

Lunes a Viernes • Dirección hacia el oeste a Oceanside

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	4:44a
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).

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Monday - Friday
Westbound to Oceanside
Lunes a Viernes • Dirección hacia el oeste a Oceanside

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

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Saturday & Sunday
Eastbound to Vista

Sábado y Domingo • Dirección hacia el este a Vista

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	4:59a	–	–
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**

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Saturday & Sunday
Eastbound to Vista
Sábado y Domingo • Dirección hacia el este a Vista

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	12:00a	–	–

303 Oceanside to Vista via Town Center North

Oceanside a Vista vía Town Center North

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

Saturday & Sunday
Westbound to Oceanside

Sábado y Domingo • Dirección hacia el oeste a Oceanside

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	7:00a
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	**12:10p**
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

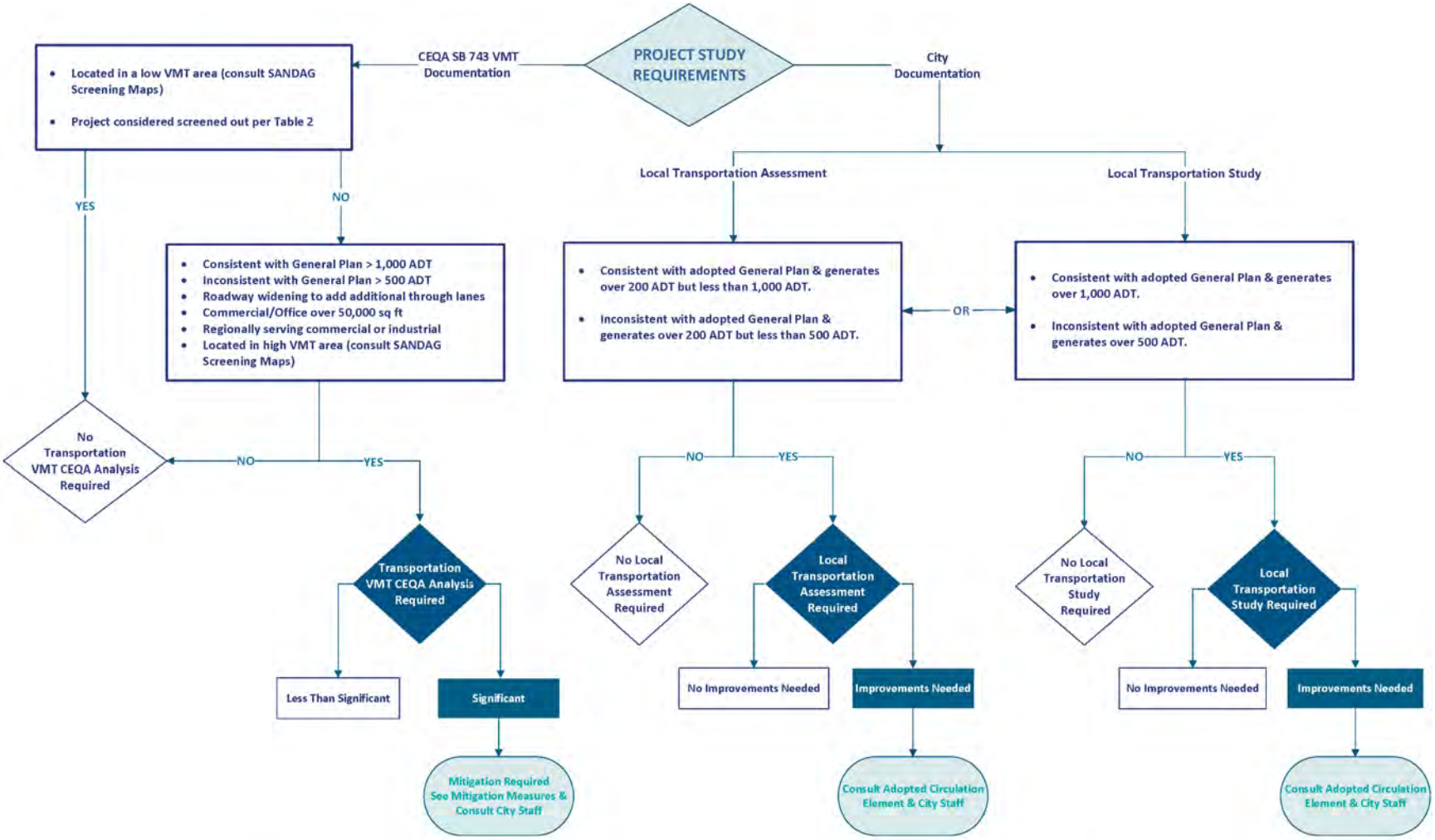
City of Oceanside

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	
		On-Site Bike Amenities	
	Land Use Strategies	Higher-Density Development	
		Transit-Oriented Development	√
		Mixed-Use Development	√
	Parking Management	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	Transit Service Expansion	√
		Transit Frequency Improvements	√
		Transit-Supportive Treatments	√
		Transit Fare Reduction	√
		Microtransit NEV Shuttle	√
		Microtransit Commuter Shuttle	
	Transportation System Management	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

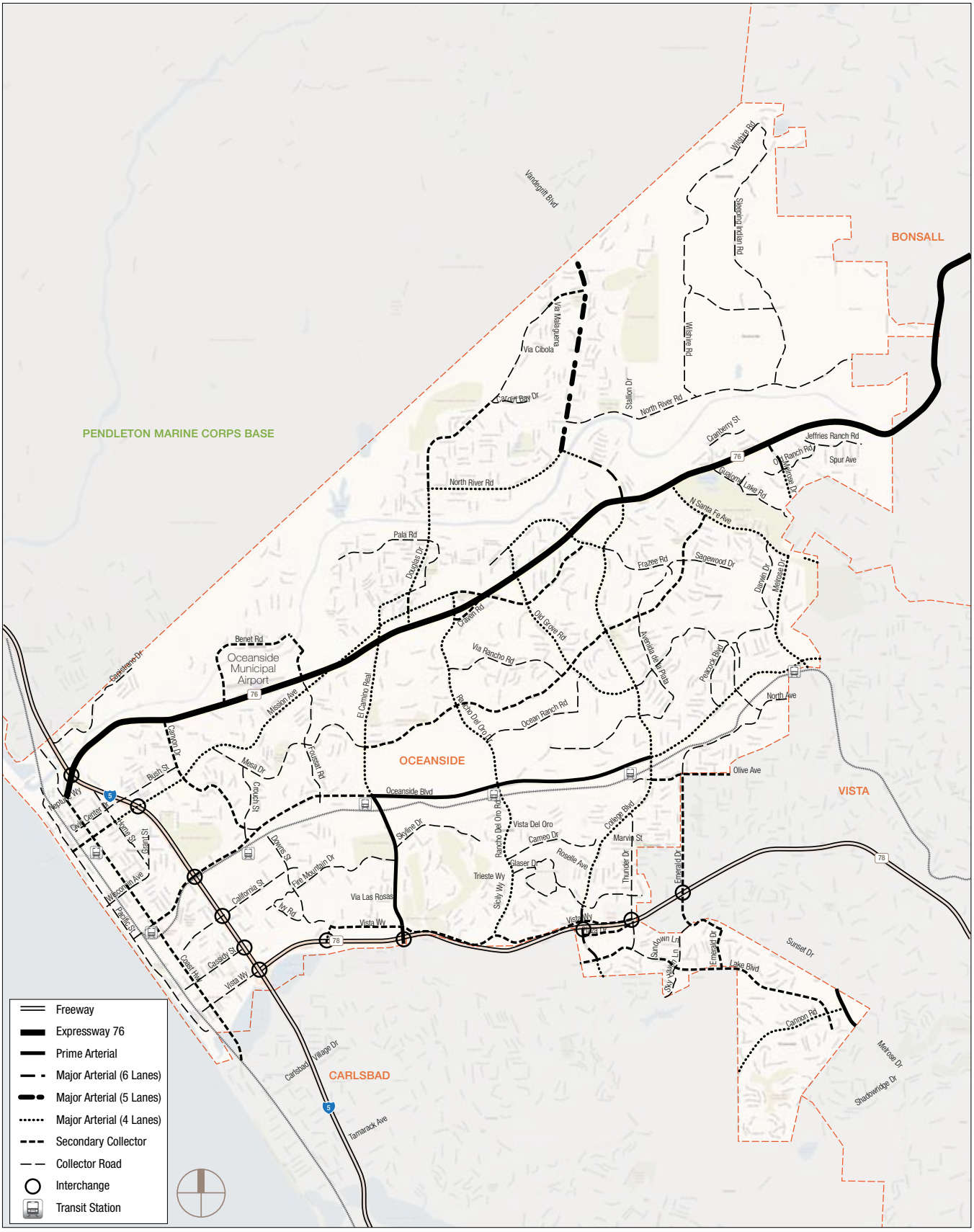
OCEANSIDE GENERAL PLAN
CIRCULATION ELEMENT UPDATE
City of Oceanside, California

Prepared for
City of Oceanside
Transportation Engineering Division
300 North Coast Highway
Oceanside, CA 92054

Prepared by

701 B Street, Suite 1810
San Diego, CA 92101

September 2012



Not to Scale

Existing Roadway Classifications

Figure 3.1

Appendix E

Count Data and Signal Timing Sheets

Intersection #1

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

Location: Oceanside
N/S: SR-76
E/W: I-5 SB Ramps

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 SB Ramps Eastbound			I-5 SB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	61	46	240	87	0	0	0	15	0	0	64	513
7:15 AM	0	62	55	318	95	0	0	0	15	0	0	72	617
7:30 AM	0	66	58	260	113	0	0	0	7	0	0	78	582
7:45 AM	0	72	53	234	126	0	0	0	10	0	0	100	595
8:00 AM	0	80	49	248	111	0	0	0	16	0	0	80	584
8:15 AM	0	74	63	247	127	0	0	0	10	0	0	63	584
8:30 AM	0	76	55	276	119	0	0	0	8	0	0	62	596
8:45 AM	0	63	43	237	118	0	0	0	9	0	0	79	549
TOTAL VOLUMES:	0	554	422	2060	896	0	0	0	90	0	0	598	4620

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	280	215	1060	445	0	0	0	48	0	0	330	2378

PEAK HR FACTOR:	0.959	0.911	0.750	0.825	0.964

Bicycle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 SB Ramps Eastbound			I-5 SB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	0	0	0	0	2

	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

	SR-76 North Leg	SR-76 South Leg	I-5 SB Ramps East Leg	I-5 SB Ramps 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

Intersection #1

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

Location: Oceanside
N/S: SR-76
E/W: I-5 SB Ramps

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 SB Ramps Eastbound			I-5 SB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	117	64	168	132	0	0	0	26	0	0	161	668
4:15 PM	0	115	52	148	155	0	0	0	18	0	0	159	647
4:30 PM	0	119	61	178	169	0	0	0	16	0	0	149	692
4:45 PM	0	128	63	168	155	0	0	0	26	0	0	189	729
5:00 PM	0	121	71	165	196	0	0	0	24	0	0	176	753
5:15 PM	0	92	46	164	157	0	0	0	18	0	0	172	649
5:30 PM	0	117	50	178	137	0	0	0	24	0	0	150	656
5:45 PM	0	100	54	125	152	0	0	0	19	0	0	144	594
TOTAL VOLUMES:	0	909	461	1294	1253	0	0	0	171	0	0	1300	5388

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	460	241	675	677	0	0	0	84	0	0	686	2823

PEAK HR FACTOR:	0.913	0.936	0.808	0.907	0.937

Bicycle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 SB Ramps Eastbound			I-5 SB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	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	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

	SR-76 North Leg	SR-76 South Leg	I-5 SB Ramps East Leg	I-5 SB Ramps West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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

Intersection #2

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

Location: Oceanside
N/S: SR-76
E/W: I-5 NB Ramps

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 NB Ramps Eastbound			I-5 NB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	110	25	230	316	0	0	0	0	12	0	152	845
7:15 AM	0	124	24	208	389	0	0	0	0	12	0	147	904
7:30 AM	0	131	24	263	359	0	0	0	0	20	0	148	945
7:45 AM	0	152	16	222	324	0	0	0	0	24	0	149	887
8:00 AM	0	133	25	188	309	0	0	0	0	25	0	171	851
8:15 AM	0	118	27	166	359	0	0	0	0	29	0	194	893
8:30 AM	0	122	21	187	349	0	0	0	0	35	0	164	878
8:45 AM	0	128	14	168	275	0	0	0	0	20	0	134	739
TOTAL VOLUMES:	0	1018	176	1632	2680	0	0	0	0	177	0	1259	6942

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	540	89	881	1381	0	0	0	0	81	0	615	3587

PEAK HR FACTOR:	0.936	0.909	0.000	0.888	0.949

Bicycle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 NB Ramps Eastbound			I-5 NB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	0	0	0	0	2

	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

	SR-76 North Leg	SR-76 South Leg	I-5 NB Ramps East Leg	I-5 NB Ramps 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

Intersection #2

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

Location: Oceanside
N/S: SR-76
E/W: I-5 NB Ramps

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 NB Ramps Eastbound			I-5 NB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	239	36	87	237	0	0	0	0	63	0	178	840
4:15 PM	0	248	32	88	271	0	0	0	0	49	0	196	884
4:30 PM	0	258	22	96	253	0	0	0	0	64	0	208	901
4:45 PM	0	283	23	102	254	0	0	0	0	52	0	213	927
5:00 PM	0	265	24	109	275	0	0	0	0	70	0	211	954
5:15 PM	0	242	20	100	234	0	0	0	0	67	0	208	871
5:30 PM	0	234	24	98	215	0	0	0	0	55	0	224	850
5:45 PM	0	226	27	87	206	0	0	0	0	59	0	199	804
TOTAL VOLUMES:	0	1995	208	767	1945	0	0	0	0	479	0	1637	7031

PM Peak Hr Begins at: 415 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1054	101	395	1053	0	0	0	0	235	0	828	3666

PEAK HR FACTOR:	0.944	0.943	0.000	0.946	0.961

Bicycle Counts

	SR-76 Northbound			SR-76 Southbound			I-5 NB Ramps Eastbound			I-5 NB Ramps Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	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	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

	SR-76 North Leg	SR-76 South Leg	I-5 NB Ramps East Leg	I-5 NB Ramps West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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

Intersection #3

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

Location: Oceanside
N/S: Loretta Street
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Loretta Street Northbound			Loretta Street Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	3	0	4	0	0	0	0	267	4	1	542	0	821
7:15 AM	13	0	8	0	0	0	0	256	2	5	589	0	873
7:30 AM	15	0	8	0	0	0	0	247	5	2	596	0	873
7:45 AM	7	0	7	0	0	0	0	306	7	3	538	0	868
8:00 AM	8	0	3	0	0	0	0	301	9	2	517	0	840
8:15 AM	9	0	9	0	0	0	0	289	5	2	512	0	826
8:30 AM	6	0	4	0	0	0	0	278	7	1	525	0	821
8:45 AM	9	0	2	0	0	0	0	263	2	1	440	0	717
TOTAL VOLUMES:	70	0	45	0	0	0	0	2207	41	17	4259	0	6639

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	43	0	26	0	0	0	0	1110	23	12	2240	0	3454

PEAK HR FACTOR:	0.750	0.000	0.905	0.941	0.989

Bicycle Counts

	Loretta Street Northbound			Loretta Street Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	1	0	0	0	0	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	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	0	0	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	1	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	1	1	0	0	0	2
TOTAL VOLUMES:	2	0	0	0	0	0	0	2	1	0	0	0	5

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

Pedestrian Counts

	Loretta Street North Leg	Loretta Street 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	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	1	0	1
8:45 AM	0	0	0	1	1
TOTAL VOLUMES:	0	0	1	1	2

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

Intersection #3

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

Location: Oceanside
N/S: Loretta Street
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Loretta Street Northbound			Loretta Street Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	5	0	1	0	0	0	0	432	14	6	308	0	766
4:15 PM	5	0	1	0	0	0	0	440	19	6	343	0	814
4:30 PM	3	0	1	0	0	0	0	465	20	6	350	0	845
4:45 PM	12	0	5	0	0	0	0	477	21	5	331	0	851
5:00 PM	5	0	5	0	0	0	0	494	13	3	385	0	905
5:15 PM	5	0	4	0	0	0	0	461	14	1	324	0	809
5:30 PM	6	0	2	0	0	0	0	452	19	7	317	0	803
5:45 PM	5	0	5	0	0	0	0	453	10	5	293	0	771
TOTAL VOLUMES:	46	0	24	0	0	0	0	3674	130	39	2651	0	6564

PM Peak Hr Begins at: 415 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	25	0	12	0	0	0	0	1876	73	20	1409	0	3415

PEAK HR FACTOR:	0.544	0.000	0.961	0.921	0.943

Bicycle Counts

	Loretta Street Northbound			Loretta Street Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	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	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

	Loretta Street North Leg	Loretta Street South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

	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: Canyon Drive
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Canyon Drive Northbound			Canyon Drive Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	5	0	21	0	0	0	0	263	0	20	516	0	825
7:15 AM	6	0	18	0	0	0	0	267	1	10	602	0	904
7:30 AM	3	0	19	0	0	0	0	264	5	24	590	0	905
7:45 AM	5	0	21	0	0	0	0	295	6	20	525	0	872
8:00 AM	6	0	17	0	0	0	0	312	2	20	532	0	889
8:15 AM	1	0	13	0	0	0	0	306	2	16	493	0	831
8:30 AM	5	0	27	0	0	0	0	262	5	20	498	0	817
8:45 AM	4	0	22	0	0	0	0	259	6	21	437	0	749
TOTAL VOLUMES:	35	0	158	0	0	0	0	2228	27	151	4193	0	6792

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	20	0	75	0	0	0	0	1138	14	74	2249	0	3570

PEAK HR FACTOR:	0.913	0.000	0.917	0.946	0.986

Bicycle Counts

	Canyon Drive Northbound			Canyon Drive Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	1	0	0	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	1	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	1	0	0	0	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	1	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	0	4	0	0	0	0	1	0	0	0	0	5

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

Pedestrian Counts

	Canyon Drive North Leg	Canyon 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	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	1	1	0	2
8:15 AM	0	0	0	0	0
8:30 AM	0	0	1	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	2	0	3

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

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

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

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Canyon Drive Northbound			Canyon Drive Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	3	0	22	0	0	0	0	404	35	34	297	0	795
4:15 PM	1	0	29	0	0	0	0	447	8	24	334	0	843
4:30 PM	1	0	25	0	0	0	0	437	10	21	372	0	866
4:45 PM	2	0	21	0	0	0	0	449	14	49	336	0	871
5:00 PM	1	0	22	0	0	0	0	494	16	32	371	0	936
5:15 PM	3	0	23	0	0	0	0	446	8	34	337	0	851
5:30 PM	4	0	24	0	0	0	0	449	9	34	321	0	841
5:45 PM	2	0	26	0	0	0	0	433	7	18	304	0	790
TOTAL VOLUMES:	17	0	192	0	0	0	0	3559	107	246	2672	0	6793

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	7	0	91	0	0	0	0	1826	48	136	1416	0	3524

PEAK HR FACTOR:	0.942	0.000	0.919	0.963	0.941

Bicycle Counts

	Canyon Drive Northbound			Canyon Drive Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	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	2	0	0	0	0	0	0	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	2	1	0	0	0	0	0	0	0	0	0	3

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

Pedestrian Counts

	Canyon Drive North Leg	Canyon Drive South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	2

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

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

Location: Oceanside
N/S: Benet Road
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	16	0	11	1	3	59	18	228	23	5	430	2	796
7:15 AM	14	1	19	5	1	61	21	252	30	6	540	1	951
7:30 AM	12	0	10	1	1	73	16	260	23	8	547	1	952
7:45 AM	15	1	10	2	8	73	26	250	37	7	445	3	877
8:00 AM	9	2	7	0	2	41	35	261	39	9	490	2	897
8:15 AM	19	3	5	3	3	49	22	282	28	10	436	4	864
8:30 AM	14	0	7	1	0	34	26	224	35	14	457	4	816
8:45 AM	12	4	5	5	3	33	21	245	26	19	424	1	798
TOTAL VOLUMES:	111	11	74	18	21	423	185	2002	241	78	3769	18	6951

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	50	4	46	8	12	248	98	1023	129	30	2022	7	3677

PEAK HR FACTOR:	0.735	0.807	0.933	0.926	0.966

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	1	0	0	0	1
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	1	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	3	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
8:45 AM	0	2	0	0	0	0	0	1	0	0	0	0	3
TOTAL VOLUMES:	0	3	0	0	3	0	0	3	3	0	0	0	12

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

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	1	0	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	1	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	3	0	3

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

Intersection #5

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

Location: Oceanside
N/S: Benet Road
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	24	1	13	5	2	24	36	378	28	7	289	6	813
4:15 PM	30	4	13	12	9	26	47	412	26	11	292	2	884
4:30 PM	44	9	17	7	2	23	46	402	30	14	328	6	928
4:45 PM	23	7	21	3	3	22	35	431	20	8	354	4	931
5:00 PM	33	3	28	1	0	29	49	465	14	5	330	1	958
5:15 PM	29	2	25	2	4	43	50	413	24	8	295	1	896
5:30 PM	22	3	16	3	0	19	52	408	21	3	295	0	842
5:45 PM	23	2	20	3	2	26	46	384	18	6	273	4	807
TOTAL VOLUMES:	228	31	153	36	22	212	361	3293	181	62	2456	24	7059

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	129	21	91	13	9	117	180	1711	88	35	1307	12	3713

PEAK HR FACTOR:	0.861	0.709	0.937	0.925	0.969

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	1	0	0	1	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	1	0	0	3	0	0	0	0	0	0	0	4
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	1	0	0	2	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	4	0	0	8	0	0	1	0	0	0	0	13

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	4	0	0	0	0	0	0	0	5

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	2	0	2	0	4
4:30 PM	0	0	1	0	1
4:45 PM	1	0	3	0	4
5:00 PM	0	0	2	0	2
5:15 PM	0	0	1	0	1
5:30 PM	0	0	2	0	2
5:45 PM	1	0	5	0	6
TOTAL VOLUMES:	4	0	16	0	20

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	7	0	8

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

Location: Oceanside
N/S: Foussat Road
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Foussat Road Northbound			Foussat Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	35	7	19	17	21	9	15	214	10	25	462	2	836
7:15 AM	16	5	25	30	17	17	10	251	10	46	490	8	925
7:30 AM	27	13	22	53	19	6	5	246	14	34	510	18	967
7:45 AM	44	16	22	41	26	8	5	231	14	31	442	11	891
8:00 AM	29	20	15	24	23	12	13	243	15	32	433	34	893
8:15 AM	30	19	30	16	31	9	7	213	19	45	482	14	915
8:30 AM	25	26	20	21	24	21	12	199	23	30	392	23	816
8:45 AM	25	9	13	17	21	12	15	211	15	38	427	14	817
TOTAL VOLUMES:	231	115	166	219	182	94	82	1808	120	281	3638	124	7060

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	116	54	84	148	85	43	33	971	53	143	1875	71	3676

PEAK HR FACTOR:	0.774	0.885	0.975	0.929	0.950

Bicycle Counts

	Foussat Road Northbound			Foussat Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	1	1	0	2	0	0	0	0	0	0	0	4
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	1	0	0	2	0	0	0	0	0	0	0	3
8:00 AM	0	1	1	0	2	0	0	0	0	1	0	0	5
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:30 AM	0	1	1	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES:	0	4	3	0	7	0	0	1	0	2	0	0	17

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	2	1	0	5	0	0	0	0	1	0	0	9

Pedestrian Counts

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

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

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

Location: Oceanside
N/S: Foussat Road
E/W: SR-76

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Foussat Road Northbound			Foussat Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	14	29	27	18	13	4	1	388	40	17	268	24	843
4:15 PM	16	35	30	19	17	8	9	412	41	32	321	22	962
4:30 PM	24	30	35	18	22	10	7	368	22	22	306	17	881
4:45 PM	16	31	35	11	19	5	5	455	36	22	371	24	1030
5:00 PM	24	31	37	14	12	7	5	419	37	24	268	23	901
5:15 PM	14	32	29	13	17	4	10	481	32	30	291	38	991
5:30 PM	15	37	41	13	20	4	5	360	28	26	309	17	875
5:45 PM	16	33	29	19	18	6	3	397	37	17	264	17	856
TOTAL VOLUMES:	139	258	263	125	138	48	45	3280	273	190	2398	182	7339

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	78	124	136	56	70	26	27	1723	127	98	1236	102	3803

PEAK HR FACTOR:	0.918	0.760	0.897	0.861	0.923

Bicycle Counts

	Foussat Road Northbound			Foussat Road Southbound			SR-76 Eastbound			SR-76 Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	1	0	0	0	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	2	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	8	0	0	3	0	0	0	0	0	0	0	11

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	6	0	0	1	0	0	0	0	0	0	0	7

Pedestrian Counts

	Foussat Road North Leg	Foussat Road South Leg	SR-76 East Leg	SR-76 West Leg	TOTAL
4:00 PM	0	0	1	0	1
4:15 PM	0	0	1	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	0	1	0	1
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	3	0	3

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

Intersection #7

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

Location: Oceanside
N/S: Benet Road
E/W: Airport Road

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			Airport Road Eastbound			Airport Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	14	7	0	57	0	0	0	0	4	0	4	86
7:15 AM	0	19	6	1	65	0	0	0	0	6	0	5	102
7:30 AM	0	13	2	2	73	0	0	0	0	8	0	3	101
7:45 AM	0	31	6	2	74	0	0	0	0	8	0	4	125
8:00 AM	0	28	5	1	39	0	0	0	0	4	0	3	80
8:15 AM	0	24	7	1	48	0	0	0	0	5	0	5	90
8:30 AM	0	19	7	2	32	0	0	0	0	2	0	4	66
8:45 AM	0	22	6	0	42	0	0	0	0	1	0	0	71
TOTAL VOLUMES:	0	170	46	9	430	0	0	0	0	38	0	28	721

AM Peak Hr Begins at: 700 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	77	21	5	269	0	0	0	0	26	0	16	414

PEAK HR FACTOR:	0.662	0.901	0.000	0.875	0.828

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			Airport Road Eastbound			Airport Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	2	0	0	0	0	0	0	0	0	0	2
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	1	1
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
8:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	2	3
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	2	2	1	4	0	0	0	0	0	0	4	13

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	2	1	0	0	0	0	0	0	0	1	4

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	Airport Road East Leg	Airport Road West Leg	TOTAL
7:00 AM	0	1	0	0	1
7:15 AM	1	0	0	0	1
7:30 AM	0	0	1	0	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	1	0	1
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	1	1	2	0	4

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

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

Location: Oceanside
N/S: Benet Road
E/W: Airport Road

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			Airport Road Eastbound			Airport Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	41	3	2	30	0	0	0	0	5	0	2	83
4:15 PM	0	49	1	2	35	0	0	0	0	8	0	2	97
4:30 PM	0	51	4	1	27	0	0	0	0	3	0	4	90
4:45 PM	0	46	3	1	22	0	0	0	0	5	0	1	79
5:00 PM	0	44	5	2	23	0	0	0	0	5	0	2	81
5:15 PM	0	52	2	1	42	0	0	0	0	4	0	4	105
5:30 PM	0	52	5	1	18	0	0	0	0	4	0	1	81
5:45 PM	0	45	6	3	22	0	0	0	0	6	1	4	87
TOTAL VOLUMES:	0	380	29	13	219	0	0	0	0	40	1	20	703

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	193	14	5	114	0	0	0	0	17	0	11	354

PEAK HR FACTOR:	0.945	0.692	0.000	0.875	0.845

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			Airport Road Eastbound			Airport Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	2	2
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	3	0	0	0	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
5:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	2	1	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	2	1	3	5	0	0	0	0	0	0	3	14

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	1	1	4	0	0	0	0	0	0	1	7

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	Airport Road East Leg	Airport Road West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1
4:45 PM	0	0	1	0	1
5:00 PM	0	0	1	0	1
5:15 PM	1	0	1	0	2
5:30 PM	0	2	2	0	4
5:45 PM	0	1	2	0	3
TOTAL VOLUMES:	1	3	8	0	12

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	4	0	5

Intersection #8

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

Location: Oceanside
N/S: Benet Road
E/W: Eddy Jones

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			Eddy Jones Eastbound			Eddy Jones Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	18	0	0	56	0	0	0	0	0	0	0	74
7:15 AM	0	22	0	1	63	0	0	0	0	0	0	0	86
7:30 AM	0	16	0	0	81	0	0	0	0	0	0	0	97
7:45 AM	0	23	1	0	62	0	0	0	0	1	0	1	88
8:00 AM	0	43	0	0	47	0	0	0	0	0	0	0	90
8:15 AM	0	29	0	0	43	0	0	0	0	0	0	0	72
8:30 AM	0	22	0	0	38	0	0	0	0	0	0	0	60
8:45 AM	0	23	0	0	43	0	0	0	0	0	0	0	66
TOTAL VOLUMES:	0	196	1	1	433	0	0	0	0	1	0	1	633

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	104	1	1	253	0	0	0	0	1	0	1	361

PEAK HR FACTOR:	0.610	0.784	0.000	0.250	0.930

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			Eddy Jones Eastbound			Eddy Jones Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
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	1	0	0	0	0	0	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	3	0	0	1	0	0	0	0	0	0	0	4
8:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES:	0	7	0	0	2	0	0	0	0	0	0	0	9

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

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	Eddy Jones East Leg	Eddy Jones West Leg	TOTAL
7:00 AM	1	0	1	0	2
7:15 AM	2	1	2	0	5
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	2	0	0	2
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	3	3	3	0	9

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	2	1	2	0	5

Intersection #8

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

Location: Oceanside
N/S: Benet Road
E/W: Eddy Jones

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Benet Road Northbound			Benet Road Southbound			Eddy Jones Eastbound			Eddy Jones Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	42	0	0	33	0	0	0	0	0	0	0	75
4:15 PM	0	49	0	0	34	0	0	0	0	0	0	0	83
4:30 PM	0	56	0	0	27	0	0	0	0	0	0	0	83
4:45 PM	0	49	0	0	23	0	0	0	0	1	0	0	73
5:00 PM	0	46	0	0	25	0	0	0	0	0	0	0	71
5:15 PM	0	55	0	0	45	0	0	0	0	0	0	0	100
5:30 PM	0	53	0	0	20	0	0	0	0	0	0	0	73
5:45 PM	0	45	0	0	27	0	0	0	0	0	0	0	72
TOTAL VOLUMES:	0	395	0	0	234	0	0	0	0	1	0	0	630

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	206	0	0	120	0	0	0	0	1	0	0	327

PEAK HR FACTOR:	0.920	0.667	0.000	0.250	0.818

Bicycle Counts

	Benet Road Northbound			Benet Road Southbound			Eddy Jones Eastbound			Eddy Jones Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
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	3	0	0	0	0	0	0	0	3
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	6	0	0	10	0	0	0	0	0	0	0	16

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	5	0	0	0	0	0	0	0	6

Pedestrian Counts

	Benet Road North Leg	Benet Road South Leg	Eddy Jones East Leg	Eddy Jones West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2
4:30 PM	0	0	1	0	1
4:45 PM	1	0	1	0	2
5:00 PM	0	0	1	0	1
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	1	0	1
TOTAL VOLUMES:	1	2	5	0	8

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	4	0	5

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

Location: Oceanside
N/S: Foussat Road
E/W: Alex Road

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:30 AM to 8:30 AM**

Vehicle Counts

	Foussat Road Northbound			Foussat Road Southbound			Alex Road Eastbound			Alex Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	24	0	0	46	1	0	0	1	0	0	0	72
7:15 AM	0	23	0	0	61	0	0	0	3	0	0	0	87
7:30 AM	4	30	0	0	89	0	0	0	0	0	0	0	123
7:45 AM	1	32	0	0	61	0	1	0	2	0	0	0	97
8:00 AM	1	64	0	0	57	2	1	0	2	0	0	0	127
8:15 AM	4	38	0	0	61	1	0	0	1	0	0	0	105
8:30 AM	3	56	0	0	57	0	0	0	1	0	0	0	117
8:45 AM	2	35	0	0	56	0	0	0	2	0	0	0	95
TOTAL VOLUMES:	15	302	0	0	488	4	2	0	12	0	0	0	823

AM Peak Hr Begins at: 730 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	10	164	0	0	268	3	2	0	5	0	0	0	452

PEAK HR FACTOR:	0.669	0.761	0.583	0.000	0.890

Bicycle Counts

	Foussat Road Northbound			Foussat Road Southbound			Alex Road Eastbound			Alex Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	1	2	0	0	2	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
7:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
7:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	2
8:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	2	5	0	0	8	0	0	0	1	0	0	0	16

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	1	2	0	0	6	0	0	0	0	0	0	0	9

Pedestrian Counts

	Foussat Road North Leg	Foussat Road South Leg	Alex Road East Leg	Alex 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: Foussat Road
E/W: Alex Road

Date: 10/6/2021
Day: WEDNESDAY
Project # 143-21552

TURNING MOVEMENT COUNT

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

Vehicle Counts

	Foussat Road Northbound			Foussat Road Southbound			Alex Road Eastbound			Alex Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	5	50	0	0	36	1	0	0	4	0	0	0	96
4:15 PM	9	54	0	0	37	1	1	0	1	0	0	0	103
4:30 PM	7	39	0	0	44	0	1	0	3	0	0	0	94
4:45 PM	3	62	0	0	35	0	0	0	2	0	0	0	102
5:00 PM	4	52	0	0	29	1	0	0	1	0	0	0	87
5:15 PM	6	73	0	0	32	1	1	0	2	0	0	0	115
5:30 PM	9	49	0	0	28	0	0	0	5	0	0	0	91
5:45 PM	6	47	0	0	34	0	0	0	6	0	0	0	93
TOTAL VOLUMES:	49	426	0	0	275	4	3	0	24	0	0	0	781

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	20	226	0	0	140	2	2	0	8	0	0	0	398

PEAK HR FACTOR:	0.778	0.807	0.625	0.000	0.865

Bicycle Counts

	Foussat Road Northbound			Foussat Road Southbound			Alex Road Eastbound			Alex Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	2	1	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	1	0	0	0	0	0	0	1	0	0	0	3
5:00 PM	0	1	0	0	1	0	0	0	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	1	0	0	0	1	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	5	3	0	0	2	0	0	0	2	0	0	0	12

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	2	2	0	0	1	0	0	0	1	0	0	0	6

Pedestrian Counts

	Foussat Road North Leg	Foussat Road South Leg	Alex Road East Leg	Alex Road West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	0	0	0	0

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

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of Oceanside
Benet Road
B/ Eddy Jones - State Route 76

File Name 001
Site Code: 143-21552
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
10/6/2021	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	6	33			4	38				
12:15	4	33			5	37				
12:30	4	47			2	36				
12:45	2	35	16	148	3	31	14	142	30	290
1:00	3	46			0	38				
1:15	3	38			1	41				
1:30	2	32			0	32				
1:45	4	34	12	150	6	29	7	140	19	290
2:00	2	42			0	28				
2:15	2	36			0	40				
2:30	1	24			3	43				
2:45	1	50	6	152	0	29	3	140	9	292
3:00	1	62			1	24				
3:15	1	45			4	27				
3:30	2	52			3	41				
3:45	1	43	5	202	2	24	10	116	15	318
4:00	3	51			8	37				
4:15	3	53			5	25				
4:30	6	47			7	34				
4:45	3	50	15	201	21	28	41	124	56	325
5:00	5	49			8	24				
5:15	7	47			12	28				
5:30	7	62			20	27				
5:45	17	54	36	212	22	32	62	111	98	323
6:00	14	38			30	36				
6:15	4	60			30	24				
6:30	9	35			44	18				
6:45	19	27	46	160	42	14	146	92	192	252
7:00	14	39			72	12				
7:15	16	29			70	16				
7:30	28	40			74	20				
7:45	29	32	87	140	75	12	291	60	378	200
8:00	33	20			53	10				
8:15	39	14			64	12				
8:30	33	22			32	4				
8:45	23	21	128	77	39	5	188	31	316	108
9:00	31	17			32	7				
9:15	27	12			32	8				
9:30	20	14			34	5				
9:45	27	11	105	54	40	5	138	25	243	79
10:00	21	14			36	3				
10:15	45	8			30	3				
10:30	22	3			52	7				
10:45	23	12	111	37	34	5	152	18	263	55
11:00	29	7			36	0				
11:15	39	6			42	1				
11:30	26	4			37	1				
11:45	37	0	131	17	28	0	143	2	274	19
Totals	698	1550			1195	1001				
Combined Totals		2248				2196				
ADT										4444
AM Peak Hour	745	AM			700	AM				
Volume	134				291					
P.H.F.	0.859				0.970					
PM Peak Hour		530	PM			2430	PM			
Volume		214				146				
P.H.F.		0.863				0.890				
Percentage	31.0%	69.0%			54.4%	45.6%				

Phone: 951-268-6268
counts@countsunlimited.com
Fax: 951-268-6267

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

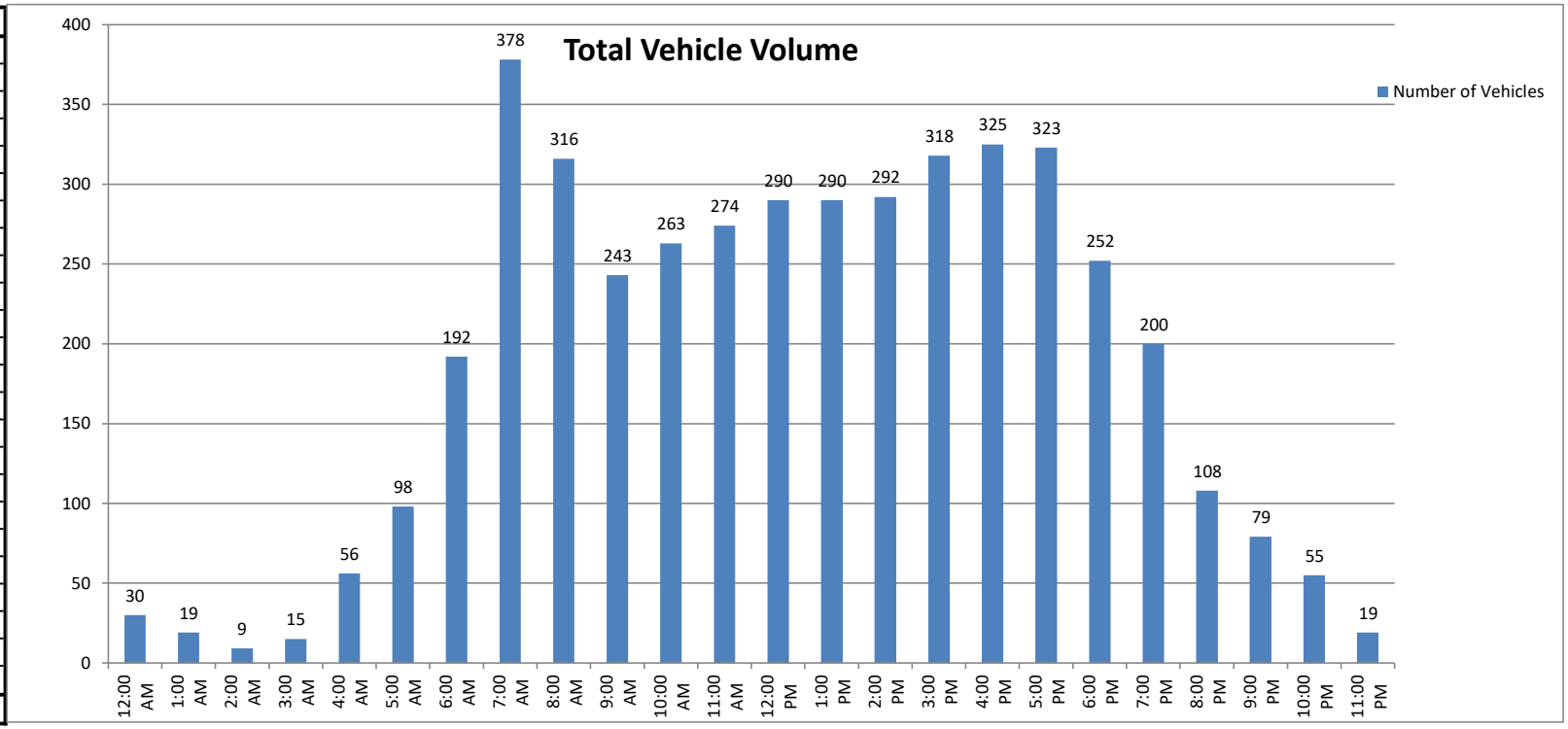
24 Hour Volume Plot

Benet Road

B/ Eddy Jones - State Route 76

10/6/2021

Start Time	10/6/2021
12:00 AM	30
1:00 AM	19
2:00 AM	9
3:00 AM	15
4:00 AM	56
5:00 AM	98
6:00 AM	192
7:00 AM	378
8:00 AM	316
9:00 AM	243
10:00 AM	263
11:00 AM	274
12:00 PM	290
1:00 PM	290
2:00 PM	292
3:00 PM	318
4:00 PM	325
5:00 PM	323
6:00 PM	252
7:00 PM	200
8:00 PM	108
9:00 PM	79
10:00 PM	55
11:00 PM	19
Total	4444



Volumes represent the combined totals for both directions

Phone: 951-268-6268
counts@countsunlimited.com
Fax: 951-268-6267

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

City of Oceanside
Foussat Road
B/ Alex Road - State Route 76

File Name 002
Site Code: 143-21552
24 Hour Directional Volume Count

Date:	Northbound				Southbound					
10/6/2021	15 Minute Totals		Hourly Totals		15 Minute Totals		Hourly Totals		Combined Totals	
Time	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	2	27			0	31				
12:15	4	32			1	43				
12:30	0	43			2	37				
12:45	1	31	7	133	0	31	3	142	10	275
1:00	4	43			1	36				
1:15	1	35			3	27				
1:30	2	37			1	39				
1:45	0	49	7	164	1	43	6	145	13	309
2:00	3	33			3	40				
2:15	1	33			1	29				
2:30	3	29			3	41				
2:45	1	35	8	130	1	48	8	158	16	288
3:00	0	63			1	46				
3:15	1	59			1	52				
3:30	1	46			4	36				
3:45	0	59	2	227	3	46	9	180	11	407
4:00	1	54			0	39				
4:15	1	64			4	54				
4:30	4	58			8	45				
4:45	2	62	8	238	8	52	20	190	28	428
5:00	3	69			13	43				
5:15	1	57			10	53				
5:30	1	61			16	42				
5:45	8	65	13	252	19	29	58	167	71	419
6:00	4	50			11	32				
6:15	11	57			18	28				
6:30	9	51			39	38				
6:45	17	36	41	194	33	50	101	148	142	342
7:00	18	48			45	39				
7:15	15	44			49	34				
7:30	20	33			69	17				
7:45	21	41	74	166	65	17	228	107	302	273
8:00	44	33			63	16				
8:15	37	24			41	20				
8:30	40	25			47	23				
8:45	26	28	147	110	42	7	193	66	340	176
9:00	27	25			35	14				
9:15	23	14			35	3				
9:30	34	14			42	10				
9:45	28	10	112	63	33	6	145	33	257	96
10:00	22	13			36	3				
10:15	33	9			35	16				
10:30	22	5			32	2				
10:45	28	8	105	35	24	3	127	24	232	59
11:00	39	4			34	4				
11:15	28	5			30	4				
11:30	20	3			33	3				
11:45	36	3	123	15	35	3	132	14	255	29
Totals	647	1727			1030	1374				
Combined Totals		2374				2404				
ADT										4778
AM Peak Hour	800	AM			715	AM				
Volume	147				246					
P.H.F.	0.835				0.891					
PM Peak Hour		415	PM			415	PM			
Volume		253				194				
P.H.F.		0.917				0.898				
Percentage	27.3%	72.7%			42.8%	57.2%				

Phone: 951-268-6268
counts@countsunlimited.com
Fax: 951-268-6267

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

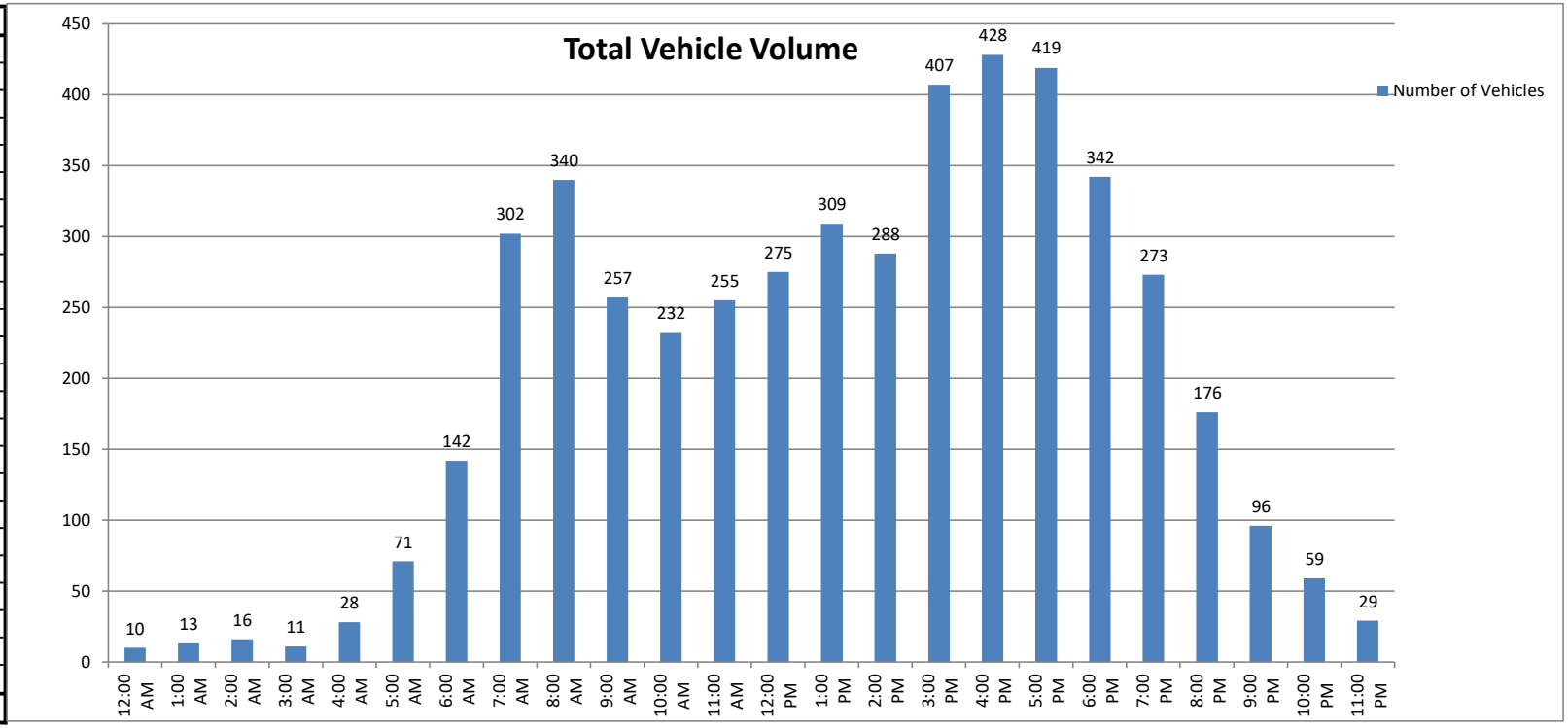
24 Hour Volume Plot

Foussat Road

B/ Alex Road - State Route 76

10/6/2021

Start Time	10/6/2021
12:00 AM	10
1:00 AM	13
2:00 AM	16
3:00 AM	11
4:00 AM	28
5:00 AM	71
6:00 AM	142
7:00 AM	302
8:00 AM	340
9:00 AM	257
10:00 AM	232
11:00 AM	255
12:00 PM	275
1:00 PM	309
2:00 PM	288
3:00 PM	407
4:00 PM	428
5:00 PM	419
6:00 PM	342
7:00 PM	273
8:00 PM	176
9:00 PM	96
10:00 PM	59
11:00 PM	29
Total	4778



Volumes represent the combined totals for both directions

Phone: 951-268-6268
counts@countsunlimited.com
Fax: 951-268-6267

Report Segment	Dist	Route	County	Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
	CALTRANS 2015 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3700	52000	49500
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET	3700	52000	49500	4200	56000	48000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE	4200	56000	48000	4350	55000	50000
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	4350	55000	50000	4450	56000	50000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	4450	56000	50000	4700	60000	55000
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	4700	60000	55000	4250	51000	48000
	CALTRANS 2016 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3650	54000	50000
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET	3650	54000	50000	3950	53000	45000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE	3950	53000	45000	4050	51000	46500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	4050	51000	46500	4150	52000	46500
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	4150	52000	46500	4350	56000	51000
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	4350	56000	51000	3950	47500	44500
	CALTRANS 2017 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3700	55000	51000
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET	3700	55000	51000	3950	53000	45000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE	3700	49500	42000	4050	51000	46500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	3750	47500	43000	3850	48500	43000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	3850	48500	43000	4050	52000	47500
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	4050	52000	47500	3650	44000	41500
	CALTRANS 2018 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5	0	0	0	3700	55000	51000
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET	3700	55000	51000	3950	53000	45000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE	3700	49500	42000	4050	51000	46500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	3750	47500	43000	3850	48500	43000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	3850	48500	43000	4050	52000	47500
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	4050	52000	47500	3650	44000	41500
	CALTRANS 2019 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3650	53000	50000
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET	3650	54000	50000	3950	53000	45000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE	3650	48500	41000	4050	51000	46500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	3700	46500	42000	3750	47500	42000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	3750	47500	42000	3950	51000	46500
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	3950	51000	46500	3600	43000	40500
	CALTRANS 2020 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3650	49500	44500
4	11	076	SD R	0.486	OCEANSIDE, LORETTA ST	3250	48000	44500	3500	47000	40000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DR	3250	43000	36500	3600	45500	41500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	3300	41500	37500	3350	42500	37500
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	3350	42500	37500	3500	45500	41500
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	3500	45500	41500	3200	38500	36000
	CALTRANS 2021 VOLUMES										
3	11	076	SD R	0.000	JCT. RTE. 5				3650	51000	46500
4	11	076	SD R	0.486	OCEANSIDE, LORETTA ST	3400	50000	46500	3650	49000	42000
5	11	076	SD R	1.156	OCEANSIDE, CANYON DR	3400	45000	38000	3750	47500	43500
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD	3450	43500	39000	3500	44500	39000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD	3500	44500	39000	3650	47500	43500
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL	3650	47500	43500	3350	40000	37500
	Maximum from above 7 years										
3	11	076	SD R	0.000	JCT. RTE. 5				Maximum from above		**51000**
4	11	076	SD R	0.486	OCEANSIDE, LORETTA STREET				Maximum from above		**48000**
5	11	076	SD R	1.156	OCEANSIDE, CANYON DRIVE				Maximum from above		**50000**
	11	076	SD R	1.767	OCEANSIDE, BENET ROAD				Maximum from above		50000
6	11	076	SD R	2.145	OCEANSIDE, AIRPORT ROAD				Maximum from above		**55000**
7	11	076	SD R	3.389	OCEANSIDE, EL CAMINO REAL				Maximum from above		**48000**

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 SB ON RAMP**

CALTRANS C8 Version 3 DATE: 5/24/2017

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1							CLK RST
1	DONT WALK	1	1							
2	MIN GREEN	5	5							
3	TYPE 3 DET	0	0							
4	ADD/VEH	0.0	0.0							
5	PASSAGE	2.0	2.0							
6	MAX GAP	2.0	2.0							
7	MIN GAP	2.0	2.0							
8	MAX EXT	45	35							
9	MAX 2									YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.0							DOW
D	EVERY	1.0	1.0							HR
E	**YELLOW**	3.7	4.8							MIN
F	RED	2.0	2.0							SEC
3.5	PED XING FT									
	BIKE XING FT		38							

	PRE-EMPTION E		F FLAGS	1	2	3	4	5	6	7	8	
	EV SEL	0	PERMIT	1	2		4					0
	RR1 CLR	15	RED LOCK	1	2							1
	EVA DLY	0	YEL LOCK									2
	EVA CLR	5	V RECALL									3
	EVB DLY	0	P RECALL									4
	EVB CLR	5	PED PHASES									5
	EVC DLY	0	RT OLA									6
	EVC CLR	5	RT OLB									7
	EVD DLY	0	DBL ENTRY									8
	EVD CLR	5	MAX 2 PHASES									9
	MAX EV	255	LAG PHASES	READ ONLY								A
	RR2 CLR	15	RED REST	1	2							B
			REST-IN-WALK									C
			MAX 3 PHASES									D
			YEL START UP		2							E
			FIRST PHASE	1								F
				1	2	3	4	5	6	7	8	

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

FD0 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:

FZ 2 BIKE = 3 sec

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

FZ 4 PERMITTED TO ALLOW CONTROLLER TO CROSS PHASE BARRIER

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 SB ON RAMP**

CALTRANS C8 Version 3 DATE: 1/29/13 PAGE 2

C PAGE

		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														LAG FZ FREE		2							0
1	FZ1 GRN FCTR													GAPOUT CP1	LAG FZ CP 1									1
2														GAPOUT CP2	LAG FZ CP 2									2
3	FZ3 GRN FCTR													GAPOUT CP3	LAG FZ CP 3									3
4	FZ4 GRN FCTR										PERM TIME			GAPOUT CP4	LAG FZ CP 4									4
5	FZ5 GRN FCTR										LAG OFFSET			GAPOUT CP5	LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6	LAG FZ CP 6									6
7	FZ7 GRN FCTR										LONG GRN			GAPOUT CP7	LAG FZ CP 7									7
8	FZ8 GRN FCTR										NO GREEN			GAPOUT CP8	LAG FZ CP 8									8
9	MULTI CYCLE													GAPOUT CP9	LAG FZ CP 9									9
A	OFFSET A										OFFSET				LAG C COORD									A
B	OFFSET B														LAG D COORD									B
C	OFFSET C														COORD FAZES		2				6			C
D	FZ 3 EXT																							D
E	FZ 7 EXT																							E
F	OFFSET INTRPT																							F
																1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76X @
RTE 5 SB

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 2

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

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 SB ON RAMP**

CALTRANS C8 Version 3 DATE: 10/9/98

D PAGE

	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									CP 1								
2	CP 2									CP 2									CP 2								
3	CP 3									CP 3									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									CP 8								
9	CP 9									CP 9									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

E PAGE

	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	

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

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 SB ON RAMP**

CALTRANS C8 Version 3 DATE: 10/9/98

7 PAGE

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

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

9 PAGE C09 = 0 or 1

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

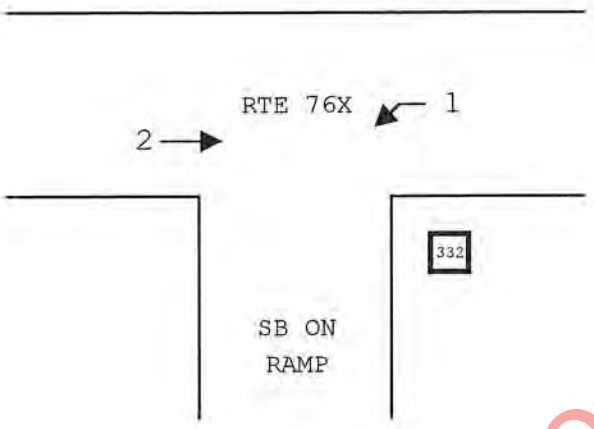
9 PAGE C09 = 2

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

DATE: 11/1/95

LOCATION: RTE 76 EXPRESSWAY @ RTE 5 SB ON RAMP

CONFLICT MONITOR PROGRAM



LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 NB RAMPS**

CALTRANS C8 Version 3 DATE: 12/8/14

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1				1		1	CLK RST
1	DONT WALK	1	1				1		1	
2	MIN GREEN	5	5				5		5	
3	TYPE 3 DET	0	0				255		0	
4	ADD/VEH	0.0	0.0				0.0		0.0	
5	PASSAGE	2.0	2.0				6.3		2.0	
6	MAX GAP	2.0	2.0				8.3		2.0	
7	MIN GAP	2.0	2.0				3.0		2.0	
8	MAX EXT	25	50				50		25	
9	MAX 2	20	30				80			YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.0				0.1		0.0	DOW
D	EVERY	1.0	1.0				0.5		1.0	HR
E	**YELLOW**	3.7	5.5				5.5		4.1	MIN
F	RED	2.0	2.5				2.5		2.0	SEC
3.5	PED XING FT									
	BIKE XING FT		68				25			

PRE-EMPTION E		F FLAGS	1	2	3	4	5	6	7	8	
EV SEL	0	PERMIT	1	2				6		8	0
RR1 CLR	15	RED LOCK	1							8	1
EVA DLY	0	YEL LOCK									2
EVA CLR	5	V RECALL		2				6			3
EVB DLY	0	P RECALL									4
EVB CLR	5	PED PHASES									5
EVC DLY	0	RT OLA									6
EVC CLR	5	RT OLB									7
EVD DLY	0	DBL ENTRY									8
EVD CLR	5	MAX 2 PHASES	1	2				6			9
MAX EV	255	LAG PHASES	READ ONLY								A
RR2 CLR	15	RED REST									B
		REST-IN-WALK									C
		MAX 3 PHASES									D
		YEL START UP		2				6			E
		FIRST PHASE								8	F
			1	2	3	4	5	6	7	8	

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 8

FZ 2 BIKE = 4 sec

FZ 6 BIKE = 1 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														LAG FZ FREE		2				6		8	0
1	FZ1 GRN FCTR													GAPOUT CP1	LAG FZ CP 1									1
2														GAPOUT CP2	LAG FZ CP 2									2
3	FZ3 GRN FCTR													GAPOUT CP3	LAG FZ CP 3									3
4	FZ4 GRN FCTR										PERM TIME			GAPOUT CP4	LAG FZ CP 4									4
5	FZ5 GRN FCTR										LAG OFFSET			GAPOUT CP5	LAG FZ CP 5									5
6											FORCE OFF			GAPOUT CP6	LAG FZ CP 6									6
7	FZ7 GRN FCTR										LONG GRN			GAPOUT CP7	LAG FZ CP 7									7
8	FZ8 GRN FCTR										NO GREEN			GAPOUT CP8	LAG FZ CP 8									8
9	MULTI CYCLE													GAPOUT CP9	LAG FZ CP 9									9
A	OFFSET A										OFFSET				LAG C COORD									A
B	OFFSET B														LAG D COORD									B
C	OFFSET C														COORD FAZES		2				6			C
D	FZ 3 EXT																							D
E	FZ 7 EXT																							E
F	OFFSET INTRPT																							F
																1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76X @
RTE 5 SB

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 3

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

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 NB RAMPS**

CALTRANS C8 Version 3 DATE: 10/9/98 PAGE 3

D PAGE

	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									CP 1								
2	CP 2									CP 2									CP 2								
3	CP 3									CP 3									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									CP 8								
9	CP 9									CP 9									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

E PAGE

	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								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	

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

LOCATION: **RTE 76 EXPRESSWAY @ RTE 5 NB RAMPS**

CALTRANS C8 Version 3 DATE: 5/22/06 PAGE 4

7 PAGE

TIME OF DAY ACTIVITY TABLE

7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS

	HR	MIN	ACT	ON/OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	**05**	**30**	**4**	**ON**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
1	**05**	**31**	**2**	**ON**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2	**14**	**30**	**2**		**1**	**2**	**3**	**4**	**5**	**6**	**7**
3	**14**	**31**	**4**		**1**	**2**	**3**	**4**	**5**	**6**	**7**
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY

9+EVENT+HR+MIN+CP+OS+E+DOW

	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY

9+EVENT+HR+MIN+CP+OS+E+DOW

	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

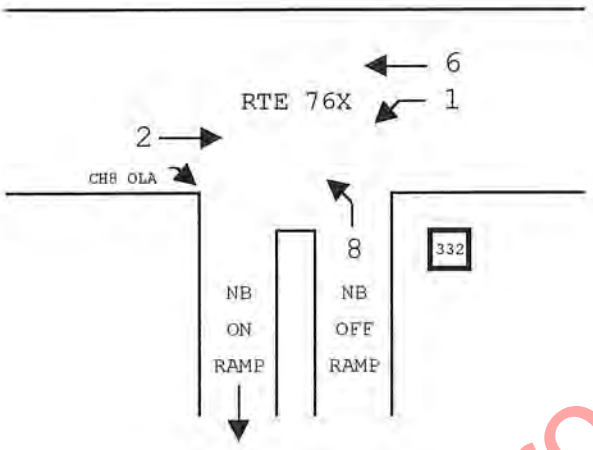
ACTIVITY CODE

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
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

DATE: 11/1/95

LOCATION: RTE 76 EXPRESSWAY @ RTE 5 NB RAMPS

CONFLICT MONITOR PROGRAM



LOCATION: **RTE 76 EXPRESSWAY @ LORETTA STREET**

CALTRANS C8 Version 3 DATE: 12/8/14

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1				1		7	CLK RST
1	DONT WALK	1	1				1		25	
2	MIN GREEN	9	25				25		10	
3	TYPE 3 DET	0	255				255		0	
4	ADD/VEH	0.0	0.0				0.0		0.0	
5	PASSAGE	2.0	6.3				6.3		2.0	
6	MAX GAP	2.0	8.3				8.3		2.0	
7	MIN GAP	2.0	3.5				3.5		2.0	
8	MAX EXT	20	50				50		24	
9	MAX 2		80				80		10	YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.1				0.1		0.0	DOW
D	EVERY	1.0	1.0				1.0		1.0	HR
E	**YELLOW**	3.7	5.5				5.5		4.1	MIN
F	RED	2.0	2.5				2.5		2.0	SEC
3.5	PED XING FT									
	BIKE XING FT	103	70				60		132	

PRE-EMPTION E	
EV SEL	0
RR1 CLR	15
EVA DLY	0
EVA CLR	5
EVB DLY	0
EVB CLR	5
EVC DLY	0
EVC CLR	5
EVD DLY	0
EVD CLR	5
MAX EV	255
RR2 CLR	15

