

State Route 86/Avenue 50 New Interchange Project Final Traffic Operations Report

(Caltrans EA 08-0C970)

Prepared for:

TranSystems

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FEHR  PEERS



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1. INTRODUCTION

The City of Coachella (City), in cooperation with the California Department of Transportation (Caltrans) District 8 and Coachella Valley Association of Governments (CVAG), proposes the construction of a new interchange at State Route 86 (SR-86) and Avenue 50, approximately 1.1 miles north of the existing Avenue 52 intersection and 1.95 miles south of the existing Dillon Road interchange. The proposed project would convert portion of SR-86 from existing expressway to freeway with a new overcrossing structure and access ramps, which would accommodate traffic for existing and planned development in the area. It would also improve safety and traffic operations by enhancing level of service (LOS) on the adjacent SR-86/Dillon Road interchange and SR-86/Avenue 52 intersection.

The proposed improvements include realignment and widening of Avenue 50 from the existing two-lane roadway to a six-lane major arterial, and realignment of Tyler Street on both the east and west side of SR-86. The project would also improve public safety and mobility by constructing another new bridge spanning over the Coachella Valley Stormwater Channel (CVSC), replacing the existing low water crossing, and eliminating flood-related hazards during inclement weather events.

Fehr & Peers is working with TranSystems and the City of Coachella in preparation of traffic report in support of the PA/ED document for the SR-86/Avenue 50 New Interchange Project.

Purpose and Need

The proposed project is needed to address the following deficiencies: vehicular, pedestrian and bicycle safety crossing the SR-86 and CVSC, improving emergency response times, and accommodating future developments along Avenue 50, traffic and population demands.

Need

- The proposed improvements are consistent with and included in the SCAG 2017 FTIP (Project IDs RIV110825 and RIV061159), as well as the 2016 CVAG TPPS. The TPPS is used to identify arterial road projects that are in most need. The improvements at Avenue 50 are considered a “Backbone Priority Project;” according to the TPPS, backbone projects are projects that have an importance to the regional circulation.
- The City’s Land Use Plan Element of the General Plan identifies ongoing and planned development in the eastern part of Coachella that is expected to increase the local population and local/regional traffic demands.

- The City's Circulation Element of the 2035 General Plan identifies Avenue 50 as a Major Arterial with enhanced bicycle facilities with access to SR-86 to serve local and regional traffic needs.
- Avenue 50, within the limit of the project, is anticipated to operate at unsatisfactory level of service (LOS) based on growth and traffic projections.
- During severe winter and summer storms, the existing Avenue 50 low water crossing is frequently inundated and damaged due to debris flows within the CVSC. The flooding and the resulting road closure have a direct impact on the public's health and safety. In addition, the frequent flood damage results in repeated significant cost to the City for road repairs; and increases the response time of emergency vehicles.

Purpose

- To improve traffic operations and accommodate future planned growth by enhancing LOS at local area street intersections and adjacent interchanges
- To reduce vehicle miles traveled and improve commute time
- To improve freeway access for the City and the Coachella Valley Region
- To accommodate the City's circulation plan
- To improve public safety by replacing the existing low water crossing with a new bridge, allowing uninterrupted travel to and out of Coachella when flooding and debris flows occur.
- To improve mobility by providing direct and dependable access over the SR-86 and CVSC, which would improve emergency vehicle response times during storm events.

Study Area

The study area consists of study intersections along Avenue 50 (between Harrison Street and SR-86), SR-86 mainline segment between Dillon Road and Avenue 52, and SR-86 ramp intersections at Dillon Road and Avenue 52. The study facilities are identified below and were evaluated during the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hours at study intersections and mainline/ramp locations and on a weekday basis for study arterial roadway segments.

Study Intersections

1. Avenue 50 / Harrison Street
2. Avenue 50 / Leoco Lane
3. Avenue 50 / Peter Rabbit Lane
4. Avenue 50 / Tyler Street
5. Avenue 50 / Southbound SR-86 Ramps
6. Avenue 50 / Northbound SR-86 Ramps

7. Dillon Road / Southbound SR-86 Ramps
8. Dillon Road / Northbound SR-86 Ramps
9. Avenue 52 / Southbound SR-86 Ramps
10. Avenue 52 / Northbound SR-86 Ramps / Tyler Street
11. Tyler Street / Calle Mendoza

SR-86 Mainline Segments:

1. Northbound and Southbound SR-86: between Dillon Road and Avenue 50
2. Northbound and Southbound SR-86: between Avenue 50 and Avenue 52

SR-86 Ramp Junctions:

1. Northbound SR-86 Off-ramp to Avenue 50 (future)
2. Northbound SR-86 On-ramp from Avenue 50 (future)
3. Southbound SR-86 Off-ramp to Avenue 50 (future)
4. Southbound SR-86 On-ramp from Avenue 50 (future)

Study Roadway Segments

1. Avenue 50 Bridge: between Tyler Street and SR-86
2. Avenue 50: between Leoco Lane and Peter Rabbit Lane
3. Avenue 50: west of Harrison Street



Study Scenarios

Per discussion at the project kick-off meeting with the Project Development Team (PDT) in September 2016, the proposed project includes two phases which have different opening years. Phase 1 is the Avenue 50 Bridge expected to complete construction and be open to traffic by Year 2020; while the SR-86/Avenue 50 interchange improvement is Phase 2 and anticipated to complete and open to traffic by Year 2025. Per the discussion at the PDT meeting on February 15, 2017, two build alternatives will be analyzed and descriptions of the two alternatives are presented in Chapter 4. Therefore, the following scenarios will be analyzed as part of the traffic study:

1. Existing (2015) Conditions
2. Opening Year 2020 No Build Conditions
3. Opening Year 2020 With Phase 1 (One Build Alternative for Avenue 50 Bridge)
4. Opening Year 2025 No Build Conditions
5. Opening Year 2025 With Phase 2 (Two Build Alternatives for SR-86/Avenue 50 Interchange)
6. Design Year 2045 No Build Conditions
7. Design Year 2045 With Phase 1 & Phase 2 combined (Two Build Alternatives for SR-86/Avenue 50 Interchange)

The study locations also vary by scenario. All the study locations listed above will be analyzed under existing and Design Year 2045 conditions. Under Opening Year 2020, completion of Phase 1 (Avenue 50 Bridge) is not anticipated to result in significant traffic addition to the SR-86 mainline and adjacent ramps at Dillon Road and Avenue 52. Therefore, the study area under Phase 1 Opening Year 2020 consists of the six study intersections and three roadway segments along Avenue 50, and none of the SR-86 mainline/ramp junctions or adjacent ramp intersections at Dillon Road and Avenue 52 will be evaluated under Year 2020. Similarly, the study area under Phase 2 (SR-86/Avenue 50 Interchange) Opening Year 2025 consists of the SR-86 mainline/ramp junctions and ramp intersections at Dillon Road, Avenue 50, and Avenue 52. Other local intersections and roadway segments along Avenue 50 west of SR-86 will not be analyzed under Year 2025. A summary of the study locations and the scenarios they will be analyzed in is provided below:

Existing Conditions:

- Study intersections #1 through #11
- Three roadway segments along Avenue 50
- SR-86 mainline/ramps segments

Opening Year 2020 (Phase 1: Avenue 50 Bridge):

- Study intersections along Avenue 50: Intersections #1 through #6, plus #11
- Three roadway segments along Avenue 50

Opening Year 2025 (Phase 2: SR-86/Avenue 50 Interchange):

- Study intersections that are SR-86 ramp terminals: Intersections #5 through #10
- SR-86 mainline/ramps segments

Design Year 2045:

- Study intersections #1 through #11
- Three roadway segments along Avenue 50
- SR-86 mainline/ramps segments



Report Outline

The remainder of this report contains the following chapters:

- Chapter 2 – Traffic Analysis Methodology
- Chapter 3 – Existing Conditions
- Chapter 4 – Project Alternatives
- Chapter 5 – Opening Year (2020) Conditions
- Chapter 6 – Opening Year (2025) Conditions
- Chapter 7 – Design Year (2045) Conditions
- Chapter 8 – VMT/VHT Summary
- Chapter 9 – Conclusions

Following this introduction, Chapter 2 summarizes the traffic operations analysis and travel demand forecasting methodologies applied for this traffic report. Chapter 3 describes traffic operational characteristics of existing conditions. Chapter 4 describes project alternatives and the proposed improvements. Chapter 5 presents the Phase 1 Opening Year 2020 traffic analysis results for each of the project alternatives. Chapter 6 presents the Phase 2 Opening Year 2025 traffic analysis results. The design year (2045) traffic operational results are presented in Chapter 7. Chapter 8 presents the vehicle miles traveled (VMT) and vehicle hours traveled (VHT) results for the study area. Finally, Chapter 9 summarizes the key findings of the traffic operations evaluation of project alternatives.

2. TRAFFIC ANALYSIS METHODOLOGY

This chapter describes the methodologies used to develop traffic demand forecasts and analyze traffic operations as well as the evaluation criteria used to determine acceptable traffic operations conditions. The methodologies described below were presented in the Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project prepared by Fehr & Peers and approved by Caltrans in July 2017.

Traffic Forecasting Methodology

The traffic forecasts for this project was developed using the Coachella Valley Model, which was developed in 2012 for the City of Coachella General Plan update based on the Riverside County Traffic Analysis Model (RivTAM). The RivTAM was created from the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) model. The Coachella Valley Model assumed the build-out Socio-Economic Data (SED) for the City of Coachella and reflected a more refined roadway network in the Coachella Area.

At the beginning of this project, SCAG's 2016 RTP model became available. This model contains the most recent SED assumptions for the SCAG region, including the Coachella Valley area. Based on conversations with City of Coachella staff and the discussion with Caltrans at the project kick-off meeting, the PDT (including Caltrans, the City of Coachella, and the consultant team) have agreed the SCAG's 2016 RTP SED data was the most appropriate assumptions for land use growth to use for the traffic forecasting. This data reflects the most updated population and employment growth projections for the City of Coachella and the entire CVAG region. Therefore, the Coachella Valley Model was updated to include the 2040 land use assumptions consistent with the SCAG's 2016 RTP, and the updated model was used to develop traffic forecasts for the project.

Compared to the land use projections developed for previous years, the SCAG's 2016 RTP land use projections show slower growth and the Great Recession had a significant impact on the regional growth. This slow growth applied for not only the City of Coachella and the CVAG region, but also southern California and the State as a whole. As a result, the volume forecasts for this study are anticipated to be lower than those from other previous studies that used the RIVTAM model (the most current model at that time) with faster growth in land use projections and the SCAG 2016 RTP land use projections were not available then.



Separate future year models were developed to forecast traffic volumes with and without the proposed project. Future traffic forecasts at the study intersections and roadway segments under the opening year and design year were developed using the difference methodology which is consistent with methodologies delineated in the National Cooperative Highway Research Program Report (NCHRP) 255 published by the Transportation Research Board (TRB): Highway Traffic Data for Urbanized Area Project Planning and Design (Transportation Research Board, December 1982). The Base Year and Future Year models were used to calculate the annual growth at study facilities, which was applied to existing traffic counts (collected Fall 2015) to develop the opening year and design year traffic projections. Since the future model reflects Year 2040 conditions, the opening year 2020/2025 and design year 2045 forecasts was developed using a calculated annual growth amount between existing and the 2040 traffic forecasts. The resulting traffic forecasts from the difference methodology were balanced where appropriate. The balanced forecasts for each scenario were compared to existing traffic counts and one another to ensure the reasonableness of the forecasts. Overall, after applying all difference method calculations and balancing operations the average annual growth rate comes out to be approximately 3% - 5% per year.

The traffic volumes used for the operations analysis for this project were submitted to Caltrans in the Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project and approved for use in July 2017.

Operations Analysis Methodology

Intersection Analysis

Intersection operations will be conducted using methodologies contained in the Highway Capacity Manual (HCM 2010) (Transportation Research Board, 2010), and was considered as the state-of-the-practice methodologies for evaluating intersection operations at the NTP of the project.

The HCM 2010 methodology for signalized intersections estimates the average control delay for vehicles at the intersection while the methodology for unsignalized intersections estimates the worst-case movement control delay for two-way stop-controlled intersections and the average control delay for all-way stop-controlled intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (congested conditions). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for both signalized and unsignalized intersections are provided in

Table 1.

TABLE 1 – INTERSECTION LOS

Level of Service	Description	Signalized Intersections	Unsignalized Intersections
		Average Stopped Delay per Vehicle (seconds/vehicle)	Average Control Delay (seconds/vehicle)
A	Very low delay occurs due to little or no conflicting traffic.	< 10.0	< 10.0
B	Low delay occurs although conflicting traffic becomes noticeable.	> 10.0 to 20.0	> 10.0 to 15.0
C	Average delays result from increased conflicting traffic.	> 20.0 to 35.0	> 15.0 to 25.0
D	Longer delays occur due to a reduction in available gaps. At signals, individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	High delays and extensive queues occur. This value indicates volume-to-capacity ratios. This is considered to be the limit of acceptable delay.	> 55.0 to 80.0	> 35.0 to 50.0
F	Delays are unacceptable to most drivers due to over-saturation.	> 80.0	> 50.0

Source: Highway Capacity Manual (Transportation Research Board, 2010)

Roadway Segment Analysis

Roadway segment operations were evaluated by comparing the daily traffic volumes to the roadway classification capacity identified in the City of Coachella General Plan Circulation Element (May 2014). The roadway capacity by classification is shown in **Table 2**. The volume to capacity (v/c) ratio will be calculated for study roadway segments along Avenue 50. Any roadway segments with the v/c ratio equal to or greater than 1.0 will be considered as LOS F conditions.

TABLE 2 - ROADWAY SEGMENT AADT CAPACITY

Roadway Classification	Number of Lanes	AADT Capacity
Major Arterial	6 – Divided	56,000
Primary Arterial	4 – Divided	37,400
Secondary Arterial	4 – Divided	28,900
Major Collector	4 – Undivided	20,000
Minor Collector	2 – Undivided	12,000
Local Street	2 – Undivided	10,400

Source: City of Coachella General Plan Circulation Element (May 2014).

Freeway Analysis

Freeway mainline and ramps were evaluated using a HCS equivalent tool which applies methodologies contained in the Highway Capacity Manual (HCM 2010) (Transportation Research Board, 2010). The LOS was calculated for each study facility based on density in number of vehicles per hour per lane. **Table 3** below describes the LOS thresholds for freeway sections identified in the HCM 2010.

TABLE 3 - FREEWAY LOS THRESHOLD

Level of Service	Description	Density (vplpm) ¹	
		Mainline (Basic)	Ramp / Weave
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11	≤ 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 to 18	> 10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26	> 20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 to 35	> 28 to 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45	> 35 to 45 ²
F	Represents a breakdown in flow.	> 45	> 45 ²

Notes:

1. Density is reported in vehicles per lane per mile.
2. The maximum density for ramp junctions and weaving sections under LOS E is not defined in the HCM. The maximum density for basic segments of 45 vplpm was assumed to apply to ramp junctions and weaving sections.

Source: Highway Capacity Manual (Transportation Research Board, 2010)

The peak-hour density calculations provided in this report are consistent with the definitions from the HCM, which defines four freeway section types: merge, diverge, weave, and basic. Merge and diverge sections, which refer to the freeway ramp junctions, are defined as the section of the freeway 1,500 feet downstream

of an on-ramp and upstream of an off-ramp, respectively. The density is measured over the two adjacent freeway through lanes plus the acceleration lanes (for on-ramps) and deceleration lanes (for off-ramps). LOS is calculated for the mainline lanes and the merge/diverge section. For locations where the mainline lanes operate over capacity, the merge/diverge section will be considered as operating under deficiency with LOS F assigned to the merge/diverge section. A weaving section occurs between a successive on-ramp and off-ramp pair connected by an auxiliary lane, and the maximum weaving distance between the ramps is no longer a fixed distance but determined by the weaving/total volumes and number of weaving lanes in the HCM 2010. Basic freeway sections include all other freeway sections that are not included in a merge, diverge, or weaving section. The densities at weaving and basic sections are measured across all mixed-flow freeway lanes (including both through lanes and auxiliary lanes).

Analysis Evaluation Criteria

The analysis evaluation criteria described below were used to determine if the project would result in any traffic operational deficiencies to the study area. The LOS criteria are in accordance with the City of Coachella and Caltrans guidelines.

City of Coachella

Intersection

According to City of Coachella General Plan Circulation Element (2014), LOS D is the maximum acceptable level of congestion that should be maintained during the peak commute hours. Hence, any of the intersections within Coachella's jurisdiction operating at LOS E or F are considered deficient/unsatisfactory and vehicular traffic on Coachella's roadway system should not exceed these capacities.

Roadway Segment

In accordance with the City of Coachella General Plan Circulation Element (2014), LOS C or better shall be maintained along County roads and state highways. LOS D is allowed in "Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional state highways or freeway ramp intersections. LOS E may be allowed in designated community centers to the extent that it would support transit-oriented development and walkable communities." For the purposes of this evaluation, LOS D is the minimum acceptable LOS for study roadway segments along Avenue 50.



Caltrans

Caltrans strives to have freeway facilities operate at a level of service between C and D. Therefore, LOS D was used as the threshold for freeway facilities analysis. Any future LOS on freeway facilities that are projected to operate at unacceptable LOS (worse than LOS D) needs to be mitigated.

Therefore, LOS D is considered as the acceptable LOS criteria for all the study intersections, freeway segments, and roadway segments in this traffic analysis

Operations Analysis Tools & Assumptions

The following tools and assumptions will be used to analyze intersection traffic operations:

- The operations analysis of all intersections will be conducted using Synchro 8.0 software
- The operations analysis of freeway mainline and ramp junctions will be conducted using HCM 2010.
- Existing lane configuration and roadway geometry will be gathered from field observations
- Existing signal timing data will be obtained from Caltrans and City of Coachella
- A base saturation flow rate of 1,900 pc/hr/ln will be used in the intersection assessment
- Existing peak hour factor (PHF) will be determined based on the traffic counts
- Opening year PHF is assumed to be the same as existing conditions
- Design year PHF is assumed to be 0.95 or existing conditions, whichever is higher
- Heavy vehicle percentages will be determined based on the traffic counts
 - o Caltrans traffic counts database will be used to estimate heavy vehicle percentages on the highway system
 - o Vehicle classification counts will be used to identify heavy vehicle percentages collected on Avenue 50
- Performance measures reported for study intersections are vehicle delay and LOS
- Performance measures reported for study freeway facilities are density and LOS
- Roadway segments will be analyzed on a daily basis
- Any potential impacts will be identified using the City's traffic impact study guidelines

3. EXISTING CONDITIONS

This chapter describes the existing traffic data, existing intersection and freeway traffic operational conditions, and accident review.

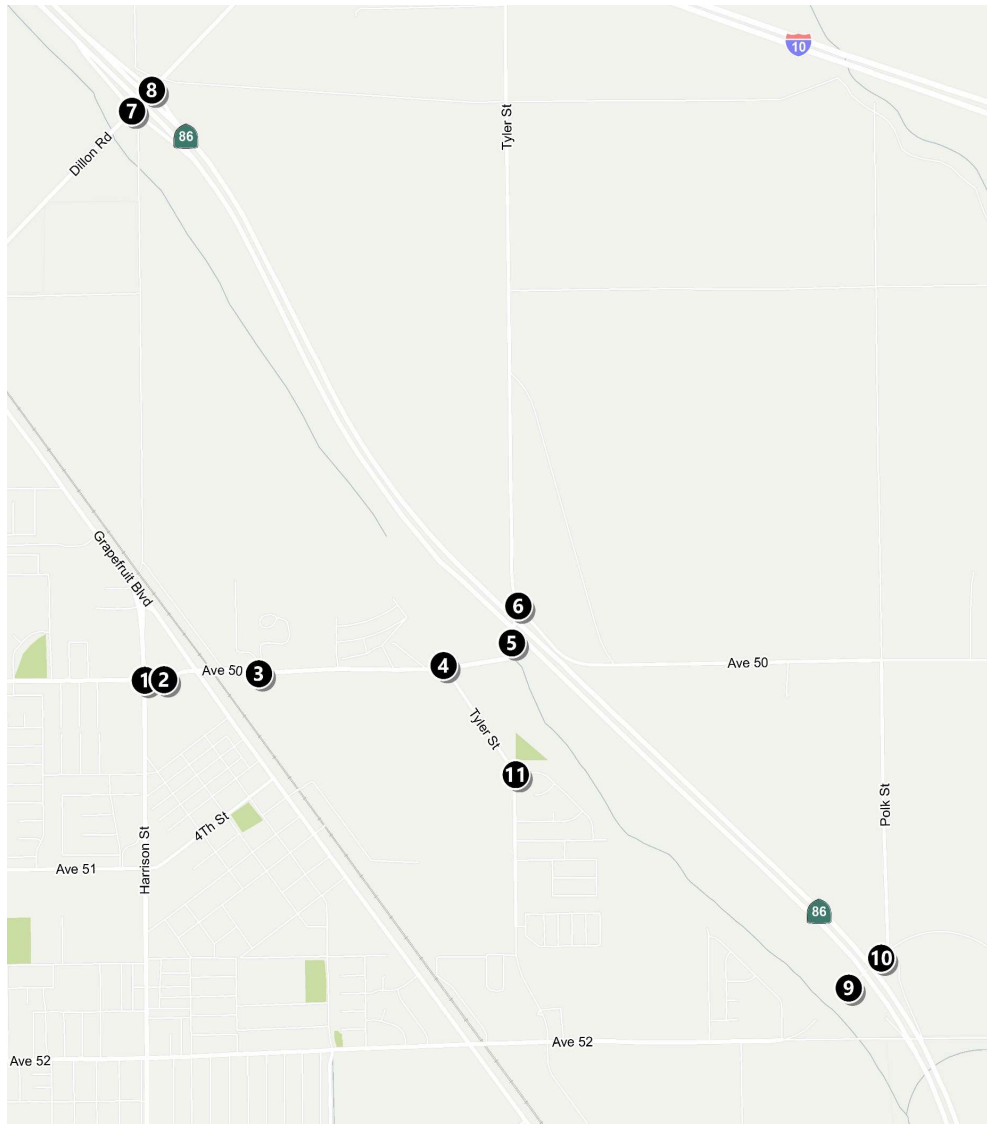
Existing Traffic Data

Existing AM (7-9) and PM (4-6) peak period traffic volumes at study intersections were collected on the field in 2015. The 24-hour daily traffic volumes were collected at the Avenue 50 study segments in 2015 and at State Route 86 near Avenue 50 in 2017. All the traffic counts were collected when schools were in session.

In addition, existing signal timings at the signalized intersections were collected from the City of Coachella and Caltrans. Existing lane configurations and traffic volumes for study intersections are displayed on **Figure 1**. Existing average daily traffic (ADT) volumes along SR-86 are shown on **Figure 2**. Existing ADT volumes along Avenue 50 study roadway segments are presented in **Table 4**. Existing raw traffic counts are provided in Appendix A.

Existing Roadway Facilities

Avenue 50 traverses the City in an east-west direction from the western city limits and currently terminates west of the Coachella Branch of the All American Canal at Fillmore Street. Avenue 50 within the project limits is currently a 2-lane roadway with a low water crossing through CVSC, and is classified in the City's General Plan Update as a "Major Arterial with Bicycle Facility". The existing Avenue 50 low water crossing is approximately 700 feet long and 32 feet wide, and provides two 12-foot vehicle lanes. There are currently no sidewalks or bicycle lanes on the roadway within the project limits. The existing Avenue 50 crossing is equipped with two 72-inch culverts conveying CVSC flows from north to south; as noted above, the capacity of these culverts is often exceeded, resulting in roadway flooding during heavy storm events. The current Avenue 50 and SR-86 is an at-grade intersection with a dedicated left-turn lane and right-turn lane in the northbound and southbound direction along SR-86.



1. Harrison Street/Avenue 50 	2. Leoco Lane/Avenue 50 	3. Peter Rabbit Lane/Avenue 50
4. Tyler Street/Avenue 50 	5. Southbound SR-86 Ramps/Avenue 50 	6. Northbound SR-86 Ramps/Avenue 50
7. Southbound SR-86 Ramps/Dillon Road 	8. Northbound SR-86 Ramps/Dillon Road 	9. Southbound SR-86 Ramps/Avenue 52
10. Northbound SR-86 Ramps/Avenue 52 	11. Tyler Street/Calle Mendoza 	

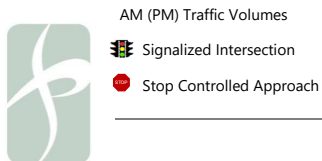


Figure 1
Peak Hour Intersection Volumes
Existing Year 2015

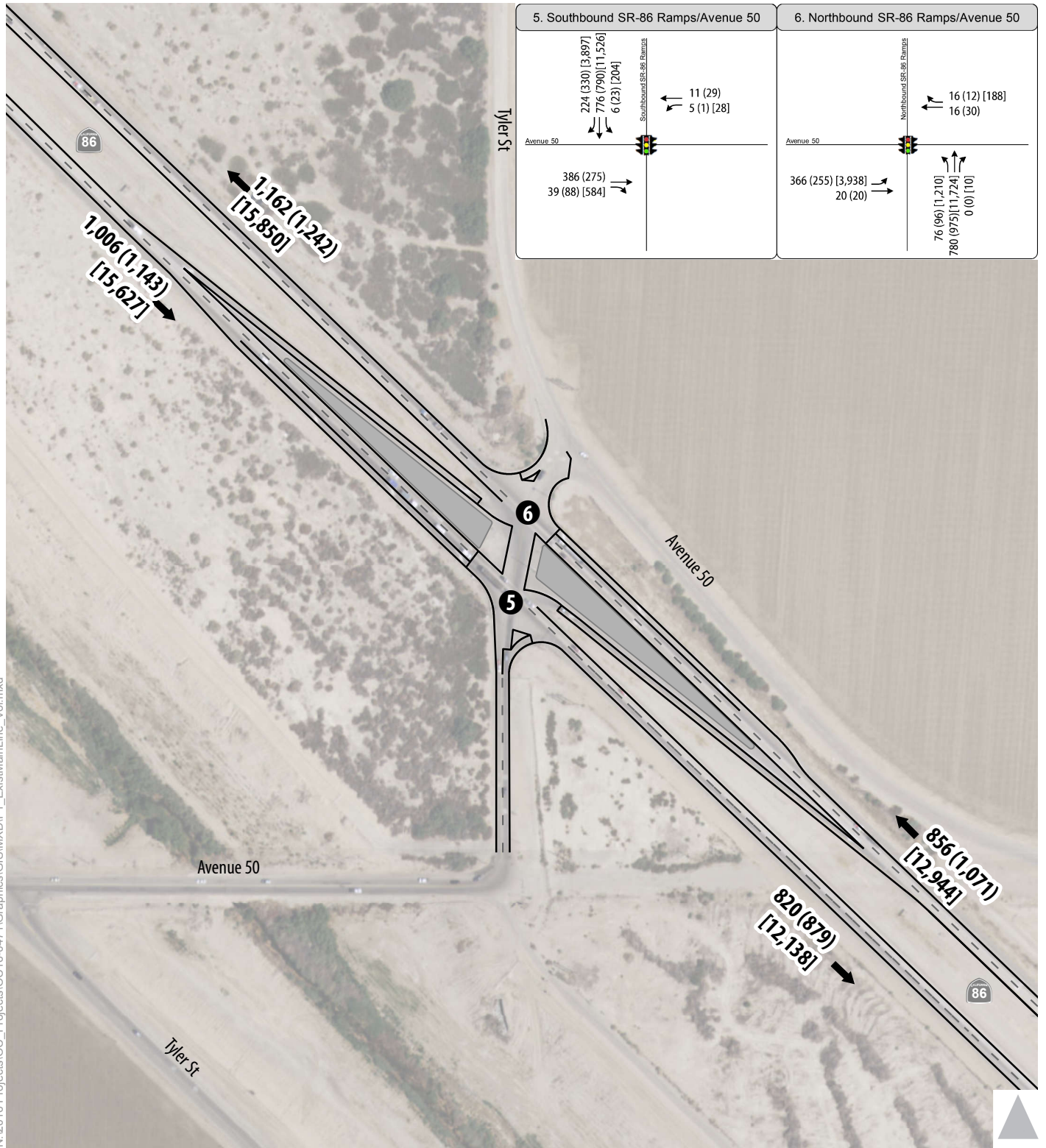


Figure 2

Existing Year 2015
Average Daily Traffic Volumes



State Route (SR-86) is a regional highway that extends north-south in the City of Coachella. It begins at Interstate 10, north of the City, maintaining access control until reaching Avenue 50/Tyler Street. South of Avenue 50/Tyler Street, it operates as a divided arterial with two lanes in each direction with an open median. The posted speed limit on State Route 86 is 55 miles per hour throughout the length of the City. SR-86 is a major regional highway that provides access to Interstate 10 to the north and continues south to the Salton Sea and City of Imperial, near the United States border with Mexico. The segment within the study area is an at grade facility with two travel lanes in each direction. Based on Caltrans 2015 Traffic Data, the annual average daily traffic (AADT) volume in the study area is approximately 20,500.

Roadway Operations

Roadway segments were evaluated by comparing the daily volumes to the capacity thresholds identified in previous chapter, and the results are displayed in **Table 4**. All the roadway segments currently operate at acceptable LOS C or better conditions using the capacity threshold identified in the Circulation Element.

**TABLE 4 – EXISTING (2015)
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	10,473	16,700	0.63	B
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Major Arterial (4)	16,203	35,700	0.45	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	10,144	30,000	0.34	A

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

Freeway Operations

Under the existing conditions, SR-86 in the study area operates as a multi-lane highway with at-grade access points, rather than a freeway. Therefore, no freeway operations were analyzed in the existing condition. All movements along SR-86 were analyzed in intersections operations described below.

Intersection Operations

Existing traffic volumes, lane configurations, and signal timing information were utilized to evaluate traffic operations at the study intersections during the AM and PM peak hours. The results are summarized in **Table 5**. The technical calculations are presented in Appendix B.

**TABLE 5 – EXISTING (2015)
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	22.9	C	32.1	C
2	Avenue 50/Leoco Lane	Signal	7.1	A	8.3	A
3	Avenue 50/ Peter Rabbit Lane	Signal	6.4	A	8.4	A
4	Avenue 50/Tyler Street	Side-street Stop	127.1	F	176.1	F
5	Avenue 50/ Southbound SR-86 Ramps	Signal	36.8	D	32.0	C
6	Avenue 50/ Northbound SR-86 Ramps					
7	Dillon Road/ Southbound SR-86 Ramps	Signal	9.9	A	10.5	B
8	Dillon Road/ Northbound SR-86 Ramps	Signal	19.9	B	12.3	B
9	Avenue 52/Southbound SR-86 Ramps	Signal	16.3	B	19.3	B
10	Avenue 52/ Northbound SR-86 Ramps					
11	Tyler Street/Calle Mendoza	Side-street Stop	12.9	B	12.9	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017



Under existing conditions, all the study intersections operate acceptably at LOS D or better conditions during both AM and PM peak hours, except that:

- Avenue 50/Tyler Street/Magnolia intersection is currently stop-controlled and operates at an unacceptable LOS F during both AM and PM peak hours.

Traffic Safety Review

Collision data were reviewed for SR-86 segment and ramps within the project limit (PM R19.5 – R21.5). This evaluation consisted of collecting and reviewing SR-86 collision data contained in TASAS Table B and TSAR provided by Caltrans. For the purpose of this project, a three-year collision history was provided for July 2012 through June 2015. **Table 6** shows the actual three-year collision rates with a comparison to the statewide average collision rates on similar facilities. The collision rates on SR-86 are higher than the statewide average for similar facilities.

**TABLE 6 - COLLISION RATE
SR-86 MAINLINE (PM R19.5 – R21.5)**

Location Description	Actual Collision Rate (acc/million veh miles)			Average Collision Rate (acc/million veh miles)		
	Total	Fatal	F+I	Total	Fatal	F+I
SR-86 Mainline (PM R19.5 – R21.5)	56%	27%	1.9%	46%	16%	0.8%

Source: Caltrans TASAS, July 2012 – June 2015.

Collision data by collision type were also summarized in **Table 7**. As shown, rear end was the most common collision type in the study area between July 2012 and June 2015. Hit object and sideswipe were the next most common collision types.

**TABLE 7 - COLLISION TYPE
SR-86 MAINLINE (PM R19.5 – R21.5)**

Collision Type	Percentage
Head-On	3.4%
Sideswipe	10.3%
Rear End	65.5%
Hit Object	13.8%
Overtake	3.4%
Not Stated	3.4%
Total	100%

Source: Caltrans TASAS, July 2012 – June 2015.

Note: Numbers may not add up to 100% due to rounding.

Table 8 below shows the primary collision factor for collisions in the study area between July 2012 and June 2015. Unsafe speed was the primary collision factor for the majority of the traffic collisions in the study area.

**TABLE 8 - PRIMARY COLLISION FACTOR
SR-86 MAINLINE (PM R19.5 – R21.5)**

Primary Collision Factor	Percentage
Influence Alcohol	13.8%
Improper Turn	13.8%
Speeding	58.6%
Other Violations	13.8%
Total	100%

Source: Caltrans TASAS, July 2012 – June 2015.

Note: Numbers may not add up to 100% due to rounding.

The high incidence of rear ends collision types taken with the high incidence of speeding as the primary collision factor indicate that these collisions could be due to the at grade crossings along SR-86 with local arterials such as Avenue 50. Vehicles coming from the freeway segment of SR-86 north of Dillon Road would carry higher speeds and could result in rear-end collisions with vehicles stopped at the signalized intersection at SR-86/Avenue 50, especially if drivers were lack of caution of the at-grade access at downstream intersections. The proposed project would replace the at-grade crossing with a grade separated interchange at SR-86 and Avenue 50, which is expected to improve traffic safety by allowing uninterrupted traffic flow along SR-86.

4. PROJECT ALTERNATIVES

Two build project alternatives and one No Build Alternative were evaluated as part of the PA/ED. A brief description of the alternatives are provided below. A roundabout alternative was discussed at both the PDT meeting and VA meeting hosted at earlier stage of the project. The PDT concurred to drop the roundabout alternative, and no further analysis would be required for the roundabout alternative.

No Build Alternative

Under this alternative, no improvements would be made to the existing roadway facilities. The SR-86/Avenue 50 intersection would remain as at-grade signalized intersection.

Build Alternative 7

Build Alternative 7 proposes Modified Type L-9 Partial Cloverleaf that includes a loop on-ramp in the southeast quadrant of the interchange to accommodate the anticipated heavy eastbound-to-northbound movement of morning commute traffic. In addition, this alternative proposes the realignment of Avenue 50 and Tyler Street, construction of a two-span structure over the existing State Route 86, construction of a five-span structure over the CVSC, and the addition of signing and traffic signal controls.