F FLAGS	1	2	3	4	5	6	7	8	
PERMIT	1	2				6		8	0
RED LOCK	1							8	1
YEL LOCK									2
V RECALL		2				6			3
P RECALL									4
PED PHASES								8	5
RT OLA									6
RT OLB									7
DBL ENTRY									8
MAX 2 PHASES		2				6		8	9
LAG PHASES	READ ONLY								A
RED REST									B
REST-IN-WALK									C
MAX 3 PHASES									D
YEL START UP		2				6			E
FIRST PHASE								8	F
	1	2	3	4	5	6	7	8	

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 8

OLB = FZ 1

FZ 2 BIKE = 4 sec

FZ 6 BIKE = 3 sec

FZ 8 BIKE = 10 sec

FZ 8 BIKE PB = use pedestrian calculation

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				6		8	0
1	FZ1 GRN FCTR	20	20	20	20	20	20		20	20				GAPOUT CP1	1	LAG FZ CP 1	1					6		8	1
2														GAPOUT CP2	1	LAG FZ CP 2	1					6		8	2
3	FZ3 GRN FCTR	0	0	0	0	0	0		0	0				GAPOUT CP3	0	LAG FZ CP 3		2				6		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	0	0	0	0	0	0		0	0	LAG OFFSET			GAPOUT CP5	1	LAG FZ CP 5	1					6		8	5
6											FORCE OFF			GAPOUT CP6	0	LAG FZ CP 6		2				6		8	6
7	FZ7 GRN FCTR	0	0	0	0	0	0		0	0	LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	34	34	34	34	34	34		34	34	NO GREEN			GAPOUT CP8	1	LAG FZ CP 8	1					6		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	0	0	0	0	0	0		0	0	OFFSET					LAG C COORD									A
B	OFFSET B	0	0	0	0	0	0		0	0						LAG D COORD									B
C	OFFSET C	0	0	0	0	0	0		0	0						COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76X @
COLLEGE BLVD

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 4

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									CP 1								
2	CP 2									CP 2									CP 2								
3	CP 3									CP 3									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									CP 8								
9	CP 9									CP 9									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

E PAGE

	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	

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

9 PAGE C09 = 0 or 1

9 PAGE C09 = 2

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 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 1	M 2	T 3	W 4	T 5	F 6	S 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											

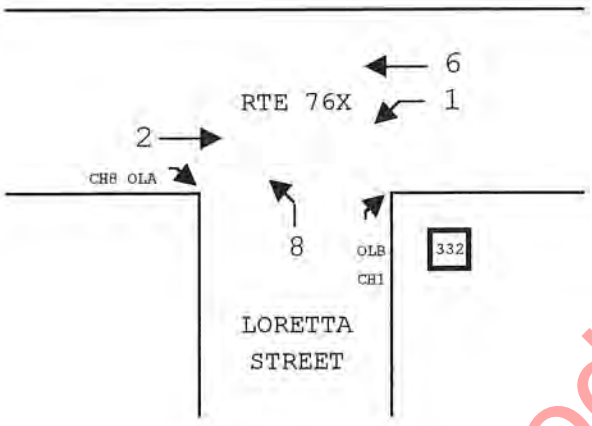
8 ENERGIZE AUX OUTPUT-YELLOW
9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

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

DATE: 11/1/95

LOCATION: RTE 76 EXPRESSWAY @ LORETTA STREET

CONFLICT MONITOR PROGRAM



	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	7				1		7	CLK RST
1	DONT WALK	1	19				1		26	
2	MIN GREEN	10	25				25		9	
3	TYPE 3 DET	0	255				255		0	
4	ADD/VEH	0.0	0.0				0.0		0.0	
5	PASSAGE	2.0	6.3				6.3		2.0	
6	MAX GAP	4.0	8.3				8.3		2.0	
7	MIN GAP	1.0	3.5				3.5		2.0	
8	MAX EXT	30	50				50		21	
9	MAX 2		80				80		11	YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.1	0.1				0.1		0.0	DOW
D	EVERY	1.0	1.0				1.0		1.0	HR
E	**YELLOW**	3.7	5.5				5.5		4.1	MIN
F	RED	2.0	2.5				2.5		2.0	SEC
3.5	PED XING FT		92						117	
	BIKE XING FT	117	91				65		141	

PRE-EMPTION E		FLAGS	1	2	3	4	5	6	7	8	F
EV SEL	0	PERMIT	1	2				6		8	0
RR1 CLR	15	RED LOCK	1							8	1
EVA DLY	0	YEL LOCK									2
EVA CLR	5	V RECALL		2				6			3
EVB DLY	0	P RECALL									4
EVB CLR	5	PED PHASES		2						8	5
EVC DLY	0	RT OLA									6
EVC CLR	5	RT OLB									7
EVD DLY	0	DBL ENTRY									8
EVD CLR	5	MAX 2 PHASES		2				6		8	9
MAX EV	255	LAG PHASES	READ ONLY								A
RR2 CLR	15	RED REST									B
		REST-IN-WALK									C
		MAX 3 PHASES									D
		YEL START UP		2				6			E
		FIRST PHASE								8	F
			1	2	3	4	5	6	7	8	

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 8
OLB = FZ 1
FZ 2 BIKE = 6 sec
FZ 6 BIKE = 4 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				6		8	0
1	FZ1 GRN FCTR	30	30	30	30	30	30		35	35				GAPOUT CP1	0	LAG FZ CP 1		2				6		8	1
2														GAPOUT CP2	0	LAG FZ CP 2		2				6		8	2
3	FZ3 GRN FCTR	0	0	0	0	0	0		0	0				GAPOUT CP3	0	LAG FZ CP 3		2				6		8	3
4	FZ4 GRN FCTR	0	0	0	0	0	0		0	0	PERM TIME			GAPOUT CP4	1	LAG FZ CP 4	1					6		8	4
5	FZ5 GRN FCTR	0	0	0	0	0	0		0	0	LAG OFFSET			GAPOUT CP5	0	LAG FZ CP 5		2				6		8	5
6											FORCE OFF			GAPOUT CP6	1	LAG FZ CP 6	1					6		8	6
7	FZ7 GRN FCTR	0	0	0	0	0	0		0	0	LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	31	31	31	31	31	31		31	31	NO GREEN			GAPOUT CP8	0	LAG FZ CP 8		2				6		8	8
9	MULTI CYCLE	0	0	0	0	0	0		0	0				GAPOUT CP9	1	LAG FZ CP 9	1					6		8	9
A	OFFSET A	141	19	44	83	26	76		44	82	OFFSET					LAG C COORD									A
B	OFFSET B	141	19	44	83	26	76		44	82						LAG D COORD									B
C	OFFSET C	141	19	44	83	26	76		44	82						COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76X @
COLLEGE BLVD

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 5

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 PAGE

	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									CP 1								
2	CP 2									CP 2									CP 2								
3	CP 3									CP 3									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									CP 8								
9	CP 9									CP 9									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

E PAGE

	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	

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 1	M 2	T 3	W 4	T 5	F 6	S 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

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY

9+EVENT+HR+MIN+CP+OS+E+DOW

	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 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

9 PAGE C09 = 2

CONTROL PLAN TIME OF DAY

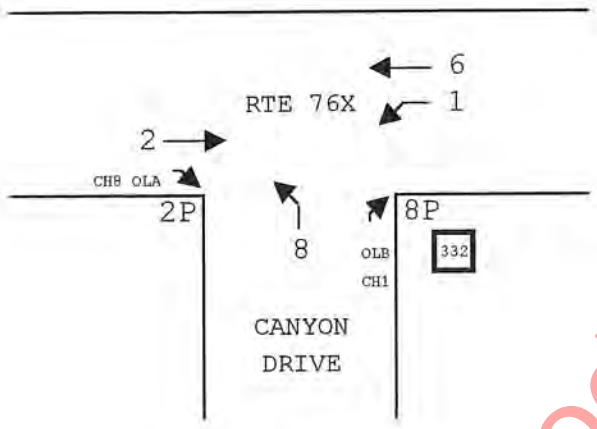
9+EVENT+HR+MIN+CP+OS+E+DOW

	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

DATE: 5/20/97

LOCATION: RTE 76 EXPRESSWAY @ CANYON DRIVE

CONFLICT MONITOR PROGRAM



LOCATION: **RTE 76 EXPRESSWAY @ BENET ROAD - AIRPORT ROAD (WEST)**

CALTRANS C8 Version 3 DATE: 10/1/2015 PAGE 1

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1	1	1	1	1	1	7	CLK RST
1	DONT WALK	1	1	1	1	1	1	1	37	
2	MIN GREEN	12	25	12	11	13	25	12	12	
3	TYPE 3 DET	0	255	0	0	0	255	0	0	
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	PASSAGE	2.0	6.3	2.0	2.0	3.0	6.3	3.0	2.0	
6	MAX GAP	2.0	8.3	2.0	2.0	5.0	8.3	5.0	2.0	
7	MIN GAP	2.0	3.5	2.0	2.0	2.0	3.5	2.0	2.0	
8	MAX EXT	18	50	18	24	27	50	28	23	
9	MAX 2	8	80	3	4	2	80	0	3	YR
A	MAX 3	3	80		4		80		3	MO
B										DAY
C	REDUCE BY	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	DOW
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR
E	**YELLOW**	3.7	5.5	3.7	4.1	3.7	5.5	3.7	4.1	MIN
F	RED	2.0	2.5	2.0	2.0	2.0	2.5	2.0	2.0	SEC
3.5	PED XING FT								150	
	BIKE XING FT	160	164	160	149	164	154	149	156	

PRE-EMPTION E		F FLAGS	1	2	3	4	5	6	7	8	
EV SEL	0	PERMIT	1	2	3	4	5	6	7	8	0
RR1 CLR	15	RED LOCK									1
EVA DLY	0	YEL LOCK				4					2
EVA CLR	5	V RECALL		2				6			3
EVB DLY	0	P RECALL									4
EVB CLR	5	PED PHASES								8	5
EVC DLY	0	RT OLA									6
EVC CLR	5	RT OLB									7
EVD DLY	0	DBL ENTRY				4				8	8
EVD CLR	5	MAX 2 PHASES	1	2	3	4		6	7	8	9
MAX EV	255	LAG PHASES	READ ONLY								A
RR2 CLR	15	RED REST									B
		REST-IN-WALK									C
		MAX 3 PHASES	1	2		4		6		8	D
		YEL START UP		2				6			E
		FIRST PHASE			3				7		F
			1	2	3	4	5	6	7	8	

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 5

FZ 2 BIKE = 10 sec

FZ 6 BIKE = 10 sec

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 76 EXPRESSWAY @ BENET ROAD - AIRPORT ROAD (WEST)**

CALTRANS C8 Version 3 DATE: 10/1/2015 PAGE 2

C PAGE

		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	15	15	15	15	15	15		15	15				GAPOUT CP1	1	LAG FZ CP 1	1		3			6		8	1
2														GAPOUT CP2	1	LAG FZ CP 2	1		3			6		8	2
3	FZ3 GRN FCTR	18	18	18	18	18	18		18	18				GAPOUT CP3	1	LAG FZ CP 3		2	3		5			8	3
4	FZ4 GRN FCTR	15	15	15	15	15	15		15	15	PERM TIME			GAPOUT CP4	1	LAG FZ CP 4		2	3		5			8	4
5	FZ5 GRN FCTR	15	25	40	25	25	40		40	40	LAG OFFSET			GAPOUT CP5	1	LAG FZ CP 5	1		3			6		8	5
6											FORCE OFF			GAPOUT CP6	1	LAG FZ CP 6		2	3		5			8	6
7	FZ7 GRN FCTR	15	15	15	15	15	15		15	15	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	3		5			8	8
9	MULTI CYCLE	0	0	0	0	0	0		0	0				GAPOUT CP9	1	LAG FZ CP 9		2	3		5			8	9
A	OFFSET A	69	68	37	76	75	51		38	47	OFFSET					LAG C COORD									A
B	OFFSET B	69	68	37	76	75	51		38	47						LAG D COORD									B
C	OFFSET C	69	68	37	76	75	51		38	47						COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT	10	10	20	10	10	20		20	20															E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76X @
COLLEGE BLVD

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 6

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

LOCATION: **RTE 76 EXPRESSWAY @ BENET ROAD - AIRPORT ROAD (WEST)**

CALTRANS C8 Version 3 DATE: 8/13/10 PAGE 3

D PAGE

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

E PAGE

	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	

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

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	05	30	3	ON	1	2	3	4	5	6	7
1	06	00	2	ON		2	3	4	5	6	
2	08	00	2			2	3	4	5	6	
3	21	00	3		1	2	3	4	5	6	7
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

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 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											

9 PAGE C09 = 2

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

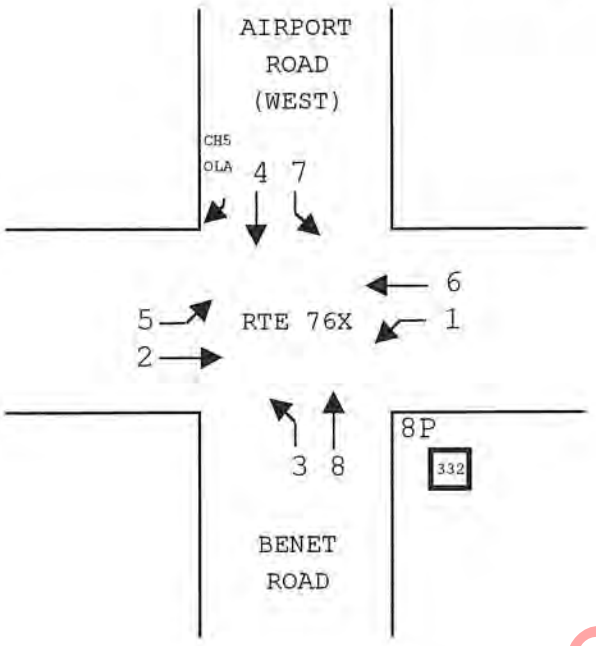
ACTIVITY CODE

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
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

DATE: 11/1/95

LOCATION: RTE 76 EXPRESSWAY @ BENET ROAD - AIRPORT ROAD (WEST)

CONFLICT MONITOR PROGRAM



LOCATION: **RTE 76 EXPRESSWAY @ FOUSSAT ROAD**
CALTRANS C8 Version 3 DATE: 12/8/14 PAGE 1
F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1	1	1	1	7	1	7	CLK RST
1	DONT WALK	1	1	1	1	1	33	1	39	
2	MIN GREEN	12	25	13	13	13	25	13	12	
3	TYPE 3 DET	0	255	0	0	0	255	0	0	
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	PASSAGE	1.5	6.3	1.5	1.5	1.5	6.3	1.5	1.5	
6	MAX GAP	1.5	8.3	1.5	1.5	1.5	8.3	1.5	1.5	
7	MIN GAP	1.5	3.5	1.5	1.5	1.5	3.5	1.5	1.5	
8	MAX EXT	13	50	22	17	7	50	12	18	
9	MAX 2		80				80		0	YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	DOW
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR
E	**YELLOW**	3.7	5.5	3.7	4.1	3.7	5.5	3.7	4.1	MIN
F	RED	2.0	2.5	2.0	2.0	2.0	2.5	2.0	2.0	SEC
3.5	PED XING FT						142		156	
	BIKE XING FT	150	163	162	169	171	151	163	155	

PRE-EMPTION E	
EV SEL	0
RR1 CLR	15
EVA DLY	0
EVA CLR	5
EVB DLY	0
EVB CLR	5
EVC DLY	0
EVC CLR	5
EVD DLY	0
EVD CLR	5
MAX EV	255
RR2 CLR	15

F FLAGS	1	2	3	4	5	6	7	8	
PERMIT	1	2	3	4	5	6	7	8	0
RED LOCK					5				1
YEL LOCK									2
V RECALL		2				6			3
P RECALL									4
PED PHASES						6		8	5
RT OLA									6
RT OLB									7
DBL ENTRY				4				8	8
MAX 2 PHASES		2				6		8	9
LAG PHASES	READ ONLY								A
RED REST									B
REST-IN-WALK									C
MAX 3 PHASES									D
YEL START UP		2				6			E
FIRST PHASE			3				7		F
	1	2	3	4	5	6	7	8	

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:
FZ 2 BIKE = 10 sec
FZ 6 BIKE = 10 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	15	15	15	15	15	15		15	15				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	16	16	16	16	16	16		16	16				GAPOUT CP3	1	LAG FZ CP 3		2		4	5			8	3
4	FZ4 GRN FCTR	14	14	14	14	14	14		14	14	PERM TIME			GAPOUT CP4	1	LAG FZ CP 4	1			4		6		8	4
5	FZ5 GRN FCTR	15	15	15	15	15	15		15	15	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	13	13	13	13	13	13		13	13	LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	46	46	46	46	46	46		46	46	NO GREEN			GAPOUT CP8	1	LAG FZ CP 8	1			4		6		8	8
9	MULTI CYCLE	0	0	0	0	0	0		0	0				GAPOUT CP9	1	LAG FZ CP 9	1			4		6		8	9
A	OFFSET A	53	69	120	9	75	148		135	151	OFFSET					LAG C COORD									A
B	OFFSET B	53	69	120	9	75	148		135	151						LAG D COORD									B
C	OFFSET C	53	69	120	9	75	148		135	151						COORD FAZES		2				6			C
D	FZ 3 EXT																								D
E	FZ 7 EXT	3	3	3	3	3	3		3	3															E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 76 X @
COLLEGE BLVD

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

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

COO = 8

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

LOCATION: **RTE 76 EXPRESSWAY @ FOUSSAT ROAD**

CALTRANS C8 Version 3 DATE: 12/6/11 PAGE 3

D PAGE

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

	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	

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

9 PAGE C09 = 0 or 1

9 PAGE C09 = 2

TIME OF DAY ACTIVITY TABLE

7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS

	HR	MIN	ACT	ON/OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 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
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 1	M 2	T 3	W 4	T 5	F 6	S 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											

CONTROL PLAN TIME OF DAY

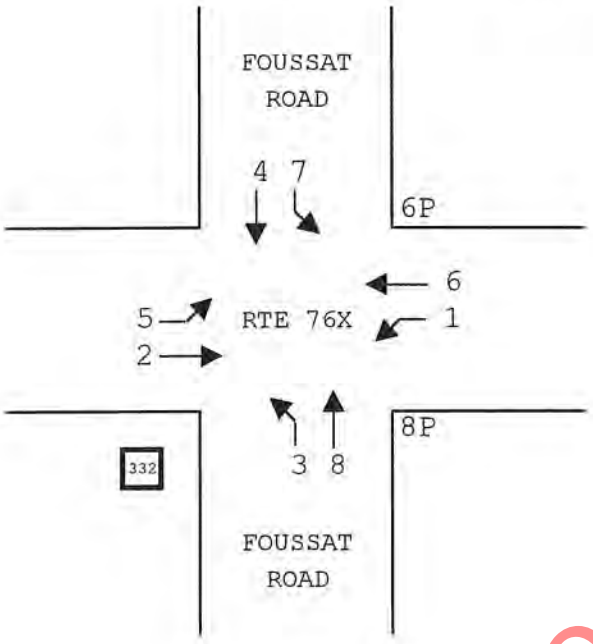
9+EVENT+HR+MIN+CP+OS+E+DOW

	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

DATE: 3/25/99

LOCATION: RTE 76 EXPRESSWAY @ FOUSSAT ROAD

CONFLICT MONITOR PROGRAM



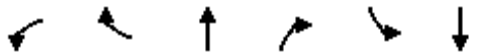
Appendix F

Existing Intersection LOS Worksheets

Lane Group	NBT	NBR	SBL	SBT
Lane Configurations				
Traffic Volume (vph)	280	215	1060	445
Future Volume (vph)	280	215	1060	445
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	5.0	5.0	5.0	4.0
Minimum Split (s)	22.8	22.8	10.7	20.0
Total Split (s)	31.0	31.0	49.0	80.0
Total Split (%)	38.8%	38.8%	61.3%	100.0%
Yellow Time (s)	4.8	4.8	3.7	3.5
All-Red Time (s)	2.0	2.0	2.0	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	
Total Lost Time (s)	6.8	6.8	5.7	
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	
Recall Mode	Min	Min	None	Min
Act Effct Green (s)	32.4	32.4	35.1	0.0
Actuated g/C Ratio	0.40	0.40	0.44	0.00
v/c Ratio	0.21	0.35	0.76	no cap
Control Delay	17.4	15.1	22.2	
Queue Delay	0.0	0.0	0.0	
Total Delay	17.4	15.1	22.2	Error
LOS	B	B	C	F
Approach Delay	16.4			Err
Approach LOS	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 39.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	280	215	1060	445
Future Volume (veh/h)	0	0	280	215	1060	445
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			304	234	1152	484
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			862	384	1562	0
Arrive On Green			0.24	0.24	0.45	0.83
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			304	234	1152	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			2.9	5.4	11.2	0.0
Cycle Q Clear(g_c), s			2.9	5.4	11.2	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			862	384	1562	0
V/C Ratio(X)			0.35	0.61	0.74	0.00
Avail Cap(c_a), veh/h			2102	938	3657	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			12.8	13.8	9.2	0.0
Incr Delay (d2), s/veh			0.2	1.6	0.7	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.0	1.7	3.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			13.1	15.3	9.9	0.0
LnGrp LOS			B	B	A	A
Approach Vol, veh/h			538			1152
Approach Delay, s/veh			14.1			9.9
Approach LOS			B			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	24.2	16.7				40.9
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	13.2	7.4				0.0
Green Ext Time (p_c), s	5.3	2.6				0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

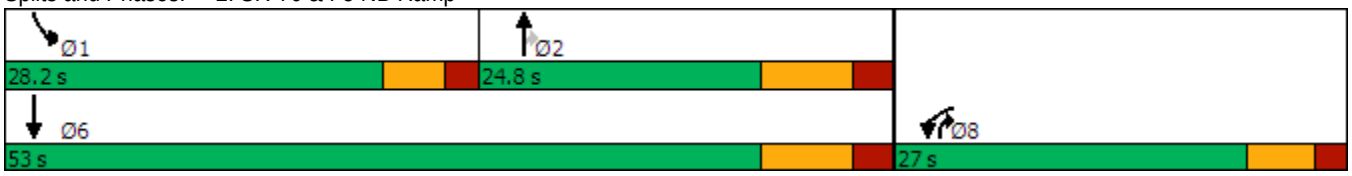
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	81	540	89	881	1381
Future Volume (vph)	81	540	89	881	1381
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	0.99	0.79	0.11	0.99	0.75
Control Delay	42.9	39.0	7.4	57.7	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	39.0	7.4	57.7	16.4
LOS	D	D	A	E	B
Approach Delay	42.9	34.6			32.5
Approach LOS	D	C			C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 34.9	Intersection LOS: C
Intersection Capacity Utilization 99.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	81	615	540	89	881	1381
Future Volume (veh/h)	81	615	540	89	881	1381
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	1900	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	668	587	97	958	1501
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1436	458	1166	3017
Arrive On Green	0.00	0.00	0.40	0.40	0.34	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	587	97	958	1501
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	6.2	2.5	13.5	5.8
Cycle Q Clear(g_c), s	0.0	0.0	6.2	2.5	13.5	5.8
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1436	458	1166	3017
V/C Ratio(X)	0.00	0.00	0.41	0.21	0.82	0.50
Avail Cap(c_a), veh/h	0	0	1436	458	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.3	14.3	16.1	1.0
Incr Delay (d2), s/veh	0.0	0.0	0.9	1.1	3.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.2	0.7	5.1	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	12.1	15.3	19.2	1.6
LnGrp LOS	A	A	B	B	B	A
Approach Vol, veh/h	0		684			2459
Approach Delay, s/veh	0.0		12.6			8.5
Approach LOS			B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	23.6	29.4			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	15.5	8.2			7.8	0.0
Green Ext Time (p_c), s	2.4	2.8			16.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.4
HCM 6th LOS	A

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1110	23	12	2240	43	26
Future Volume (vph)	1110	23	12	2240	43	26
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.53	0.02	0.13	0.97	0.13	0.06
Control Delay	17.5	0.5	66.0	36.5	53.9	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	0.5	66.0	36.5	53.9	12.9
LOS	B	A	E	D	D	B
Approach Delay	17.2			36.6	38.6	
Approach LOS	B			D	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 30.3	Intersection LOS: C
Intersection Capacity Utilization 82.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1110	23	12	2240	43	26
Future Volume (veh/h)	1110	23	12	2240	43	26
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	1207	25	13	2435	47	28
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	2315	1350	44	2530	356	356
Arrive On Green	0.65	0.65	0.02	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1207	25	13	2435	47	28
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	28.7	0.4	1.1	100.3	3.5	2.2
Cycle Q Clear(g_c), s	28.7	0.4	1.1	100.3	3.5	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2315	1350	44	2530	356	356
V/C Ratio(X)	0.52	0.02	0.30	0.96	0.13	0.08
Avail Cap(c_a), veh/h	2315	1350	100	2530	356	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.45	0.45	1.00	1.00
Uniform Delay (d), s/veh	14.7	1.8	76.7	21.1	52.6	49.0
Incr Delay (d2), s/veh	0.8	0.0	1.7	6.1	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	0.3	0.6	40.5	1.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.6	1.8	78.3	27.2	53.4	49.4
LnGrp LOS	B	A	E	C	D	D
Approach Vol, veh/h	1232			2448	75	
Approach Delay, s/veh	15.3			27.4	51.9	
Approach LOS	B			C	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	112.3			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	3.1	30.7			102.3	5.5
Green Ext Time (p_c), s	0.0	13.2			10.7	0.2

Intersection Summary		
HCM 6th Ctrl Delay		23.9
HCM 6th LOS		C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1138	14	74	2249	20	75
Future Volume (vph)	1138	14	74	2249	20	75
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	113.9	135.7	12.5	132.1	13.8	32.4
Actuated g/C Ratio	0.71	0.85	0.08	0.83	0.09	0.20
v/c Ratio	0.49	0.01	0.58	0.84	0.07	0.22
Control Delay	21.0	0.9	59.7	17.6	63.3	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.0	0.9	59.7	17.6	63.3	16.6
LOS	C	A	E	B	E	B
Approach Delay	20.7			18.9	26.5	
Approach LOS	C			B	C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.84	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1138	14	74	2249	20	75
Future Volume (veh/h)	1138	14	74	2249	20	75
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	1237	15	80	2445	22	82
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	2677	1293	108	3020	215	195
Arrive On Green	0.75	0.75	0.06	0.85	0.06	0.06
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1237	15	80	2445	22	82
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	21.1	0.3	7.1	53.0	1.0	7.7
Cycle Q Clear(g_c), s	21.1	0.3	7.1	53.0	1.0	7.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2677	1293	108	3020	215	195
V/C Ratio(X)	0.46	0.01	0.74	0.81	0.10	0.42
Avail Cap(c_a), veh/h	2677	1293	164	3020	713	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	7.5	2.7	73.9	5.8	70.8	64.9
Incr Delay (d2), s/veh	0.5	0.0	0.9	0.2	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.1	3.3	15.0	0.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.9	2.8	74.8	6.0	71.0	66.4
LnGrp LOS	A	A	E	A	E	E
Approach Vol, veh/h	1252			2525	104	
Approach Delay, s/veh	7.9			8.2	67.3	
Approach LOS	A			A	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	15.4	128.5				144.0	16.0
Change Period (Y+Rc), s	* 5.7	8.0				8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5				112.9	33.0
Max Q Clear Time (g_c+I1), s	9.1	23.1				55.0	9.7
Green Ext Time (p_c), s	0.1	13.7				43.7	0.3

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

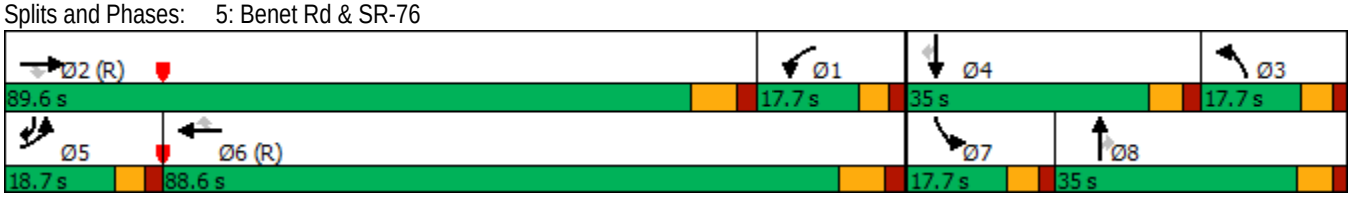
Notes

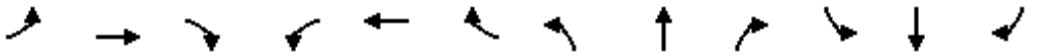
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	1023	129	30	2022	7	50	4	46	8	12	248
Future Volume (vph)	98	1023	129	30	2022	7	50	4	46	8	12	248
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	35.0	35.0	17.7	20.0	18.7
Total Split (s)	18.7	89.6	89.6	17.7	88.6	88.6	17.7	35.0	35.0	17.7	35.0	18.7
Total Split (%)	11.7%	56.0%	56.0%	11.1%	55.4%	55.4%	11.1%	21.9%	21.9%	11.1%	21.9%	11.7%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	Min	None
Act Effct Green (s)	14.5	96.7	96.7	12.0	90.7	90.7	18.3	31.5	31.5	12.0	11.0	25.9
Actuated g/C Ratio	0.09	0.60	0.60	0.08	0.57	0.57	0.11	0.20	0.20	0.08	0.07	0.16
v/c Ratio	0.67	0.52	0.14	0.25	1.10	0.01	0.55	0.01	0.11	0.07	0.10	0.74
Control Delay	89.5	31.0	11.9	78.8	81.3	0.0	75.9	52.0	0.5	70.2	71.9	35.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	89.5	31.0	11.9	78.8	81.3	0.0	75.9	52.0	0.5	70.2	71.9	35.9
LOS	F	C	B	E	F	A	E	D	A	E	E	D
Approach Delay		33.6			81.0			52.5			38.6	
Approach LOS		C			F			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 60.9	Intersection LOS: E
Intersection Capacity Utilization 97.4%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	1023	129	30	2022	7	50	4	46	8	12	248
Future Volume (veh/h)	98	1023	129	30	2022	7	50	4	46	8	12	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	107	1112	140	33	2198	8	111	4	50	9	13	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	143	1812	808	175	1925	859	133	362	307	44	264	352
Arrive On Green	0.08	1.00	0.51	0.10	1.00	0.54	0.07	0.19	0.19	0.02	0.14	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	107	1112	140	33	2198	8	111	4	50	9	13	270
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	9.4	0.0	7.6	2.7	0.0	0.4	9.8	0.3	3.2	0.8	1.0	20.1
Cycle Q Clear(g_c), s	9.4	0.0	7.6	2.7	0.0	0.4	9.8	0.3	3.2	0.8	1.0	20.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1812	808	175	1925	859	133	362	307	44	264	352
V/C Ratio(X)	0.75	0.61	0.17	0.19	1.14	0.01	0.84	0.01	0.16	0.20	0.05	0.77
Avail Cap(c_a), veh/h	145	1812	808	175	1925	859	134	362	307	134	338	414
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.88	0.88	0.88	0.22	0.22	0.22	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.0	0.0	21.1	66.3	0.0	16.9	73.1	52.1	31.8	76.5	59.4	31.3
Incr Delay (d2), s/veh	16.7	1.4	0.4	0.1	65.3	0.0	34.7	0.0	0.2	2.3	0.1	7.2
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	5.0	0.3	3.0	1.3	17.5	0.1	5.8	0.1	1.7	0.4	0.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.7	1.4	21.5	66.4	65.3	16.9	107.8	52.2	32.0	78.7	59.5	38.5
LnGrp LOS	F	A	C	E	F	B	F	D	C	E	E	D
Approach Vol, veh/h		1359			2239			165			292	
Approach Delay, s/veh		10.3			65.2			83.5			40.6	
Approach LOS		B			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.7	89.6	18.0	28.7	18.6	94.7	9.7	37.1
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 82	12.0	* 29	* 13	80.6	* 12	28.9
Max Q Clear Time (g_c+I1), s	4.7	9.6	11.8	22.1	11.4	2.4	2.8	5.2
Green Ext Time (p_c), s	0.0	12.3	0.0	0.6	0.0	44.7	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

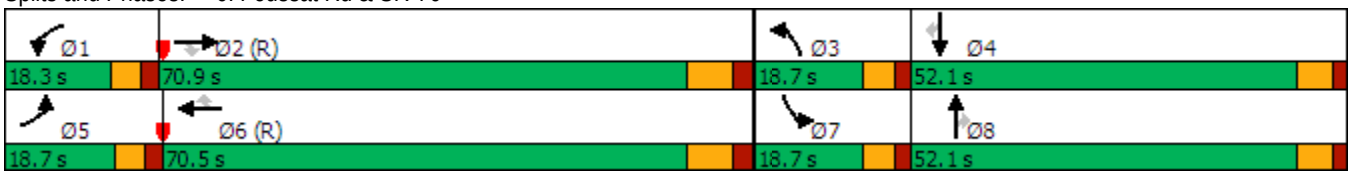
User approved pedestrian interval to be less than phase max green.

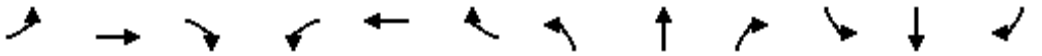
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	971	53	143	1875	71	116	54	84	148	85	43
Future Volume (vph)	33	971	53	143	1875	71	116	54	84	148	85	43
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	18.7	70.9	70.9	18.3	70.5	70.5	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	11.7%	44.3%	44.3%	11.4%	44.1%	44.1%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	89.3	89.3	12.6	92.6	92.6	13.0	19.6	19.6	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.13	0.53	0.06	0.57	0.99	0.08	0.45	0.09	0.31	0.58	0.21	0.11
Control Delay	102.8	4.4	0.2	79.9	51.5	2.6	75.7	59.0	6.6	79.7	61.6	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.8	4.4	0.2	79.9	51.5	2.6	75.7	59.0	6.6	79.7	61.6	0.5
LOS	F	A	A	E	D	A	E	E	A	E	E	A
Approach Delay		7.3			51.8			49.4			61.8	
Approach LOS		A			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 18.7 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 39.6	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	971	53	143	1875	71	116	54	84	148	85	43
Future Volume (veh/h)	33	971	53	143	1875	71	116	54	84	148	85	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1055	58	155	2038	77	126	59	91	161	92	47
Peak Hour Factor	0.92	0.92	0.92	0.92	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	224	2145	957	259	2180	973	280	414	128	281	289	227
Arrive On Green	0.13	1.00	1.00	0.07	0.61	0.61	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	36	1055	58	155	2038	77	126	59	91	161	92	47
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.5	0.0	0.0	7.0	83.1	3.2	5.6	1.7	9.0	7.2	3.9	2.5
Cycle Q Clear(g_c), s	1.5	0.0	0.0	7.0	83.1	3.2	5.6	1.7	9.0	7.2	3.9	2.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	224	2145	957	259	2180	973	280	414	128	281	289	227
V/C Ratio(X)	0.16	0.49	0.06	0.60	0.93	0.08	0.45	0.14	0.71	0.57	0.32	0.21
Avail Cap(c_a), veh/h	281	2145	957	272	2180	973	281	1468	456	281	1022	802
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.8	0.0	0.0	71.7	28.0	12.6	70.1	68.4	71.7	70.8	69.3	68.7
Incr Delay (d2), s/veh	0.3	0.7	0.1	3.3	9.0	0.2	1.1	0.2	7.0	2.8	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	0.7	0.2	0.0	3.2	36.9	1.2	2.5	0.8	3.9	3.3	1.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.0	0.7	0.1	75.0	37.0	12.7	71.3	68.5	78.7	73.7	70.0	69.1
LnGrp LOS	E	A	A	E	D	B	E	E	E	E	E	E
Approach Vol, veh/h		1149			2270			276			300	
Approach Delay, s/veh		2.7			38.8			73.1			71.8	
Approach LOS		A			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	104.6	18.7	19.1	16.1	106.2	18.7	19.1
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	62.9	* 13	46.0	* 13	62.5	* 13	46.0
Max Q Clear Time (g_c+I1), s	9.0	2.0	7.6	5.9	3.5	85.1	9.2	11.0
Green Ext Time (p_c), s	0.1	10.7	0.2	0.8	0.0	0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	16	77	21	5	269
Future Vol, veh/h	26	16	77	21	5	269
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	28	17	84	23	5	292

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	223	96	0	0	107	0
Stage 1	96	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	753	960	-	-	1483	-
Stage 1	891	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	750	960	-	-	1483	-
Mov Cap-2 Maneuver	750	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	818	1483	-
HCM Lane V/C Ratio	-	-	0.056	0.004	-
HCM Control Delay (s)	-	-	9.7	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	104	1	1	253
Future Vol, veh/h	1	1	104	1	1	253
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	113	1	1	275

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	391	114	0	0	114	0
Stage 1	114	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	613	939	-	-	1475	-
Stage 1	911	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	612	939	-	-	1475	-
Mov Cap-2 Maneuver	612	-	-	-	-	-
Stage 1	911	-	-	-	-	-
Stage 2	769	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	741	1475	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	9.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	5	10	164	268	3
Future Vol, veh/h	2	5	10	164	268	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
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	2	5	11	178	291	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	493	293	294	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	200	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	535	746	1268	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	530	746	1268	-	-	-
Mov Cap-2 Maneuver	530	-	-	-	-	-
Stage 1	750	-	-	-	-	-
Stage 2	834	-	-	-	-	-

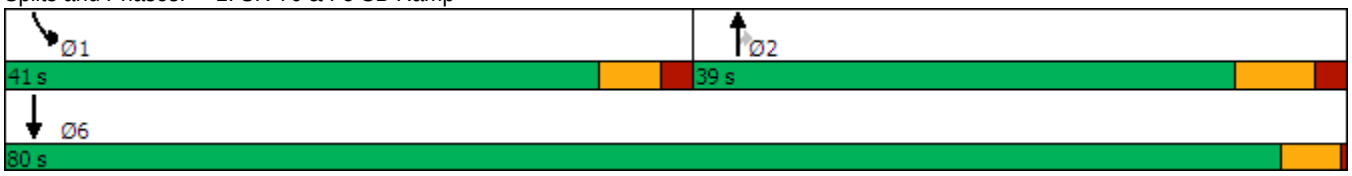
Approach	EB	NB	SB
HCM Control Delay, s	10.5	0.5	0
HCM LOS	B		

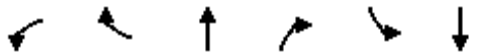
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1268	-	668	-	-
HCM Lane V/C Ratio	0.009	-	0.011	-	-
HCM Control Delay (s)	7.9	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	460	241	675	677
Future Volume (vph)	0	460	241	675	677
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	44.2	44.2	23.3	0.0
Actuated g/C Ratio	0.00	0.55	0.55	0.29	0.00
v/c Ratio	no cap	0.26	0.28	0.74	no cap
Control Delay		10.5	6.7	29.9	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	10.5	6.7	29.9	Error
LOS	F	B	A	C	F
Approach Delay	Err	9.2			Err
Approach LOS	F	A			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 41.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	686	460	241	675	677
Future Volume (veh/h)	0	686	460	241	675	677
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			500	262	734	736
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1139	508	1115	0
Arrive On Green			0.32	0.32	0.32	0.81
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			500	262	734	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			3.9	4.7	6.4	0.0
Cycle Q Clear(g_c), s			3.9	4.7	6.4	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1139	508	1115	0
V/C Ratio(X)			0.44	0.52	0.66	0.00
Avail Cap(c_a), veh/h			3266	1457	3482	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			9.4	9.7	10.2	0.0
Incr Delay (d2), s/veh			0.3	0.8	0.7	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.1	1.3	1.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			9.7	10.5	10.9	0.0
LnGrp LOS			A	B	B	A
Approach Vol, veh/h			762			734
Approach Delay, s/veh			10.0			10.9
Approach LOS			A			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	17.0	18.0				35.0
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	8.4	6.7				0.0
Green Ext Time (p_c), s	2.9	4.5				0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

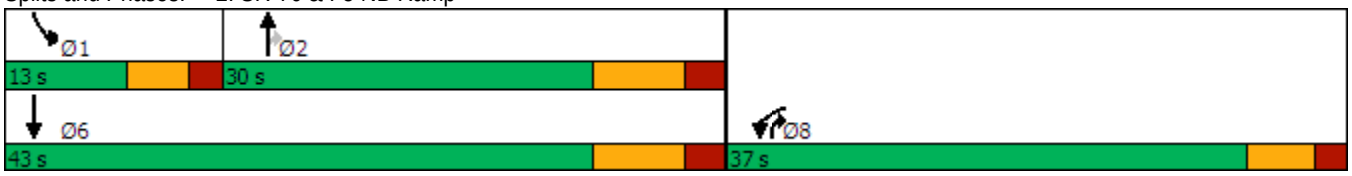
Notes

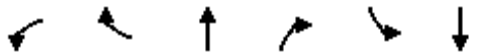
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	235	1054	101	395	1053
Future Volume (vph)	235	1054	101	395	1053
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.45	1.18	0.09	1.37	0.74
Control Delay	231.5	119.8	2.6	217.5	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	231.5	119.8	2.6	217.5	22.3
LOS	F	F	A	F	C
Approach Delay	231.5	109.5			75.5
Approach LOS	F	F			E

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.45	
Intersection Signal Delay: 131.4	Intersection LOS: F
Intersection Capacity Utilization 121.0%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	235	828	1054	101	395	1053
Future Volume (veh/h)	235	828	1054	101	395	1053
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	1900	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	900	1146	110	429	1145
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1836	594	570	2893
Arrive On Green	0.00	0.00	0.52	0.52	0.16	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1146	110	429	1145
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	9.9	2.0	5.1	3.8
Cycle Q Clear(g_c), s	0.0	0.0	9.9	2.0	5.1	3.8
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1836	594	570	2893
V/C Ratio(X)	0.00	0.00	0.62	0.19	0.75	0.40
Avail Cap(c_a), veh/h	0	0	1836	594	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	7.4	9.0	17.1	1.1
Incr Delay (d2), s/veh	0.0	0.0	1.6	0.7	5.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.8	0.5	2.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	9.0	9.7	22.4	1.5
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	0		1256			1574
Approach Delay, s/veh	0.0		9.1			7.2
Approach LOS			A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.8	30.2			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	7.1	11.9			5.8	0.0
Green Ext Time (p_c), s	0.0	5.8			10.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1876	73	20	1409	25	12
Future Volume (vph)	1876	73	20	1409	25	12
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	105.1	147.5	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.66	0.92	0.06	0.71	0.20	0.29
v/c Ratio	0.88	0.05	0.22	0.61	0.08	0.03
Control Delay	29.0	0.3	87.1	7.6	52.9	18.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	0.3	87.1	7.6	52.9	18.6
LOS	C	A	F	A	D	B
Approach Delay	28.0			8.7	41.7	
Approach LOS	C			A	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.88	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 71.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1876	73	20	1409	25	12
Future Volume (veh/h)	1876	73	20	1409	25	12
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	2039	79	22	1532	27	13
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	2278	1333	63	2530	356	373
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2039	79	22	1532	27	13
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	77.3	1.3	1.9	34.9	2.0	1.0
Cycle Q Clear(g_c), s	77.3	1.3	1.9	34.9	2.0	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2278	1333	63	2530	356	373
V/C Ratio(X)	0.89	0.06	0.35	0.61	0.08	0.03
Avail Cap(c_a), veh/h	2278	1333	100	2530	356	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.84	0.84	1.00	1.00
Uniform Delay (d), s/veh	24.2	2.1	75.4	11.7	52.0	47.2
Incr Delay (d2), s/veh	6.0	0.1	2.8	0.9	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.2	1.1	0.9	13.7	0.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.1	2.2	78.2	12.6	52.4	47.4
LnGrp LOS	C	A	E	B	D	D
Approach Vol, veh/h	2118			1554	40	
Approach Delay, s/veh	29.1			13.5	50.8	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	11.3	110.6			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	3.9	79.3			36.9	4.0
Green Ext Time (p_c), s	0.0	15.9			20.7	0.1

Intersection Summary		
HCM 6th Ctrl Delay		22.8
HCM 6th LOS		C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1826	48	136	1416	7	91
Future Volume (vph)	1826	48	136	1416	7	91
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	99.9	39.1	21.0	120.9	39.1	21.0
Total Split (%)	62.4%	24.4%	13.1%	75.6%	24.4%	13.1%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	108.4	130.2	18.0	132.1	13.8	37.9
Actuated g/C Ratio	0.68	0.81	0.11	0.83	0.09	0.24
v/c Ratio	0.83	0.04	0.75	0.53	0.03	0.26
Control Delay	36.5	2.4	60.5	14.7	61.0	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	2.4	60.5	14.7	61.0	44.6
LOS	D	A	E	B	E	D
Approach Delay	35.6			18.7	45.8	
Approach LOS	D			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 28.5	Intersection LOS: C
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1826	48	136	1416	7	91
Future Volume (veh/h)	1826	48	136	1416	7	91
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	1985	52	148	1539	8	99
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	2530	1239	168	2992	242	261
Arrive On Green	0.71	0.71	0.09	0.84	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1985	52	148	1539	8	99
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	58.3	1.2	13.1	19.3	0.3	8.9
Cycle Q Clear(g_c), s	58.3	1.2	13.1	19.3	0.3	8.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2530	1239	168	2992	242	261
V/C Ratio(X)	0.78	0.04	0.88	0.51	0.03	0.38
Avail Cap(c_a), veh/h	2530	1239	170	2992	713	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	0.52	0.52	1.00	1.00
Uniform Delay (d), s/veh	15.0	3.9	71.5	3.5	69.4	59.6
Incr Delay (d2), s/veh	1.0	0.0	22.7	0.3	0.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.7	0.5	7.1	5.7	0.2	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.0	4.0	94.3	3.9	69.4	60.5
LnGrp LOS	B	A	F	A	E	E
Approach Vol, veh/h	2037			1687	107	
Approach Delay, s/veh	15.7			11.8	61.2	
Approach LOS	B			B	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.8	121.9			142.7	17.3
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	91.9			112.9	33.0
Max Q Clear Time (g_c+I1), s	15.1	60.3			21.3	10.9
Green Ext Time (p_c), s	0.0	22.0			21.3	0.3

Intersection Summary	
HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

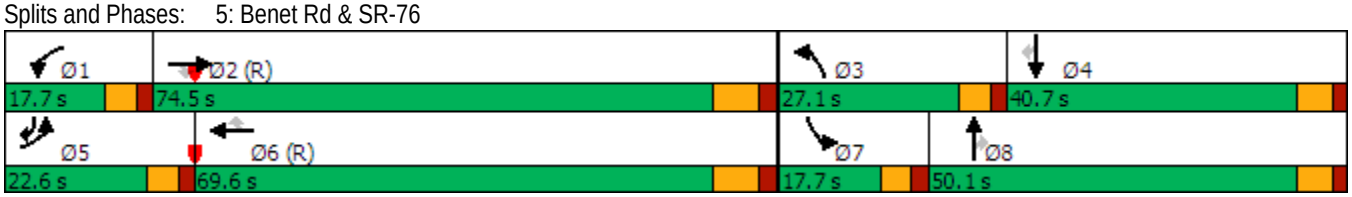
Notes

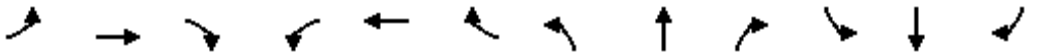
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1711	88	35	1307	12	129	21	91	13	9	117
Future Volume (vph)	180	1711	88	35	1307	12	129	21	91	13	9	117
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	24.9	92.9	92.9	12.0	76.4	76.4	17.4	31.8	31.8	12.0	15.7	46.7
Actuated g/C Ratio	0.16	0.58	0.58	0.08	0.48	0.48	0.11	0.20	0.20	0.08	0.10	0.29
v/c Ratio	0.71	0.91	0.10	0.29	0.84	0.02	0.73	0.06	0.25	0.11	0.05	0.23
Control Delay	67.3	50.7	8.4	74.0	34.5	0.0	89.9	51.2	7.2	71.1	60.7	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	50.7	8.4	74.0	34.5	0.0	89.9	51.2	7.2	71.1	60.7	9.5
LOS	E	D	A	E	C	A	F	D	A	E	E	A
Approach Delay		50.4			35.2			55.3			18.6	
Approach LOS		D			D			E			B	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 44.0	Intersection LOS: D
Intersection Capacity Utilization 87.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1711	88	35	1307	12	129	21	91	13	9	117
Future Volume (veh/h)	180	1711	88	35	1307	12	129	21	91	13	9	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	196	1860	96	38	1421	13	140	23	99	14	10	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	188	2143	956	109	1985	885	162	265	225	62	160	303
Arrive On Green	0.11	0.60	0.60	0.06	0.56	0.56	0.09	0.14	0.14	0.03	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	196	1860	96	38	1421	13	140	23	99	14	10	127
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	69.8	4.1	3.3	47.1	0.6	12.4	1.7	9.1	1.2	0.8	11.3
Cycle Q Clear(g_c), s	16.9	69.8	4.1	3.3	47.1	0.6	12.4	1.7	9.1	1.2	0.8	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	2143	956	109	1985	885	162	265	225	62	160	303
V/C Ratio(X)	1.04	0.87	0.10	0.35	0.72	0.01	0.86	0.09	0.44	0.23	0.06	0.42
Avail Cap(c_a), veh/h	188	2143	956	134	1985	885	238	514	436	134	404	510
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)	0.50	0.50	0.50	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	26.5	13.4	72.1	26.0	15.7	71.7	59.7	62.9	75.1	67.3	56.9
Incr Delay (d2), s/veh	57.7	2.6	0.1	1.5	1.7	0.0	19.0	0.1	1.4	1.8	0.2	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	10.8	29.6	1.5	1.6	20.3	0.2	6.6	0.8	3.8	0.6	0.4	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.2	29.1	13.5	73.5	27.7	15.7	90.7	59.8	64.2	77.0	67.4	57.8
LnGrp LOS	F	C	B	E	C	B	F	E	E	E	E	E
Approach Vol, veh/h		2152			1472			262			151	
Approach Delay, s/veh		37.5			28.8			78.0			60.2	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	104.5	20.3	19.8	22.6	97.4	11.3	28.8
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.3	71.8	14.4	13.3	18.9	49.1	3.2	11.1
Green Ext Time (p_c), s	0.0	0.0	0.2	0.4	0.0	8.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	37.8
HCM 6th LOS	D

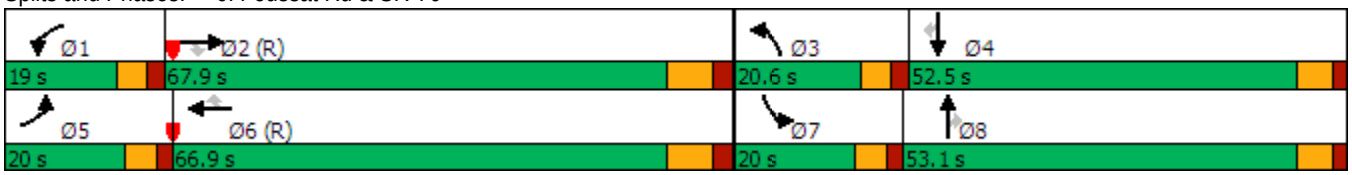
Notes

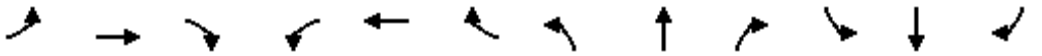
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1723	127	98	1236	102	78	124	136	56	70	26
Future Volume (vph)	27	1723	127	98	1236	102	78	124	136	56	70	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	89.7	89.7	12.2	96.4	96.4	13.0	23.3	23.3	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.60	0.60	0.08	0.15	0.15	0.08	0.12	0.12
v/c Ratio	0.10	0.94	0.15	0.41	0.63	0.11	0.31	0.18	0.41	0.22	0.18	0.06
Control Delay	55.7	40.4	17.1	75.3	25.4	4.4	72.4	60.0	10.6	70.9	60.7	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	0.0
Total Delay	55.7	40.4	17.1	75.3	25.4	4.4	72.4	60.0	10.6	70.9	60.7	0.3
LOS	E	D	B	E	C	A	E	E	B	E	E	A
Approach Delay		39.0			27.4			43.0			54.2	
Approach LOS		D			C			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 35.6	Intersection LOS: D
Intersection Capacity Utilization 85.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1723	127	98	1236	102	78	124	136	56	70	26
Future Volume (veh/h)	27	1723	127	98	1236	102	78	124	136	56	70	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	1873	138	107	1343	111	85	135	148	61	76	28
Peak Hour Factor	0.92	0.92	0.92	0.92	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	203	2053	916	257	2108	940	274	575	178	262	388	304
Arrive On Green	0.06	0.58	0.58	0.07	0.59	0.59	0.08	0.11	0.11	0.08	0.11	0.11
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	29	1873	138	107	1343	111	85	135	148	61	76	28
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.3	75.3	6.4	4.7	39.5	4.9	3.7	3.9	14.6	2.7	3.1	1.4
Cycle Q Clear(g_c), s	1.3	75.3	6.4	4.7	39.5	4.9	3.7	3.9	14.6	2.7	3.1	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	2053	916	257	2108	940	274	575	178	262	388	304
V/C Ratio(X)	0.14	0.91	0.15	0.42	0.64	0.12	0.31	0.23	0.83	0.23	0.20	0.09
Avail Cap(c_a), veh/h	309	2053	916	287	2108	940	322	1500	466	309	1031	809
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)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.5	30.2	15.6	70.7	21.3	14.2	69.5	64.7	69.5	69.6	64.9	64.1
Incr Delay (d2), s/veh	0.1	3.2	0.1	1.1	1.5	0.3	0.6	0.2	9.4	0.4	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	32.4	2.4	2.2	16.8	1.9	1.7	1.7	6.4	1.2	1.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	33.4	15.8	71.8	22.8	14.5	70.1	64.9	78.9	70.0	65.1	64.3
LnGrp LOS	E	C	B	E	C	B	E	E	E	E	E	E
Approach Vol, veh/h		2040			1561			368			165	
Approach Delay, s/veh		32.7			25.5			71.7			66.8	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	100.4	18.4	23.6	15.1	102.9	17.8	24.1
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	6.7	77.3	5.7	5.1	3.3	41.5	4.7	16.6
Green Ext Time (p_c), s	0.1	0.0	0.1	0.6	0.0	9.8	0.1	1.4

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.

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	11	193	14	5	114
Future Vol, veh/h	17	11	193	14	5	114
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	18	12	210	15	5	124

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	278	218	0	0	225	0
Stage 1	218	-	-	-	-	-
Stage 2	60	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	705	821	-	-	1342	-
Stage 1	788	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	702	821	-	-	1342	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	911	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	744	1342	-
HCM Lane V/C Ratio	-	-	0.041	0.004	-
HCM Control Delay (s)	-	-	10	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	206	0	0	120
Future Vol, veh/h	1	0	206	0	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	224	0	0	130

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	354	224	0	0	224	0
Stage 1	224	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	644	815	-	-	1345	-
Stage 1	813	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	815	-	-	1345	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	1345	-
HCM Lane V/C Ratio	-	-	0.002	-	-
HCM Control Delay (s)	-	-	10.6	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	8	20	226	140	2
Future Vol, veh/h	2	8	20	226	140	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
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	2	9	22	246	152	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	443	153	154	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	290	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	572	893	1426	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	563	893	1426	-	-	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1426	-	799	-	-
HCM Lane V/C Ratio	0.015	-	0.014	-	-
HCM Control Delay (s)	7.6	-	9.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Appendix G

ITE 11th Edition Trip Generation

Land Use: 140
Manufacturing

Description

A manufacturing facility is an area where the primary activity is the conversion of raw materials or parts into finished products. Size and type of activity may vary substantially from one facility to another. In addition to the actual production of goods, a manufacturing facility typically has an office and may provide space for warehouse, research, and associated functions. General light industrial (Land Use 110) and industrial park (Land Use 130) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Minnesota, Missouri, New Jersey, New York, Oregon, Pennsylvania, South Dakota, Texas, Vermont, Washington, and West Virginia.

Source Numbers

177, 179, 184, 241, 357, 384, 418, 443, 583, 598, 611, 728, 747, 875, 879, 940, 969, 1067, 1068, 1082

Manufacturing
(140)

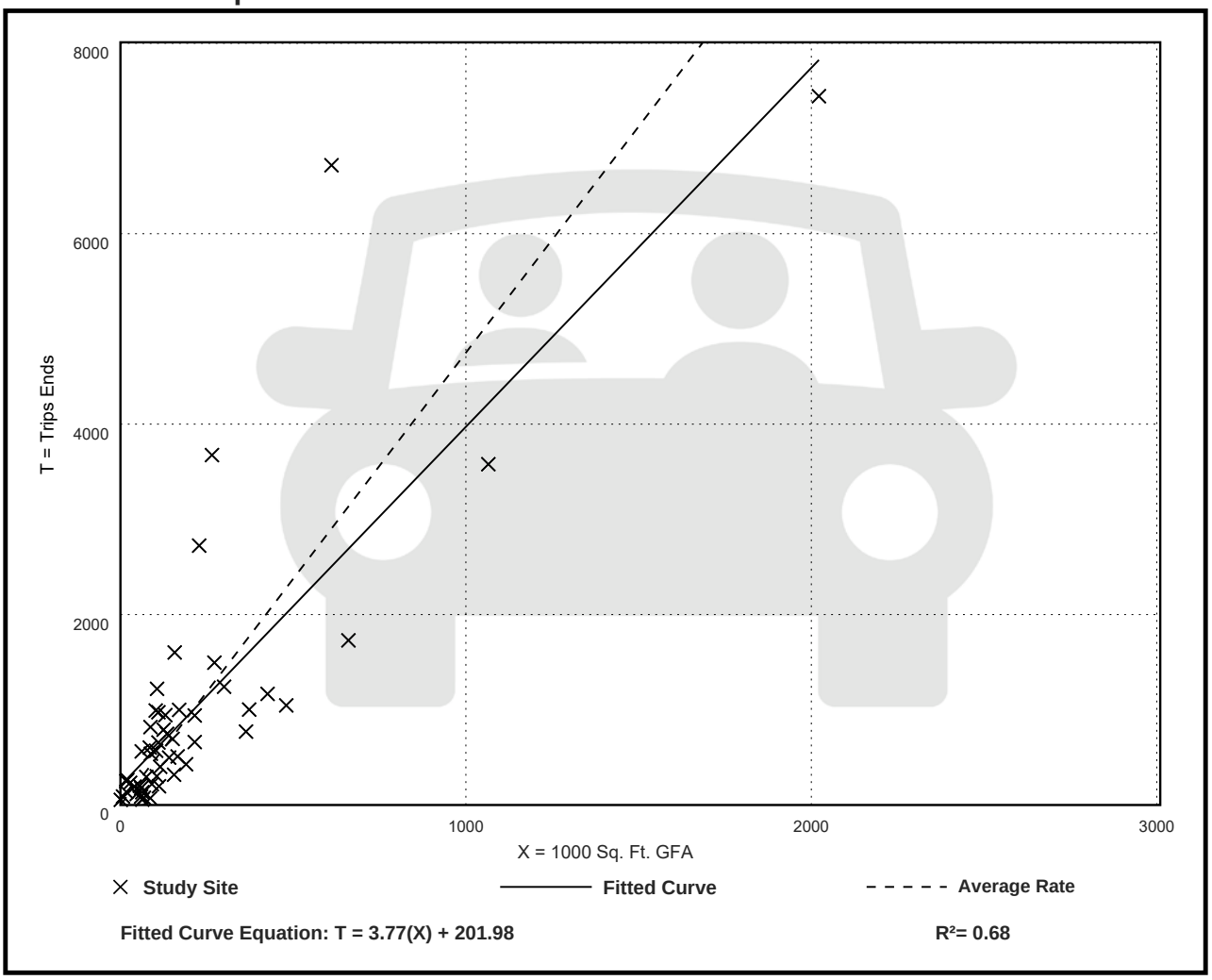
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 53
Avg. 1000 Sq. Ft. GFA: 208
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.75	0.83 - 49.50	3.20

Data Plot and Equation



Fitted Curve Equation: T = 3.77(X) + 201.98

R^2= 0.68

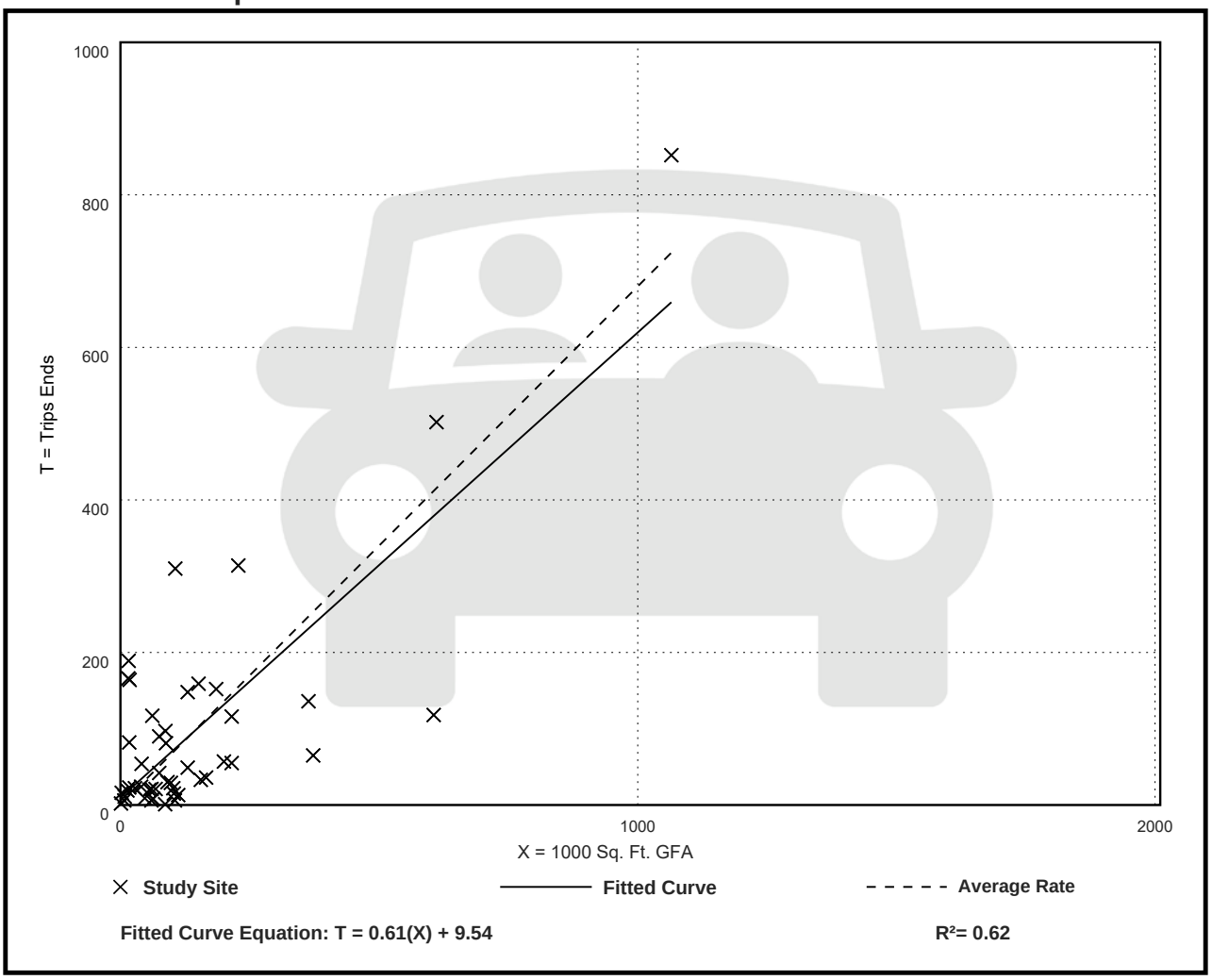
Manufacturing
(140)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 48
Avg. 1000 Sq. Ft. GFA: 138
Directional Distribution: 76% entering, 24% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.68	0.01 - 11.93	1.03

Data Plot and Equation



Fitted Curve Equation: T = 0.61(X) + 9.54

R^2= 0.62

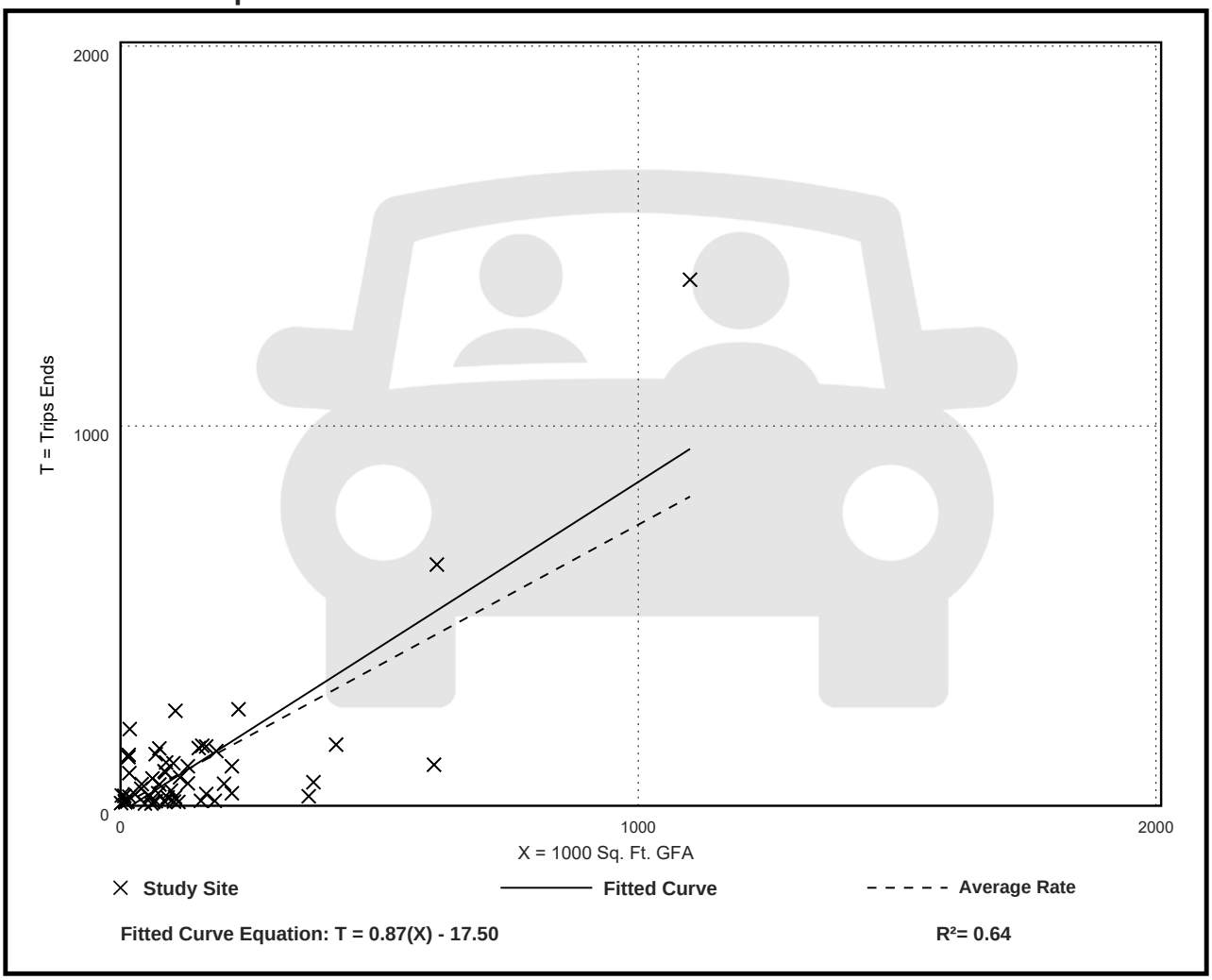
Manufacturing
(140)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 55
Avg. 1000 Sq. Ft. GFA: 142
Directional Distribution: 31% entering, 69% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.74	0.07 - 11.37	0.93

Data Plot and Equation



Manufacturing
(140)

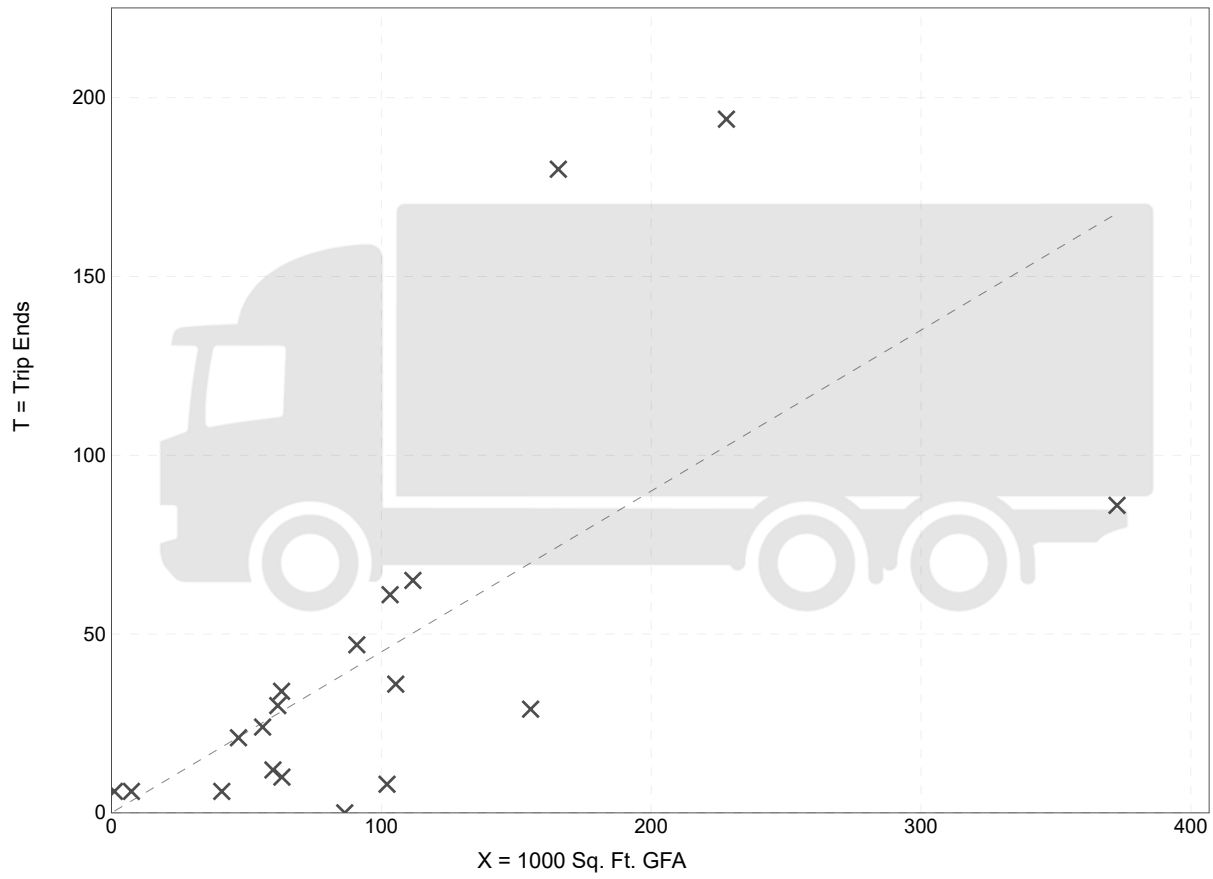
Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 101
Directional Distribution: 50% entering, 50% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.45	0.00 - 5.50	0.34

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

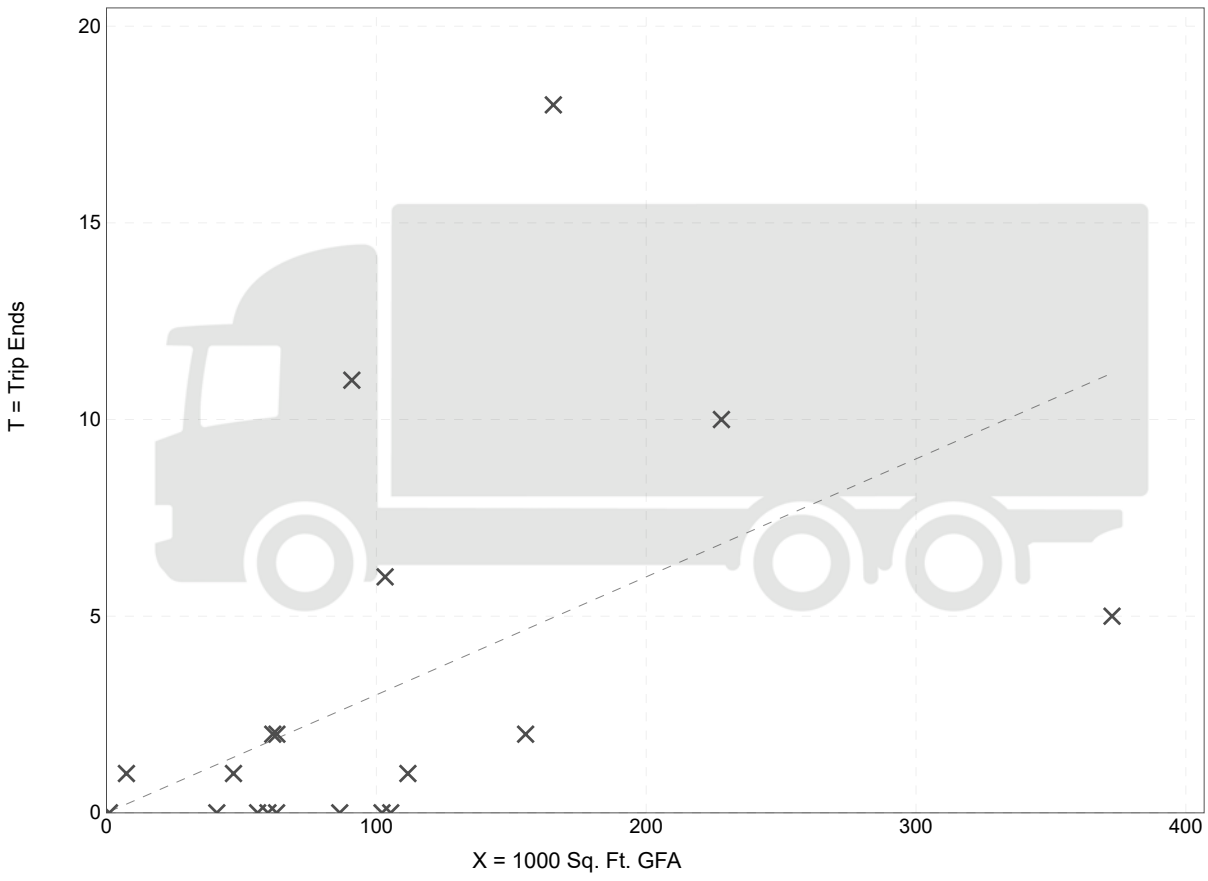
Manufacturing
(140)

Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 19
Avg. 1000 Sq. Ft. GFA: 101
Directional Distribution: 56% entering, 44% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.14	0.04

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

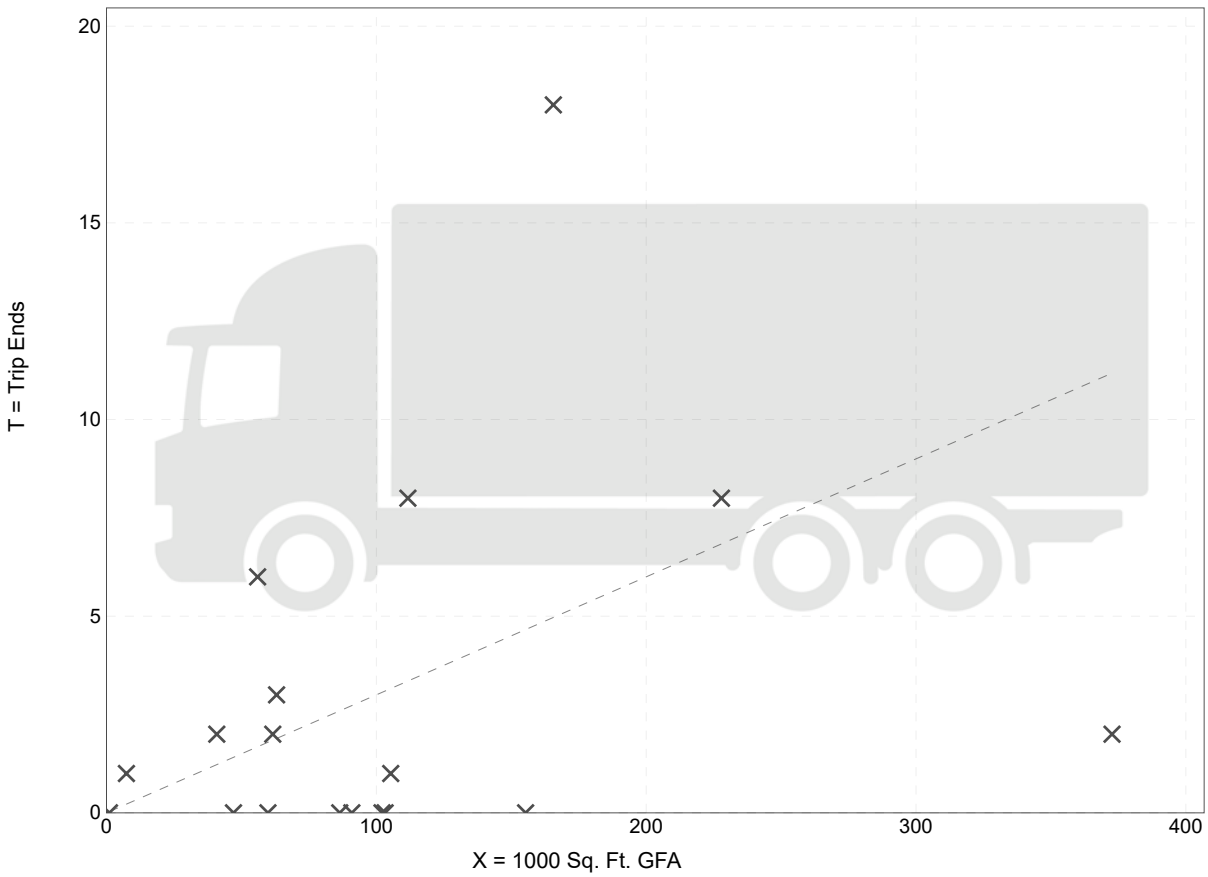
Manufacturing
(140)

Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 18
Avg. 1000 Sq. Ft. GFA: 103
Directional Distribution: 41% entering, 59% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.14	0.04

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

Land Use: 154
High-Cube Transload and Short-Term Storage Warehouse

Description

A high-cube warehouse (HCW) is a building that typically has at least 200,000 gross square feet of floor area, has a ceiling height of 24 feet or more, and is used primarily for the storage and/or consolidation of manufactured goods (and to a lesser extent, raw materials) prior to their distribution to retail locations or other warehouses. A typical HCW has a high level of on-site automation and logistics management. The automation and logistics enable highly-efficient processing of goods through the HCW. A high-cube warehouse can be free-standing or located in an industrial park.

The HCWs included in this land use include transload and short-term storage facilities. A transload facility has the primary function of consolidation and distribution of pallet loads (or larger) for manufacturers, wholesalers, or retailers. A transload facility typically has little storage duration, high throughput, and its operations are high efficiency. A short-term HCW is a distribution facility often with custom/special features built into the structure for the movement of large volumes of freight with only short-term storage of products.

Some limited assembly and repackaging may occur within the facility.

A high-cube warehouse may contain a mezzanine. In a HCW setting, a mezzanine is a free-standing, semi-permanent structure that is commonly supported by structural steel columns and that is lined with racks or shelves. The gross floor area (GFA) values for the study sites in the database for this land use do NOT include the floor area of the mezzanine. The GFA values represent only the permanent ground-floor square footage.

The amount of office/employee welfare space that is provided within a HCW can be highly variable but is typically an insignificant portion of the overall building square footage. Within the trip generation database, common values are between 3,000 and 5,000 square feet for a Cold Storage HCW and between 5,000 and 10,000 square feet for Transload, Fulfillment Center, and Parcel Hub HCW (all of which are less than one percent of total GFA for a site). Therefore, for the trip generation data plots, any office space that is part of the normal operation of the warehouse is included in the total GFA.

Warehousing (Land Use 150), high-cube fulfillment center warehouse (Land Use 155), high-cube parcel hub warehouse (Land Use 156), and high-cube cold storage warehouse (Land Use 157) are related land uses.

The number of dock doors at a HCW is a potential independent variable. Future data submissions should include that information.

Additional Data

The High-Cube Warehouse/Distribution Center-related land uses underwent specialized consideration through a commissioned study titled “High-Cube Warehouse Vehicle Trip Generation Analysis,” published in October 2016. The results of this study are posted on the ITE website at http://library.ite.org/pub/a3e6679a-e3a8-bf38-7f29-2961becdd498.

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (https://www.ite.org/technical-resources/topics/trip-and-parking-generation/).

The sites were surveyed in the 1980s, the 2000s, and the 2010s in Alberta (CAN), California, Florida, Michigan, New Jersey, Texas, and Washington.

Source Numbers

331, 605, 619, 642, 645, 649, 739, 750, 752, 903, 904, 941, 942, 943, 969

High-Cube Transload and Short-Term Storage Warehouse (154)

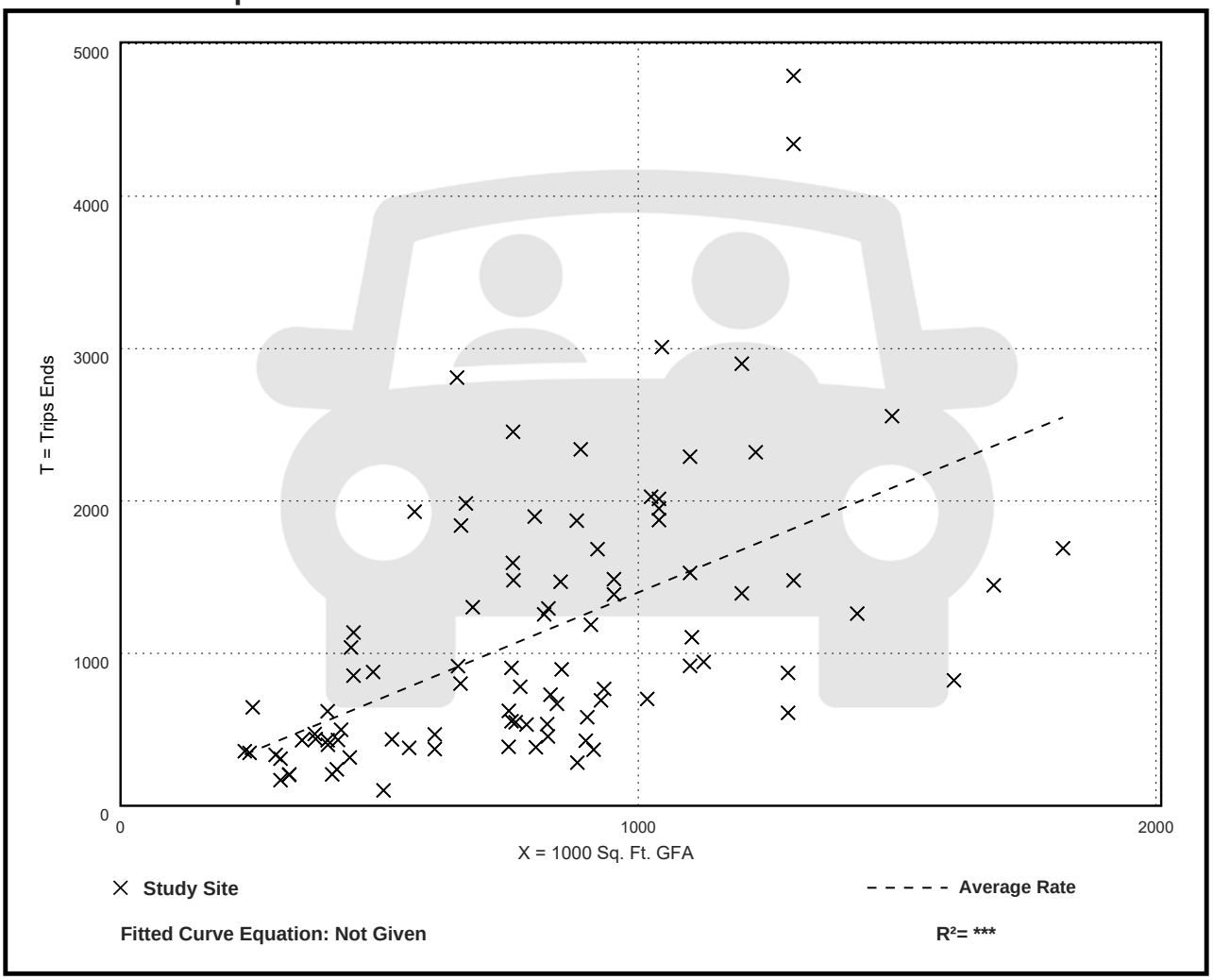
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 91
Avg. 1000 Sq. Ft. GFA: 798
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
1.40	0.20 - 4.32	0.86

Data Plot and Equation



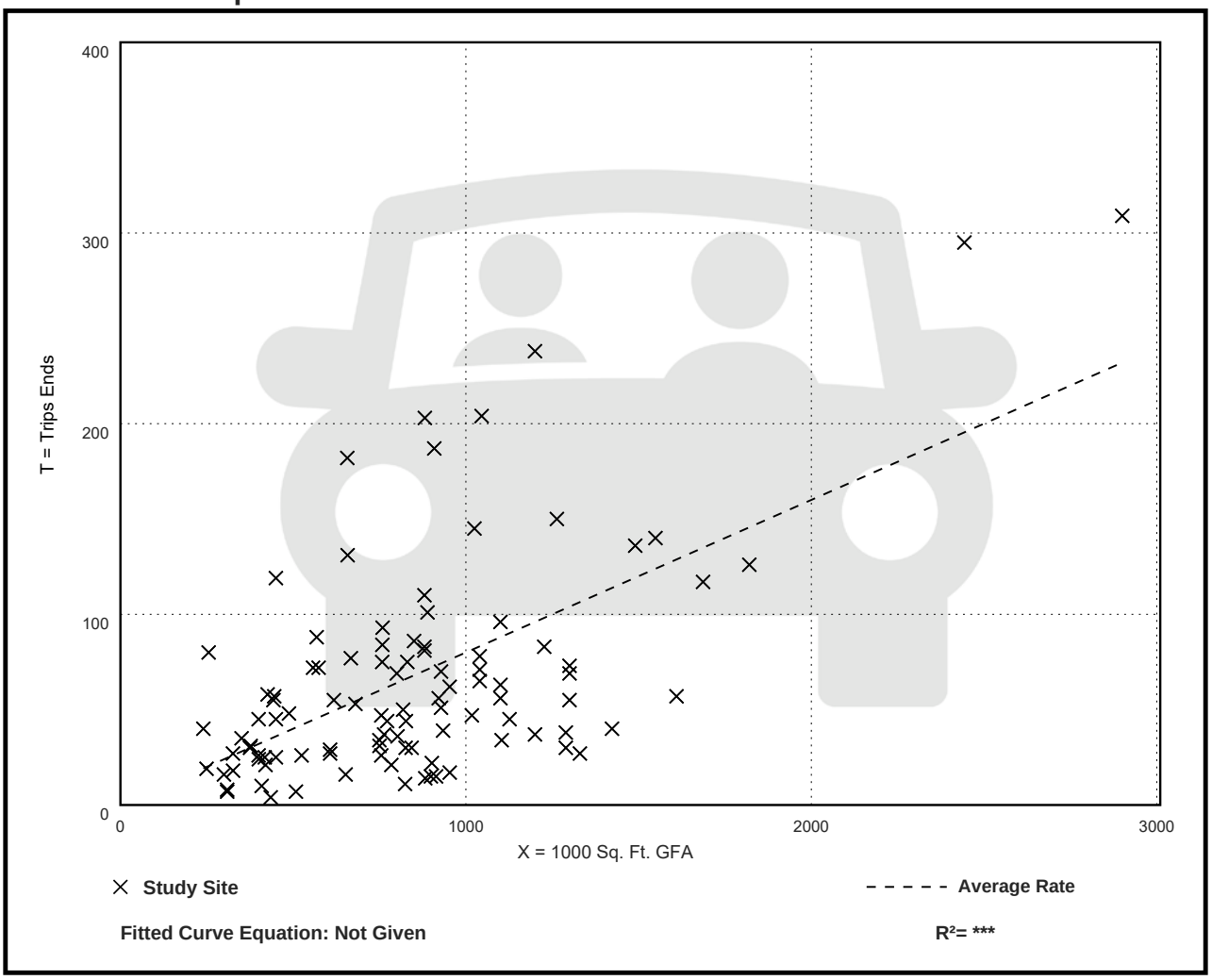
High-Cube Transload and Short-Term Storage Warehouse (154)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 102
Avg. 1000 Sq. Ft. GFA: 846
Directional Distribution: 77% entering, 23% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.08	0.01 - 0.31	0.05

Data Plot and Equation



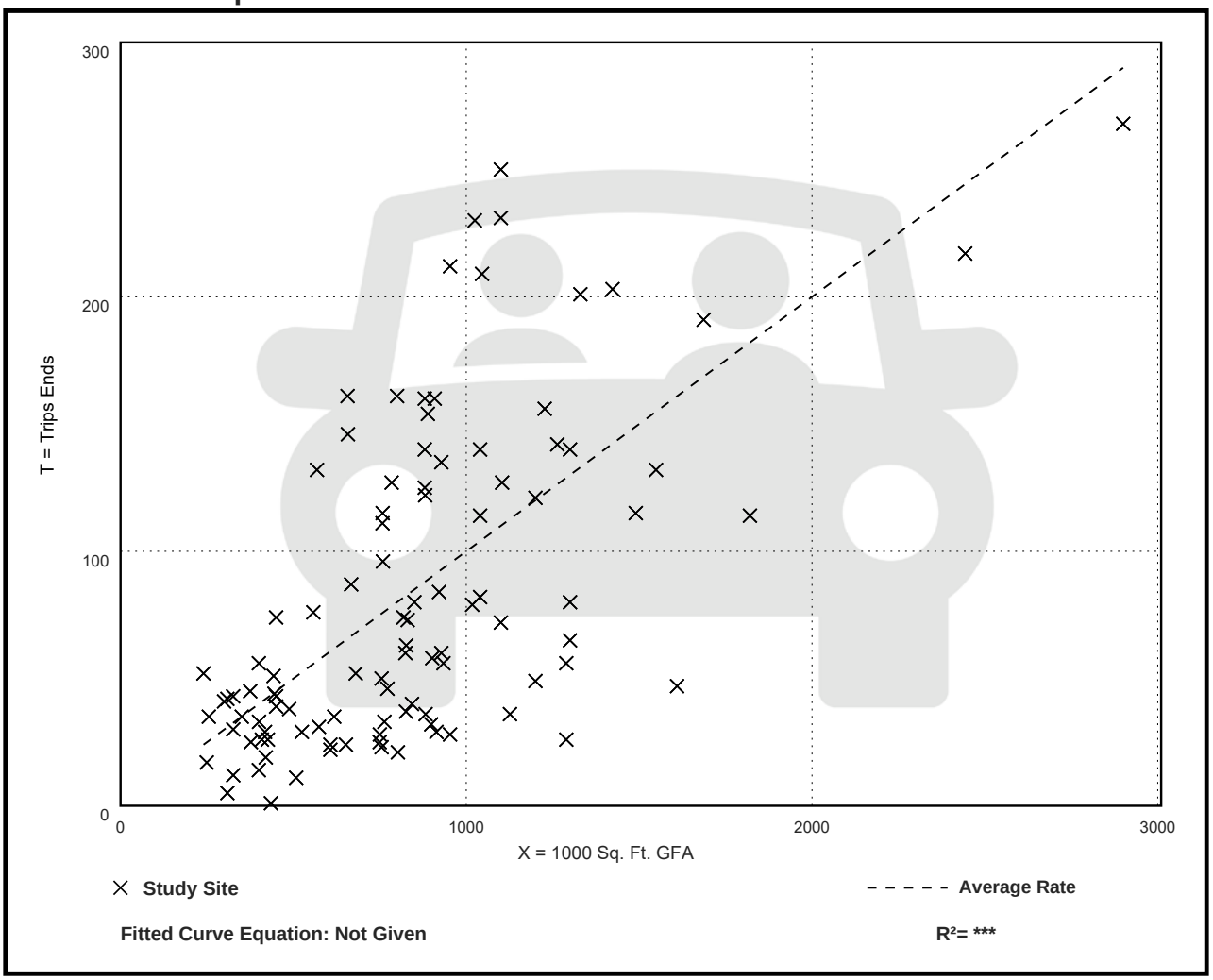
High-Cube Transload and Short-Term Storage Warehouse (154)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 103
Avg. 1000 Sq. Ft. GFA: 840
Directional Distribution: 28% entering, 72% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.10	0.00 - 0.25	0.06

Data Plot and Equation



High-Cube Transload and Short-Term Storage Warehouse
(154)

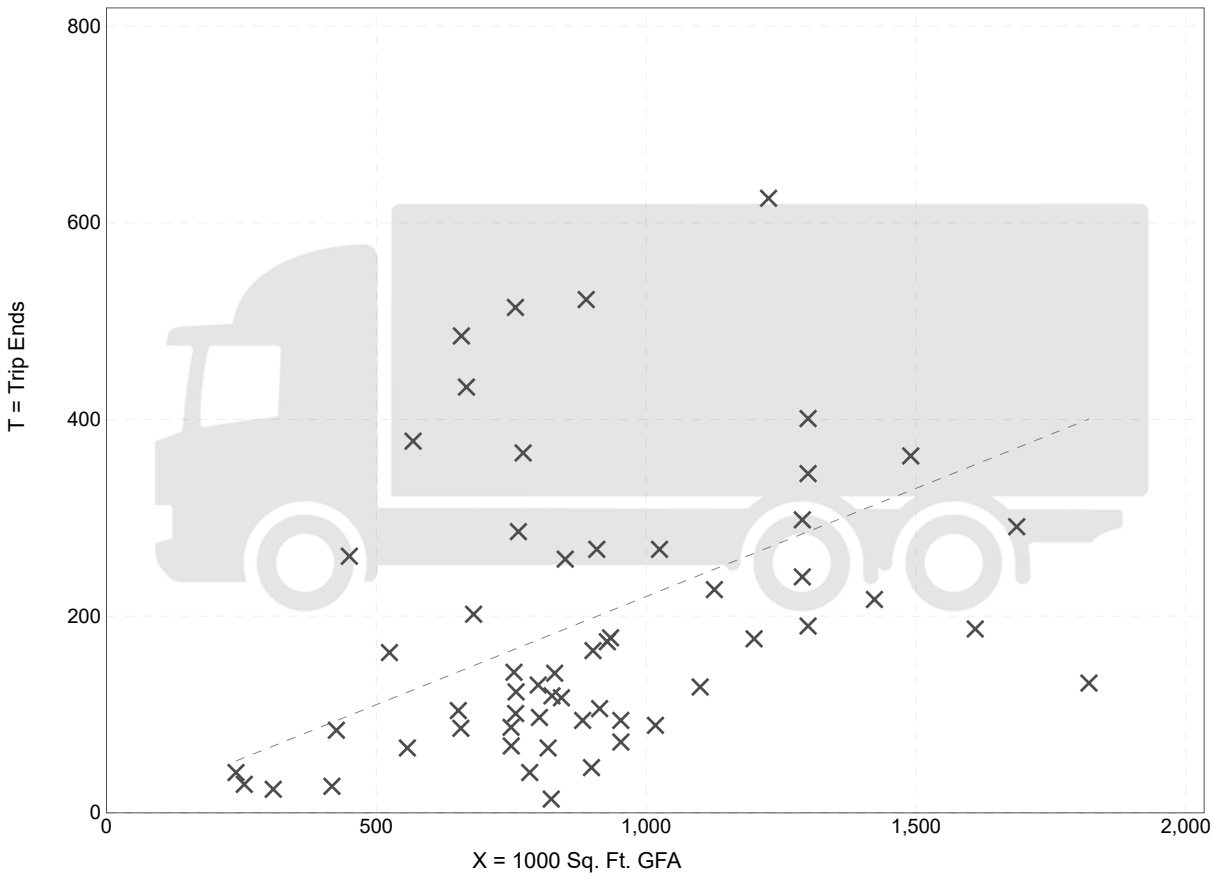
Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 57
Avg. 1000 Sq. Ft. GFA: 892
Directional Distribution: 50% entering, 50% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.22	0.02 - 0.74	0.16

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

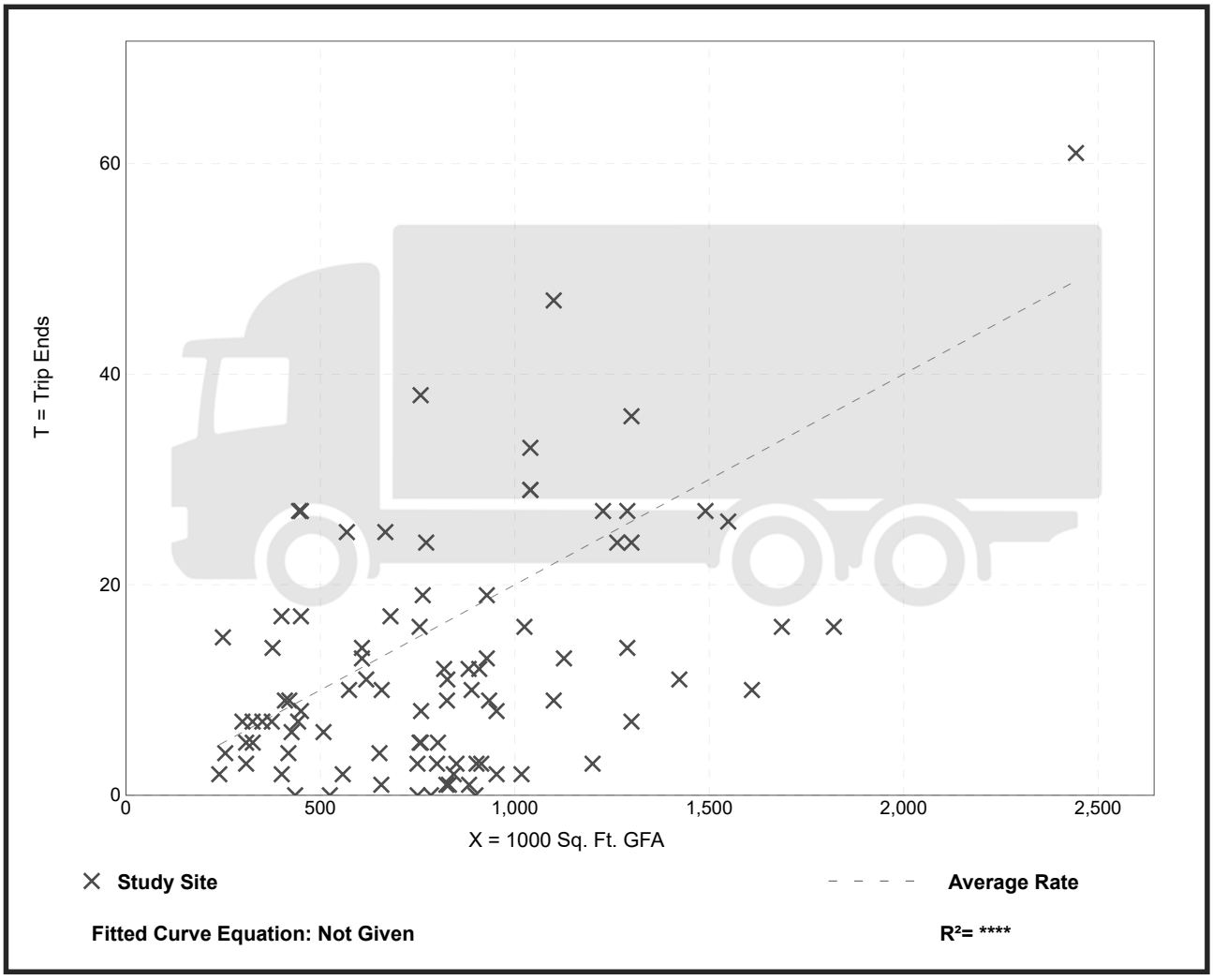
High-Cube Transload and Short-Term Storage Warehouse
(154)

Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 90
Avg. 1000 Sq. Ft. GFA: 812
Directional Distribution: 49% entering, 51% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.02	0.00 - 0.06	0.01

Data Plot and Equation



Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

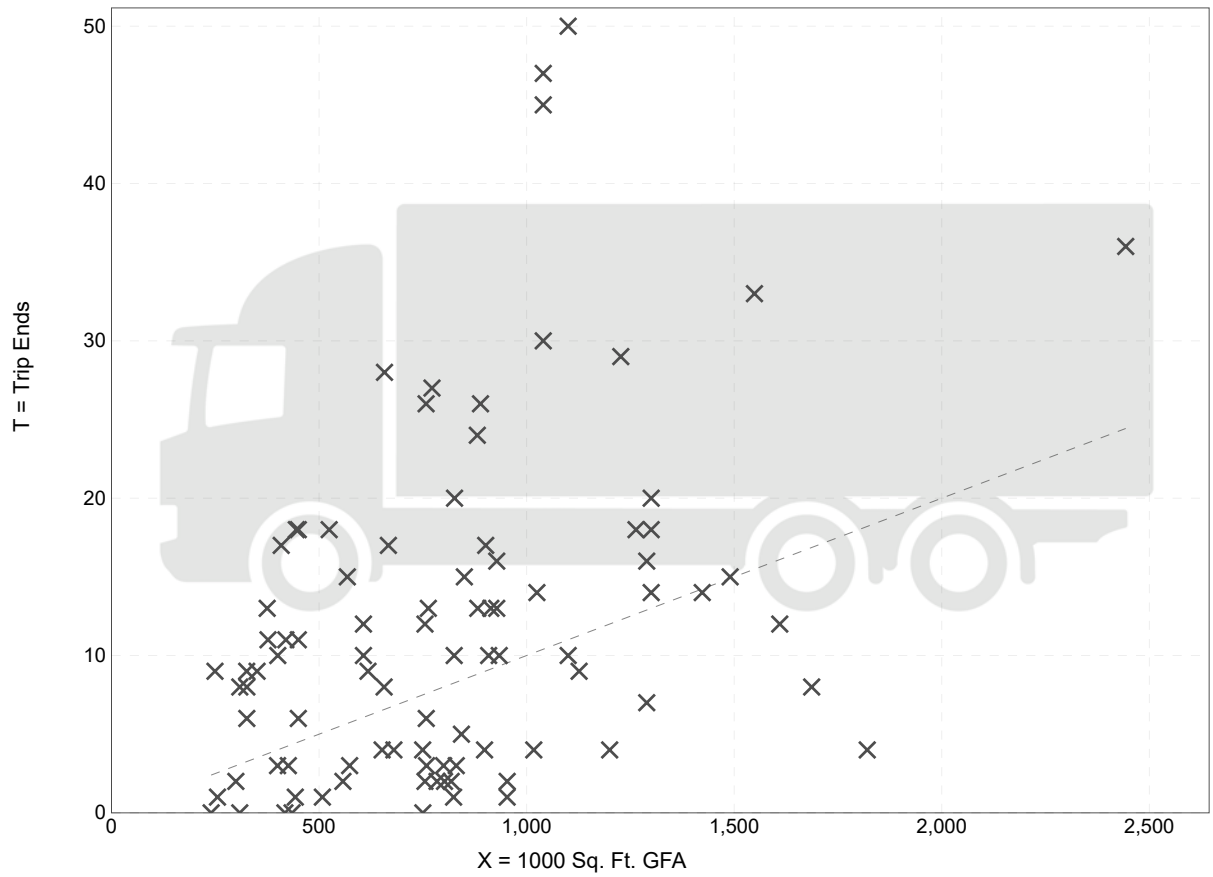
High-Cube Transload and Short-Term Storage Warehouse
(154)

Truck Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 91
Avg. 1000 Sq. Ft. GFA: 807
Directional Distribution: 47% entering, 53% exiting

Truck Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
0.01	0.00 - 0.05	0.01

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= **

Trip Gen Manual, 11th Edition ● Institute of Transportation Engineers

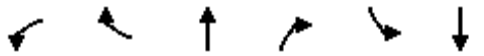
Appendix H

Existing + Project Intersection LOS Worksheets

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	280	215	1072	445
Future Volume (vph)	0	280	215	1072	445
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		31.0	31.0	49.0	80.0
Total Split (%)		38.8%	38.8%	61.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	32.1	32.1	35.4	0.0
Actuated g/C Ratio	0.00	0.40	0.40	0.44	0.00
v/c Ratio	no cap	0.21	0.35	0.77	no cap
Control Delay		17.5	15.4	22.2	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	17.5	15.4	22.2	Error
LOS	F	B	B	C	F
Approach Delay	Err	16.6			Err
Approach LOS	F	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 39.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱	↰↰	
Traffic Volume (veh/h)	0	330	280	215	1072	445
Future Volume (veh/h)	0	330	280	215	1072	445
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			304	234	1165	484
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			859	383	1574	0
Arrive On Green			0.24	0.24	0.46	0.84
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			304	234	1165	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			2.9	5.4	11.4	0.0
Cycle Q Clear(g_c), s			2.9	5.4	11.4	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			859	383	1574	0
V/C Ratio(X)			0.35	0.61	0.74	0.00
Avail Cap(c_a), veh/h			2085	930	3627	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			13.0	13.9	9.2	0.0
Incr Delay (d2), s/veh			0.2	1.6	0.7	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.0	1.8	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			13.2	15.5	9.9	0.0
LnGrp LOS			B	B	A	A
Approach Vol, veh/h			538			1165
Approach Delay, s/veh			14.2			9.9
Approach LOS			B			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	24.5	16.8				41.3
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	13.4	7.4				0.0
Green Ext Time (p_c), s	5.4	2.6				0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

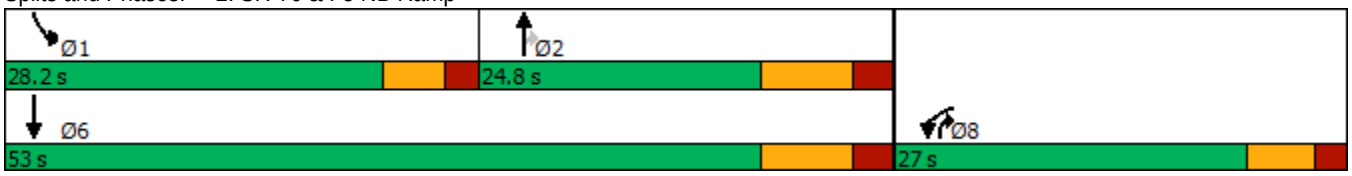
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	81	576	89	893	1393
Future Volume (vph)	81	576	89	893	1393
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	0.99	0.84	0.11	1.01	0.76
Control Delay	42.9	42.5	7.5	61.0	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	42.5	7.5	61.0	16.6
LOS	D	D	A	E	B
Approach Delay	42.9	37.8			33.9
Approach LOS	D	D			C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 36.3	Intersection LOS: D
Intersection Capacity Utilization 100.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	81	615	576	89	893	1393
Future Volume (veh/h)	81	615	576	89	893	1393
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	88	668	626	97	971	1514
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	0	0	1425	453	1177	3017
Arrive On Green	0.00	0.00	0.40	0.40	0.34	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	626	97	971	1514
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	6.8	2.5	13.7	5.9
Cycle Q Clear(g_c), s	0.0	0.0	6.8	2.5	13.7	5.9
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1425	453	1177	3017
V/C Ratio(X)	0.00	0.00	0.44	0.21	0.82	0.50
Avail Cap(c_a), veh/h	0	0	1425	453	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.5	14.4	16.0	1.1
Incr Delay (d2), s/veh	0.0	0.0	1.0	1.1	3.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.4	0.7	5.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	12.5	15.5	19.3	1.7
LnGrp LOS	A	A	B	B	B	A
Approach Vol, veh/h	0		723			2485
Approach Delay, s/veh	0.0		12.9			8.5
Approach LOS			B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	23.8	29.2			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	15.7	8.8			7.9	0.0
Green Ext Time (p_c), s	2.4	2.8			16.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.5
HCM 6th LOS	A

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1182	23	12	2264	43	26
Future Volume (vph)	1182	23	12	2264	43	26
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.57	0.02	0.13	0.98	0.13	0.06
Control Delay	18.2	0.5	66.8	29.3	53.9	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	0.5	66.8	29.3	53.9	12.9
LOS	B	A	E	C	D	B
Approach Delay	17.9			29.5	38.6	
Approach LOS	B			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 25.7	Intersection LOS: C
Intersection Capacity Utilization 82.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1182	23	12	2264	43	26
Future Volume (veh/h)	1182	23	12	2264	43	26
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	1285	25	13	2461	47	28
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	2315	1350	44	2530	356	356
Arrive On Green	0.65	0.65	0.02	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1285	25	13	2461	47	28
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	31.6	0.4	1.1	103.8	3.5	2.2
Cycle Q Clear(g_c), s	31.6	0.4	1.1	103.8	3.5	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2315	1350	44	2530	356	356
V/C Ratio(X)	0.55	0.02	0.30	0.97	0.13	0.08
Avail Cap(c_a), veh/h	2315	1350	100	2530	356	356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.43	0.43	1.00	1.00
Uniform Delay (d), s/veh	15.2	1.8	76.7	21.6	52.6	49.0
Incr Delay (d2), s/veh	1.0	0.0	1.6	7.0	0.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.0	0.3	0.5	42.1	1.7	0.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.2	1.8	78.2	28.6	53.4	49.4
LnGrp LOS	B	A	E	C	D	D
Approach Vol, veh/h	1310			2474	75	
Approach Delay, s/veh	15.9			28.8	51.9	
Approach LOS	B			C	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.6	112.3			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	3.1	33.6			105.8	5.5
Green Ext Time (p_c), s	0.0	14.7			7.6	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1210	14	74	2273	20	75
Future Volume (vph)	1210	14	74	2273	20	75
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	113.9	135.7	12.5	132.1	13.8	32.4
Actuated g/C Ratio	0.71	0.85	0.08	0.83	0.09	0.20
v/c Ratio	0.52	0.01	0.58	0.85	0.07	0.23
Control Delay	22.8	1.0	87.8	13.4	63.3	21.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.8	1.0	87.8	13.4	63.3	21.3
LOS	C	A	F	B	E	C
Approach Delay	22.5			15.8	30.2	
Approach LOS	C			B	C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 18.4	Intersection LOS: B
Intersection Capacity Utilization 82.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1210	14	74	2273	20	75
Future Volume (veh/h)	1210	14	74	2273	20	75
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	1315	15	80	2471	22	82
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	2677	1293	108	3020	215	195
Arrive On Green	0.75	0.75	0.06	0.85	0.06	0.06
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1315	15	80	2471	22	82
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	23.2	0.3	7.1	54.9	1.0	7.7
Cycle Q Clear(g_c), s	23.2	0.3	7.1	54.9	1.0	7.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2677	1293	108	3020	215	195
V/C Ratio(X)	0.49	0.01	0.74	0.82	0.10	0.42
Avail Cap(c_a), veh/h	2677	1293	164	3020	713	423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.81	0.81	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	7.7	2.7	73.9	5.9	70.8	64.9
Incr Delay (d2), s/veh	0.5	0.0	0.9	0.2	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.1	3.3	15.5	0.4	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.2	2.8	74.8	6.2	71.0	66.4
LnGrp LOS	A	A	E	A	E	E
Approach Vol, veh/h	1330			2551	104	
Approach Delay, s/veh	8.2			8.3	67.3	
Approach LOS	A			A	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	15.4	128.5			144.0	16.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5			112.9	33.0
Max Q Clear Time (g_c+I1), s	9.1	25.2			56.9	9.7
Green Ext Time (p_c), s	0.1	15.2			43.2	0.3

Intersection Summary		
HCM 6th Ctrl Delay		9.8
HCM 6th LOS		A

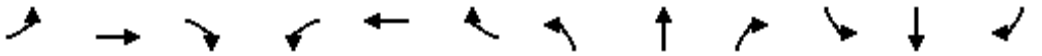
Notes

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

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	1023	129	30	2022	9	50	10	46	9	14	272
Future Volume (vph)	170	1023	129	30	2022	9	50	10	46	9	14	272
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	35.0	35.0	17.7	20.0	18.7
Total Split (s)	22.0	99.6	99.6	17.7	95.3	95.3	17.7	35.0	35.0	17.7	35.0	22.0
Total Split (%)	12.9%	58.6%	58.6%	10.4%	56.1%	56.1%	10.4%	20.6%	20.6%	10.4%	20.6%	12.9%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	Min	None
Act Effct Green (s)	25.7	112.6	112.6	12.0	95.4	95.4	15.8	22.1	22.1	12.0	11.2	38.4
Actuated g/C Ratio	0.15	0.66	0.66	0.07	0.56	0.56	0.09	0.13	0.13	0.07	0.07	0.23
v/c Ratio	0.69	0.47	0.13	0.27	1.11	0.01	0.33	0.05	0.15	0.08	0.12	0.65
Control Delay	81.2	17.4	2.3	80.7	91.5	0.0	75.5	64.1	0.9	75.6	77.5	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	81.2	17.4	2.3	80.7	91.5	0.0	75.5	64.1	0.9	75.6	77.5	35.2
LOS	F	B	A	F	F	A	E	E	A	E	E	D
Approach Delay		24.2			90.9			42.0			38.4	
Approach LOS		C			F			D			D	

Intersection Summary	
Cycle Length: 170	
Actuated Cycle Length: 170	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 62.1	Intersection LOS: E
Intersection Capacity Utilization 98.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	1023	129	30	2022	9	50	10	46	9	14	272
Future Volume (veh/h)	170	1023	129	30	2022	9	50	10	46	9	14	272
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1112	140	33	2198	10	54	11	50	10	15	296
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1915	854	138	1898	847	116	362	307	47	285	394
Arrive On Green	0.10	1.00	0.54	0.08	1.00	0.53	0.07	0.19	0.19	0.03	0.15	0.25
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	185	1112	140	33	2198	10	54	11	50	10	15	296
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.3	0.0	7.6	3.0	0.0	0.5	5.0	0.8	3.6	0.9	1.2	23.6
Cycle Q Clear(g_c), s	16.3	0.0	7.6	3.0	0.0	0.5	5.0	0.8	3.6	0.9	1.2	23.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	171	1915	854	138	1898	847	116	362	307	47	285	394
V/C Ratio(X)	1.08	0.58	0.16	0.24	1.16	0.01	0.47	0.03	0.16	0.21	0.05	0.75
Avail Cap(c_a), veh/h	171	1915	854	138	1898	847	126	362	307	126	318	421
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.85	0.85	0.85	0.37	0.37	0.37	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.8	0.0	19.8	73.7	0.0	18.6	76.6	55.6	36.6	81.0	61.5	32.2
Incr Delay (d2), s/veh	87.4	1.1	0.4	0.3	73.6	0.0	2.9	0.0	0.2	2.2	0.1	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	11.7	0.3	3.0	1.4	19.4	0.2	2.4	0.4	1.8	0.5	0.6	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	164.2	1.1	20.2	74.0	73.6	18.6	79.5	55.7	36.9	83.2	61.6	39.1
LnGrp LOS	F	A	C	E	F	B	E	E	D	F	E	D
Approach Vol, veh/h		1437			2241			115			321	
Approach Delay, s/veh		24.0			73.4			58.7			41.5	
Approach LOS		C			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.2	99.6	17.2	32.0	22.0	98.8	10.2	39.0
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 92	12.0	* 29	* 16	87.3	* 12	28.9
Max Q Clear Time (g_c+I1), s	5.0	9.6	7.0	25.6	18.3	2.5	2.9	5.6
Green Ext Time (p_c), s	0.0	12.3	0.0	0.4	0.0	46.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	53.2
HCM 6th LOS	D

Notes

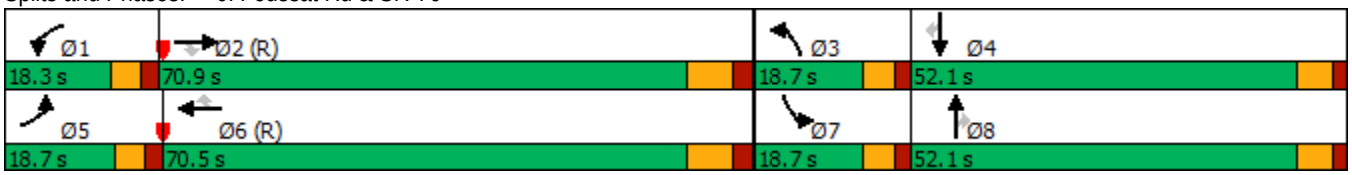
User approved pedestrian interval to be less than phase max green.