The layout of Build Alternative 7 is shown on **Exhibit A**.

Build Alternative 8

Build Alternative 8 is similar to Build Alternative 7 with a SB loop on-ramp in the northwest quadrant of the proposed interchange. In addition, this alternative proposes the realignment of Avenue 50 and Tyler Street, construction of a two-span structure over the existing State Route 86, construction of a five-span structure over the CVSC, and the addition of signing and traffic signal controls.

The layout of Build Alternative 8 is shown on **Exhibit B**.

DISCLAIMER: The exhibit presents preliminary alignments and conceptual plans that are not intended for public circulation or any other use outside of the scope of the ongoing design studies being conducted for the City of Coahuila. They are hereby released for discussion purposes only, and shall be subject to change without notice. The exhibit shall not be shared or distributed with the public or any other entity without approval from the City of Coahuila and/or TransSystems Corporation.





5. OPENING YEAR 2020 CONDITIONS

This chapter presents the traffic forecasts and traffic operations results for the opening year (2020) conditions. The purpose of the opening year analysis is to evaluate short-term traffic operations with and without the Phase 1 of the project: Avenue 50 Bridge widening improvements.

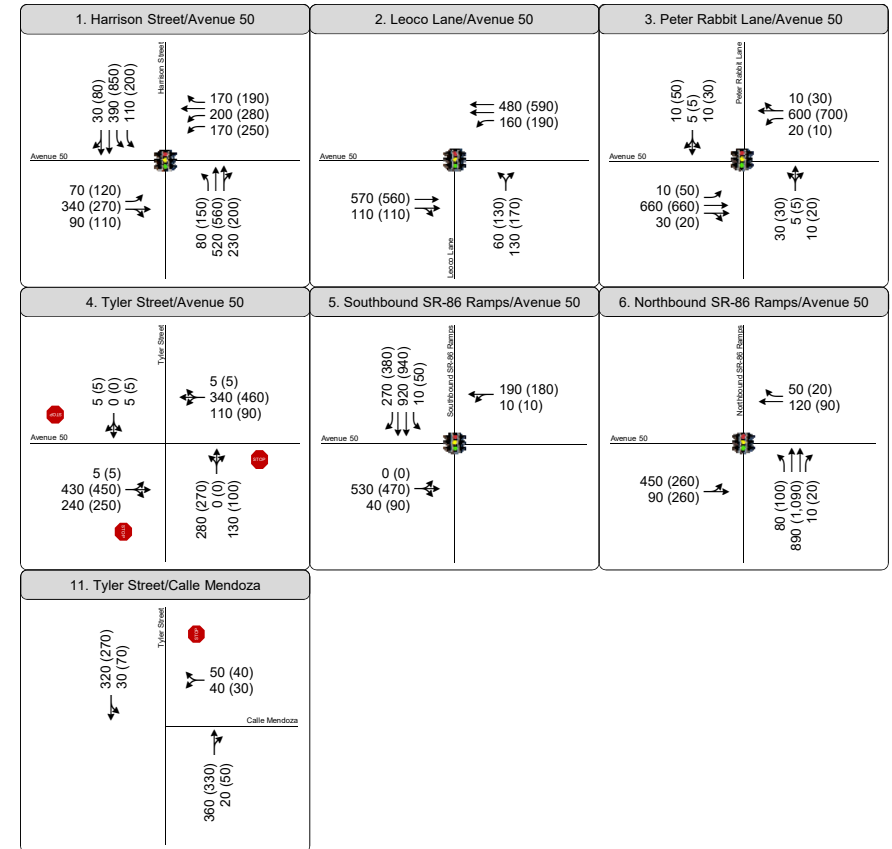
Analysis Scenarios

The 2020 traffic forecasts were developed for study facilities as part of the Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project (see Appendix C) and approved by Caltrans in July 2017. Traffic operations were evaluated at the study intersections and roadway segments along Avenue 50 for each of the following project scenarios under opening year (2020) conditions:

- No Build Scenario (No Avenue 50 Bridge & No SR-86/Avenue 50 Interchange)
- Build Scenario (Phase1 – With Avenue 50 Bridge & No SR-86/Avenue 50 Interchange)

Figure 3 and **Figure 4** show the lane configurations and peak hour traffic volumes at the study intersections along Avenue 50 for the No Build and Build scenarios (aka, without and with the Avenue 50 Bridge widening project), respectively, under 2020 conditions. The 2020 ADT forecasts for Avenue 50 study roadway segments are shown in **Table 9** and **Table 10** for the No Build and Build scenarios, respectively.

The Opening Year 2020 scenarios do not assume any background improvements for study locations in the study area.

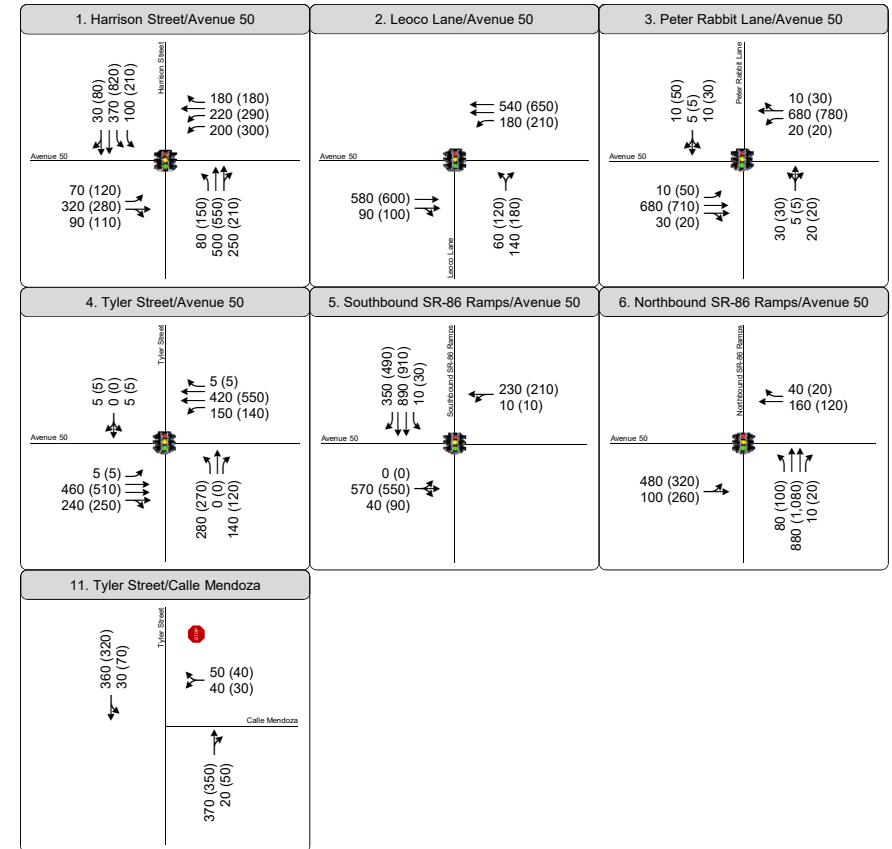


AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

Figure 3
Peak Hour Intersection Volumes
Opening Year 2020 No Project



AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

Figure 4
Peak Hour Intersection Volumes
Opening Year 2020 Plus Project

Roadway Operations

The 2020 roadway operations results are displayed in **Table 9** and **Table 10** for the No Build and Build scenarios, respectively. All the roadway segments along Avenue 50 would operate at acceptable LOS C or better conditions under both No Build and Build scenarios.

**TABLE 9 - OPENING YEAR (2020) NO BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	13,830	16,700	0.83	D
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Major Arterial (4)	17,880	35,700	0.50	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,020	30,000	0.37	A

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

**TABLE 10 - OPENING YEAR (2020) BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (6)	15,480	56,000	0.28	A
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Major Arterial (4)	18,500	35,700	0.52	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,070	30,000	0.37	A

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

Freeway Operations

As described in the previous chapter, SR-86 mainline segments were not included as study locations under 2020 conditions. In addition, SR-86 in the study area would remain as a multi-lane highway with at-grade access points, rather than a freeway by 2020. Therefore, no freeway operations were analyzed under 2020 conditions. All movements along SR-86 to and from Avenue 50 were analyzed in intersections operations described below.

Intersection Operations

Traffic operations were analyzed at the study intersections along Avenue 50 during the AM and PM peak hours under 2020 conditions. As described in the previous chapter, the ramp terminal intersections at Dillon Road and Avenue 52 were not included as study locations under 2020. The results are summarized in **Table 11** and **Table 12** for the No Build and Build scenarios, respectively. The technical calculations are presented in Appendix B.

**TABLE 11 - OPENING YEAR (2020) NO BUILD
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	28.6	C	36.7	D
2	Avenue 50/Leoco Lane	Signal	8.6	A	10.1	B
3	Avenue 50/ Peter Rabbit Lane	Signal	7.5	A	9.4	A
4	Avenue 50/Tyler Street	Side-street Stop	529.9	F	594.9	F
5	Avenue 50/ Southbound SR-86 Ramps	Signal	71.0	E	69.8	E
6	Avenue 50/ Northbound SR-86 Ramps					
11	Tyler Street/Calle Mendoza	Side-street Stop	15.0	C	12.9	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 12 - OPENING YEAR (2020) BUILD
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	29.7	C	43.4	D
2	Avenue 50/Leoco Lane	Signal	8.6	A	9.8	A
3	Avenue 50/ Peter Rabbit Lane	Signal	8.6	A	11.4	B
4	Avenue 50/Tyler Street	Signal	25.3	C	21.5	C
5	Avenue 50/ Southbound SR-86 Ramps	Signal	81.5	F	82.9	F
6	Avenue 50/ Northbound SR-86 Ramps					
11	Tyler Street/Calle Mendoza	Side-street Stop	15.7	C	15.7	C

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017



Under Year 2020 conditions, majority of the study intersections would operate acceptably at LOS D or better conditions during both AM and PM peak hours under the No Build scenario, except that:

- Avenue 50/Tyler Street/Magnolia intersection would remain as stop-controlled and operate at an unacceptable LOS F during both AM and PM peak hours.
- SR-86/Avenue 50 intersection would remain as an at-grade signal and operate at LOS F during both AM and PM peak hours.

With the Avenue 50 Bridge widening in place under the Build scenario, the Avenue 50/Tyler Street/Magnolia intersection will be constructed with a traffic signal which would improve the operations at this intersection from LOS F to acceptable LOS C during both AM and PM peak hours under year 2020. The additional capacity proposed by the Avenue 50 Bridge project would attract more traffic using the Avenue 50/SR-86 intersection and result in higher delay at this intersection. However, this at-grade intersection is proposed to upgrade to an interchange by Year 2025 as phase 2 improvements of the project. All other study intersections would operate at acceptable LOS D or better conditions under the 2020 Build scenario.

6. OPENING YEAR 2025 CONDITIONS

This chapter presents the traffic forecasts and operations analysis results of the project scenarios under opening year (2025) conditions. The purpose of the opening year analysis is to evaluate short-term traffic operations with and without Phase 2 of the project: SR-86/Avenue 50 interchange improvements. The Avenue 50 Bridge widening project was assumed to be in place under the 2025 conditions.

Analysis Scenarios

The 2025 traffic forecasts were developed for study facilities as part of the Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project and approved by Caltrans in July 2017. Traffic operations were evaluated for each of the following project scenarios under opening year (2025) conditions:

- No Build Scenario (With Avenue 50 Bridge & No SR-86/Avenue 50 Interchange)
- Build Scenario (With Avenue 50 Bridge & With SR-86/Avenue 50 Interchange)
 - o Build Alternative 7
 - o Build Alternative 8

Figures 5, 6, and 7 show the lane configurations and peak hour traffic volumes at the study intersections along SR-86 for the No Build and two Build scenarios (aka, without and with the SR-86/Avenue 50 Interchange) under 2025 conditions, respectively. The 2025 ADT forecasts for SR-86 mainline segments are shown in **Figures 8, 9, and 10** for the No Build and two Build scenarios, respectively.

The Opening Year 2025 scenarios assume background improvements over existing conditions for the following study locations in the study area:

- #9. Avenue 52 & SR-86 Southbound Ramps
 - o This location is assumed to be a part of a signalized diamond interchange with the SR-86 mainline grade separated from Avenue 52.
- #10. Avenue 52 & SR-86 Northbound Ramps
 - o This location is assumed to be part of a signalized diamond interchange with the SR-86 mainline grade separated from Avenue 52.



5. Southbound SR-86 Ramps/Avenue 50 	6. Northbound SR-86 Ramps/Avenue 50 	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road 	9. Southbound SR-86 Ramps/Avenue 52 	10. Northbound SR-86 Ramps/Avenue 52

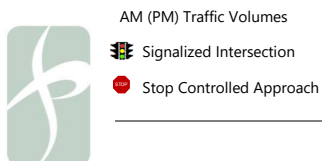
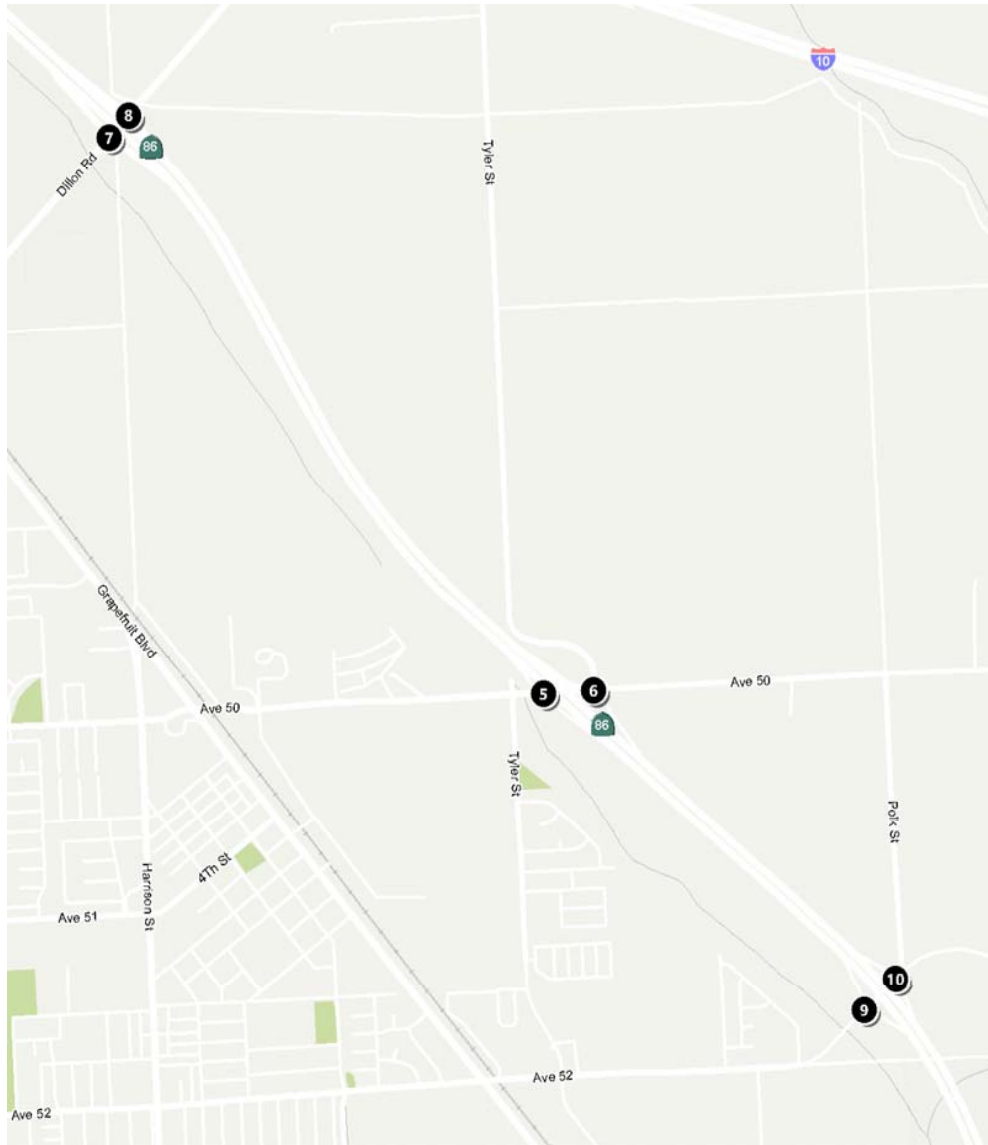


Figure 5
Peak Hour Intersection Volumes
Opening Year 2025 No Project



5. Southbound SR-86 Ramps/Avenue 50 	6. Northbound SR-86 Ramps/Avenue 50 	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road 	9. Southbound SR-86 Ramps/Avenue 52 	10. Northbound SR-86 Ramps/Avenue 52

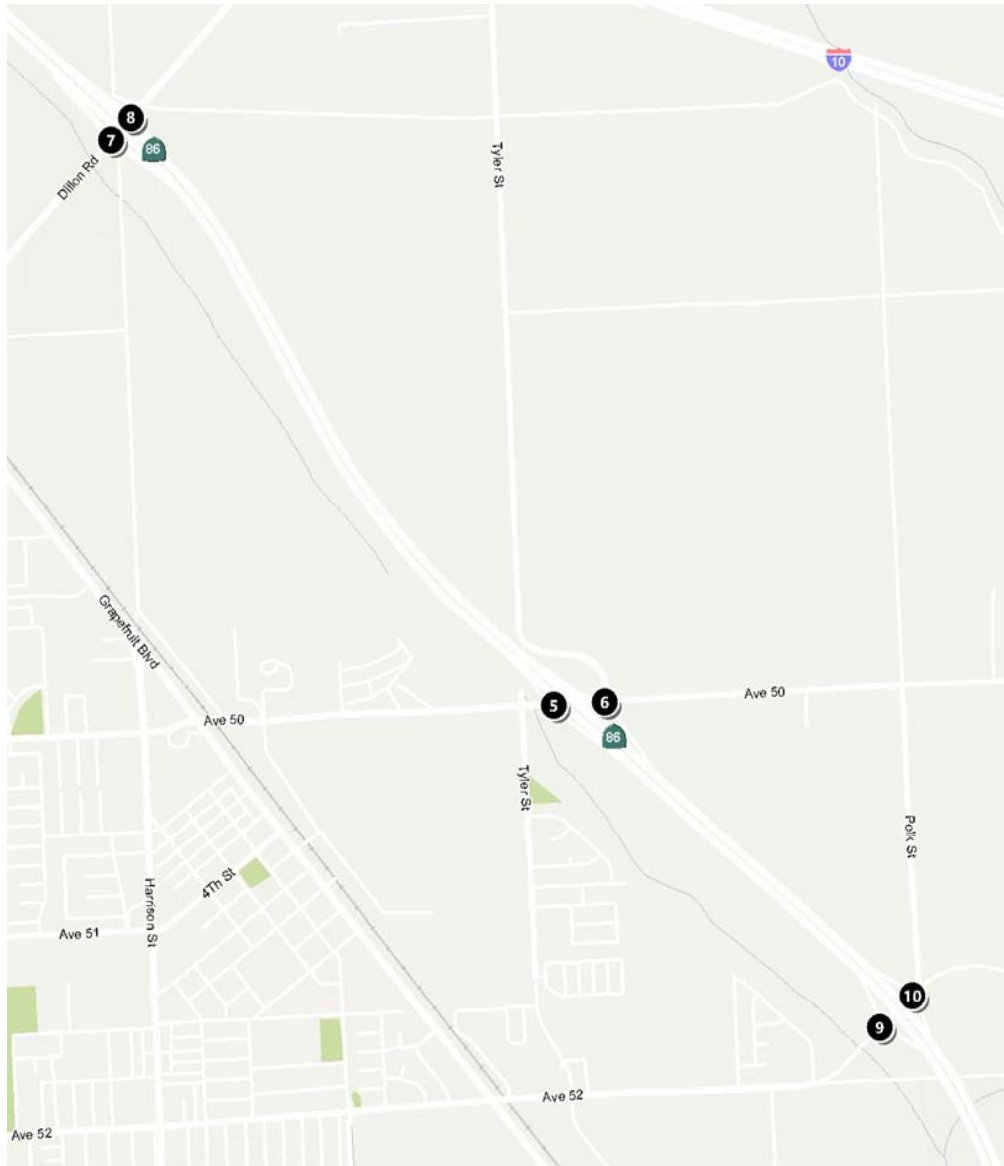


AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

Figure 6
Peak Hour Intersection Volumes
Opening Year 2025 Plus Project
Alternative 7



5. Southbound SR-86 Ramps/Avenue 50 	6. Northbound SR-86 Ramps/Avenue 50 	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road 	9. Southbound SR-86 Ramps/Avenue 52 	10. Northbound SR-86 Ramps/Avenue 52

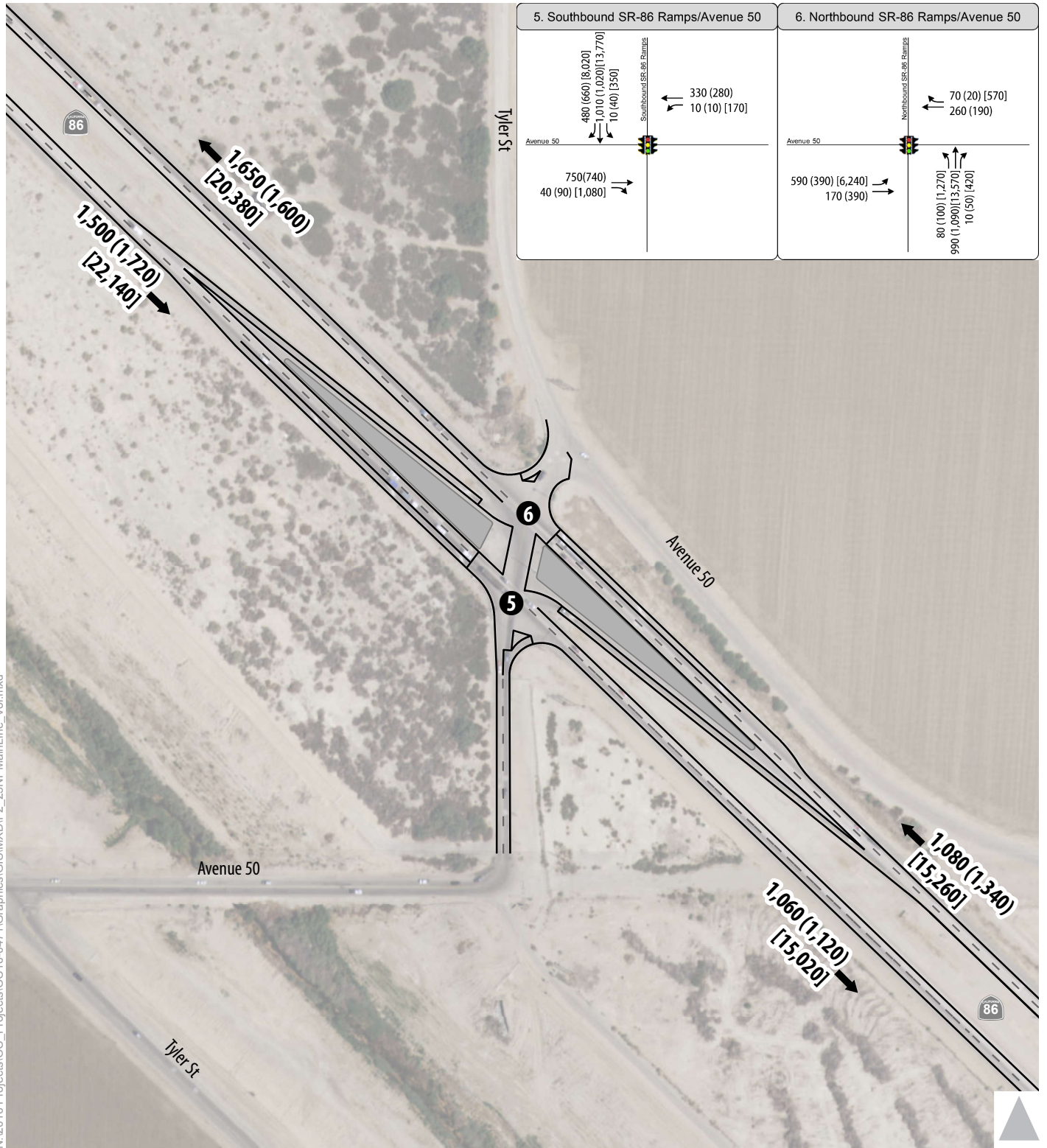


AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

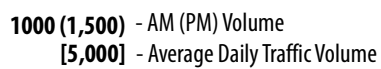
Figure 7
Peak Hour Intersection Volumes
Opening Year 2025 Plus Project
Alternative 8



1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 8
 Opening Year 2025 No Project Mainline
 Traffic Volume Forecasts







1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 10

Opening Year 2025 Build Alternative 8 Mainline
Traffic Volume Forecasts



Roadway Operations

As described in the previous chapter, Avenue 50 roadway segments were not included as study locations under opening year 2025. Therefore, no roadway segments were analyzed under 2025 conditions.

Freeway Operations

Under the No Build scenario, SR-86 in the study area would remain as a multi-lane highway with at-grade access points, rather than a freeway. Therefore, no freeway operations were analyzed under 2025 No Build conditions.

Under the two Build scenario, SR-86 between Avenue 52 and Dillon Road would be upgrade to freeway with uninterrupted traffic flow. Freeway operations analysis was conducted for SR-86 mainline and ramp junctions under the two Build scenarios, and the results are shown in **Table 13**. The technical calculations are presented in Appendix B. As shown, all the study locations along SR-86 would operate at acceptable LOS C or better under both Build scenarios.

**TABLE 13 - OPENING YEAR (2025) BUILD
FREWAY ANALYSIS SUMMARY**

Segment	Type	Alt 7				Alt 8			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Density ¹	LOS	Density ¹	LOS	Density ¹	LOS	Density ¹	LOS
Northbound SR-86									
NB Mainline South of Avenue 50	Basic	10.5	A	11.1	B	10.5	A	11.1	B
Avenue 50 Off-Ramp	Diverge	15.5	B	16.2	B	15.5	B	16.2	B
Avenue 50 Loop On-Ramp	Merge	16.8	B	15.6	B	16.8	B	15.6	B
Avenue 50 Slip On-Ramp	Merge	18.8	B	16.0	B	18.8	B	16.0	B
Mainline (Avenue 50 to Dillon Road)	Basic	15.8	B	13.1	B	15.8	B	13.1	B
Dillon Road Off-Ramp	Diverge	21.3	C	18.1	B	21.3	C	18.1	B
Southbound SR-86									
Dillon Road On-Ramp	Merge	16.0	B	18.5	B	16.0	B	18.5	B
Mainline (Dillon Road to Avenue 50)	Basic	13.2	B	15.8	B	13.2	B	15.8	B
Avenue 50 Off-Ramp	Diverge	18.8	B	22.0	C	18.8	B	22.0	C
Avenue 50 Slip On-Ramp	Merge	11.9	B	12.7	B	11.9	B	12.7	B
Mainline North of Avenue 50	Basic	9.4	A	10.2	A	9.4	A	10.2	A

Bold text indicates unacceptable operations

1. Density was reported in number of vehicles per lane per mile.

Source: Fehr & Peers, 2017

Intersection Operations

Traffic operations were analyzed at the ramp terminal intersections along SR-86 during the AM and PM peak hours under 2025 conditions. As described in the previous chapter, the local intersections along Avenue 50 were not included as study locations under 2025. The intersections operations results are summarized in **Tables 14, 15, and 16** for the No Build and two Build scenarios, respectively. The technical calculations are presented in Appendix B.

**TABLE 14 - OPENING YEAR (2025) NO BUILD
INTERSECTION LOS SUMMARY**

Intersection	Control	AM		PM	
		Delay	LOS	Delay	LOS
5 Avenue 50/ Southbound SR-86 Ramps	Signal	162.2	F	182.2	F
6 Avenue 50/ Northbound SR-86 Ramps					
7 Dillon Road/ Southbound SR-86 Ramps	Signal	12.1	B	26.8	C
8 Dillon Road/ Northbound SR-86 Ramps	Signal	16.8	B	13.1	B
9 Avenue 52/Southbound SR-86 Ramps	Signal	12.6	B	9.7	A
10 Avenue 52/ Northbound SR-86 Ramps	Signal	13.5	B	13.2	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 15 - OPENING YEAR (2025) BUILD ALT 7
INTERSECTION LOS SUMMARY**

Intersection	Control	AM		PM	
		Delay	LOS	Delay	LOS
5 Avenue 50/ Southbound SR-86 Ramps	Signal	16.1	B	22.8	C
6 Avenue 50/ Northbound SR-86 Ramps	Signal	11.9	B	16.0	B
7 Dillon Road/ Southbound SR-86 Ramps	Signal	11.9	B	19.6	B
8 Dillon Road/ Northbound SR-86 Ramps	Signal	15.9	B	17.0	B
9 Avenue 52/Southbound SR-86 Ramps	Signal	13.6	B	13.2	B
10 Avenue 52/ Northbound SR-86 Ramps	Signal	13.9	B	12.8	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 16 - OPENING YEAR (2025) BUILD ALT 8
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
5	Avenue 50/ Southbound SR-86 Ramps	Signal	15.5	B	19.9	B
6	Avenue 50/ Northbound SR-86 Ramps	Signal	11.9	B	16.2	B
7	Dillon Road/ Southbound SR-86 Ramps	Signal	11.9	B	19.6	B
8	Dillon Road/ Northbound SR-86 Ramps	Signal	15.9	B	17.0	B
9	Avenue 52/Southbound SR-86 Ramps	Signal	13.6	B	13.2	B
10	Avenue 52/ Northbound SR-86 Ramps	Signal	13.9	B	12.8	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

Under Year 2025 conditions, all the study ramp terminal intersections would operate acceptably at LOS D or better conditions during both AM and PM peak hours under the No Build scenario, except that:

- SR-86/Avenue 50 intersection would remain as an at-grade signal and operate at LOS F during both AM and PM peak hours.

With the SR-86/Avenue 50 interchange in place under the two Build scenarios, the two ramp terminal intersections at SR-86 and Avenue 50 would improve from LOS F to acceptable LOS C or better during both AM and PM peak hours under year 2025. All other study intersections would operate at acceptable LOS B conditions under the 2025 Build scenarios.

7. DESIGN YEAR 2045 CONDITIONS

This chapter presents the traffic forecasts and operations analysis results of the project scenarios under design year (2045) conditions. The purpose of the design year analysis is to evaluate long-term traffic operations with and without the proposed improvements.

Analysis Scenarios

The 2045 traffic forecasts were developed for study facilities as part of the Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project and approved by Caltrans in July 2017. Traffic operations were evaluated for each of the following project scenarios under design year (2045) conditions:

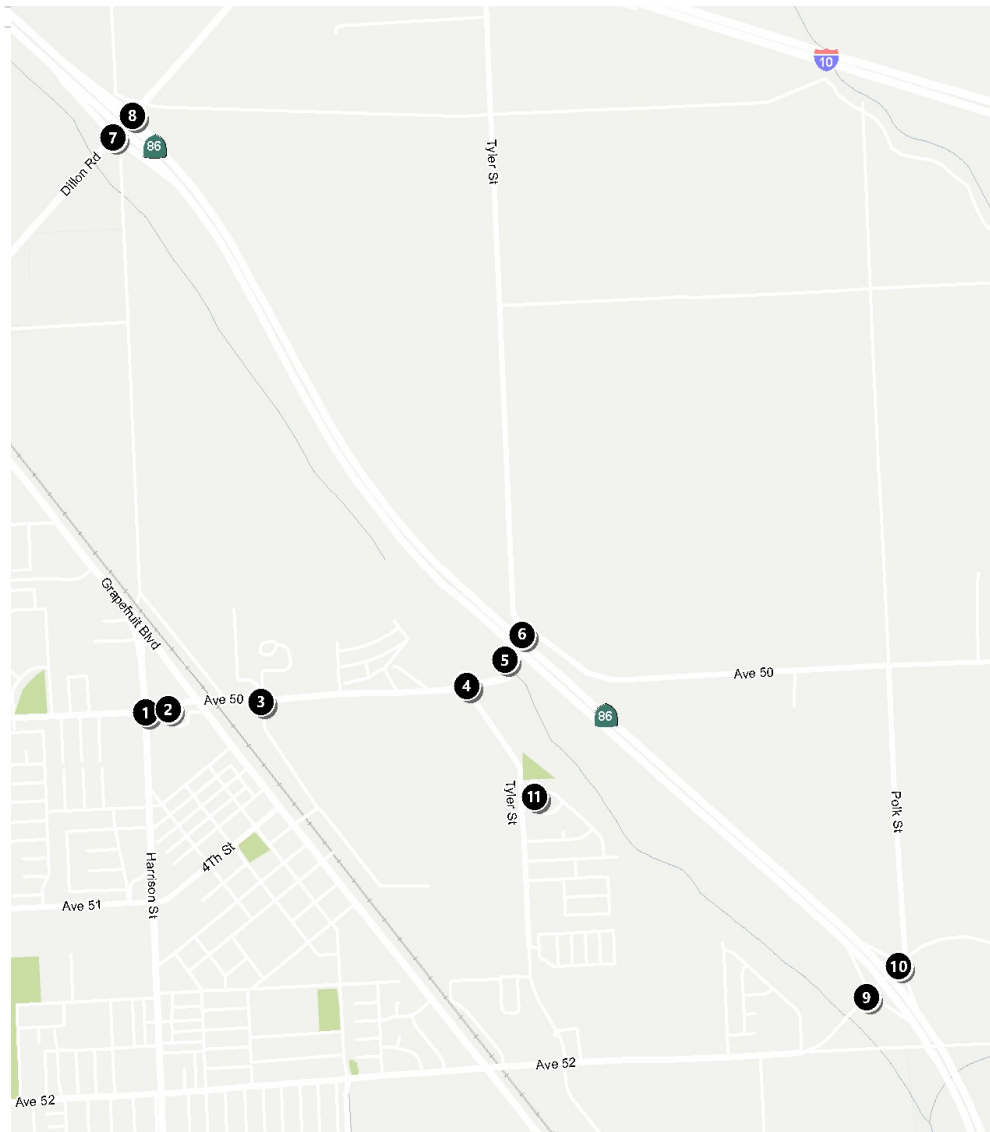
- No Build Scenario (No Avenue 50 Bridge & No SR-86/Avenue 50 Interchange)
- Build Scenario (With Avenue 50 Bridge & With SR-86/Avenue 50 Interchange)
 - o Build Alternative 7
 - o Build Alternative 8

Figures 11, 12, and 13 show the lane configurations and peak hour traffic volumes at the study intersections along Avenue 50 and SR-86 for the No Build and two Build scenarios under 2045 conditions, respectively. The 2045 ADT forecasts for SR-86 mainline segments are shown in **Figures 14, 15, and 16** for the No Build and two Build scenarios, respectively. The 2045 ADT forecasts for Avenue 50 study roadway segments are shown in **Table 17** and **Table 18** for the No Build and Build scenarios, respectively.