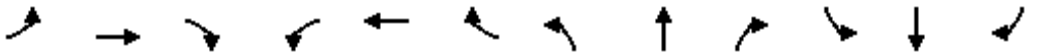
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	972	53	143	1877	104	116	60	84	160	87	43
Future Volume (vph)	33	972	53	143	1877	104	116	60	84	160	87	43
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	18.7	70.9	70.9	18.3	70.5	70.5	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	11.7%	44.3%	44.3%	11.4%	44.1%	44.1%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	89.5	89.5	12.4	92.6	92.6	13.0	19.6	19.6	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.12	0.49	0.06	0.54	0.92	0.11	0.42	0.10	0.29	0.58	0.20	0.10
Control Delay	69.4	24.6	0.1	78.9	38.7	5.1	74.8	59.1	5.2	79.6	61.3	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	24.6	0.1	78.9	38.7	5.1	74.8	59.1	5.2	79.6	61.3	0.5
LOS	E	C	A	E	D	A	E	E	A	E	E	A
Approach Delay		24.7			39.8			48.7			62.4	
Approach LOS		C			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 18.7 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 37.9	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	972	53	143	1877	104	116	60	84	160	87	43
Future Volume (veh/h)	33	972	53	143	1877	104	116	60	84	160	87	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	972	53	143	1877	104	116	60	84	160	87	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	2	2	2	2	2	2
Cap, veh/h	216	2145	957	259	2189	977	279	413	128	281	289	227
Arrive On Green	0.06	0.60	0.60	0.07	0.62	0.62	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	33	972	53	143	1877	104	116	60	84	160	87	43
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.4	23.9	2.2	6.4	68.8	4.3	5.1	1.7	8.2	7.1	3.7	2.3
Cycle Q Clear(g_c), s	1.4	23.9	2.2	6.4	68.8	4.3	5.1	1.7	8.2	7.1	3.7	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	2145	957	259	2189	977	279	413	128	281	289	227
V/C Ratio(X)	0.15	0.45	0.06	0.55	0.86	0.11	0.42	0.15	0.66	0.57	0.30	0.19
Avail Cap(c_a), veh/h	281	2145	957	272	2189	977	281	1468	456	281	1022	802
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)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.0	17.3	13.0	71.4	25.0	12.6	69.9	68.4	71.4	70.8	69.2	68.6
Incr Delay (d2), s/veh	0.3	0.6	0.1	2.2	4.6	0.2	1.0	0.2	5.6	2.7	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	0.7	10.0	0.8	2.9	29.6	1.6	2.3	0.8	3.6	3.3	1.7	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.3	17.9	13.1	73.6	29.6	12.8	70.9	68.6	76.9	73.6	69.8	69.0
LnGrp LOS	E	B	B	E	C	B	E	E	E	E	E	E
Approach Vol, veh/h		1058			2124			260			290	
Approach Delay, s/veh		19.3			31.7			72.3			71.7	
Approach LOS		B			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	104.6	18.6	19.1	15.7	106.6	18.7	19.0
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	62.9	* 13	46.0	* 13	62.5	* 13	46.0
Max Q Clear Time (g_c+I1), s	8.4	25.9	7.1	5.7	3.4	70.8	9.1	10.2
Green Ext Time (p_c), s	0.1	8.9	0.1	0.7	0.0	0.0	0.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	16	157	21	5	297
Future Vol, veh/h	26	16	157	21	5	297
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	28	17	171	23	5	323

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	322	183	0	0	194	0
Stage 1	183	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	668	859	-	-	1378	-
Stage 1	816	-	-	-	-	-
Stage 2	834	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	665	859	-	-	1378	-
Mov Cap-2 Maneuver	665	-	-	-	-	-
Stage 1	816	-	-	-	-	-
Stage 2	831	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	728	1378	-
HCM Lane V/C Ratio	-	-	0.063	0.004	-
HCM Control Delay (s)	-	-	10.3	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	0	104	80	0	253
Future Vol, veh/h	28	0	104	80	0	253
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
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	30	0	113	87	0	275

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	388	113	0	0	200	0
Stage 1	113	-	-	-	-	-
Stage 2	275	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	616	940	-	-	1372	-
Stage 1	912	-	-	-	-	-
Stage 2	771	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	616	940	-	-	1372	-
Mov Cap-2 Maneuver	616	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	771	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	616	1372	-
HCM Lane V/C Ratio	-	-	0.049	-	-
HCM Control Delay (s)	-	-	11.1	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	18	49	164	268	3
Future Vol, veh/h	2	18	49	164	268	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
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	4	38	53	178	291	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	577	293	294	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	478	746	1268	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	458	746	1268	-	-	-
Mov Cap-2 Maneuver	458	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	764	-	-	-	-	-

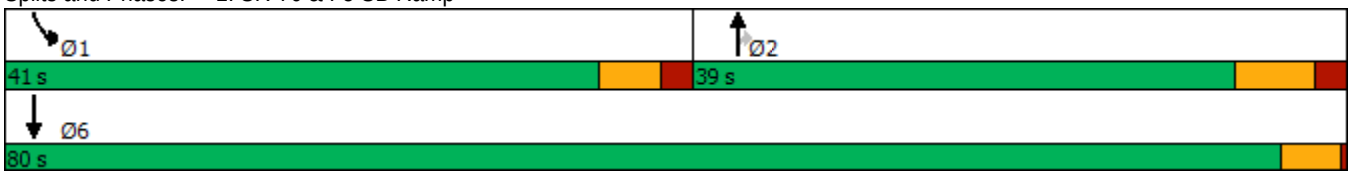
Approach	EB	NB	SB
HCM Control Delay, s	10.5	1.8	0
HCM LOS	B		

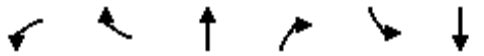
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1268	-	702	-	-
HCM Lane V/C Ratio	0.042	-	0.059	-	-
HCM Control Delay (s)	8	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	460	241	711	677
Future Volume (vph)	0	460	241	711	677
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	43.2	43.2	24.3	0.0
Actuated g/C Ratio	0.00	0.54	0.54	0.30	0.00
v/c Ratio	no cap	0.26	0.29	0.74	no cap
Control Delay		11.2	7.7	29.3	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	11.2	7.7	29.3	Error
LOS	F	B	A	C	F
Approach Delay	Err	10.0			Err
Approach LOS	F	A			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 41.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱	↰↰	
Traffic Volume (veh/h)	0	686	460	241	711	677
Future Volume (veh/h)	0	686	460	241	711	677
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			500	262	773	736
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1127	502	1154	0
Arrive On Green			0.32	0.32	0.33	0.81
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			500	262	773	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			4.0	4.8	6.9	0.0
Cycle Q Clear(g_c), s			4.0	4.8	6.9	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1127	502	1154	0
V/C Ratio(X)			0.44	0.52	0.67	0.00
Avail Cap(c_a), veh/h			3195	1425	3406	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			9.7	10.0	10.2	0.0
Incr Delay (d2), s/veh			0.3	0.8	0.7	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.2	1.3	2.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			10.0	10.8	10.9	0.0
LnGrp LOS			A	B	B	A
Approach Vol, veh/h			762			773
Approach Delay, s/veh			10.3			10.9
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	17.7	18.2				35.8
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	8.9	6.8				0.0
Green Ext Time (p_c), s	3.1	4.5				0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

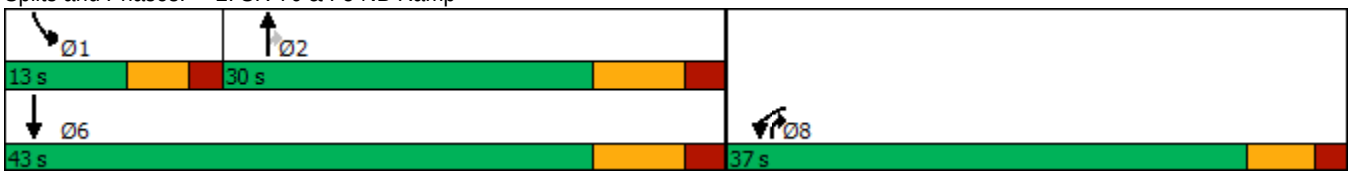
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	235	1070	101	431	1089
Future Volume (vph)	235	1070	101	431	1089
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.45	1.20	0.09	1.50	0.76
Control Delay	231.5	126.8	2.6	268.7	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	231.5	126.8	2.6	268.7	23.1
LOS	F	F	A	F	C
Approach Delay	231.5	116.1			92.7
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.50	
Intersection Signal Delay: 139.3	Intersection LOS: F
Intersection Capacity Utilization 122.4%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	235	828	1070	101	431	1089
Future Volume (veh/h)	235	828	1070	101	431	1089
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	255	900	1163	110	468	1184
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	0	0	1818	586	587	2893
Arrive On Green	0.00	0.00	0.51	0.51	0.17	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1163	110	468	1184
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	10.2	2.0	5.6	4.0
Cycle Q Clear(g_c), s	0.0	0.0	10.2	2.0	5.6	4.0
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1818	586	587	2893
V/C Ratio(X)	0.00	0.00	0.64	0.19	0.80	0.41
Avail Cap(c_a), veh/h	0	0	1818	586	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	7.6	9.2	17.1	1.1
Incr Delay (d2), s/veh	0.0	0.0	1.7	0.7	7.6	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.0	0.5	2.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	9.4	9.9	24.8	1.5
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	0		1273			1652
Approach Delay, s/veh	0.0		9.4			8.1
Approach LOS			A			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	30.0			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	7.6	12.2			6.0	0.0
Green Ext Time (p_c), s	0.0	5.8			10.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	8.7
HCM 6th LOS	A

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1909	73	20	1481	25	12
Future Volume (vph)	1909	73	20	1481	25	12
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	105.1	147.5	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.66	0.92	0.06	0.71	0.20	0.29
v/c Ratio	0.89	0.05	0.22	0.64	0.08	0.03
Control Delay	30.2	0.3	88.1	6.7	52.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.2	0.3	88.1	6.7	52.9	20.2
LOS	C	A	F	A	D	C
Approach Delay	29.1			7.8	42.3	
Approach LOS	C			A	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.89	
Intersection Signal Delay: 20.2	Intersection LOS: C
Intersection Capacity Utilization 72.9%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1909	73	20	1481	25	12
Future Volume (veh/h)	1909	73	20	1481	25	12
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	2075	79	22	1610	27	13
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	2278	1333	63	2530	356	373
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2075	79	22	1610	27	13
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	80.6	1.3	1.9	38.2	2.0	1.0
Cycle Q Clear(g_c), s	80.6	1.3	1.9	38.2	2.0	1.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2278	1333	63	2530	356	373
V/C Ratio(X)	0.91	0.06	0.35	0.64	0.08	0.03
Avail Cap(c_a), veh/h	2278	1333	100	2530	356	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.82	1.00	1.00
Uniform Delay (d), s/veh	24.8	2.1	75.4	12.1	52.0	47.2
Incr Delay (d2), s/veh	6.9	0.1	2.7	1.0	0.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	34.8	1.1	0.9	14.9	0.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.6	2.2	78.2	13.2	52.4	47.4
LnGrp LOS	C	A	E	B	D	D
Approach Vol, veh/h	2154			1632	40	
Approach Delay, s/veh	30.6			14.0	50.8	
Approach LOS	C			B	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.3	110.6				121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0				8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2				113.9	32.0
Max Q Clear Time (g_c+I1), s	3.9	82.6				40.2	4.0
Green Ext Time (p_c), s	0.0	13.8				22.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1859	48	136	1488	7	91
Future Volume (vph)	1859	48	136	1488	7	91
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.9	39.1	20.0	120.9	39.1	20.0
Total Split (%)	63.1%	24.4%	12.5%	75.6%	24.4%	12.5%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	107.9	129.7	18.5	132.1	13.8	38.4
Actuated g/C Ratio	0.67	0.81	0.12	0.83	0.09	0.24
v/c Ratio	0.85	0.04	0.72	0.55	0.03	0.26
Control Delay	36.9	2.3	56.6	16.4	61.0	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	2.3	56.6	16.4	61.0	44.4
LOS	D	A	E	B	E	D
Approach Delay	36.0			19.8	45.7	
Approach LOS	D			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 29.0	Intersection LOS: C
Intersection Capacity Utilization 83.7%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1859	48	136	1488	7	91
Future Volume (veh/h)	1859	48	136	1488	7	91
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	2021	52	148	1617	8	99
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	2547	1247	159	2991	243	253
Arrive On Green	0.72	0.72	0.09	0.84	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2021	52	148	1617	8	99
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	59.8	1.2	13.2	21.2	0.3	9.0
Cycle Q Clear(g_c), s	59.8	1.2	13.2	21.2	0.3	9.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2547	1247	159	2991	243	253
V/C Ratio(X)	0.79	0.04	0.93	0.54	0.03	0.39
Avail Cap(c_a), veh/h	2547	1247	159	2991	713	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.43	0.43	1.00	1.00
Uniform Delay (d), s/veh	14.9	3.8	72.4	3.7	69.3	60.3
Incr Delay (d2), s/veh	0.9	0.0	29.6	0.3	0.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	23.1	0.5	7.4	6.3	0.2	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.8	3.8	101.9	4.0	69.4	61.2
LnGrp LOS	B	A	F	A	E	E
Approach Vol, veh/h	2073			1765	107	
Approach Delay, s/veh	15.5			12.2	61.9	
Approach LOS	B			B	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	122.7			142.7	17.3
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 14	92.9			112.9	33.0
Max Q Clear Time (g_c+I1), s	15.2	61.8			23.2	11.0
Green Ext Time (p_c), s	0.0	22.2			23.7	0.3

Intersection Summary	
HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

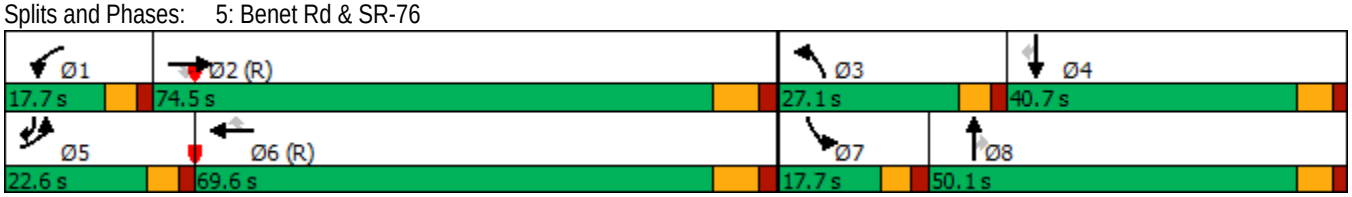
Notes

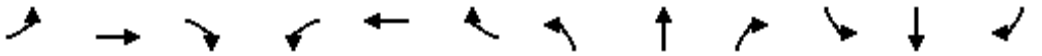
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	213	1711	88	35	1307	13	129	23	91	15	15	189
Future Volume (vph)	213	1711	88	35	1307	13	129	23	91	15	15	189
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	31.7	92.9	92.9	12.0	69.7	69.7	17.4	31.8	31.8	12.0	15.7	53.5
Actuated g/C Ratio	0.20	0.58	0.58	0.08	0.44	0.44	0.11	0.20	0.20	0.08	0.10	0.33
v/c Ratio	0.66	0.91	0.10	0.29	0.92	0.02	0.73	0.07	0.25	0.12	0.09	0.34
Control Delay	58.8	51.4	8.1	74.1	44.0	0.0	89.9	51.3	7.2	71.5	62.0	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	51.4	8.1	74.1	44.0	0.0	89.9	51.3	7.2	71.5	62.0	19.4
LOS	E	D	A	E	D	A	F	D	A	E	E	B
Approach Delay		50.3			44.4			55.2			25.8	
Approach LOS		D			D			E			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.92	
Intersection Signal Delay: 47.1	Intersection LOS: D
Intersection Capacity Utilization 87.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	213	1711	88	35	1307	13	129	23	91	15	15	189
Future Volume (veh/h)	213	1711	88	35	1307	13	129	23	91	15	15	189
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	232	1860	96	38	1421	14	140	25	99	16	16	205
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1985	885	109	1827	815	162	342	290	68	243	373
Arrive On Green	0.11	0.56	0.56	0.06	0.51	0.51	0.09	0.18	0.18	0.04	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	232	1860	96	38	1421	14	140	25	99	16	16	205
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	77.6	4.6	3.3	51.8	0.7	12.4	1.8	8.7	1.4	1.2	18.2
Cycle Q Clear(g_c), s	16.9	77.6	4.6	3.3	51.8	0.7	12.4	1.8	8.7	1.4	1.2	18.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1985	885	109	1827	815	162	342	290	68	243	373
V/C Ratio(X)	1.23	0.94	0.11	0.35	0.78	0.02	0.86	0.07	0.34	0.24	0.07	0.55
Avail Cap(c_a), veh/h	188	1985	885	134	1827	815	238	514	436	134	404	510
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)	0.47	0.47	0.47	0.77	0.77	0.77	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	32.7	16.6	72.1	31.5	19.1	71.7	54.2	57.0	74.7	61.1	53.7
Incr Delay (d2), s/veh	124.9	5.3	0.1	1.5	2.6	0.0	19.0	0.1	0.7	1.8	0.1	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	14.3	34.2	1.7	1.6	22.8	0.3	6.6	0.9	3.6	0.7	0.6	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	196.4	38.0	16.7	73.5	34.1	19.1	90.7	54.2	57.7	76.4	61.2	55.0
LnGrp LOS	F	D	B	E	C	B	F	D	E	E	E	D
Approach Vol, veh/h		2188			1473			264			237	
Approach Delay, s/veh		53.9			34.9			74.9			56.8	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	97.4	20.3	26.9	22.6	90.3	11.8	35.3
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.3	79.6	14.4	20.2	18.9	53.8	3.4	10.7
Green Ext Time (p_c), s	0.0	0.0	0.2	0.6	0.0	5.5	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	48.7
HCM 6th LOS	D

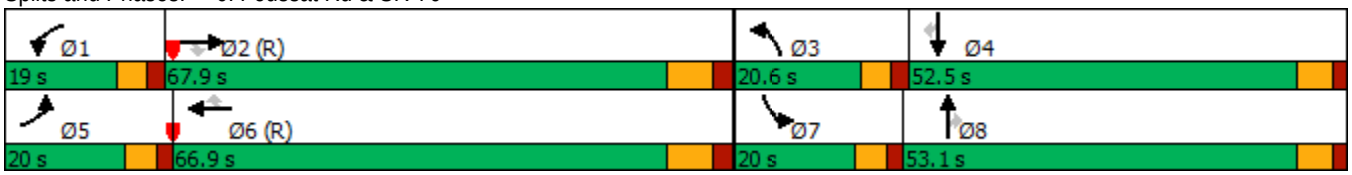
Notes

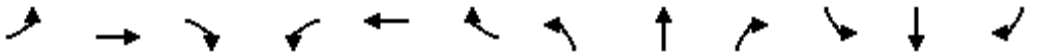
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	1725	127	98	1237	117	78	127	136	91	76	26
Future Volume (vph)	27	1725	127	98	1237	117	78	127	136	91	76	26
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	89.7	89.7	12.2	96.4	96.4	13.0	19.6	19.6	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.60	0.60	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.10	0.95	0.15	0.41	0.63	0.13	0.31	0.22	0.46	0.36	0.19	0.06
Control Delay	55.9	40.5	17.2	75.3	25.5	4.2	72.4	62.0	11.7	73.4	61.2	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	0.0
Total Delay	55.9	40.5	17.2	75.3	25.5	4.2	72.4	62.0	11.7	73.4	61.2	0.3
LOS	E	D	B	E	C	A	E	E	B	E	E	A
Approach Delay		39.1			27.1			44.3			58.8	
Approach LOS		D			C			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 36.1	Intersection LOS: D
Intersection Capacity Utilization 85.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	1725	127	98	1237	117	78	127	136	91	76	26
Future Volume (veh/h)	27	1725	127	98	1237	117	78	127	136	91	76	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	1875	138	107	1345	127	85	138	148	99	83	28
Peak Hour Factor	0.92	0.92	0.92	0.92	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	203	2037	909	257	2092	933	274	576	179	277	404	317
Arrive On Green	0.06	0.57	0.57	0.07	0.59	0.59	0.08	0.11	0.11	0.08	0.11	0.11
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	29	1875	138	107	1345	127	85	138	148	99	83	28
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.3	76.3	6.5	4.7	40.1	5.7	3.7	3.9	14.6	4.3	3.4	1.4
Cycle Q Clear(g_c), s	1.3	76.3	6.5	4.7	40.1	5.7	3.7	3.9	14.6	4.3	3.4	1.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	2037	909	257	2092	933	274	576	179	277	404	317
V/C Ratio(X)	0.14	0.92	0.15	0.42	0.64	0.14	0.31	0.24	0.83	0.36	0.21	0.09
Avail Cap(c_a), veh/h	309	2037	909	287	2092	933	322	1500	466	309	1031	809
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)	0.38	0.38	0.38	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.5	30.8	16.0	70.7	21.8	14.7	69.5	64.7	69.5	69.7	64.4	63.5
Incr Delay (d2), s/veh	0.1	3.5	0.1	1.1	1.5	0.3	0.6	0.2	9.4	0.8	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	32.9	2.5	2.2	17.1	2.2	1.7	1.7	6.4	2.0	1.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	34.4	16.1	71.8	23.3	15.0	70.1	64.9	78.8	70.4	64.6	63.6
LnGrp LOS	E	C	B	E	C	B	E	E	E	E	E	E
Approach Vol, veh/h		2042			1579			371			210	
Approach Delay, s/veh		33.7			25.9			71.7			67.2	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.6	99.7	18.4	24.3	15.1	102.2	18.5	24.1
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	6.7	78.3	5.7	5.4	3.3	42.1	6.3	16.6
Green Ext Time (p_c), s	0.1	0.0	0.1	0.6	0.0	9.7	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	35.8
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	11	229	14	5	195
Future Vol, veh/h	17	11	229	14	5	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	18	12	249	15	5	212

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	352	257	0	0	264	0
Stage 1	257	-	-	-	-	-
Stage 2	95	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	644	781	-	-	1299	-
Stage 1	757	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	641	781	-	-	1299	-
Mov Cap-2 Maneuver	641	-	-	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	874	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	690	1299	-
HCM Lane V/C Ratio	-	-	0.044	0.004	-
HCM Control Delay (s)	-	-	10.5	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	82	0	206	36	0	120
Future Vol, veh/h	82	0	206	36	0	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
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	89	0	224	39	0	130

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	354	224	0	0	263	0
Stage 1	224	-	-	-	-	-
Stage 2	130	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	644	815	-	-	1301	-
Stage 1	813	-	-	-	-	-
Stage 2	896	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	644	815	-	-	1301	-
Mov Cap-2 Maneuver	644	-	-	-	-	-
Stage 1	813	-	-	-	-	-
Stage 2	896	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	644	1301	-
HCM Lane V/C Ratio	-	-	0.138	-	-
HCM Control Delay (s)	-	-	11.5	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	48	38	226	140	2
Future Vol, veh/h	2	48	38	226	140	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	-
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	4	104	41	246	152	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	481	153	154	0	-	0
Stage 1	153	-	-	-	-	-
Stage 2	328	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	544	893	1426	-	-	-
Stage 1	875	-	-	-	-	-
Stage 2	730	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	528	893	1426	-	-	-
Mov Cap-2 Maneuver	528	-	-	-	-	-
Stage 1	850	-	-	-	-	-
Stage 2	730	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1426	-	869	-	-
HCM Lane V/C Ratio	0.029	-	0.125	-	-
HCM Control Delay (s)	7.6	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Appendix I

Cumulative Project Traffic Volumes and Assignments

Cumulative project traffic volumes are summarized on the next two pages with sources included after the summary tables.

Cumulative Projects	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1) SR-76/I-SB Cumulative AM Sum:	**0**	**83**	**106**	**104**	**140**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18		5		11	70							
Ocean Kamp		18		60	24							
N. River Farms		5		25	5							
Airport Rd Industrial				0								
Alta Oceanside		28	56		36							
Liberty RV and Boat Storage												
Mission Flats		1		3	2							
Modera Neptune and Melrose		26	50		3							
Nitto Denko				1								
Rio Rockwell				4								
Cumulative PM Sum:	**()**	**(72)**	**(47)**	**(98)**	**(169)**	**()**	**()**	**()**	**()**	**()**	**()**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18		(5)		(15)	(43)							
Ocean Kamp		(36)		(63)	(25)							
N. River Farms		(5)		(10)	(5)							
Airport Rd Industrial				(4)								
Alta Oceanside		(13)	(26)		(83)							
Liberty RV and Boat Storage												
Mission Flats		(3)		(1)	(1)							
Modera Neptune and Melrose		(10)	(21)		(12)							
Nitto Denko				(4)								
Rio Rockwell				(1)								
2) SR-76/I-5 NB Cumulative AM Sum:	**0**	**121**	**27**	**82**	**215**	**0**	**0**	**0**	**0**	**24**	**0**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18		15		10	81							
Ocean Kamp		59		54	85							
N. River Farms		10		10	30							
Airport Rd Industrial		4		1	0							
Alta Oceanside		14	14		6							
Liberty RV and Boat Storage				1								
Mission Flats		2		5	5							
Modera Neptune and Melrose		13	13		3							
Nitto Denko		4			1							
Rio Rockwell				1	4					24		
Cumulative PM Sum:	**()**	**(195)**	**(22)**	**(86)**	**(203)**	**()**	**()**	**()**	**()**	**(55)**	**()**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18		(19)		(14)	(58)							
Ocean Kamp		(117)		(57)	(88)							
N. River Farms		(40)		(5)	(20)							
Airport Rd Industrial		(1)		(4)	(4)							
Alta Oceanside		(7)	(7)		(14)							
Liberty RV and Boat Storage				(1)								
Mission Flats		(6)		(2)	(2)							
Modera Neptune and Melrose		(5)	(15)		(12)							
Nitto Denko				(3)	(4)							
Rio Rockwell					(1)					(55)		
3) SR-76/Loretta St Cumulative AM Sum:	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**196**	**0**	**14**	**297**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18								27			91	
Ocean Kamp			5					104		6	139	
N. River Farms								15		8	40	
Airport Rd Industrial								8			1	
Alta Oceanside								14			6	
Liberty RV and Boat Storage								1			1	
Mission Flats								5			10	
Modera Neptune and Melrose								13			3	
Nitto Denko								8			1	
Rio Rockwell								1			5	
Cumulative PM Sum:	**()**	**()**	**(9)**	**()**	**()**	**()**	**()**	**(328)**	**()**	**(12)**	**(289)**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18								(35)			(72)	
Ocean Kamp			(9)					(207)		(6)	(145)	
N. River Farms								(50)		(6)	(25)	
Airport Rd Industrial								(2)			(8)	
Alta Oceanside								(7)			(14)	
Liberty RV and Boat Storage								(1)			(1)	
Mission Flats								(15)			(4)	
Modera Neptune and Melrose								(5)			(12)	
Nitto Denko								(1)			(7)	
Rio Rockwell								(5)			(1)	
4) SR-76/Canyon Dr Cumulative AM Sum:	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**201**	**0**	**26**	**304**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18								27			91	
Ocean Kamp			14					109		18	145	
N. River Farms								15		8	40	
Airport Rd Industrial								8			2	
Alta Oceanside								14			6	
Liberty RV and Boat Storage								1			1	
Mission Flats								5			10	
Modera Neptune and Melrose								13			3	

Cumulative Projects	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Nitto Denko								8			1	
Rio Rockwell								1			5	
Cumulative PM Sum:	**()**	**()**	**(27)**	**()**	**()**	**()**	**()**	**(336)**	**()**	**(25)**	**(295)**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18								(35)			(72)	
Ocean Kamp			(27)					(216)		(19)	(151)	
N. River Farms								(50)		(6)	(25)	
Airport Rd Industrial								(1)			(8)	
Alta Oceanside								(7)			(14)	
Liberty RV and Boat Storage								(1)			(1)	
Mission Flats								(15)			(4)	
Modera Neptune and Melrose								(5)			(12)	
Nitto Denko								(1)			(7)	
Rio Rockwell								(5)			(1)	
5) SR-76/Benet Rd Cumulative AM Sum:	**2**	**0**	**2**	**5**	**0**	**1**	**8**	**197**	**9**	**17**	**318**	**6**
Cumulative projects 1,4,5,7,12,14,15,17,18								27			91	
Ocean Kamp				5				122			163	6
N. River Farms								15		8	40	
Airport Rd Industrial						1	8					
Alta Oceanside								14			6	
Liberty RV and Boat Storage	1		1						1	1		
Mission Flats								5			10	
Modera Neptune and Melrose								13			3	
Nitto Denko	1		1						8	8		
Rio Rockwell								1			5	
Cumulative PM Sum:	**(8)**	**()**	**(8)**	**(9)**	**()**	**(8)**	**(2)**	**(361)**	**(2)**	**(8)**	**(298)**	**(6)**
Cumulative projects 1,4,5,7,12,14,15,17,18								(35)			(72)	
Ocean Kamp				(9)				(244)			(170)	(6)
N. River Farms								(50)		(6)	(25)	
Airport Rd Industrial						(8)	(2)					
Alta Oceanside								(7)			(14)	
Liberty RV and Boat Storage	(1)		(1)						(1)	(1)		
Mission Flats								(15)			(4)	
Modera Neptune and Melrose								(5)			(12)	
Nitto Denko	(7)		(7)						(1)	(1)		
Rio Rockwell								(5)			(1)	
6) SR-76/Foussat Rd Cumulative AM Sum:	**14**	**60**	**32**	**54**	**77**	**175**	**132**	**47**	**31**	**35**	**134**	**41**
Cumulative projects 1,4,5,7,12,14,15,17,18		5	26		5				27	27	65	
Ocean Kamp		55		54	72	175	132					41
N. River Farms			5					15		8	40	
Airport Rd Industrial								1			8	
Alta Oceanside	2							10	4		4	
Liberty RV and Boat Storage								1			1	
Mission Flats	12		1					5				
Modera Neptune and Melrose								13			3	
Nitto Denko								1			8	
Rio Rockwell								1			5	
Cumulative PM Sum:	**(8)**	**(134)**	**(51)**	**(70)**	**(101)**	**(226)**	**(305)**	**(96)**	**(37)**	**(41)**	**(92)**	**(95)**
Cumulative projects 1,4,5,7,12,14,15,17,18		(7)	(34)		(7)				(35)	(35)	(38)	
Ocean Kamp		(127)		(70)	(94)	(226)	(305)					(95)
N. River Farms			(10)					(50)		(6)	(25)	
Airport Rd Industrial								(8)			(2)	
Alta Oceanside	(2)							(5)	(2)		(12)	
Liberty RV and Boat Storage								(1)			(1)	
Mission Flats	(6)		(7)					(15)				
Modera Neptune and Melrose								(5)			(12)	
Nitto Denko								(7)			(1)	
Rio Rockwell								(5)			(1)	
7) Benet Rd/Airport Rd Cumulative AM Sum:	**0**	**6**	**8**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18												
Ocean Kamp		6			5							
N. River Farms												
Airport Rd Industrial			8							1		
Alta Oceanside												
Liberty RV and Boat Storage												
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												
Cumulative PM Sum:	**()**	**(6)**	**(2)**	**()**	**(9)**	**()**	**()**	**()**	**()**	**(8)**	**()**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18												
Ocean Kamp		(6)			(9)							
N. River Farms												
Airport Rd Industrial			(2)							(8)		
Alta Oceanside												
Liberty RV and Boat Storage												

Cumulative Projects	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												
8) Benet Rd/Eddy Jones Way Cumulative AM Sum:	**0**	**6**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Cumulative projects 1,4,5,7,12,14,15,17,18												
Ocean Kamp		6			5							
N. River Farms												
Airport Rd Industrial												
Alta Oceanside												
Liberty RV and Boat Storage												
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												
Cumulative PM Sum:	**()**	**(6)**	**()**	**()**	**(9)**	**()**	**()**	**()**	**()**	**()**	**()**	**()**
Cumulative projects 1,4,5,7,12,14,15,17,18												
Ocean Kamp		(6)			(9)							
N. River Farms												
Airport Rd Industrial												
Alta Oceanside												
Liberty RV and Boat Storage												
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												
9) Foussat/Alex Rd Cumulative AM Sum:	**0**	**141**	**91**	**32**	**186**	**0**	**0**	**4**	**0**	**121**	**6**	**43**
Cumulative projects 1,4,5,7,12,14,15,17,18		5			5							
Ocean Kamp		136	91	32	181			4		121	6	43
N. River Farms												
Airport Rd Industrial												
Alta Oceanside												
Liberty RV and Boat Storage												
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												
Cumulative PM Sum:	**()**	**(323)**	**(211)**	**(74)**	**(241)**	**()**	**()**	**(11)**	**()**	**(156)**	**(8)**	**(55)**
Cumulative projects 1,4,5,7,12,14,15,17,18		(7)			(7)							
Ocean Kamp		(316)	(211)	(74)	(234)			(11)		(156)	(8)	(55)
N. River Farms												
Airport Rd Industrial												
Alta Oceanside												
Liberty RV and Boat Storage												
Mission Flats												
Modera Neptune and Melrose												
Nitto Denko												
Rio Rockwell												

	Cumulative ADT	C 1,4,5,7,12 14,15,17,18	Ocean Kamp	N. River Farms	Airport Ind. Liberty RV	Alta Oceanside	Mission Flats Neptune Mel.	Nitto Rio Rock
Benet Road								
1) Eddy Jones to SR-76	190	0	190	0	0	0	0	0
Foussat Rd								
2) Alex Rd to SR-76	9770	250	9520	0	0	0	0	0
State Route 76								
3) I-5 to Loretta St	8450	2260	4380	1000	100	250	397	63
4) Loretta St to Canyon Dr	8640	2260	4570	1000	100	250	397	63
5) Canyon Dr to Benet Rd	9210	2260	5140	1000	100	250	397	63
6) Benet Rd to Foussat Rd	9590	2260	5520	1000	100	250	397	63
7) East of Foussat Rd	7003	2260	2670	1070	100	200	640	63

Traffic Impact Analysis
Alta Oceanside, City of Oceanside

Prepared for:

PR II/Wood Oceanside, LLC
7700 Irvine Center Drive, Suite 600
Irvine, California 92618
Contact: Brian Pianca

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Dennis Pascua, Transportation Services Manager

~~OCTOBER 2019~~MARCH 2020

3 PROJECT TRAFFIC

This section documents the trip generation, distribution, and assignment of project traffic.

3.1 Trip Generation

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (2002). Trip generation estimates for the project are based on the trip generation rates for multi-family residential land uses as well as the sit-down, high turnover restaurant land use. The trip rates for the residential units were classified as multi-family >20 du/acre. The use of trip rates for the sit-down, high turnover restaurant land use is a conservative rate, as it represents the highest retail trip generator that could be developed on the project site. In addition, the square footage of the retail use was conservatively assumed to be 5,800 SF, and pending the final site plan, the retail use would be slightly smaller at 5,422 SF. Other retail uses that could utilize the ground floor retail space would generate less traffic. Trip generation rates and resulting trip generation estimates for the project are summarized in Table 7.

Table 7
Project Trip Generation for Alta Oceanside Mixed-Use Project

SANDAG Trip Generation Rates									
				AM Peak Hour			*PM Peak Hour*		
Land Use	*Size/Unit*		*Daily*	*% In*	*% Out*	*Total*	*% In*	*% Out*	*Total*
Residential Apartments (multi-family >20dua)	per DU		6	20%	80%	8%	70%	30%	9%
Restaurant - Sit-Down, High Turnover	per TSF		160	50%	50%	8%	60%	40%	8%
Trip Generation									
Apartment Units	309	DU	1,854	30	118	148	117	50	167
High-Turnover Restaurant	5.80	TSF	928	37	37	74	44	30	74
Total Trip Generation			**2,782**	**67**	**155**	**222**	**161**	**80**	**241**
Restaurant pass-by trips (10% Daily/AM, 20% PM)[1]			0	0	0	0	-9	-6	-15
Vehicle Trip Reduction (10%)[2]			-278	-7	-16	-23	-16	-8	-24
Total NET Trip Generation			**2,504**	**60**	**139**	**199**	**136**	**66**	**202**

Notes: TSF = 1000 square feet; DU = Dwelling Unit
Trip rates from the SANDAG 2002.

1 SANDAG does not provide daily and AM peak hour pass-by percentages. Daily and AM pass-by percentages were assumed to be one-half of the PM Peak Hour pass by percentages.

2 Consistent with SANDAG's regional "smart growth" policies, vehicle trip reductions were applied for mixed-use developments.

As shown in the Table 7, the project would generate 2,782 daily trips, 222 AM peak hour trips (67 inbound and 155 outbound), and 241 trips during the PM peak hour (161 inbound and 80 outbound).

However, applying the allowed trip reduction methods for pass-by trips (existing traffic that would pass-by the retail/restaurant use on their primary trips) and internal trip capture (trips that would

Source: Google Maps, 03/2018

FIGURE 6

Project Trip Distribution and Assignment

LINSCOTT LAW & GREENSPAN engineers

LOCAL TRANSPORTATION STUDY
OCEAN KAMP PROJECT

Oceanside, California
July 14, 2021

LLG Ref. 3-19-3145

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

TABLE 7–2
WEEKDAY PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Hotel (w/ convention facilities / restaurant)	300 Rooms	10 / Room	3,000	6%	60:40	108	72	180	8%	60:40	144	96	240
Multi-Family Residential	700 Units	8 / DU	5,600	8%	20:80	90	358	448	10%	70:30	392	168	560
Retail / Commercial Center	126 KSF	80 / KSF	10,080	4%	60:40	242	161	403	10%	50:50	504	504	1,008
Pass-by Credit (30% PM peak)	-	-	-	-		-	-	-			*-151*	*-151*	*-302*
Surf Lagoon / Resort Pass Guests [b]	1 Site	-	360	-	-	13	13	26	-		13	13	26
Proposed Project Weekday Total			**19,040**			**453**	**604**	**1,057**			**902**	**630**	**1,532**
Proposed Project Weekday Total (Driveway Trips) [c]			**19,040**			**453**	**604**	**1,057**			**1,053**	**781**	**1,834**

Footnotes:

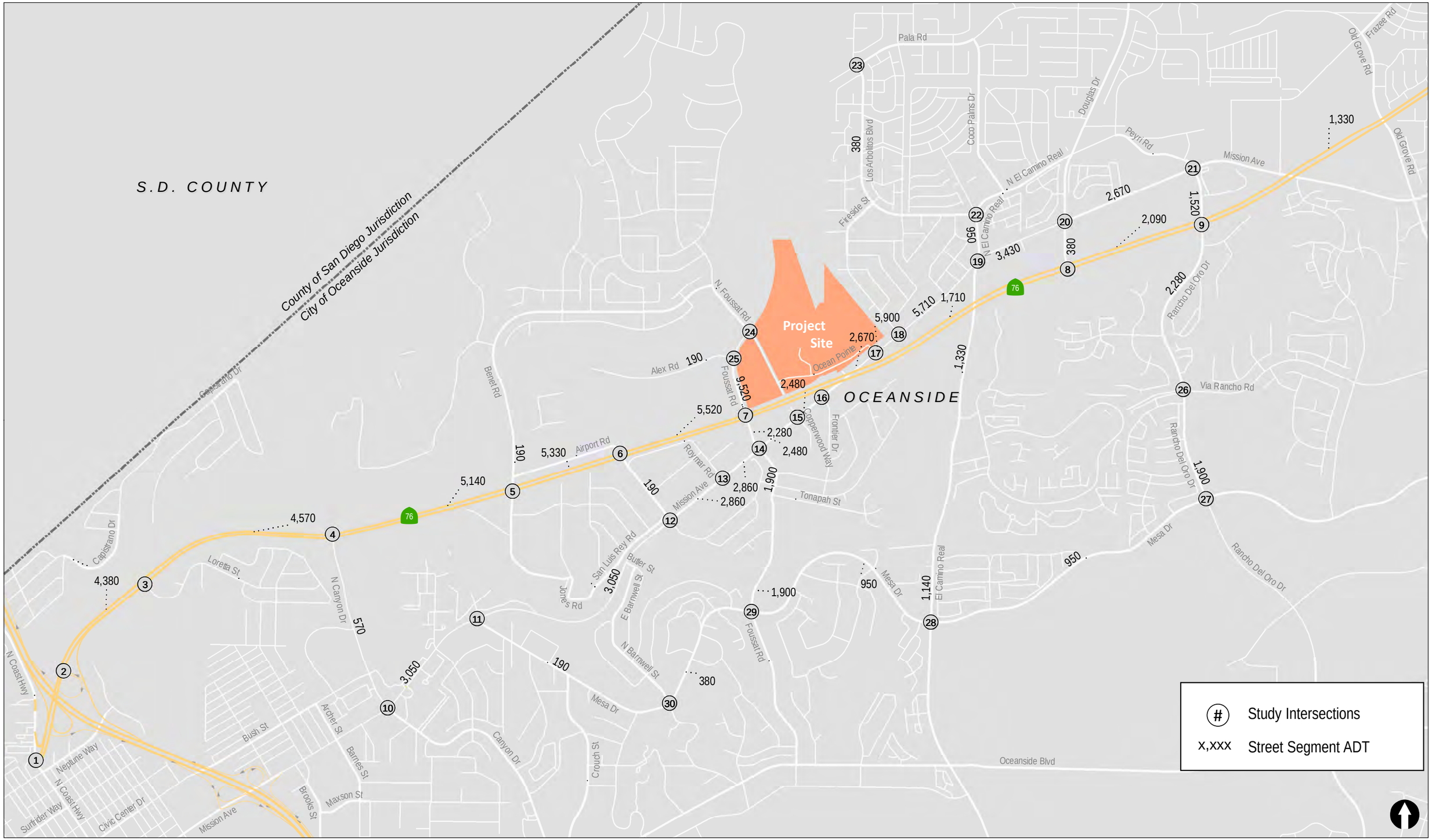
a. Rates based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002 except where noted.

b. 120 Surf Lagoon guests and 50 Report Pass guests expected daily. See *Appendix E* for Trip Generation Calculations.

c. Driveway trip calculations do not include pass-by credits.

General Notes:

1. ADT = Average daily traffic



N:\3145\Figures
Date: 3/30/2021
Time: 2:35 PM

Figure 7-2a
Weekday Project Traffic Volumes
(Page 1 of 2)

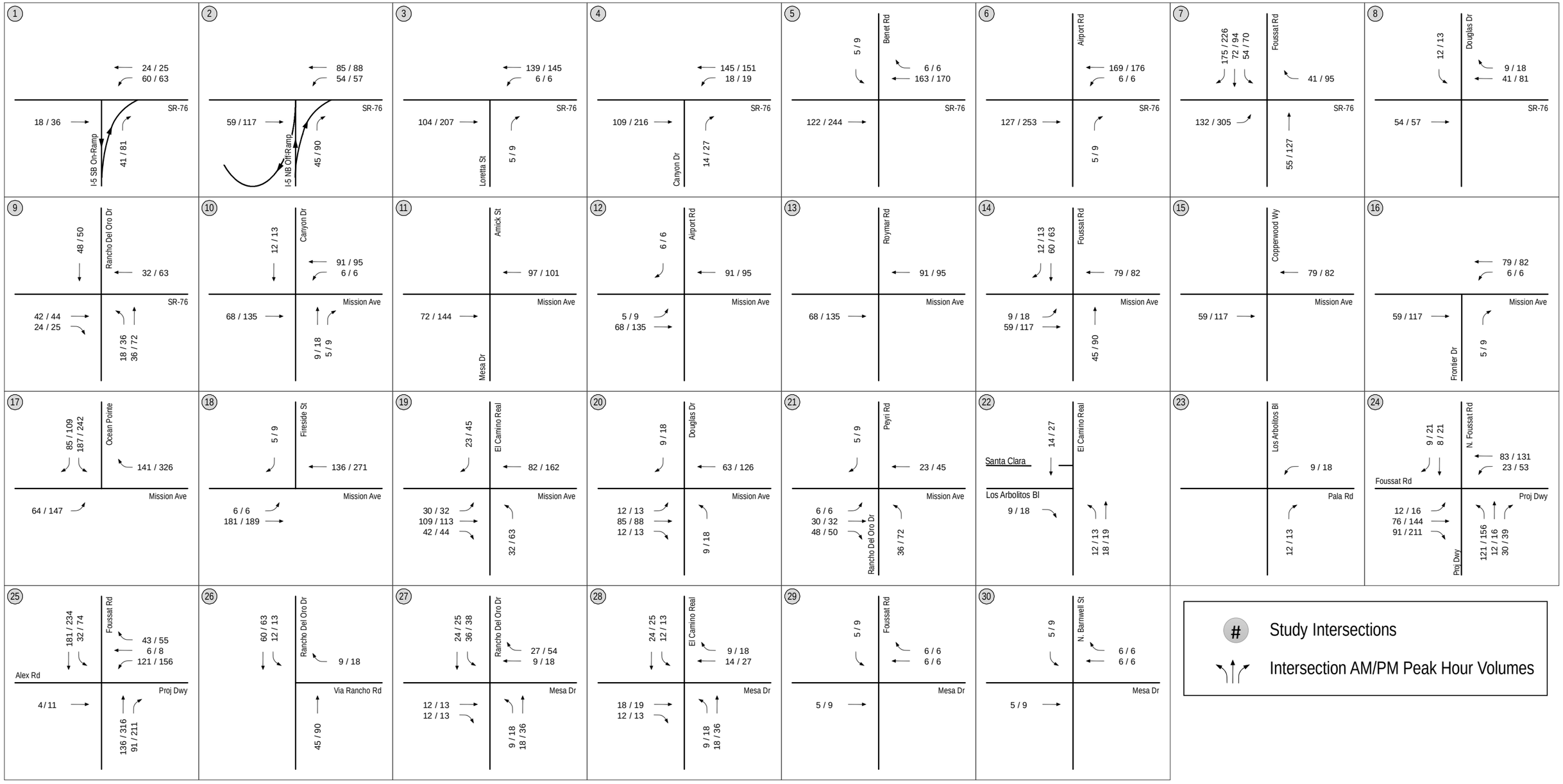
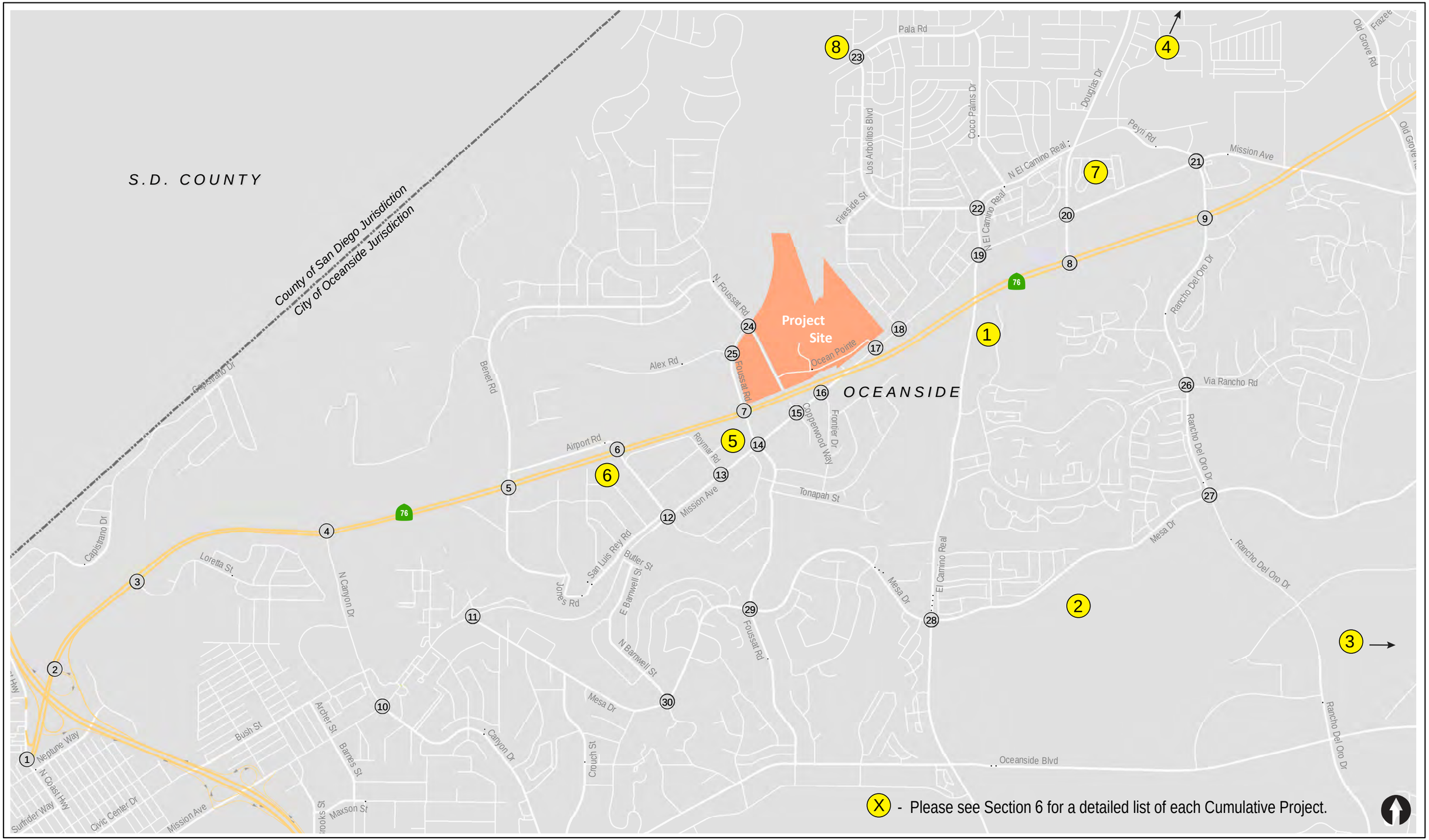

1
24 / 25
60 / 63
SR-76
18 / 36
I-5 SB On-Ramp
41 / 81
2
85 / 88
54 / 57
SR-76
59 / 117
I-5 NB Off-Ramp
45 / 90
3
139 / 145
6 / 6
SR-76
104 / 207
Loretta St
5 / 9
4
145 / 151
18 / 19
SR-76
109 / 216
Canyon Dr
14 / 27
5
5 / 9
Benet Rd
6 / 6
163 / 170
SR-76
122 / 244
6
Airport Rd
169 / 176
6 / 6
SR-76
127 / 253
5 / 9
7
175 / 226
72 / 94
54 / 70
Foussat Rd
41 / 95
SR-76
132 / 305
55 / 127
8
12 / 13
Douglas Dr
9 / 18
41 / 81
SR-76
54 / 57
9
48 / 50
Rancho Del Oro Dr
32 / 63
SR-76
42 / 44
24 / 25
18 / 36
36 / 72
10
12 / 13
Canyon Dr
91 / 95
6 / 6
Mission Ave
68 / 135
9 / 18
5 / 9
11
Amick St
97 / 101
Mission Ave
72 / 144
Mesa Dr
12
6 / 6
Airport Rd
91 / 95
Mission Ave
5 / 9
68 / 135
13
Roymar Rd
91 / 95
Mission Ave
68 / 135
14
12 / 13
60 / 63
Foussat Rd
79 / 82
Mission Ave
9 / 18
59 / 117
45 / 90
15
Copperwood Wy
79 / 82
Mission Ave
59 / 117
16
79 / 82
6 / 6
Mission Ave
59 / 117
Frontier Dr
5 / 9
17
85 / 109
187 / 242
Ocean Pointe
141 / 326
Mission Ave
64 / 147
18
5 / 9
Fireside St
136 / 271
Mission Ave
6 / 6
181 / 189
19
23 / 45
El Camino Real
82 / 162
Mission Ave
30 / 32
109 / 113
42 / 44
32 / 63
20
9 / 18
Douglas Dr
63 / 126
Mission Ave
12 / 13
85 / 88
12 / 13
9 / 18
21
5 / 9
Peyri Rd
23 / 45
Mission Ave
6 / 6
30 / 32
48 / 50
Rancho Del Oro Dr
36 / 72
22
14 / 27
El Camino Real
Santa Clara
Los Arbolitos Bl
9 / 18
12 / 13
18 / 19
23
Los Arbolitos Bl
9 / 18
Pala Rd
12 / 13
24
9 / 21
8 / 21
N. Foussat Rd
83 / 131
23 / 53
Foussat Rd
Proj Dwy
12 / 16
76 / 144
91 / 211
Proj Dwy
121 / 156
12 / 16
30 / 39
25
181 / 234
32 / 74
Foussat Rd
43 / 55
6 / 8
121 / 156
Alex Rd
Proj Dwy
4 / 11
136 / 316
91 / 211
26
60 / 63
12 / 13
Rancho Del Oro Dr
9 / 18
Via Rancho Rd
45 / 90
27
24 / 25
36 / 38
Rancho Del Oro Dr
27 / 54
9 / 18
Mesa Dr
12 / 13
12 / 13
9 / 18
18 / 36
28
24 / 25
12 / 13
El Camino Real
9 / 18
14 / 27
Mesa Dr
18 / 19
12 / 13
9 / 18
18 / 36
29
5 / 9
Foussat Rd
6 / 6
6 / 6
Mesa Dr
5 / 9
30
5 / 9
N. Barnwell St
6 / 6
6 / 6
Mesa Dr
5 / 9
Study Intersections
Intersection AM/PM Peak Hour Volumes

TABLE 6-1
CUMULATIVE PROJECTS

Project Name	Type of Development	Project Size	ADT	AM Peak Hour Trips	PM Peak Hour Trips
1. Oceanpointe Development	Multi-Family Residential	158 dwelling units	1,264	101	126
2. El Corazon Phases 1-3	Residential Retail Arena Aquatic Center	340 dwelling units 158,000 SF 6,000 seats 3,500 SF	15,498	715	1,534
3. Oceanside + Melrose	Residential Restaurant Commercial Office	313 dwelling units 10,000 SF 10,000 SF	4,059	340	360
4. North River Road Residential Subdivision (Kawano-Nagata)	Residential	400 dwelling units	3,200	256	320
5. Onpoint Oceanside	Gas Station & Car Wash Food Mart Retail Fast Food Restaurant High-Turn Over Restaurant	12 pumps 3,000 SF 7,980 SF 2,500 SF 2,320 SF	5,068	213	273
6. Airport Hotel	Hotel	86 rooms	688	34	48
7. Villas at Mission San Luis Rey	Retirement Community	222 units	694	32	49
8. Concordia Collection at Cypress Point	Residential	54 dwelling units	540	42	53

Figure 6–1 shows the locations of the cumulative projects. ***Figures 6–2a*** and ***6–2b*** depict the Cumulative Projects daily traffic volumes and AM / PM peak hour traffic volumes, respectively.

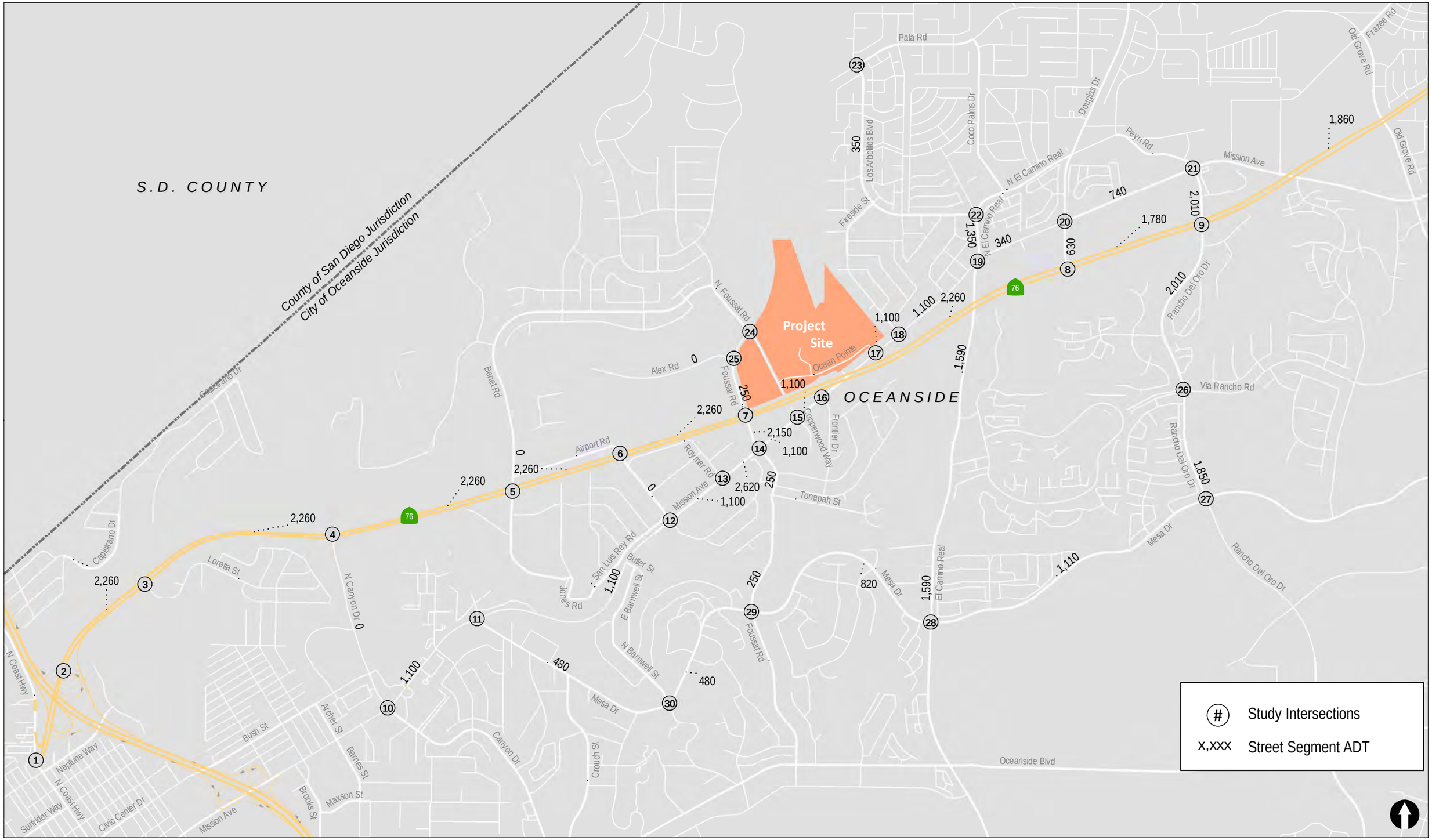
Appendix L includes additional information on the Cumulative Projects.



N:\3145\Figures
Date: 04/06/21

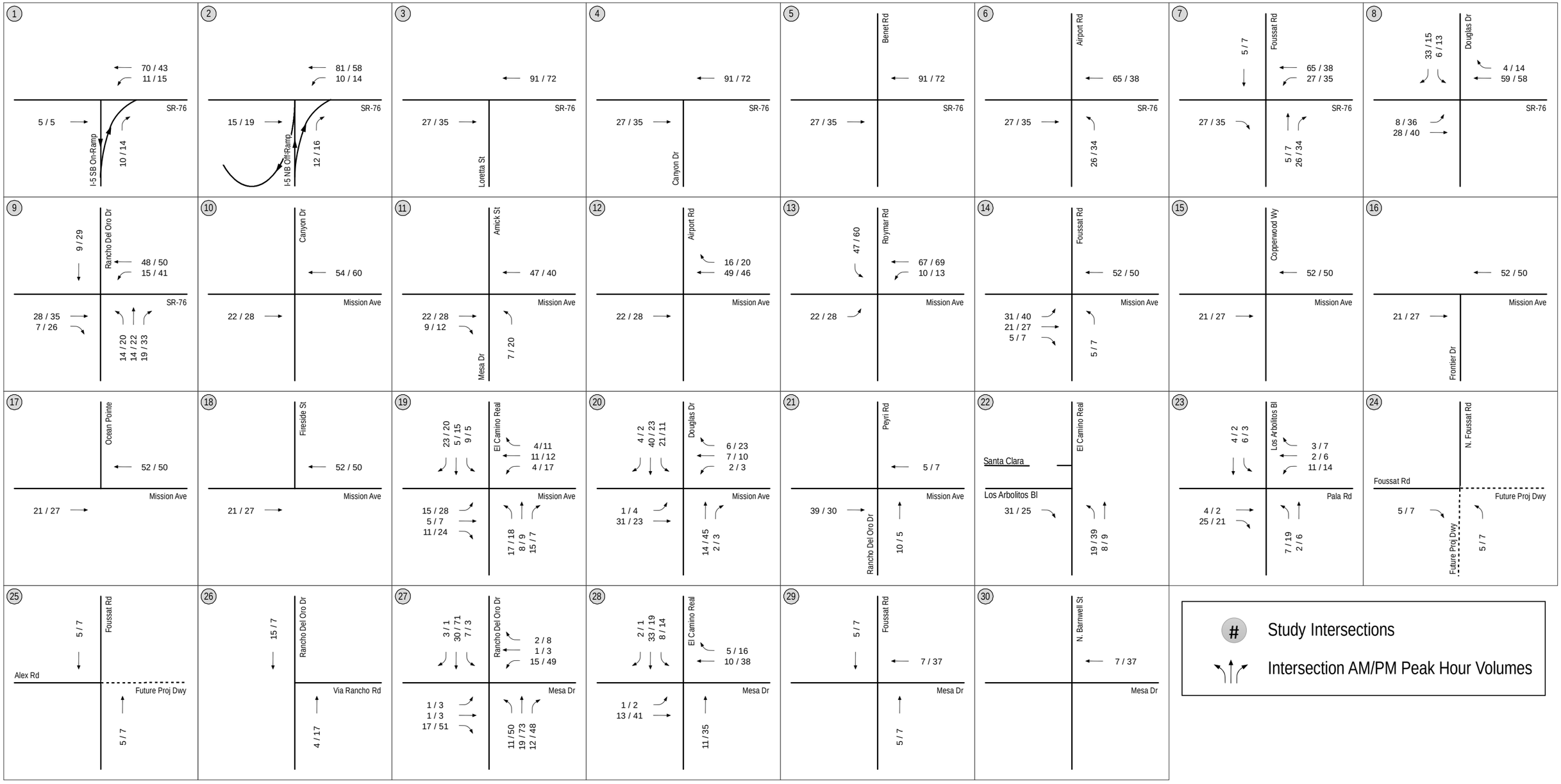
Figure 6-1

Cumulative Projects Location Map



N:\3145\Figures
Date: 4/7/2021
Time: 1:57 PM

Figure 6-2a
Near-Term Cumulative Projects Traffic Volumes
(Page 1 of 2)



N:\3145\Figures
Date: 4/7/2021
Time: 1:58 PM

Figure 6-2b

Near-Term Cumulative Projects Traffic Volumes (Page 2 of 2)

LINSCOTT LAW & GREENSPAN engineers

TRANSPORTATION IMPACT ANALYSIS
NORTH RIVER FARMS

Oceanside, California
July 23, 2018

LLG Ref. 3-16-2596

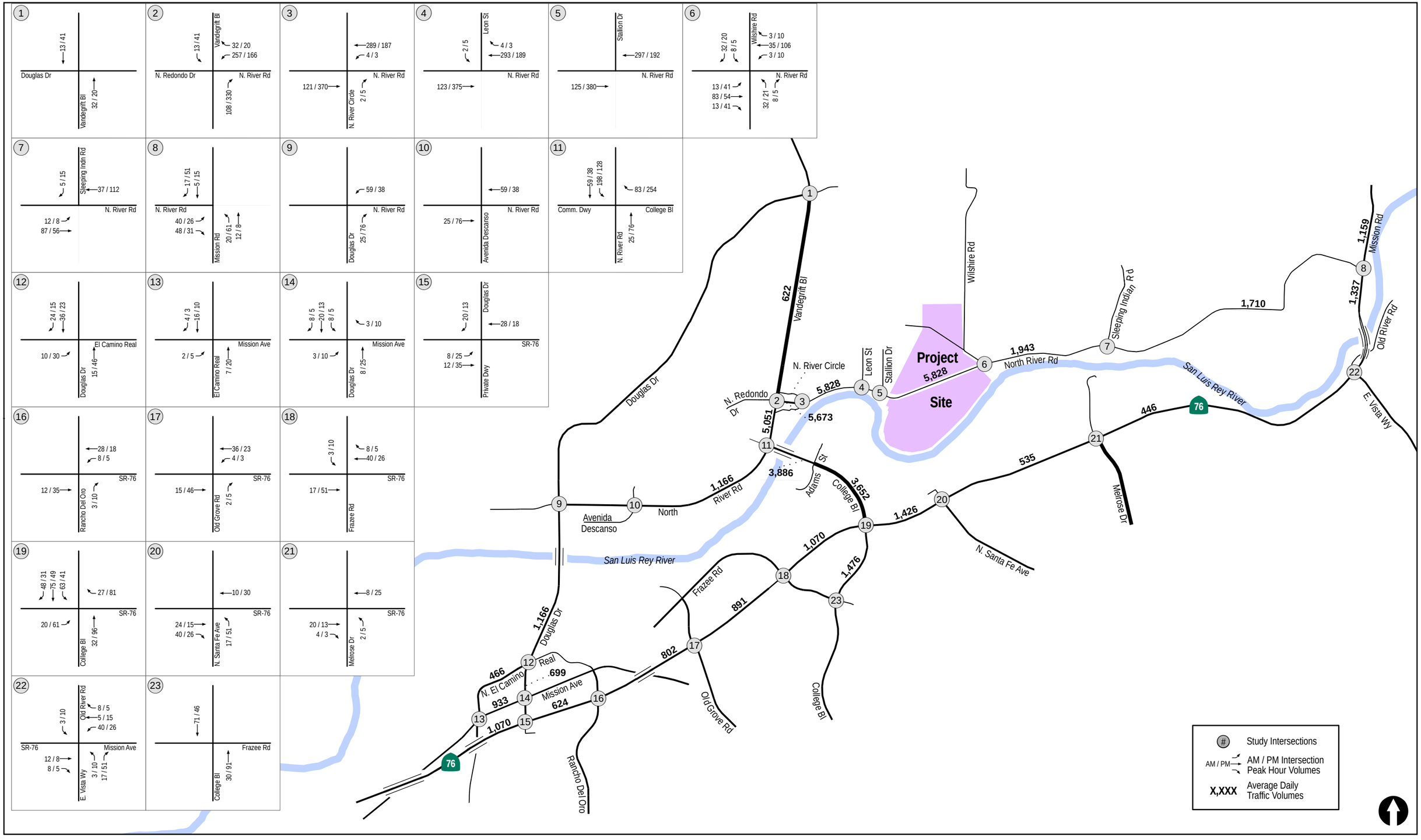
Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

TABLE 7–1
PROJECT TRIP GENERATION

	Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour						PM Peak Hour					
			Rate [a]	Volume	% of ADT [a]	In:Out Split	Volume In	Volume Out	Volume Total		% of ADT [a]	In:Out Split		Volume In	Volume Out	Volume Total
–	**RESIDENTIAL TRIPS**															
–	**UNIT TYPE**															
–	Single-Family Detached and Multi-Family Attached (≥ 20 DU per acre)	130 DU	6 /DU	780	8%	20%	80%	12	50	62	9%	70%	30%	49	21	70
–	Single-Family Detached (≤ 20 DU per acre)	250 DU	8 /DU	2,000	8%	20%	80%	32	128	160	10%	70%	30%	140	60	200
–	Single-Family Detached (≤ 6 DU per acre)	309 DU	10 /DU	3,090	8%	30%	70%	74	173	247	10%	70%	30%	216	93	309
A	**RESIDENTIAL TRIP GENERATION**	**689 DU**	**—**	**5,870**	—	—	—	**118**	**351**	**469**	—	—	—	**405**	**174**	**579**
–	**NON-RESIDENTIAL COMPONENT**															
B	Commercial (C + D)	25 KSF	40 /KSF	1,000	3%	60%	40%	18	12	30	9%	50%	50%	45	45	90
C	Primary External Trips [d]	90%	—	900	—	—	—	18	12	30	9%	50%	50%	40	40	80
D	*Pass-by External Trips [d]*	*10%*	—	*100*	—	—	—	—	—	—	*9%*	*50%*	*50%*	*5*	*5*	*10*
E	Restaurant [b] (F + G)	5 KSF	100 /KSF	500	1%	60%	40%	3	2	5	8%	70%	30%	28	12	40
F	Primary External Trips [d]	90%	—	450	—	—	—	3	2	5	8%	70%	30%	25	11	36
G	*Pass-by External Trips [d]*	*10%*	—	*50*	—	—	—	—	—	—	*8%*	*70%*	*30%*	*3*	*1*	*4*
H	Farm [c]	30 acres	2 /acre	60	0.26	43%	57%	7	9	16	0.45	57%	43%	15	12	27
I	Hotel [e]	100 rooms	9 /room	900	8%	40%	60%	29	43	72	9%	60%	40%	49	32	81
J	**Subtotal Primary Trips (Residential + Primary Commercial Trips + Hotel Trips) (A + C + F + H + I)**			**8,180**	—	—	—	**175**	**417**	**592**	—	—	—	**534**	**269**	**803**
K	*Mixed Use Reduction [d] (J x 5%)*	*5%*	—	*(409)*	—	—	—	*(9)*	*(21)*	*(30)*	—	—	—	*(27)*	*(13)*	*(40)*
L	**TOTAL PRIMARY TRIPS (J – K)**			**7,771**	—	—	—	**166**	**396**	**562**	—	—	—	**507**	**256**	**763**
M	**TOTAL DRIVEWAY TRIPS (A + B + E + H + I) – K**			**7,921**	—	—	—	**166**	**396**	**562**	—	—	—	**515**	**262**	**777**

Footnotes:

a. Rates based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002
b. Restaurant uses "Quality Restaurant" rate from SANDAG.
c. For Farm, SANDAG "agriculture" rate applied. For peak splits, ITE 818 "Nursery (Wholesale)" rate applied.
d. Primary trips, pass-by trips, and mixed-use credit percentages sourced to SANDAG.
e. For Hotel, SANDAG "hotel" rate reduced from 10 ADT/room to 9 ADT/room since the "hotel" rate includes trips generated by convention facilities, which are not proposed by the Project.



N:\2596\Figures
Date: 04/16/18

LINSCOTT LAW & GREENSPAN engineers

e Jones Industrial Project LTS Appendix

Figure 7-2

Project Traffic Volumes

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

OCEANSIDE RIO ROCKWELL PROJECT

Oceanside, California
March 2, 2020

LLG Ref. 3-18-2911

Prepared by:
Amelia Giacalone
Transportation Planner III

Under the Supervision of:
John Boarman, P. E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

EXECUTIVE SUMMARY

The Oceanside Rio Rockwell Project ("Project") proposes the development of 50 single family units and 54 attached town homes in the north-east quadrant of the Old Grove Road / Frazee Road intersection in the City of Oceanside. The Project also proposes the construction of a single-lane roundabout at the intersection of Old Grove Road / Frazee Road.

The total project is calculated to generate 932 ADT with 75 AM peak hour trips (19 inbound / 56 outbound) and 93 PM peak hour trips (65 inbound / 28 outbound).

Near-term conditions include ten cumulative development projects selected in coordination with City of Oceanside staff.

The Nichols Elementary School is located immediately to the west of the Project site. Due to the high traffic activity during School dismissal, a peak hour analysis of the nearby Old Grove Road / Frazee Road intersection at School dismissal between 3:00 and 4:00 PM is also included, in addition to the traditional 7:00 to 9:00 AM and 4:00 to 6:00 PM peak period analyses. *Section 10* includes the results of this analysis.

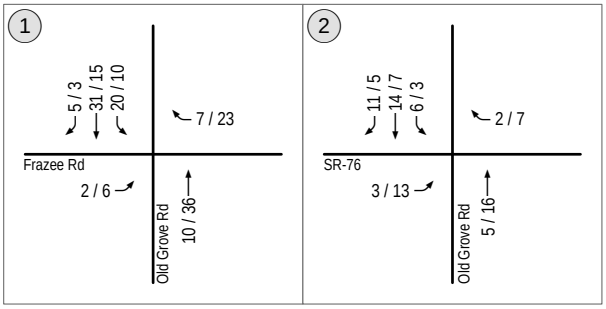
The project has no direct or cumulative impacts and therefore no mitigation measures are required.

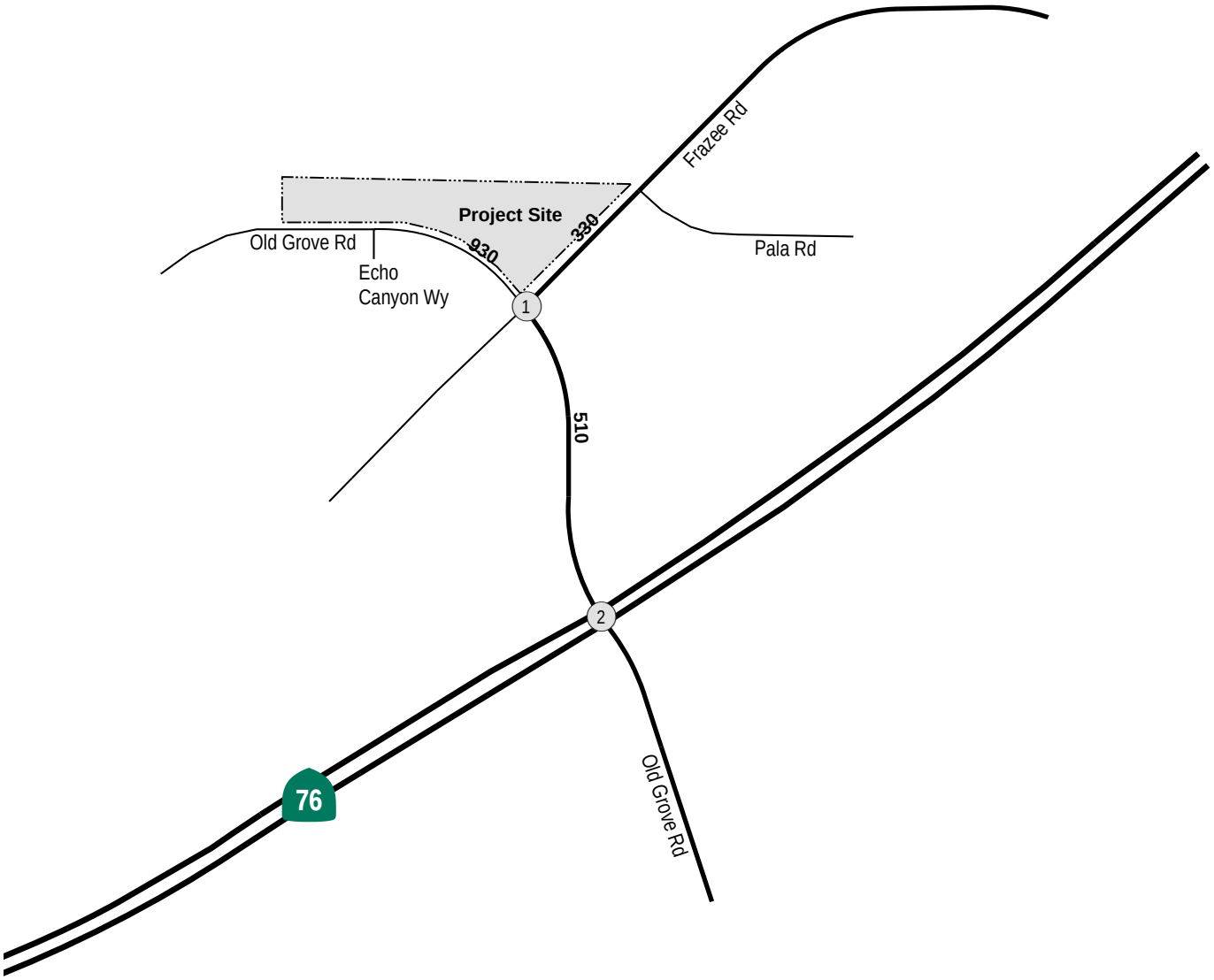
TABLE 7-1
TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT [a]	In : Out Split	Volume			% of ADT	In : Out Split	Volume		
						In	Out	Total			In	Out	Total
Detached Single Family Homes	50 DU	10 /DU	500	8%	30:70	12	28	40	10%	70:30	35	15	50
Attached Town Homes	54 DU	8/ DU	432	8%	20:80	7	28	35	10%	70:30	30	13	43
Total	**104 DU**	**-**	**932**	**-**	**-**	**19**	**56**	**75**	**-**	**-**	**65**	**28**	**93**

Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.





Study Intersections

AM / PM — AM / PM Intersection Peak Hour Volumes

X,XXX Average Daily Trips

N

LINSCOTT LAW & GREENSPAN engineers

N:\2911\Figures
Date: 12/16/19

Figure 7-2

Project Traffic Volumes

(AM/PM Commuter hours)

LINSCOTT LAW & GREENSPAN engineers

LOCAL TRANSPORTATION STUDY

MODERA NEPTUNE

Oceanside, California
December 12, 2022

LLG Ref. 3-22-3668

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

EXECUTIVE SUMMARY

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following Local Transportation Study (LTS) to determine and evaluate the potential effects to the local roadway system due to the proposed Modera Neptune project, consistent with the City of Oceanside *Traffic Impact Analysis Guidelines for Vehicle Miles Traveled (VMT) and Level of Service Assessment*, July 2020. This City document provides guidance for the preparation of a Local Transportation Study (LTS) to identify any off-site infrastructure improvements in the project vicinity that may be triggered with the development of the project as well as to analyze site access and circulation and evaluate the local multi-model network available to serve to project.

PROJECT DESCRIPTION

The Project proposes to demolish the existing 62 room (key) Motel and reconstruct new 62 hotel guestrooms and 360 residential units in a new 8-story building. The primary vehicular access to the site is provided via a driveway on Neptune Way.

The Project is calculated to generate 1,966 net daily trips with 157 trips during the AM peak hour (32 inbound/ 126 outbound trips) and 177 trips during PM peak hour (124 inbound/ 53 outbound trips).

The LTS includes an analysis of the following intersections and street segments:

INTERSECTIONS

1. Harbor Drive / N Coast Hwy & I-5 SB Ramps
2. SR-76 / I-5 NB Ramps
3. SR-76 / I-5 SB ramps
4. SR-76 & N Coast Hwy
5. N Coast Hwy / Neptune Way
6. N Coast Hwy / Surfrider Way
7. N. Coast Highway / Civic Center Drive
8. N. Coast Highway / Pier View Way
9. N. Coast Highway / Mission Avenue
10. S. Coast Highway / Seagaze Drive

STREET SEGMENTS

N Coast Hwy

Harbor Drive to SR-76
SR-76 to Surfrider Way
Surfrider Way to Pier View Way
Pier View Way to Mission Avenue

Neptune Way

Tremont St to N Coast Hwy

TABLE 8-1
PROJECT TRIP GENERATION

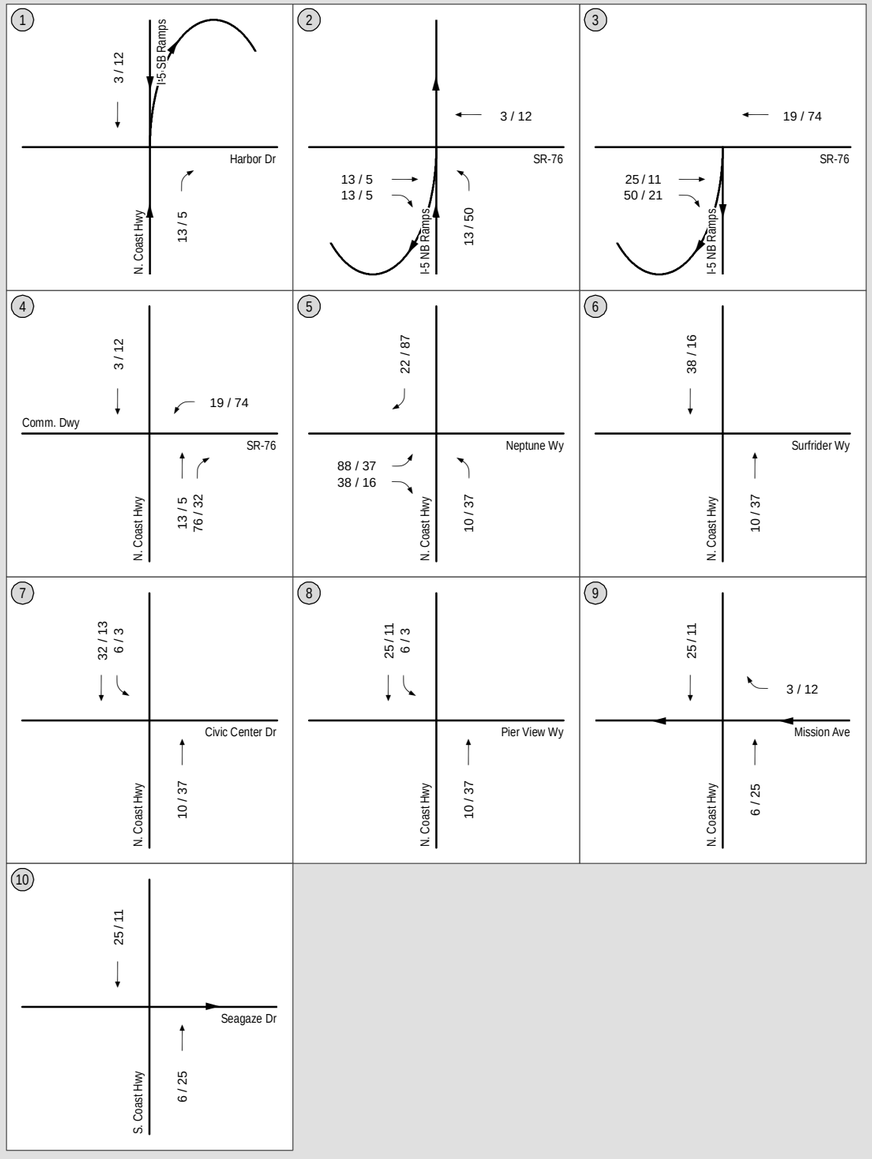
Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour					PM Peak Hour				
		Rate [a]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Proposed													
Apartments	360 DU	6 /DU[b]	2,160	8%	20 : 80	35	138	173	9%	70 : 30	136	58	194
Subtotal			**2,160**			**35**	**138**	**173**			**136**	**58**	**324**
Mode Split[c]													
Transit		4%	(86)			(1)	(6)	(7)			(8)	(2)	(8)
Bicycle		3%	(63)			(1)	(4)	(5)			(6)	(2)	(6)
Pedestrian		2%	(43)			(1)	(3)	(3)			(3)	(1)	(4)
Total Trip Reduction			**(194)**			**(3)**	**(12)**	**(16)**			**(12)**	**(5)**	**(17)**
Net Trips			***1,966***			***32***	***126***	***157***			***124***	***53***	***177***

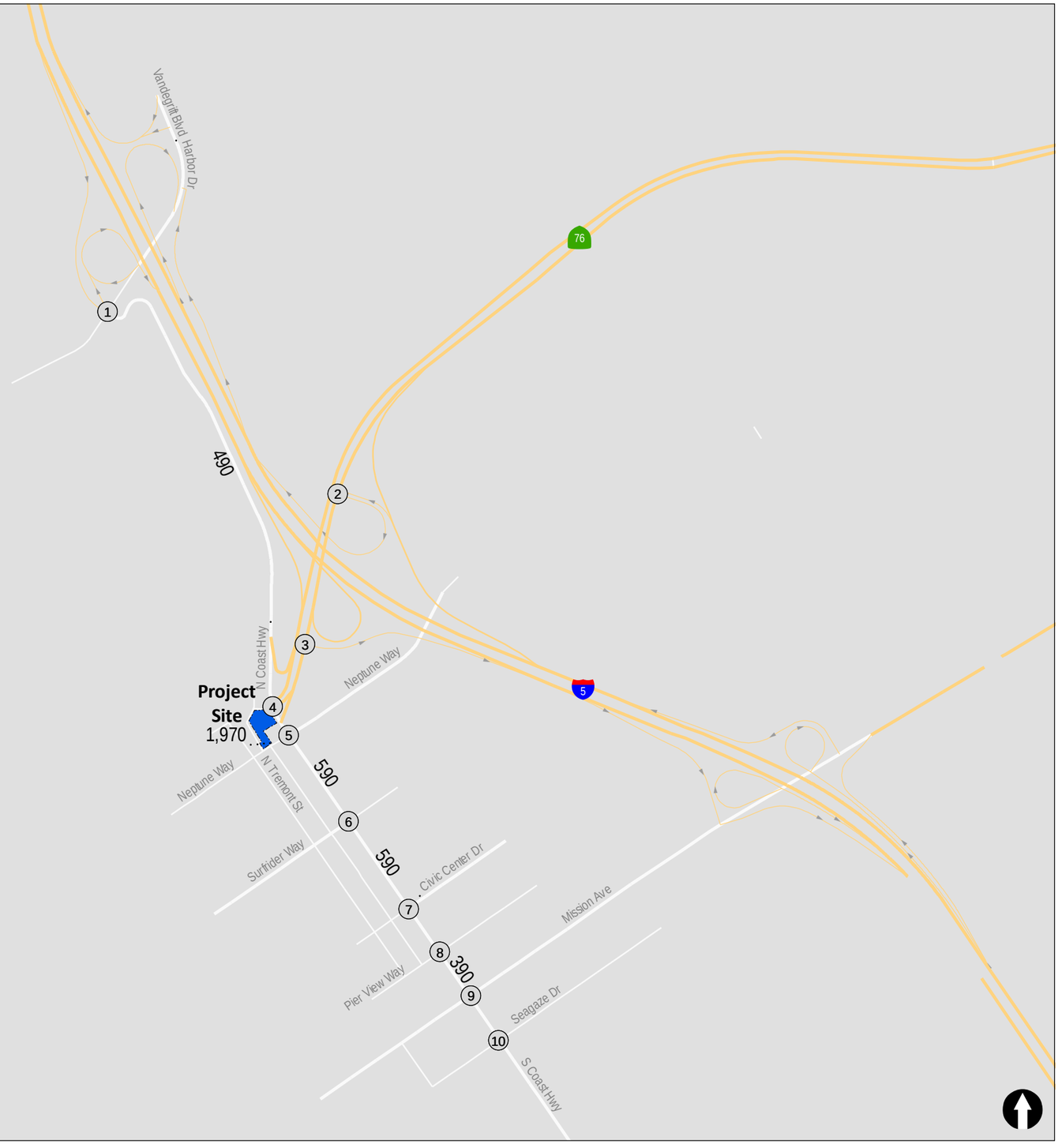
Footnotes:

a. Rates are based on SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002.

b. Based on apartment rate of 6/DU.

c. Percentage obtained from SANDAG's Jurisdictional Mode Choice Report.





LINSCOTT LAW & GREENSPAN engineers

N:\3668\Figures
Date: 12/12/2022
Time: 11:10 AM

Eddie Jones Industrial Project LTS Appendix

Figure 8-2

Project Traffic Volumes

LOCAL TRANSPORTATION STUDY

MODERA MELROSE

Oceanside, California
April 8, 2022

LLG Ref. 3-21-3419

Prepared by:
Narasimha Prasad
Senior Transportation Engineer

Under the Supervision of:
John Boarman, P. E.
Principal

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

TABLE 7–1
PROJECT TRIP GENERATION

Use	Quantity	Daily Trip Ends (ADT)[a]		AM Peak Hour					PM Peak Hour				
		Rate [b]	Volume	% of ADT	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total
Apartments	324 DU	6/ DU[c]	1,944	8%	2:8	31	125	156	9%	7:3	123	52	175
Retail [c]	2,338 SF	40/ KSF[d]	94	3%	6:4	2	1	3	9%	5:5	4	4	8
Total			**2,038**			**33**	**126**	**159**			**127**	**56**	**183**

Footnotes:

a Average Daily Trips

b Trip Generation Rate from the SANDAG's *Not So Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, 2002.

c Trip rates for Apartments used.

d Trip rates for Strip Commercial used.

N:\3419\Figures
Date: 2/1/2022
Time: 9:11 AM

Figure 7-2

Project Traffic Volumes

Traffic Impact Analysis
Mission Flats, City of Oceanside

Prepared for:

REALM
1201 Dove Street, Suite 250
Newport Beach, California 92660
Contact: Todd Cadwell

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Dennis Pascua, Transportation Services Manager

FEBRUARY 2020

3 PROJECT TRAFFIC

This section documents the trip generation, distribution, and assignment of project traffic.

3.1 Trip Generation

Trip generation estimates for the proposed project are based on daily and AM and PM peak hour trip generation rates obtained from the SANDAG *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* (2002). Trip generation estimates for the project are based on the trip generation rates for multi-family residential land uses as well as the specialty retail land use. The residential units could all be classified as multi-family >20 du/acre, therefore the trip rate for apartment use was utilized. No credit was used for existing structures on the site. Specialty retail trip rate was used for the proposed 4,200 square foot retail uses. It is noted that the project currently proposes 3,500 square-feet of commercial uses, but this analysis conservatively assumes the inclusion of 4,200 square feet. Trip generation rates and resulting trip generation estimates for the project are summarized in Table 6.

Table 6
Project Trip Generation for Mission Flats

SANDAG Trip Generation Rates									
				AM Peak Hour			*PM Peak Hour*		
Land Use	*Size/Unit*		*Daily*	*% In*	*% Out*	*Total*	*% In*	*% Out*	*Total*
Residential Apartments (multi-family >20dua)	per DU		6	20%	80%	8%	70%	30%	9%
Specialty Retail/Strip Commercial	per TSF		40	60%	40%	3%	50%	50%	9%
Trip Generation									
Apartment Units in Main Building	137	DU	822	13	53	66	52	22	74
Commercial	4.2	TSF	168	3	2	5	8	7	15
Total Trip Generation			**990**	**16**	**55**	**71**	**60**	**29**	**89**

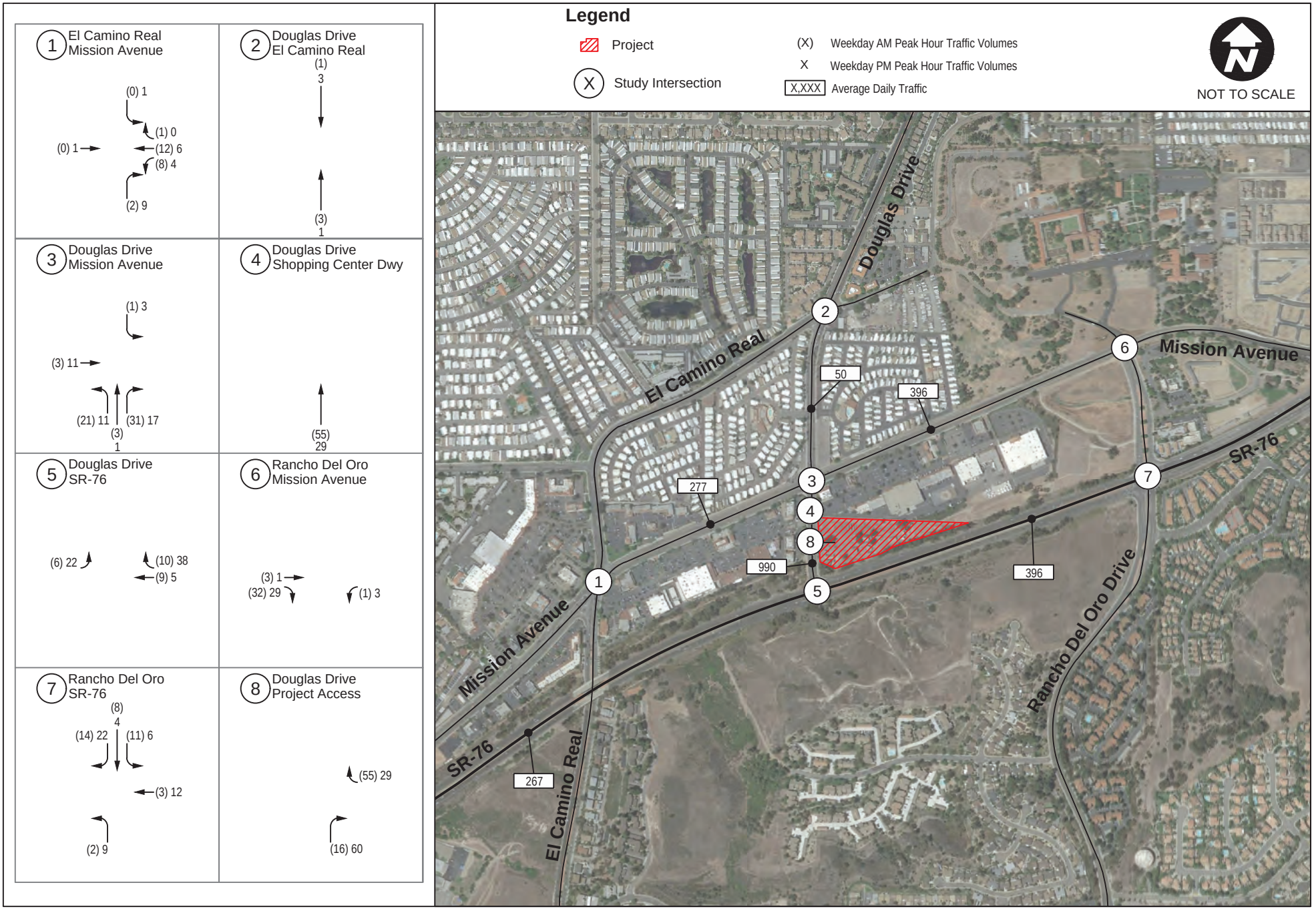
Notes: TSF = 1,000 square feet; DU = Dwelling Unit

Trip rates from the SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, 2002.

As shown in the Table 6, the project would generate 990 daily trips, 71 AM peak hour trips (16 inbound and 55 outbound), and 89 trips during the PM peak hour (60 inbound and 29 outbound).

3.2 Trip Distribution and Assignment

Project trip distribution percentages were based on logical travel paths to commute corridors in the study area; review of trip distribution percentages in the TIA prepared for other proposed developments in the City. City staff approved the project's trip distribution percentages prior to the initiation of the traffic analysis.



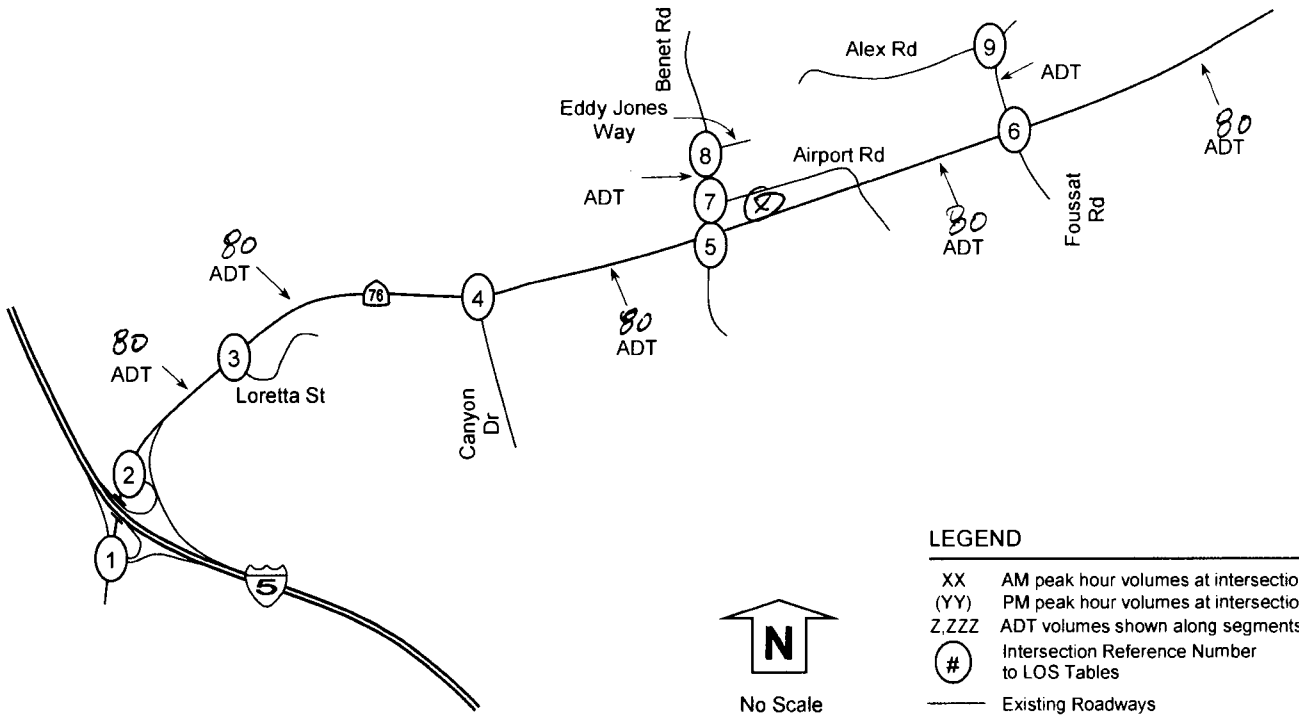
Source: Google Maps 2018

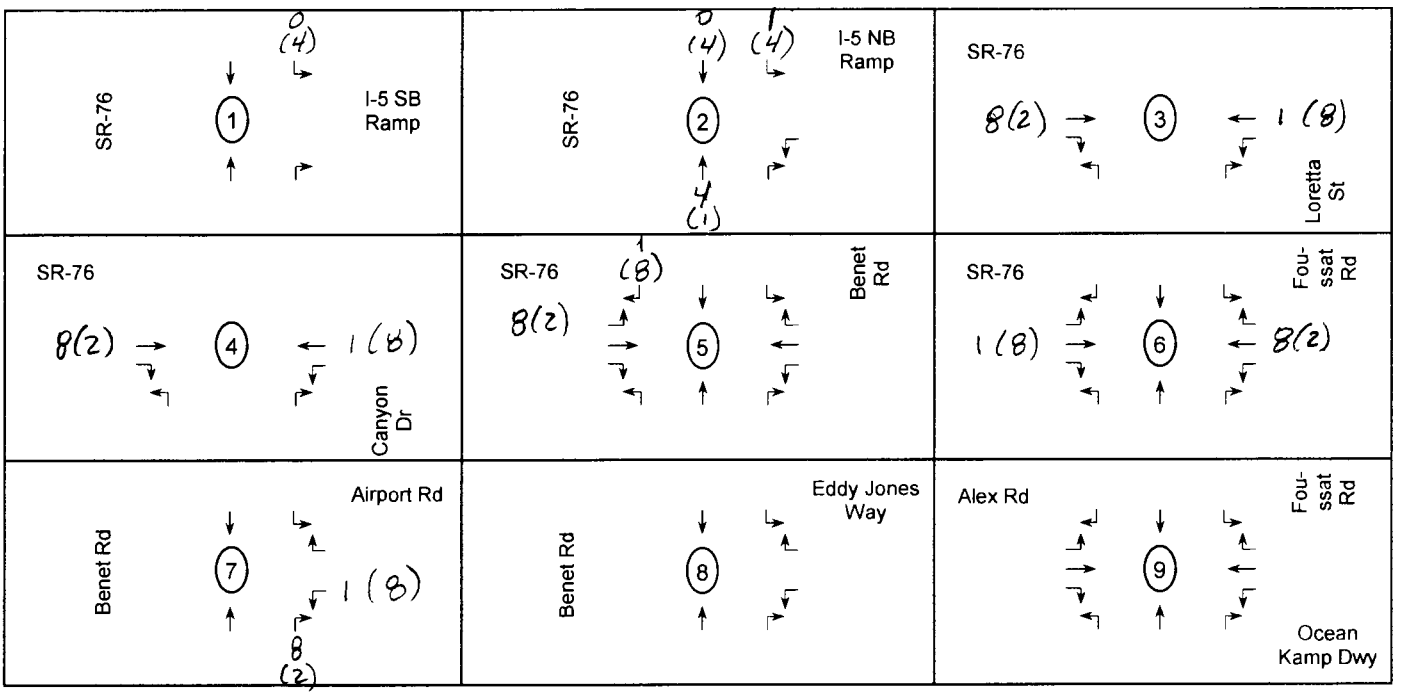
FIGURE 7

Project Trip Assignment

555 AIRPORT RD 20,007 SF INDUSTRIAL

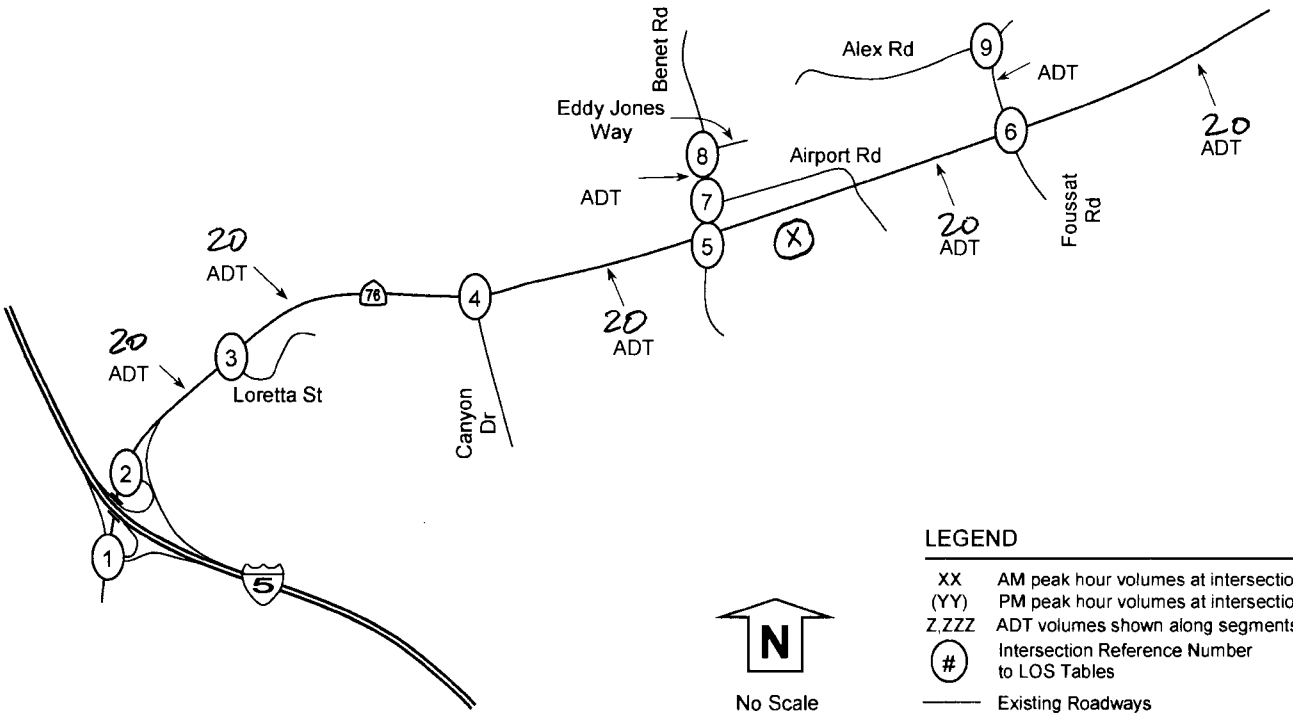
AIRPORT RD INDUSTRIAL

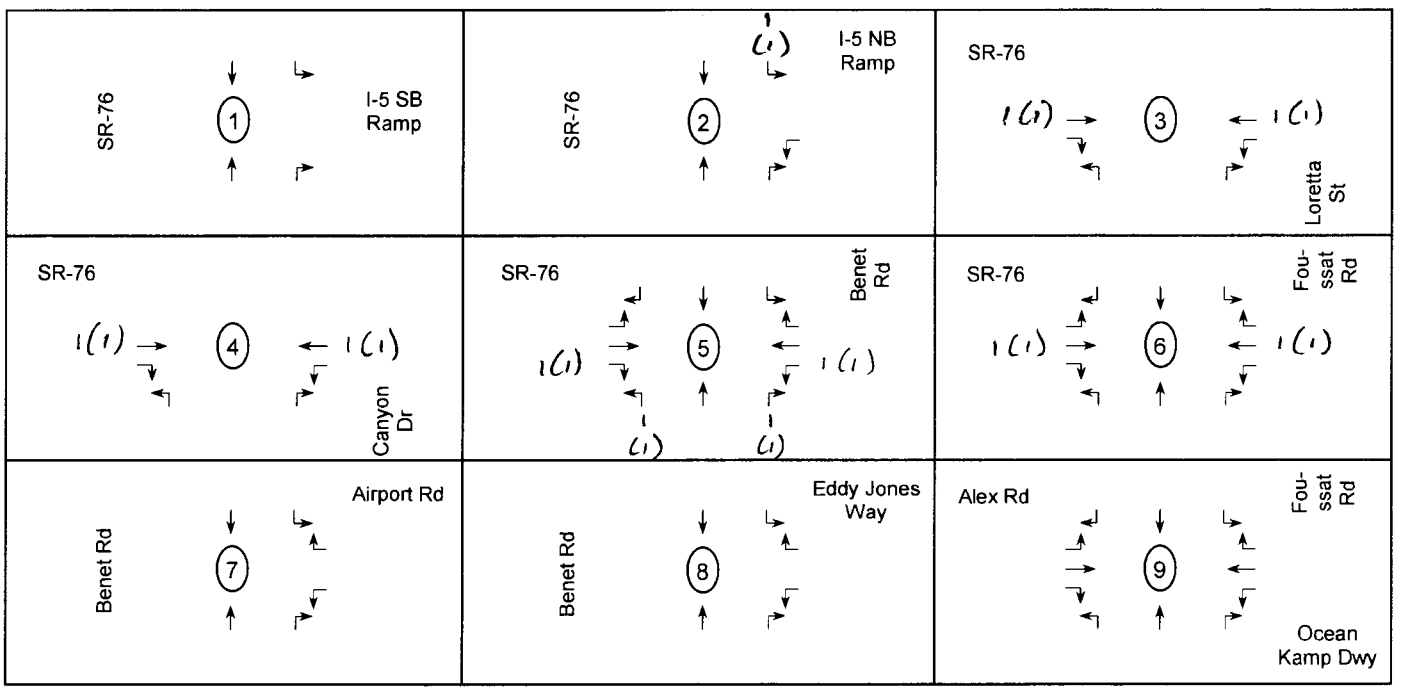




507 JONES RD

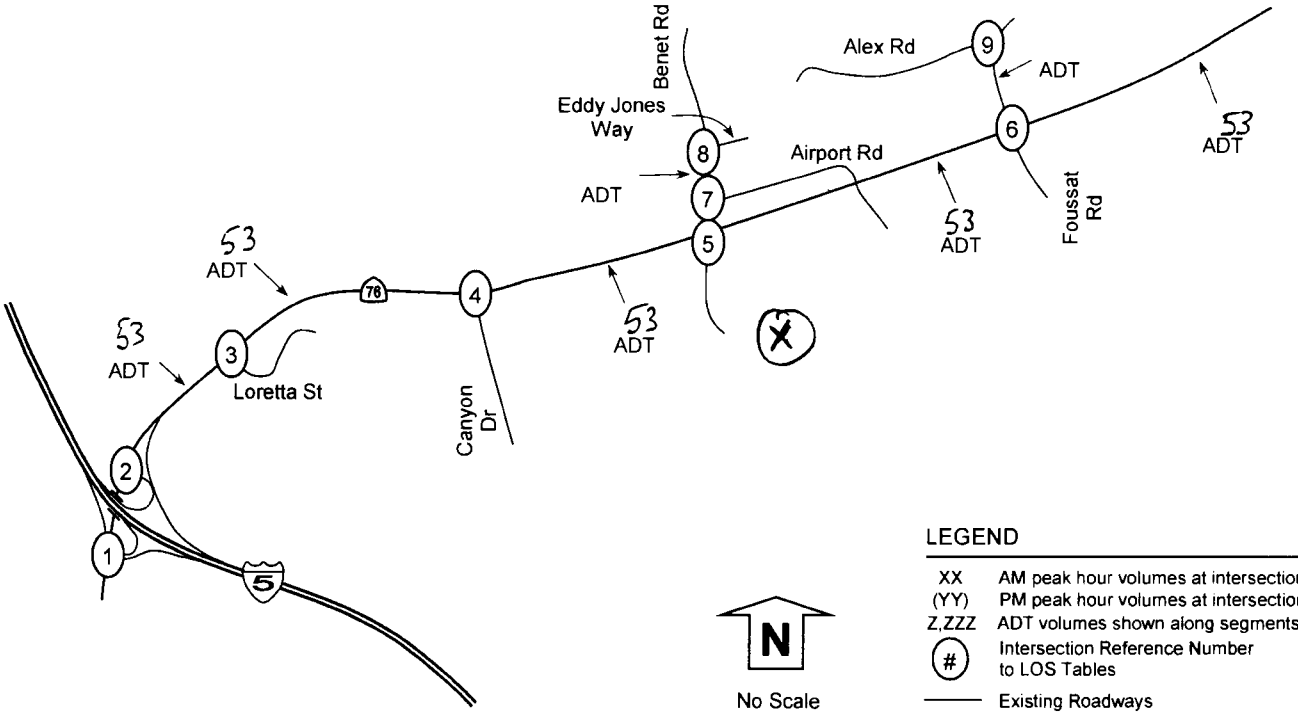
LIBERTY RV & BOAT STORAGE

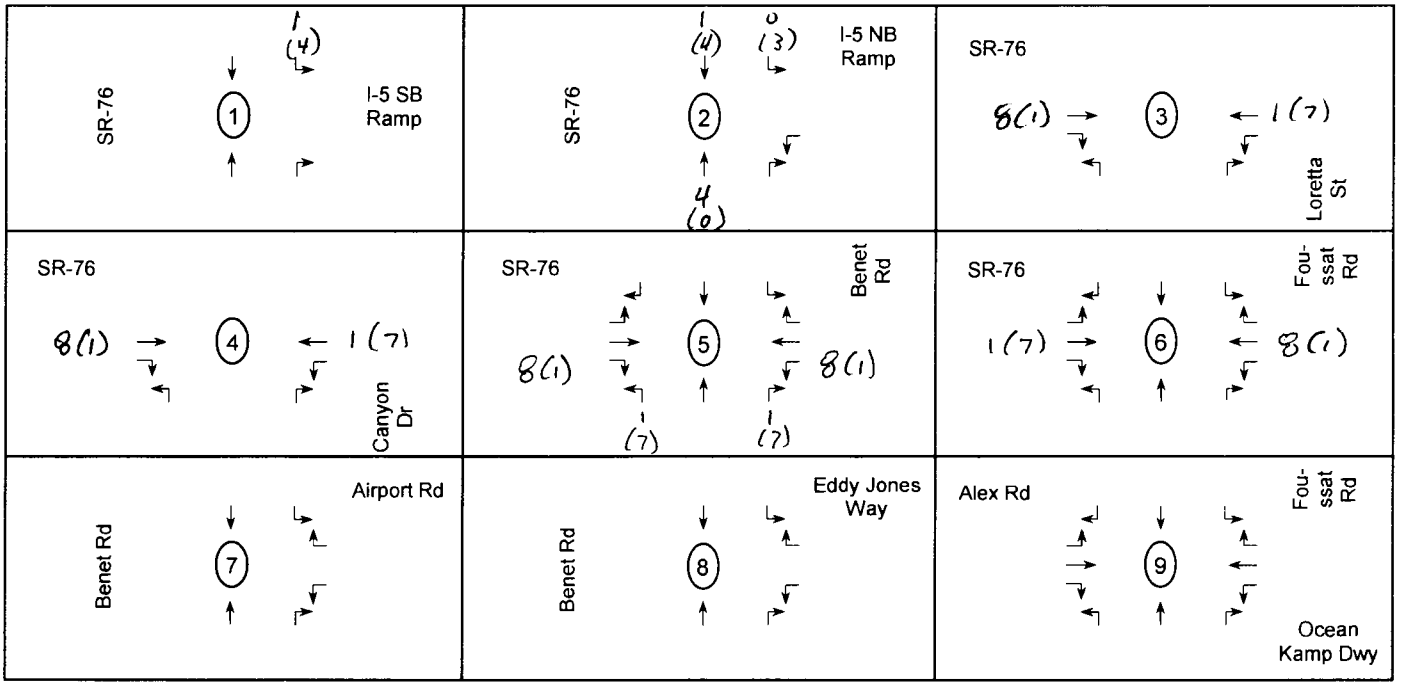




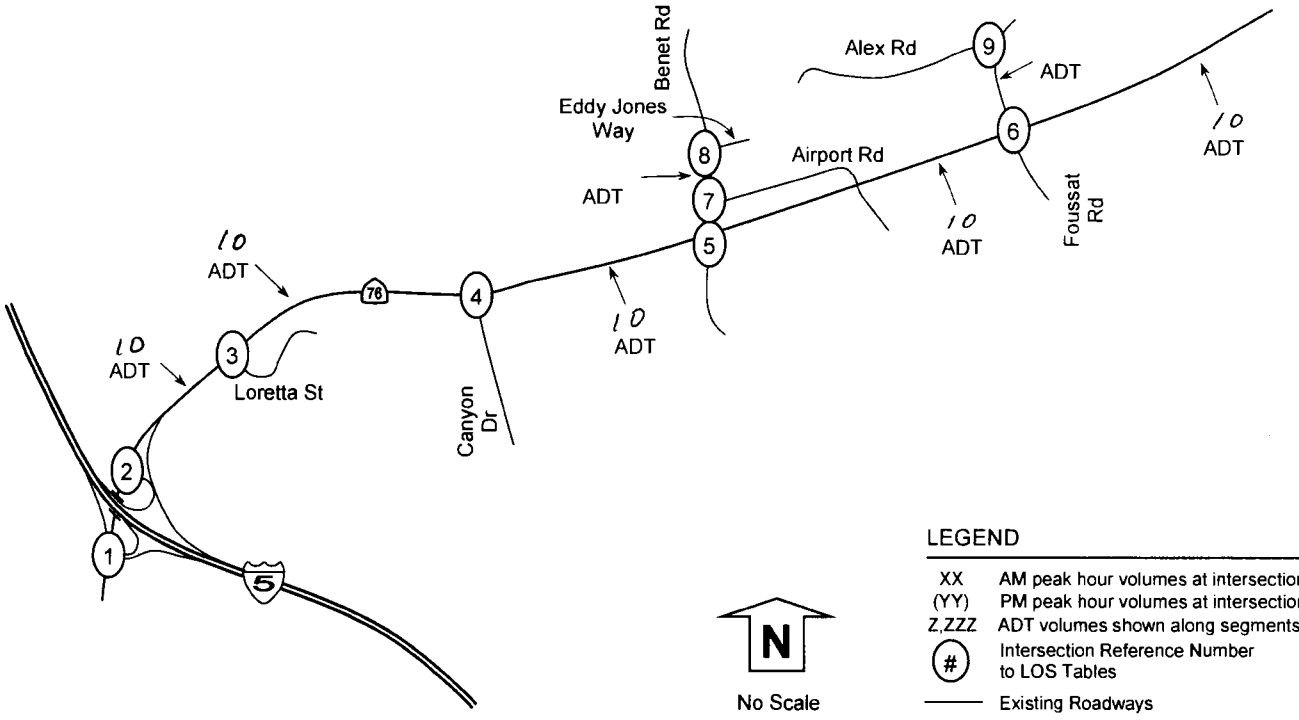
NITTO DENKO ADDITION

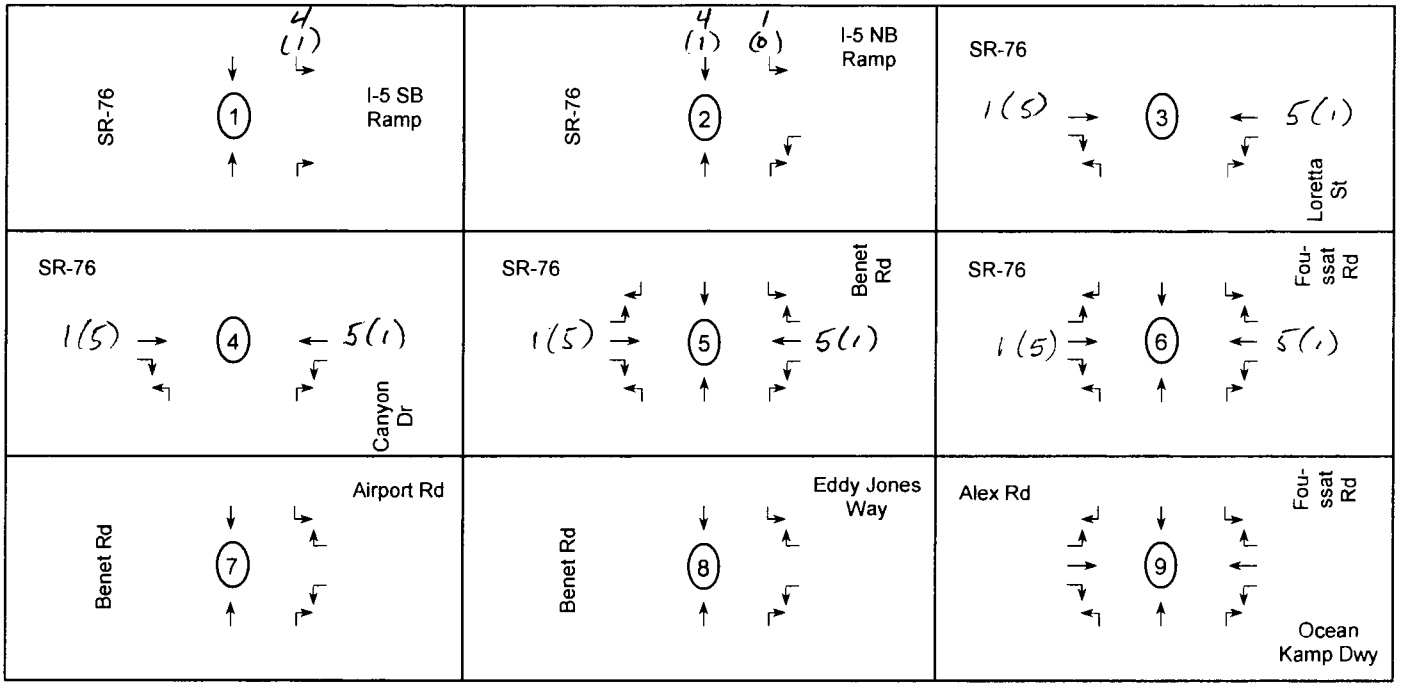
16,500 SF RESEARCH & DEVELOPMENT





R10 ROCKWELL





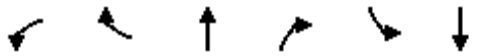
Appendix J

Existing + Cumulative Intersection LOS Worksheets

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	363	321	1164	585
Future Volume (vph)	0	363	321	1164	585
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		31.0	31.0	49.0	80.0
Total Split (%)		38.8%	38.8%	61.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	30.0	30.0	37.5	0.0
Actuated g/C Ratio	0.00	0.38	0.38	0.47	0.00
v/c Ratio	no cap	0.30	0.56	0.79	no cap
Control Delay		19.5	22.6	21.5	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	19.5	22.6	21.5	Error
LOS	F	B	C	C	F
Approach Delay	Err	21.0			Err
Approach LOS	F	C			F

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: Err			
Intersection Signal Delay: Err		Intersection LOS: F	
Intersection Capacity Utilization 46.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱	↰↰	
Traffic Volume (veh/h)	0	330	363	321	1164	585
Future Volume (veh/h)	0	330	363	321	1164	585
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			395	349	1265	636
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1056	471	1596	0
Arrive On Green			0.30	0.30	0.46	0.87
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			395	349	1265	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			4.6	10.3	16.1	0.0
Cycle Q Clear(g_c), s			4.6	10.3	16.1	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1056	471	1596	0
V/C Ratio(X)			0.37	0.74	0.79	0.00
Avail Cap(c_a), veh/h			1658	740	2885	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			14.4	16.4	11.8	0.0
Incr Delay (d2), s/veh			0.2	2.3	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.6	3.5	5.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			14.6	18.8	12.8	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			744			1265
Approach Delay, s/veh			16.6			12.8
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	29.7	22.2				51.9
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	18.1	12.3				0.0
Green Ext Time (p_c), s	5.8	3.1				0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

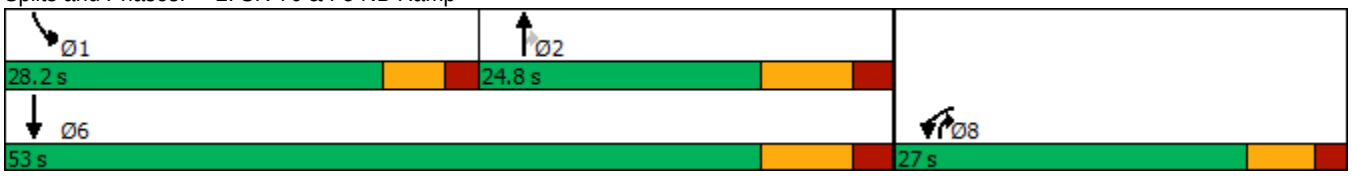
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	105	661	116	963	1596
Future Volume (vph)	105	661	116	963	1596
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	1.13	0.97	0.14	1.08	0.87
Control Delay	94.8	58.9	8.1	84.5	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	58.9	8.1	84.5	21.4
LOS	F	E	A	F	C
Approach Delay	94.8	51.3			45.1
Approach LOS	F	D			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 55.1	Intersection LOS: E
Intersection Capacity Utilization 106.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	615	661	116	963	1596
Future Volume (veh/h)	105	615	661	116	963	1596
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	114	668	718	126	1047	1735
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	0	0	1357	423	1243	3017
Arrive On Green	0.00	0.00	0.38	0.38	0.36	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	718	126	1047	1735
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	8.3	3.4	14.8	7.6
Cycle Q Clear(g_c), s	0.0	0.0	8.3	3.4	14.8	7.6
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1357	423	1243	3017
V/C Ratio(X)	0.00	0.00	0.53	0.30	0.84	0.58
Avail Cap(c_a), veh/h	0	0	1357	423	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	12.7	15.5	15.6	1.2
Incr Delay (d2), s/veh	0.0	0.0	1.5	1.8	4.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.1	1.1	5.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	14.2	17.3	19.6	2.0
LnGrp LOS	A	A	B	B	B	A
Approach Vol, veh/h	0		844			2782
Approach Delay, s/veh	0.0		14.6			8.6
Approach LOS			B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.8	28.2			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	16.8	10.3			9.6	0.0
Green Ext Time (p_c), s	2.3	2.8			19.6	0.0

Intersection Summary		
HCM 6th Ctrl Delay		10.0
HCM 6th LOS		B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1306	23	26	2537	43	31
Future Volume (vph)	1306	23	26	2537	43	31
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.63	0.02	0.28	1.09	0.13	0.07
Control Delay	19.6	0.5	66.5	72.5	53.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	0.5	66.5	72.5	53.9	12.1
LOS	B	A	E	E	D	B
Approach Delay	19.3			72.5	36.4	
Approach LOS	B			E	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 54.0	Intersection LOS: D
Intersection Capacity Utilization 90.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1306	23	26	2537	43	31
Future Volume (veh/h)	1306	23	26	2537	43	31
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	1420	25	28	2758	47	34
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	2261	1325	71	2530	356	380
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1420	25	28	2758	47	34
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	38.7	0.4	2.5	113.9	3.5	2.7
Cycle Q Clear(g_c), s	38.7	0.4	2.5	113.9	3.5	2.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2261	1325	71	2530	356	380
V/C Ratio(X)	0.63	0.02	0.39	1.09	0.13	0.09
Avail Cap(c_a), veh/h	2261	1325	100	2530	356	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.22	0.22	1.00	1.00
Uniform Delay (d), s/veh	17.6	2.2	74.9	23.0	52.6	47.2
Incr Delay (d2), s/veh	1.3	0.0	0.8	42.4	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	0.3	1.1	58.4	1.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.0	2.2	75.7	65.5	53.4	47.7
LnGrp LOS	B	A	E	F	D	D
Approach Vol, veh/h	1445			2786	81	
Approach Delay, s/veh	18.7			65.6	51.0	
Approach LOS	B			E	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.1	109.8			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	4.5	40.7			115.9	5.5
Green Ext Time (p_c), s	0.0	17.2			0.0	0.2

Intersection Summary		
HCM 6th Ctrl Delay		49.6
HCM 6th LOS		D

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1339	14	100	2553	20	89
Future Volume (vph)	1339	14	100	2553	20	89
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	112.3	134.1	14.1	132.1	13.8	34.0
Actuated g/C Ratio	0.70	0.84	0.09	0.83	0.09	0.21
v/c Ratio	0.59	0.01	0.70	0.95	0.07	0.27
Control Delay	26.8	1.6	60.0	24.7	63.3	31.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	1.6	60.0	24.7	63.3	31.4
LOS	C	A	E	C	E	C
Approach Delay	26.6			26.0	37.3	
Approach LOS	C			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 26.5	Intersection LOS: C
Intersection Capacity Utilization 89.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1339	14	100	2553	20	89
Future Volume (veh/h)	1339	14	100	2553	20	89
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	1455	15	109	2775	22	97
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	2605	1274	130	2990	243	227
Arrive On Green	0.73	0.73	0.07	0.84	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1455	15	109	2775	22	97
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	29.6	0.3	9.7	90.4	1.0	8.9
Cycle Q Clear(g_c), s	29.6	0.3	9.7	90.4	1.0	8.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2605	1274	130	2990	243	227
V/C Ratio(X)	0.56	0.01	0.84	0.93	0.09	0.43
Avail Cap(c_a), veh/h	2605	1274	164	2990	713	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	9.6	3.1	73.3	9.2	69.6	62.6
Incr Delay (d2), s/veh	0.7	0.0	3.0	0.7	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.1	4.6	26.6	0.4	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.3	3.1	76.3	9.9	69.7	63.8
LnGrp LOS	B	A	E	A	E	E
Approach Vol, veh/h	1470			2884	119	
Approach Delay, s/veh	10.2			12.4	64.9	
Approach LOS	B			B	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.3	125.3			142.6	17.4
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5			112.9	33.0
Max Q Clear Time (g_c+I1), s	11.7	31.6			92.4	10.9
Green Ext Time (p_c), s	0.1	18.1			19.4	0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

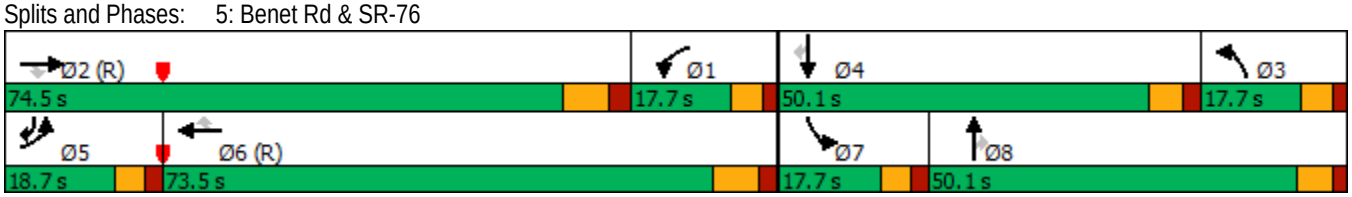
Notes

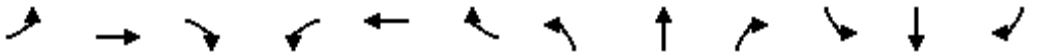
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	1220	138	47	2340	13	52	4	48	13	12	249
Future Volume (vph)	106	1220	138	47	2340	13	52	4	48	13	12	249
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	18.7	74.5	74.5	17.7	73.5	73.5	17.7	50.1	50.1	17.7	50.1	18.7
Total Split (%)	11.7%	46.6%	46.6%	11.1%	45.9%	45.9%	11.1%	31.3%	31.3%	11.1%	31.3%	11.7%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	15.2	99.6	99.6	12.0	92.9	92.9	18.8	25.1	25.1	12.0	11.2	27.9
Actuated g/C Ratio	0.10	0.62	0.62	0.08	0.58	0.58	0.12	0.16	0.16	0.08	0.07	0.17
v/c Ratio	0.69	0.60	0.14	0.39	1.24	0.01	0.28	0.01	0.13	0.11	0.10	0.71
Control Delay	69.5	26.0	7.6	91.4	147.0	0.0	64.1	52.2	0.7	71.1	71.8	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	26.0	7.6	91.4	147.0	0.0	64.1	52.2	0.7	71.1	71.8	33.7
LOS	E	C	A	F	F	A	E	D	A	E	E	C
Approach Delay		27.4			145.1			34.5			37.1	
Approach LOS		C			F			C			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.24	
Intersection Signal Delay: 94.8	Intersection LOS: F
Intersection Capacity Utilization 106.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	1220	138	47	2340	13	52	4	48	13	12	249
Future Volume (veh/h)	106	1220	138	47	2340	13	52	4	48	13	12	249
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	115	1326	150	51	2543	14	57	4	52	14	13	271
Peak Hour Factor	0.92	0.92	0.92	0.92	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	144	1477	659	347	1933	862	123	339	287	62	270	357
Arrive On Green	0.08	0.83	0.42	0.19	1.00	0.54	0.07	0.18	0.18	0.03	0.14	0.24
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	115	1326	150	51	2543	14	57	4	52	14	13	271
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	10.2	39.7	9.8	3.8	0.0	0.7	4.9	0.3	2.9	1.2	1.0	20.2
Cycle Q Clear(g_c), s	10.2	39.7	9.8	3.8	0.0	0.7	4.9	0.3	2.9	1.2	1.0	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	144	1477	659	347	1933	862	123	339	287	62	270	357
V/C Ratio(X)	0.80	0.90	0.23	0.15	1.32	0.02	0.46	0.01	0.18	0.23	0.05	0.76
Avail Cap(c_a), veh/h	145	1477	659	347	1933	862	134	514	436	134	514	564
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.80	0.80	0.80	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.3	11.2	30.2	53.4	0.0	16.8	71.6	53.7	23.8	75.1	59.0	31.3
Incr Delay (d2), s/veh	21.8	7.4	0.6	0.0	142.5	0.0	2.7	0.0	0.3	1.8	0.1	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	5.5	6.5	3.9	1.7	38.2	0.2	2.4	0.1	1.8	0.6	0.5	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.1	18.6	30.8	53.4	142.5	16.8	74.3	53.8	24.1	77.0	59.0	34.6
LnGrp LOS	F	B	C	D	F	B	E	D	C	E	E	C
Approach Vol, veh/h		1591			2608			113			298	
Approach Delay, s/veh		25.2			140.1			50.5			37.7	
Approach LOS		C			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	39.1	74.5	17.1	29.2	18.6	95.0	11.3	35.1
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 67	12.0	* 44	* 13	65.5	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.8	41.7	6.9	22.2	12.2	2.7	3.2	4.9
Green Ext Time (p_c), s	0.0	12.1	0.0	1.0	0.0	49.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	91.6
HCM 6th LOS	F