The Opening Year 2045 scenarios assume background improvements over existing conditions for the following study locations in the study area:

- #1. Avenue 50 & Harrison Street
 - o Avenue 50 west of Harrison Street is assumed to be a 6 lane facility, with 3 through lanes in each direction. This assumption is consistent with the City's adopted General Plan, which classifies Avenue 50 west of Harrison Street as a 6 lane Major Arterial.
 - o Avenue 50 east of Harrison Street is assumed to be a 4 lane facility, with 2 through lanes in each direction. This assumption is consistent with the City's adopted General Plan, which classified Avenue 50 east of Harrison Street as a 4 lane Primary Arterial.

- 
- #3. Avenue 50 & Peter Rabbit Lane
 - o Avenue 50 is assumed to be a 4 lane facility, for 2 through lanes in each direction. This assumption is consistent with the City's adopted General Plan, which classifies this segment of Avenue 50 as a 4 lane Primary Arterial.
 - #7. Dillion Road & SR-86 Southbound Ramps
 - o Dillion Road is assumed to be a 6 lane facility, with 3 through lanes in each direction. This assumption is consistent with the City's adopted General Plan, which classifies Dillion Road as a 6 lane Major Arterial.
 - #8. Dillon Road & SR-86 Northbound Ramps
 - o Dillion Road is assumed to be a 6 lane facility, with 3 through lanes in each direction. This assumption is consistent with the City's adopted General Plan, which classifies Dillion Road as a 6 lane Major Arterial.
 - #9. Avenue 52 & SR-86 Southbound Ramps
 - o This location is assumed to be a part of a signalized diamond interchange with the SR-86 mainline grade separated from Avenue 52.
 - #10. Avenue 52 & SR-86 Northbound Ramps
 - o This location is assumed to be part of a signalized diamond interchange with the SR-86 mainline grade separated from Avenue 52.



1. Harrison Street/Avenue 50 	2. Leoco Lane/Avenue 50 	3. Peter Rabbit Lane/Avenue 50
4. Tyler Street/Avenue 50 	5. Southbound SR-86 Ramps/Avenue 50 	6. Northbound SR-86 Ramps/Avenue 50
7. Southbound SR-86 Ramps/Dillon Road 	8. Northbound SR-86 Ramps/Dillon Road 	9. Southbound SR-86 Ramps/Avenue 52
10. Northbound SR-86 Ramps/Avenue 52 	11. Tyler Street/Calle Mendoza 	

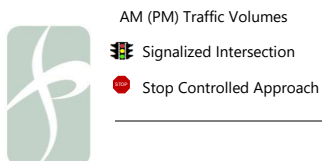


Figure 11
Peak Hour Intersection Volumes
Design Year 2045 No Project

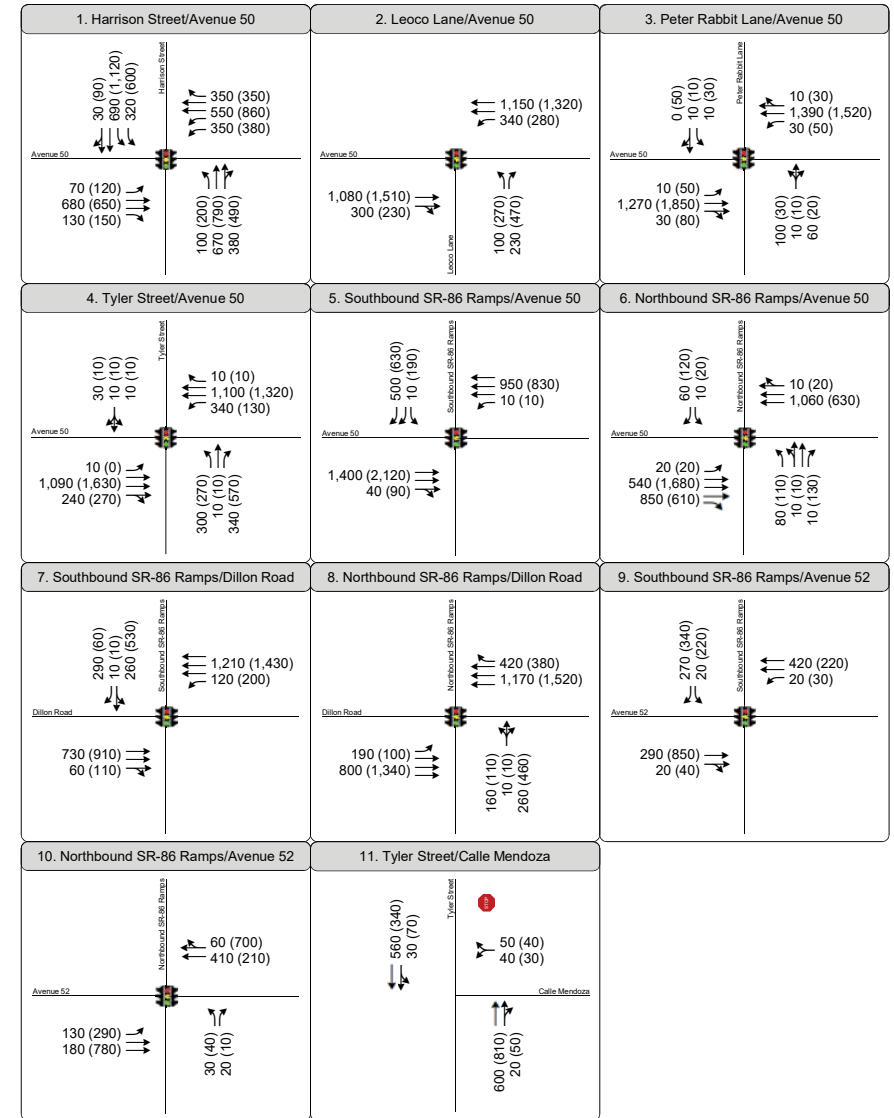


Figure 12
Peak Hour Intersection Volumes
Design Year 2045 Plus Project
Alternative 7



1. Harrison Street/Avenue 50 Harrison Street Avenue 50 30 (90) 890 (1,120) 320 (600) 70 (120) 680 (650) 130 (150) 100 (200) 670 (790) 380 (490) 350 (350) 550 (860) 350 (380)	2. Leoco Lane/Avenue 50 Avenue 50 Leoco Lane 1,150 (1,320) 340 (280) 1,080 (1,510) 300 (230) 100 (270) 230 (470)	3. Peter Rabbit Lane/Avenue 50 Avenue 50 Peter Rabbit Lane 0 (60) 10 (10) 10 (30) 10 (30) 1,390 (1,520) 30 (50) 10 (50) 1,270 (1,850) 30 (80) 100 (30) 10 (10) 60 (20)
4. Tyler Street/Avenue 50 Tyler Street Avenue 50 30 (10) 10 (10) 10 (10) 10 (10) 1,090 (1,630) 240 (270) 10 (10) 1,100 (1,320) 340 (130) 300 (270) 10 (10) 340 (570)	5. Southbound SR-86 Ramps/Avenue 50 Avenue 50 Southbound SR-86 Ramps 500 (630) 10 (190) 40 (90) 1,400 (2,120)	6. Northbound SR-86 Ramps/Avenue 50 Avenue 50 Northbound SR-86 Ramps 60 (120) 10 (20) 20 (20) 540 (1,680) 850 (610) 10 (20) 1,060 (630) 80 (110) 10 (10) 10 (130)
7. Southbound SR-86 Ramps/Dillon Road Dillon Road Southbound SR-86 Ramps 290 (60) 10 (10) 260 (530) 730 (910) 60 (110) 1,210 (1,430) 120 (200)	8. Northbound SR-86 Ramps/Dillon Road Dillon Road Northbound SR-86 Ramps 420 (380) 1,170 (1,520) 190 (100) 800 (1,340) 160 (110) 10 (10) 260 (460)	9. Southbound SR-86 Ramps/Avenue 52 Avenue 52 Southbound SR-86 Ramps 270 (340) 20 (220) 290 (850) 20 (40) 420 (220) 20 (30)
10. Northbound SR-86 Ramps/Avenue 52 Avenue 52 Northbound SR-86 Ramps 60 (700) 410 (210) 130 (290) 180 (780) 30 (40) 20 (10)	11. Tyler Street/Calle Mendoza Tyler Street Calle Mendoza 560 (340) 30 (70) 50 (40) 40 (30) 600 (810) 20 (50)	

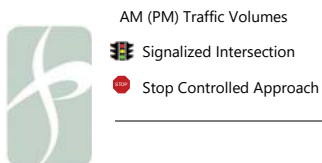
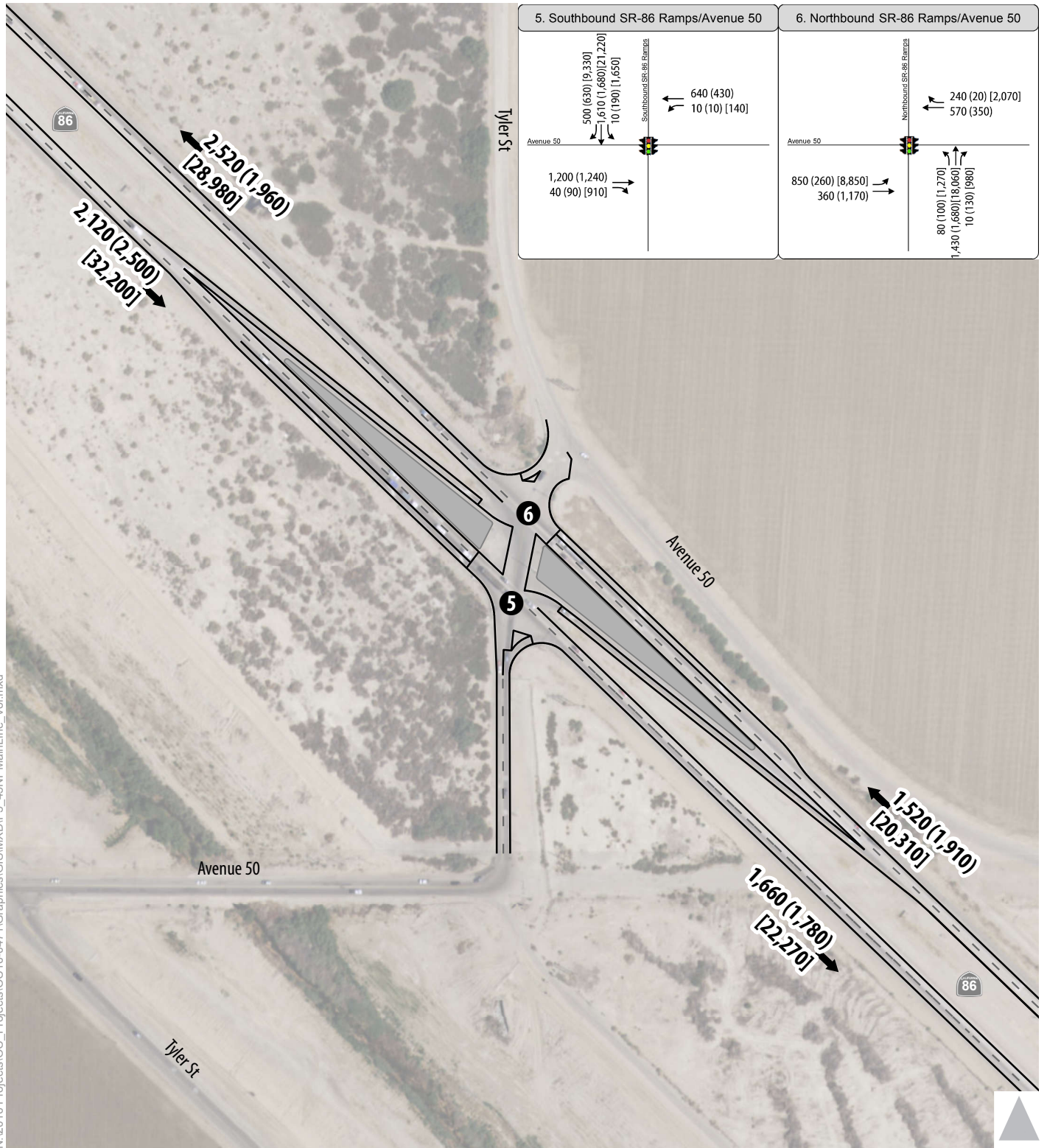


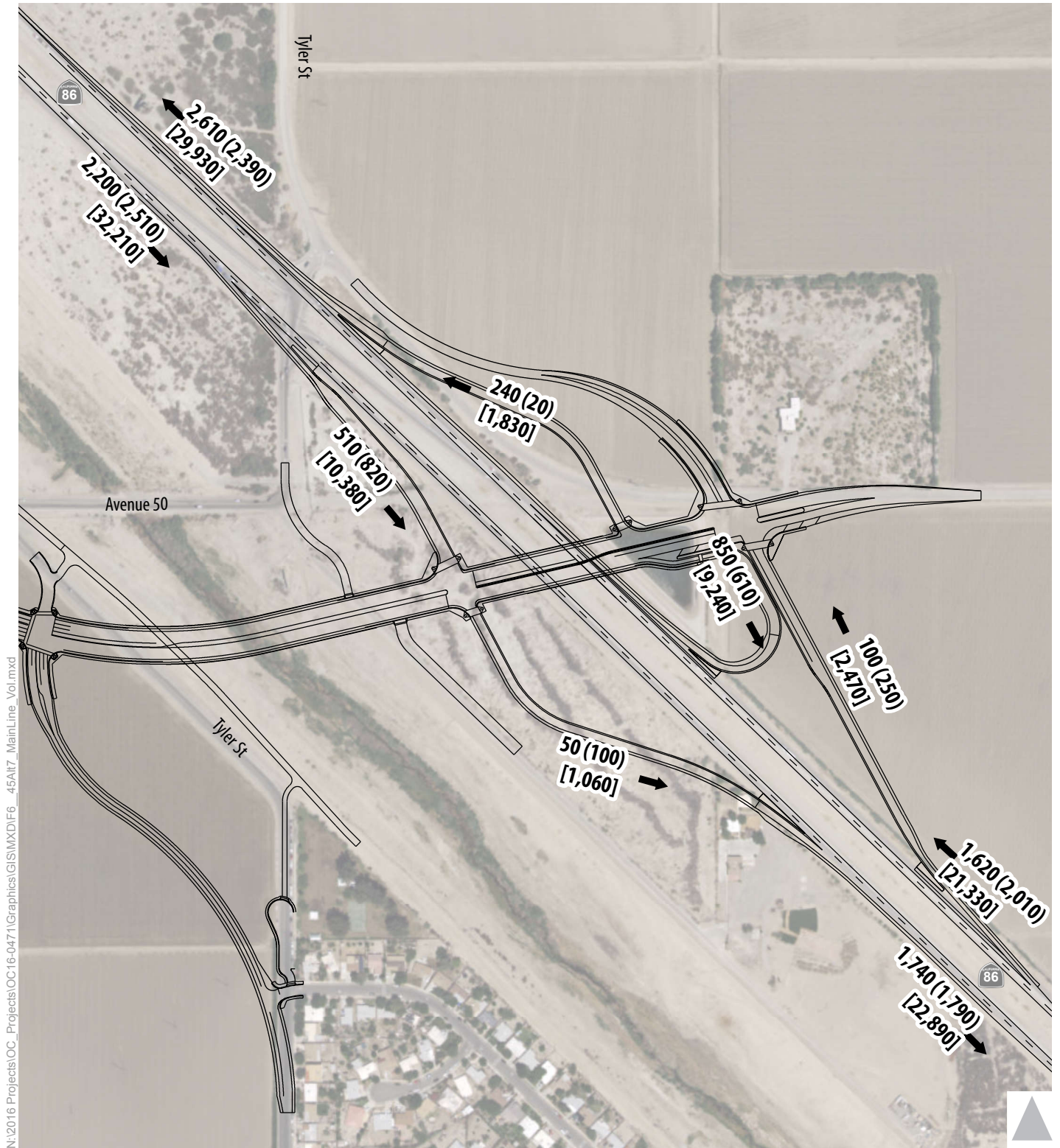
Figure 13
Peak Hour Intersection Volumes
Design Year 2045 Plus Project
Alternative 8



1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 14
 Design Year 2045 No Project Mainline
 Traffic Volume Forecasts





1000 (1,500) - AM (PM) Volume
 [5,000] - Average Daily Traffic Volume

Figure 15

Design Year 2045 Build Alternative 7 Mainline
 Traffic Volume Forecasts





1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 16

Design Year 2045 Build Alternative 8 Mainline
Traffic Volume Forecasts



Roadway Operations

The 2045 roadway operations results are displayed in **Table 17** and **Table 18** for the No Build and Build scenarios, respectively. All the roadway segments along Avenue 50 would operate at acceptable LOS D or better conditions under the No Build scenario. With the increased capacity proposed by the project, Avenue 50 would expect an increase in traffic demand. However, the study roadway segments would accommodate the traffic demand increase and still operate at LOS D or better under both Build scenarios.

**TABLE 17 – DESIGN YEAR (2045) NO BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	30,570	16,700	1.83	F
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	26,270	37,400	0.70	C
3	Avenue 50: West of Harrison Street	Major Arterial (6)	15,370	56,000	0.27	A

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

**TABLE 18 – DESIGN YEAR (2045) BUILD ALT 7 & ALT 8
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (6)	32,350	56,000	0.58	A
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	31,240	37,400	0.84	D
3	Avenue 50: West of Harrison Street	Major Arterial (6)	16,930	56,000	0.30	A

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

Freeway Operations

Under the No Build scenario, SR-86 in the study area would remain as a multi-lane highway with at-grade access points, rather than a freeway. Therefore, no freeway operations were analyzed under 2045 No Build conditions.

Under the two Build scenario, SR-86 between Avenue 52 and Dillon Road would be upgrade to freeway with uninterrupted traffic flow. Freeway operations analysis was conducted for SR-86 mainline and ramp junctions under the two Build scenarios, and the results are shown in **Table 19**. The technical calculations are presented in Appendix B. As shown, all the study locations along SR-86 would operate at acceptable LOS D or better under both Build scenarios by 2045.

**TABLE 19 - DESIGN YEAR (2045) BUILD
FREEWAY ANALYSIS SUMMARY**

Segment	Type	Alt 7				Alt 8			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Density ¹	LOS	Density ¹	LOS	Density ¹	LOS	Density ¹	LOS
Northbound SR-86									
NB Mainline South of Avenue 50	Basic	13.5	B	16.8	B	13.5	B	16.8	B
Avenue 50 Off-Ramp	Diverge	19.2	B	23.1	C	19.2	B	23.1	C
Avenue 50 Loop On-Ramp	Merge	22.2	C	22.5	C	22.2	C	22.5	C
Avenue 50 Slip On-Ramp	Merge	25.2	C	23.5	C	25.2	C	23.5	C
Mainline (Avenue 50 to Dillon Road)	Basic	22.2	C	20.1	C	22.2	C	20.1	C
Dillon Road Off-Ramp	Diverge	28.5	D	26.3	C	28.5	D	26.3	C
Southbound SR-86									
Dillon Road On-Ramp	Merge	21.6	C	24.3	C	21.6	C	24.3	C
Mainline (Dillon Road to Avenue 50)	Basic	18.5	C	21.3	C	18.5	C	21.3	C
Avenue 50 Off-Ramp	Diverge	25.1	C	28.2	D	25.1	C	28.2	D
Avenue 50 Slip On-Ramp	Merge	17.6	B	18.0	B	17.6	B	18.0	B
Mainline North of Avenue 50	Basic	14.6	B	15.0	B	14.6	B	15.0	B

Bold text indicates unacceptable operations

1. Density was reported in number of vehicles per lane per mile.

Source: Fehr & Peers, 2017

Intersection Operations

Traffic operations were analyzed at all the study intersections during the AM and PM peak hours under 2045 conditions. The intersections operations results are summarized in **Tables 20, 21, and 22** for the No Build and two Build scenarios, respectively. The technical calculations are presented in Appendix B.

**TABLE 20 - DESIGN YEAR (2045) NO BUILD
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	36.1	D	52.9	D
2	Avenue 50/Leoco Lane	Signal	14.0	B	30.9	C
3	Avenue 50/ Peter Rabbit Lane	Signal	8.9	A	8.7	A
4	Avenue 50/Tyler Street	Side-street Stop	1817.2	F	877.2	F
5	Avenue 50/ Southbound SR-86 Ramps	Signal	450.8	F	431.7	F
6	Avenue 50/ Northbound SR-86 Ramps					
7	Dillon Road/ Southbound SR-86 Ramps	Signal	12.4	B	32.1	C
8	Dillon Road/ Northbound SR-86 Ramps	Signal	31.2	C	18.2	B
9	Avenue 52/Southbound SR-86 Ramps	Signal	11.3	B	10.3	B
10	Avenue 52/ Northbound SR-86 Ramps	Signal	10.1	B	9.0	A
11	Tyler Street/Calle Mendoza	Side-street Stop	20.4	C	18.8	C

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 21 - DESIGN YEAR (2045) BUILD ALT 7
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	49.7	D	79.7	E
2	Avenue 50/Leoco Lane	Signal	19.0	B	50.0	D
3	Avenue 50/ Peter Rabbit Lane	Signal	10.4	B	12.6	B
4	Avenue 50/Tyler Street	Signal	34.0	C	33.0	C
5	Avenue 50/ Southbound SR-86 Ramps	Signal	13.9	B	31.6	C
6	Avenue 50/ Northbound SR-86 Ramps	Signal	8.2	A	15.9	B
7	Dillion Road/ Southbound SR-86 Ramps	Signal	12.8	B	25.9	C
8	Dillion Road/ Northbound SR-86 Ramps	Signal	24.6	C	29.3	C
9	Avenue 52/Southbound SR-86 Ramps	Signal	12.4	B	22.0	C
10	Avenue 52/ Northbound SR-86 Ramps	Signal	10.0	B	14.4	B
11	Tyler Street/Calle Mendoza	Side-street Stop	18.5	C	24.0	C

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 22 - DESIGN YEAR (2045) BUILD ALT 8
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	49.7	D	79.7	E
2	Avenue 50/Leoco Lane	Signal	19.0	B	50.0	D
3	Avenue 50/ Peter Rabbit Lane	Signal	10.4	B	12.6	B
4	Avenue 50/Tyler Street	Signal	34.0	C	33.0	C
5	Avenue 50/ Southbound SR-86 Ramps	Signal	13.7	B	20.8	B
6	Avenue 50/ Northbound SR-86 Ramps	Signal	10.9	B	16.5	B
7	Dillion Road/ Southbound SR-86 Ramps	Signal	12.8	B	25.9	C
8	Dillion Road/ Northbound SR-86 Ramps	Signal	24.6	C	29.3	C
9	Avenue 52/Southbound SR-86 Ramps	Signal	12.4	B	22.0	C
10	Avenue 52/ Northbound SR-86 Ramps	Signal	10.0	B	14.4	B
11	Tyler Street/Calle Mendoza	Side-street Stop	18.5	C	24.0	C

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

Under Year 2045 conditions, majority of the study intersections would operate acceptably at LOS D or better conditions during both AM and PM peak hours under the No Build scenario, except that:

- Avenue 50/Tyler Street/Magnolia intersection would remain as stop-controlled and operate at an unacceptable LOS F during both AM and PM peak hours.
- SR-86/Avenue 50 intersection would remain as an at-grade signal and operate at LOS F during both AM and PM peak hours.

With the Avenue 50 Bridge and the SR-86/Avenue 50 interchange in place under the two Build scenarios, both the Avenue 50/Tyler Street and SR-86/Avenue 50 intersections would improve from LOS F to acceptable LOS C or better during both AM and PM peak hours under year 2045. However, the intersection of Avenue 50 & Harrison Street would operate at a higher delay than the No Build scenario due to traffic demand increase along Avenue 50. Mitigation measures were recommended and discussed below to address the traffic impacts at this location.

Mitigation Measures

Avenue 50 & Harrison Street: Modify the northbound approach to have 1 left turn lane, 3 through lanes, and 1 right turn lane with a right turn overlap phase. These mitigation measures are consistent with the mitigation measures proposed for this location in the La Entrada Specific Plan Traffic Impact Analysis (LSA, June 2013).

The intersection operations results after mitigation measures are presented in **Table 23**. The technical calculations are presented in Appendix B. The recommended mitigation measures would improve traffic operations at this intersection and reduce the traffic impacts to less than significant under Design Year 2045 conditions.

**TABLE 23 - MITIGATION MEASURES
INTERSECTION LOS SUMMARY**

Intersection	Control	Alt 7 Mitigated PM Peak Hour		Alt 8 Mitigated PM Peak Hour	
		Delay	LOS	Delay	LOS
1 Avenue 50/Harrison Street	Signal	54.0	D	54.0	D

Bold text indicates unacceptable level of service.

PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

Temporary Traffic LOS Condition between Phase I and Phase II

As stated in the "Purpose and Need" section, the Phase I primary goal is to improve public safety by replacing the existing low water crossing with a new bridge spanning over the Coachella Valley Stormwater Channel (CVSC), providing a safe passage and uninterrupted travel way connecting both sides of the City during inclement weather stormwater flooding events. More importantly, it will also help reduce emergency vehicle response times by eliminating long detours via the other two existing bridges over CVSC at Dillion Road and/or Avenue 52. Whereas Phase II is to improve traffic operations and accommodate future planned growth.

Due to funding constraints and limitations, the project is to be constructed in two phases. Phase I met the FHWA independent utility requirements with logical termini. However, there is a temporary Traffic LOS



deterioration condition while waiting for Phase II implementation. As shown in this Traffic Operations Study Report, the temporary Traffic LOS deterioration conditions are summarized as follows:

Phase I Opening Year - 2020

Under Year 2020, the SR-86/Avenue 50 intersection would remain as an existing at-grade intersection with no capacity or operational improvements. Widening of the Avenue 50 Bridge (Phase I) would increase traffic demand for the SR-86/Avenue 50 intersection and result in exacerbated operations from LOS E to LOS F conditions in 2020. This temporary condition is unavoidable until Phase II is implemented. The need for the Phase II new interchange improvements at SR-86/Avenue 50 is well-recognized, as reflected below.

Phase II Opening Year - 2025

Under Phase II, the SR-86/Avenue 50 intersection would be upgraded to an interchange and open to traffic by Year 2025. With the Phase II improvements in place, the SR-86/Avenue 50 interchange would expect significant operations improvements from LOS F to LOS B, or better, in 2025. The proposed improvements would provide sufficient capacity to accommodate future demand and continue to maintain LOS B conditions at the interchange by 2045.

Phase II Opening Year - 2045

Under 2045 conditions, several intersections would operate at reduced vehicle delay, even with higher volumes, in comparison to the 2025 conditions. This is largely due to the majority of volume increase falling into the coordinated signal phases (through movements) that have maximum green time and extra capacity to accommodate more vehicles in platoons. When this occurs, fewer vehicles would arrive on red and vehicle delays would be reduced. This is the reason the ramp terminal intersections at SR-86/Avenue 50 and SR-86/Avenue 52 show a slightly lower delay under 2045 with higher volumes when compared to 2025 conditions.

8. VMT/VHT SUMMARY

The vehicle miles traveled (VMT) and vehicle hours traveled (VHT) analysis was conducted for the study area under the following scenarios.

- Existing Conditions.
- Opening Year (2020) Conditions (No Build and Build Scenarios)
- Opening Year (2025) Conditions (No Build and Build Scenarios)
- Design Year (2045) Conditions (No Build and Build Scenarios)

The results are summarized in **Table 24**. Compared to the No Build scenario, VMT would increase under the Build scenarios due to more traffic attracted to the study area. However, the VHT would decrease under the Build scenarios, which indicates the proposed project would serve more traffic through the system and save the overall travel time in the meanwhile.

TABLE 24 – STUDY AREA VMT/VHT SUMMARY

Scenario	VMT	VHT
Existing (2015) Conditions	907,332	25,300
Opening Year 2020 No Build Conditions	1,071,679	29,646
Opening Year 2020 Build (Phase 1)	1,076,080	29,582
Opening Year 2025 No Build Conditions	1,242,261	33,901
Opening Year 2025 Build (Phase 2)	1,245,948	33,747
Design Year 2045 No Build Conditions	1,893,418	51,376
Design Year 2045 Build (Phase 1 & Phase 2)	1,915,011	50,844

Source: Fehr & Peers, 2017



9. CONCLUSIONS

The proposed project operations analysis findings are summarized below.

- Under existing conditions, all the roadway segments along Avenue 50 and all the study intersections operate at acceptable LOS D or better conditions with the exception of the Avenue 50/Tyler Street/Magnolia intersection.
- The collision rates on SR-86 are higher than the statewide average for similar facilities with rear-end as the most common collision type and unsafe speed as primary factor. The proposed project would replace the at-grade crossing with a grade separated interchange at SR-86 and Avenue 50 and expect to improve traffic safety by allowing uninterrupted traffic flow along SR-86.
- Under Phase 1 Opening Year 2020 conditions, all the roadway segments along Avenue 50 would operate at acceptable LOS with increased demand under the Build Alternative. The proposed Phase 1 Avenue 50 Bridge widening improvements would improve the Avenue 50/Tyler Street/Magnolia intersection from LOS F to acceptable LOS C. The additional capacity proposed by the Avenue 50 Bridge project would attract more traffic using the Avenue 50/SR-86 intersection and result in higher delay. However, this at-grade intersection is proposed to upgrade to an interchange by Year 2025 as Phase 2 improvements of the project.
- Under Phase 2 Opening Year 2025 conditions, both Build Alternatives would significantly reduce delay at the SR-86 and Avenue 50 intersection and improve operations from LOS F to LOS B or better under both peak hours. SR-86 mainline and ramps would also operate at LOS C or better under both Build Alternatives.
- Under Design Year 2045 No Build conditions, all the roadway segments along Avenue 50 would operate at acceptable LOS with the exception of the roadway segment of Avenue 50 between Tyler Street and SR-86, which would operate at LOS F. However, the proposed project would increase capacity at this location, which would operate at LOS A in the Build scenarios. The proposed project would also significantly improve the Avenue 50/Tyler Street/Magnolia and SR-86/Avenue 50 intersections from LOS F to acceptable LOS C or better conditions. However, the intersection of Avenue 50 and Harrison Street would operate at an unacceptable level of service compared to the No Build scenario due to traffic demand increase along Avenue 50. Mitigation measures were recommended to address the traffic impacts at this intersection. SR-86 mainline and ramps would operate at LOS D or better under both Build Alternatives by 2045.