Notes

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

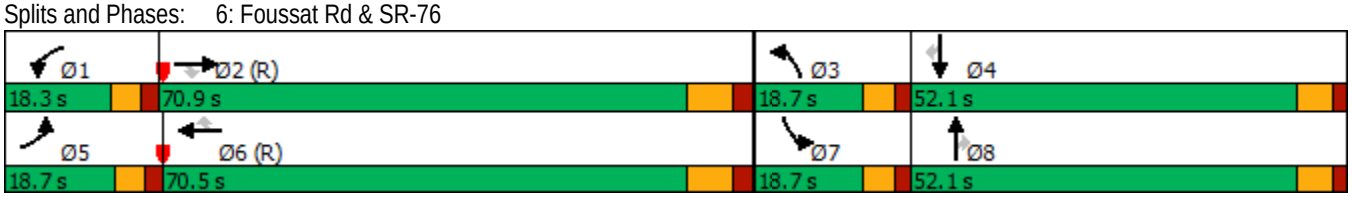
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

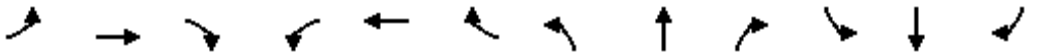
LOS Engineering, Inc.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1018	84	178	2009	112	130	114	116	202	162	218
Future Volume (vph)	165	1018	84	178	2009	112	130	114	116	202	162	218
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	18.7	70.9	70.9	18.3	70.5	70.5	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	11.7%	44.3%	44.3%	11.4%	44.1%	44.1%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.5	87.7	87.7	13.5	87.7	87.7	13.0	20.2	20.2	13.0	20.2	20.2
Actuated g/C Ratio	0.08	0.55	0.55	0.08	0.55	0.55	0.08	0.13	0.13	0.08	0.13	0.13
v/c Ratio	0.62	0.57	0.10	0.67	1.13	0.13	0.51	0.19	0.41	0.79	0.39	0.42
Control Delay	109.5	7.3	0.9	82.6	97.4	6.8	77.3	60.8	11.5	92.1	64.8	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.5	7.3	0.9	82.6	97.4	6.8	77.3	60.8	11.5	92.1	64.8	7.8
LOS	F	A	A	F	F	A	E	E	B	F	E	A
Approach Delay		20.2			91.8			50.8			53.0	
Approach LOS		C			F			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 18.7 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 63.4	Intersection LOS: E
Intersection Capacity Utilization 108.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1018	84	178	2009	112	130	114	116	202	162	218
Future Volume (veh/h)	165	1018	84	178	2009	112	130	114	116	202	162	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	179	1107	91	193	2184	122	141	124	126	220	176	237
Peak Hour Factor	0.92	0.92	0.92	0.92	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	2046	913	259	2024	903	280	554	172	281	386	303
Arrive On Green	0.16	1.00	1.00	0.07	0.57	0.57	0.08	0.11	0.11	0.08	0.11	0.11
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	179	1107	91	193	2184	122	141	124	126	220	176	237
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	7.7	0.0	0.0	8.8	91.1	5.7	6.3	3.5	12.3	10.0	7.4	13.2
Cycle Q Clear(g_c), s	7.7	0.0	0.0	8.8	91.1	5.7	6.3	3.5	12.3	10.0	7.4	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	2046	913	259	2024	903	280	554	172	281	386	303
V/C Ratio(X)	0.64	0.54	0.10	0.74	1.08	0.14	0.50	0.22	0.73	0.78	0.46	0.78
Avail Cap(c_a), veh/h	281	2046	913	272	2024	903	281	1468	456	281	1022	802
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.8	0.0	0.0	72.5	34.4	16.1	70.4	65.2	69.1	72.1	66.9	69.5
Incr Delay (d2), s/veh	3.8	0.8	0.2	10.1	45.1	0.3	1.4	0.2	5.9	13.5	0.8	4.4
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	3.4	0.2	0.0	4.3	50.9	2.2	2.8	1.6	5.3	5.0	3.4	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	0.8	0.2	82.6	79.5	16.4	71.8	65.4	75.0	85.6	67.7	73.8
LnGrp LOS	E	A	A	F	F	B	E	E	E	F	E	E
Approach Vol, veh/h		1377			2499			391			633	
Approach Delay, s/veh		9.6			76.7			70.8			76.2	
Approach LOS		A			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	100.1	18.7	23.5	18.7	99.1	18.7	23.5
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	62.9	* 13	46.0	* 13	62.5	* 13	46.0
Max Q Clear Time (g_c+I1), s	10.8	2.0	8.3	15.2	9.7	93.1	12.0	14.3
Green Ext Time (p_c), s	0.1	11.7	0.2	2.2	0.2	0.0	0.1	1.2

Intersection Summary	
HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	16	83	29	5	274
Future Vol, veh/h	27	16	83	29	5	274
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	29	17	90	32	5	298

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	235	106	0	0	122	0
Stage 1	106	-	-	-	-	-
Stage 2	129	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	742	948	-	-	1464	-
Stage 1	882	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	739	948	-	-	1464	-
Mov Cap-2 Maneuver	739	-	-	-	-	-
Stage 1	882	-	-	-	-	-
Stage 2	841	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.7	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	805	1464	-
HCM Lane V/C Ratio	-	-	0.058	0.004	-
HCM Control Delay (s)	-	-	9.7	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	110	1	1	258
Future Vol, veh/h	1	1	110	1	1	258
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	120	1	1	280

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	403	121	0	0	121	0
Stage 1	121	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	603	930	-	-	1467	-
Stage 1	904	-	-	-	-	-
Stage 2	766	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	602	930	-	-	1467	-
Mov Cap-2 Maneuver	602	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	765	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	731	1467	-
HCM Lane V/C Ratio	-	-	0.003	0.001	-
HCM Control Delay (s)	-	-	9.9	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Intersection Delay, s/veh	6.8
Intersection LOS	A

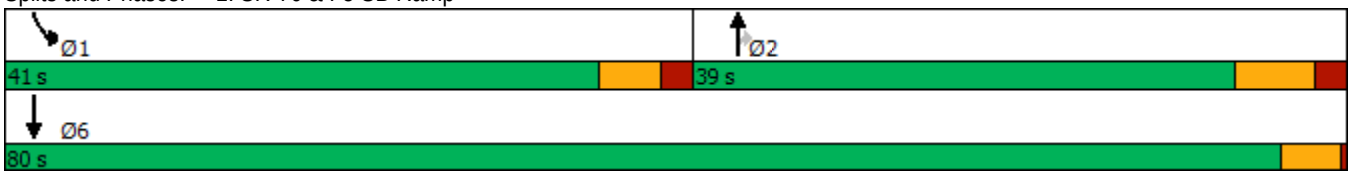
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	19	186	442	531
Demand Flow Rate, veh/h	19	190	451	542
Vehicles Circulating, veh/h	674	354	44	153
Vehicles Exiting, veh/h	21	141	649	391
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.5	5.8	5.9	8.0
Approach LOS	A	A	A	A

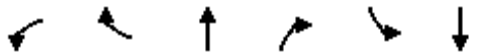
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	19	190	451	542
Cap Entry Lane, veh/h	694	962	1319	1180
Entry HV Adj Factor	0.996	0.978	0.981	0.980
Flow Entry, veh/h	19	186	442	531
Cap Entry, veh/h	691	941	1294	1157
V/C Ratio	0.027	0.198	0.342	0.459
Control Delay, s/veh	5.5	5.8	5.9	8.0
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	2

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	532	288	773	846
Future Volume (vph)	0	532	288	773	846
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	41.5	41.5	26.0	0.0
Actuated g/C Ratio	0.00	0.52	0.52	0.32	0.00
v/c Ratio	no cap	0.31	0.36	0.75	no cap
Control Delay		12.5	10.4	28.5	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	12.5	10.4	28.5	Error
LOS	F	B	B	C	F
Approach Delay	Err	11.8			Err
Approach LOS	F	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↑↑	↱	↰↰	
Traffic Volume (veh/h)	0	686	532	288	773	846
Future Volume (veh/h)	0	686	532	288	773	846
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			578	313	840	920
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1222	545	1192	0
Arrive On Green			0.34	0.34	0.34	0.83
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			578	313	840	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			5.1	6.5	8.4	0.0
Cycle Q Clear(g_c), s			5.1	6.5	8.4	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1222	545	1192	0
V/C Ratio(X)			0.47	0.57	0.70	0.00
Avail Cap(c_a), veh/h			2850	1271	3039	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			10.3	10.8	11.4	0.0
Incr Delay (d2), s/veh			0.3	1.0	0.8	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.6	1.9	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			10.6	11.7	12.2	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			891			840
Approach Delay, s/veh			11.0			12.2
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	19.5	20.6				40.1
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	10.4	8.5				0.0
Green Ext Time (p_c), s	3.4	5.3				0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

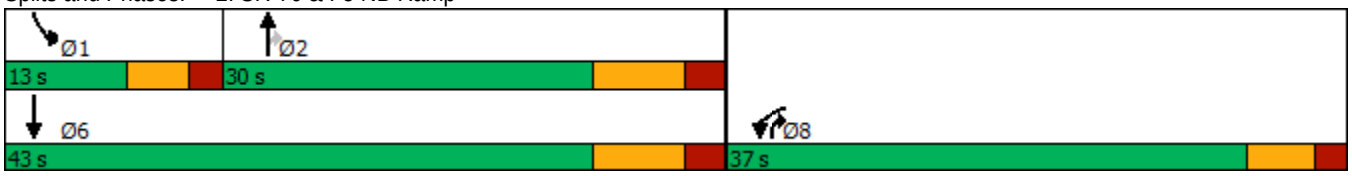
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	290	1249	123	481	1256
Future Volume (vph)	290	1249	123	481	1256
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.58	1.40	0.11	1.67	0.88
Control Delay	290.1	211.4	2.7	343.0	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	290.1	211.4	2.7	343.0	29.1
LOS	F	F	A	F	C
Approach Delay	290.1	192.7			116.0
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.67	
Intersection Signal Delay: 187.0	Intersection LOS: F
Intersection Capacity Utilization 131.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	290	828	1249	123	481	1256
Future Volume (veh/h)	290	828	1249	123	481	1256
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	315	900	1358	134	523	1365
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	0	0	1818	586	587	2893
Arrive On Green	0.00	0.00	0.51	0.51	0.17	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1358	134	523	1365
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	13.0	2.5	6.4	5.0
Cycle Q Clear(g_c), s	0.0	0.0	13.0	2.5	6.4	5.0
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1818	586	587	2893
V/C Ratio(X)	0.00	0.00	0.75	0.23	0.89	0.47
Avail Cap(c_a), veh/h	0	0	1818	586	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	8.3	9.3	17.5	1.2
Incr Delay (d2), s/veh	0.0	0.0	2.9	0.9	15.8	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.9	0.6	3.5	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	11.1	10.2	33.3	1.8
LnGrp LOS	A	A	B	B	C	A
Approach Vol, veh/h	0		1492			1888
Approach Delay, s/veh	0.0		11.1			10.5
Approach LOS			B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	30.0			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	8.4	15.0			7.0	0.0
Green Ext Time (p_c), s	0.0	5.0			12.6	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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2204	73	32	1698	25	21
Future Volume (vph)	2204	73	32	1698	25	21
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	1.06	0.06	0.35	0.73	0.08	0.05
Control Delay	66.3	0.3	84.6	9.1	52.9	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	0.3	84.6	9.1	52.9	34.2
LOS	E	A	F	A	D	C
Approach Delay	64.2			10.5	44.3	
Approach LOS	E			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 41.1	Intersection LOS: D
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2204	73	32	1698	25	21
Future Volume (veh/h)	2204	73	32	1698	25	21
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	2396	79	35	1846	27	23
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	2245	1319	79	2530	356	387
Arrive On Green	0.63	0.63	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2396	79	35	1846	27	23
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	101.1	1.4	3.1	49.8	2.0	1.8
Cycle Q Clear(g_c), s	101.1	1.4	3.1	49.8	2.0	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2245	1319	79	2530	356	387
V/C Ratio(X)	1.07	0.06	0.44	0.73	0.08	0.06
Avail Cap(c_a), veh/h	2245	1319	100	2530	356	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.73	0.73	1.00	1.00
Uniform Delay (d), s/veh	29.5	2.4	74.5	13.8	52.0	46.3
Incr Delay (d2), s/veh	39.8	0.1	2.8	1.4	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	53.6	1.2	1.5	19.5	0.9	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	69.3	2.5	77.3	15.2	52.4	46.6
LnGrp LOS	F	A	E	B	D	D
Approach Vol, veh/h	2475			1881	50	
Approach Delay, s/veh	67.1			16.4	49.8	
Approach LOS	E			B	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.8	109.1			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	5.1	103.1			51.8	4.0
Green Ext Time (p_c), s	0.0	0.0			28.5	0.1

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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2162	48	161	1711	7	118
Future Volume (vph)	2162	48	161	1711	7	118
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	99.9	39.1	21.0	120.9	39.1	21.0
Total Split (%)	62.4%	24.4%	13.1%	75.6%	24.4%	13.1%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	103.8	125.6	22.6	132.1	13.8	42.5
Actuated g/C Ratio	0.65	0.78	0.14	0.83	0.09	0.27
v/c Ratio	1.02	0.04	0.70	0.64	0.03	0.30
Control Delay	56.7	2.6	45.9	20.5	61.0	46.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.7	2.6	45.9	20.5	61.0	46.4
LOS	E	A	D	C	E	D
Approach Delay	55.5			22.7	47.3	
Approach LOS	E			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 40.7	Intersection LOS: D
Intersection Capacity Utilization 92.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2162	48	161	1711	7	118
Future Volume (veh/h)	2162	48	161	1711	7	118
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	2350	52	175	1860	8	128
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	2466	1237	170	2933	299	289
Arrive On Green	0.69	0.69	0.10	0.83	0.09	0.09
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2350	52	175	1860	8	128
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	95.6	1.2	15.3	30.7	0.3	11.5
Cycle Q Clear(g_c), s	95.6	1.2	15.3	30.7	0.3	11.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2466	1237	170	2933	299	289
V/C Ratio(X)	0.95	0.04	1.03	0.63	0.03	0.44
Avail Cap(c_a), veh/h	2466	1237	170	2933	713	478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.16	0.16	1.00	1.00
Uniform Delay (d), s/veh	22.1	4.0	72.3	5.1	66.9	58.2
Incr Delay (d2), s/veh	1.3	0.0	34.8	0.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	37.6	0.6	8.7	9.6	0.2	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.4	4.0	107.1	5.3	66.9	59.3
LnGrp LOS	C	A	F	A	E	E
Approach Vol, veh/h	2402			2035	136	
Approach Delay, s/veh	23.0			14.1	59.7	
Approach LOS	C			B	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	21.0	119.0			140.0	20.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	91.9			112.9	33.0
Max Q Clear Time (g_c+I1), s	17.3	97.6			32.7	13.5
Green Ext Time (p_c), s	0.0	0.0			31.7	0.4

Intersection Summary		
HCM 6th Ctrl Delay		20.1
HCM 6th LOS		C

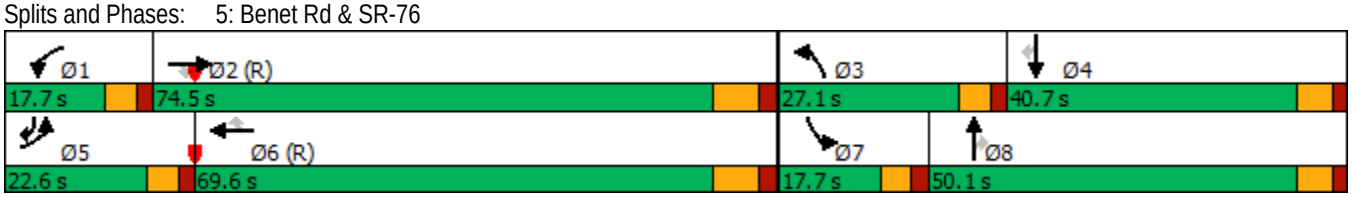
Notes

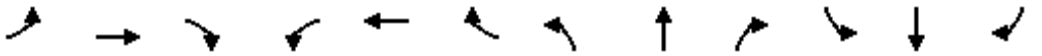
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	2072	90	43	1605	18	137	21	99	22	9	125
Future Volume (vph)	182	2072	90	43	1605	18	137	21	99	22	9	125
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	25.3	92.4	92.4	12.0	75.6	75.6	17.9	28.7	28.7	12.0	15.7	47.1
Actuated g/C Ratio	0.16	0.58	0.58	0.08	0.47	0.47	0.11	0.18	0.18	0.08	0.10	0.29
v/c Ratio	0.71	1.10	0.10	0.36	1.04	0.02	0.76	0.07	0.29	0.18	0.05	0.25
Control Delay	55.7	96.4	7.2	66.9	69.0	0.1	91.7	53.8	9.2	73.0	60.7	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	96.4	7.2	66.9	69.0	0.1	91.7	53.8	9.2	73.0	60.7	10.8
LOS	E	F	A	E	E	A	F	D	A	E	E	B
Approach Delay		89.8			68.2			56.8			22.5	
Approach LOS		F			E			E			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.10	
Intersection Signal Delay: 77.4	Intersection LOS: E
Intersection Capacity Utilization 98.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	2072	90	43	1605	18	137	21	99	22	9	125
Future Volume (veh/h)	182	2072	90	43	1605	18	137	21	99	22	9	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	198	2252	98	47	1745	20	149	23	108	24	10	136
Peak Hour Factor	0.92	0.92	0.92	0.92	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	2091	932	117	1949	869	171	257	218	88	169	311
Arrive On Green	0.11	0.59	0.59	0.07	0.55	0.55	0.10	0.14	0.14	0.05	0.09	0.09
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	198	2252	98	47	1745	20	149	23	108	24	10	136
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	94.1	4.3	4.1	69.7	0.9	13.2	1.7	10.1	2.1	0.8	12.1
Cycle Q Clear(g_c), s	16.9	94.1	4.3	4.1	69.7	0.9	13.2	1.7	10.1	2.1	0.8	12.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	2091	932	117	1949	869	171	257	218	88	169	311
V/C Ratio(X)	1.05	1.08	0.11	0.40	0.90	0.02	0.87	0.09	0.50	0.27	0.06	0.44
Avail Cap(c_a), veh/h	188	2091	932	134	1949	869	238	514	436	134	404	510
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)	0.12	0.12	0.12	0.54	0.54	0.54	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	32.9	14.5	71.7	32.1	16.5	71.3	60.3	63.9	73.3	66.5	56.5
Incr Delay (d2), s/veh	37.9	36.1	0.0	1.2	3.9	0.0	21.4	0.1	1.7	1.7	0.1	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	9.7	49.6	1.6	1.9	30.5	0.4	7.1	0.8	4.2	1.0	0.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	109.5	69.1	14.5	72.9	36.0	16.6	92.8	60.4	65.6	75.0	66.7	57.5
LnGrp LOS	F	F	B	E	D	B	F	E	E	E	E	E
Approach Vol, veh/h		2548			1812			280			170	
Approach Delay, s/veh		70.1			36.7			79.6			60.5	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	102.1	21.1	20.6	22.6	95.7	13.6	28.1
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.1	96.1	15.2	14.1	18.9	71.7	4.1	12.1
Green Ext Time (p_c), s	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	57.8
HCM 6th LOS	E

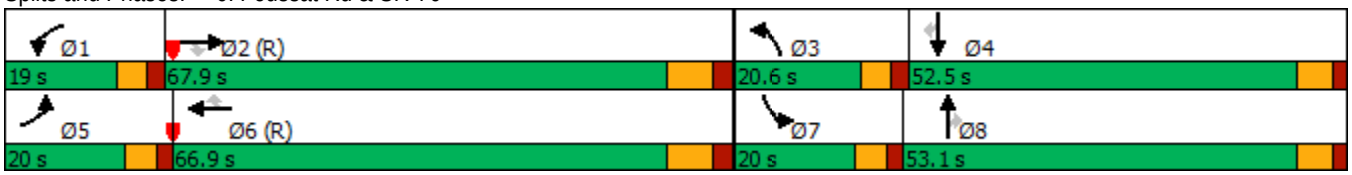
Notes

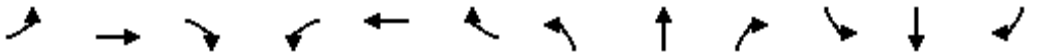
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1819	164	139	1328	197	86	258	187	126	171	252
Future Volume (vph)	332	1819	164	139	1328	197	86	258	187	126	171	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	25.3	87.6	87.6	12.9	75.2	75.2	13.0	20.7	20.7	13.3	21.0	21.0
Actuated g/C Ratio	0.16	0.55	0.55	0.08	0.47	0.47	0.08	0.13	0.13	0.08	0.13	0.13
v/c Ratio	0.66	1.02	0.19	0.55	0.87	0.25	0.33	0.42	0.55	0.48	0.40	0.45
Control Delay	61.5	53.0	18.3	78.4	44.5	4.2	73.0	64.6	13.6	76.1	64.3	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	53.0	18.3	78.4	44.5	4.2	73.0	64.6	13.6	76.1	64.3	7.5
LOS	E	D	B	E	D	A	E	E	B	E	E	A
Approach Delay		51.8			42.6			48.0			40.9	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 47.2	Intersection LOS: D
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	1819	164	139	1328	197	86	258	187	126	171	252
Future Volume (veh/h)	332	1819	164	139	1328	197	86	258	187	126	171	252
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1977	178	151	1443	214	93	280	203	137	186	274
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1889	842	259	1837	820	276	782	243	280	548	430
Arrive On Green	0.09	0.53	0.53	0.07	0.52	0.52	0.08	0.15	0.15	0.08	0.15	0.15
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	361	1977	178	151	1443	214	93	280	203	137	186	274
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	14.3	85.0	9.5	6.8	52.8	12.1	4.1	7.9	19.9	6.1	7.5	14.7
Cycle Q Clear(g_c), s	14.3	85.0	9.5	6.8	52.8	12.1	4.1	7.9	19.9	6.1	7.5	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	1889	842	259	1837	820	276	782	243	280	548	430
V/C Ratio(X)	1.17	1.05	0.21	0.58	0.79	0.26	0.34	0.36	0.84	0.49	0.34	0.64
Avail Cap(c_a), veh/h	309	1889	842	287	1837	820	322	1500	466	309	1031	809
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.8	37.5	19.8	71.6	31.4	21.6	69.6	60.7	65.8	70.3	60.4	63.5
Incr Delay (d2), s/veh	79.4	22.8	0.1	2.5	3.5	0.8	0.7	0.3	7.4	1.3	0.4	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	9.8	42.1	3.6	3.1	23.5	4.8	1.8	3.5	8.6	2.8	3.4	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.3	60.3	19.8	74.1	34.9	22.3	70.3	61.0	73.2	71.7	60.7	65.0
LnGrp LOS	F	F	B	E	C	C	E	E	E	E	E	E
Approach Vol, veh/h		2516			1808			576			597	
Approach Delay, s/veh		70.6			36.7			66.8			65.2	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	93.0	18.5	30.8	20.0	90.7	18.7	30.6
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	8.8	87.0	6.1	16.7	16.3	54.8	8.1	21.9
Green Ext Time (p_c), s	0.2	0.0	0.1	2.4	0.0	3.3	0.2	2.6

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

Notes

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

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	11	199	16	5	123
Future Vol, veh/h	25	11	199	16	5	123
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	27	12	216	17	5	134

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	289	225	0	0	233	0
Stage 1	225	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	695	814	-	-	1333	-
Stage 1	782	-	-	-	-	-
Stage 2	911	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	692	814	-	-	1333	-
Mov Cap-2 Maneuver	692	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	725	1333	-
HCM Lane V/C Ratio	-	-	0.054	0.004	-
HCM Control Delay (s)	-	-	10.2	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	0	212	0	0	129
Future Vol, veh/h	1	0	212	0	0	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	0	230	0	0	140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	370	230	0	0	230	0
Stage 1	230	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	630	809	-	-	1338	-
Stage 1	808	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	630	809	-	-	1338	-
Mov Cap-2 Maneuver	630	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	887	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	630	1338	-
HCM Lane V/C Ratio	-	-	0.002	-	-
HCM Control Delay (s)	-	-	10.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	33	239	848	496
Demand Flow Rate, veh/h	33	243	865	506
Vehicles Circulating, veh/h	677	635	98	204
Vehicles Exiting, veh/h	33	328	612	674
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.7	9.3	12.7	8.2
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	33	243	865	506
Cap Entry Lane, veh/h	692	722	1249	1121
Entry HV Adj Factor	0.993	0.983	0.980	0.980
Flow Entry, veh/h	33	239	848	496
Cap Entry, veh/h	687	710	1224	1098
V/C Ratio	0.048	0.337	0.693	0.452
Control Delay, s/veh	5.7	9.3	12.7	8.2
LOS	A	A	B	A
95th %tile Queue, veh	0	1	6	2

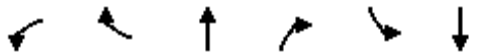
Appendix K

Existing + Cumulative + Project Intersection LOS Worksheets

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	363	321	1176	585
Future Volume (vph)	0	363	321	1176	585
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		31.0	31.0	49.0	80.0
Total Split (%)		38.8%	38.8%	61.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	29.8	29.8	37.7	0.0
Actuated g/C Ratio	0.00	0.37	0.37	0.47	0.00
v/c Ratio	no cap	0.30	0.56	0.79	no cap
Control Delay		19.7	22.9	21.5	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	19.7	22.9	21.5	Error
LOS	F	B	C	C	F
Approach Delay	Err	21.2			Err
Approach LOS	F	C			F

Intersection Summary			
Cycle Length: 80			
Actuated Cycle Length: 80			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: Err			
Intersection Signal Delay: Err		Intersection LOS: F	
Intersection Capacity Utilization 46.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	330	363	321	1176	585
Future Volume (veh/h)	0	330	363	321	1176	585
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			395	349	1278	636
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1052	469	1607	0
Arrive On Green			0.30	0.30	0.47	0.87
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			395	349	1278	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			4.6	10.4	16.4	0.0
Cycle Q Clear(g_c), s			4.6	10.4	16.4	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1052	469	1607	0
V/C Ratio(X)			0.38	0.74	0.80	0.00
Avail Cap(c_a), veh/h			1643	733	2858	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			14.6	16.6	11.9	0.0
Incr Delay (d2), s/veh			0.2	2.4	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.7	3.6	5.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			14.8	19.0	12.8	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			744			1278
Approach Delay, s/veh			16.8			12.8
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	30.0	22.3				52.3
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	18.4	12.4				0.0
Green Ext Time (p_c), s	5.9	3.1				0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

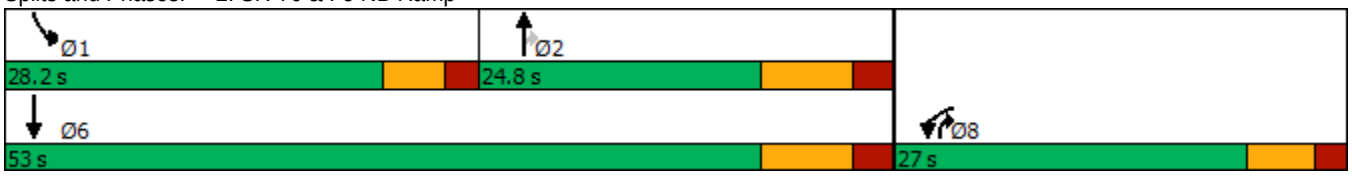
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	105	697	116	975	1608
Future Volume (vph)	105	697	116	975	1608
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	1.13	1.02	0.14	1.10	0.88
Control Delay	94.8	71.5	8.1	89.2	21.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	71.5	8.1	89.2	21.8
LOS	F	E	A	F	C
Approach Delay	94.8	62.4			47.3
Approach LOS	F	E			D

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 58.6	Intersection LOS: E
Intersection Capacity Utilization 107.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	615	697	116	975	1608
Future Volume (veh/h)	105	615	697	116	975	1608
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	114	668	758	126	1060	1748
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	0	0	1346	418	1254	3017
Arrive On Green	0.00	0.00	0.38	0.38	0.36	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	758	126	1060	1748
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	8.9	3.4	14.9	7.7
Cycle Q Clear(g_c), s	0.0	0.0	8.9	3.4	14.9	7.7
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1346	418	1254	3017
V/C Ratio(X)	0.00	0.00	0.56	0.30	0.85	0.58
Avail Cap(c_a), veh/h	0	0	1346	418	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	13.0	15.6	15.5	1.2
Incr Delay (d2), s/veh	0.0	0.0	1.7	1.8	4.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.3	1.1	5.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	14.7	17.5	19.7	2.0
LnGrp LOS	A	A	B	B	B	A
Approach Vol, veh/h	0		884			2808
Approach Delay, s/veh	0.0		15.1			8.7
Approach LOS			B			A

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.9	28.1			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	16.9	10.9			9.7	0.0
Green Ext Time (p_c), s	2.3	2.7			19.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.2
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1378	23	26	2561	43	31
Future Volume (vph)	1378	23	26	2561	43	31
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.66	0.02	0.28	1.11	0.13	0.07
Control Delay	20.6	0.5	66.8	73.2	53.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	0.5	66.8	73.2	53.9	12.1
LOS	C	A	E	E	D	B
Approach Delay	20.3			73.1	36.4	
Approach LOS	C			E	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.11	
Intersection Signal Delay: 54.2	Intersection LOS: D
Intersection Capacity Utilization 90.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1378	23	26	2561	43	31
Future Volume (veh/h)	1378	23	26	2561	43	31
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	1498	25	28	2784	47	34
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	2261	1325	71	2530	356	380
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1498	25	28	2784	47	34
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	42.4	0.4	2.5	113.9	3.5	2.7
Cycle Q Clear(g_c), s	42.4	0.4	2.5	113.9	3.5	2.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2261	1325	71	2530	356	380
V/C Ratio(X)	0.66	0.02	0.39	1.10	0.13	0.09
Avail Cap(c_a), veh/h	2261	1325	100	2530	356	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.20	0.20	1.00	1.00
Uniform Delay (d), s/veh	18.3	2.2	74.9	23.0	52.6	47.2
Incr Delay (d2), s/veh	1.5	0.0	0.7	46.7	0.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.7	0.3	1.1	60.0	1.7	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.9	2.2	75.6	69.8	53.4	47.7
LnGrp LOS	B	A	E	F	D	D
Approach Vol, veh/h	1523			2812	81	
Approach Delay, s/veh	19.6			69.8	51.0	
Approach LOS	B			E	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.1	109.8			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	4.5	44.4			115.9	5.5
Green Ext Time (p_c), s	0.0	18.7			0.0	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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1411	14	100	2577	20	89
Future Volume (vph)	1411	14	100	2577	20	89
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	112.3	134.1	14.1	132.1	13.8	34.0
Actuated g/C Ratio	0.70	0.84	0.09	0.83	0.09	0.21
v/c Ratio	0.62	0.01	0.70	0.96	0.07	0.27
Control Delay	28.4	1.9	55.9	31.9	63.3	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	1.9	55.9	31.9	63.3	35.3
LOS	C	A	E	C	E	D
Approach Delay	28.2			32.8	40.5	
Approach LOS	C			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.96	
Intersection Signal Delay: 31.4	Intersection LOS: C
Intersection Capacity Utilization 90.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1411	14	100	2577	20	89
Future Volume (veh/h)	1411	14	100	2577	20	89
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	1534	15	109	2801	22	97
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	2605	1274	130	2990	243	227
Arrive On Green	0.73	0.73	0.07	0.84	0.07	0.07
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1534	15	109	2801	22	97
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	32.4	0.3	9.7	94.4	1.0	8.9
Cycle Q Clear(g_c), s	32.4	0.3	9.7	94.4	1.0	8.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2605	1274	130	2990	243	227
V/C Ratio(X)	0.59	0.01	0.84	0.94	0.09	0.43
Avail Cap(c_a), veh/h	2605	1274	164	2990	713	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.71	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	10.0	3.1	73.3	9.5	69.6	62.6
Incr Delay (d2), s/veh	0.7	0.0	3.0	0.8	0.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	0.1	4.6	27.9	0.4	3.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	3.1	76.3	10.3	69.7	63.8
LnGrp LOS	B	A	E	B	E	E
Approach Vol, veh/h	1549			2910	119	
Approach Delay, s/veh	10.7			12.7	64.9	
Approach LOS	B			B	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.3	125.3			142.6	17.4
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5			112.9	33.0
Max Q Clear Time (g_c+I1), s	11.7	34.4			96.4	10.9
Green Ext Time (p_c), s	0.1	19.7			15.8	0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

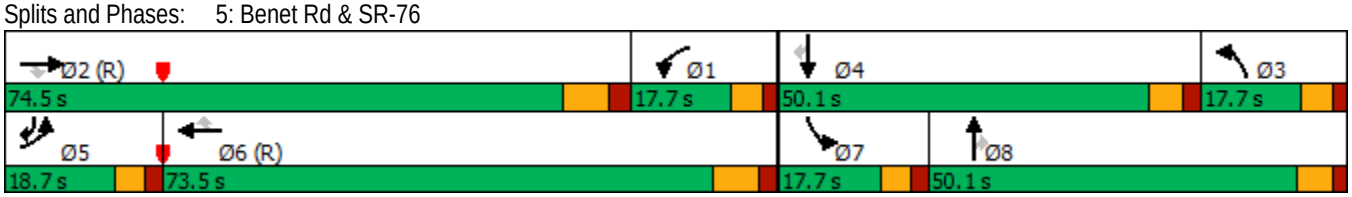
Notes

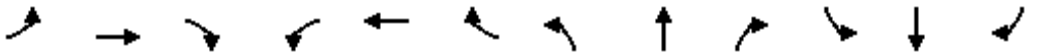
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	1220	138	47	2340	15	52	10	48	14	14	273
Future Volume (vph)	178	1220	138	47	2340	15	52	10	48	14	14	273
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	18.7	74.5	74.5	17.7	73.5	73.5	17.7	50.1	50.1	17.7	50.1	18.7
Total Split (%)	11.7%	46.6%	46.6%	11.1%	45.9%	45.9%	11.1%	31.3%	31.3%	11.1%	31.3%	11.7%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	28.5	99.6	99.6	12.0	79.6	79.6	18.8	25.1	25.1	12.0	11.2	41.2
Actuated g/C Ratio	0.18	0.62	0.62	0.08	0.50	0.50	0.12	0.16	0.16	0.08	0.07	0.26
v/c Ratio	0.61	0.60	0.14	0.39	1.45	0.02	0.28	0.04	0.13	0.11	0.12	0.59
Control Delay	58.5	25.6	6.9	91.4	239.1	0.0	64.1	53.3	0.7	71.3	72.2	27.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	25.6	6.9	91.4	239.1	0.0	64.1	53.3	0.7	71.3	72.2	27.1
LOS	E	C	A	F	F	A	E	D	A	E	E	C
Approach Delay		27.7			234.8			35.6			31.2	
Approach LOS		C			F			D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.45	
Intersection Signal Delay: 142.5	Intersection LOS: F
Intersection Capacity Utilization 107.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	1220	138	47	2340	15	52	10	48	14	14	273
Future Volume (veh/h)	178	1220	138	47	2340	15	52	10	48	14	14	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1326	150	51	2543	16	57	11	52	15	15	297
Peak Hour Factor	0.92	0.92	0.92	0.92	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	145	1477	659	323	1885	841	123	360	305	65	295	378
Arrive On Green	0.08	0.83	0.42	0.18	1.00	0.53	0.07	0.19	0.19	0.04	0.16	0.26
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	193	1326	150	51	2543	16	57	11	52	15	15	297
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.0	39.7	9.8	3.9	0.0	0.8	4.9	0.8	2.9	1.3	1.1	22.2
Cycle Q Clear(g_c), s	13.0	39.7	9.8	3.9	0.0	0.8	4.9	0.8	2.9	1.3	1.1	22.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	1477	659	323	1885	841	123	360	305	65	295	378
V/C Ratio(X)	1.33	0.90	0.23	0.16	1.35	0.02	0.46	0.03	0.17	0.23	0.05	0.78
Avail Cap(c_a), veh/h	145	1477	659	323	1885	841	134	514	436	134	514	565
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.77	0.77	0.77	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.5	11.2	30.2	55.2	0.0	17.8	71.6	52.5	23.9	74.9	57.2	30.2
Incr Delay (d2), s/veh	181.7	7.1	0.6	0.0	157.5	0.0	2.7	0.0	0.3	1.8	0.1	4.3
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	13.3	6.4	3.9	1.8	41.2	0.3	2.4	0.4	1.8	0.6	0.5	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	255.2	18.4	30.8	55.2	157.5	17.8	74.3	52.5	24.2	76.7	57.3	34.4
LnGrp LOS	F	B	C	E	F	B	E	D	C	E	E	C
Approach Vol, veh/h		1669			2610			120			327	
Approach Delay, s/veh		46.9			154.7			50.6			37.4	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.1	74.5	17.1	31.3	18.7	92.9	11.5	36.9
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 67	12.0	* 44	* 13	65.5	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.9	41.7	6.9	24.2	15.0	2.8	3.3	4.9
Green Ext Time (p_c), s	0.0	12.1	0.0	1.0	0.0	49.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	105.8
HCM 6th LOS	F

Notes

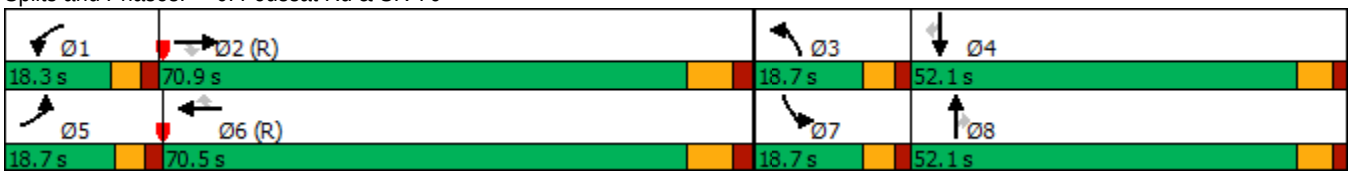
User approved pedestrian interval to be less than phase max green.

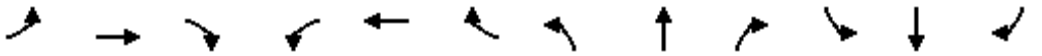
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1019	84	178	2011	145	130	120	116	214	164	218
Future Volume (vph)	165	1019	84	178	2011	145	130	120	116	214	164	218
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	18.7	70.9	70.9	18.3	70.5	70.5	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	11.7%	44.3%	44.3%	11.4%	44.1%	44.1%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.5	87.7	87.7	13.5	87.7	87.7	13.0	20.3	20.3	13.0	20.3	20.3
Actuated g/C Ratio	0.08	0.55	0.55	0.08	0.55	0.55	0.08	0.13	0.13	0.08	0.13	0.13
v/c Ratio	0.62	0.57	0.10	0.67	1.13	0.17	0.51	0.20	0.41	0.84	0.40	0.42
Control Delay	109.6	7.4	0.9	82.6	98.0	7.9	77.3	60.9	11.5	96.9	64.9	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.6	7.4	0.9	82.6	98.0	7.9	77.3	60.9	11.5	96.9	64.9	7.8
LOS	F	A	A	F	F	A	E	E	B	F	E	A
Approach Delay		20.2			91.2			51.0			55.5	
Approach LOS		C			F			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 18.7 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 63.6	Intersection LOS: E
Intersection Capacity Utilization 108.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	1019	84	178	2011	145	130	120	116	214	164	218
Future Volume (veh/h)	165	1019	84	178	2011	145	130	120	116	214	164	218
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	179	1108	91	193	2186	158	141	130	126	233	178	237
Peak Hour Factor	0.92	0.92	0.92	0.92	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	2046	913	259	2024	903	280	555	172	281	387	304
Arrive On Green	0.16	1.00	1.00	0.07	0.57	0.57	0.08	0.11	0.11	0.08	0.11	0.11
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	179	1108	91	193	2186	158	141	130	126	233	178	237
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	7.7	0.0	0.0	8.8	91.1	7.6	6.3	3.7	12.3	10.6	7.5	13.2
Cycle Q Clear(g_c), s	7.7	0.0	0.0	8.8	91.1	7.6	6.3	3.7	12.3	10.6	7.5	13.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	2046	913	259	2024	903	280	555	172	281	387	304
V/C Ratio(X)	0.64	0.54	0.10	0.74	1.08	0.18	0.50	0.23	0.73	0.83	0.46	0.78
Avail Cap(c_a), veh/h	281	2046	913	272	2024	903	281	1468	456	281	1022	802
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.8	0.0	0.0	72.5	34.4	16.5	70.4	65.2	69.1	72.4	66.9	69.4
Incr Delay (d2), s/veh	3.8	0.8	0.2	10.1	45.5	0.4	1.4	0.2	5.9	18.5	0.9	4.4
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	3.4	0.2	0.0	4.3	51.0	3.0	2.8	1.6	5.3	5.5	3.5	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.6	0.8	0.2	82.6	80.0	16.9	71.8	65.4	74.9	90.9	67.7	73.8
LnGrp LOS	E	A	A	F	F	B	E	E	E	F	E	E
Approach Vol, veh/h		1378			2537			397			648	
Approach Delay, s/veh		9.6			76.3			70.7			78.3	
Approach LOS		A			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	100.1	18.7	23.5	18.7	99.1	18.7	23.5
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	62.9	* 13	46.0	* 13	62.5	* 13	46.0
Max Q Clear Time (g_c+I1), s	10.8	2.0	8.3	15.2	9.7	93.1	12.6	14.3
Green Ext Time (p_c), s	0.1	11.7	0.2	2.2	0.2	0.0	0.0	1.3

Intersection Summary	
HCM 6th Ctrl Delay	57.6
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	16	163	29	5	302
Future Vol, veh/h	27	16	163	29	5	302
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	29	17	177	32	5	328

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	334	193	0	0	209	0
Stage 1	193	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	659	848	-	-	1360	-
Stage 1	808	-	-	-	-	-
Stage 2	832	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	656	848	-	-	1360	-
Mov Cap-2 Maneuver	656	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	829	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	716	1360	-
HCM Lane V/C Ratio	-	-	0.065	0.004	-
HCM Control Delay (s)	-	-	10.4	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	0	110	80	0	258
Future Vol, veh/h	28	0	110	80	0	258
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	0	120	87	0	280

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	444	164	0	0	207	0
Stage 1	164	-	-	-	-	-
Stage 2	280	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	571	881	-	-	1364	-
Stage 1	865	-	-	-	-	-
Stage 2	767	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	571	881	-	-	1364	-
Mov Cap-2 Maneuver	571	-	-	-	-	-
Stage 1	865	-	-	-	-	-
Stage 2	767	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	571	1364	-
HCM Lane V/C Ratio	-	-	0.053	-	-
HCM Control Delay (s)	-	-	11.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

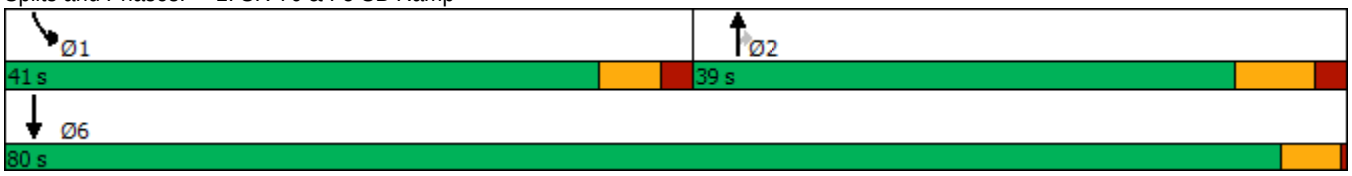
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	47	186	484	531
Demand Flow Rate, veh/h	48	190	494	542
Vehicles Circulating, veh/h	674	397	44	196
Vehicles Exiting, veh/h	64	141	678	391
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.0	6.1	6.3	8.6
Approach LOS	A	A	A	A

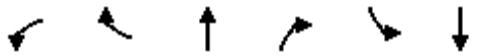
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	48	190	494	542
Cap Entry Lane, veh/h	694	920	1319	1130
Entry HV Adj Factor	0.978	0.978	0.980	0.980
Flow Entry, veh/h	47	186	484	531
Cap Entry, veh/h	678	900	1294	1107
V/C Ratio	0.069	0.206	0.374	0.480
Control Delay, s/veh	6.0	6.1	6.3	8.6
LOS	A	A	A	A
95th %tile Queue, veh	0	1	2	3

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	532	288	809	846
Future Volume (vph)	0	532	288	809	846
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	40.7	40.7	26.8	0.0
Actuated g/C Ratio	0.00	0.51	0.51	0.34	0.00
v/c Ratio	no cap	0.32	0.37	0.76	no cap
Control Delay		13.1	11.4	28.1	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	13.1	11.4	28.1	Error
LOS	F	B	B	C	F
Approach Delay	Err	12.5			Err
Approach LOS	F	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	686	532	288	809	846
Future Volume (veh/h)	0	686	532	288	809	846
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			578	313	879	920
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1209	539	1229	0
Arrive On Green			0.34	0.34	0.36	0.83
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			578	313	879	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			5.3	6.7	9.0	0.0
Cycle Q Clear(g_c), s			5.3	6.7	9.0	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1209	539	1229	0
V/C Ratio(X)			0.48	0.58	0.72	0.00
Avail Cap(c_a), veh/h			2784	1242	2968	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			10.7	11.1	11.4	0.0
Incr Delay (d2), s/veh			0.3	1.0	0.8	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			1.7	2.0	2.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			11.0	12.1	12.2	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			891			879
Approach Delay, s/veh			11.4			12.2
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	20.3	20.8				41.1
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	11.0	8.7				0.0
Green Ext Time (p_c), s	3.6	5.3				0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.8
HCM 6th LOS	B

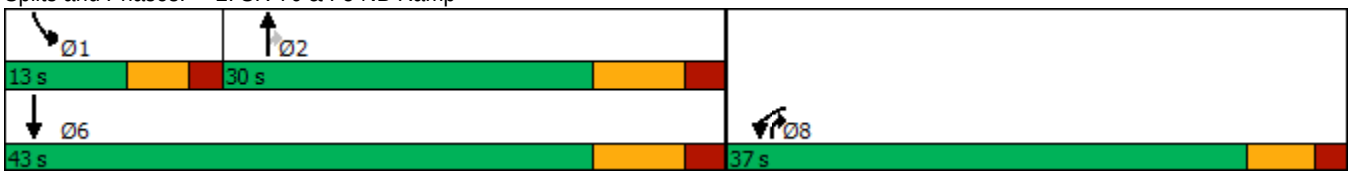
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	290	1265	123	517	1292
Future Volume (vph)	290	1265	123	517	1292
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.58	1.41	0.11	1.80	0.91
Control Delay	290.1	219.0	2.7	396.6	31.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	290.1	219.0	2.7	396.6	31.2
LOS	F	F	A	F	C
Approach Delay	290.1	199.8			135.7
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.80	
Intersection Signal Delay: 196.3	Intersection LOS: F
Intersection Capacity Utilization 133.3%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	290	828	1265	123	517	1292
Future Volume (veh/h)	290	828	1265	123	517	1292
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	315	900	1375	134	562	1404
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	0	0	1818	586	587	2893
Arrive On Green	0.00	0.00	0.51	0.51	0.17	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1375	134	562	1404
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	13.3	2.5	6.9	5.2
Cycle Q Clear(g_c), s	0.0	0.0	13.3	2.5	6.9	5.2
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1818	586	587	2893
V/C Ratio(X)	0.00	0.00	0.76	0.23	0.96	0.49
Avail Cap(c_a), veh/h	0	0	1818	586	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	8.4	9.3	17.7	1.2
Incr Delay (d2), s/veh	0.0	0.0	3.0	0.9	26.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.0	0.6	4.6	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	11.4	10.2	44.6	1.8
LnGrp LOS	A	A	B	B	D	A
Approach Vol, veh/h	0		1509			1966
Approach Delay, s/veh	0.0		11.3			14.1
Approach LOS			B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	30.0			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	8.9	15.3			7.2	0.0
Green Ext Time (p_c), s	0.0	4.9			13.0	0.0

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

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2237	73	32	1770	25	21
Future Volume (vph)	2237	73	32	1770	25	21
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	1.08	0.06	0.35	0.76	0.08	0.05
Control Delay	72.2	0.3	85.1	9.2	52.9	34.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	0.3	85.1	9.2	52.9	34.2
LOS	E	A	F	A	D	C
Approach Delay	69.9			10.5	44.3	
Approach LOS	E			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.08	
Intersection Signal Delay: 43.9	Intersection LOS: D
Intersection Capacity Utilization 81.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2237	73	32	1770	25	21
Future Volume (veh/h)	2237	73	32	1770	25	21
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	2432	79	35	1924	27	23
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	2245	1319	79	2530	356	387
Arrive On Green	0.63	0.63	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2432	79	35	1924	27	23
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	101.1	1.4	3.1	54.4	2.0	1.8
Cycle Q Clear(g_c), s	101.1	1.4	3.1	54.4	2.0	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2245	1319	79	2530	356	387
V/C Ratio(X)	1.08	0.06	0.44	0.76	0.08	0.06
Avail Cap(c_a), veh/h	2245	1319	100	2530	356	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.70	0.70	1.00	1.00
Uniform Delay (d), s/veh	29.5	2.4	74.5	14.5	52.0	46.3
Incr Delay (d2), s/veh	45.9	0.1	2.7	1.6	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	55.5	1.2	1.5	21.3	0.9	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	75.3	2.5	77.2	16.0	52.4	46.6
LnGrp LOS	F	A	E	B	D	D
Approach Vol, veh/h	2511			1959	50	
Approach Delay, s/veh	73.1			17.1	49.8	
Approach LOS	E			B	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.8	109.1			121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2			113.9	32.0
Max Q Clear Time (g_c+I1), s	5.1	103.1			56.4	4.0
Green Ext Time (p_c), s	0.0	0.0			29.7	0.1

Intersection Summary	
HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2195	48	161	1783	7	118
Future Volume (vph)	2195	48	161	1783	7	118
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.9	39.1	20.0	120.9	39.1	20.0
Total Split (%)	63.1%	24.4%	12.5%	75.6%	24.4%	12.5%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	102.8	124.6	23.6	132.1	13.8	43.5
Actuated g/C Ratio	0.64	0.78	0.15	0.83	0.09	0.27
v/c Ratio	1.05	0.04	0.67	0.66	0.03	0.30
Control Delay	66.9	2.6	43.1	22.1	61.0	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	2.6	43.1	22.1	61.0	45.9
LOS	E	A	D	C	E	D
Approach Delay	65.5			23.8	46.8	
Approach LOS	E			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.05	
Intersection Signal Delay: 46.2	Intersection LOS: D
Intersection Capacity Utilization 93.6%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2195	48	161	1783	7	118
Future Volume (veh/h)	2195	48	161	1783	7	118
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	2386	52	175	1938	8	128
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	2487	1247	159	2931	301	280
Arrive On Green	0.70	0.70	0.09	0.82	0.09	0.09
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2386	52	175	1938	8	128
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	98.2	1.2	14.3	33.6	0.3	11.6
Cycle Q Clear(g_c), s	98.2	1.2	14.3	33.6	0.3	11.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2487	1247	159	2931	301	280
V/C Ratio(X)	0.96	0.04	1.10	0.66	0.03	0.46
Avail Cap(c_a), veh/h	2487	1247	159	2931	713	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	21.9	3.8	72.8	5.4	66.8	59.0
Incr Delay (d2), s/veh	1.4	0.0	54.0	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.5	0.6	9.0	10.5	0.2	4.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.4	3.8	126.8	5.5	66.9	60.2
LnGrp LOS	C	A	F	A	E	E
Approach Vol, veh/h	2438			2113	136	
Approach Delay, s/veh	23.0			15.6	60.6	
Approach LOS	C			B	E	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	20.0	120.0				140.0	20.0
Change Period (Y+Rc), s	* 5.7	8.0				8.0	6.1
Max Green Setting (Gmax), s	* 14	92.9				112.9	33.0
Max Q Clear Time (g_c+I1), s	16.3	100.2				35.6	13.6
Green Ext Time (p_c), s	0.0	0.0				34.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

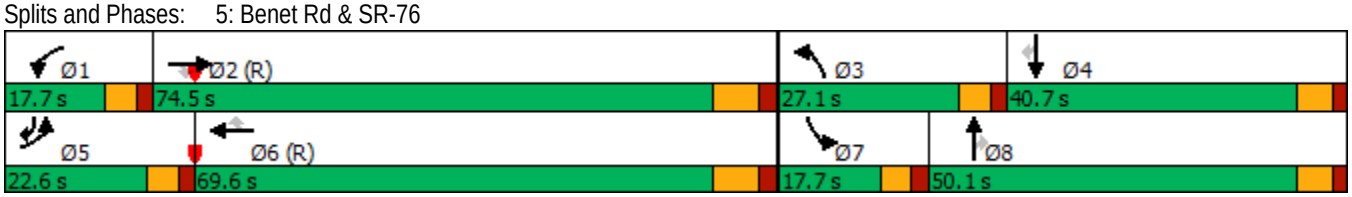
Notes

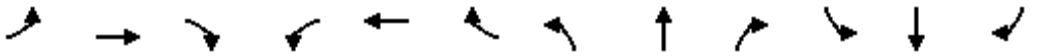
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	215	2072	90	43	1605	19	137	23	99	24	15	197
Future Volume (vph)	215	2072	90	43	1605	19	137	23	99	24	15	197
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	32.1	92.4	92.4	12.0	68.8	68.8	17.9	28.7	28.7	12.0	15.7	53.9
Actuated g/C Ratio	0.20	0.58	0.58	0.08	0.43	0.43	0.11	0.18	0.18	0.08	0.10	0.34
v/c Ratio	0.66	1.10	0.10	0.36	1.15	0.03	0.76	0.07	0.29	0.20	0.09	0.35
Control Delay	48.9	96.8	7.1	66.6	109.2	0.1	91.7	53.9	9.2	73.4	62.0	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	0.0
Total Delay	48.9	96.8	7.1	66.6	109.2	0.1	91.7	53.9	9.2	73.4	62.0	20.4
LOS	D	F	A	E	F	A	F	D	A	E	E	C
Approach Delay		89.1			106.8			56.8			28.4	
Approach LOS		F			F			E			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.15	
Intersection Signal Delay: 90.6	Intersection LOS: F
Intersection Capacity Utilization 98.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	2072	90	43	1605	19	137	23	99	24	15	197
Future Volume (veh/h)	215	2072	90	43	1605	19	137	23	99	24	15	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	2252	98	47	1745	21	149	25	108	26	16	214
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1933	862	117	1791	799	171	336	285	92	252	381
Arrive On Green	0.11	0.54	0.54	0.07	0.50	0.50	0.10	0.18	0.18	0.05	0.13	0.13
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	234	2252	98	47	1745	21	149	25	108	26	16	214
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	87.0	4.8	4.1	76.6	1.1	13.2	1.8	9.6	2.2	1.2	19.0
Cycle Q Clear(g_c), s	16.9	87.0	4.8	4.1	76.6	1.1	13.2	1.8	9.6	2.2	1.2	19.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1933	862	117	1791	799	171	336	285	92	252	381
V/C Ratio(X)	1.24	1.17	0.11	0.40	0.97	0.03	0.87	0.07	0.38	0.28	0.06	0.56
Avail Cap(c_a), veh/h	188	1933	862	134	1791	799	238	514	436	134	404	510
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)	0.09	0.09	0.09	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	36.5	17.7	71.7	38.7	19.9	71.3	54.6	57.8	73.1	60.4	53.3
Incr Delay (d2), s/veh	113.9	74.9	0.0	1.2	10.6	0.0	21.4	0.1	0.8	1.7	0.1	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	13.7	56.9	1.8	1.9	35.5	0.4	7.1	0.9	4.0	1.1	0.6	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	185.4	111.4	17.8	72.9	49.2	20.0	92.8	54.7	58.6	74.7	60.5	54.6
LnGrp LOS	F	F	B	E	D	B	F	D	E	E	E	D
Approach Vol, veh/h		2584			1813			282			256	
Approach Delay, s/veh		114.5			49.5			76.3			57.0	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	95.0	21.1	27.7	22.6	88.6	13.9	34.8
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.1	89.0	15.2	21.0	18.9	78.6	4.2	11.6
Green Ext Time (p_c), s	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	85.5
HCM 6th LOS	F

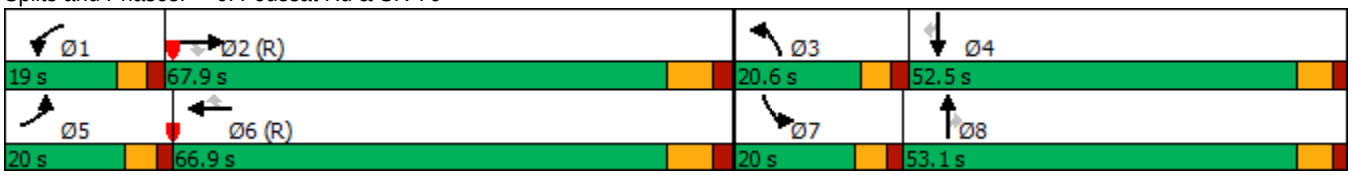
Notes

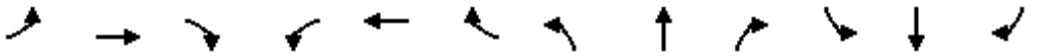
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	1821	164	139	1329	212	86	261	187	161	177	252
Future Volume (vph)	332	1821	164	139	1329	212	86	261	187	161	177	252
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	25.3	87.2	87.2	12.9	74.8	74.8	13.0	20.8	20.8	13.6	21.4	21.4
Actuated g/C Ratio	0.16	0.54	0.54	0.08	0.47	0.47	0.08	0.13	0.13	0.08	0.13	0.13
v/c Ratio	0.66	1.03	0.19	0.55	0.87	0.27	0.33	0.43	0.56	0.60	0.41	0.45
Control Delay	61.5	55.3	18.5	78.4	45.2	4.2	73.0	64.7	16.1	79.6	64.0	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	55.3	18.5	78.4	45.2	4.2	73.0	64.7	16.1	79.6	64.0	7.4
LOS	E	E	B	E	D	A	E	E	B	E	E	A
Approach Delay		53.6			42.8			49.0			44.0	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 48.5	Intersection LOS: D
Intersection Capacity Utilization 102.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	1821	164	139	1329	212	86	261	187	161	177	252
Future Volume (veh/h)	332	1821	164	139	1329	212	86	261	187	161	177	252
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1979	178	151	1445	230	93	284	203	175	192	274
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1888	842	259	1836	819	276	783	243	281	549	431
Arrive On Green	0.09	0.53	0.53	0.07	0.52	0.52	0.08	0.15	0.15	0.08	0.15	0.15
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	361	1979	178	151	1445	230	93	284	203	175	192	274
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	14.3	85.0	9.5	6.8	53.0	13.1	4.1	8.0	19.9	7.8	7.7	14.7
Cycle Q Clear(g_c), s	14.3	85.0	9.5	6.8	53.0	13.1	4.1	8.0	19.9	7.8	7.7	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	309	1888	842	259	1836	819	276	783	243	281	549	431
V/C Ratio(X)	1.17	1.05	0.21	0.58	0.79	0.28	0.34	0.36	0.84	0.62	0.35	0.64
Avail Cap(c_a), veh/h	309	1888	842	287	1836	819	322	1500	466	309	1031	809
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.8	37.5	19.8	71.6	31.5	21.9	69.6	60.7	65.8	71.1	60.4	63.4
Incr Delay (d2), s/veh	79.4	23.5	0.1	2.5	3.5	0.9	0.7	0.3	7.4	3.3	0.4	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	9.8	42.3	3.6	3.1	23.5	5.2	1.8	3.5	8.6	3.6	3.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	152.3	61.0	19.9	74.1	35.0	22.7	70.3	61.0	73.2	74.5	60.8	65.0
LnGrp LOS	F	F	B	E	C	C	E	E	E	E	E	E
Approach Vol, veh/h		2518			1826			580			641	
Approach Delay, s/veh		71.2			36.7			66.8			66.3	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	93.0	18.5	30.8	20.0	90.7	18.7	30.6
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	8.8	87.0	6.1	16.7	16.3	55.0	9.8	21.9
Green Ext Time (p_c), s	0.2	0.0	0.1	2.4	0.0	3.2	0.2	2.6

Intersection Summary	
HCM 6th Ctrl Delay	58.8
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	11	235	16	5	204
Future Vol, veh/h	25	11	235	16	5	204
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	27	12	255	17	5	222

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	363	264	0	0	272	0
Stage 1	264	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	636	774	-	-	1290	-
Stage 1	752	-	-	-	-	-
Stage 2	874	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	633	774	-	-	1290	-
Mov Cap-2 Maneuver	633	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	871	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	670	1290	-
HCM Lane V/C Ratio	-	-	0.058	0.004	-
HCM Control Delay (s)	-	-	10.7	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	81	0	212	36	0	129
Future Vol, veh/h	81	0	212	36	0	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	88	0	230	39	0	140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	390	250	0	0	269	0
Stage 1	250	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	614	789	-	-	1295	-
Stage 1	792	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	614	789	-	-	1295	-
Mov Cap-2 Maneuver	614	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	887	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	614	1295	-
HCM Lane V/C Ratio	-	-	0.143	-	-
HCM Control Delay (s)	-	-	11.8	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Intersection Delay, s/veh	11.0
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	120	239	867	496
Demand Flow Rate, veh/h	122	243	885	506
Vehicles Circulating, veh/h	677	655	98	224
Vehicles Exiting, veh/h	53	328	701	674
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.3	9.6	13.3	8.5
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	122	243	885	506
Cap Entry Lane, veh/h	692	707	1249	1098
Entry HV Adj Factor	0.982	0.983	0.980	0.980
Flow Entry, veh/h	120	239	867	496
Cap Entry, veh/h	679	695	1223	1076
V/C Ratio	0.176	0.343	0.709	0.461
Control Delay, s/veh	7.3	9.6	13.3	8.5
LOS	A	A	B	A
95th %tile Queue, veh	1	2	6	2

Appendix L

Horizon Year Segment Volumes

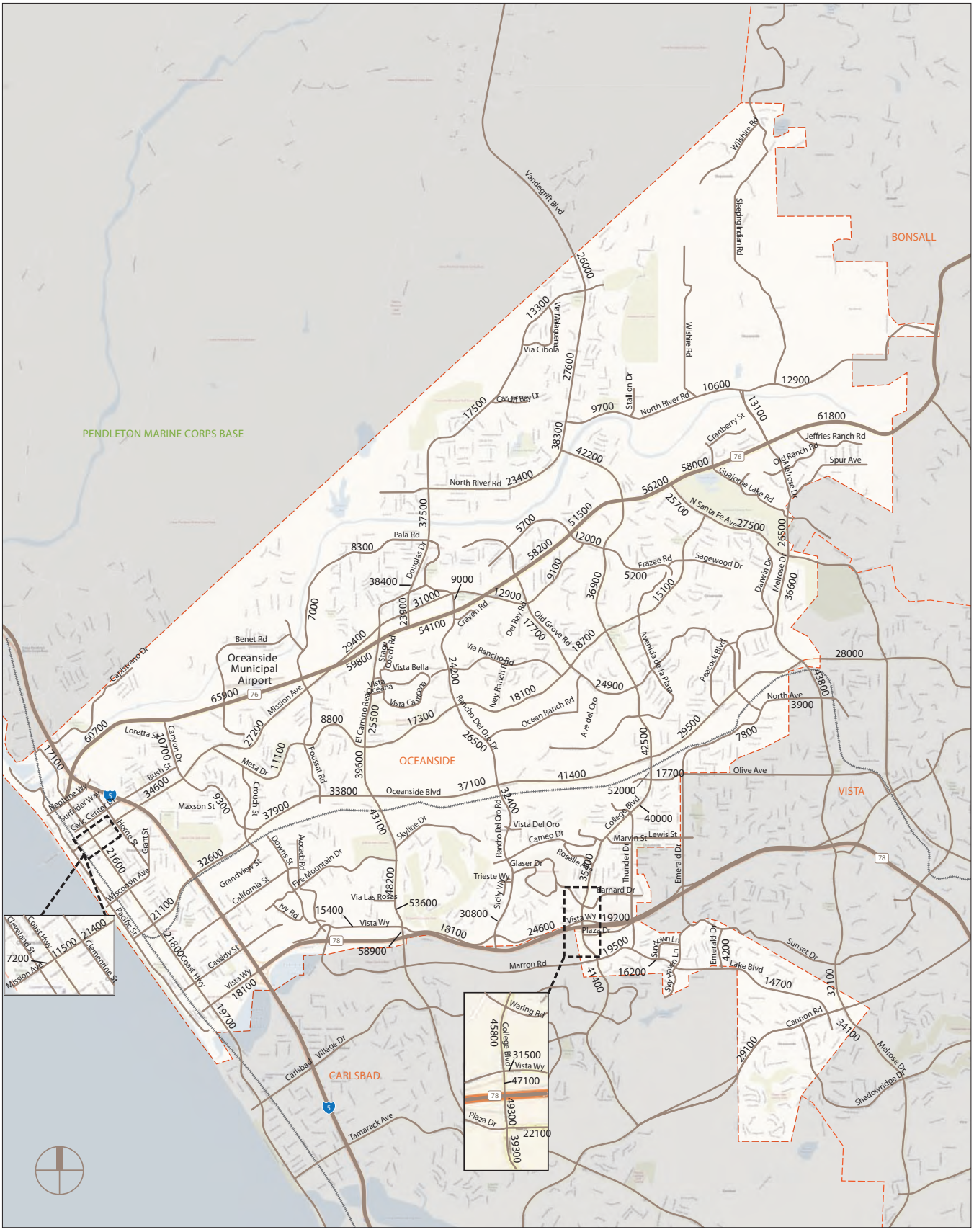
OCEANSIDE GENERAL PLAN
CIRCULATION ELEMENT UPDATE
City of Oceanside, California

Prepared for
City of Oceanside
Transportation Engineering Division
300 North Coast Highway
Oceanside, CA 92054

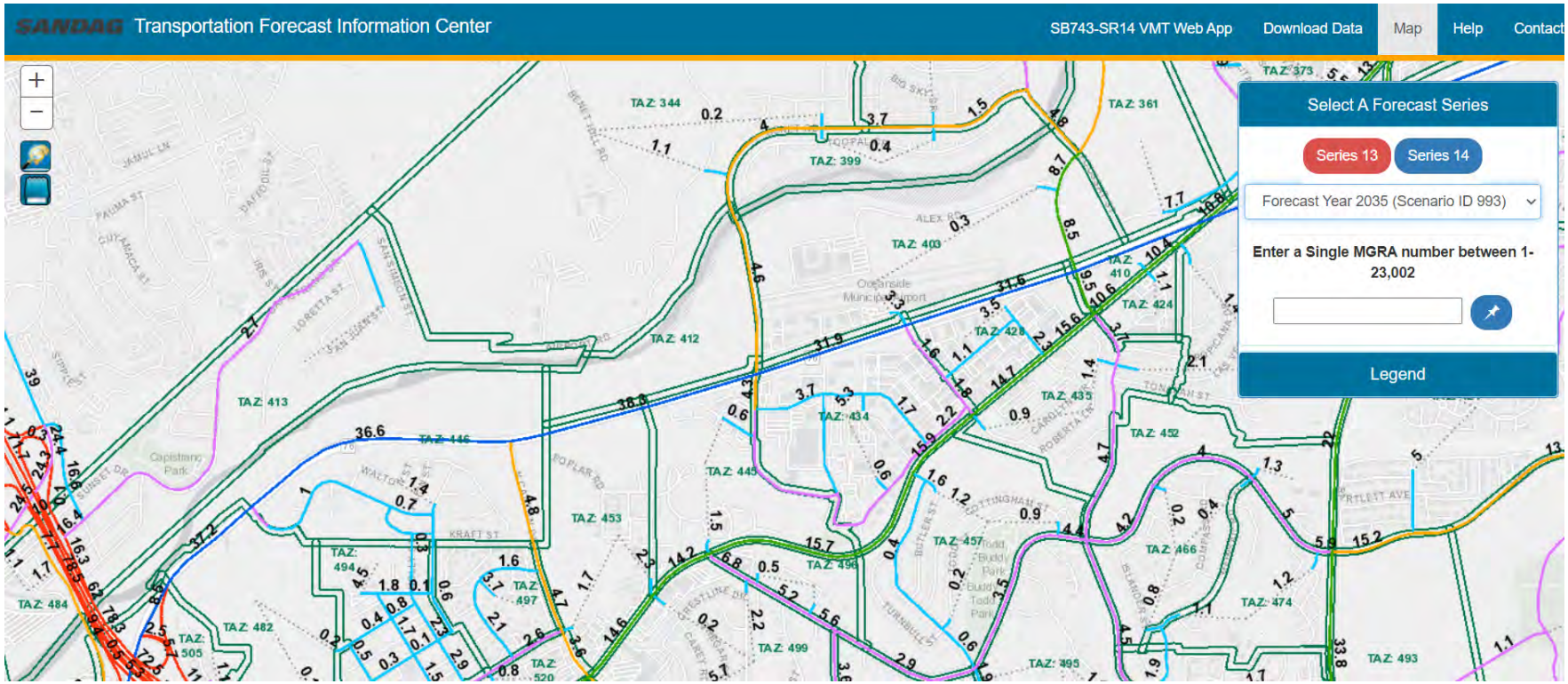
Prepared by

701 B Street, Suite 1810
San Diego, CA 92101

September 2012


PENDLETON MARINE CORPS BASE
BONSALL
OCEANSIDE
VISTA
CARLSBAD
Oceanside Municipal Airport
Vandegrift Blvd
Wilshire Rd
Shepard Ranch Rd
Via Cibola
Cardiff Bay Dr
Stallion Dr
North River Rd
Cranberry St
Jeffries Ranch Rd
Old Ranch Rd
Spur Ave
Guajome Lake Rd
Old Melrose Dr
N Santa Fe Ave
Pala Rd
Douglas Dr
Frazee Rd
Sagewood Dr
Darwin Dr
Melrose Dr
Benet Rd
Capistrano Dr
Mission Ave
Stage Coach Rd
Vista Bella
Vista Cayana
Vista Ca Corona
El Camino Real
Via Rancho Rd
Del Rayo Rd
Old Grove Rd
Graven Rd
Ivey Ranch Rd
Rancho Del Oro Dr
Ocean Ranch Rd
Ave del Oro
Avenida de la Playa
Peacock Blvd
North Ave
Olive Ave
Loretta St
Canyon Dr
Bush St
Mesa Dr
Foussat Rd
Oceanside Blvd
Maxson St
Civic Center Dr
Neptune Way
Surfrider Way
Coast Hwy
Pacific St
Wisconsin Ave
Grant St
Horne St
Grandview St
California St
Downs St
Avocado Rd
Fire Mountain Dr
Ivy Rd
Via Las Rosas
Vista Wy
Cassidy St
Skyline Dr
Vista Del Oro
Cameo Dr
Glaser Dr
Trieste Wy
Sicily Wy
Rancho Del Oro Rd
College Blvd
Marvin St
Lewis St
Thunder Dr
Barnard Dr
Rosella St
Emerald Dr
Plaza Dr
Sunset Dr
Lake Blvd
Sky View Ln
Sundown Ln
Marron Rd
Waring Rd
Cannon Rd
Melrose Dr
Shadowridge Dr
Carlsbad Village Dr
Tamarack Ave
Cleveland St
Clementine St
Mission Ave
Coast Hwy
Cassidy St
Vista Wy
Plaza Dr
College Blvd
Vista Wy
Plaza Dr

SANDAG Series 13 Year 2035 Volumes



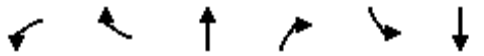
Appendix M

Horizon Year 2030 Intersection LOS Worksheets

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	370	290	1420	590
Future Volume (vph)	0	370	290	1420	590
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		31.0	31.0	49.0	80.0
Total Split (%)		38.8%	38.8%	61.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	26.1	26.1	41.4	0.0
Actuated g/C Ratio	0.00	0.33	0.33	0.52	0.00
v/c Ratio	no cap	0.35	0.59	0.87	no cap
Control Delay		22.2	27.1	23.1	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	22.2	27.1	23.1	Error
LOS	F	C	C	C	F
Approach Delay	Err	24.3			Err
Approach LOS	F	C			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	440	370	290	1420	590
Future Volume (veh/h)	0	440	370	290	1420	590
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			402	315	1543	641
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			939	419	1827	0
Arrive On Green			0.26	0.26	0.53	0.89
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			402	315	1543	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			5.7	11.0	23.0	0.0
Cycle Q Clear(g_c), s			5.7	11.0	23.0	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			939	419	1827	0
V/C Ratio(X)			0.43	0.75	0.84	0.00
Avail Cap(c_a), veh/h			1424	635	2478	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			18.4	20.4	12.1	0.0
Incr Delay (d2), s/veh			0.3	2.7	2.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			2.2	4.0	7.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			18.7	23.2	14.2	0.0
LnGrp LOS			B	C	B	A
Approach Vol, veh/h			717			1543
Approach Delay, s/veh			20.7			14.2
Approach LOS			C			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	37.6	22.8				60.4
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	25.0	13.0				0.0
Green Ext Time (p_c), s	7.0	2.9				0.0

Intersection Summary						
HCM 6th Ctrl Delay			16.3			
HCM 6th LOS			B			

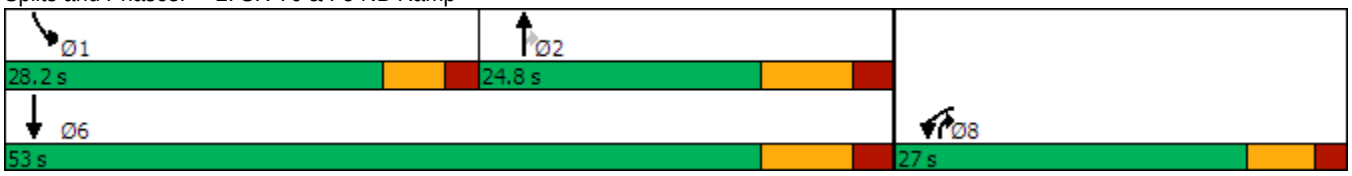
Notes

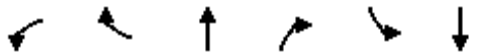
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	110	720	120	1180	1850
Future Volume (vph)	110	720	120	1180	1850
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	1.33	1.05	0.14	1.33	1.01
Control Delay	175.6	80.8	8.4	182.9	41.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	175.6	80.8	8.4	182.9	41.8
LOS	F	F	A	F	D
Approach Delay	175.6	70.5			96.8
Approach LOS	F	E			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 107.5	Intersection LOS: F
Intersection Capacity Utilization 126.8%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	820	720	120	1180	1850
Future Volume (veh/h)	110	820	720	120	1180	1850
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	1900	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	891	783	130	1283	2011
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1181	345	1414	3017
Arrive On Green	0.00	0.00	0.33	0.33	0.41	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	783	130	1283	2011
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	10.0	3.7	18.5	10.4
Cycle Q Clear(g_c), s	0.0	0.0	10.0	3.7	18.5	10.4
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1181	345	1414	3017
V/C Ratio(X)	0.00	0.00	0.66	0.38	0.91	0.67
Avail Cap(c_a), veh/h	0	0	1181	345	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	15.1	17.7	14.7	1.4
Incr Delay (d2), s/veh	0.0	0.0	2.9	3.1	8.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.0	1.3	7.6	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	18.1	20.8	23.1	2.6
LnGrp LOS	A	A	B	C	C	A
Approach Vol, veh/h	0		913			3294
Approach Delay, s/veh	0.0		18.5			10.6
Approach LOS			B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	27.4	25.6			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	20.5	12.0			12.4	0.0
Green Ext Time (p_c), s	1.2	2.4			22.6	0.0

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

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1480	30	20	2990	60	30
Future Volume (vph)	1480	30	20	2990	60	30
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.2	38.1	14.7	121.9	38.1	14.7
Total Split (%)	67.0%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.71	0.02	0.22	1.29	0.18	0.07
Control Delay	22.1	0.4	63.6	156.6	54.8	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.1	0.4	63.6	156.6	54.8	12.2
LOS	C	A	E	F	D	B
Approach Delay	21.7			156.0	40.5	
Approach LOS	C			F	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 109.7	Intersection LOS: F
Intersection Capacity Utilization 102.7%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1480	30	20	2990	60	30
Future Volume (veh/h)	1480	30	20	2990	60	30
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	1609	33	22	3250	65	33
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	2278	1333	63	2530	356	373
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1609	33	22	3250	65	33
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	47.5	0.5	1.9	113.9	4.8	2.6
Cycle Q Clear(g_c), s	47.5	0.5	1.9	113.9	4.8	2.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2278	1333	63	2530	356	373
V/C Ratio(X)	0.71	0.02	0.35	1.28	0.18	0.09
Avail Cap(c_a), veh/h	2278	1333	100	2530	356	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	18.8	2.1	75.4	23.0	53.1	47.8
Incr Delay (d2), s/veh	1.9	0.0	0.3	128.4	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.8	0.5	0.9	88.6	2.3	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.7	2.1	75.7	151.5	54.3	48.3
LnGrp LOS	C	A	E	F	D	D
Approach Vol, veh/h	1642			3272	98	
Approach Delay, s/veh	20.3			150.9	52.2	
Approach LOS	C			F	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.3	110.6				121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0				8.0	6.1
Max Green Setting (Gmax), s	* 9	99.2				113.9	32.0
Max Q Clear Time (g_c+I1), s	3.9	49.5				115.9	6.8
Green Ext Time (p_c), s	0.0	20.6				0.0	0.2

Intersection Summary		
HCM 6th Ctrl Delay		106.2
HCM 6th LOS		F

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1520	20	100	3010	30	100
Future Volume (vph)	1520	20	100	3010	30	100
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	112.3	134.1	14.1	132.1	13.8	34.0
Actuated g/C Ratio	0.70	0.84	0.09	0.83	0.09	0.21
v/c Ratio	0.67	0.02	0.70	1.12	0.11	0.31
Control Delay	30.4	2.3	58.6	84.1	64.4	42.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	2.3	58.6	84.1	64.4	42.0
LOS	C	A	E	F	E	D
Approach Delay	30.1			83.3	47.2	
Approach LOS	C			F	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 65.2	Intersection LOS: E
Intersection Capacity Utilization 102.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1520	20	100	3010	30	100
Future Volume (veh/h)	1520	20	100	3010	30	100
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	1652	22	109	3272	33	109
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	2579	1274	130	2964	269	239
Arrive On Green	0.73	0.73	0.07	0.83	0.08	0.08
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1652	22	109	3272	33	109
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	38.1	0.4	9.7	133.5	1.4	10.0
Cycle Q Clear(g_c), s	38.1	0.4	9.7	133.5	1.4	10.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2579	1274	130	2964	269	239
V/C Ratio(X)	0.64	0.02	0.84	1.10	0.12	0.46
Avail Cap(c_a), veh/h	2579	1274	164	2964	713	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	11.2	3.1	73.3	13.3	68.7	62.0
Incr Delay (d2), s/veh	0.8	0.0	3.0	47.3	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	0.2	4.6	59.7	0.6	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	3.1	76.3	60.6	68.9	63.4
LnGrp LOS	B	A	E	F	E	E
Approach Vol, veh/h	1674			3381	142	
Approach Delay, s/veh	11.9			61.1	64.7	
Approach LOS	B			E	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.3	124.1			141.5	18.5
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5			112.9	33.0
Max Q Clear Time (g_c+I1), s	11.7	40.1			135.5	12.0
Green Ext Time (p_c), s	0.1	21.9			0.0	0.4

Intersection Summary		
HCM 6th Ctrl Delay		45.3
HCM 6th LOS		D

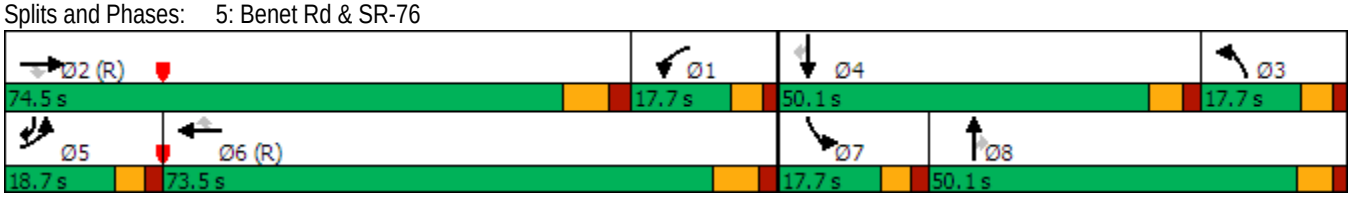
Notes

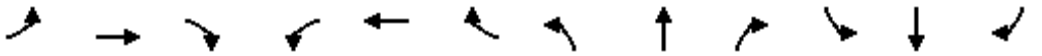
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1370	170	40	2700	10	70	10	60	10	20	330
Future Volume (vph)	130	1370	170	40	2700	10	70	10	60	10	20	330
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	18.7	74.5	74.5	17.7	73.5	73.5	17.7	50.1	50.1	17.7	50.1	18.7
Total Split (%)	11.7%	46.6%	46.6%	11.1%	45.9%	45.9%	11.1%	31.3%	31.3%	11.1%	31.3%	11.7%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	19.0	96.0	96.0	12.0	85.5	85.5	19.1	28.7	28.7	12.0	11.0	30.4
Actuated g/C Ratio	0.12	0.60	0.60	0.08	0.53	0.53	0.12	0.18	0.18	0.08	0.07	0.19
v/c Ratio	0.67	0.70	0.18	0.33	1.55	0.01	0.36	0.03	0.15	0.08	0.17	0.89
Control Delay	63.8	28.4	6.9	71.2	276.8	0.0	66.6	52.9	0.8	70.6	73.7	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.8	28.4	6.9	71.2	276.8	0.0	66.6	52.9	0.8	70.6	73.7	54.2
LOS	E	C	A	E	F	A	E	D	A	E	E	D
Approach Delay		28.9			272.8			37.4			55.7	
Approach LOS		C			F			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.55	
Intersection Signal Delay: 167.4	Intersection LOS: F
Intersection Capacity Utilization 121.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1370	170	40	2700	10	70	10	60	10	20	330
Future Volume (veh/h)	130	1370	170	40	2700	10	70	10	60	10	20	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1489	185	43	2935	11	76	11	65	11	22	359
Peak Hour Factor	0.92	0.92	0.92	0.92	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	145	1477	659	263	1763	787	129	438	371	52	352	427
Arrive On Green	0.08	0.83	0.42	0.15	0.99	0.50	0.07	0.23	0.23	0.03	0.19	0.31
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	141	1489	185	43	2935	11	76	11	65	11	22	359
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	12.6	66.5	12.4	3.4	79.4	0.6	6.6	0.7	3.6	1.0	1.5	26.9
Cycle Q Clear(g_c), s	12.6	66.5	12.4	3.4	79.4	0.6	6.6	0.7	3.6	1.0	1.5	26.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	1477	659	263	1763	787	129	438	371	52	352	427
V/C Ratio(X)	0.97	1.01	0.28	0.16	1.66	0.01	0.59	0.03	0.18	0.21	0.06	0.84
Avail Cap(c_a), veh/h	145	1477	659	263	1763	787	134	514	436	134	514	565
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.72	0.72	0.72	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.3	13.5	30.9	59.6	0.6	20.4	71.9	47.2	23.5	75.9	53.3	27.4
Incr Delay (d2), s/veh	55.9	21.9	0.8	0.0	299.2	0.0	6.3	0.0	0.2	2.0	0.1	8.5
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	8.1	12.0	5.0	1.5	73.5	0.2	3.3	0.3	2.1	0.5	0.7	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	129.2	35.4	31.7	59.6	299.8	20.4	78.2	47.2	23.7	77.9	53.4	35.9
LnGrp LOS	F	F	C	E	F	C	E	D	C	E	D	D
Approach Vol, veh/h		1815			2989			152			392	
Approach Delay, s/veh		42.3			295.4			52.6			38.1	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.6	74.5	17.7	36.2	18.7	87.4	10.3	43.6
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 67	12.0	* 44	* 13	65.5	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.4	68.5	8.6	28.9	14.6	81.4	3.0	5.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	183.7
HCM 6th LOS	F

Notes

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

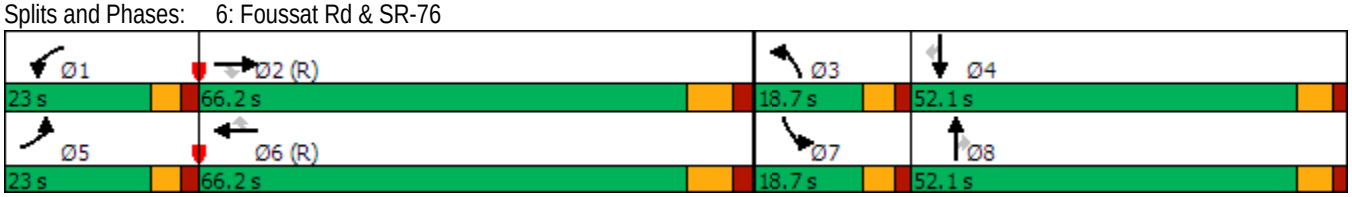
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

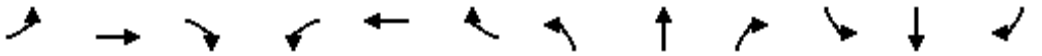
LOS Engineering, Inc.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1300	70	190	2510	90	160	70	110	200	110	60
Future Volume (vph)	40	1300	70	190	2510	90	160	70	110	200	110	60
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	48.0	48.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (s)	23.0	66.2	66.2	23.0	66.2	66.2	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	14.4%	41.4%	41.4%	14.4%	41.4%	41.4%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	87.1	87.1	14.8	92.6	92.6	13.0	19.6	19.6	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.54	0.54	0.09	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.15	0.73	0.08	0.65	1.33	0.10	0.63	0.12	0.40	0.78	0.28	0.15
Control Delay	78.2	23.6	6.5	79.9	182.0	4.6	81.7	59.8	11.8	91.2	63.0	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	0.0
Total Delay	78.2	23.6	6.5	79.9	182.0	4.6	81.7	59.8	11.8	91.2	63.0	1.0
LOS	E	C	A	E	F	A	F	E	B	F	E	A
Approach Delay		24.3			169.3			54.6			68.2	
Approach LOS		C			F			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 112.1	Intersection LOS: F
Intersection Capacity Utilization 107.0%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1300	70	190	2510	90	160	70	110	200	110	60
Future Volume (veh/h)	40	1300	70	190	2510	90	160	70	110	200	110	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	43	1413	76	207	2728	98	174	76	120	217	120	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	239	2104	938	259	2124	948	281	472	146	281	328	258
Arrive On Green	0.07	0.59	0.59	0.07	0.60	0.60	0.08	0.09	0.09	0.08	0.09	0.09
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	43	1413	76	207	2728	98	174	76	120	217	120	65
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.9	43.1	3.3	9.4	95.6	4.2	7.8	2.2	11.9	9.8	5.1	3.5
Cycle Q Clear(g_c), s	1.9	43.1	3.3	9.4	95.6	4.2	7.8	2.2	11.9	9.8	5.1	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	2104	938	259	2124	948	281	472	146	281	328	258
V/C Ratio(X)	0.18	0.67	0.08	0.80	1.28	0.10	0.62	0.16	0.82	0.77	0.37	0.25
Avail Cap(c_a), veh/h	374	2104	938	374	2124	948	281	1468	456	281	1022	802
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)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.2	22.1	14.0	72.8	32.2	13.8	71.1	66.9	71.3	72.1	68.2	67.5
Incr Delay (d2), s/veh	0.2	1.2	0.1	7.6	131.6	0.2	4.1	0.2	10.7	12.5	0.7	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	0.8	18.2	1.2	4.5	78.4	1.6	3.6	1.0	5.3	4.9	2.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	23.3	14.1	80.5	163.8	14.0	75.2	67.1	82.0	84.6	68.9	68.0
LnGrp LOS	E	C	B	F	F	B	E	E	F	F	E	E
Approach Vol, veh/h		1532			3033			370			402	
Approach Delay, s/veh		24.2			153.2			75.7			77.2	
Approach LOS		C			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	102.7	18.7	20.9	16.8	103.6	18.7	20.9
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 17	58.2	* 13	46.0	* 17	58.2	* 13	46.0
Max Q Clear Time (g_c+I1), s	11.4	45.1	9.8	7.1	3.9	97.6	11.8	13.9
Green Ext Time (p_c), s	0.3	8.4	0.2	1.0	0.1	0.0	0.1	0.9

Intersection Summary	
HCM 6th Ctrl Delay	105.1
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.

LOS Engineering, Inc.

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	80	20	10	280
Future Vol, veh/h	30	20	80	20	10	280
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	22	87	22	11	304

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	242	98	0	0	109	0
Stage 1	98	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	736	957	-	-	1480	-
Stage 1	889	-	-	-	-	-
Stage 2	829	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	729	957	-	-	1480	-
Mov Cap-2 Maneuver	729	-	-	-	-	-
Stage 1	889	-	-	-	-	-
Stage 2	822	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	806	1480	-
HCM Lane V/C Ratio	-	-	0.067	0.007	-
HCM Control Delay (s)	-	-	9.8	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	110	0	0	270
Future Vol, veh/h	0	0	110	0	0	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	120	0	0	293

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	413	120	0	0	120	0
Stage 1	120	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	595	931	-	-	1468	-
Stage 1	905	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	595	931	-	-	1468	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1468	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

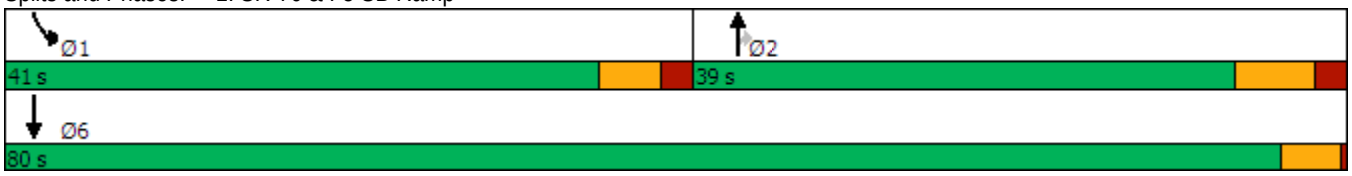
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	38	196	495	647
Demand Flow Rate, veh/h	38	200	504	660
Vehicles Circulating, veh/h	788	410	55	172
Vehicles Exiting, veh/h	44	149	771	438
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.5	6.3	6.5	10.1
Approach LOS	A	A	A	B

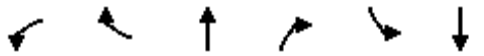
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	38	200	504	660
Cap Entry Lane, veh/h	618	908	1305	1158
Entry HV Adj Factor	0.997	0.979	0.981	0.980
Flow Entry, veh/h	38	196	495	647
Cap Entry, veh/h	616	889	1280	1135
V/C Ratio	0.062	0.220	0.386	0.570
Control Delay, s/veh	6.5	6.3	6.5	10.1
LOS	A	A	A	B
95th %tile Queue, veh	0	1	2	4

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	620	320	900	910
Future Volume (vph)	0	620	320	900	910
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	38.4	38.4	29.1	0.0
Actuated g/C Ratio	0.00	0.48	0.48	0.36	0.00
v/c Ratio	no cap	0.40	0.44	0.78	no cap
Control Delay		15.2	14.7	27.1	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	15.2	14.7	27.1	Error
LOS	F	B	B	C	F
Approach Delay	Err	15.1			Err
Approach LOS	F	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 50	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	920	620	320	900	910
Future Volume (veh/h)	0	920	620	320	900	910
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			674	348	978	989
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1265	564	1298	0
Arrive On Green			0.36	0.36	0.38	0.85
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			674	348	978	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			7.0	8.4	11.5	0.0
Cycle Q Clear(g_c), s			7.0	8.4	11.5	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1265	564	1298	0
V/C Ratio(X)			0.53	0.62	0.75	0.00
Avail Cap(c_a), veh/h			2456	1095	2618	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			11.9	12.4	12.7	0.0
Incr Delay (d2), s/veh			0.3	1.1	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			2.3	2.6	3.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			12.3	13.5	13.6	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			1022			978
Approach Delay, s/veh			12.7			13.6
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	23.2	23.4				46.6
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	13.5	10.4				0.0
Green Ext Time (p_c), s	4.0	6.1				0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

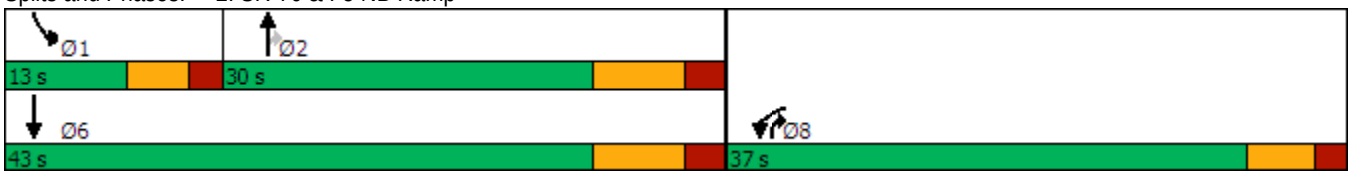
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	310	1410	140	530	1410
Future Volume (vph)	310	1410	140	530	1410
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.94	1.58	0.13	1.84	0.99
Control Delay	445.7	289.5	2.8	415.9	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	445.7	289.5	2.8	415.9	44.5
LOS	F	F	A	F	D
Approach Delay	445.7	263.7			145.9
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.94	
Intersection Signal Delay: 269.8	Intersection LOS: F
Intersection Capacity Utilization 156.2%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	310	1110	1410	140	530	1410
Future Volume (veh/h)	310	1110	1410	140	530	1410
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	1900	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	1207	1533	152	576	1533
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2	2	2	2
Cap, veh/h	0	0	1818	586	587	2893
Arrive On Green	0.00	0.00	0.51	0.51	0.17	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1533	152	576	1533
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	15.9	2.9	7.1	6.1
Cycle Q Clear(g_c), s	0.0	0.0	15.9	2.9	7.1	6.1
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1818	586	587	2893
V/C Ratio(X)	0.00	0.00	0.84	0.26	0.98	0.53
Avail Cap(c_a), veh/h	0	0	1818	586	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.0	9.4	17.8	1.3
Incr Delay (d2), s/veh	0.0	0.0	5.0	1.1	32.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.2	0.7	5.1	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	14.0	10.5	50.2	2.0
LnGrp LOS	A	A	B	B	D	A
Approach Vol, veh/h	0		1685			2109
Approach Delay, s/veh	0.0		13.7			15.2
Approach LOS			B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	30.0			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	9.1	17.9			8.1	0.0
Green Ext Time (p_c), s	0.0	3.3			14.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2510	100	30	1880	30	20
Future Volume (vph)	2510	100	30	1880	30	20
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.0	38.3	14.7	121.7	38.3	14.7
Total Split (%)	66.9%	23.9%	9.2%	76.1%	23.9%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	101.9	143.4	9.0	113.7	32.2	47.3
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.30
v/c Ratio	1.21	0.08	0.33	0.81	0.09	0.05
Control Delay	127.2	0.4	82.0	13.0	53.0	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	127.2	0.4	82.0	13.0	53.0	38.0
LOS	F	A	F	B	D	D
Approach Delay	122.4			14.1	47.0	
Approach LOS	F			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 76.3	Intersection LOS: E
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2510	100	30	1880	30	20
Future Volume (veh/h)	2510	100	30	1880	30	20
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	2728	109	33	2043	33	22
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	2245	1320	77	2525	358	388
Arrive On Green	0.63	0.63	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2728	109	33	2043	33	22
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	101.1	2.0	2.9	62.6	2.4	1.7
Cycle Q Clear(g_c), s	101.1	2.0	2.9	62.6	2.4	1.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2245	1320	77	2525	358	388
V/C Ratio(X)	1.22	0.08	0.43	0.81	0.09	0.06
Avail Cap(c_a), veh/h	2245	1320	100	2525	358	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.65	0.65	1.00	1.00
Uniform Delay (d), s/veh	29.5	2.4	74.6	15.8	52.0	46.3
Incr Delay (d2), s/veh	101.2	0.1	2.4	1.9	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	72.7	1.6	1.4	24.7	1.1	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	130.6	2.5	77.0	17.7	52.5	46.6
LnGrp LOS	F	A	E	B	D	D
Approach Vol, veh/h	2837			2076	55	
Approach Delay, s/veh	125.7			18.6	50.1	
Approach LOS	F			B	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.6	109.1			121.7	38.3
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.0			113.7	32.2
Max Q Clear Time (g_c+I1), s	4.9	103.1			64.6	4.4
Green Ext Time (p_c), s	0.0	0.0			30.2	0.1

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.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2440	60	180	1890	10	120
Future Volume (vph)	2440	60	180	1890	10	120
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.9	39.1	20.0	120.9	39.1	20.0
Total Split (%)	63.1%	24.4%	12.5%	75.6%	24.4%	12.5%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	98.8	120.6	27.6	132.1	13.8	47.5
Actuated g/C Ratio	0.62	0.75	0.17	0.83	0.09	0.30
v/c Ratio	1.21	0.05	0.64	0.70	0.04	0.28
Control Delay	137.1	3.2	39.1	29.6	61.8	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	137.1	3.2	39.1	29.6	61.8	44.3
LOS	F	A	D	C	E	D
Approach Delay	133.9			30.5	45.7	
Approach LOS	F			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.21	
Intersection Signal Delay: 85.9	Intersection LOS: F
Intersection Capacity Utilization 101.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2440	60	180	1890	10	120
Future Volume (veh/h)	2440	60	180	1890	10	120
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	2652	65	196	2054	11	130
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	2482	1247	159	2927	305	282
Arrive On Green	0.70	0.70	0.09	0.82	0.09	0.09
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2652	65	196	2054	11	130
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	111.8	1.5	14.3	38.7	0.5	11.8
Cycle Q Clear(g_c), s	111.8	1.5	14.3	38.7	0.5	11.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2482	1247	159	2927	305	282
V/C Ratio(X)	1.07	0.05	1.23	0.70	0.04	0.46
Avail Cap(c_a), veh/h	2482	1247	159	2927	713	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	24.1	3.8	72.8	5.9	66.7	58.9
Incr Delay (d2), s/veh	31.7	0.0	109.2	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	54.3	0.7	11.4	12.1	0.2	4.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	55.9	3.8	182.0	6.0	66.7	60.1
LnGrp LOS	F	A	F	A	E	E
Approach Vol, veh/h	2717			2250	141	
Approach Delay, s/veh	54.6			21.4	60.6	
Approach LOS	D			C	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	119.8			139.8	20.2
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 14	92.9			112.9	33.0
Max Q Clear Time (g_c+I1), s	16.3	113.8			40.7	13.8
Green Ext Time (p_c), s	0.0	0.0			37.5	0.4

Intersection Summary	
HCM 6th Ctrl Delay	40.1
HCM 6th LOS	D

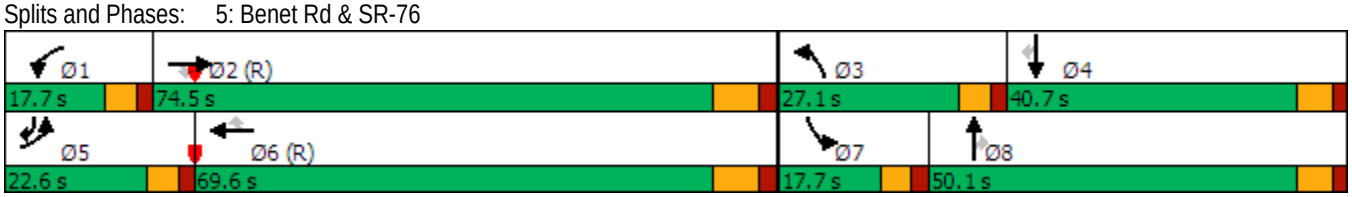
Notes

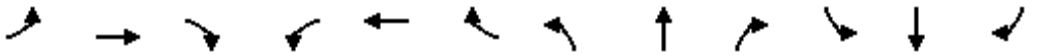
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	2290	120	50	1750	20	170	30	120	20	10	160
Future Volume (vph)	240	2290	120	50	1750	20	170	30	120	20	10	160
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	35.4	90.5	90.5	12.0	63.6	63.6	19.8	30.6	30.6	12.0	15.7	57.2
Actuated g/C Ratio	0.22	0.57	0.57	0.08	0.40	0.40	0.12	0.19	0.19	0.08	0.10	0.36
v/c Ratio	0.67	1.24	0.14	0.41	1.35	0.03	0.85	0.09	0.32	0.17	0.06	0.27
Control Delay	42.0	155.2	11.2	72.8	195.0	0.1	99.4	53.6	9.4	72.6	60.9	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.0	155.2	11.2	72.8	195.0	0.1	99.4	53.6	9.4	72.6	60.9	14.9
LOS	D	F	B	E	F	A	F	D	A	E	E	B
Approach Delay		138.5			189.5			61.4			23.5	
Approach LOS		F			F			E			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.35	
Intersection Signal Delay: 147.8	Intersection LOS: F
Intersection Capacity Utilization 105.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	2290	120	50	1750	20	170	30	120	20	10	160
Future Volume (veh/h)	240	2290	120	50	1750	20	170	30	120	20	10	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	261	2489	130	54	1902	22	185	33	130	22	11	174
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1934	863	121	1801	804	206	339	287	83	210	345
Arrive On Green	0.11	0.54	0.54	0.07	0.51	0.51	0.12	0.18	0.18	0.05	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	261	2489	130	54	1902	22	185	33	130	22	11	174
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	87.1	6.5	4.7	81.1	1.1	16.4	2.4	11.7	1.9	0.8	15.4
Cycle Q Clear(g_c), s	16.9	87.1	6.5	4.7	81.1	1.1	16.4	2.4	11.7	1.9	0.8	15.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1934	863	121	1801	804	206	339	287	83	210	345
V/C Ratio(X)	1.39	1.29	0.15	0.44	1.06	0.03	0.90	0.10	0.45	0.26	0.05	0.50
Avail Cap(c_a), veh/h	188	1934	863	134	1801	804	238	514	436	134	404	510
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)	0.09	0.09	0.09	0.44	0.44	0.44	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	36.5	18.1	71.6	39.4	19.7	69.8	54.6	58.4	73.6	63.4	55.0
Incr Delay (d2), s/veh	177.3	129.4	0.0	1.1	31.7	0.0	29.9	0.1	1.1	1.7	0.1	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	17.0	71.6	2.5	2.2	42.7	0.4	9.2	1.1	4.8	0.9	0.4	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	248.8	165.8	18.1	72.8	71.1	19.8	99.7	54.7	59.5	75.3	63.5	56.1
LnGrp LOS	F	F	B	E	F	B	F	D	E	E	E	E
Approach Vol, veh/h		2880			1978			348			207	
Approach Delay, s/veh		166.7			70.6			80.4			58.5	
Approach LOS		F			E			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	95.1	24.2	24.1	22.6	89.1	13.2	35.1
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.7	89.1	18.4	17.4	18.9	83.1	3.9	13.7
Green Ext Time (p_c), s	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	121.9
HCM 6th LOS	F

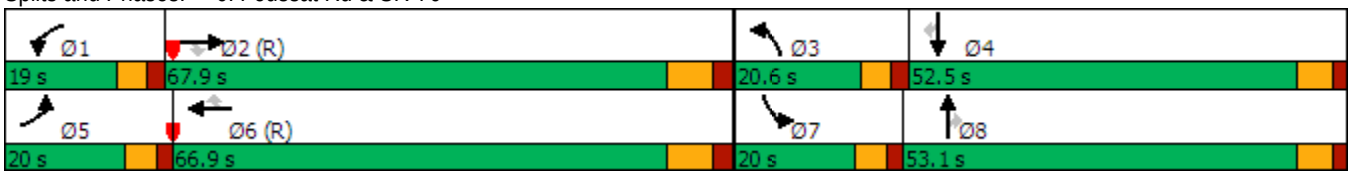
Notes

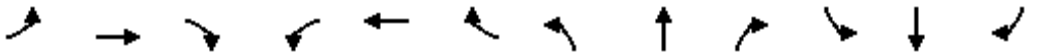
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2300	170	130	1650	140	100	170	180	70	90	30
Future Volume (vph)	40	2300	170	130	1650	140	100	170	180	70	90	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	89.0	89.0	12.9	92.6	92.6	13.1	19.6	19.6	13.0	19.5	19.5
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.15	1.27	0.20	0.51	0.88	0.16	0.39	0.30	0.54	0.27	0.23	0.08
Control Delay	53.2	155.6	21.3	77.1	35.5	6.0	74.1	63.3	11.8	71.8	62.0	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	0.0
Total Delay	53.2	155.6	21.3	77.1	35.5	6.0	74.1	63.3	11.8	71.8	62.0	0.3
LOS	D	F	C	E	D	A	E	E	B	E	E	A
Approach Delay		144.9			36.1			45.1			55.8	
Approach LOS		F			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 91.5	Intersection LOS: F
Intersection Capacity Utilization 102.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2300	170	130	1650	140	100	170	180	70	90	30
Future Volume (veh/h)	40	2300	170	130	1650	140	100	170	180	70	90	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	2500	185	141	1793	152	109	185	196	76	98	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	1927	860	259	1947	869	279	740	230	271	508	398
Arrive On Green	0.07	0.54	0.54	0.07	0.55	0.55	0.08	0.14	0.14	0.08	0.14	0.14
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	43	2500	185	141	1793	152	109	185	196	76	98	33
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.9	86.8	9.7	6.3	73.7	7.7	4.8	5.1	19.3	3.3	3.9	1.6
Cycle Q Clear(g_c), s	1.9	86.8	9.7	6.3	73.7	7.7	4.8	5.1	19.3	3.3	3.9	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	1927	860	259	1947	869	279	740	230	271	508	398
V/C Ratio(X)	0.18	1.30	0.22	0.55	0.92	0.18	0.39	0.25	0.85	0.28	0.19	0.08
Avail Cap(c_a), veh/h	309	1927	860	287	1947	869	322	1500	466	309	1031	809
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.2	36.6	19.0	71.4	33.0	18.1	69.8	60.7	66.7	69.5	60.4	59.5
Incr Delay (d2), s/veh	0.0	134.1	0.1	1.8	8.6	0.4	0.9	0.2	8.7	0.6	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	72.7	3.7	2.9	33.5	3.0	2.2	2.3	8.4	1.5	1.8	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.2	170.7	19.0	73.2	41.6	18.5	70.7	60.9	75.4	70.0	60.6	59.6
LnGrp LOS	E	F	B	E	D	B	E	E	E	E	E	E
Approach Vol, veh/h		2728			2086			490			207	
Approach Delay, s/veh		158.8			42.1			68.9			63.9	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	94.8	18.6	29.0	16.8	95.7	18.3	29.3
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	8.3	88.8	6.8	5.9	3.9	75.7	5.3	21.3
Green Ext Time (p_c), s	0.2	0.0	0.2	0.8	0.0	0.0	0.1	1.9

Intersection Summary	
HCM 6th Ctrl Delay	103.1
HCM 6th LOS	F

Notes

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

Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	10	200	10	10	120
Future Vol, veh/h	20	10	200	10	10	120
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	11	217	11	11	130

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	297	223	0	0	228	0
Stage 1	223	-	-	-	-	-
Stage 2	74	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	689	816	-	-	1339	-
Stage 1	784	-	-	-	-	-
Stage 2	900	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	683	816	-	-	1339	-
Mov Cap-2 Maneuver	683	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	892	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	722	1339	-
HCM Lane V/C Ratio	-	-	0.045	0.008	-
HCM Control Delay (s)	-	-	10.2	7.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	220	0	0	130
Future Vol, veh/h	0	0	220	0	0	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	239	0	0	141

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	380	239	0	0	239	0
Stage 1	239	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	622	800	-	-	1328	-
Stage 1	801	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	622	800	-	-	1328	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	886	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1328	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	70	245	777	402
Demand Flow Rate, veh/h	71	249	793	410
Vehicles Circulating, veh/h	582	565	111	232
Vehicles Exiting, veh/h	60	339	542	582
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.8	8.5	11.4	7.3
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	71	249	793	410
Cap Entry Lane, veh/h	762	775	1232	1089
Entry HV Adj Factor	0.981	0.983	0.980	0.980
Flow Entry, veh/h	70	245	777	402
Cap Entry, veh/h	748	762	1207	1067
V/C Ratio	0.093	0.321	0.644	0.376
Control Delay, s/veh	5.8	8.5	11.4	7.3
LOS	A	A	B	A
95th %tile Queue, veh	0	1	5	2

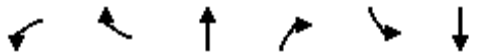
Appendix N

Horizon Year 2030 + Project Intersection LOS Worksheets

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	370	290	1432	590
Future Volume (vph)	0	370	290	1432	590
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		31.0	31.0	49.0	80.0
Total Split (%)		38.8%	38.8%	61.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	25.7	25.7	41.8	0.0
Actuated g/C Ratio	0.00	0.32	0.32	0.52	0.00
v/c Ratio	no cap	0.35	0.60	0.87	no cap
Control Delay		22.4	27.5	23.0	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	22.4	27.5	23.0	Error
LOS	F	C	C	C	F
Approach Delay	Err	24.6			Err
Approach LOS	F	C			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 44.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	440	370	290	1432	590
Future Volume (veh/h)	0	440	370	290	1432	590
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			402	315	1557	641
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			936	418	1837	0
Arrive On Green			0.26	0.26	0.53	0.89
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			402	315	1557	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			5.7	11.1	23.4	0.0
Cycle Q Clear(g_c), s			5.7	11.1	23.4	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			936	418	1837	0
V/C Ratio(X)			0.43	0.75	0.85	0.00
Avail Cap(c_a), veh/h			1411	629	2455	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			18.6	20.6	12.2	0.0
Incr Delay (d2), s/veh			0.3	2.8	2.3	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			2.2	4.1	7.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			19.0	23.4	14.4	0.0
LnGrp LOS			B	C	B	A
Approach Vol, veh/h			717			1557
Approach Delay, s/veh			20.9			14.4
Approach LOS			C			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	38.1	22.9				61.0
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 43	24.2				* 76
Max Q Clear Time (g_c+I1), s	25.4	13.1				0.0
Green Ext Time (p_c), s	7.0	2.9				0.0

Intersection Summary	
HCM 6th Ctrl Delay	16.5
HCM 6th LOS	B

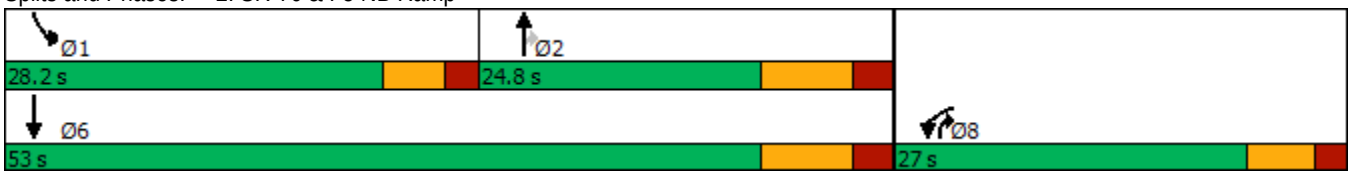
Notes

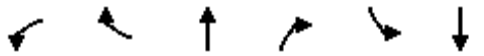
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	110	756	120	1192	1862
Future Volume (vph)	110	756	120	1192	1862
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	27.0	24.8	27.0	28.2	53.0
Total Split (%)	33.8%	31.0%	33.8%	35.3%	66.3%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	20.9	16.8	45.7	22.5	45.0
Actuated g/C Ratio	0.26	0.21	0.57	0.28	0.56
v/c Ratio	1.33	1.11	0.14	1.34	1.02
Control Delay	175.6	98.0	8.4	188.7	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	175.6	98.0	8.4	188.7	43.7
LOS	F	F	A	F	D
Approach Delay	175.6	85.8			100.3
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.34	
Intersection Signal Delay: 112.1	Intersection LOS: F
Intersection Capacity Utilization 128.1%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	110	820	756	120	1192	1862
Future Volume (veh/h)	110	820	756	120	1192	1862
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	120	891	822	130	1296	2024
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	0	0	1174	341	1421	3017
Arrive On Green	0.00	0.00	0.33	0.33	0.41	0.85
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	822	130	1296	2024
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	10.7	3.7	18.7	10.6
Cycle Q Clear(g_c), s	0.0	0.0	10.7	3.7	18.7	10.6
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1174	341	1421	3017
V/C Ratio(X)	0.00	0.00	0.70	0.38	0.91	0.67
Avail Cap(c_a), veh/h	0	0	1174	341	1467	3017
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	15.5	17.8	14.7	1.4
Incr Delay (d2), s/veh	0.0	0.0	3.5	3.2	8.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	4.3	1.3	7.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	19.0	21.0	23.5	2.6
LnGrp LOS	A	A	B	C	C	A
Approach Vol, veh/h	0		952			3320
Approach Delay, s/veh	0.0		19.2			10.8
Approach LOS			B			B

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	27.5	25.5			53.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 23	16.8			45.0	20.9
Max Q Clear Time (g_c+I1), s	20.7	12.7			12.6	0.0
Green Ext Time (p_c), s	1.1	2.2			22.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1552	30	20	3014	60	30
Future Volume (vph)	1552	30	20	3014	60	30
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.0	38.1	14.7	121.9	38.1	14.7
Total Split (%)	66.9%	23.8%	9.2%	76.2%	23.8%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	102.1	143.4	9.0	113.9	32.0	47.1
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.29
v/c Ratio	0.78	0.02	0.22	1.30	0.18	0.07
Control Delay	24.9	0.4	63.6	161.4	54.8	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	0.4	63.6	161.4	54.8	20.3
LOS	C	A	E	F	D	C
Approach Delay	24.5			160.7	43.2	
Approach LOS	C			F	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.30	
Intersection Signal Delay: 111.2	Intersection LOS: F
Intersection Capacity Utilization 103.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1552	30	20	3014	60	30
Future Volume (veh/h)	1552	30	20	3014	60	30
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	1771	33	22	3276	65	33
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	2278	1333	63	2530	356	373
Arrive On Green	0.64	0.64	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	1771	33	22	3276	65	33
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	57.0	0.5	1.9	113.9	4.8	2.6
Cycle Q Clear(g_c), s	57.0	0.5	1.9	113.9	4.8	2.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2278	1333	63	2530	356	373
V/C Ratio(X)	0.78	0.02	0.35	1.29	0.18	0.09
Avail Cap(c_a), veh/h	2278	1333	100	2530	356	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	20.5	2.1	75.4	23.0	53.1	47.8
Incr Delay (d2), s/veh	2.7	0.0	0.3	133.0	1.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.0	0.4	0.9	90.3	2.3	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.2	2.1	75.7	156.1	54.3	48.3
LnGrp LOS	C	A	E	F	D	D
Approach Vol, veh/h	1804			3298	98	
Approach Delay, s/veh	22.8			155.5	52.2	
Approach LOS	C			F	D	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	11.3	110.6				121.9	38.1
Change Period (Y+Rc), s	* 5.7	8.0				8.0	6.1
Max Green Setting (Gmax), s	* 9	99.0				113.9	32.0
Max Q Clear Time (g_c+I1), s	3.9	59.0				115.9	6.8
Green Ext Time (p_c), s	0.0	18.0				0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	107.6
HCM 6th LOS	F

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1592	20	100	3034	30	100
Future Volume (vph)	1592	20	100	3034	30	100
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.5	39.1	20.4	120.9	39.1	20.4
Total Split (%)	62.8%	24.4%	12.8%	75.6%	24.4%	12.8%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	112.3	134.1	14.1	132.1	13.8	34.0
Actuated g/C Ratio	0.70	0.84	0.09	0.83	0.09	0.21
v/c Ratio	0.70	0.02	0.70	1.13	0.11	0.31
Control Delay	32.0	2.7	54.7	94.8	64.4	44.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	2.7	54.7	94.8	64.4	44.1
LOS	C	A	D	F	E	D
Approach Delay	31.6			93.5	48.8	
Approach LOS	C			F	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20.4 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 71.9	Intersection LOS: E
Intersection Capacity Utilization 103.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1592	20	100	3034	30	100
Future Volume (veh/h)	1592	20	100	3034	30	100
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	1730	22	109	3298	33	109
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	2579	1274	130	2964	269	239
Arrive On Green	0.73	0.73	0.07	0.83	0.08	0.08
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	1730	22	109	3298	33	109
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	41.6	0.4	9.7	133.5	1.4	10.0
Cycle Q Clear(g_c), s	41.6	0.4	9.7	133.5	1.4	10.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2579	1274	130	2964	269	239
V/C Ratio(X)	0.67	0.02	0.84	1.11	0.12	0.46
Avail Cap(c_a), veh/h	2579	1274	164	2964	713	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	11.7	3.1	73.3	13.3	68.7	62.0
Incr Delay (d2), s/veh	0.8	0.0	3.0	51.2	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.9	0.2	4.6	61.3	0.6	4.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.5	3.1	76.3	64.5	68.9	63.4
LnGrp LOS	B	A	E	F	E	E
Approach Vol, veh/h	1752			3407	142	
Approach Delay, s/veh	12.4			64.8	64.7	
Approach LOS	B			E	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	17.3	124.1			141.5	18.5
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 15	92.5			112.9	33.0
Max Q Clear Time (g_c+I1), s	11.7	43.6			135.5	12.0
Green Ext Time (p_c), s	0.1	23.1			0.0	0.4

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

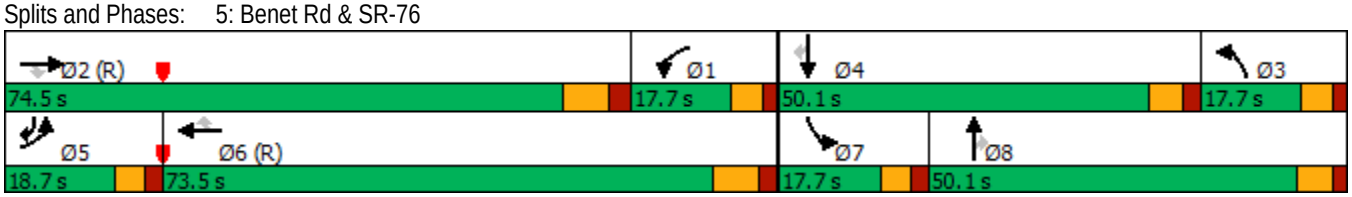
Notes

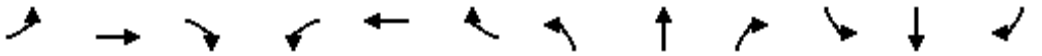
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	1370	170	40	2700	12	70	16	60	11	22	354
Future Volume (vph)	202	1370	170	40	2700	12	70	16	60	11	22	354
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	18.7	74.5	74.5	17.7	73.5	73.5	17.7	50.1	50.1	17.7	50.1	18.7
Total Split (%)	11.7%	46.6%	46.6%	11.1%	45.9%	45.9%	11.1%	31.3%	31.3%	11.1%	31.3%	11.7%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	32.2	96.0	96.0	12.0	72.2	72.2	19.1	28.7	28.7	12.0	11.0	43.6
Actuated g/C Ratio	0.20	0.60	0.60	0.08	0.45	0.45	0.12	0.18	0.18	0.08	0.07	0.27
v/c Ratio	0.62	0.70	0.18	0.33	1.84	0.02	0.36	0.05	0.15	0.09	0.19	0.73
Control Delay	56.6	28.0	6.3	75.0	405.0	0.0	66.6	53.6	0.8	70.7	74.0	36.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	28.0	6.3	75.0	405.0	0.0	66.6	53.6	0.8	70.7	74.0	36.1
LOS	E	C	A	E	F	A	E	D	A	E	E	D
Approach Delay		29.2			398.5			38.1			39.2	
Approach LOS		C			F			D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.84	
Intersection Signal Delay: 232.4	Intersection LOS: F
Intersection Capacity Utilization 122.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1370	170	40	2700	12	70	16	60	11	22	354
Future Volume (veh/h)	202	1370	170	40	2700	12	70	16	60	11	22	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	1489	185	43	2935	13	76	17	65	12	24	385
Peak Hour Factor	0.92	0.92	0.92	0.92	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	145	1477	659	239	1716	766	129	459	389	55	377	448
Arrive On Green	0.08	0.83	0.42	0.13	0.97	0.48	0.07	0.25	0.25	0.03	0.20	0.34
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	220	1489	185	43	2935	13	76	17	65	12	24	385
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.0	66.5	12.4	3.4	77.3	0.7	6.6	1.1	3.6	1.1	1.7	29.0
Cycle Q Clear(g_c), s	13.0	66.5	12.4	3.4	77.3	0.7	6.6	1.1	3.6	1.1	1.7	29.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	145	1477	659	239	1716	766	129	459	389	55	377	448
V/C Ratio(X)	1.52	1.01	0.28	0.18	1.71	0.02	0.59	0.04	0.17	0.22	0.06	0.86
Avail Cap(c_a), veh/h	145	1477	659	239	1716	766	134	514	436	134	514	565
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
Upstream Filter(I)	0.68	0.68	0.68	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.5	13.5	30.9	61.4	2.7	21.6	71.9	46.0	23.6	75.6	51.7	26.3
Incr Delay (d2), s/veh	256.6	21.3	0.7	0.0	319.7	0.0	6.3	0.0	0.2	1.9	0.1	10.5
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	16.3	11.9	5.0	1.6	77.4	0.3	3.3	0.5	2.1	0.5	0.8	10.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	330.1	34.8	31.7	61.5	322.4	21.6	78.2	46.0	23.8	77.6	51.8	36.9
LnGrp LOS	F	F	C	E	F	C	E	D	C	E	D	D
Approach Vol, veh/h		1894			2991			158			421	
Approach Delay, s/veh		68.8			317.4			52.4			38.9	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.5	74.5	17.7	38.3	18.7	85.3	10.7	45.4
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.0	* 67	12.0	* 44	* 13	65.5	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.4	68.5	8.6	31.0	15.0	79.3	3.1	5.6
Green Ext Time (p_c), s	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	202.1
HCM 6th LOS	F

Notes

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

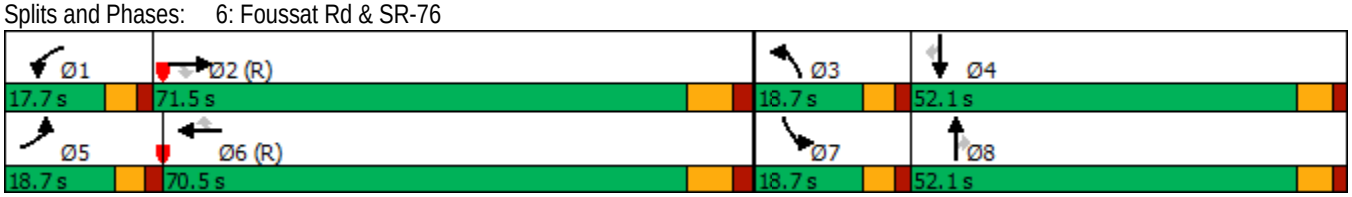
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

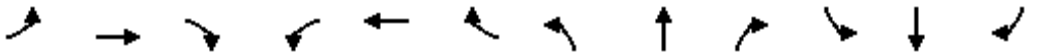
LOS Engineering, Inc.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1301	70	190	2512	123	160	76	110	212	112	60
Future Volume (vph)	40	1301	70	190	2512	123	160	76	110	212	112	60
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	48.0	48.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (s)	18.7	71.5	71.5	17.7	70.5	70.5	18.7	52.1	52.1	18.7	52.1	52.1
Total Split (%)	11.7%	44.7%	44.7%	11.1%	44.1%	44.1%	11.7%	32.6%	32.6%	11.7%	32.6%	32.6%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	87.9	87.9	14.0	92.6	92.6	13.0	19.6	19.6	13.0	19.6	19.6
Actuated g/C Ratio	0.08	0.55	0.55	0.09	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.15	0.73	0.08	0.69	1.33	0.14	0.63	0.13	0.40	0.83	0.28	0.15
Control Delay	82.1	19.3	4.9	82.7	182.4	7.4	81.7	60.1	11.8	95.7	63.1	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	0.0
Total Delay	82.1	19.3	4.9	82.7	182.4	7.4	81.7	60.1	11.8	95.7	63.1	1.0
LOS	F	B	A	F	F	A	F	E	B	F	E	A
Approach Delay		20.3			168.0			54.7			71.4	
Approach LOS		C			F			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.33	
Intersection Signal Delay: 110.7	Intersection LOS: F
Intersection Capacity Utilization 107.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1301	70	190	2512	123	160	76	110	212	112	60
Future Volume (veh/h)	40	1301	70	190	2512	123	160	76	110	212	112	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	43	1414	76	207	2730	134	174	83	120	230	122	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	239	2103	938	259	2123	947	281	473	147	281	329	259
Arrive On Green	0.07	0.59	0.59	0.07	0.60	0.60	0.08	0.09	0.09	0.08	0.09	0.09
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	43	1414	76	207	2730	134	174	83	120	230	122	65
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.9	43.2	3.3	9.4	95.6	5.9	7.8	2.4	11.9	10.5	5.2	3.5
Cycle Q Clear(g_c), s	1.9	43.2	3.3	9.4	95.6	5.9	7.8	2.4	11.9	10.5	5.2	3.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	2103	938	259	2123	947	281	473	147	281	329	259
V/C Ratio(X)	0.18	0.67	0.08	0.80	1.29	0.14	0.62	0.18	0.82	0.82	0.37	0.25
Avail Cap(c_a), veh/h	281	2103	938	259	2123	947	281	1468	456	281	1022	802
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)	0.68	0.68	0.68	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.2	22.1	14.0	72.8	32.2	14.2	71.1	67.0	71.3	72.3	68.2	67.4
Incr Delay (d2), s/veh	0.2	1.2	0.1	16.0	132.3	0.3	4.1	0.2	10.5	17.2	0.7	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	0.8	18.3	1.2	4.8	78.6	2.3	3.6	1.1	5.3	5.3	2.4	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.4	23.3	14.1	88.8	164.5	14.5	75.2	67.1	81.8	89.5	68.9	67.9
LnGrp LOS	E	C	B	F	F	B	E	E	F	F	E	E
Approach Vol, veh/h		1533			3071			377			417	
Approach Delay, s/veh		24.2			152.8			75.5			80.1	
Approach LOS		C			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	102.7	18.7	20.9	16.8	103.6	18.7	20.9
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	63.5	* 13	46.0	* 13	62.5	* 13	46.0
Max Q Clear Time (g_c+I1), s	11.4	45.2	9.8	7.2	3.9	97.6	12.5	13.9
Green Ext Time (p_c), s	0.0	10.6	0.2	1.1	0.0	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	105.3
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.