APPENDIX A

Traffic Counts



24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 Bridge between Tyler and SR-86

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	11	0	0	0	0	0	11	12:00	50	7	0	2	0	0	59
0:15	12	0	0	1	0	0	13	12:15	43	6	0	2	0	0	51
0:30	4	0	0	0	0	0	4	12:30	43	4	0	2	0	0	49
0:45	8	0	0	0	0	0	8	12:45	53	9	0	3	0	0	65
1:00	7	0	0	0	0	0	7	13:00	56	6	0	0	0	0	62
1:15	5	1	0	1	0	0	7	13:15	59	6	0	2	0	1	68
1:30	4	0	0	1	0	0	5	13:30	57	7	0	1	0	0	65
1:45	7	0	0	0	0	0	7	13:45	53	4	0	3	0	1	61
2:00	5	0	0	0	0	0	5	14:00	52	4	0	1	0	1	58
2:15	3	1	0	0	0	0	4	14:15	53	8	0	3	0	0	64
2:30	9	0	0	0	0	0	9	14:30	88	5	0	1	0	0	94
2:45	7	0	0	0	0	0	7	14:45	68	4	1	1	0	0	74
3:00	3	0	0	1	0	0	4	15:00	73	12	3	3	0	0	91
3:15	8	0	0	0	0	0	8	15:15	58	7	0	1	0	0	66
3:30	12	0	0	0	0	0	12	15:30	91	6	1	6	0	0	104
3:45	8	0	0	0	0	0	8	15:45	76	4	0	4	0	0	84
4:00	4	0	1	2	0	0	7	16:00	80	1	1	2	0	0	84
4:15	21	0	2	0	0	0	23	16:15	90	2	0	2	0	0	94
4:30	26	0	1	1	0	0	28	16:30	89	0	0	3	0	1	93
4:45	33	2	0	2	0	2	39	16:45	72	2	0	4	0	0	78
5:00	36	1	0	0	0	0	37	17:00	93	0	1	1	0	0	95
5:15	53	1	0	1	0	0	55	17:15	87	1	0	2	0	0	90
5:30	83	3	3	1	0	0	90	17:30	75	1	0	0	0	1	77
5:45	98	4	2	3	0	0	107	17:45	82	1	0	2	0	0	85
6:00	94	5	0	2	0	1	102	18:00	82	1	1	1	0	0	85
6:15	97	5	2	1	0	1	106	18:15	84	0	0	3	0	0	87
6:30	121	6	2	1	0	3	133	18:30	68	1	0	0	0	0	69
6:45	76	12	2	1	0	0	91	18:45	59	4	0	0	0	0	63
7:00	98	5	4	2	0	2	111	19:00	53	1	0	2	0	0	56
7:15	88	2	1	2	0	0	93	19:15	53	1	0	1	0	0	55
7:30	107	6	0	2	0	0	115	19:30	48	0	0	1	0	0	49
7:45	103	2	1	4	0	0	110	19:45	52	2	0	1	0	0	55
8:00	73	1	1	2	0	0	77	20:00	51	0	0	0	0	0	51
8:15	73	2	1	1	0	0	77	20:15	51	0	0	0	0	0	51
8:30	62	0	1	2	0	0	65	20:30	59	0	0	1	0	0	60
8:45	51	2	2	2	0	0	57	20:45	37	0	0	0	0	0	37
9:00	59	4	1	4	0	2	70	21:00	38	3	0	1	0	0	42
9:15	52	2	1	0	0	0	55	21:15	27	0	0	1	0	0	28
9:30	57	5	1	2	0	0	65	21:30	55	0	0	0	0	0	55
9:45	40	8	2	0	0	1	51	21:45	35	0	0	0	0	0	35
10:00	44	5	0	2	0	0	51	22:00	18	0	0	1	0	0	19
10:15	50	5	3	3	0	0	61	22:15	25	0	0	1	0	0	26
10:30	43	5	1	0	0	0	49	22:30	16	0	0	0	0	0	16
10:45	55	8	1	2	0	0	66	22:45	22	0	0	0	0	0	22
11:00	55	8	1	2	0	0	66	23:00	13	0	0	1	0	0	14
11:15	35	3	2	4	1	0	45	23:15	12	0	0	0	0	0	12
11:30	58	4	0	4	0	0	66	23:30	25	0	0	1	0	0	26
11:45	54	5	2	0	0	0	61	23:45	15	0	0	1	0	0	16
TOTAL	2,112	123	41	59	1	12	2,348	TOTAL	2,639	120	8	68	0	5	2,840
AM PEAK HOUR							5:45 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							448	AM PEAK VOLUME							366

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,751	243	49	127	1	17	5,188
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	91.6%	4.7%	0.9%	2.4%	0.0%	0.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	9,612	473	101	248	5	34	10,473
CLASS 6	Buses	% OF TOTAL	91.8%	4.5%	1.0%	2.4%	0.0%	0.3%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 Bridge between Tyler and SR-86

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	17	0	0	0	0	0	17	12:00	45	2	2	2	0	0	51
0:15	10	0	0	0	0	0	10	12:15	49	8	1	1	0	0	59
0:30	7	0	0	0	0	0	7	12:30	61	2	1	2	1	0	67
0:45	9	0	0	0	0	0	9	12:45	64	5	2	4	0	0	75
1:00	6	0	0	0	0	0	6	13:00	60	4	0	3	0	1	68
1:15	6	0	0	0	0	0	6	13:15	74	5	1	3	0	0	83
1:30	8	0	0	0	0	0	8	13:30	50	3	1	2	0	2	58
1:45	8	0	0	0	0	0	8	13:45	78	6	1	1	0	0	86
2:00	7	0	0	0	0	0	7	14:00	63	9	0	0	0	0	72
2:15	11	0	0	0	0	0	11	14:15	75	6	0	2	0	0	83
2:30	7	1	0	0	0	0	8	14:30	80	8	0	6	0	0	94
2:45	4	0	0	0	0	0	4	14:45	83	10	1	0	0	0	94
3:00	5	0	0	0	0	0	5	15:00	99	6	3	4	0	0	112
3:15	3	0	0	0	0	0	3	15:15	114	9	0	4	0	0	127
3:30	1	0	0	0	0	0	1	15:30	112	3	4	2	0	0	121
3:45	6	0	0	0	0	0	6	15:45	125	5	2	1	0	1	134
4:00	5	0	0	0	0	0	5	16:00	130	6	0	5	0	0	141
4:15	8	0	0	1	0	0	9	16:15	104	0	1	1	0	0	106
4:30	11	3	0	1	0	0	15	16:30	108	1	2	3	0	1	115
4:45	19	0	0	1	0	0	20	16:45	113	4	0	4	0	0	121
5:00	13	1	0	0	0	0	14	17:00	107	4	1	0	1	0	113
5:15	23	1	0	1	0	0	25	17:15	120	1	1	0	0	0	122
5:30	53	1	0	1	0	0	55	17:30	122	1	2	2	0	0	127
5:45	66	2	0	4	0	1	73	17:45	103	3	1	1	0	1	109
6:00	33	0	0	0	0	0	33	18:00	87	0	0	0	0	0	87
6:15	48	3	0	1	0	0	52	18:15	97	4	1	0	0	0	102
6:30	51	5	0	1	0	2	59	18:30	86	3	0	1	0	0	90
6:45	72	2	0	1	0	1	76	18:45	82	3	0	1	0	0	86
7:00	51	1	1	5	0	1	59	19:00	78	0	0	0	0	0	78
7:15	64	0	2	0	1	0	67	19:15	68	4	0	3	0	0	75
7:30	85	3	1	3	0	0	92	19:30	46	0	0	0	0	0	46
7:45	92	3	1	1	0	0	97	19:45	53	1	0	0	0	0	54
8:00	65	1	1	0	0	0	67	20:00	39	1	0	0	0	0	40
8:15	55	0	1	4	0	1	61	20:15	51	0	0	0	0	0	51
8:30	60	0	2	3	0	0	65	20:30	64	2	0	0	0	0	66
8:45	57	0	3	4	0	1	65	20:45	56	1	0	1	0	0	58
9:00	35	7	0	2	1	0	45	21:00	56	1	0	0	0	0	57
9:15	32	7	1	1	0	0	41	21:15	47	1	0	0	0	0	48
9:30	35	4	1	2	0	0	42	21:30	28	1	0	0	0	0	29
9:45	40	3	1	3	0	0	47	21:45	38	1	0	0	0	0	39
10:00	31	4	1	1	0	0	37	22:00	43	0	0	1	0	0	44
10:15	41	5	0	2	0	2	50	22:15	30	0	0	2	0	0	32
10:30	52	6	0	3	0	0	61	22:30	36	0	0	0	0	0	36
10:45	52	5	0	1	0	0	58	22:45	22	0	0	1	0	0	23
11:00	39	3	1	0	0	2	45	23:00	21	0	0	2	0	0	23
11:15	49	5	0	2	0	0	56	23:15	23	1	1	1	0	0	26
11:30	37	9	1	2	0	0	49	23:30	14	1	0	0	0	0	15
11:45	49	8	4	3	0	0	64	23:45	19	1	1	1	0	0	22
TOTAL	1,538	93	22	54	2	11	1,720	TOTAL	3,323	137	30	67	2	6	3,565
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:15 PM
AM PEAK VOLUME							323	AM PEAK VOLUME							523

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,861	230	52	121	4	17	5,285
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	92.0%	4.4%	1.0%	2.3%	0.1%	0.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 between Leoco and Peter Rabbit

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	33	1	0	0	0	0	34	12:00	100	2	3	1	1	0	107
0:15	12	0	0	0	0	0	12	12:15	97	2	1	1	0	0	101
0:30	3	0	0	0	0	0	3	12:30	109	3	1	3	0	0	116
0:45	8	0	0	0	0	0	8	12:45	125	3	1	5	0	1	135
1:00	10	0	0	0	0	0	10	13:00	139	2	0	3	0	0	144
1:15	15	0	0	0	0	0	15	13:15	123	1	0	3	0	0	127
1:30	10	0	0	0	0	0	10	13:30	115	4	0	0	0	2	121
1:45	12	0	0	0	0	0	12	13:45	94	1	2	2	0	1	100
2:00	10	0	0	1	0	0	11	14:00	109	3	0	0	0	1	113
2:15	7	1	0	0	0	0	8	14:15	120	3	1	0	0	0	124
2:30	11	1	0	0	0	0	12	14:30	180	2	0	2	0	2	186
2:45	8	0	0	0	0	0	8	14:45	161	3	0	0	0	0	164
3:00	7	0	0	0	0	0	7	15:00	150	7	2	2	0	0	161
3:15	6	0	0	0	0	0	6	15:15	156	0	2	3	0	0	161
3:30	8	0	0	0	0	0	8	15:30	182	3	4	1	0	0	190
3:45	9	0	0	0	0	0	9	15:45	179	7	2	1	0	3	192
4:00	8	0	0	0	0	0	8	16:00	152	3	1	2	0	0	158
4:15	13	0	0	1	0	0	14	16:15	162	6	0	3	0	2	173
4:30	35	1	1	1	0	0	38	16:30	139	3	0	7	0	1	150
4:45	43	1	0	1	0	2	47	16:45	115	5	1	1	0	1	123
5:00	56	0	0	1	0	0	57	17:00	127	2	3	1	0	0	133
5:15	78	0	1	2	0	0	81	17:15	124	3	1	3	0	0	131
5:30	66	2	3	0	0	0	71	17:30	127	4	0	3	0	1	135
5:45	66	2	2	1	0	0	71	17:45	146	2	0	2	0	0	150
6:00	79	1	1	1	0	2	84	18:00	161	2	0	0	0	0	163
6:15	79	1	7	6	0	2	95	18:15	160	1	0	1	0	1	163
6:30	113	5	1	2	0	1	122	18:30	121	0	0	0	0	0	121
6:45	107	2	5	2	0	1	117	18:45	143	1	1	0	0	0	145
7:00	122	4	4	5	0	2	137	19:00	101	0	1	0	0	0	102
7:15	123	4	2	6	0	1	136	19:15	110	0	0	0	0	0	110
7:30	158	7	1	5	0	2	173	19:30	120	2	0	1	0	0	123
7:45	140	6	1	6	0	0	153	19:45	64	1	0	1	0	0	66
8:00	117	5	0	0	0	0	122	20:00	66	0	0	0	0	0	66
8:15	91	3	0	2	0	1	97	20:15	80	2	0	0	0	0	82
8:30	72	2	1	3	0	0	78	20:30	75	2	0	0	0	0	77
8:45	77	3	1	1	0	0	82	20:45	90	1	0	0	0	0	91
9:00	75	2	1	3	1	0	82	21:00	77	1	0	1	0	0	79
9:15	76	3	1	4	0	2	86	21:15	61	1	0	0	0	0	62
9:30	70	5	2	5	0	1	83	21:30	44	1	0	0	0	0	45
9:45	72	4	2	1	0	0	79	21:45	62	1	0	0	0	0	63
10:00	53	4	1	0	0	0	58	22:00	55	0	0	0	0	0	55
10:15	69	3	0	1	0	0	73	22:15	36	1	0	1	0	0	38
10:30	83	5	0	2	0	0	90	22:30	41	0	0	0	0	0	41
10:45	86	6	2	2	0	0	96	22:45	27	0	0	0	0	0	27
11:00	80	1	1	2	0	1	85	23:00	31	0	0	0	0	0	31
11:15	91	3	3	2	0	1	100	23:15	24	0	0	0	0	0	24
11:30	104	6	2	3	0	0	115	23:30	22	0	0	0	0	0	22
11:45	119	4	6	4	0	0	133	23:45	20	1	0	0	0	0	21
TOTAL	2,790	98	52	76	1	19	3,036	TOTAL	5,022	92	27	54	1	16	5,212
AM PEAK HOUR							7:00 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							599	AM PEAK VOLUME							713

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	7,812	190	79	130	2	35	8,248
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	94.7%	2.3%	1.0%	1.6%	0.0%	0.4%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	15,244	417	176	293	3	70	16,203
CLASS 6	Buses	% OF TOTAL	94.1%	2.6%	1.1%	1.8%	0.0%	0.4%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 between Leoco and Peter Rabbit

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	10	0	0	0	0	0	10	12:00	100	8	0	3	0	0	111
0:15	11	0	0	0	0	0	11	12:15	94	3	4	4	0	1	106
0:30	9	0	0	0	0	0	9	12:30	98	0	0	6	0	1	105
0:45	12	0	0	0	0	0	12	12:45	95	5	2	4	0	0	106
1:00	10	0	0	0	0	0	10	13:00	120	6	0	1	0	1	128
1:15	10	0	0	1	0	0	11	13:15	107	4	4	1	0	1	117
1:30	5	1	0	0	0	0	6	13:30	102	2	0	1	0	0	105
1:45	6	0	0	0	0	0	6	13:45	80	4	0	3	0	2	89
2:00	4	0	0	0	0	0	4	14:00	83	5	2	2	0	1	93
2:15	3	1	0	0	0	0	4	14:15	125	10	2	0	0	2	139
2:30	7	0	0	0	0	0	7	14:30	119	4	2	1	0	1	127
2:45	7	0	0	0	0	0	7	14:45	129	3	2	0	0	0	134
3:00	5	0	0	1	0	0	6	15:00	115	5	3	0	0	0	123
3:15	6	0	0	0	0	0	6	15:15	123	6	1	0	0	0	130
3:30	14	0	0	0	0	0	14	15:30	122	2	1	4	0	1	130
3:45	16	1	0	1	0	0	18	15:45	113	5	0	2	0	0	120
4:00	7	0	1	2	0	0	10	16:00	173	6	2	6	0	0	187
4:15	21	0	2	1	0	0	24	16:15	173	5	1	0	0	1	180
4:30	25	0	0	7	0	0	32	16:30	187	2	3	0	0	0	192
4:45	30	0	0	2	0	0	32	16:45	162	8	3	3	0	0	176
5:00	22	0	0	2	0	0	24	17:00	170	10	0	1	0	1	182
5:15	27	2	0	3	0	0	32	17:15	171	5	2	1	0	0	179
5:30	47	0	2	1	0	0	50	17:30	173	6	1	3	0	0	183
5:45	60	0	3	4	0	0	67	17:45	161	3	2	0	0	1	167
6:00	73	2	1	0	0	0	76	18:00	149	2	1	1	0	0	153
6:15	122	6	3	2	0	1	134	18:15	137	0	1	0	0	0	138
6:30	98	3	7	10	0	3	121	18:30	98	0	0	0	0	0	98
6:45	91	6	1	2	0	0	100	18:45	129	0	0	0	0	0	129
7:00	80	3	2	5	0	2	92	19:00	119	1	1	0	0	0	121
7:15	87	6	2	6	0	0	101	19:15	91	1	0	1	0	0	93
7:30	153	2	5	5	0	0	165	19:30	107	2	0	2	0	1	112
7:45	133	3	1	3	0	0	140	19:45	86	0	0	0	0	0	86
8:00	144	5	3	3	0	0	155	20:00	96	0	0	0	0	0	96
8:15	111	6	3	5	0	3	128	20:15	85	0	0	0	0	0	85
8:30	105	2	1	3	0	1	112	20:30	87	0	0	0	0	0	87
8:45	89	2	2	5	0	1	99	20:45	80	1	0	0	0	0	81
9:00	77	6	1	4	0	2	90	21:00	70	0	0	0	0	0	70
9:15	68	2	3	5	1	2	81	21:15	66	0	0	0	0	0	66
9:30	64	5	1	2	0	0	72	21:30	69	1	0	1	0	0	71
9:45	52	4	4	3	0	1	64	21:45	58	0	0	0	0	0	58
10:00	62	3	3	1	0	0	69	22:00	42	1	0	0	0	0	43
10:15	65	9	1	4	0	0	79	22:15	40	0	0	0	0	0	40
10:30	77	3	0	5	0	0	85	22:30	24	0	0	2	0	0	26
10:45	86	0	1	3	0	3	93	22:45	28	0	0	1	0	0	29
11:00	93	6	0	1	0	0	100	23:00	25	0	0	0	0	1	26
11:15	106	4	1	1	0	0	112	23:15	17	2	0	2	0	0	21
11:30	98	1	1	3	0	0	103	23:30	23	0	0	0	0	0	23
11:45	86	4	2	1	0	0	93	23:45	17	1	0	0	0	0	18
TOTAL	2,594	98	57	107	1	19	2,876	TOTAL	4,838	129	40	56	0	16	5,079
AM PEAK HOUR							7:30 AM	AM PEAK HOUR							4:00 PM
AM PEAK VOLUME							588	AM PEAK VOLUME							735

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	7,432	227	97	163	1	35	7,955
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.4%	2.9%	1.2%	2.0%	0.0%	0.4%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 west of Harrison

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	8	1	0	0	0	0	9	12:00	55	6	0	1	0	1	63
0:15	4	0	0	0	0	0	4	12:15	60	4	2	3	0	1	70
0:30	2	2	0	0	0	0	4	12:30	73	4	0	2	0	1	80
0:45	8	0	0	0	0	0	8	12:45	76	2	1	1	0	2	82
1:00	5	0	0	0	0	0	5	13:00	71	2	0	0	0	0	73
1:15	3	0	0	0	0	0	3	13:15	58	2	1	1	0	1	63
1:30	2	0	0	1	0	0	3	13:30	71	5	0	0	0	0	76
1:45	3	0	0	0	0	0	3	13:45	57	3	0	1	0	4	65
2:00	3	0	0	0	0	0	3	14:00	64	2	2	0	0	1	69
2:15	3	0	0	0	0	0	3	14:15	87	5	1	1	0	2	96
2:30	3	0	0	0	0	0	3	14:30	97	3	0	1	0	1	102
2:45	4	0	0	0	0	0	4	14:45	89	3	0	0	0	0	92
3:00	5	0	0	0	0	0	5	15:00	81	3	0	1	0	1	86
3:15	3	0	0	0	0	0	3	15:15	82	3	1	0	0	0	86
3:30	13	0	0	0	0	0	13	15:30	79	4	3	3	0	3	92
3:45	5	0	0	0	0	0	5	15:45	100	3	1	0	0	1	105
4:00	5	0	0	0	0	0	5	16:00	120	2	0	1	0	1	124
4:15	13	0	0	0	0	0	13	16:15	113	5	0	1	0	2	121
4:30	16	0	0	0	0	0	16	16:30	81	4	1	2	0	0	88
4:45	19	0	0	0	0	0	19	16:45	83	1	0	1	0	2	87
5:00	24	3	0	0	0	1	28	17:00	89	4	0	1	0	0	94
5:15	36	2	0	1	0	0	39	17:15	83	3	0	1	0	0	87
5:30	60	0	0	1	0	1	62	17:30	95	2	0	1	0	2	100
5:45	77	2	0	1	0	0	80	17:45	117	1	0	1	0	0	119
6:00	53	5	0	1	0	2	61	18:00	87	0	1	0	0	1	89
6:15	54	3	0	0	0	1	58	18:15	80	1	0	0	0	0	81
6:30	55	5	0	1	0	1	62	18:30	79	1	0	0	0	1	81
6:45	63	2	2	1	0	1	69	18:45	75	1	0	0	0	0	76
7:00	55	0	2	4	0	1	62	19:00	71	2	0	0	0	0	73
7:15	69	5	0	2	0	1	77	19:15	55	1	1	0	0	1	58
7:30	92	3	2	0	0	2	99	19:30	56	0	0	0	0	0	56
7:45	104	3	1	3	0	0	111	19:45	39	1	0	0	0	2	42
8:00	85	2	0	1	0	2	90	20:00	56	0	0	0	0	0	56
8:15	47	2	0	1	0	0	50	20:15	61	0	0	0	0	1	62
8:30	37	7	1	0	0	2	47	20:30	44	0	0	0	0	0	44
8:45	61	2	0	0	0	1	64	20:45	44	1	0	0	0	1	46
9:00	56	1	0	0	0	4	61	21:00	48	1	0	0	0	0	49
9:15	53	3	0	0	0	1	57	21:15	52	0	0	0	0	0	52
9:30	48	1	0	3	0	0	52	21:30	43	2	0	0	0	1	46
9:45	49	3	0	0	0	2	54	21:45	48	2	0	0	0	0	50
10:00	51	3	1	0	0	0	55	22:00	20	0	0	0	0	0	20
10:15	54	6	1	2	0	2	65	22:15	23	0	0	0	0	0	23
10:30	43	2	0	2	0	0	47	22:30	20	0	0	0	0	0	20
10:45	54	2	2	2	0	1	61	22:45	12	0	0	0	0	0	12
11:00	56	5	2	1	0	1	65	23:00	11	0	0	0	0	0	11
11:15	58	5	0	5	1	1	70	23:15	9	0	0	0	0	0	9
11:30	63	2	1	0	0	1	67	23:30	13	1	0	0	0	0	14
11:45	65	1	0	1	0	1	68	23:45	11	2	0	0	0	0	13
TOTAL	1,749	83	15	34	1	30	1,912	TOTAL	3,038	92	15	24	0	34	3,203
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							377	AM PEAK VOLUME							442

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,787	175	30	58	1	64	5,115
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.6%	3.4%	0.6%	1.1%	0.0%	1.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	9,482	354	66	119	1	122	10,144
CLASS 6	Buses	% OF TOTAL	93.5%	3.5%	0.7%	1.2%	0.0%	1.2%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 west of Harrison

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	15	0	0	0	0	0	15	12:00	52	5	0	1	0	1	59
0:15	4	0	0	0	0	0	4	12:15	49	2	0	1	0	0	52
0:30	5	0	0	0	0	0	5	12:30	44	2	1	2	0	1	50
0:45	4	0	0	0	0	0	4	12:45	63	5	1	1	0	1	71
1:00	9	0	0	0	0	0	9	13:00	74	1	0	1	0	1	77
1:15	3	0	0	0	0	0	3	13:15	83	1	0	1	0	0	85
1:30	7	0	0	0	0	0	7	13:30	66	5	1	0	0	1	73
1:45	6	0	0	0	0	0	6	13:45	52	2	2	0	0	2	58
2:00	6	0	0	0	0	0	6	14:00	88	2	0	0	0	0	90
2:15	5	0	0	0	0	0	5	14:15	81	4	1	0	0	2	88
2:30	4	1	0	0	0	0	5	14:30	85	4	0	0	0	0	89
2:45	5	0	0	0	0	0	5	14:45	94	5	2	0	0	0	101
3:00	3	0	0	0	0	0	3	15:00	102	5	0	1	0	1	109
3:15	1	0	0	0	0	0	1	15:15	95	4	0	2	0	0	101
3:30	9	0	0	0	0	0	9	15:30	103	7	0	0	0	1	111
3:45	0	1	0	0	0	0	1	15:45	106	5	1	1	0	3	116
4:00	4	0	0	0	0	0	4	16:00	133	3	0	1	0	1	138
4:15	3	0	0	0	0	0	3	16:15	106	3	0	1	0	0	110
4:30	15	0	0	3	0	0	18	16:30	124	0	0	0	0	0	124
4:45	17	0	0	1	0	0	18	16:45	96	3	1	0	0	1	101
5:00	12	0	0	0	0	0	12	17:00	101	6	0	0	0	0	107
5:15	23	0	0	3	0	0	26	17:15	109	4	0	0	0	1	114
5:30	22	2	0	2	0	1	27	17:30	119	1	0	1	0	0	121
5:45	24	2	0	1	0	0	27	17:45	92	3	0	0	0	1	96
6:00	40	3	2	1	0	2	48	18:00	88	3	0	0	0	0	91
6:15	37	0	0	1	0	3	41	18:15	82	0	0	0	0	1	83
6:30	46	2	3	6	0	1	58	18:30	95	1	0	0	0	1	97
6:45	65	2	3	3	0	2	75	18:45	86	0	0	0	0	1	87
7:00	41	5	1	4	0	1	52	19:00	65	1	0	0	0	1	67
7:15	63	3	2	4	0	1	73	19:15	62	0	0	0	0	0	62
7:30	77	5	3	2	0	0	87	19:30	65	0	0	0	0	1	66
7:45	60	2	1	1	0	2	66	19:45	44	1	1	0	0	0	46
8:00	56	4	3	2	0	0	65	20:00	54	1	0	0	0	1	56
8:15	61	3	1	1	0	3	69	20:15	63	0	0	0	0	0	63
8:30	50	3	1	2	0	1	57	20:30	54	2	0	0	0	0	56
8:45	51	7	0	0	0	3	61	20:45	36	1	0	0	0	1	38
9:00	49	1	0	0	0	1	51	21:00	42	1	0	0	0	0	43
9:15	44	3	0	0	0	2	49	21:15	49	0	0	0	0	1	50
9:30	47	2	0	1	0	2	52	21:30	25	3	0	0	0	0	28
9:45	40	5	1	1	0	0	47	21:45	31	1	0	0	0	0	32
10:00	45	3	0	1	0	0	49	22:00	33	0	0	0	0	0	33
10:15	45	2	1	1	0	1	50	22:15	23	0	0	0	0	0	23
10:30	57	3	0	0	0	0	60	22:30	18	0	0	0	0	0	18
10:45	59	2	1	2	0	2	66	22:45	17	0	0	0	0	0	17
11:00	54	5	0	0	0	0	59	23:00	14	1	0	0	0	0	15
11:15	55	2	1	1	0	3	62	23:15	13	1	0	0	0	0	14
11:30	78	1	0	1	0	1	81	23:30	15	2	0	0	0	0	17
11:45	69	3	1	2	0	0	75	23:45	9	1	0	0	0	0	10
TOTAL	1,495	77	25	47	0	32	1,676	TOTAL	3,200	102	11	14	0	26	3,353
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:45 PM
AM PEAK VOLUME							291	AM PEAK VOLUME							488

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,695	179	36	61	0	58	5,029
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.4%	3.6%	0.7%	1.2%	0.0%	1.2%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

A816

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 02, 2017

JOB #: SC1311

LOCATION#

SR-86 ML east of Avenue 50

AM TIME	NORTHWEST													TOTAL	PM Time	NORTHWEST													TOTAL	
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13		
0:00	0	25	2	0	1	0	0	5	3	0	0	0	0	36	12:00	0	118	27	0	6	6	0	0	13	0	6	0	0	176	
0:15	0	13	1	0	0	2	0	3	4	0	1	0	0	24	12:15	0	86	33	0	10	7	0	0	22	1	3	10	0	172	
0:30	0	24	2	0	1	1	0	8	4	0	0	0	0	40	12:30	0	96	21	0	5	1	0	0	22	0	5	8	0	158	
0:45	0	21	1	0	3	2	0	2	3	0	0	0	0	32	12:45	0	91	22	1	7	1	0	0	27	0	10	5	0	164	
1:00	0	18	2	0	1	1	2	4	0	0	0	0	0	28	13:00	0	101	23	0	12	3	0	2	18	0	9	7	0	175	
1:15	0	7	1	0	2	0	0	2	2	0	0	0	0	14	13:15	0	104	22	0	7	2	0	0	30	0	9	1	0	175	
1:30	0	19	1	0	3	1	0	2	2	0	0	0	0	28	13:30	0	127	12	0	10	5	0	0	36	0	4	8	0	202	
1:45	0	26	2	0	4	2	0	5	1	0	0	0	0	40	13:45	0	122	14	0	4	3	0	0	25	0	9	7	0	184	
2:00	0	16	1	0	2	0	2	1	3	0	0	0	0	25	14:00	1	150	25	0	10	1	0	0	25	0	11	6	0	229	
2:15	0	9	0	0	8	1	0	5	0	0	0	0	0	23	14:15	0	155	16	0	12	1	0	0	24	0	7	1	0	216	
2:30	0	17	2	0	4	0	0	2	0	0	0	0	0	25	14:30	0	153	27	0	6	3	0	0	36	0	10	3	0	238	
2:45	0	14	1	0	4	2	1	9	0	0	0	0	0	31	14:45	0	158	10	0	10	5	0	0	24	0	7	1	0	215	
3:00	0	23	0	0	5	1	0	2	1	0	0	0	0	32	15:00	0	180	25	0	2	1	0	0	30	0	3	5	0	246	
3:15	0	16	2	0	7	0	0	2	1	0	0	0	0	28	15:15	1	192	23	0	2	4	0	0	21	0	8	8	0	259	
3:30	0	20	0	0	4	3	0	6	2	0	0	0	0	35	15:30	2	194	23	1	3	1	0	0	21	0	4	1	0	250	
3:45	0	27	0	0	5	0	0	1	1	0	0	0	0	34	15:45	2	167	31	1	8	4	0	0	37	0	6	1	0	257	
4:00	0	32	4	0	2	2	0	5	2	0	0	0	0	47	16:00	0	155	25	1	8	1	0	0	36	0	2	1	0	229	
4:15	0	47	2	0	1	0	0	10	1	0	0	0	0	61	16:15	2	172	18	0	4	1	0	1	33	0	7	4	0	242	
4:30	0	65	10	0	1	0	0	14	1	0	0	0	0	91	16:30	0	168	19	4	5	0	0	0	22	0	1	3	0	222	
4:45	0	71	7	0	5	1	0	5	2	0	0	0	0	91	16:45	1	159	14	1	4	0	0	0	34	0	0	0	0	213	
5:00	0	57	2	0	1	1	0	6	5	0	1	0	0	73	17:00	1	156	15	0	3	2	0	0	33	0	5	0	0	215	
5:15	0	96	2	0	5	0	0	2	12	0	0	0	0	117	17:15	1	159	11	2	3	0	0	0	23	0	4	1	0	204	
5:30	0	129	1	0	3	5	0	6	8	0	1	0	0	153	17:30	1	168	9	1	2	1	0	0	32	0	1	3	0	218	
5:45	0	129	12	0	4	8	0	0	13	0	2	0	0	168	17:45	1	139	27	1	1	0	0	0	42	0	3	1	0	215	
6:00	0	149	3	0	2	2	0	2	14	0	5	0	0	177	18:00	0	135	14	2	0	0	1	0	0	39	0	2	1	0	194
6:15	0	129	5	0	3	0	0	2	13	0	5	0	0	157	18:15	0	145	14	0	0	0	0	0	35	0	3	1	0	198	
6:30	0	135	10	0	3	3	0	0	12	0	2	0	0	165	18:30	1	125	8	0	2	1	0	0	30	0	1	0	0	168	
6:45	0	141	0	1	2	3	0	1	7	0	5	0	0	160	18:45	0	118	5	0	4	4	0	0	34	0	2	0	0	167	
7:00	0	152	1	0	3	1	0	1	21	0	4	0	0	183	19:00	1	115	8	0	0	2	0	0	28	0	2	2	0	158	
7:15	0	215	1	0	2	0	0	1	20	0	3	0	0	242	19:15	0	93	13	0	1	3	0	0	29	0	2	0	0	141	
7:30	0	187	1	0	0	0	0	0	15	0	1	0	0	204	19:30	1	96	8	0	2	1	0	0	23	0	1	0	0	132	
7:45	0	153	4	1	5	1	0	0	18	0	4	0	0	186	19:45	0	79	6	2	1	4	0	1	27	0	2	0	0	122	
8:00	1	143	8	0	3	3	0	0	14	5	3	0	0	180	20:00	0	81	5	1	1	2	0	0	21	0	0	0	0	111	
8:15	0	147	5	0	7	3	0	3	22	4	0	0	0	191	20:15	0	73	5	0	3	2	0	0	19	0	2	0	0	104	
8:30	0	133	10	0	2	2	2	3	25	2	0	0	0	179	20:30	0	66	11	0	1	0	0	0	19	0	1	0	0	98	
8:45	0	108	15	0	5	1	0	5	17	0	0	0	0	151	20:45	0	56	10	0	0	4	0	0	17	0	3	0	0	90	
9:00	0	109	26	0	3	1	0	2	21	2	6	0	0	170	21:00	0	57	8	0	2	2	0	0	19	0	0	0	0	88	
9:15	0	102	20	1	5	2	0	0	25	7	7	0	0	169	21:15	0	49	7	0	2	0	0	0	21	0	2	2	0	83	
9:30	0	107	26	0	6	0	0	3	17	7	0	0	0	166	21:30	0	40	4	1	5	2	0	0	23	0	3	0	0	78	
9:45	0	105	24	0	5	1	0	4	23	3	7	0	0	172	21:45	0	33	6	0	1	1	0	0	19	0	2	0	0	62	
10:00	0	82	21	0	8	0	0	2	19	4	11	0	0	147	22:00	0	42	3	0	0	1	0	0	22	0	2	0	0	70	
10:15	0	97	20	0	3	2	0	1	20	3	9	0	0	155	22:15	0	43	4	0	0	0	0	0	23	0	2	0	0	72	
10:30	0	77	26	0	6	5	0	3	23	8	16	0	0	164	22:30	0	38	1	0	1	0	0	0	25	0	1	0	0	66	
10:45	0	82	18	1	5	4	0	4	15	0	7	0	0	136	22:45	0	37	4	0	2	0	0	0	19	0	2	0	0	64	
11:00	0	98	23	0	6	5	0	0	25	0	10	1	0	168	23:00	0	44	0	0	0	0	0	0	18	0	0	0	0	62	
11:15	0	108	16	0	4	2	0	5	25	1	10	0	0	171	23:15	0	41	2	0	1	0	0	0	10	0	2	0	0	56	
11:30	0	93	13	1	2	5	0	0	15	4	6	0	0	139	23:30	0	41	0	0	0	0	0	1	7	0	1	0	0	50	
11:45	0	117	16	0	6	6	0	2	21	0	12	4	0	184	23:45	0	34	2	0	1	0	0	0	6	0	1	0	0	44	
TOTAL	1	3,890	370	5	172	85	7	151	518	50	138	5	0	5,392	TOTAL	16	5,151	640	19	174	83	0	5	###	1	173	91	0	7,552	
AM PEAK HOUR										7:00 AM				PM PEAK HOUR										3:00 PM						
AM PEAK VOLUME										815				PM PEAK VOLUME										1,012						

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	17	9,041	1,010	24	346	168	7	156	###	51	311	96	0	12,944
% OF TOTAL	0.1%	69.8%	7.8%	0.2%	2.7%	1.3%	0.1%	1.2%	13.3%	0.4%	2.4%	0.7%	0.0%	100.0%

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	
TOTAL: ALL	36	16,736	2,612	52	785	296	7	186	###	55	722	119	0	25,082
% OF TOTAL	0.3%	129.3%	20.2%	0.4%	6.1%	2.3%	0.1%	1.4%	26.9%	0.4%	5.6%	0.9%	0.0%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 02, 2017

JOB #: SC1311

LOCATION#

SR-86 ML east of Avenue 50

AM TIME	SOUTHEAST													TOTAL	PM Time	SOUTHEAST													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	36	1	0	4	1	0	0	6	0	0	0	0	48	12:00	0	84	35	2	8	2	0	0	22	0	8	0	0	161
0:15	0	35	1	0	6	1	0	0	7	0	0	0	0	50	12:15	0	78	28	0	9	2	0	1	29	0	1	0	0	148
0:30	0	30	0	0	11	0	0	0	7	0	0	0	0	48	12:30	0	79	34	2	7	0	0	3	25	0	6	0	0	156
0:45	0	32	0	0	5	1	0	0	9	0	0	0	0	47	12:45	0	89	22	1	2	0	0	0	36	0	6	0	0	156
1:00	0	30	0	0	4	1	0	0	7	0	0	0	0	42	13:00	1	87	44	1	4	1	0	0	17	0	4	0	0	159
1:15	0	19	0	0	12	1	0	0	6	0	2	0	0	40	13:15	0	82	37	1	3	2	0	0	32	0	8	0	0	165
1:30	0	20	0	0	3	2	0	0	3	0	0	0	0	28	13:30	1	104	49	4	6	0	0	0	28	0	9	0	0	201
1:45	0	14	1	0	3	0	0	0	4	0	0	0	0	22	13:45	2	92	33	1	3	0	0	1	23	1	6	1	0	163
2:00	0	17	2	0	5	2	0	0	15	0	1	1	0	43	14:00	0	122	27	1	3	1	0	1	23	0	8	0	0	186
2:15	0	24	0	0	7	1	0	0	6	0	0	0	0	38	14:15	0	84	37	4	2	2	0	0	29	0	4	0	0	162
2:30	0	35	0	0	7	2	0	0	7	0	0	0	0	51	14:30	0	110	47	4	5	0	0	1	18	0	5	0	0	190
2:45	0	10	0	0	6	2	0	0	12	0	2	0	0	32	14:45	0	116	38	0	5	2	0	0	29	0	3	0	0	193
3:00	0	14	1	0	0	0	0	4	21	0	0	0	0	40	15:00	0	129	14	0	3	1	0	0	23	0	3	3	0	176
3:15	0	5	4	0	0	0	0	0	8	0	3	0	0	20	15:15	0	130	25	0	4	0	0	0	26	2	3	0	0	190
3:30	0	20	5	0	3	0	0	3	18	0	4	0	0	53	15:30	0	144	20	0	6	1	0	0	19	0	0	0	0	190
3:45	0	18	2	0	1	1	0	1	13	0	4	0	0	40	15:45	0	180	25	0	7	1	0	2	23	0	1	2	0	241
4:00	0	14	2	0	3	0	0	0	14	0	2	0	0	35	16:00	0	140	27	0	6	0	0	1	16	0	5	0	0	195
4:15	0	12	5	0	2	0	0	2	18	0	4	0	0	43	16:15	1	152	20	0	4	2	0	0	17	0	1	0	0	197
4:30	0	23	2	0	2	1	0	2	14	0	1	0	0	45	16:30	0	147	8	0	4	3	0	0	26	0	1	0	0	189
4:45	0	34	3	0	0	1	0	0	12	1	8	0	0	59	16:45	0	145	14	0	5	4	0	0	20	0	2	1	0	191
5:00	0	46	17	0	6	1	0	1	13	0	4	0	0	88	17:00	1	177	10	0	1	2	0	0	15	0	0	2	0	208
5:15	0	47	29	0	2	1	0	0	14	0	8	0	0	101	17:15	1	212	10	0	4	7	0	0	12	0	1	0	0	247
5:30	0	77	50	0	7	2	0	2	27	0	6	0	0	171	17:30	0	185	13	0	3	3	0	0	20	0	0	0	0	224
5:45	0	66	45	2	8	5	0	0	43	0	18	0	0	187	17:45	0	135	6	0	4	1	0	0	12	0	0	0	0	158
6:00	0	66	37	0	6	0	0	0	28	0	9	0	0	146	18:00	0	150	10	0	1	3	0	0	16	0	0	2	0	182
6:15	0	71	36	0	9	1	0	0	27	0	8	0	0	152	18:15	1	119	6	0	3	6	0	0	15	0	0	0	0	150
6:30	0	73	40	0	12	1	0	1	28	0	13	0	0	168	18:30	0	159	5	0	6	0	0	0	13	0	1	0	0	184
6:45	0	89	35	1	8	2	0	0	25	0	6	0	0	166	18:45	0	124	7	0	4	2	0	0	14	0	2	0	0	153
7:00	1	104	39	0	9	2	0	0	26	0	9	0	0	190	19:00	0	94	6	0	6	3	0	0	19	0	0	0	0	128
7:15	2	126	44	1	10	4	0	1	23	0	11	0	0	222	19:15	0	87	5	0	2	1	0	0	12	0	0	0	0	107
7:30	0	148	49	0	7	3	0	0	21	0	12	0	0	240	19:30	1	95	7	0	3	1	0	0	25	0	3	0	0	135
7:45	0	139	42	0	5	3	0	0	18	0	10	0	0	217	19:45	1	92	6	0	3	2	0	0	14	0	0	0	0	118
8:00	0	113	38	0	3	0	0	0	20	0	8	0	0	182	20:00	1	90	2	0	3	2	0	0	17	0	0	0	0	115
8:15	0	97	38	0	6	0	0	0	24	0	14	2	0	181	20:15	0	98	3	0	2	1	0	0	15	0	1	1	0	121
8:30	0	88	32	0	4	1	0	1	18	0	19	0	0	163	20:30	0	75	2	0	1	0	0	0	10	0	2	0	0	90
8:45	1	87	17	0	1	0	0	0	17	0	9	1	0	133	20:45	0	74	0	0	1	0	0	0	3	0	0	0	0	78
9:00	2	71	26	0	3	2	0	0	21	0	8	3	0	136	21:00	0	68	0	0	0	0	0	0	3	0	0	0	0	71
9:15	0	66	28	1	7	3	0	0	26	0	17	2	0	150	21:15	0	69	1	0	4	0	0	0	17	0	0	0	0	91
9:30	0	61	32	0	7	4	0	0	25	0	12	1	0	142	21:30	0	58	0	0	1	0	0	0	16	0	1	0	0	76
9:45	0	76	22	1	7	1	0	0	41	0	13	0	0	161	21:45	1	66	1	0	1	1	0	0	11	0	0	0	0	81
10:00	0	69	32	0	5	0	0	0	32	0	7	0	0	145	22:00	0	81	2	0	8	0	0	0	5	0	0	0	0	96
10:15	0	76	23	0	6	0	0	1	31	0	9	0	0	146	22:15	0	56	2	0	4	0	0	0	8	0	0	0	0	70
10:30	0	60	27	0	4	1	0	0	35	0	8	0	0	135	22:30	0	65	0	0	5	2	0	0	11	0	0	0	0	83
10:45	0	80	23	0	8	4	0	0	20	0	14	0	0	149	22:45	0	68	2	0	4	0	0	1	11	0	0	0	0	86
11:00	0	62	18	0	5	0	0	0	24	0	3	0	0	112	23:00	0	55	1	0	1	0	0	0	7	0	0	0	0	64
11:15	0	80	17	0	5	3	0	0	31	0	15	0	0	151	23:15	0	42	0	0	4	1	0	0	11	0	1	0	0	59
11:30	0	69	21	0	5	2	0	0	26	0	8	1	0	132	23:30	1	43	1	0	5	1	0	0	10	0	0	0	0	61
11:45	0	82	24	1	4	1	0	0	35	0	5	0	0	152	23:45	0	33	0	0	6	1	0	0	10	0	1	0	0	51
TOTAL	6	2,731	910	7	253	64	0	19	926	1	314	11	0	5,242	TOTAL	13	4,964	692	21	186	64	0	11	833	3	97	12	0	6,896

AM PEAK HOUR
AM PEAK VOLUME
7:00 AM
869

PM PEAK HOUR
PM PEAK VOLUME
4:45 PM
870

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	19	7,695	1,602	28	439	128	0	30	###	4	411	23	0	12,138
% OF TOTAL	0.2%	63.4%	13.2%	0.2%	3.6%	1.1%	0.0%	0.2%	14.5%	0.0%	3.4%	0.2%	0.0%	100.0%

Class 1 2 3 4 5 6 7 8 9 10 11 12 13

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION: Coachella
NORTH & SOUTH: Harrison
EAST & WEST: Avenue 50

PROJECT #: SC0780
LOCATION #: 1
CONTROL: SIGNAL

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

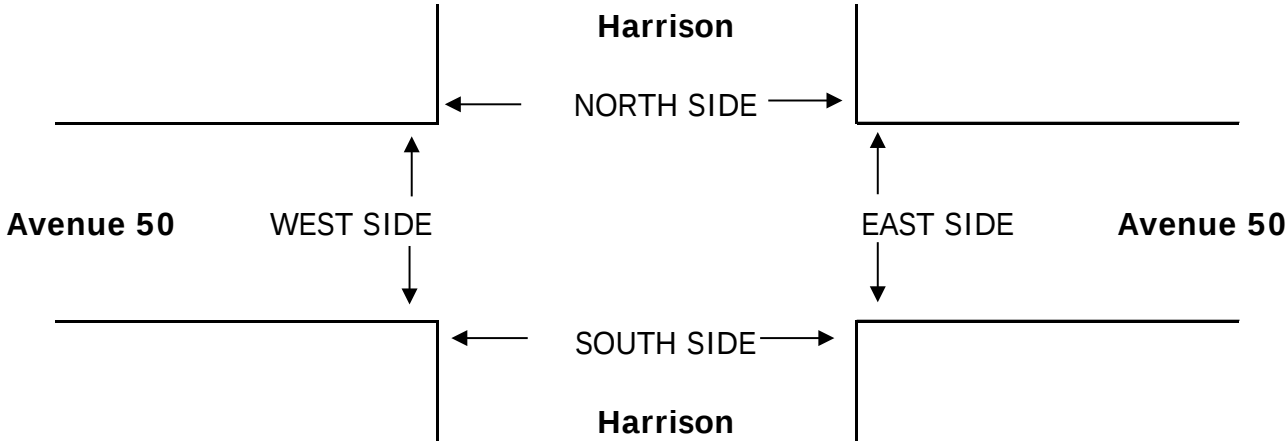
☒ Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Harrison			Harrison			Avenue 50			Avenue 50			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	2	2	0	1	1	0	2	1	1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	

AM	7:00 AM	11	94	45	20	55	8	6	48	9	24	31	21	372
	7:15 AM	26	99	56	11	48	11	12	49	16	25	47	23	423
	7:30 AM	24	106	58	23	67	4	19	68	11	49	60	30	519
	7:45 AM	15	138	55	18	80	3	20	63	30	40	49	36	547
	8:00 AM	16	123	47	24	93	7	19	47	24	32	42	37	511
	8:15 AM	25	111	45	12	83	10	10	24	16	35	33	46	450
	8:30 AM	17	94	39	12	69	10	13	12	21	44	31	29	391
	8:45 AM	30	109	31	20	83	9	19	26	19	30	22	21	419
	VOLUMES	164	874	376	140	578	62	118	337	146	279	315	243	3,632
	APPROACH %	12%	62%	27%	18%	74%	8%	20%	56%	24%	33%	38%	29%	
PM	APP/DEPART	1,414	/	1,235	780	/	1,003	601	/	853	837	/	541	0
	BEGIN PEAK HR	7:30 AM												
	VOLUMES	80	478	205	77	323	24	68	202	81	156	184	149	2,027
	APPROACH %	10%	63%	27%	18%	76%	6%	19%	58%	23%	32%	38%	30%	
	PEAK HR FACTOR	0.917			0.855			0.777			0.879			0.926
	APP/DEPART	763	/	695	424	/	560	351	/	484	489	/	288	0
	4:00 PM	55	118	52	36	167	19	26	58	38	73	69	40	751
	4:15 PM	32	134	49	39	183	21	35	65	20	55	54	50	737
	4:30 PM	41	125	39	43	181	18	12	61	16	49	64	51	700
	4:45 PM	32	126	37	37	159	19	27	40	20	64	51	41	653
	5:00 PM	33	136	37	39	206	20	24	44	28	65	59	37	728
	5:15 PM	39	132	40	50	211	23	33	38	16	59	53	35	729
	5:30 PM	39	117	49	31	184	21	25	43	32	64	62	30	697
	5:45 PM	31	110	46	37	181	16	37	53	29	52	52	48	692
	VOLUMES	302	998	349	312	1,472	157	219	402	199	481	464	332	5,687
	APPROACH %	18%	61%	21%	16%	76%	8%	27%	49%	24%	38%	36%	26%	
	APP/DEPART	1,649	/	1,550	1,941	/	2,152	820	/	1,062	1,277	/	923	0
	BEGIN PEAK HR	5:00 PM												
	VOLUMES	142	495	172	157	782	80	119	178	105	240	226	150	2,846
	APPROACH %	18%	61%	21%	15%	77%	8%	30%	44%	26%	39%	37%	24%	
	PEAK HR FACTOR	0.959			0.897			0.845			0.957			0.976
	APP/DEPART	809	/	765	1,019	/	1,127	402	/	506	616	/	448	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1



AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
PM	TOTAL
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	2	4	6
1	0	1	1	3
2	0	1	1	4
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
4	0	4	0	8
0	0	1	0	1
7	0	10	6	23
2	3	0	3	8
0	1	0	1	2
0	4	2	8	14
2	1	1	4	8
0	4	1	0	5
0	1	2	0	3
2	1	0	0	3
0	0	0	0	0
6	15	6	16	43

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	2	3	5
1	0	1	1	3
2	0	1	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
4	0	4	0	8
0	0	0	0	0
7	0	8	4	19
1	3	0	2	6
0	1	0	1	2
0	4	2	7	13
2	1	1	3	7
0	4	1	0	5
0	1	2	0	3
2	0	0	0	2
0	0	0	0	0
5	14	6	13	38

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	1	0	1
0	0	2	2	4
1	0	0	1	2
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
1	1	0	3	5

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Leoco			Leoco			Avenue 50			Avenue 50			
LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 2	ER 0	WL 1	WT 2	WR X	TOTAL

[illegible]

AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
TOTAL	
PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

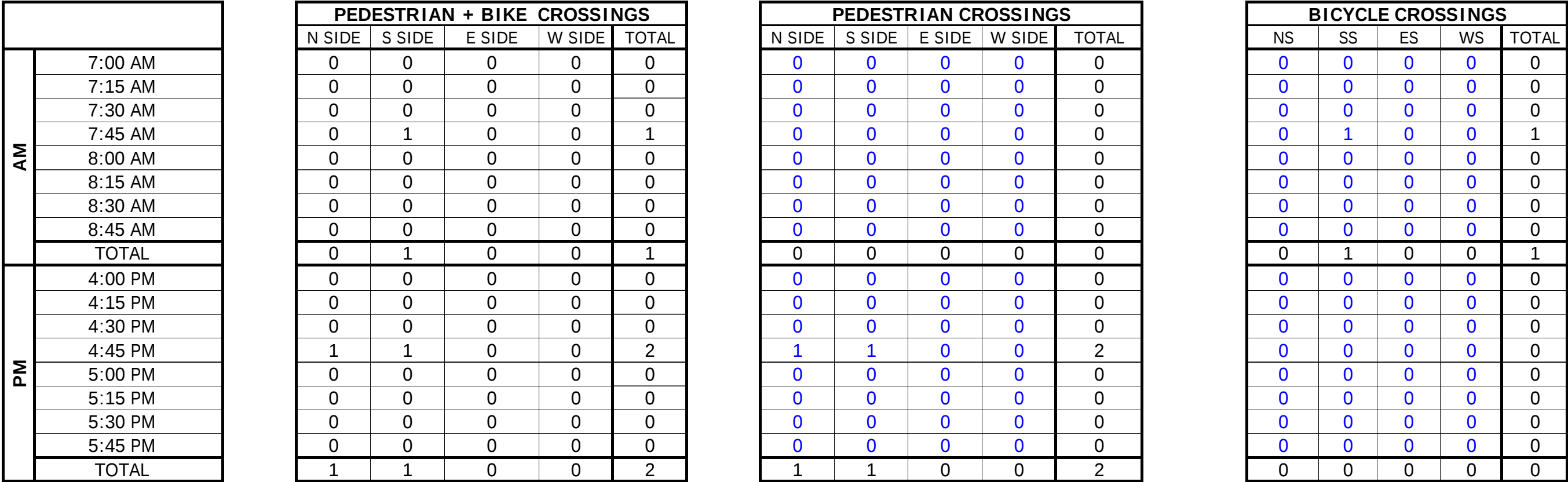
PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	0	0	2

[illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns

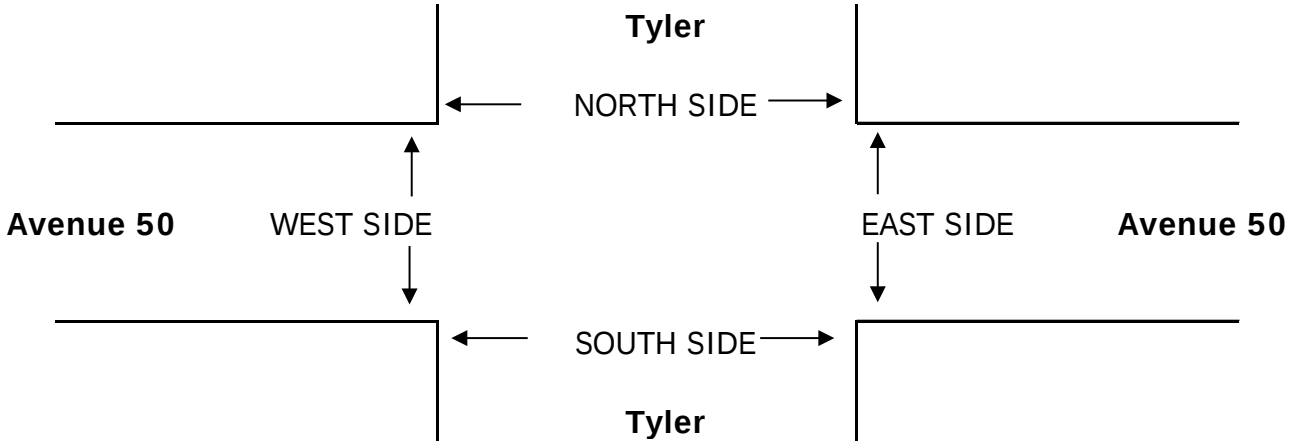
U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

[illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns☒ Add U-Turns to Left Turns

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

[illegible][illegible][illegible][illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	SB SR-86 Ramps			SB SR-86 Ramps			Avenue 50			Avenue 50			
LANES:	NL 1	NT X	NR X	SL X	ST 2	SR 1	EL X	ET 1	ER 1	WL 0	WT 1	WR X	TOTAL

[illegible]

AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
TOTAL	
PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

[illegible][illegible]

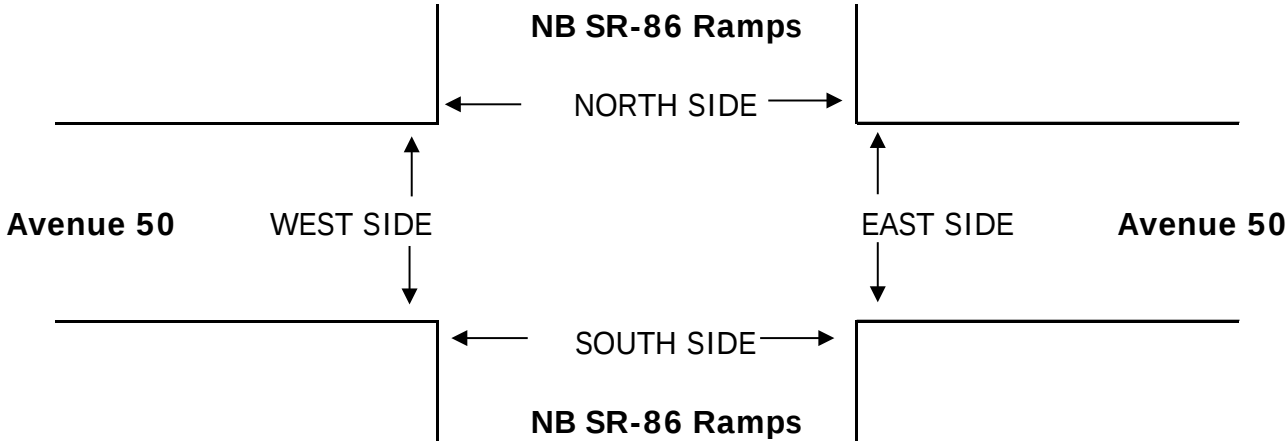
PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	4	0	0	4

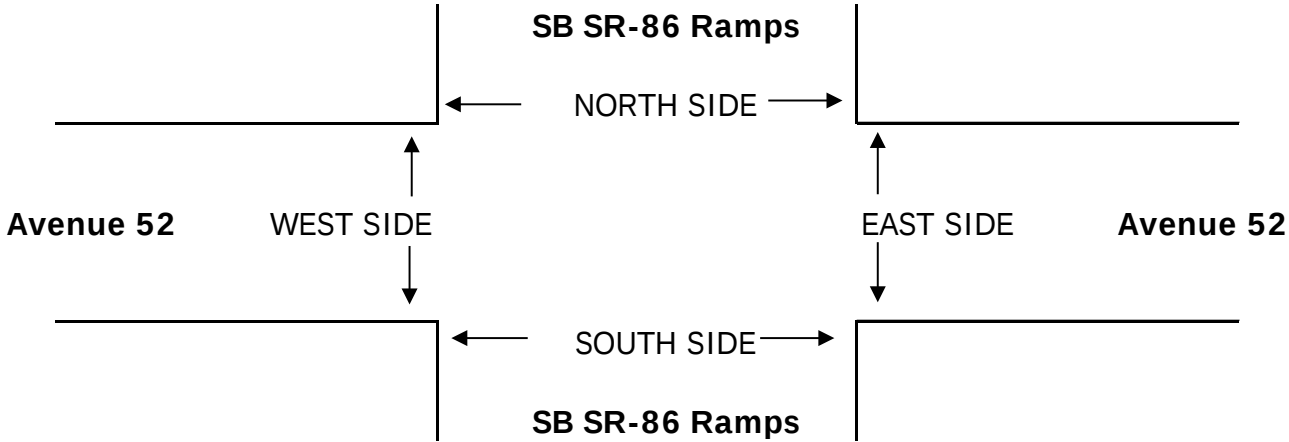
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	5	0	0	5

[illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns

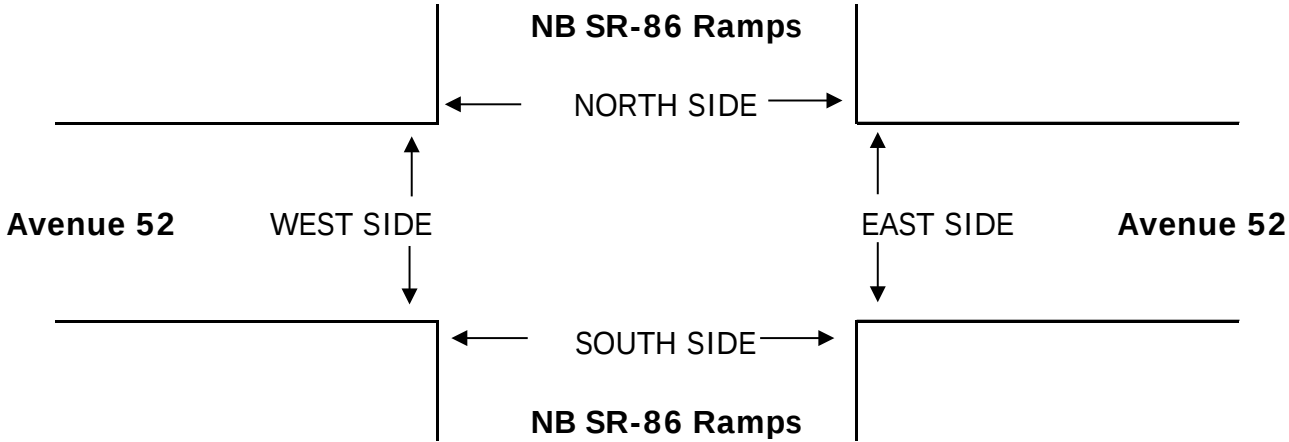
U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

[illegible][illegible][illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

[illegible][illegible][illegible][illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION: Coachella
NORTH & SOUTH: SB SR-86 Ramps
EAST & WEST: Dillon

PROJECT #: SC0780
LOCATION #: 10
CONTROL: SIGNAL

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

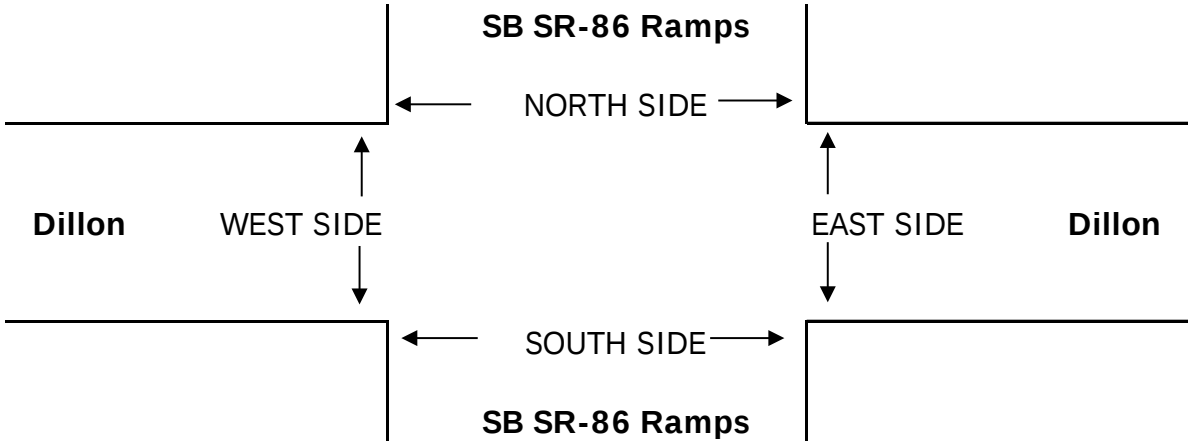
☒ Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	SB SR-86 Ramps			SB SR-86 Ramps			Dillon			Dillon			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	X	X	X	0.5	0.5	1	X	1	0	1	1	X	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	

AM	7:00 AM	0	0	0	10	0	7	0	54	11	24	40	0	146
	7:15 AM	0	0	0	13	0	13	0	61	22	24	31	0	164
	7:30 AM	0	0	0	8	1	24	0	93	23	18	67	0	234
	7:45 AM	0	0	0	21	0	16	0	98	17	23	55	0	230
	8:00 AM	0	0	0	25	0	17	0	82	13	20	56	0	213
	8:15 AM	0	0	0	24	1	17	0	43	17	19	48	0	169
	8:30 AM	0	0	0	14	0	8	0	41	11	16	29	0	119
	8:45 AM	0	0	0	10	0	15	0	47	10	23	36	0	141
	VOLUMES	0	0	0	125	2	117	0	519	124	167	362	0	1,416
	APPROACH %	0%	0%	0%	51%	1%	48%	0%	81%	19%	32%	68%	0%	
PM	APP/DEPART	0	/	0	244	/	293	643	/	644	529	/	479	0
	BEGIN PEAK HR	7:30 AM												
	VOLUMES	0	0	0	78	2	74	0	316	70	80	226	0	846
	APPROACH %	0%	0%	0%	51%	1%	48%	0%	82%	18%	26%	74%	0%	
	PEAK HR FACTOR	0.000			0.917			0.832			0.900			0.904
	APP/DEPART	0	/	0	154	/	152	386	/	394	306	/	300	0
	4:00 PM	0	0	0	22	0	41	0	51	26	23	84	0	247
	4:15 PM	0	0	0	23	0	36	0	54	17	30	78	0	238
	4:30 PM	0	0	0	21	0	25	0	62	27	31	55	0	221
	4:45 PM	0	0	0	21	1	29	0	75	24	27	56	0	233
	5:00 PM	0	0	0	27	0	42	0	59	36	26	63	0	253
	5:15 PM	0	0	0	18	1	40	0	61	31	25	60	0	236
	5:30 PM	0	0	0	28	0	44	0	60	23	18	40	0	213
	5:45 PM	0	0	0	44	0	31	0	61	30	22	36	0	224
	VOLUMES	0	0	0	204	2	288	0	483	214	202	472	0	1,865
	APPROACH %	0%	0%	0%	41%	0%	58%	0%	69%	31%	30%	70%	0%	
	APP/DEPART	0	/	0	494	/	418	697	/	687	674	/	760	0
	BEGIN PEAK HR	4:15 PM												
	VOLUMES	0	0	0	92	1	132	0	250	104	114	252	0	945
	APPROACH %	0%	0%	0%	41%	0%	59%	0%	71%	29%	31%	69%	0%	
	PEAK HR FACTOR	0.000			0.815			0.894			0.847			0.934
	APP/DEPART	0	/	0	225	/	219	354	/	342	366	/	384	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0



AM	7:00 AM	
	7:15 AM	
	7:30 AM	
	7:45 AM	
	8:00 AM	
	8:15 AM	
	8:30 AM	
	8:45 AM	
PM	TOTAL	
	4:00 PM	
	4:15 PM	
	4:30 PM	
	4:45 PM	
	5:00 PM	
	5:15 PM	
	5:30 PM	
	5:45 PM	
	TOTAL	

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	3	1	0	4
0	0	0	0	0
0	0	0	1	1
1	1	0	0	2
1	0	0	0	1
3	0	0	0	3
0	2	0	0	2
0	0	0	0	0
1	0	0	2	3
6	3	0	3	12

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	1	0	0	1
0	0	0	0	0
0	0	0	2	2
2	1	0	2	5

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	1	0	2
0	0	0	0	0
0	0	0	1	1
1	1	0	0	2
1	0	0	0	1
1	0	0	0	1
0	1	0	0	1
0	0	0	0	0
1	0	0	0	1
4	2	0	1	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION:
NORTH & SOUTH:
EAST & WEST:

Coachella
NB SR-86 Ramps
Dillon

PROJECT #:
LOCATION #:
CONTROL:

SC0780
11
SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

◀ W

▲
N

S
▼

E ▶

☒ Add U-Turns to Left Turns

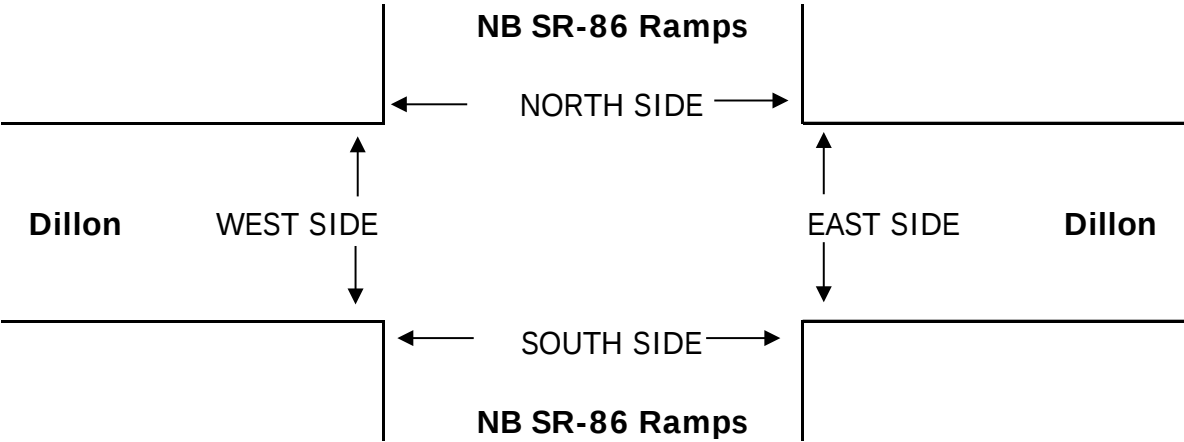
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NB SR-86 Ramps			NB SR-86 Ramps			Dillon			Dillon			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0.3	0.3	0.3	X	X	X	1	1	X	X	2	1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	

AM	7:00 AM	21	0	18	0	0	0	43	22	0	0	45	14	163
	7:15 AM	28	0	26	1	0	0	48	35	0	0	36	13	187
	7:30 AM	35	1	12	0	0	0	61	40	0	0	49	8	206
	7:45 AM	29	1	33	0	0	0	45	77	0	0	42	14	241
	8:00 AM	22	0	27	0	0	0	34	60	0	0	48	13	204
	8:15 AM	22	1	22	0	0	0	29	40	0	0	43	10	167
	8:30 AM	13	0	19	0	0	0	18	31	0	0	35	5	121
	8:45 AM	19	0	23	0	0	0	17	43	0	0	42	8	152
	VOLUMES	189	3	180	1	0	0	295	348	0	0	340	85	1,441
	APPROACH %	51%	1%	48%	100%	0%	0%	46%	54%	0%	0%	80%	20%	
PM	APP/DEPART	372	/	384	1	/	0	643	/	528	425	/	529	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	114	2	98	1	0	0	188	212	0	0	175	48	838
	APPROACH %	53%	1%	46%	100%	0%	0%	47%	53%	0%	0%	78%	22%	
	PEAK HR FACTOR	0.849			0.250			0.820			0.914			0.869
	APP/DEPART	214	/	239	1	/	0	400	/	310	223	/	289	0
	4:00 PM	24	0	25	0	0	0	18	46	0	0	104	24	241
	4:15 PM	19	2	32	0	0	0	24	60	0	0	70	29	236
	4:30 PM	21	0	33	0	0	0	26	64	0	0	68	34	246
	4:45 PM	26	2	29	0	0	0	24	63	0	0	60	27	231
PM	5:00 PM	13	0	19	0	0	0	30	60	0	0	67	28	217
	5:15 PM	19	0	33	0	0	0	20	58	0	0	60	27	217
	5:30 PM	14	1	29	0	0	0	27	58	0	0	45	18	192
	5:45 PM	13	3	26	0	0	0	17	93	0	0	49	18	219
	VOLUMES	149	8	226	0	0	0	186	502	0	0	523	205	1,799
	APPROACH %	39%	2%	59%	0%	0%	0%	27%	73%	0%	0%	72%	28%	
	APP/DEPART	383	/	398	0	/	0	688	/	728	728	/	673	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	90	4	119	0	0	0	92	233	0	0	302	114	954
	APPROACH %	42%	2%	56%	0%	0%	0%	28%	72%	0%	0%	73%	27%	
	PEAK HR FACTOR	0.934			0.000			0.903			0.813			0.970
	APP/DEPART	213	/	210	0	/	0	325	/	352	416	/	392	0

0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1



AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
PM	TOTAL
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	3	1	0	4
0	0	0	0	0
0	3	2	0	5
2	0	0	0	2
0	1	0	0	1
1	0	0	0	1
4	0	0	0	4
3	2	0	0	5
0	1	0	0	1
2	1	0	0	3
0	1	1	0	2
12	6	1	0	19

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	1	0	3
0	0	0	0	0
0	2	1	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3	0	0	0	3
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
5	0	1	0	6

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	1	0	2
2	0	0	0	2
0	1	0	0	1
1	0	0	0	1
1	0	0	0	1
1	2	0	0	3
0	1	0	0	1
2	1	0	0	3
0	1	0	0	1
7	6	0	0	13

APPENDIX B

Technical Calculations



HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

Existing AM
Ave. 50/SR-86

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	246	81	156	157	149	80	478	205	77	323	24
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	73	265	70	168	169	40	86	514	158	83	347	18
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	91	351	93	254	540	450	110	881	270	166	1084	56
Arrive On Green	0.05	0.26	0.26	0.08	0.30	0.30	0.06	0.33	0.33	0.05	0.32	0.32
Sat Flow, veh/h	1691	1348	356	3343	1810	1507	1774	2666	815	3442	3422	177
Grp Volume(v), veh/h	73	0	335	168	169	40	86	340	332	83	179	186
Grp Sat Flow(s),veh/h/ln	1691	0	1704	1672	1810	1507	1774	1770	1712	1721	1770	1829
Q Serve(g_s), s	2.7	0.0	11.6	3.1	4.6	1.2	3.1	10.2	10.3	1.5	4.9	5.0
Cycle Q Clear(g_c), s	2.7	0.0	11.6	3.1	4.6	1.2	3.1	10.2	10.3	1.5	4.9	5.0
Prop In Lane	1.00		0.21	1.00		1.00	1.00		0.48	1.00		0.10
Lane Grp Cap(c), veh/h	91	0	444	254	540	450	110	585	566	166	561	579
V/C Ratio(X)	0.80	0.00	0.75	0.66	0.31	0.09	0.78	0.58	0.59	0.50	0.32	0.32
Avail Cap(c_a), veh/h	159	0	719	261	764	636	183	678	656	285	642	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.9	0.0	21.8	28.7	17.4	16.2	29.6	17.7	17.8	29.7	16.6	16.6
Incr Delay (d2), s/veh	6.0	0.0	1.0	4.6	0.1	0.0	4.5	3.3	3.5	0.9	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	5.5	1.6	2.3	0.5	1.6	5.5	5.3	0.7	2.6	2.7
LnGrp Delay(d),s/veh	35.9	0.0	22.8	33.3	17.5	16.2	34.1	21.1	21.3	30.6	17.8	17.8
LnGrp LOS	D		C	C	B	B	C	C	C	C	B	B
Approach Vol, veh/h		408			377			758			448	
Approach Delay, s/veh		25.1			24.4			22.6			20.1	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	25.8	6.4	23.6	7.3	26.6	8.9	21.2				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 6.6	23.2	6.0	27.0	* 5.3	24.5	5.0	27.0				
Max Q Clear Time (g_c+I1), s	5.1	7.0	4.7	6.6	3.5	12.3	5.1	13.6				
Green Ext Time (p_c), s	0.0	10.7	0.0	1.9	0.0	8.6	0.0	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			22.9									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