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	30	20	160	20	10	308
Future Vol, veh/h	30	20	160	20	10	308
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	22	174	22	11	335

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	341	185	0	0	196	0
Stage 1	185	-	-	-	-	-
Stage 2	156	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	653	857	-	-	1376	-
Stage 1	814	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	646	857	-	-	1376	-
Mov Cap-2 Maneuver	646	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	809	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.4	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	717	1376	-
HCM Lane V/C Ratio	-	-	0.076	0.008	-
HCM Control Delay (s)	-	-	10.4	7.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	0	110	80	0	270
Future Vol, veh/h	28	0	110	80	0	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
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	30	0	120	87	0	293

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	413	120	0	0	207	0
Stage 1	120	-	-	-	-	-
Stage 2	293	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	595	931	-	-	1364	-
Stage 1	905	-	-	-	-	-
Stage 2	757	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	595	931	-	-	1364	-
Mov Cap-2 Maneuver	595	-	-	-	-	-
Stage 1	905	-	-	-	-	-
Stage 2	757	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	595	1364	-
HCM Lane V/C Ratio	-	-	0.051	-	-
HCM Control Delay (s)	-	-	11.4	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

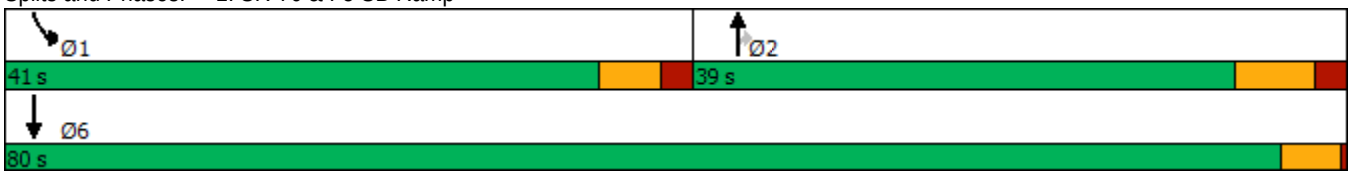
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	68	196	537	647
Demand Flow Rate, veh/h	69	200	547	660
Vehicles Circulating, veh/h	788	453	55	215
Vehicles Exiting, veh/h	87	149	802	438
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.2	6.6	6.9	11.0
Approach LOS	A	A	A	B

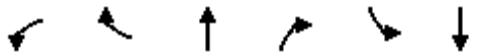
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	69	200	547	660
Cap Entry Lane, veh/h	618	869	1305	1108
Entry HV Adj Factor	0.984	0.979	0.981	0.980
Flow Entry, veh/h	68	196	537	647
Cap Entry, veh/h	608	851	1280	1086
V/C Ratio	0.112	0.230	0.419	0.596
Control Delay, s/veh	7.2	6.6	6.9	11.0
LOS	A	A	A	B
95th %tile Queue, veh	0	1	2	4

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	0	620	320	936	910
Future Volume (vph)	0	620	320	936	910
Turn Type		NA	Perm	Prot	NA
Protected Phases		2		1	6
Permitted Phases			2		
Detector Phase		2	2	1	6
Switch Phase					
Minimum Initial (s)		5.0	5.0	5.0	4.0
Minimum Split (s)		22.8	22.8	10.7	20.0
Total Split (s)		39.0	39.0	41.0	80.0
Total Split (%)		48.8%	48.8%	51.3%	100.0%
Yellow Time (s)		4.8	4.8	3.7	3.5
All-Red Time (s)		2.0	2.0	2.0	0.5
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		6.8	6.8	5.7	
Lead/Lag		Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	
Recall Mode		Min	Min	None	Min
Act Effct Green (s)	0.0	37.4	37.4	30.1	0.0
Actuated g/C Ratio	0.00	0.47	0.47	0.38	0.00
v/c Ratio	no cap	0.41	0.45	0.79	no cap
Control Delay		15.8	15.7	26.7	
Queue Delay		0.0	0.0	0.0	
Total Delay	Error	15.8	15.7	26.7	Error
LOS	F	B	B	C	F
Approach Delay	Err	15.7			Err
Approach LOS	F	B			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: Err	
Intersection Signal Delay: Err	Intersection LOS: F
Intersection Capacity Utilization 46.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 1: SR-76 & I-5 SB Ramp





Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	920	620	320	936	910
Future Volume (veh/h)	0	920	620	320	936	910
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1870	1870	1870	1870
Adj Flow Rate, veh/h			674	348	1017	989
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			1252	558	1333	0
Arrive On Green			0.35	0.35	0.39	0.86
Sat Flow, veh/h			3647	1585	3456	0
Grp Volume(v), veh/h			674	348	1017	0
Grp Sat Flow(s),veh/h/ln			1777	1585	1728	0
Q Serve(g_s), s			7.2	8.7	12.2	0.0
Cycle Q Clear(g_c), s			7.2	8.7	12.2	0.0
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			1252	558	1333	0
V/C Ratio(X)			0.54	0.62	0.76	0.00
Avail Cap(c_a), veh/h			2396	1069	2555	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			12.4	12.8	12.8	0.0
Incr Delay (d2), s/veh			0.4	1.1	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			2.4	2.7	4.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			12.7	14.0	13.7	0.0
LnGrp LOS			B	B	B	A
Approach Vol, veh/h			1022			1017
Approach Delay, s/veh			13.1			13.7
Approach LOS			B			B

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	24.1	23.6				47.7
Change Period (Y+Rc), s	* 5.7	6.8				* 6.8
Max Green Setting (Gmax), s	* 35	32.2				* 76
Max Q Clear Time (g_c+I1), s	14.2	10.7				0.0
Green Ext Time (p_c), s	4.2	6.1				0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

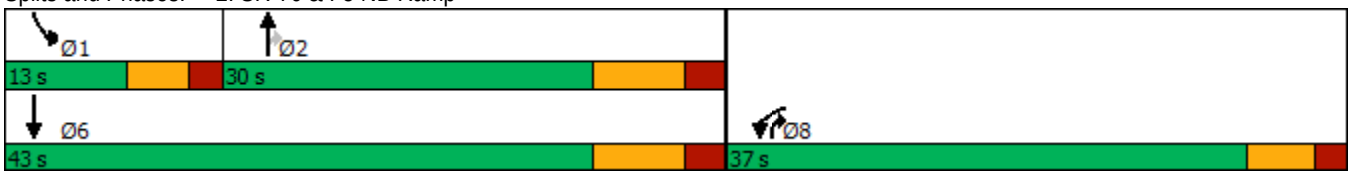
Notes

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

Lane Group	WBL	NBT	NBR	SBL	SBT
Lane Configurations					
Traffic Volume (vph)	310	1426	140	566	1446
Future Volume (vph)	310	1426	140	566	1446
Turn Type	Prot	NA	pm+ov	Prot	NA
Protected Phases	8	2	8	1	6
Permitted Phases			2		
Detector Phase	8	2	8	1	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.1	24.0	22.1	10.7	24.0
Total Split (s)	37.0	30.0	37.0	13.0	43.0
Total Split (%)	46.3%	37.5%	46.3%	16.3%	53.8%
Yellow Time (s)	4.1	5.5	4.1	3.7	5.5
All-Red Time (s)	2.0	2.5	2.0	2.0	2.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.1	8.0	6.1	5.7	8.0
Lead/Lag		Lag		Lead	
Lead-Lag Optimize?		Yes		Yes	
Recall Mode	None	Max	None	None	Max
Act Effct Green (s)	30.9	22.0	60.9	7.3	35.0
Actuated g/C Ratio	0.39	0.28	0.76	0.09	0.44
v/c Ratio	1.94	1.59	0.13	1.96	1.02
Control Delay	445.7	297.2	2.8	470.0	50.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	445.7	297.2	2.8	470.0	50.8
LOS	F	F	A	F	D
Approach Delay	445.7	270.9			168.7
Approach LOS	F	F			F

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 80	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.96	
Intersection Signal Delay: 279.4	Intersection LOS: F
Intersection Capacity Utilization 157.7%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 2: SR-76 & I-5 NB Ramp



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	310	1110	1426	140	566	1446
Future Volume (veh/h)	310	1110	1426	140	566	1446
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	337	1207	1550	152	615	1572
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	0	0	1818	586	587	2893
Arrive On Green	0.00	0.00	0.51	0.51	0.17	0.81
Sat Flow, veh/h	0	0	3647	1585	3456	3647
Grp Volume(v), veh/h	0	0	1550	152	615	1572
Grp Sat Flow(s),veh/h/ln	0	0	1777	1585	1728	1777
Q Serve(g_s), s	0.0	0.0	16.2	2.9	7.3	6.3
Cycle Q Clear(g_c), s	0.0	0.0	16.2	2.9	7.3	6.3
Prop In Lane	0.00	0.00		1.00	1.00	
Lane Grp Cap(c), veh/h	0	0	1818	586	587	2893
V/C Ratio(X)	0.00	0.00	0.85	0.26	1.05	0.54
Avail Cap(c_a), veh/h	0	0	1818	586	587	2893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.1	9.4	17.9	1.3
Incr Delay (d2), s/veh	0.0	0.0	5.3	1.1	50.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	5.4	0.7	6.6	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	0.0	14.4	10.5	68.3	2.1
LnGrp LOS	A	A	B	B	F	A
Approach Vol, veh/h	0		1702			2187
Approach Delay, s/veh	0.0		14.0			20.7
Approach LOS			B			C

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	30.0			43.0	0.0
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 7.3	22.0			35.0	30.9
Max Q Clear Time (g_c+I1), s	9.3	18.2			8.3	0.0
Green Ext Time (p_c), s	0.0	3.1			14.7	0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2543	100	30	1952	30	20
Future Volume (vph)	2543	100	30	1952	30	20
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	10.0	9.0	25.0	10.0	9.0
Minimum Split (s)	33.0	38.1	14.7	33.0	38.1	14.7
Total Split (s)	107.0	38.3	14.7	121.7	38.3	14.7
Total Split (%)	66.9%	23.9%	9.2%	76.1%	23.9%	9.2%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Max	None	C-Max	Max	None
Act Effct Green (s)	101.9	143.4	9.0	113.7	32.2	47.3
Actuated g/C Ratio	0.64	0.90	0.06	0.71	0.20	0.30
v/c Ratio	1.23	0.17	0.33	0.84	0.09	0.05
Control Delay	134.1	0.5	77.7	15.9	53.0	38.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.1	0.5	77.7	15.9	53.0	38.0
LOS	F	A	E	B	D	D
Approach Delay	123.5			16.8	47.0	
Approach LOS	F			B	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 14.7 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 78.6	Intersection LOS: E
Intersection Capacity Utilization 90.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: Loretta St & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2543	100	30	1952	30	20
Future Volume (veh/h)	2543	100	30	1952	30	20
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	2764	239	33	2122	33	22
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	2245	1320	77	2525	358	388
Arrive On Green	0.63	0.63	0.04	0.71	0.20	0.20
Sat Flow, veh/h	3647	1585	1781	3647	1781	1585
Grp Volume(v), veh/h	2764	239	33	2122	33	22
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1781	1585
Q Serve(g_s), s	101.1	4.7	2.9	68.6	2.4	1.7
Cycle Q Clear(g_c), s	101.1	4.7	2.9	68.6	2.4	1.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2245	1320	77	2525	358	388
V/C Ratio(X)	1.23	0.18	0.43	0.84	0.09	0.06
Avail Cap(c_a), veh/h	2245	1320	100	2525	358	388
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.61	0.61	1.00	1.00
Uniform Delay (d), s/veh	29.5	2.6	74.6	16.6	52.0	46.3
Incr Delay (d2), s/veh	108.1	0.3	2.3	2.2	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	74.8	3.9	1.4	27.1	1.1	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	137.6	2.9	76.9	18.8	52.5	46.6
LnGrp LOS	F	A	E	B	D	D
Approach Vol, veh/h	3003			2155	55	
Approach Delay, s/veh	126.9			19.7	50.1	
Approach LOS	F			B	D	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.6	109.1			121.7	38.3
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 9	99.0			113.7	32.2
Max Q Clear Time (g_c+I1), s	4.9	103.1			70.6	4.4
Green Ext Time (p_c), s	0.0	0.0			29.3	0.1

Intersection Summary	
HCM 6th Ctrl Delay	81.8
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.

LOS Engineering, Inc.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2473	60	180	1962	10	120
Future Volume (vph)	2473	60	180	1962	10	120
Turn Type	NA	pm+ov	Prot	NA	Prot	pm+ov
Protected Phases	2	8	1	6	8	1
Permitted Phases		2				8
Detector Phase	2	8	1	6	8	1
Switch Phase						
Minimum Initial (s)	25.0	9.0	10.0	25.0	9.0	10.0
Minimum Split (s)	34.0	39.1	15.7	33.0	39.1	15.7
Total Split (s)	100.9	39.1	20.0	120.9	39.1	20.0
Total Split (%)	63.1%	24.4%	12.5%	75.6%	24.4%	12.5%
Yellow Time (s)	5.5	4.1	3.7	5.5	4.1	3.7
All-Red Time (s)	2.5	2.0	2.0	2.5	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	6.1	5.7	8.0	6.1	5.7
Lead/Lag	Lag		Lead			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Recall Mode	C-Max	Min	None	C-Max	Min	None
Act Effct Green (s)	98.8	120.6	27.6	132.1	13.8	47.5
Actuated g/C Ratio	0.62	0.75	0.17	0.83	0.09	0.30
v/c Ratio	1.23	0.05	0.64	0.73	0.04	0.28
Control Delay	144.1	3.2	40.2	30.9	61.8	44.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.1	3.2	40.2	30.9	61.8	44.3
LOS	F	A	D	C	E	D
Approach Delay	140.7			31.7	45.7	
Approach LOS	F			C	D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 21 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 89.5	Intersection LOS: F
Intersection Capacity Utilization 102.3%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 4: Canyon Dr & SR-76

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2473	60	180	1962	10	120
Future Volume (veh/h)	2473	60	180	1962	10	120
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	2688	65	196	2133	11	130
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	2482	1247	159	2927	305	282
Arrive On Green	0.70	0.70	0.09	0.82	0.09	0.09
Sat Flow, veh/h	3647	1585	1781	3647	3456	1585
Grp Volume(v), veh/h	2688	65	196	2133	11	130
Grp Sat Flow(s),veh/h/ln	1777	1585	1781	1777	1728	1585
Q Serve(g_s), s	111.8	1.5	14.3	42.4	0.5	11.8
Cycle Q Clear(g_c), s	111.8	1.5	14.3	42.4	0.5	11.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2482	1247	159	2927	305	282
V/C Ratio(X)	1.08	0.05	1.23	0.73	0.04	0.46
Avail Cap(c_a), veh/h	2482	1247	159	2927	713	469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	24.1	3.8	72.8	6.2	66.7	58.9
Incr Delay (d2), s/veh	38.1	0.0	109.2	0.1	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	56.5	0.7	11.4	13.3	0.2	4.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.2	3.8	182.0	6.4	66.7	60.1
LnGrp LOS	F	A	F	A	E	E
Approach Vol, veh/h	2753			2329	141	
Approach Delay, s/veh	60.9			21.2	60.6	
Approach LOS	E			C	E	

Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.0	119.8			139.8	20.2
Change Period (Y+Rc), s	* 5.7	8.0			8.0	6.1
Max Green Setting (Gmax), s	* 14	92.9			112.9	33.0
Max Q Clear Time (g_c+I1), s	16.3	113.8			44.4	13.8
Green Ext Time (p_c), s	0.0	0.0			39.2	0.4

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

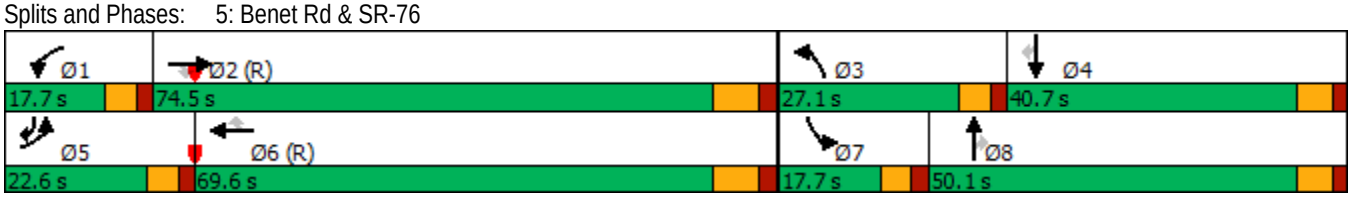
Notes

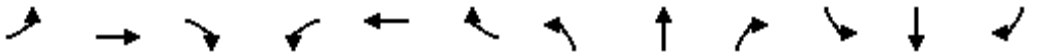
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	273	2290	120	50	1750	21	170	32	120	22	16	232
Future Volume (vph)	273	2290	120	50	1750	21	170	32	120	22	16	232
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	5
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	33.0	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	22.6	74.5	74.5	17.7	69.6	69.6	27.1	50.1	50.1	17.7	40.7	22.6
Total Split (%)	14.1%	46.6%	46.6%	11.1%	43.5%	43.5%	16.9%	31.3%	31.3%	11.1%	25.4%	14.1%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	37.4	90.5	90.5	12.0	61.6	61.6	19.8	30.6	30.6	12.0	15.7	59.2
Actuated g/C Ratio	0.23	0.57	0.57	0.08	0.38	0.38	0.12	0.19	0.19	0.08	0.10	0.37
v/c Ratio	0.72	1.24	0.14	0.41	1.40	0.03	0.85	0.10	0.32	0.18	0.09	0.38
Control Delay	40.1	155.3	11.2	72.7	214.6	0.0	99.4	53.8	9.4	73.0	62.2	22.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	155.3	11.2	72.7	214.6	0.0	99.4	53.8	9.4	73.0	62.2	22.1
LOS	D	F	B	E	F	A	F	D	A	E	E	C
Approach Delay		137.1			208.2			61.4			28.6	
Approach LOS		F			F			E			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.40	
Intersection Signal Delay: 152.0	Intersection LOS: F
Intersection Capacity Utilization 105.9%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	2290	120	50	1750	21	170	32	120	22	16	232
Future Volume (veh/h)	273	2290	120	50	1750	21	170	32	120	22	16	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	297	2489	130	54	1902	23	185	35	130	24	17	252
Peak Hour Factor	0.92	0.92	0.92	0.92	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	1778	793	121	1645	734	206	417	353	88	292	415
Arrive On Green	0.11	0.50	0.50	0.07	0.46	0.46	0.12	0.22	0.22	0.05	0.16	0.16
Sat Flow, veh/h	1781	3554	1585	1781	3554	1585	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	297	2489	130	54	1902	23	185	35	130	24	17	252
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1585	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	16.9	80.1	7.1	4.7	74.1	1.3	16.4	2.4	11.1	2.1	1.2	22.3
Cycle Q Clear(g_c), s	16.9	80.1	7.1	4.7	74.1	1.3	16.4	2.4	11.1	2.1	1.2	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1778	793	121	1645	734	206	417	353	88	292	415
V/C Ratio(X)	1.58	1.40	0.16	0.44	1.16	0.03	0.90	0.08	0.37	0.27	0.06	0.61
Avail Cap(c_a), veh/h	188	1778	793	134	1645	734	238	514	436	134	404	510
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)	0.09	0.09	0.09	0.44	0.44	0.44	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.6	40.0	21.8	71.6	43.0	23.4	69.8	49.2	52.6	73.3	57.5	51.8
Incr Delay (d2), s/veh	262.7	180.2	0.0	1.1	73.6	0.0	29.9	0.1	0.6	1.7	0.1	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	21.5	78.9	2.7	2.2	49.0	0.5	9.2	1.1	4.5	1.0	0.6	9.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	334.2	220.1	21.8	72.8	116.6	23.4	99.7	49.3	53.3	75.0	57.6	53.3
LnGrp LOS	F	F	C	E	F	C	F	D	D	E	E	D
Approach Vol, veh/h		2916			1979			350			293	
Approach Delay, s/veh		222.9			114.3			77.4			55.3	
Approach LOS		F			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	88.1	24.2	31.1	22.6	82.1	13.6	41.8
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 21	34.6	* 17	61.6	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.7	82.1	18.4	24.3	18.9	76.1	4.1	13.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.7	0.0	0.0	0.0	0.6

Intersection Summary		
HCM 6th Ctrl Delay		166.0
HCM 6th LOS		F

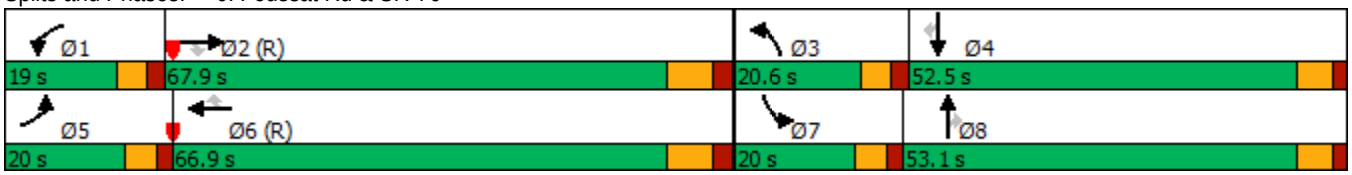
Notes

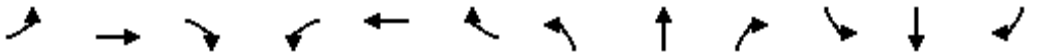
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	2302	170	130	1651	155	100	173	180	105	96	30
Future Volume (vph)	40	2302	170	130	1651	155	100	173	180	105	96	30
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	13.0	25.0	25.0	12.0	25.0	25.0	13.0	12.0	12.0	13.0	13.0	13.0
Minimum Split (s)	18.7	33.0	33.0	17.7	48.0	48.0	18.7	52.1	52.1	18.7	20.0	20.0
Total Split (s)	20.0	67.9	67.9	19.0	66.9	66.9	20.6	53.1	53.1	20.0	52.5	52.5
Total Split (%)	12.5%	42.4%	42.4%	11.9%	41.8%	41.8%	12.9%	33.2%	33.2%	12.5%	32.8%	32.8%
Yellow Time (s)	3.7	5.5	5.5	3.7	5.5	5.5	3.7	4.1	4.1	3.7	4.1	4.1
All-Red Time (s)	2.0	2.5	2.5	2.0	2.5	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	0.0
Total Lost Time (s)	5.7	8.0	8.0	5.7	8.0	8.0	5.7	6.1	6.1	5.7	6.1	6.1
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Min	Min	None	Min	Min
Act Effct Green (s)	13.0	88.9	88.9	12.9	92.5	92.5	13.1	19.6	19.6	13.1	19.7	19.7
Actuated g/C Ratio	0.08	0.56	0.56	0.08	0.58	0.58	0.08	0.12	0.12	0.08	0.12	0.12
v/c Ratio	0.15	1.27	0.20	0.51	0.88	0.17	0.39	0.30	0.54	0.41	0.24	0.07
Control Delay	53.6	156.6	21.4	77.2	35.6	5.9	74.1	63.4	11.8	74.3	62.1	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	0.0
Total Delay	53.6	156.6	21.4	77.2	35.6	5.9	74.1	63.4	11.8	74.3	62.1	0.3
LOS	D	F	C	E	D	A	E	E	B	E	E	A
Approach Delay		145.8			36.0			45.2			59.5	
Approach LOS		F			D			D			E	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 20 (13%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.27	
Intersection Signal Delay: 91.6	Intersection LOS: F
Intersection Capacity Utilization 102.1%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 6: Foussat Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	2302	170	130	1651	155	100	173	180	105	96	30
Future Volume (veh/h)	40	2302	170	130	1651	155	100	173	180	105	96	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	2502	185	141	1795	168	109	188	196	114	104	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	239	1919	856	259	1939	865	279	741	230	279	516	405
Arrive On Green	0.07	0.54	0.54	0.07	0.55	0.55	0.08	0.15	0.15	0.08	0.15	0.15
Sat Flow, veh/h	3456	3554	1585	3456	3554	1585	3456	5106	1585	3456	3554	2790
Grp Volume(v), veh/h	43	2502	185	141	1795	168	109	188	196	114	104	33
Grp Sat Flow(s),veh/h/ln	1728	1777	1585	1728	1777	1585	1728	1702	1585	1728	1777	1395
Q Serve(g_s), s	1.9	86.4	9.7	6.3	74.2	8.6	4.8	5.2	19.3	5.0	4.1	1.6
Cycle Q Clear(g_c), s	1.9	86.4	9.7	6.3	74.2	8.6	4.8	5.2	19.3	5.0	4.1	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	239	1919	856	259	1939	865	279	741	230	279	516	405
V/C Ratio(X)	0.18	1.30	0.22	0.55	0.93	0.19	0.39	0.25	0.85	0.41	0.20	0.08
Avail Cap(c_a), veh/h	309	1919	856	287	1939	865	322	1500	466	309	1031	809
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)	0.09	0.09	0.09	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.2	36.8	19.2	71.4	33.4	18.5	69.8	60.7	66.7	69.9	60.2	59.2
Incr Delay (d2), s/veh	0.0	137.1	0.1	1.8	9.1	0.5	0.9	0.2	8.6	1.0	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	73.2	3.7	2.9	33.9	3.4	2.2	2.3	8.4	2.3	1.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.2	173.9	19.2	73.2	42.5	19.0	70.7	60.9	75.4	70.9	60.4	59.2
LnGrp LOS	E	F	B	E	D	B	E	E	E	E	E	E
Approach Vol, veh/h		2730			2104			493			251	
Approach Delay, s/veh		161.8			42.7			68.8			65.0	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.7	94.4	18.6	29.3	16.8	95.3	18.6	29.3
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 13	59.9	* 15	46.4	* 14	58.9	* 14	47.0
Max Q Clear Time (g_c+I1), s	8.3	88.4	6.8	6.1	3.9	76.2	7.0	21.3
Green Ext Time (p_c), s	0.2	0.0	0.2	0.8	0.0	0.0	0.2	1.9

Intersection Summary	
HCM 6th Ctrl Delay	104.3
HCM 6th LOS	F

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	10	236	10	10	201
Future Vol, veh/h	20	10	236	10	10	201
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	50	-
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	11	257	11	11	218

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	372	263	0	0	268	0
Stage 1	263	-	-	-	-	-
Stage 2	109	-	-	-	-	-
Critical Hdwy	6.08	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	6.03	-	-	-	-	-
Follow-up Hdwy	3.669	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	629	775	-	-	1294	-
Stage 1	752	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	623	775	-	-	1294	-
Mov Cap-2 Maneuver	623	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	855	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	667	1294	-
HCM Lane V/C Ratio	-	-	0.049	0.008	-
HCM Control Delay (s)	-	-	10.7	7.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	81	0	220	36	0	130
Future Vol, veh/h	81	0	220	36	0	130
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	50	-	-
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	88	0	239	39	0	141

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	380	239	0	0	278	0
Stage 1	239	-	-	-	-	-
Stage 2	141	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	622	800	-	-	1285	-
Stage 1	801	-	-	-	-	-
Stage 2	886	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	622	800	-	-	1285	-
Mov Cap-2 Maneuver	622	-	-	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	886	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	622	1285	-
HCM Lane V/C Ratio	-	-	0.142	-	-
HCM Control Delay (s)	-	-	11.7	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0	-

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	157	245	797	402
Demand Flow Rate, veh/h	160	249	813	410
Vehicles Circulating, veh/h	582	585	111	252
Vehicles Exiting, veh/h	80	339	631	582
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.1	8.8	11.9	7.5
Approach LOS	A	A	B	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	160	249	813	410
Cap Entry Lane, veh/h	762	760	1232	1067
Entry HV Adj Factor	0.979	0.983	0.980	0.980
Flow Entry, veh/h	157	245	797	402
Cap Entry, veh/h	746	747	1208	1046
V/C Ratio	0.210	0.328	0.660	0.384
Control Delay, s/veh	7.1	8.8	11.9	7.5
LOS	A	A	B	A
95th %tile Queue, veh	1	1	5	2

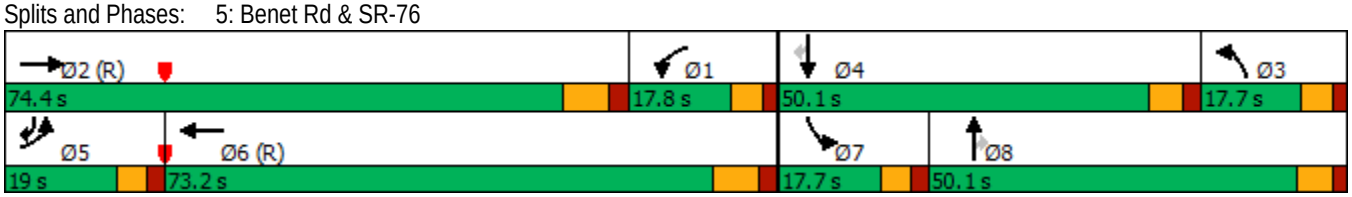
Appendix O

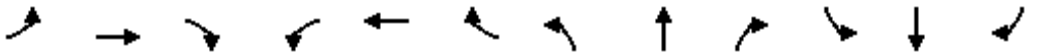
SR-76/Benet Rd Intersection Improvement LOS Worksheets

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	178	1220	47	2340	52	10	48	14	14	273
Future Volume (vph)	178	1220	47	2340	52	10	48	14	14	273
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	1	6	3	8		7	4	5
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	5
Switch Phase										
Minimum Initial (s)	13.0	25.0	12.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	17.7	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	19.0	74.4	17.8	73.2	17.7	50.1	50.1	17.7	50.1	19.0
Total Split (%)	11.9%	46.5%	11.1%	45.8%	11.1%	31.3%	31.3%	11.1%	31.3%	11.9%
Yellow Time (s)	3.7	5.5	3.7	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	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
Total Lost Time (s)	5.7	8.0	5.7	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	28.1	99.5	12.1	80.0	18.8	25.1	25.1	12.0	11.2	40.8
Actuated g/C Ratio	0.18	0.62	0.08	0.50	0.12	0.16	0.16	0.08	0.07	0.26
v/c Ratio	0.62	0.47	0.38	1.01	0.28	0.04	0.13	0.11	0.12	0.59
Control Delay	58.7	21.0	91.4	62.4	64.1	53.3	0.7	71.3	72.2	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.7	21.0	91.4	62.4	64.1	53.3	0.7	71.3	72.2	27.3
LOS	E	C	F	E	E	D	A	E	E	C
Approach Delay		25.3		62.9		35.6			31.4	
Approach LOS		C		E		D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 46.8	Intersection LOS: D
Intersection Capacity Utilization 88.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	1220	138	47	2340	15	52	10	48	14	14	273
Future Volume (veh/h)	178	1220	138	47	2340	15	52	10	48	14	14	273
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1326	150	51	2543	16	57	11	52	15	15	297
Peak Hour Factor	0.92	0.92	0.92	0.92	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	148	1931	218	325	2769	17	123	360	305	65	294	381
Arrive On Green	0.08	0.83	0.42	0.18	1.00	0.53	0.07	0.19	0.19	0.04	0.16	0.26
Sat Flow, veh/h	1781	4653	526	1781	5236	33	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	193	970	506	51	1652	907	57	11	52	15	15	297
Grp Sat Flow(s),veh/h/ln	1781	1702	1776	1781	1702	1864	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.3	18.0	26.0	3.9	0.0	7.3	4.9	0.8	2.9	1.3	1.1	22.1
Cycle Q Clear(g_c), s	13.3	18.0	26.0	3.9	0.0	7.3	4.9	0.8	2.9	1.3	1.1	22.1
Prop In Lane	1.00		0.30	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1413	737	325	1800	986	123	360	305	65	294	381
V/C Ratio(X)	1.30	0.69	0.69	0.16	0.92	0.92	0.46	0.03	0.17	0.23	0.05	0.78
Avail Cap(c_a), veh/h	148	1413	737	325	1800	986	134	514	436	134	514	568
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
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	73.3	9.5	17.5	55.0	0.0	0.3	71.6	52.5	23.9	74.9	57.3	30.0
Incr Delay (d2), s/veh	176.9	2.7	5.2	0.2	9.0	14.8	2.7	0.0	0.3	1.8	0.1	4.1
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	13.4	4.1	9.0	1.8	2.2	4.3	2.4	0.4	1.8	0.6	0.5	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	250.2	12.2	22.7	55.3	9.0	15.2	74.3	52.5	24.1	76.7	57.4	34.1
LnGrp LOS	F	B	C	E	A	B	E	D	C	E	E	C
Approach Vol, veh/h		1669			2610			120			327	
Approach Delay, s/veh		42.9			12.0			50.6			37.1	
Approach LOS		D			B			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.2	74.4	17.1	31.2	19.0	92.6	11.5	36.9
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.1	* 66	12.0	* 44	* 13	65.2	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.9	28.0	6.9	24.1	15.3	9.3	3.3	4.9
Green Ext Time (p_c), s	0.0	14.4	0.0	1.0	0.0	39.4	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

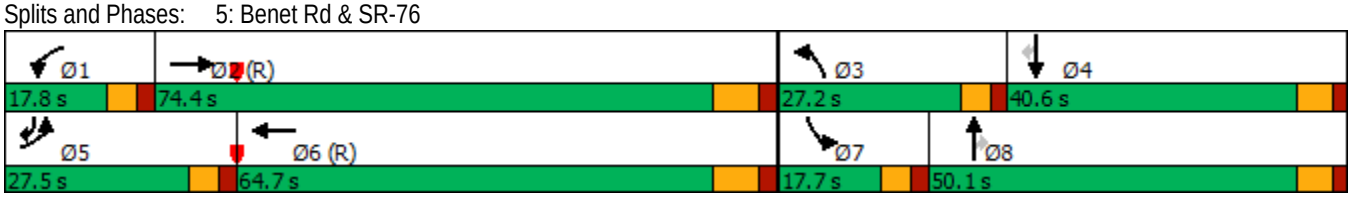
User approved pedestrian interval to be less than phase max green.

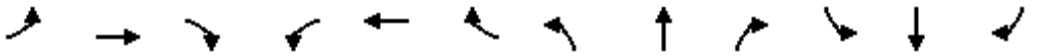
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	215	2072	43	1605	137	23	99	24	15	197
Future Volume (vph)	215	2072	43	1605	137	23	99	24	15	197
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	1	6	3	8		7	4	5
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	5
Switch Phase										
Minimum Initial (s)	13.0	25.0	12.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	17.7	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	27.5	74.4	17.8	64.7	27.2	50.1	50.1	17.7	40.6	27.5
Total Split (%)	17.2%	46.5%	11.1%	40.4%	17.0%	31.3%	31.3%	11.1%	25.4%	17.2%
Yellow Time (s)	3.7	5.5	3.7	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	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
Total Lost Time (s)	5.7	8.0	5.7	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	26.8	92.4	12.0	74.1	17.9	28.7	28.7	12.0	15.7	48.6
Actuated g/C Ratio	0.17	0.58	0.08	0.46	0.11	0.18	0.18	0.08	0.10	0.30
v/c Ratio	0.79	0.80	0.36	0.75	0.75	0.07	0.27	0.20	0.09	0.38
Control Delay	56.9	45.4	62.5	44.3	91.6	53.9	3.2	73.4	62.1	21.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	45.4	62.5	44.3	91.6	53.9	3.2	73.4	62.1	21.0
LOS	E	D	E	D	F	D	A	E	E	C
Approach Delay		46.5		44.8		54.4			28.9	
Approach LOS		D		D		D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 45.4	Intersection LOS: D
Intersection Capacity Utilization 82.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	2072	90	43	1605	19	137	23	99	24	15	197
Future Volume (veh/h)	215	2072	90	43	1605	19	137	23	99	24	15	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	234	2252	98	47	1745	21	149	25	108	26	16	214
Peak Hour Factor	0.92	0.92	0.92	0.92	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	243	2750	119	117	2483	30	171	328	278	92	245	423
Arrive On Green	0.14	0.55	0.55	0.07	0.48	0.48	0.10	0.18	0.18	0.05	0.13	0.13
Sat Flow, veh/h	1781	5018	217	1781	5201	63	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	234	1524	826	47	1142	624	149	25	108	26	16	214
Grp Sat Flow(s),veh/h/ln	1781	1702	1831	1781	1702	1859	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	20.9	58.6	59.5	4.1	42.2	42.2	13.2	1.8	9.6	2.2	1.2	18.3
Cycle Q Clear(g_c), s	20.9	58.6	59.5	4.1	42.2	42.2	13.2	1.8	9.6	2.2	1.2	18.3
Prop In Lane	1.00		0.12	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	1865	1003	117	1625	888	171	328	278	92	245	423
V/C Ratio(X)	0.96	0.82	0.82	0.40	0.70	0.70	0.87	0.08	0.39	0.28	0.07	0.51
Avail Cap(c_a), veh/h	243	1865	1003	135	1625	888	239	514	436	134	403	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	68.7	29.6	29.8	71.7	32.9	32.9	71.3	55.1	58.4	73.1	60.9	49.7
Incr Delay (d2), s/veh	47.6	4.1	7.6	2.2	2.6	4.6	21.2	0.1	0.9	1.7	0.1	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	12.8	24.8	28.0	1.9	18.1	20.3	7.1	0.9	4.0	1.1	0.6	7.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	116.3	33.7	37.4	73.9	35.4	37.5	92.6	55.2	59.2	74.7	61.1	50.6
LnGrp LOS	F	C	D	E	D	D	F	E	E	E	E	D
Approach Vol, veh/h		2584			1813			282			256	
Approach Delay, s/veh		42.4			37.2			76.5			53.7	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.2	95.7	21.1	27.0	27.5	84.4	13.9	34.2
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.4	* 22	34.5	* 22	56.7	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.1	61.5	15.2	20.3	22.9	44.2	4.2	11.6
Green Ext Time (p_c), s	0.0	4.6	0.2	0.6	0.0	9.0	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

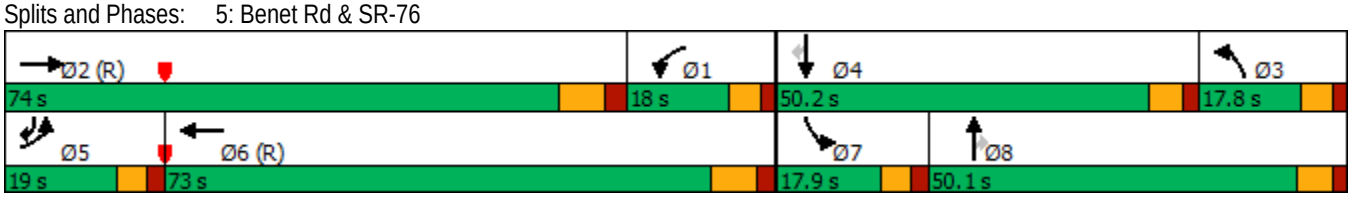
Notes

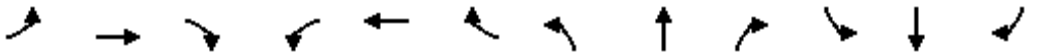
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	202	1370	40	2700	70	16	60	11	22	354
Future Volume (vph)	202	1370	40	2700	70	16	60	11	22	354
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	1	6	3	8		7	4	5
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	5
Switch Phase										
Minimum Initial (s)	13.0	25.0	12.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	17.7	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	19.0	74.0	18.0	73.0	17.8	50.1	50.1	17.9	50.2	19.0
Total Split (%)	11.9%	46.3%	11.3%	45.6%	11.1%	31.3%	31.3%	11.2%	31.4%	11.9%
Yellow Time (s)	3.7	5.5	3.7	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	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
Total Lost Time (s)	5.7	8.0	5.7	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	32.2	95.7	12.2	72.2	19.1	28.7	28.7	12.0	11.0	43.6
Actuated g/C Ratio	0.20	0.60	0.08	0.45	0.12	0.18	0.18	0.08	0.07	0.27
v/c Ratio	0.62	0.56	0.32	1.29	0.36	0.05	0.15	0.09	0.19	0.73
Control Delay	56.9	22.6	75.1	166.2	66.6	53.6	0.8	70.7	74.0	36.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.9	22.6	75.1	166.2	66.6	53.6	0.8	70.7	74.0	36.1
LOS	E	C	E	F	E	D	A	E	E	D
Approach Delay		26.6		164.9		38.1			39.3	
Approach LOS		C		F		D			D	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.29	
Intersection Signal Delay: 103.6	Intersection LOS: F
Intersection Capacity Utilization 100.5%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	202	1370	170	40	2700	12	70	16	60	11	22	354
Future Volume (veh/h)	202	1370	170	40	2700	12	70	16	60	11	22	354
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	1489	185	43	2935	13	76	17	65	12	24	385
Peak Hour Factor	0.92	0.92	0.92	0.92	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	148	1898	236	245	2526	11	129	458	388	55	376	450
Arrive On Green	0.08	0.82	0.41	0.14	0.96	0.48	0.07	0.24	0.24	0.03	0.20	0.34
Sat Flow, veh/h	1781	4601	571	1781	5247	23	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	220	1101	573	43	1903	1045	76	17	65	12	24	385
Grp Sat Flow(s),veh/h/ln	1781	1702	1768	1781	1702	1866	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	13.3	25.7	35.0	3.4	77.0	77.0	6.6	1.1	3.6	1.1	1.7	28.9
Cycle Q Clear(g_c), s	13.3	25.7	35.0	3.4	77.0	77.0	6.6	1.1	3.6	1.1	1.7	28.9
Prop In Lane	1.00		0.32	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	148	1404	729	245	1639	899	129	458	388	55	376	450
V/C Ratio(X)	1.49	0.78	0.79	0.18	1.16	1.16	0.59	0.04	0.17	0.22	0.06	0.85
Avail Cap(c_a), veh/h	148	1404	729	245	1639	899	135	514	436	136	516	569
HCM Platoon Ratio	1.00	2.00	1.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67
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	73.3	10.5	19.9	60.9	3.0	3.4	71.9	46.0	23.4	75.6	51.7	26.2
Incr Delay (d2), s/veh	251.0	4.5	8.3	0.3	79.6	85.7	6.1	0.0	0.2	1.9	0.1	10.1
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	16.4	5.1	12.8	1.6	19.3	23.0	3.3	0.5	2.1	0.5	0.8	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	324.3	14.9	28.2	61.3	82.5	89.2	78.0	46.1	23.6	77.6	51.8	36.3
LnGrp LOS	F	B	C	E	F	F	E	D	C	E	D	D
Approach Vol, veh/h		1894			2991			158			421	
Approach Delay, s/veh		54.9			84.5			52.2			38.3	
Approach LOS		D			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.0	74.0	17.7	38.3	19.0	85.0	10.7	45.3
Change Period (Y+Rc), s	8.0	* 8	6.1	* 6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	12.3	* 66	12.1	* 44	* 13	65.0	* 12	44.0
Max Q Clear Time (g_c+I1), s	5.4	37.0	8.6	30.9	15.3	79.0	3.1	5.6
Green Ext Time (p_c), s	0.0	15.2	0.0	1.3	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	69.8
HCM 6th LOS	E

Notes

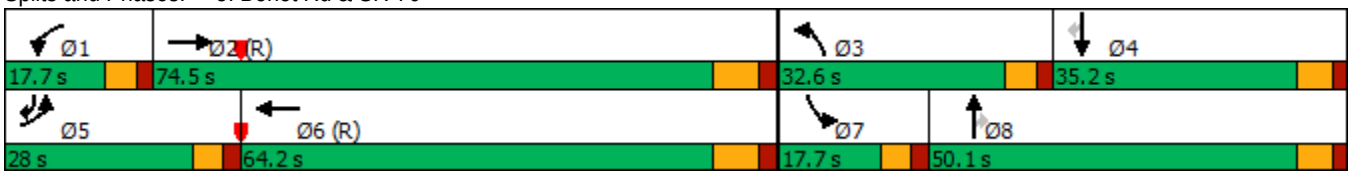
User approved pedestrian interval to be less than phase max green.

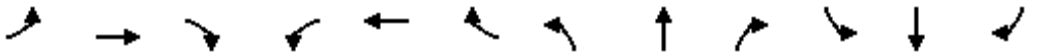
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	273	2290	50	1750	170	32	120	22	16	232
Future Volume (vph)	273	2290	50	1750	170	32	120	22	16	232
Turn Type	Prot	NA	Prot	NA	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	1	6	3	8		7	4	5
Permitted Phases							8			4
Detector Phase	5	2	1	6	3	8	8	7	4	5
Switch Phase										
Minimum Initial (s)	13.0	25.0	12.0	25.0	12.0	12.0	12.0	12.0	11.0	13.0
Minimum Split (s)	18.7	33.0	17.7	33.0	17.7	50.1	50.1	17.7	20.0	18.7
Total Split (s)	28.0	74.5	17.7	64.2	32.6	50.1	50.1	17.7	35.2	28.0
Total Split (%)	17.5%	46.6%	11.1%	40.1%	20.4%	31.3%	31.3%	11.1%	22.0%	17.5%
Yellow Time (s)	3.7	5.5	3.7	5.5	3.7	4.1	4.1	3.7	4.1	3.7
All-Red Time (s)	2.0	2.5	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
Total Lost Time (s)	5.7	8.0	5.7	8.0	5.7	6.1	6.1	5.7	6.1	5.7
Lead/Lag	Lead	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	C-Max	None	Min	Min	None	Min	None
Act Effct Green (s)	38.1	90.0	12.0	60.4	21.4	31.1	31.1	12.0	14.6	58.8
Actuated g/C Ratio	0.24	0.56	0.08	0.38	0.13	0.19	0.19	0.08	0.09	0.37
v/c Ratio	0.71	0.92	0.41	1.00	0.78	0.10	0.30	0.18	0.10	0.39
Control Delay	41.7	48.4	68.5	62.0	88.7	52.8	5.7	73.0	64.4	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.7	48.4	68.5	62.0	88.7	52.8	5.7	73.0	64.4	22.5
LOS	D	D	E	E	F	D	A	E	E	C
Approach Delay		47.7		62.2		54.3			29.1	
Approach LOS		D		E		D			C	

Intersection Summary	
Cycle Length: 160	
Actuated Cycle Length: 160	
Offset: 22.6 (14%), Referenced to phase 2:EBT and 6:WBT, Start of Green	
Natural Cycle: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.00	
Intersection Signal Delay: 52.3	Intersection LOS: D
Intersection Capacity Utilization 89.5%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: Benet Rd & SR-76





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	273	2290	120	50	1750	21	170	32	120	22	16	232
Future Volume (veh/h)	273	2290	120	50	1750	21	170	32	120	22	16	232
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	297	2489	130	54	1902	23	185	35	130	24	17	252
Peak Hour Factor	0.92	0.92	0.92	0.92	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	248	2515	130	121	2261	27	208	406	344	88	280	458
Arrive On Green	0.14	0.51	0.51	0.07	0.43	0.43	0.12	0.22	0.22	0.05	0.15	0.15
Sat Flow, veh/h	1781	4971	257	1781	5200	63	1781	1870	1585	1781	1870	1585
Grp Volume(v), veh/h	297	1696	923	54	1245	680	185	35	130	24	17	252
Grp Sat Flow(s),veh/h/ln	1781	1702	1824	1781	1702	1859	1781	1870	1585	1781	1870	1585
Q Serve(g_s), s	22.3	78.5	81.0	4.7	52.1	52.2	16.4	2.4	11.2	2.1	1.2	21.5
Cycle Q Clear(g_c), s	22.3	78.5	81.0	4.7	52.1	52.2	16.4	2.4	11.2	2.1	1.2	21.5
Prop In Lane	1.00		0.14	1.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	248	1722	923	121	1480	808	208	406	344	88	280	458
V/C Ratio(X)	1.20	0.98	1.00	0.44	0.84	0.84	0.89	0.09	0.38	0.27	0.06	0.55
Avail Cap(c_a), veh/h	248	1722	923	134	1480	808	299	514	436	134	340	509
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	68.8	38.9	39.5	71.6	40.3	40.3	69.6	49.9	53.4	73.3	58.4	48.1
Incr Delay (d2), s/veh	120.7	18.3	29.7	2.5	5.9	10.3	19.9	0.1	0.7	1.7	0.1	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	18.5	36.6	43.2	2.2	23.0	26.2	8.7	1.1	4.6	1.0	0.6	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	189.5	57.3	69.2	74.2	46.2	50.6	89.6	50.0	54.1	75.0	58.5	49.1
LnGrp LOS	F	E	F	E	D	D	F	D	D	E	E	D
Approach Vol, veh/h		2916			1979			350			293	
Approach Delay, s/veh		74.5			48.5			72.4			51.8	
Approach LOS		E			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	89.0	24.4	30.1	28.0	77.6	13.6	40.9
Change Period (Y+Rc), s	* 5.7	8.0	* 5.7	6.1	* 5.7	8.0	* 5.7	6.1
Max Green Setting (Gmax), s	* 12	66.5	* 27	29.1	* 22	56.2	* 12	44.0
Max Q Clear Time (g_c+I1), s	6.7	83.0	18.4	23.5	24.3	54.2	4.1	13.2
Green Ext Time (p_c), s	0.0	0.0	0.3	0.5	0.0	1.8	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	63.9
HCM 6th LOS	E

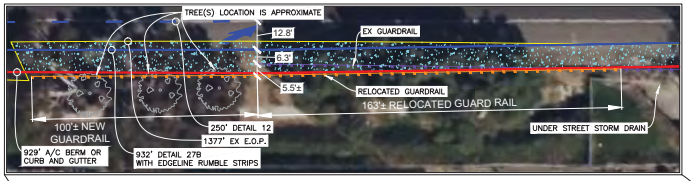
Notes

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

Appendix P

Conceptual Drawing of Proposed Improvement and Fair Share Calculations

CONCEPTUAL DESIGN BASED ON AERIAL IMAGERY ONLY.
SURVEY/TOPO DATA WAS NOT REFERENCED AND MAY ALTER FINAL DESIGN



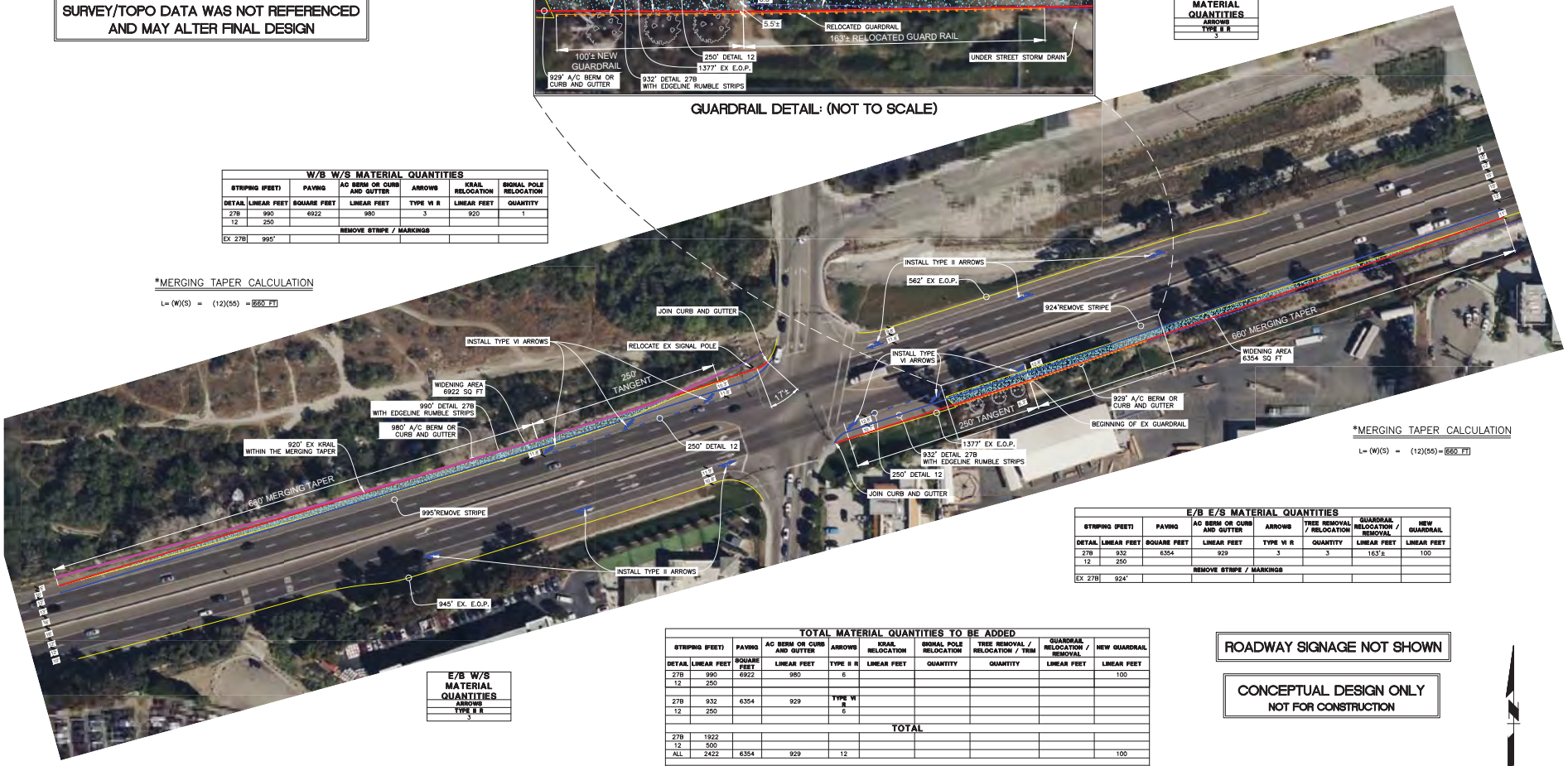
GUARDRAIL DETAIL: (NOT TO SCALE)

W/B E/S MATERIAL QUANTITIES	
ARROWS	
TYPE II R	
3	

W/B W/S MATERIAL QUANTITIES						
STRIPING (FEET)		PAVING	AC BERM OR CURB AND GUTTER	ARROWS	KRAIL RELOCATION	SIGNAL POLE RELOCATION
DETAIL	LINEAR FEET	SQUARE FEET	LINEAR FEET	TYPE VI R	LINEAR FEET	QUANTITY
27B	990	6922	980	3	920	1
12	250					
REMOVE STRIPE / MARKINGS						
EX 27B	995'					

*MERGING TAPER CALCULATION

L= (W)(S) = (12)(55) = 660 FT



*MERGING TAPER CALCULATION

L= (W)(S) = (12)(55) = 660 FT

E/B E/S MATERIAL QUANTITIES						
STRIPING (FEET)		PAVING	AC BERM OR CURB AND GUTTER	ARROWS	TREE REMOVAL / RELOCATION	GUARDRAIL RELOCATION / REMOVAL	NEW GUARDRAIL
DETAIL	LINEAR FEET	SQUARE FEET	LINEAR FEET	TYPE VI R	QUANTITY	LINEAR FEET	LINEAR FEET
27B	932	6354	929	3	3	163'±	100
12	250						
REMOVE STRIPE / MARKINGS							
EX 27B	924'						

E/B W/S MATERIAL QUANTITIES
ARROWS
TYPE II R
3

TOTAL MATERIAL QUANTITIES TO BE ADDED

STRIPING (FEET)		PAVING	AC BERM OR CURB AND GUTTER	ARROWS	KRAIL RELOCATION	SIGNAL POLE RELOCATION	TREE REMOVAL / RELOCATION / TRIM	GUARDRAIL RELOCATION / REMOVAL	NEW GUARDRAIL
DETAIL	LINEAR FEET	SQUARE FEET	LINEAR FEET	TYPE II R	LINEAR FEET	QUANTITY	QUANTITY	LINEAR FEET	LINEAR FEET
27B	990	6922	980	6					100
12	250								
27B	932	6354	929	TYPE VI R					
12	250			6					
TOTAL									
27B	1922								
12	500								
ALL	2422	6354	929	12					100

TOTAL MATERIAL QUANTITIES TO BE REMOVED / RELOCATED

STRIPING (FEET)		PAVING	AC BERM OR CURB AND GUTTER	ARROWS	KRAIL RELOCATION	SIGNAL POLE RELOCATION	TREE REMOVAL / RELOCATION / TRIM	GUARDRAIL RELOCATION / REMOVAL	NEW GUARDRAIL
DETAIL	LINEAR FEET	SQUARE FEET	LINEAR FEET	TYPE II R	LINEAR FEET	QUANTITY	QUANTITY	LINEAR FEET	LINEAR FEET
EX 27B	995				920	1	3	163	
EX 27B	924								
TOTAL									
ALL	1919				920	1	3	163	

TOTAL MATERIAL QUANTITIES TO BE ADDED AND REMOVED

STRIPING (FEET)		PAVING	AC BERM OR CURB AND GUTTER	ARROWS	KRAIL RELOCATION	SIGNAL POLE RELOCATION	TREE REMOVAL / RELOCATION / TRIM	GUARDRAIL RELOCATION / REMOVAL	NEW GUARDRAIL
TOTAL									
	4341	6354	929	12	920	1	3	163	100

ROADWAY SIGNAGE NOT SHOWN

CONCEPTUAL DESIGN ONLY
NOT FOR CONSTRUCTION

NOT TO SCALE

LEGEND

- EX E.O.P. OR BERM OR CURB AND GUTTER
- EX GUARDRAIL
- EX KRAIL
- PR GUARDRAIL
- PR E.O.P. OR AC BERM OR CURB AND GUTTER
- PR DETAIL 27B
- PR DETAIL 12
- ROAD WIDENING
- EX TREE
- TYPE VI ARROW THERMOPLASTIC
- TYPE II ARROW THERMOPLASTIC

C2 CONSULTING COLLECTIVE
Mobility & Technology In Transportation
CONSULTING COLLECTIVE
WALTER B. MUSIAL PE, RSP
Historic Santa Fe Depot
1050 Kettner Blvd. Suite D-551
San Diego, CA 92101
858.270.4444
www.c2-mobility.com

Dwg: Oceanside Conceptual Design V_2 DRAWN BY: CDJ CHECKED BY: DAB DATE: Oct. 28, 2022

CITY OF OCEANSIDE

CONCEPTUAL DESIGN PLAN FOR COST ESTIMATION
ROUTE 76 AND BENET RD

DRAWING NO. CP-1

SHEET 1 OF 1 SHEETS

Fair Share Calculations

5) SR-76/Benet Rd

A=	3677	Existing number of vehicles entering the intersection (AM)
B=	4920	Horizon Year without Project number of vehicles entering the intersection (AM)
C=	5027	Horizon Year with Project number of vehicles entering the intersection (AM)

AM Percent of Fair-Share (C-B)/(C-A) = 7.9%

A=	(3713)	Existing number of vehicles entering the intersection (PM)
B=	(4980)	Horizon Year without Project number of vehicles entering the intersection (PM)
C=	(5096)	Horizon Year with Project number of vehicles entering the intersection (PM)

PM Percent of Fair-Share (C-B)/(C-A) = 8.4% <= Project Responsibility

8.5% <= Rounded to 8.5%