Existing AM
Ave. 50/SR-86



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↵		↵	↑↑	↵	↵		
Volume (veh/h)	462	66	133	413	49	122		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	519	43	149	464	55	1		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1264	104	185	2184	112	100		
Arrive On Green	0.39	0.39	0.11	0.64	0.06	0.06		
Sat Flow, veh/h	3371	271	1723	3529	1774	1583		
Grp Volume(v), veh/h	277	285	149	464	55	1		
Grp Sat Flow(s),veh/h/ln	1752	1797	1723	1719	1774	1583		
Q Serve(g_s), s	3.2	3.3	2.4	1.6	0.8	0.0		
Cycle Q Clear(g_c), s	3.2	3.3	2.4	1.6	0.8	0.0		
Prop In Lane		0.15	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	676	693	185	2184	112	100		
V/C Ratio(X)	0.41	0.41	0.80	0.21	0.49	0.01		
Avail Cap(c_a), veh/h	1058	1085	306	3175	347	309		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	6.3	6.3	12.3	2.2	12.8	12.4		
Incr Delay (d2), s/veh	0.5	0.5	7.9	0.1	3.3	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.6	1.7	1.5	0.7	0.5	0.0		
LnGrp Delay(d),s/veh	6.8	6.8	20.2	2.2	16.1	12.4		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	562			613	56			
Approach Delay, s/veh	6.8			6.6	16.0			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				22.4		5.8	7.0	15.4
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				3.6		2.8	4.4	5.3
Green Ext Time (p_c), s				7.9		0.0	0.0	5.6
Intersection Summary								
HCM 2010 Ctrl Delay			7.1					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

Existing AM
Ave. 50/SR-86

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	551	23	14	521	1	18	1	7	3	0	7
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	626	23	16	592	1	20	1	0	3	0	0
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	1858	68	21	980	2	259	2	0	271	56	0
Arrive On Green	0.01	0.54	0.54	0.01	0.54	0.54	0.03	0.03	0.00	0.03	0.00	0.00
Sat Flow, veh/h	1757	3448	127	1723	1806	3	1360	68	0	1410	1863	0
Grp Volume(v), veh/h	11	318	331	16	0	593	21	0	0	3	0	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1822	1723	0	1809	1428	0	0	1410	1863	0
Q Serve(g_s), s	0.2	3.3	3.3	0.3	0.0	7.2	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.2	3.3	3.3	0.3	0.0	7.2	0.5	0.0	0.0	0.1	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.00	0.95		0.00	1.00		0.00
Lane Grp Cap(c), veh/h	15	945	982	21	0	982	261	0	0	271	56	0
V/C Ratio(X)	0.72	0.34	0.34	0.75	0.00	0.60	0.08	0.00	0.00	0.01	0.00	0.00
Avail Cap(c_a), veh/h	163	1413	1469	160	0	1458	993	0	0	994	1011	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.9	4.2	4.2	15.9	0.0	5.0	15.4	0.0	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	47.0	0.3	0.2	39.8	0.0	0.7	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	1.6	0.4	0.0	3.7	0.2	0.0	0.0	0.0	0.0	0.0
LnGrp Delay(d),s/veh	62.9	4.4	4.4	55.7	0.0	5.7	15.5	0.0	0.0	15.2	0.0	0.0
LnGrp LOS	E	A	A	E		A	B			B		
Approach Vol, veh/h	660			609			21			3		
Approach Delay, s/veh	5.4			7.1			15.5			15.2		
Approach LOS	A			A			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		5.5	4.3	22.5		5.5	4.4	22.4				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		17.5	3.0	26.0		17.5	3.0	26.0				
Max Q Clear Time (g_c+l1), s		2.5	2.2	9.2		2.1	2.3	5.3				
Green Ext Time (p_c), s		0.0	0.0	8.3		0.0	0.0	9.3				
Intersection Summary												
HCM 2010 Ctrl Delay			6.4									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	2.1	0.0	0.9	0.0	3.0
Denied Del/Veh (s)	13.0	0.0	9.2	0.1	8.6
Total Delay (hr)	20.9	0.1	11.2	0.0	32.2
Total Del/Veh (s)	127.1	1.4	110.0	7.6	91.0

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

Existing AM
Ave. 50/SR-86

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	366	20	39	5	11	16	76	780	0	6	776	224
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	402	22	0	5	12	0	84	857	0	7	853	73
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	433	24	407	10	25	30	101	1134	508	13	959	429
Arrive On Green	0.26	0.26	0.00	0.02	0.02	0.00	0.07	0.39	0.00	0.01	0.33	0.33
Sat Flow, veh/h	1670	91	1568	530	1271	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	424	0	0	17	0	0	84	857	0	7	853	73
Grp Sat Flow(s),veh/h/ln	1761	0	1568	1800	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	19.7	0.0	0.0	0.8	0.0	0.0	4.8	21.5	0.0	0.4	23.5	3.4
Cycle Q Clear(g_c), s	19.7	0.0	0.0	0.8	0.0	0.0	4.8	21.5	0.0	0.4	23.5	3.4
Prop In Lane	0.95		1.00	0.29		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	457	0	407	35	0	30	101	1134	508	13	959	429
V/C Ratio(X)	0.93	0.00	0.00	0.48	0.00	0.00	0.83	0.76	0.00	0.54	0.89	0.17
Avail Cap(c_a), veh/h	461	0	411	107	0	92	103	1134	508	86	1039	465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	0.0	0.0	40.7	0.0	0.0	38.6	22.0	0.0	41.4	26.6	19.8
Incr Delay (d2), s/veh	24.9	0.0	0.0	10.0	0.0	0.0	40.7	3.2	0.0	30.5	9.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	0.0	0.0	0.5	0.0	0.0	3.1	9.1	0.0	0.3	10.6	1.2
LnGrp Delay(d),s/veh	55.3	0.0	0.0	50.7	0.0	0.0	79.2	25.2	0.0	72.0	36.1	20.1
LnGrp LOS	E			D			E	C		E	D	C
Approach Vol, veh/h		424			17			941			933	
Approach Delay, s/veh		55.3			50.7			30.0			35.1	
Approach LOS		E			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	40.8		28.8	10.9	35.7		8.6				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	31.2		22.0	6.0	30.2		5.0				
Max Q Clear Time (g_c+l1), s	2.4	23.5		21.7	6.8	25.5		2.8				
Green Ext Time (p_c), s	0.0	6.3		0.1	0.0	2.4		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			36.8									
HCM 2010 LOS			D									

HCM 2010 Signalized Intersection Summary

7: SR-86 SB Ramps & Dillon Rd

Existing AM
Ave. 50/SR-86

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	322	70	80	226	0	0	0	0	78	2	74
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	358	68	89	251	0				87	2	2
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	946	180	114	1406	0				106	2	97
Arrive On Green	0.00	0.62	0.62	0.13	1.00	0.00				0.08	0.08	0.08
Sat Flow, veh/h	0	1516	288	1774	1863	0				1417	33	1292
Grp Volume(v), veh/h	0	0	426	89	251	0				89	0	2
Grp Sat Flow(s),veh/h/ln	0	0	1804	1774	1863	0				1449	0	1292
Q Serve(g_s), s	0.0	0.0	7.0	2.9	0.0	0.0				3.6	0.0	0.1
Cycle Q Clear(g_c), s	0.0	0.0	7.0	2.9	0.0	0.0				3.6	0.0	0.1
Prop In Lane	0.00		0.16	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	0	1125	114	1406	0				109	0	97
V/C Ratio(X)	0.00	0.00	0.38	0.78	0.18	0.00				0.82	0.00	0.02
Avail Cap(c_a), veh/h	0	0	1125	414	1406	0				338	0	301
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	5.6	25.7	0.0	0.0				27.3	0.0	25.7
Incr Delay (d2), s/veh	0.0	0.0	1.0	4.2	0.3	0.0				5.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.7	1.6	0.1	0.0				1.6	0.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	6.5	29.9	0.3	0.0				32.9	0.0	25.7
LnGrp LOS			A	C	A					C		C
Approach Vol, veh/h		426			340						91	
Approach Delay, s/veh		6.5			8.0						32.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	7.9	42.6		9.5		50.5						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	14.0	14.0		14.0		35.8						
Max Q Clear Time (g_c+I), s	14.9	9.0		5.6		2.0						
Green Ext Time (p_c), s	0.1	1.4		0.1		2.9						
Intersection Summary												
HCM 2010 Ctrl Delay			9.9									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

Existing AM
Ave. 50/SR-86

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	188	212	0	0	192	48	114	2	98	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.97			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	216	244	0	0	221	14	131	2	54			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	269	1247	0	0	1595	714	156	2	64			
Arrive On Green	0.05	0.22	0.00	0.00	0.45	0.45	0.16	0.16	0.16			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	973	15	401			
Grp Volume(v), veh/h	216	244	0	0	221	14	187	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1388	0	0			
Q Serve(g_s), s	7.2	6.4	0.0	0.0	2.2	0.3	7.8	0.0	0.0			
Cycle Q Clear(g_c), s	7.2	6.4	0.0	0.0	2.2	0.3	7.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.70		0.29			
Lane Grp Cap(c), veh/h	269	1247	0	0	1595	714	223	0	0			
V/C Ratio(X)	0.80	0.20	0.00	0.00	0.14	0.02	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	414	1247	0	0	1595	714	324	0	0			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.92	0.92	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	27.6	10.2	0.0	0.0	9.7	9.1	24.4	0.0	0.0			
Incr Delay (d2), s/veh	2.9	0.3	0.0	0.0	0.2	0.1	8.3	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.8	3.4	0.0	0.0	1.1	0.1	3.5	0.0	0.0			
LnGrp Delay(d),s/veh	30.5	10.5	0.0	0.0	9.8	9.2	32.7	0.0	0.0			
LnGrp LOS	C	B			A	A	C					
Approach Vol, veh/h		460			235			187				
Approach Delay, s/veh		19.9			9.8			32.7				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		45.4			13.1	32.2		14.6				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		35.8			14.0	14.0		14.0				
Max Q Clear Time (g_c+I1), s		8.4			9.2	4.2		9.8				
Green Ext Time (p_c), s		2.0			0.1	1.4		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				19.9								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
910: SR-86 & Avenue 52

Existing AM
Ave. 50/SR-86

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	123	38	27	2	32	17	29	687	9	13	598	175
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	148	46	25	2	39	0	35	828	3	16	720	57
Adj No. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	25	25	25	25	25	25
Cap, veh/h	257	64	31	53	334	0	50	1433	641	94	1521	681
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.00	0.03	0.50	0.50	0.06	0.53	0.53
Sat Flow, veh/h	983	349	172	23	1831	0	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	219	0	0	41	0	0	35	828	3	16	720	57
Grp Sat Flow(s),veh/h/ln	1503	0	0	1854	0	0	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	9.2	0.0	0.0	0.0	0.0	0.0	1.8	15.6	0.1	0.8	12.1	1.7
Cycle Q Clear(g_c), s	10.7	0.0	0.0	1.4	0.0	0.0	1.8	15.6	0.1	0.8	12.1	1.7
Prop In Lane	0.68		0.11	0.05		0.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	352	0	0	387	0	0	50	1433	641	94	1521	681
V/C Ratio(X)	0.62	0.00	0.00	0.11	0.00	0.00	0.71	0.58	0.00	0.17	0.47	0.08
Avail Cap(c_a), veh/h	713	0	0	599	0	0	282	1956	875	282	1956	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.0	0.0	0.0	26.4	0.0	0.0	36.8	13.7	9.8	34.1	11.5	9.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.1	0.0	0.0	16.8	0.5	0.0	0.8	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	0.0	0.7	0.0	0.0	1.0	6.3	0.0	0.3	4.9	0.6
LnGrp Delay(d),s/veh	31.8	0.0	0.0	26.5	0.0	0.0	53.6	14.2	9.8	34.9	11.8	9.1
LnGrp LOS	C			C			D	B	A	C	B	A
Approach Vol, veh/h	219			41			866			793		
Approach Delay, s/veh	31.8			26.5			15.8			12.1		
Approach LOS	C			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.0			21.0	7.6	48.4		21.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	52.2			33.0	15.0	52.2		23.0				
Max Q Clear Time (g_c+I), s	17.6			12.7	3.8	14.1		3.4				
Green Ext Time (p_c), s	0.0	20.6		1.4	0.0	21.8		1.4				
Intersection Summary												
HCM 2010 Ctrl Delay	16.3											
HCM 2010 LOS	B											

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	32	48		307	14	21 276
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	35	52		334	15	23 300
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	687	341		0	0	349 0
Stage 1	341	-		-	-	- -
Stage 2	346	-		-	-	- -
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	413	701		-	-	1210 -
Stage 1	720	-		-	-	- -
Stage 2	716	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	404	701		-	-	1210 -
Mov Cap-2 Maneuver	404	-		-	-	- -
Stage 1	720	-		-	-	- -
Stage 2	700	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	12.9		0		0.6	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	542	1210	-	
HCM Lane V/C Ratio	-	-	0.16	0.019	-	
HCM Control Delay (s)	-	-	12.9	8	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-	

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	119	228	105	240	227	150	142	495	172	157	782	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	121	233	87	245	232	35	145	505	138	160	798	74
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	152	317	119	298	483	404	179	1006	273	238	1097	102
Arrive On Green	0.09	0.25	0.25	0.09	0.26	0.26	0.10	0.37	0.37	0.07	0.34	0.34
Sat Flow, veh/h	1774	1282	479	3408	1845	1543	1774	2736	743	3442	3265	303
Grp Volume(v), veh/h	121	0	320	245	232	35	145	326	317	160	432	440
Grp Sat Flow(s),veh/h/ln	1774	0	1760	1704	1845	1543	1774	1770	1709	1721	1770	1798
Q Serve(g_s), s	5.4	0.0	13.4	5.7	8.5	1.4	6.4	11.4	11.5	3.6	17.2	17.2
Cycle Q Clear(g_c), s	5.4	0.0	13.4	5.7	8.5	1.4	6.4	11.4	11.5	3.6	17.2	17.2
Prop In Lane	1.00		0.27	1.00		1.00	1.00		0.43	1.00		0.17
Lane Grp Cap(c), veh/h	152	0	436	298	483	404	179	651	629	238	595	604
V/C Ratio(X)	0.80	0.00	0.73	0.82	0.48	0.09	0.81	0.50	0.50	0.67	0.73	0.73
Avail Cap(c_a), veh/h	155	0	594	298	646	540	217	651	629	370	620	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	0.0	27.7	35.9	24.9	22.3	35.2	19.6	19.6	36.3	23.3	23.3
Incr Delay (d2), s/veh	22.1	0.0	1.7	15.6	0.3	0.0	14.1	2.2	2.3	1.2	6.7	6.6
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	3.6	0.0	6.7	3.3	4.4	0.6	3.8	5.9	5.8	1.8	9.4	9.5
LnGrp Delay(d),s/veh	58.0	0.0	29.4	51.4	25.2	22.3	49.3	21.7	21.9	37.6	30.0	29.9
LnGrp LOS	E		C	D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		441			512			788			1032	
Approach Delay, s/veh		37.2			37.5			26.9			31.1	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.3	32.4	9.9	25.5	9.7	34.9	11.0	24.3				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9.8	28.0	7.0	28.0	* 8.6	29.2	7.0	27.0				
Max Q Clear Time (g_c+I1), s	8.4	19.2	7.4	10.5	5.6	13.5	7.7	15.4				
Green Ext Time (p_c), s	0.0	7.7	0.0	2.0	0.1	13.3	0.0	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			32.1									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

Existing Conditions
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↑	↑↑	↑	↑		
Volume (veh/h)	473	84	171	535	82	134		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1827	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	498	49	180	563	86	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	4	2	2	2	2		
Cap, veh/h	1197	117	228	2241	161	144		
Arrive On Green	0.37	0.37	0.13	0.63	0.09	0.09		
Sat Flow, veh/h	3284	313	1774	3632	1774	1583		
Grp Volume(v), veh/h	270	277	180	563	86	10		
Grp Sat Flow(s),veh/h/ln	1736	1771	1774	1770	1774	1583		
Q Serve(g_s), s	3.5	3.6	3.0	2.1	1.4	0.2		
Cycle Q Clear(g_c), s	3.5	3.6	3.0	2.1	1.4	0.2		
Prop In Lane		0.18	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	651	664	228	2241	161	144		
V/C Ratio(X)	0.41	0.42	0.79	0.25	0.53	0.07		
Avail Cap(c_a), veh/h	958	977	288	2987	317	283		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.1	7.1	13.0	2.5	13.4	12.8		
Incr Delay (d2), s/veh	0.5	0.5	11.0	0.1	2.7	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	1.7	1.8	2.1	1.0	0.8	0.2		
LnGrp Delay(d),s/veh	7.6	7.6	24.0	2.5	16.1	13.0		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	547			743	96			
Approach Delay, s/veh	7.6			7.7	15.8			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				24.0		6.8	8.0	16.1
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				4.1		3.4	5.0	5.6
Green Ext Time (p_c), s				8.6		0.0	0.0	5.9
Intersection Summary								
HCM 2010 Ctrl Delay			8.3					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	545	12	7	630	24	27	0	14	25	0	49
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	574	11	7	663	23	28	0	0	26	0	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	1958	38	10	953	33	281	0	0	291	0	95
Arrive On Green	0.04	0.56	0.56	0.01	0.53	0.53	0.06	0.00	0.00	0.06	0.00	0.06
Sat Flow, veh/h	1740	3484	67	1774	1790	62	1366	0	0	1412	0	1583
Grp Volume(v), veh/h	53	286	299	7	0	686	28	0	0	26	0	3
Grp Sat Flow(s),veh/h/ln	1740	1736	1815	1774	0	1852	1366	0	0	1412	0	1583
Q Serve(g_s), s	1.1	3.1	3.1	0.1	0.0	10.0	0.7	0.0	0.0	0.0	0.0	0.1
Cycle Q Clear(g_c), s	1.1	3.1	3.1	0.1	0.0	10.0	0.8	0.0	0.0	0.5	0.0	0.1
Prop In Lane	1.00		0.04	1.00		0.03	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	62	975	1020	10	0	986	281	0	0	291	0	95
V/C Ratio(X)	0.86	0.29	0.29	0.70	0.00	0.70	0.10	0.00	0.00	0.09	0.00	0.03
Avail Cap(c_a), veh/h	144	1196	1251	147	0	1276	914	0	0	926	0	807
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.4	4.2	4.2	18.0	0.0	6.3	16.4	0.0	0.0	16.3	0.0	16.1
Incr Delay (d2), s/veh	27.4	0.2	0.2	62.3	0.0	1.3	0.2	0.0	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.5	1.6	0.2	0.0	5.3	0.3	0.0	0.0	0.3	0.0	0.0
LnGrp Delay(d),s/veh	44.8	4.4	4.4	80.3	0.0	7.6	16.6	0.0	0.0	16.4	0.0	16.2
LnGrp LOS	D	A	A	F		A	B			B		B
Approach Vol, veh/h	638				693		28				29	
Approach Delay, s/veh	7.7				8.3		16.6				16.4	
Approach LOS	A				A		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	6.7		5.3	24.3	6.7		4.2	25.4				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	18.5		3.0	25.0	18.5		3.0	25.0				
Max Q Clear Time (g_c+I1), s	2.8		3.1	12.0	2.5		2.1	5.1				
Green Ext Time (p_c), s	0.1		0.0	7.3	0.1		0.0	9.5				
Intersection Summary												
HCM 2010 Ctrl Delay			8.4									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	0.3	0.0	4.3	0.0	4.6
Denied Del/Veh (s)	2.0	0.0	49.1		12.5
Total Delay (hr)	6.8	0.2	15.6	0.0	22.5
Total Del/Veh (s)	43.7	1.8	176.1		60.5

HCM 2010 Signalized Intersection Summary

56: SR-86 & Avenue 50

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	255	20	88	1	29	12	96	975	0	23	790	330
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	274	22	0	1	31	0	103	1048	0	25	849	118
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	25	25	25	25	25	25
Cap, veh/h	309	25	297	2	56	49	124	1254	561	38	1083	485
Arrive On Green	0.19	0.19	0.00	0.03	0.03	0.00	0.09	0.43	0.00	0.03	0.38	0.38
Sat Flow, veh/h	1632	131	1568	58	1784	1568	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	296	0	0	32	0	0	103	1048	0	25	849	118
Grp Sat Flow(s),veh/h/ln	1763	0	1568	1842	0	1568	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	13.7	0.0	0.0	1.4	0.0	0.0	5.9	27.1	0.0	1.4	21.9	5.3
Cycle Q Clear(g_c), s	13.7	0.0	0.0	1.4	0.0	0.0	5.9	27.1	0.0	1.4	21.9	5.3
Prop In Lane	0.93		1.00	0.03		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	334	0	297	58	0	49	124	1254	561	38	1083	485
V/C Ratio(X)	0.89	0.00	0.00	0.56	0.00	0.00	0.83	0.84	0.00	0.66	0.78	0.24
Avail Cap(c_a), veh/h	356	0	317	110	0	93	138	1254	561	86	1140	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)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	0.0	40.1	0.0	0.0	37.9	21.1	0.0	40.6	23.3	18.1
Incr Delay (d2), s/veh	21.6	0.0	0.0	8.1	0.0	0.0	31.1	5.3	0.0	17.5	3.8	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	0.0	0.0	0.9	0.0	0.0	3.4	11.7	0.0	0.8	9.3	1.9
LnGrp Delay(d),s/veh	54.8	0.0	0.0	48.2	0.0	0.0	68.9	26.4	0.0	58.1	27.0	18.4
LnGrp LOS	D			D			E	C		E	C	B
Approach Vol, veh/h		296			32			1151			992	
Approach Delay, s/veh		54.8			48.2			30.2			26.8	
Approach LOS		D			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	44.3		22.9	12.2	39.3		9.6				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	36.2		17.0	8.0	33.2		5.0				
Max Q Clear Time (g_c+l1), s	3.4	29.1		15.7	7.9	23.9		3.4				
Green Ext Time (p_c), s	0.0	6.2		0.2	0.0	7.7		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			32.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

7: SR-86 SB Ramps & Dillon Rd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	250	104	114	278	0	0	0	0	92	1	132
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	269	89	123	299	0				99	1	9
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				0.93	0.93	0.93
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	770	255	176	1386	0				123	1	107
Arrive On Green	0.00	0.58	0.58	0.20	1.00	0.00				0.09	0.09	0.09
Sat Flow, veh/h	0	1332	441	1774	1863	0				1434	14	1246
Grp Volume(v), veh/h	0	0	358	123	299	0				100	0	9
Grp Sat Flow(s),veh/h/ln	0	0	1773	1774	1863	0				1448	0	1246
Q Serve(g_s), s	0.0	0.0	6.4	3.9	0.0	0.0				4.1	0.0	0.4
Cycle Q Clear(g_c), s	0.0	0.0	6.4	3.9	0.0	0.0				4.1	0.0	0.4
Prop In Lane	0.00		0.25	1.00		0.00				0.99		1.00
Lane Grp Cap(c), veh/h	0	0	1025	176	1386	0				125	0	107
V/C Ratio(X)	0.00	0.00	0.35	0.70	0.22	0.00				0.80	0.00	0.08
Avail Cap(c_a), veh/h	0	0	1025	355	1386	0				241	0	208
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	6.7	23.2	0.0	0.0				26.9	0.0	25.2
Incr Delay (d2), s/veh	0.0	0.0	0.9	1.9	0.4	0.0				4.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	3.4	1.9	0.1	0.0				1.8	0.0	0.1
LnGrp Delay(d),s/veh	0.0	0.0	7.6	25.1	0.4	0.0				31.4	0.0	25.4
LnGrp LOS			A	C	A					C		C
Approach Vol, veh/h		358			422						109	
Approach Delay, s/veh		7.6			7.6						30.9	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	39.9			10.2		49.8						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	12.0	20.0		10.0		39.8						
Max Q Clear Time (g_c+I), s	15.9	8.4		6.1		2.0						
Green Ext Time (p_c), s	0.1	2.2		0.1		2.8						
Intersection Summary												
HCM 2010 Ctrl Delay			10.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary 8: SR-86 NB Ramps & Dillon Rd

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	92	250	0	0	302	114	90	4	119	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	95	258	0	0	311	53	93	4	47			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	149	1316	0	0	1968	859	111	5	56			
Arrive On Green	0.17	1.00	0.00	0.00	0.56	0.56	0.12	0.12	0.12			
Sat Flow, veh/h	1774	1863	0	0	3632	1544	899	39	455			
Grp Volume(v), veh/h	95	258	0	0	311	53	144	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1544	1393	0	0			
Q Serve(g_s), s	3.0	0.0	0.0	0.0	2.6	0.9	6.1	0.0	0.0			
Cycle Q Clear(g_c), s	3.0	0.0	0.0	0.0	2.6	0.9	6.1	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.65		0.33			
Lane Grp Cap(c), veh/h	149	1316	0	0	1968	859	172	0	0			
V/C Ratio(X)	0.64	0.20	0.00	0.00	0.16	0.06	0.84	0.00	0.00			
Avail Cap(c_a), veh/h	296	1316	0	0	1968	859	232	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.92	0.92	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.1	0.0	0.0	0.0	6.5	6.1	25.7	0.0	0.0			
Incr Delay (d2), s/veh	1.6	0.3	0.0	0.0	0.2	0.1	13.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.5	0.1	0.0	0.0	1.3	0.4	3.0	0.0	0.0			
LnGrp Delay(d),s/veh	25.7	0.3	0.0	0.0	6.7	6.3	39.4	0.0	0.0			
LnGrp LOS	C	A			A	A	D					
Approach Vol, veh/h		353			364			144				
Approach Delay, s/veh		7.1			6.6			39.4				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		47.6			9.0	38.6		12.4				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		39.8			10.0	22.0		10.0				
Max Q Clear Time (g_c+I1), s		2.0			5.0	4.6		8.1				
Green Ext Time (p_c), s		2.6			0.0	2.3		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay		12.3										
HCM 2010 LOS		B										

HCM 2010 Signalized Intersection Summary

910: SR-86 & Avenue 52

Existing Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	195	47	46	10	31	26	31	813	7	24	713	100
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	201	48	40	10	32	1	32	838	2	25	735	38
Adj No. of Lanes	0	1	0	0	1	0	1	2	1	1	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	25	25	25	25	25	25
Cap, veh/h	310	57	47	115	330	9	45	1373	614	86	1455	651
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.03	0.48	0.48	0.06	0.50	0.50
Sat Flow, veh/h	1035	247	206	271	1441	41	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	289	0	0	43	0	0	32	838	2	25	735	38
Grp Sat Flow(s),veh/h/ln	1489	0	0	1753	0	0	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	14.0	0.0	0.0	0.0	0.0	0.0	1.8	18.0	0.1	1.4	14.2	1.3
Cycle Q Clear(g_c), s	15.5	0.0	0.0	1.5	0.0	0.0	1.8	18.0	0.1	1.4	14.2	1.3
Prop In Lane	0.70		0.14	0.23		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	414	0	0	455	0	0	45	1373	614	86	1455	651
V/C Ratio(X)	0.70	0.00	0.00	0.09	0.00	0.00	0.71	0.61	0.00	0.29	0.51	0.06
Avail Cap(c_a), veh/h	653	0	0	530	0	0	259	1796	803	259	1796	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	0.0	0.0	25.5	0.0	0.0	40.3	16.3	11.6	37.8	13.9	10.7
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.1	0.0	0.0	18.1	0.6	0.0	1.8	0.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0	0.8	0.0	0.0	1.0	7.2	0.0	0.6	5.7	0.5
LnGrp Delay(d),s/veh	32.9	0.0	0.0	25.6	0.0	0.0	58.4	16.9	11.6	39.6	14.3	10.7
LnGrp LOS	C			C			E	B	B	D	B	B
Approach Vol, veh/h	289			43			872			798		
Approach Delay, s/veh	32.9			25.6			18.4			14.9		
Approach LOS	C			C			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	47.7			26.2	7.6	50.1		26.2				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	52.2			33.0	15.0	52.2		23.0				
Max Q Clear Time (g_c+I), s	20.0			17.5	3.8	16.2		3.5				
Green Ext Time (p_c), s	0.0	19.9		1.7	0.0	21.3		1.9				
Intersection Summary												
HCM 2010 Ctrl Delay	19.3											
HCM 2010 LOS	B											

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	21	31		292	41	61 240
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	23	34		317	45	66 261
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	733	340		0	0	362 0
Stage 1	340	-		-	-	- -
Stage 2	393	-		-	-	- -
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	388	702		-	-	1197 -
Stage 1	721	-		-	-	- -
Stage 2	682	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	363	702		-	-	1197 -
Mov Cap-2 Maneuver	363	-		-	-	- -
Stage 1	721	-		-	-	- -
Stage 2	638	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	12.9		0		1.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	510	1197	-	
HCM Lane V/C Ratio	-	-	0.111	0.055	-	
HCM Control Delay (s)	-	-	12.9	8.2	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-	

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2020 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	340	90	170	200	170	80	520	230	110	390	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	366	80	183	215	63	86	559	185	118	419	24
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	94	431	94	232	605	504	110	824	272	192	1051	60
Arrive On Green	0.06	0.31	0.31	0.07	0.33	0.33	0.06	0.32	0.32	0.06	0.31	0.31
Sat Flow, veh/h	1691	1407	307	3343	1810	1508	1774	2611	861	3442	3401	194
Grp Volume(v), veh/h	75	0	446	183	215	63	86	378	366	118	217	226
Grp Sat Flow(s),veh/h/ln	1691	0	1714	1672	1810	1508	1774	1770	1703	1721	1770	1825
Q Serve(g_s), s	3.2	0.0	17.6	3.9	6.5	2.1	3.4	13.4	13.5	2.4	7.0	7.0
Cycle Q Clear(g_c), s	3.2	0.0	17.6	3.9	6.5	2.1	3.4	13.4	13.5	2.4	7.0	7.0
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.51	1.00		0.11
Lane Grp Cap(c), veh/h	94	0	526	232	605	504	110	558	537	192	547	564
V/C Ratio(X)	0.80	0.00	0.85	0.79	0.36	0.12	0.78	0.68	0.68	0.62	0.40	0.40
Avail Cap(c_a), veh/h	141	0	643	232	679	566	163	602	579	253	570	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.6	0.0	23.4	33.0	18.1	16.6	33.3	21.5	21.5	33.2	19.6	19.6
Incr Delay (d2), s/veh	9.5	0.0	7.5	15.2	0.1	0.0	7.2	5.5	5.8	1.2	1.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	9.4	2.3	3.2	0.9	1.9	7.4	7.2	1.2	3.6	3.8
LnGrp Delay(d),s/veh	43.1	0.0	30.9	48.2	18.2	16.7	40.5	27.0	27.3	34.4	21.3	21.3
LnGrp LOS	D		C	D	B	B	D	C	C	C	C	C
Approach Vol, veh/h		521			461			830			561	
Approach Delay, s/veh		32.7			29.9			28.5			24.1	
Approach LOS		C			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	27.7	7.0	28.6	8.2	28.2	9.0	26.6				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 6.6	23.2	6.0	27.0	* 5.3	24.5	5.0	27.0				
Max Q Clear Time (g_c+l1), s	5.4	9.0	5.2	8.5	4.4	15.5	5.9	19.6				
Green Ext Time (p_c), s	0.0	10.6	0.0	2.6	0.0	7.2	0.0	1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			28.6									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2020 No Build
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↱		↱	↑↑	↱	↱		
Volume (veh/h)	570	110	160	480	60	130		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	640	93	180	539	67	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1245	181	225	2269	137	122		
Arrive On Green	0.41	0.41	0.13	0.66	0.08	0.08		
Sat Flow, veh/h	3165	446	1723	3529	1774	1583		
Grp Volume(v), veh/h	365	368	180	539	67	10		
Grp Sat Flow(s),veh/h/ln	1752	1766	1723	1719	1774	1583		
Q Serve(g_s), s	5.1	5.1	3.3	2.0	1.2	0.2		
Cycle Q Clear(g_c), s	5.1	5.1	3.3	2.0	1.2	0.2		
Prop In Lane		0.25	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	710	716	225	2269	137	122		
V/C Ratio(X)	0.51	0.51	0.80	0.24	0.49	0.08		
Avail Cap(c_a), veh/h	921	929	267	2765	302	269		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.2	7.2	13.6	2.2	14.3	13.9		
Incr Delay (d2), s/veh	0.7	0.7	13.5	0.1	2.7	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	2.6	2.6	2.4	0.9	0.7	0.2		
LnGrp Delay(d),s/veh	7.9	7.9	27.2	2.3	17.0	14.1		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	733			719	77			
Approach Delay, s/veh	7.9			8.5	16.6			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.8		6.5	8.2	17.6
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				4.0		3.2	5.3	7.1
Green Ext Time (p_c), s				10.0		0.0	0.0	6.0
Intersection Summary								
HCM 2010 Ctrl Delay			8.6					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2020 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	660	30	20	600	10	30	5	10	10	5	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	750	31	23	682	11	34	6	3	11	6	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	1901	79	29	998	16	243	12	6	297	76	38
Arrive On Green	0.01	0.55	0.55	0.02	0.56	0.56	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1757	3430	142	1723	1775	29	1070	189	94	1400	1173	586
Grp Volume(v), veh/h	11	383	398	23	0	693	43	0	0	11	0	9
Grp Sat Flow(s),veh/h/ln	1757	1752	1820	1723	0	1804	1354	0	0	1400	0	1759
Q Serve(g_s), s	0.2	4.6	4.6	0.5	0.0	10.1	1.1	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.2	4.6	4.6	0.5	0.0	10.1	1.2	0.0	0.0	0.2	0.0	0.2
Prop In Lane	1.00		0.08	1.00		0.02	0.79		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	15	971	1008	29	0	1014	261	0	0	297	0	113
V/C Ratio(X)	0.72	0.39	0.39	0.78	0.00	0.68	0.16	0.00	0.00	0.04	0.00	0.08
Avail Cap(c_a), veh/h	142	1230	1277	140	0	1266	858	0	0	869	0	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.3	4.7	4.7	18.1	0.0	5.8	16.9	0.0	0.0	16.3	0.0	16.3
Incr Delay (d2), s/veh	48.0	0.3	0.3	35.0	0.0	1.3	0.3	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.2	2.3	0.5	0.0	5.2	0.4	0.0	0.0	0.1	0.0	0.1
LnGrp Delay(d),s/veh	66.3	5.0	5.0	53.1	0.0	7.0	17.2	0.0	0.0	16.4	0.0	16.6
LnGrp LOS	E	A	A	D		A	B			B		B
Approach Vol, veh/h	792				716		43				20	
Approach Delay, s/veh	5.9				8.5		17.2				16.5	
Approach LOS	A				A		B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	6.9		4.3	25.8	6.9		4.6	25.5				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	17.5		3.0	26.0	17.5		3.0	26.0				
Max Q Clear Time (g_c+I1), s	3.2		2.2	12.1	2.2		2.5	6.6				
Green Ext Time (p_c), s	0.2		0.0	8.7	0.2		0.0	10.9				
Intersection Summary												
HCM 2010 Ctrl Delay			7.5									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	23.7	0.0	0.0	0.0	23.7
Denied Del/Veh (s)	127.9	0.3	0.0	0.1	57.4
Total Delay (hr)	82.8	0.2	56.8	0.0	139.9
Total Del/Veh (s)	464.4	1.9	529.9	14.4	337.8

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2020 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	450	80	40	10	120	50	80	890	10	10	920	270
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	495	88	0	11	132	0	88	978	11	11	1011	124
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	482	86	503	11	135	124	87	1178	527	18	1040	465
Arrive On Green	0.32	0.32	0.00	0.08	0.08	0.00	0.06	0.41	0.41	0.01	0.36	0.36
Sat Flow, veh/h	1502	267	1568	140	1680	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	583	0	0	143	0	0	88	978	11	11	1011	124
Grp Sat Flow(s),veh/h/ln	1770	0	1568	1820	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	48.0	0.0	0.0	11.7	0.0	0.0	9.0	45.4	0.8	1.1	51.6	10.2
Cycle Q Clear(g_c), s	48.0	0.0	0.0	11.7	0.0	0.0	9.0	45.4	0.8	1.1	51.6	10.2
Prop In Lane	0.85		1.00	0.08		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	567	0	503	146	0	124	87	1178	527	18	1040	465
V/C Ratio(X)	1.03	0.00	0.00	0.98	0.00	0.00	1.01	0.83	0.02	0.62	0.97	0.27
Avail Cap(c_a), veh/h	567	0	503	146	0	124	87	1178	527	48	1046	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.9	0.0	0.0	68.7	0.0	0.0	70.4	39.7	26.5	73.6	47.2	33.9
Incr Delay (d2), s/veh	45.0	0.0	0.0	68.3	0.0	0.0	99.6	5.3	0.0	30.3	21.3	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	30.4	0.0	0.0	8.6	0.0	0.0	6.0	18.9	0.3	0.6	23.6	3.7
LnGrp Delay(d),s/veh	95.8	0.0	0.0	137.0	0.0	0.0	170.0	45.0	26.5	103.9	68.5	34.3
LnGrp LOS	F			F			F	D	C	F	E	C
Approach Vol, veh/h		583			143			1077			1146	
Approach Delay, s/veh		95.8			137.0			55.0			65.2	
Approach LOS		F			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	68.9		55.0	14.0	61.7		19.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	58.2		48.0	9.0	54.2		12.0				
Max Q Clear Time (g_c+l1), s	3.1	47.4		50.0	11.0	53.6		13.7				
Green Ext Time (p_c), s	0.0	9.3		0.0	0.0	0.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			71.0									
HCM 2010 LOS			E									

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	40	50		360	20	30 320
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	43	54		391	22	33 348
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	815	402		0	0	413 0
Stage 1	402	-		-	-	- -
Stage 2	413	-		-	-	- -
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	347	648		-	-	1146 -
Stage 1	676	-		-	-	- -
Stage 2	668	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	335	648		-	-	1146 -
Mov Cap-2 Maneuver	335	-		-	-	- -
Stage 1	676	-		-	-	- -
Stage 2	644	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	15		0		0.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	458	1146	-	
HCM Lane V/C Ratio	-	-	0.214	0.028	-	
HCM Control Delay (s)	-	-	15	8.2	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-	

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

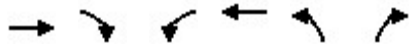
2020 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	270	110	250	280	190	150	560	200	200	850	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	122	276	92	255	286	76	153	571	166	204	867	74
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	149	350	117	286	509	426	187	948	275	282	1082	92
Arrive On Green	0.08	0.26	0.26	0.08	0.28	0.28	0.11	0.35	0.35	0.08	0.33	0.33
Sat Flow, veh/h	1774	1326	442	3408	1845	1544	1774	2691	780	3442	3292	281
Grp Volume(v), veh/h	122	0	368	255	286	76	153	375	362	204	466	475
Grp Sat Flow(s),veh/h/ln	1774	0	1769	1704	1845	1544	1774	1770	1701	1721	1770	1803
Q Serve(g_s), s	5.6	0.0	16.1	6.2	11.1	3.1	7.0	14.5	14.6	4.8	20.0	20.0
Cycle Q Clear(g_c), s	5.6	0.0	16.1	6.2	11.1	3.1	7.0	14.5	14.6	4.8	20.0	20.0
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.46	1.00		0.16
Lane Grp Cap(c), veh/h	149	0	467	286	509	426	187	624	599	282	582	593
V/C Ratio(X)	0.82	0.00	0.79	0.89	0.56	0.18	0.82	0.60	0.60	0.72	0.80	0.80
Avail Cap(c_a), veh/h	149	0	572	286	619	518	208	624	599	355	594	605
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	0.0	28.6	37.9	25.9	23.0	36.5	22.2	22.2	37.4	25.5	25.5
Incr Delay (d2), s/veh	27.5	0.0	4.7	26.9	0.4	0.1	18.1	3.5	3.7	3.6	10.2	10.0
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	3.9	0.0	8.5	4.0	5.7	1.3	4.4	7.7	7.5	2.4	11.4	11.5
LnGrp Delay(d),s/veh	65.1	0.0	33.3	64.7	26.3	23.1	54.7	25.7	26.0	41.0	35.7	35.5
LnGrp LOS	E		C	E	C	C	D	C	C	D	D	D
Approach Vol, veh/h		490			617			890			1145	
Approach Delay, s/veh		41.2			41.8			30.8			36.6	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	32.9	10.0	27.5	11.0	34.9	11.0	26.5				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9.8	28.0	7.0	28.0	* 8.6	29.2	7.0	27.0				
Max Q Clear Time (g_c+I1), s	9.0	22.0	7.6	13.1	6.8	16.6	8.2	18.1				
Green Ext Time (p_c), s	0.0	5.4	0.0	2.4	0.1	11.3	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			36.7									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2020 No Build
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↖	↑↑	↖	↖		
Volume (veh/h)	560	110	190	590	130	170		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1827	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	589	77	200	621	137	48		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	4	2	2	2	2		
Cap, veh/h	1172	153	253	2253	212	189		
Arrive On Green	0.38	0.38	0.14	0.64	0.12	0.12		
Sat Flow, veh/h	3179	403	1774	3632	1774	1583		
Grp Volume(v), veh/h	331	335	200	621	137	48		
Grp Sat Flow(s),veh/h/ln	1736	1755	1774	1770	1774	1583		
Q Serve(g_s), s	5.1	5.1	3.8	2.7	2.6	1.0		
Cycle Q Clear(g_c), s	5.1	5.1	3.8	2.7	2.6	1.0		
Prop In Lane		0.23	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	659	666	253	2253	212	189		
V/C Ratio(X)	0.50	0.50	0.79	0.28	0.65	0.25		
Avail Cap(c_a), veh/h	846	856	254	2640	280	250		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	8.3	8.3	14.4	2.8	14.6	13.9		
Incr Delay (d2), s/veh	0.7	0.7	15.5	0.1	3.3	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.5	2.6	2.9	1.3	1.4	0.9		
LnGrp Delay(d),s/veh	9.0	9.0	29.9	2.9	17.9	14.6		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	666			821	185			
Approach Delay, s/veh	9.0			9.5	17.1			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.7		8.2	9.0	17.7
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				4.7		4.6	5.8	7.1
Green Ext Time (p_c), s				10.0		0.0	0.0	6.1
Intersection Summary								
HCM 2010 Ctrl Delay			10.1					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2020 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	660	20	10	700	30	30	5	20	30	5	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	695	19	11	737	30	32	5	6	32	5	4
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	1985	54	15	974	40	236	12	15	300	73	58
Arrive On Green	0.04	0.58	0.58	0.01	0.55	0.55	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1740	3451	94	1774	1778	72	1022	160	192	1398	960	768
Grp Volume(v), veh/h	53	349	365	11	0	767	43	0	0	32	0	9
Grp Sat Flow(s),veh/h/ln	1740	1736	1810	1774	0	1850	1373	0	0	1398	0	1727
Q Serve(g_s), s	1.2	4.2	4.3	0.2	0.0	12.7	1.1	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.2	4.2	4.3	0.2	0.0	12.7	1.3	0.0	0.0	0.7	0.0	0.2
Prop In Lane	1.00		0.05	1.00		0.04	0.74		0.14	1.00		0.44
Lane Grp Cap(c), veh/h	62	998	1041	15	0	1014	263	0	0	300	0	131
V/C Ratio(X)	0.85	0.35	0.35	0.72	0.00	0.76	0.16	0.00	0.00	0.11	0.00	0.07
Avail Cap(c_a), veh/h	132	1093	1140	134	0	1165	835	0	0	845	0	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.0	4.5	4.5	19.6	0.0	6.9	17.6	0.0	0.0	17.3	0.0	17.0
Incr Delay (d2), s/veh	26.1	0.3	0.2	47.2	0.0	2.7	0.3	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.0	2.1	0.3	0.0	7.1	0.5	0.0	0.0	0.3	0.0	0.1
LnGrp Delay(d),s/veh	45.1	4.7	4.7	66.8	0.0	9.6	17.9	0.0	0.0	17.4	0.0	17.2
LnGrp LOS	D	A	A	E		A	B			B		B
Approach Vol, veh/h		767			778			43			41	
Approach Delay, s/veh		7.5			10.4			17.9			17.4	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.5	5.4	26.8		7.5	4.3	27.8				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		18.5	3.0	25.0		18.5	3.0	25.0				
Max Q Clear Time (g_c+I1), s		3.3	3.2	14.7		2.7	2.2	6.3				
Green Ext Time (p_c), s		0.2	0.0	7.1		0.2	0.0	10.9				
Intersection Summary												
HCM 2010 Ctrl Delay			9.4									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	37.3	0.1	0.0	0.0	37.4
Denied Del/Veh (s)	190.9	0.4	0.0	0.1	84.8
Total Delay (hr)	87.5	0.3	58.5	0.0	146.4
Total Del/Veh (s)	488.4	2.1	594.9	17.1	337.3

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2020 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	260	210	90	10	90	20	100	1090	20	50	940	380
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	280	226	0	11	97	0	108	1172	22	54	1011	172
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	25	25	25	25	25	25
Cap, veh/h	273	220	431	11	96	91	109	1160	519	60	1064	476
Arrive On Green	0.28	0.28	0.00	0.06	0.06	0.00	0.08	0.40	0.40	0.04	0.37	0.37
Sat Flow, veh/h	993	802	1568	187	1648	1568	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	506	0	0	108	0	0	108	1172	22	54	1011	172
Grp Sat Flow(s),veh/h/ln	1795	0	1568	1835	0	1568	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	33.0	0.0	0.0	7.0	0.0	0.0	8.9	48.2	1.2	4.5	40.8	11.6
Cycle Q Clear(g_c), s	33.0	0.0	0.0	7.0	0.0	0.0	8.9	48.2	1.2	4.5	40.8	11.6
Prop In Lane	0.55		1.00	0.10		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	494	0	431	107	0	91	109	1160	519	60	1064	476
V/C Ratio(X)	1.03	0.00	0.00	1.01	0.00	0.00	0.99	1.01	0.04	0.90	0.95	0.36
Avail Cap(c_a), veh/h	494	0	431	107	0	91	109	1160	519	60	1064	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	0.0	56.5	0.0	0.0	55.5	35.9	21.9	57.2	36.8	27.6
Incr Delay (d2), s/veh	47.0	0.0	0.0	89.4	0.0	0.0	84.6	29.0	0.0	79.4	17.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.8	0.0	0.0	6.2	0.0	0.0	6.1	23.8	0.5	3.1	18.8	4.2
LnGrp Delay(d),s/veh	90.5	0.0	0.0	145.9	0.0	0.0	140.1	64.9	21.9	136.6	53.9	28.3
LnGrp LOS	F			F			F	F	C	F	D	C
Approach Vol, veh/h		506			108			1302			1237	
Approach Delay, s/veh		90.5			145.9			70.4			54.0	
Approach LOS		F			F			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	56.0		40.0	14.0	52.0		14.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	48.2		33.0	9.0	44.2		7.0				
Max Q Clear Time (g_c+l1), s	6.5	50.2		35.0	10.9	42.8		9.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.3		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			69.8									
HCM 2010 LOS			E									

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	30	40		330	50	70 270
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	33	43		359	54	76 293
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	832	386		0	0	413 0
Stage 1	386	-		-	-	- -
Stage 2	446	-		-	-	- -
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	339	662		-	-	1146 -
Stage 1	687	-		-	-	- -
Stage 2	645	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	312	662		-	-	1146 -
Mov Cap-2 Maneuver	312	-		-	-	- -
Stage 1	687	-		-	-	- -
Stage 2	594	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	14.7		0		1.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	447	1146	-	
HCM Lane V/C Ratio	-	-	0.17	0.066	-	
HCM Control Delay (s)	-	-	14.7	8.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-	

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

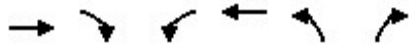
2020 Build Alternative
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	320	90	200	220	180	80	500	250	100	370	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	344	80	215	237	74	86	538	207	108	398	24
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	94	415	96	235	593	494	110	806	309	179	1059	64
Arrive On Green	0.06	0.30	0.30	0.07	0.33	0.33	0.06	0.32	0.32	0.05	0.31	0.31
Sat Flow, veh/h	1691	1388	323	3343	1810	1508	1774	2498	957	3442	3390	204
Grp Volume(v), veh/h	75	0	424	215	237	74	86	381	364	108	207	215
Grp Sat Flow(s),veh/h/ln	1691	0	1711	1672	1810	1508	1774	1770	1685	1721	1770	1824
Q Serve(g_s), s	3.1	0.0	16.4	4.5	7.2	2.5	3.4	13.2	13.3	2.2	6.5	6.5
Cycle Q Clear(g_c), s	3.1	0.0	16.4	4.5	7.2	2.5	3.4	13.2	13.3	2.2	6.5	6.5
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.57	1.00		0.11
Lane Grp Cap(c), veh/h	94	0	511	235	593	494	110	571	544	179	553	570
V/C Ratio(X)	0.80	0.00	0.83	0.91	0.40	0.15	0.78	0.67	0.67	0.60	0.37	0.38
Avail Cap(c_a), veh/h	143	0	651	235	688	573	165	623	593	233	578	596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	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	33.1	0.0	23.2	32.8	18.5	16.9	32.8	20.8	20.8	32.9	19.0	19.0
Incr Delay (d2), s/veh	8.6	0.0	5.7	35.4	0.2	0.1	6.5	5.1	5.4	1.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	8.5	3.2	3.6	1.0	1.8	7.3	7.0	1.1	3.4	3.5
LnGrp Delay(d),s/veh	41.8	0.0	28.9	68.2	18.6	16.9	39.3	25.8	26.2	34.2	20.5	20.5
LnGrp LOS	D		C	E	B	B	D	C	C	C	C	C
Approach Vol, veh/h		499			526			831			530	
Approach Delay, s/veh		30.9			38.7			27.4			23.3	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	27.7	7.0	27.8	7.9	28.4	9.0	25.7				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 6.6	23.2	6.0	27.0	* 4.8	25.0	5.0	27.0				
Max Q Clear Time (g_c+l1), s	5.4	8.5	5.1	9.2	4.2	15.3	6.5	18.4				
Green Ext Time (p_c), s	0.0	10.8	0.0	2.6	0.0	7.6	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			29.7									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2020 Build Alternative
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↑	↑↑	↑	↑		
Volume (veh/h)	570	110	160	480	60	130		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	640	93	180	539	67	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1245	181	225	2269	137	122		
Arrive On Green	0.41	0.41	0.13	0.66	0.08	0.08		
Sat Flow, veh/h	3165	446	1723	3529	1774	1583		
Grp Volume(v), veh/h	365	368	180	539	67	10		
Grp Sat Flow(s),veh/h/ln	1752	1766	1723	1719	1774	1583		
Q Serve(g_s), s	5.1	5.1	3.3	2.0	1.2	0.2		
Cycle Q Clear(g_c), s	5.1	5.1	3.3	2.0	1.2	0.2		
Prop In Lane		0.25	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	710	716	225	2269	137	122		
V/C Ratio(X)	0.51	0.51	0.80	0.24	0.49	0.08		
Avail Cap(c_a), veh/h	921	929	267	2765	302	269		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.2	7.2	13.6	2.2	14.3	13.9		
Incr Delay (d2), s/veh	0.7	0.7	13.5	0.1	2.7	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	2.6	2.6	2.4	0.9	0.7	0.2		
LnGrp Delay(d),s/veh	7.9	7.9	27.2	2.3	17.0	14.1		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	733			719	77			
Approach Delay, s/veh	7.9			8.5	16.6			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				25.8		6.5	8.2	17.6
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+I1), s				4.0		3.2	5.3	7.1
Green Ext Time (p_c), s				10.0		0.0	0.0	6.0
Intersection Summary								
HCM 2010 Ctrl Delay			8.6					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2020 Build Alternative
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	680	30	20	680	10	30	5	20	10	5	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	773	31	23	773	11	34	6	15	11	6	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	1935	78	29	1017	14	212	11	27	301	84	42
Arrive On Green	0.01	0.56	0.56	0.02	0.57	0.57	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1757	3435	138	1723	1779	25	858	151	379	1385	1173	586
Grp Volume(v), veh/h	11	394	410	23	0	784	55	0	0	11	0	9
Grp Sat Flow(s),veh/h/ln	1757	1752	1820	1723	0	1804	1388	0	0	1385	0	1759
Q Serve(g_s), s	0.2	4.9	4.9	0.5	0.0	12.8	1.4	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.2	4.9	4.9	0.5	0.0	12.8	1.6	0.0	0.0	0.2	0.0	0.2
Prop In Lane	1.00		0.08	1.00		0.01	0.62		0.27	1.00		0.33
Lane Grp Cap(c), veh/h	15	987	1025	29	0	1031	250	0	0	301	0	126
V/C Ratio(X)	0.72	0.40	0.40	0.79	0.00	0.76	0.22	0.00	0.00	0.04	0.00	0.07
Avail Cap(c_a), veh/h	136	1131	1174	133	0	1164	853	0	0	863	0	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	4.8	4.8	19.0	0.0	6.3	17.5	0.0	0.0	16.8	0.0	16.8
Incr Delay (d2), s/veh	48.4	0.3	0.3	35.6	0.0	2.8	0.4	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.4	2.5	0.5	0.0	6.9	0.6	0.0	0.0	0.1	0.0	0.1
LnGrp Delay(d),s/veh	67.6	5.1	5.1	54.6	0.0	9.1	18.0	0.0	0.0	16.9	0.0	17.0
LnGrp LOS	E	A	A	D		A	B			B		B
Approach Vol, veh/h	815			807			55			20		
Approach Delay, s/veh	5.9			10.4			18.0			16.9		
Approach LOS	A			B			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.3	4.3	27.1		7.3	4.7	26.8				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		18.5	3.0	25.0		18.5	3.0	25.0				
Max Q Clear Time (g_c+I1), s		3.6	2.2	14.8		2.2	2.5	6.9				
Green Ext Time (p_c), s		0.2	0.0	7.4		0.2	0.0	11.4				
Intersection Summary												
HCM 2010 Ctrl Delay	8.6											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary

4: Tyler St/Magnolia & Avenue 50

2020 Build Alternative
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	460	240	150	420	5	280	0	140	5	0	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	6	517	270	169	472	6	315	0	157	6	0	6
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	14	991	453	178	1352	605	374	392	334	71	0	71
Arrive On Green	0.01	0.30	0.30	0.10	0.39	0.39	0.21	0.00	0.21	0.09	0.00	0.09
Sat Flow, veh/h	1757	3357	1535	1740	3471	1553	1774	1863	1583	837	0	837
Grp Volume(v), veh/h	6	517	270	169	472	6	315	0	157	12	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1535	1740	1736	1553	1774	1863	1583	1673	0	0
Q Serve(g_s), s	0.2	7.5	8.8	5.7	5.6	0.1	10.0	0.0	5.1	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	7.5	8.8	5.7	5.6	0.1	10.0	0.0	5.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	14	991	453	178	1352	605	374	392	334	143	0	0
V/C Ratio(X)	0.43	0.52	0.60	0.95	0.35	0.01	0.84	0.00	0.47	0.08	0.00	0.00
Avail Cap(c_a), veh/h	150	1373	628	178	1479	662	423	444	378	798	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.0	17.2	17.7	26.2	12.7	11.0	22.2	0.0	20.3	24.7	0.0	0.0
Incr Delay (d2), s/veh	19.6	0.4	1.3	52.8	0.2	0.0	13.0	0.0	1.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.5	3.9	5.3	2.7	0.1	6.3	0.0	2.3	0.2	0.0	0.0
LnGrp Delay(d),s/veh	48.5	17.7	19.0	79.0	12.8	11.0	35.3	0.0	21.3	25.0	0.0	0.0
LnGrp LOS	D	B	B	E	B	B	D		C	C		
Approach Vol, veh/h	793				647		472				12	
Approach Delay, s/veh	18.3				30.1		30.6				25.0	
Approach LOS	B				C		C				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	16.9		10.0	22.3	9.5		4.5	27.8				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	14.0		6.0	24.0	28.0		5.0	25.0				
Max Q Clear Time (g_c+l1), s	12.0		7.7	10.8	2.4		2.2	7.6				
Green Ext Time (p_c), s	0.4		0.0	6.5	0.0		0.0	7.6				
Intersection Summary												
HCM 2010 Ctrl Delay			25.3									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2020 Build Alternative
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	480	90	40	10	160	40	80	880	10	10	890	350
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	527	99	0	11	176	0	88	967	11	11	978	212
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	497	93	523	10	160	145	87	1104	494	18	967	432
Arrive On Green	0.33	0.33	0.00	0.09	0.09	0.00	0.06	0.38	0.38	0.01	0.33	0.33
Sat Flow, veh/h	1490	280	1568	107	1714	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	626	0	0	187	0	0	88	967	11	11	978	212
Grp Sat Flow(s),veh/h/ln	1770	0	1568	1822	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	50.0	0.0	0.0	14.0	0.0	0.0	9.0	46.6	0.8	1.1	50.2	19.6
Cycle Q Clear(g_c), s	50.0	0.0	0.0	14.0	0.0	0.0	9.0	46.6	0.8	1.1	50.2	19.6
Prop In Lane	0.84		1.00	0.06		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	590	0	523	170	0	145	87	1104	494	18	967	432
V/C Ratio(X)	1.06	0.00	0.00	1.10	0.00	0.00	1.01	0.88	0.02	0.62	1.01	0.49
Avail Cap(c_a), veh/h	590	0	523	170	0	145	87	1104	494	48	967	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	0.0	68.0	0.0	0.0	70.5	43.0	28.9	73.7	49.9	39.7
Incr Delay (d2), s/veh	54.3	0.0	0.0	98.3	0.0	0.0	100.2	8.3	0.0	30.4	31.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.3	0.0	0.0	11.7	0.0	0.0	6.0	19.8	0.3	0.6	24.3	7.2
LnGrp Delay(d),s/veh	104.3	0.0	0.0	166.3	0.0	0.0	170.8	51.3	28.9	104.1	81.8	40.9
LnGrp LOS	F			F			F	D	C	F	F	D
Approach Vol, veh/h		626			187			1066			1201	
Approach Delay, s/veh		104.3			166.3			60.9			74.8	
Approach LOS		F			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	65.2		57.0	14.0	58.0		21.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	54.2		50.0	9.0	50.2		14.0				
Max Q Clear Time (g_c+l1), s	3.1	48.6		52.0	11.0	52.2		16.0				
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			81.5									
HCM 2010 LOS			F									

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	40	50		370	20	30 360
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	43	54		402	22	33 391
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	870	413		0	0	424 0
Stage 1	413	-		-	-	- -
Stage 2	457	-		-	-	- -
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	322	639		-	-	1135 -
Stage 1	668	-		-	-	- -
Stage 2	638	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	310	639		-	-	1135 -
Mov Cap-2 Maneuver	310	-		-	-	- -
Stage 1	668	-		-	-	- -
Stage 2	614	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	15.7		0		0.6	
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	434	1135	-	
HCM Lane V/C Ratio	-	-	0.225	0.029	-	
HCM Control Delay (s)	-	-	15.7	8.3	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-	

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2020 Build Alternative
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	280	110	300	290	180	150	550	210	210	820	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	129	301	101	323	312	74	161	591	164	226	882	78
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	158	348	117	349	538	448	191	882	244	301	993	88
Arrive On Green	0.09	0.27	0.27	0.10	0.30	0.30	0.11	0.32	0.32	0.09	0.30	0.30
Sat Flow, veh/h	1691	1265	425	3343	1810	1507	1774	2735	757	3442	3286	291
Grp Volume(v), veh/h	129	0	402	323	312	74	161	382	373	226	475	485
Grp Sat Flow(s),veh/h/ln	1691	0	1690	1672	1810	1507	1774	1770	1722	1721	1770	1807
Q Serve(g_s), s	6.5	0.0	19.5	8.3	12.6	3.1	7.7	16.1	16.2	5.5	22.1	22.1
Cycle Q Clear(g_c), s	6.5	0.0	19.5	8.3	12.6	3.1	7.7	16.1	16.2	5.5	22.1	22.1
Prop In Lane	1.00		0.25	1.00		1.00	1.00		0.44	1.00		0.16
Lane Grp Cap(c), veh/h	158	0	465	349	538	448	191	571	555	301	535	546
V/C Ratio(X)	0.81	0.00	0.87	0.93	0.58	0.17	0.84	0.67	0.67	0.75	0.89	0.89
Avail Cap(c_a), veh/h	176	0	529	349	587	489	191	571	555	335	543	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.4	0.0	29.8	38.3	25.8	22.4	37.8	25.3	25.3	38.5	28.7	28.7
Incr Delay (d2), s/veh	20.3	0.0	11.7	29.6	0.6	0.1	26.1	5.3	5.5	6.8	18.5	18.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	10.6	5.2	6.4	1.3	5.1	8.7	8.5	2.9	13.6	13.8
LnGrp Delay(d),s/veh	58.7	0.0	41.4	67.9	26.4	22.5	63.8	30.5	30.8	45.3	47.3	47.0
LnGrp LOS	E		D	E	C	C	E	C	C	D	D	D
Approach Vol, veh/h	531				709				916		1186	
Approach Delay, s/veh	45.6				44.9				36.5		46.8	
Approach LOS	D				D				D		D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	31.6	11.1	30.1	11.7	33.3	13.0	28.2				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9.3	26.5	9.0	28.0	* 8.4	27.4	9.0	27.0				
Max Q Clear Time (g_c+I1), s	9.7	24.1	8.5	14.6	7.5	18.2	10.3	21.5				
Green Ext Time (p_c), s	0.0	2.0	0.0	2.6	0.0	8.5	0.0	1.6				
Intersection Summary												
HCM 2010 Ctrl Delay	43.4											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2020 Build Alternative
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↱		↱	↑↑	↱	↱		
Volume (veh/h)	600	100	210	650	120	180		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	674	81	236	730	135	66		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1203	144	297	2268	206	184		
Arrive On Green	0.38	0.38	0.17	0.66	0.12	0.12		
Sat Flow, veh/h	3244	378	1723	3529	1774	1583		
Grp Volume(v), veh/h	374	381	236	730	135	66		
Grp Sat Flow(s),veh/h/ln	1752	1778	1723	1719	1774	1583		
Q Serve(g_s), s	6.4	6.4	5.0	3.5	2.8	1.5		
Cycle Q Clear(g_c), s	6.4	6.4	5.0	3.5	2.8	1.5		
Prop In Lane		0.21	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	669	679	297	2268	206	184		
V/C Ratio(X)	0.56	0.56	0.80	0.32	0.66	0.36		
Avail Cap(c_a), veh/h	786	798	409	2723	304	272		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	9.2	9.2	15.0	2.8	16.0	15.4		
Incr Delay (d2), s/veh	0.9	0.9	7.3	0.1	3.5	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	3.2	3.2	3.0	1.7	1.6	1.4		
LnGrp Delay(d),s/veh	10.1	10.1	22.4	2.9	19.5	16.6		
LnGrp LOS	B	B	C	A	B	B		
Approach Vol, veh/h	755			966	201			
Approach Delay, s/veh	10.1			7.6	18.6			
Approach LOS	B			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				29.5		8.4	10.5	19.0
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				30.0		6.5	9.0	17.0
Max Q Clear Time (g_c+I1), s				5.5		4.8	7.0	8.4
Green Ext Time (p_c), s				12.7		0.1	0.1	6.1
Intersection Summary								
HCM 2010 Ctrl Delay			9.8					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2020 Build Alternative
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	710	20	20	780	30	30	5	20	30	5	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	57	807	20	23	886	34	34	6	15	34	6	49
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	70	2340	58	28	1116	43	147	26	28	261	15	123
Arrive On Green	0.04	0.67	0.67	0.02	0.65	0.65	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1757	3495	87	1723	1730	66	558	302	322	1385	176	1434
Grp Volume(v), veh/h	57	405	422	23	0	920	55	0	0	34	0	55
Grp Sat Flow(s),veh/h/ln	1757	1752	1829	1723	0	1796	1182	0	0	1385	0	1610
Q Serve(g_s), s	1.9	5.9	5.9	0.8	0.0	22.0	1.2	0.0	0.0	0.0	0.0	1.9
Cycle Q Clear(g_c), s	1.9	5.9	5.9	0.8	0.0	22.0	3.1	0.0	0.0	1.1	0.0	1.9
Prop In Lane	1.00		0.05	1.00		0.04	0.62		0.27	1.00		0.89
Lane Grp Cap(c), veh/h	70	1173	1225	28	0	1159	200	0	0	261	0	138
V/C Ratio(X)	0.81	0.34	0.34	0.84	0.00	0.79	0.27	0.00	0.00	0.13	0.00	0.40
Avail Cap(c_a), veh/h	89	1276	1332	146	0	1369	529	0	0	576	0	504
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.1	4.2	4.2	29.0	0.0	7.6	26.1	0.0	0.0	25.1	0.0	25.5
Incr Delay (d2), s/veh	33.6	0.2	0.2	44.8	0.0	3.0	0.7	0.0	0.0	0.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.9	3.0	0.7	0.0	11.7	0.9	0.0	0.0	0.5	0.0	0.9
LnGrp Delay(d),s/veh	61.7	4.4	4.4	73.8	0.0	10.6	26.8	0.0	0.0	25.4	0.0	27.4
LnGrp LOS	E	A	A	E		B	C			C		C
Approach Vol, veh/h	884				943		55				89	
Approach Delay, s/veh	8.1				12.1		26.8				26.6	
Approach LOS	A				B		C				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	9.6		6.4	43.1	9.6		4.9	44.5				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	18.5		3.0	45.0	18.5		5.0	43.0				
Max Q Clear Time (g_c+l1), s	5.1		3.9	24.0	3.9		2.8	7.9				
Green Ext Time (p_c), s	0.5		0.0	14.1	0.5		0.0	19.6				
Intersection Summary												
HCM 2010 Ctrl Delay			11.4									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

4: Tyler St/Magnolia & Avenue 50

2020 Build Alternative
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	510	250	140	550	5	270	0	120	5	0	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	6	573	281	157	618	6	303	0	135	6	0	6
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	85	1021	467	195	1277	571	376	395	336	68	0	68
Arrive On Green	0.05	0.30	0.30	0.11	0.37	0.37	0.21	0.00	0.21	0.08	0.00	0.08
Sat Flow, veh/h	1757	3357	1535	1740	3471	1553	1774	1863	1583	837	0	837
Grp Volume(v), veh/h	6	573	281	157	618	6	303	0	135	12	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1535	1740	1736	1553	1774	1863	1583	1673	0	0
Q Serve(g_s), s	0.2	8.9	9.7	5.5	8.5	0.2	10.0	0.0	4.5	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	8.9	9.7	5.5	8.5	0.2	10.0	0.0	4.5	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	85	1021	467	195	1277	571	376	395	336	135	0	0
V/C Ratio(X)	0.07	0.56	0.60	0.80	0.48	0.01	0.81	0.00	0.40	0.09	0.00	0.00
Avail Cap(c_a), veh/h	85	1301	595	197	1570	702	659	692	588	757	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.1	18.1	18.4	26.8	15.0	12.4	23.2	0.0	21.0	26.4	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.5	1.3	20.9	0.3	0.0	4.1	0.0	0.8	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.1	4.2	3.7	4.1	0.1	5.3	0.0	2.1	0.2	0.0	0.0
LnGrp Delay(d),s/veh	28.5	18.6	19.6	47.7	15.3	12.4	27.3	0.0	21.8	26.6	0.0	0.0
LnGrp LOS	C	B	B	D	B	B	C		C	C		
Approach Vol, veh/h	860				781		438				12	
Approach Delay, s/veh	19.0				21.8		25.6				26.6	
Approach LOS	B				C		C				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.6	11.0	23.8		9.5	7.0	27.8				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		23.0	7.0	24.0		28.0	3.0	28.0				
Max Q Clear Time (g_c+l1), s		12.0	7.5	11.7		2.4	2.2	10.5				
Green Ext Time (p_c), s		1.1	0.0	7.2		0.0	0.0	9.0				
Intersection Summary												
HCM 2010 Ctrl Delay			21.5									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

56: SR-86 & Avenue 50

2020 Build Alternative
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	320	230	90	10	120	20	100	1080	20	30	910	490
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	352	253	0	11	132	0	110	1187	22	33	1000	365
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	328	236	493	10	124	114	107	1172	524	39	1038	464
Arrive On Green	0.31	0.31	0.00	0.07	0.07	0.00	0.07	0.41	0.41	0.03	0.36	0.36
Sat Flow, veh/h	1043	750	1568	140	1680	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	605	0	0	143	0	0	110	1187	22	33	1000	365
Grp Sat Flow(s),veh/h/ln	1793	0	1568	1820	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	47.0	0.0	0.0	11.0	0.0	0.0	11.0	60.7	1.5	3.4	50.7	37.7
Cycle Q Clear(g_c), s	47.0	0.0	0.0	11.0	0.0	0.0	11.0	60.7	1.5	3.4	50.7	37.7
Prop In Lane	0.58		1.00	0.08		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	563	0	493	134	0	114	107	1172	524	39	1038	464
V/C Ratio(X)	1.07	0.00	0.00	1.07	0.00	0.00	1.03	1.01	0.04	0.85	0.96	0.79
Avail Cap(c_a), veh/h	563	0	493	134	0	114	107	1172	524	48	1047	468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.3	0.0	0.0	69.3	0.0	0.0	69.3	44.4	26.8	72.4	46.9	42.8
Incr Delay (d2), s/veh	59.2	0.0	0.0	97.1	0.0	0.0	96.3	29.4	0.0	65.6	19.6	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.4	0.0	0.0	9.1	0.0	0.0	7.2	28.9	0.6	2.1	23.1	14.7
LnGrp Delay(d),s/veh	110.5	0.0	0.0	166.4	0.0	0.0	166.1	73.8	26.9	138.0	66.6	51.8
LnGrp LOS	F			F			F	F	C	F	E	D
Approach Vol, veh/h		605			143			1319			1398	
Approach Delay, s/veh		110.5			166.4			80.8			64.4	
Approach LOS		F			F			F			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	68.5		54.0	16.0	61.5		18.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	60.2		47.0	11.0	54.2		11.0				
Max Q Clear Time (g_c+l1), s	5.4	62.7		49.0	13.0	52.7		13.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	1.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			82.9									
HCM 2010 LOS			F									

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	30	40		350	50	70 320
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	33	43		380	54	76 348
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	908	408		0	0	435 0
Stage 1	408	-		-	-	- -
Stage 2	500	-		-	-	- -
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	306	643		-	-	1125 -
Stage 1	671	-		-	-	- -
Stage 2	609	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	280	643		-	-	1125 -
Mov Cap-2 Maneuver	280	-		-	-	- -
Stage 1	671	-		-	-	- -
Stage 2	558	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	15.7		0		1.5	
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	413	1125	-	
HCM Lane V/C Ratio	-	-	0.184	0.068	-	
HCM Control Delay (s)	-	-	15.7	8.4	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-	

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2025 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	590	160	40	10	260	70	80	990	10	10	1010	480
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	648	176	0	11	286	0	88	1088	11	11	1110	354
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	475	129	533	9	222	197	68	989	442	18	890	398
Arrive On Green	0.34	0.34	0.00	0.13	0.13	0.00	0.05	0.34	0.34	0.01	0.31	0.31
Sat Flow, veh/h	1396	379	1568	68	1756	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	824	0	0	297	0	0	88	1088	11	11	1110	354
Grp Sat Flow(s),veh/h/ln	1775	0	1568	1824	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	51.0	0.0	0.0	19.0	0.0	0.0	7.0	51.4	0.8	1.1	46.2	39.2
Cycle Q Clear(g_c), s	51.0	0.0	0.0	19.0	0.0	0.0	7.0	51.4	0.8	1.1	46.2	39.2
Prop In Lane	0.79		1.00	0.04		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	603	0	533	231	0	197	68	989	442	18	890	398
V/C Ratio(X)	1.37	0.00	0.00	1.29	0.00	0.00	1.30	1.10	0.02	0.62	1.25	0.89
Avail Cap(c_a), veh/h	603	0	533	231	0	197	68	989	442	48	890	398
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	0.0	65.5	0.0	0.0	71.5	49.3	32.7	73.7	51.9	49.5
Incr Delay (d2), s/veh	174.9	0.0	0.0	157.3	0.0	0.0	210.4	60.1	0.0	30.4	120.9	21.5
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	54.3	0.0	0.0	19.7	0.0	0.0	6.7	28.7	0.3	0.6	33.3	16.3
LnGrp Delay(d),s/veh	224.4	0.0	0.0	222.8	0.0	0.0	281.9	109.4	32.7	104.1	172.8	71.0
LnGrp LOS	F			F			F	F	C	F	F	E
Approach Vol, veh/h	824			297			1187			1475		
Approach Delay, s/veh	224.4			222.8			121.5			147.9		
Approach LOS	F			F			F			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	59.2		58.0	12.0	54.0		26.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	48.2		51.0	7.0	46.2		19.0				
Max Q Clear Time (g_c+I1), s	13.1	53.4		53.0	9.0	48.2		21.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	162.2											
HCM 2010 LOS	F											

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2025 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	460	70	90	570	0	0	0	0	150	10	110
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	511	68	100	633	0				167	11	42
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	870	116	127	1266	0				205	13	194
Arrive On Green	0.00	0.54	0.54	0.14	1.00	0.00				0.15	0.15	0.15
Sat Flow, veh/h	0	1606	214	1774	1863	0				1362	90	1292
Grp Volume(v), veh/h	0	0	579	100	633	0				178	0	42
Grp Sat Flow(s),veh/h/ln	0	0	1819	1774	1863	0				1452	0	1292
Q Serve(g_s), s	0.0	0.0	12.8	3.3	0.0	0.0				7.1	0.0	1.7
Cycle Q Clear(g_c), s	0.0	0.0	12.8	3.3	0.0	0.0				7.1	0.0	1.7
Prop In Lane	0.00		0.12	1.00		0.00				0.94		1.00
Lane Grp Cap(c), veh/h	0	0	985	127	1266	0				218	0	194
V/C Ratio(X)	0.00	0.00	0.59	0.79	0.50	0.00				0.82	0.00	0.22
Avail Cap(c_a), veh/h	0	0	985	177	1266	0				266	0	237
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.2	25.3	0.0	0.0				24.7	0.0	22.4
Incr Delay (d2), s/veh	0.0	0.0	2.6	8.2	1.2	0.0				12.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.1	1.8	0.4	0.0				3.6	0.0	0.6
LnGrp Delay(d),s/veh	0.0	0.0	11.8	33.5	1.2	0.0				37.0	0.0	22.6
LnGrp LOS			B	C	A					D		C
Approach Vol, veh/h		579			733						220	
Approach Delay, s/veh		11.8			5.6						34.3	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.3	37.7		14.0		46.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	6.0	28.8		11.0		38.8						
Max Q Clear Time (g_c+l1), s	5.3	14.8		9.1		2.0						
Green Ext Time (p_c), s	0.0	4.9		0.1		6.4						
Intersection Summary												
HCM 2010 Ctrl Delay			12.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2025 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	190	420	0	0	530	170	130	10	170	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	218	483	0	0	609	154	149	11	136			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	258	1082	0	0	1304	583	170	13	156			
Arrive On Green	0.29	1.00	0.00	0.00	0.37	0.37	0.25	0.25	0.25			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	684	50	624			
Grp Volume(v), veh/h	218	483	0	0	609	154	296	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1358	0	0			
Q Serve(g_s), s	6.9	0.0	0.0	0.0	7.9	4.1	12.6	0.0	0.0			
Cycle Q Clear(g_c), s	6.9	0.0	0.0	0.0	7.9	4.1	12.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.50		0.46			
Lane Grp Cap(c), veh/h	258	1082	0	0	1304	583	339	0	0			
V/C Ratio(X)	0.84	0.45	0.00	0.00	0.47	0.26	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	296	1082	0	0	1304	583	430	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	20.6	0.0	0.0	0.0	14.5	13.3	21.6	0.0	0.0			
Incr Delay (d2), s/veh	12.4	1.0	0.0	0.0	1.2	1.1	12.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.2	0.3	0.0	0.0	4.0	1.9	5.9	0.0	0.0			
LnGrp Delay(d),s/veh	33.0	1.0	0.0	0.0	15.7	14.4	34.4	0.0	0.0			
LnGrp LOS	C	A			B	B	C					
Approach Vol, veh/h		701			763			296				
Approach Delay, s/veh		11.0			15.4			34.4				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.0			12.7	27.3		20.0				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		30.8			10.0	16.8		19.0				
Max Q Clear Time (g_c+I1), s		2.0			8.9	9.9		14.6				
Green Ext Time (p_c), s		5.7			0.0	3.1		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay					16.8							
HCM 2010 LOS					B							

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	210	30	10	210	0	0	0	0	20	0	190
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	228	33	11	228	0				22	0	207
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1916	274	20	2456	0				292	0	260
Arrive On Green	0.00	0.62	0.62	0.01	0.69	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3203	444	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	128	133	11	228	0				22	0	207
Grp Sat Flow(s),veh/h/ln	0	1770	1784	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	1.8	1.8	0.4	1.3	0.0				0.6	0.0	7.5
Cycle Q Clear(g_c), s	0.0	1.8	1.8	0.4	1.3	0.0				0.6	0.0	7.5
Prop In Lane	0.00		0.25	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1090	1099	20	2456	0				292	0	260
V/C Ratio(X)	0.00	0.12	0.12	0.56	0.09	0.00				0.08	0.00	0.80
Avail Cap(c_a), veh/h	0	1090	1099	177	2456	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.8	4.8	29.5	3.0	0.0				21.2	0.0	24.1
Incr Delay (d2), s/veh	0.0	0.2	0.2	22.0	0.1	0.0				0.1	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	1.0	0.3	0.6	0.0				0.3	0.0	6.7
LnGrp Delay(d),s/veh	0.0	5.0	5.0	51.5	3.1	0.0				21.3	0.0	29.6
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		261			239						229	
Approach Delay, s/veh		5.0			5.3						28.8	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		46.1		13.9	4.7	41.5						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		3.3		9.5	2.4	3.8						
Green Ext Time (p_c), s		3.2		0.5	0.0	2.8						
Intersection Summary												
HCM 2010 Ctrl Delay			12.6									
HCM 2010 LOS			B									
Notes												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	110	0	0	190	20	30	0	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	130	120	0	0	207	22	33	0	22			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	168	2896	0	0	2123	223	71	0	63			
Arrive On Green	0.09	0.82	0.00	0.00	0.66	0.66	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	3325	340	1774	0	1583			
Grp Volume(v), veh/h	130	120	0	0	112	117	33	0	22			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1803	1774	0	1583			
Q Serve(g_s), s	4.3	0.4	0.0	0.0	1.4	1.4	1.1	0.0	0.8			
Cycle Q Clear(g_c), s	4.3	0.4	0.0	0.0	1.4	1.4	1.1	0.0	0.8			
Prop In Lane	1.00		0.00	0.00		0.19	1.00		1.00			
Lane Grp Cap(c), veh/h	168	2896	0	0	1162	1184	71	0	63			
V/C Ratio(X)	0.77	0.04	0.00	0.00	0.10	0.10	0.46	0.00	0.35			
Avail Cap(c_a), veh/h	355	2896	0	0	1162	1184	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	1.0	0.0	0.0	3.8	3.8	28.2	0.0	28.0			
Incr Delay (d2), s/veh	7.3	0.0	0.0	0.0	0.2	0.2	4.7	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	0.2	0.0	0.0	0.7	0.7	0.6	0.0	0.8			
LnGrp Delay(d),s/veh	33.8	1.1	0.0	0.0	3.9	3.9	32.8	0.0	31.3			
LnGrp LOS	C	A			A	A	C		C			
Approach Vol, veh/h		250			229			55				
Approach Delay, s/veh		18.1			3.9			32.2				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		53.6		6.4	9.7	43.9						
Change Period (Y+Rc), s		4.5		4.0	4.0	4.5						
Max Green Setting (Gmax), s		35.5		16.0	12.0	19.5						
Max Q Clear Time (g_c+I1), s		2.4		3.1	6.3	3.4						
Green Ext Time (p_c), s		2.2		0.1	0.1	1.8						
Intersection Summary												
HCM 2010 Ctrl Delay			13.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2025 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	390	350	90	10	190	20	100	1190	50	40	1020	660
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	429	385	0	11	209	0	110	1308	55	44	1121	552
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	322	289	533	9	162	145	87	1024	458	48	947	424
Arrive On Green	0.34	0.34	0.00	0.09	0.09	0.00	0.06	0.35	0.35	0.03	0.33	0.33
Sat Flow, veh/h	947	850	1568	91	1731	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	814	0	0	220	0	0	110	1308	55	44	1121	552
Grp Sat Flow(s),veh/h/ln	1797	0	1568	1822	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	51.0	0.0	0.0	14.0	0.0	0.0	9.0	53.2	4.3	4.5	49.2	49.2
Cycle Q Clear(g_c), s	51.0	0.0	0.0	14.0	0.0	0.0	9.0	53.2	4.3	4.5	49.2	49.2
Prop In Lane	0.53		1.00	0.05		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	611	0	533	170	0	145	87	1024	458	48	947	424
V/C Ratio(X)	1.33	0.00	0.00	1.29	0.00	0.00	1.27	1.28	0.12	0.91	1.18	1.30
Avail Cap(c_a), veh/h	611	0	533	170	0	145	87	1024	458	48	947	424
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	0.0	68.0	0.0	0.0	70.5	48.4	32.6	72.3	50.4	50.4
Incr Delay (d2), s/veh	160.4	0.0	0.0	168.6	0.0	0.0	184.1	132.3	0.2	96.7	93.4	152.5
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	52.5	0.0	0.0	15.0	0.0	0.0	8.0	40.0	1.6	3.1	31.9	35.5
LnGrp Delay(d),s/veh	209.9	0.0	0.0	236.6	0.0	0.0	254.6	180.7	32.8	169.0	143.8	202.9
LnGrp LOS	F			F			F	F	C	F	F	F
Approach Vol, veh/h	814				220				1473		1717	
Approach Delay, s/veh	209.9				236.6				180.7		163.4	
Approach LOS	F				F				F		F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	0.0	61.0	58.0		14.0	57.0	21.0					
Change Period (Y+Rc), s	5.0	7.8	7.0		5.0	7.8	7.0					
Max Green Setting (Gmax), s	5.0	53.2	51.0		9.0	49.2	14.0					
Max Q Clear Time (g_c+I), s	10.5	55.2	53.0		11.0	51.2	16.0					
Green Ext Time (p_c), s	0.0	0.0	0.0		0.0	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay			182.2									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary

7: SR-86 SB Ramps & Dillon Rd

2025 No Build
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	520	110	170	670	0	0	0	0	260	10	140
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	578	112	189	744	0				289	11	76
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	649	126	207	1142	0				303	12	280
Arrive On Green	0.00	0.43	0.43	0.23	1.00	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	1510	293	1774	1863	0				1397	53	1292
Grp Volume(v), veh/h	0	0	690	189	744	0				300	0	76
Grp Sat Flow(s),veh/h/ln	0	0	1803	1774	1863	0				1450	0	1292
Q Serve(g_s), s	0.0	0.0	21.2	6.2	0.0	0.0				12.3	0.0	2.9
Cycle Q Clear(g_c), s	0.0	0.0	21.2	6.2	0.0	0.0				12.3	0.0	2.9
Prop In Lane	0.00		0.16	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	0	775	207	1142	0				314	0	280
V/C Ratio(X)	0.00	0.00	0.89	0.91	0.65	0.00				0.95	0.00	0.27
Avail Cap(c_a), veh/h	0	0	775	207	1142	0				314	0	280
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.84	0.84	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	15.8	22.7	0.0	0.0				23.2	0.0	19.6
Incr Delay (d2), s/veh	0.0	0.0	14.5	34.5	2.4	0.0				38.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	13.5	4.9	0.8	0.0				8.2	0.0	1.0
LnGrp Delay(d),s/veh	0.0	0.0	30.3	57.2	2.4	0.0				61.6	0.0	19.8
LnGrp LOS			C	E	A					E		B
Approach Vol, veh/h		690			933						376	
Approach Delay, s/veh		30.3			13.5						53.2	
Approach LOS		C			B						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.0	31.0		18.0		42.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	7.0	25.8		13.0		36.8						
Max Q Clear Time (g_c+l1), s	8.2	23.2		14.3		2.0						
Green Ext Time (p_c), s	0.0	1.7		0.0		8.3						
Intersection Summary												
HCM 2010 Ctrl Delay			26.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary 8: SR-86 NB Ramps & Dillon Rd

2025 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	680	0	0	750	250	90	10	190	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	115	782	0	0	862	246	103	11	159			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	145	1113	0	0	1590	711	117	13	181			
Arrive On Green	0.16	1.00	0.00	0.00	0.45	0.45	0.23	0.23	0.23			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	504	54	778			
Grp Volume(v), veh/h	115	782	0	0	862	246	273	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1335	0	0			
Q Serve(g_s), s	3.7	0.0	0.0	0.0	10.6	6.1	11.8	0.0	0.0			
Cycle Q Clear(g_c), s	3.7	0.0	0.0	0.0	10.6	6.1	11.8	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.38		0.58			
Lane Grp Cap(c), veh/h	145	1113	0	0	1590	711	310	0	0			
V/C Ratio(X)	0.79	0.70	0.00	0.00	0.54	0.35	0.88	0.00	0.00			
Avail Cap(c_a), veh/h	177	1113	0	0	1590	711	356	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.30	0.30	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.6	0.0	0.0	0.0	12.0	10.8	22.2	0.0	0.0			
Incr Delay (d2), s/veh	4.9	1.1	0.0	0.0	1.3	1.3	18.1	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	0.4	0.0	0.0	5.4	2.9	5.9	0.0	0.0			
LnGrp Delay(d),s/veh	29.5	1.1	0.0	0.0	13.4	12.1	40.4	0.0	0.0			
LnGrp LOS	C	A			B	B	D					
Approach Vol, veh/h	897			1108			273					
Approach Delay, s/veh	4.8			13.1			40.4					
Approach LOS	A			B			D					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.1			8.9	32.2		18.9				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		33.8			6.0	23.8		16.0				
Max Q Clear Time (g_c+I1), s		2.0			5.7	12.6		13.8				
Green Ext Time (p_c), s		10.8			0.0	6.5		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			13.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	460	50	20	140	0	0	0	0	40	0	110
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	500	54	22	152	0				43	0	120
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2152	232	36	2670	0				184	0	164
Arrive On Green	0.00	0.67	0.67	0.02	0.75	0.00				0.10	0.00	0.10
Sat Flow, veh/h	0	3317	347	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	274	280	22	152	0				43	0	120
Grp Sat Flow(s),veh/h/ln	0	1770	1802	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	3.7	3.7	0.7	0.7	0.0				1.3	0.0	4.4
Cycle Q Clear(g_c), s	0.0	3.7	3.7	0.7	0.7	0.0				1.3	0.0	4.4
Prop In Lane	0.00		0.19	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1181	1202	36	2670	0				184	0	164
V/C Ratio(X)	0.00	0.23	0.23	0.61	0.06	0.00				0.23	0.00	0.73
Avail Cap(c_a), veh/h	0	1181	1202	177	2670	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.9	3.9	29.1	1.9	0.0				24.7	0.0	26.1
Incr Delay (d2), s/veh	0.0	0.5	0.5	15.1	0.0	0.0				0.6	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	1.9	0.5	0.3	0.0				0.7	0.0	4.0
LnGrp Delay(d),s/veh	0.0	4.4	4.4	44.3	1.9	0.0				25.3	0.0	32.2
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		554			174						163	
Approach Delay, s/veh		4.4			7.3						30.4	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		49.8		10.2	5.2	44.5						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		2.7		6.4	2.7	5.7						
Green Ext Time (p_c), s		4.9		0.3	0.0	4.5						
Intersection Summary												
HCM 2010 Ctrl Delay			9.7									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	210	290	0	0	120	30	40	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	228	315	0	0	130	33	43	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	282	2898	0	0	1670	412	70	0	63			
Arrive On Green	0.16	0.82	0.00	0.00	0.59	0.59	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	2909	694	1774	0	1583			
Grp Volume(v), veh/h	228	315	0	0	80	83	43	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1740	1774	0	1583			
Q Serve(g_s), s	7.4	1.1	0.0	0.0	1.2	1.2	1.4	0.0	0.4			
Cycle Q Clear(g_c), s	7.4	1.1	0.0	0.0	1.2	1.2	1.4	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		0.40	1.00		1.00			
Lane Grp Cap(c), veh/h	282	2898	0	0	1050	1032	70	0	63			
V/C Ratio(X)	0.81	0.11	0.00	0.00	0.08	0.08	0.61	0.00	0.18			
Avail Cap(c_a), veh/h	444	2898	0	0	1050	1032	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.99	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	24.4	1.1	0.0	0.0	5.2	5.2	28.4	0.0	27.9			
Incr Delay (d2), s/veh	5.9	0.1	0.0	0.0	0.1	0.2	8.4	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.1	0.5	0.0	0.0	0.6	0.6	0.9	0.0	0.4			
LnGrp Delay(d),s/veh	30.3	1.2	0.0	0.0	5.3	5.4	36.7	0.0	29.2			
LnGrp LOS	C	A			A	A	D		C			
Approach Vol, veh/h	543				163			54				
Approach Delay, s/veh	13.4				5.4			35.2				
Approach LOS	B				A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5		6					
Phs Duration (G+Y+Rc), s	53.6		6.4		13.5		40.1					
Change Period (Y+Rc), s	4.5		4.0		4.0		4.5					
Max Green Setting (Gmax), s	35.5		16.0		15.0		16.5					
Max Q Clear Time (g_c+I1), s	3.1		3.4		9.4		3.2					
Green Ext Time (p_c), s	3.3		0.1		0.3		2.5					
Intersection Summary												
HCM 2010 Ctrl Delay	13.2											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑					↵		↵↵
Volume (veh/h)	0	780	40	10	360	0	0	0	0	10	0	480
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	848	43	11	391	0				11	0	522
Adj No. of Lanes	0	3	0	1	3	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2855	144	24	3315	0				396	0	622
Arrive On Green	0.00	0.58	0.58	0.01	0.65	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	5126	251	1774	5253	0				1774	0	2787
Grp Volume(v), veh/h	0	579	312	11	391	0				11	0	522
Grp Sat Flow(s),veh/h/ln	0	1695	1818	1774	1695	0				1774	0	1393
Q Serve(g_s), s	0.0	7.0	7.0	0.5	2.3	0.0				0.4	0.0	14.3
Cycle Q Clear(g_c), s	0.0	7.0	7.0	0.5	2.3	0.0				0.4	0.0	14.3
Prop In Lane	0.00		0.14	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1952	1047	24	3315	0				396	0	622
V/C Ratio(X)	0.00	0.30	0.30	0.46	0.12	0.00				0.03	0.00	0.84
Avail Cap(c_a), veh/h	0	1952	1047	155	3315	0				554	0	871
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.7	8.7	39.2	5.3	0.0				24.3	0.0	29.7
Incr Delay (d2), s/veh	0.0	0.4	0.7	13.0	0.1	0.0				0.0	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	3.7	0.3	1.1	0.0				0.2	0.0	6.0
LnGrp Delay(d),s/veh	0.0	9.1	9.4	52.1	5.3	0.0				24.3	0.0	35.0
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		891			402						533	
Approach Delay, s/veh		9.2			6.6						34.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.1	51.1		22.9		57.1						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	7.0	33.0		25.0		45.0						
Max Q Clear Time (g_c+I1), s	2.5	9.0		16.3		4.3						
Green Ext Time (p_c), s	0.0	8.8		1.5		10.2						
Intersection Summary												
HCM 2010 Ctrl Delay			16.1									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	190	590	0	340	10	80	10	10	10	0	20
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	11	207	0	0	370	11	87	11	11	11	0	22
Adj No. of Lanes	1	2	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	24	2559	1145	0	3284	97	202	106	90	58	0	51
Arrive On Green	0.01	0.72	0.00	0.00	0.65	0.65	0.06	0.06	0.06	0.03	0.00	0.03
Sat Flow, veh/h	1774	3539	1583	0	5244	150	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	11	207	0	0	246	135	87	11	11	11	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	0	1695	1836	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.5	1.4	0.0	0.0	2.2	2.2	1.9	0.4	0.5	0.5	0.0	1.1
Cycle Q Clear(g_c), s	0.5	1.4	0.0	0.0	2.2	2.2	1.9	0.4	0.5	0.5	0.0	1.1
Prop In Lane	1.00		1.00	0.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	24	2559	1145	0	2193	1188	202	106	90	58	0	51
V/C Ratio(X)	0.46	0.08	0.00	0.00	0.11	0.11	0.43	0.10	0.12	0.19	0.00	0.43
Avail Cap(c_a), veh/h	111	2559	1145	0	2193	1188	710	373	317	333	0	297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.2	3.3	0.0	0.0	5.4	5.4	36.5	35.8	35.8	37.7	0.0	38.0
Incr Delay (d2), s/veh	13.0	0.1	0.0	0.0	0.1	0.2	1.4	0.4	0.6	1.6	0.0	5.5
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	0.3	0.7	0.0	0.0	1.1	1.2	1.0	0.2	0.2	0.3	0.0	0.6
LnGrp Delay(d),s/veh	52.1	3.3	0.0	0.0	5.5	5.6	37.9	36.2	36.4	39.3	0.0	43.5
LnGrp LOS	D	A			A	A	D	D	D	D		D
Approach Vol, veh/h		218			381			109			33	
Approach Delay, s/veh		5.8			5.5			37.6			42.1	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.1	56.8		7.6		62.8		9.6				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	5.0	24.0		15.0		34.0		16.0				
Max Q Clear Time (g_c+I1), s	2.5	4.2		3.1		3.4		3.9				
Green Ext Time (p_c), s	0.0	3.7		0.1		4.1		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			11.9									
HCM 2010 LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	460	70	90	560	0	0	0	0	140	10	150
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	511	68	100	622	0				156	11	87
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	878	117	127	1275	0				197	14	188
Arrive On Green	0.00	0.55	0.55	0.14	1.00	0.00				0.15	0.15	0.15
Sat Flow, veh/h	0	1606	214	1774	1863	0				1357	96	1292
Grp Volume(v), veh/h	0	0	579	100	622	0				167	0	87
Grp Sat Flow(s),veh/h/ln	0	0	1819	1774	1863	0				1452	0	1292
Q Serve(g_s), s	0.0	0.0	12.7	3.3	0.0	0.0				6.7	0.0	3.7
Cycle Q Clear(g_c), s	0.0	0.0	12.7	3.3	0.0	0.0				6.7	0.0	3.7
Prop In Lane	0.00		0.12	1.00		0.00				0.93		1.00
Lane Grp Cap(c), veh/h	0	0	994	127	1275	0				211	0	188
V/C Ratio(X)	0.00	0.00	0.58	0.79	0.49	0.00				0.79	0.00	0.46
Avail Cap(c_a), veh/h	0	0	994	177	1275	0				266	0	237
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.0	25.3	0.0	0.0				24.8	0.0	23.5
Incr Delay (d2), s/veh	0.0	0.0	2.5	8.4	1.1	0.0				9.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.0	1.8	0.4	0.0				3.2	0.0	1.3
LnGrp Delay(d),s/veh	0.0	0.0	11.5	33.6	1.1	0.0				34.0	0.0	24.2
LnGrp LOS			B	C	A					C		C
Approach Vol, veh/h		579			722						254	
Approach Delay, s/veh		11.5			5.6						30.6	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.3	38.0		13.7		46.3						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	6.0	28.8		11.0		38.8						
Max Q Clear Time (g_c+I1), s	5.3	14.7		8.7		2.0						
Green Ext Time (p_c), s	0.0	4.8		0.2		6.3						
Intersection Summary												
HCM 2010 Ctrl Delay			11.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
8: SR-86 NB Ramps & Dillon Rd

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	190	410	0	0	520	170	130	10	150	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	218	471	0	0	598	154	149	11	113			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	258	1114	0	0	1366	611	173	13	131			
Arrive On Green	0.29	1.00	0.00	0.00	0.39	0.39	0.23	0.23	0.23			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	746	55	566			
Grp Volume(v), veh/h	218	471	0	0	598	154	273	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1367	0	0			
Q Serve(g_s), s	6.9	0.0	0.0	0.0	7.5	4.0	11.5	0.0	0.0			
Cycle Q Clear(g_c), s	6.9	0.0	0.0	0.0	7.5	4.0	11.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.55		0.41			
Lane Grp Cap(c), veh/h	258	1114	0	0	1366	611	317	0	0			
V/C Ratio(X)	0.84	0.42	0.00	0.00	0.44	0.25	0.86	0.00	0.00			
Avail Cap(c_a), veh/h	296	1114	0	0	1366	611	433	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	20.6	0.0	0.0	0.0	13.6	12.5	22.1	0.0	0.0			
Incr Delay (d2), s/veh	12.5	0.9	0.0	0.0	1.0	1.0	9.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.2	0.3	0.0	0.0	3.8	1.9	5.2	0.0	0.0			
LnGrp Delay(d),s/veh	33.1	0.9	0.0	0.0	14.6	13.5	32.0	0.0	0.0			
LnGrp LOS	C	A			B	B	C					
Approach Vol, veh/h		689			752			273				
Approach Delay, s/veh		11.1			14.4			32.0				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.1			12.7	28.4		18.9				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		30.8			10.0	16.8		19.0				
Max Q Clear Time (g_c+I1), s		2.0			8.9	9.5		13.5				
Green Ext Time (p_c), s		5.6			0.0	3.2		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			15.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	200	30	10	180	0	0	0	0	20	0	210
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	217	33	11	196	0				22	0	228
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1859	279	20	2406	0				317	0	283
Arrive On Green	0.00	0.60	0.60	0.01	0.68	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3181	463	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	123	127	11	196	0				22	0	228
Grp Sat Flow(s),veh/h/ln	0	1770	1781	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	1.8	1.8	0.4	1.1	0.0				0.6	0.0	8.3
Cycle Q Clear(g_c), s	0.0	1.8	1.8	0.4	1.1	0.0				0.6	0.0	8.3
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1065	1072	20	2406	0				317	0	283
V/C Ratio(X)	0.00	0.12	0.12	0.56	0.08	0.00				0.07	0.00	0.81
Avail Cap(c_a), veh/h	0	1065	1072	177	2406	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.1	5.1	29.5	3.3	0.0				20.5	0.0	23.6
Incr Delay (d2), s/veh	0.0	0.2	0.2	22.0	0.1	0.0				0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.9	0.3	0.6	0.0				0.3	0.0	7.3
LnGrp Delay(d),s/veh	0.0	5.3	5.3	51.5	3.3	0.0				20.6	0.0	29.0
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		250			207						250	
Approach Delay, s/veh		5.3			5.9						28.3	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		45.3		14.7	4.7	40.6						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		3.1		10.3	2.4	3.8						
Green Ext Time (p_c), s		2.9		0.6	0.0	2.5						
Intersection Summary												
HCM 2010 Ctrl Delay			13.6									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	120	100	0	0	160	30	30	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	130	109	0	0	174	33	33	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	168	2915	0	0	1973	367	61	0	55			
Arrive On Green	0.09	0.82	0.00	0.00	0.66	0.66	0.03	0.00	0.03			
Sat Flow, veh/h	1774	3632	0	0	3073	554	1774	0	1583			
Grp Volume(v), veh/h	130	109	0	0	102	105	33	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1765	1774	0	1583			
Q Serve(g_s), s	4.3	0.3	0.0	0.0	1.2	1.3	1.1	0.0	0.4			
Cycle Q Clear(g_c), s	4.3	0.3	0.0	0.0	1.2	1.3	1.1	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		0.31	1.00		1.00			
Lane Grp Cap(c), veh/h	168	2915	0	0	1172	1169	61	0	55			
V/C Ratio(X)	0.77	0.04	0.00	0.00	0.09	0.09	0.54	0.00	0.20			
Avail Cap(c_a), veh/h	355	2915	0	0	1172	1169	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	1.0	0.0	0.0	3.6	3.6	28.5	0.0	28.2			
Incr Delay (d2), s/veh	7.3	0.0	0.0	0.0	0.1	0.2	7.1	0.0	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	0.2	0.0	0.0	0.6	0.7	0.7	0.0	0.4			
LnGrp Delay(d),s/veh	33.8	1.0	0.0	0.0	3.8	3.8	35.6	0.0	29.9			
LnGrp LOS	C	A			A	A	D		C			
Approach Vol, veh/h	239				207			44				
Approach Delay, s/veh	18.8				3.8			34.2				
Approach LOS	B				A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4	5	6						
Phs Duration (G+Y+Rc), s	53.9			6.1	9.7	44.2						
Change Period (Y+Rc), s	4.5			4.0	4.0	4.5						
Max Green Setting (Gmax), s	35.5			16.0	12.0	19.5						
Max Q Clear Time (g_c+I1), s	2.3			3.1	6.3	3.3						
Green Ext Time (p_c), s	2.0			0.1	0.1	1.6						
Intersection Summary												
HCM 2010 Ctrl Delay	13.9											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑					↵		↵↵
Volume (veh/h)	0	920	90	10	340	0	0	0	0	60	0	660
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	1000	98	11	370	0				65	0	717
Adj No. of Lanes	0	3	0	1	3	0				1	0	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1943	190	192	2966	0				517	0	813
Arrive On Green	0.00	0.41	0.41	0.11	0.58	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	4879	461	1774	5253	0				1774	0	2787
Grp Volume(v), veh/h	0	719	379	11	370	0				65	0	717
Grp Sat Flow(s),veh/h/ln	0	1695	1781	1774	1695	0				1774	0	1393
Q Serve(g_s), s	0.0	12.7	12.7	0.4	2.6	0.0				2.2	0.0	19.6
Cycle Q Clear(g_c), s	0.0	12.7	12.7	0.4	2.6	0.0				2.2	0.0	19.6
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1398	735	192	2966	0				517	0	813
V/C Ratio(X)	0.00	0.51	0.52	0.06	0.12	0.00				0.13	0.00	0.88
Avail Cap(c_a), veh/h	0	1398	735	192	2966	0				599	0	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	17.5	17.5	32.0	7.5	0.0				20.8	0.0	27.0
Incr Delay (d2), s/veh	0.0	1.4	2.6	0.1	0.1	0.0				0.1	0.0	8.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.2	6.7	0.2	1.2	0.0				1.1	0.0	8.5
LnGrp Delay(d),s/veh	0.0	18.9	20.1	32.1	7.6	0.0				20.9	0.0	35.9
LnGrp LOS		B	C	C	A					C		D
Approach Vol, veh/h		1098			381						782	
Approach Delay, s/veh		19.3			8.3						34.7	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	13.7	38.0		28.3		51.7						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	5.0	33.0		27.0		43.0						
Max Q Clear Time (g_c+I1), s	2.4	14.7		21.6		4.6						
Green Ext Time (p_c), s	0.6	6.7		1.7		2.5						
Intersection Summary												
HCM 2010 Ctrl Delay			22.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	570	390	0	230	20	100	10	50	20	0	40
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	620	0	0	250	22	109	11	54	22	0	43
Adj No. of Lanes	1	2	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	604	2488	1113	0	1431	124	219	115	98	85	0	76
Arrive On Green	0.34	0.70	0.00	0.00	0.30	0.30	0.06	0.06	0.06	0.05	0.00	0.05
Sat Flow, veh/h	1774	3539	1583	0	4936	412	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	22	620	0	0	176	96	109	11	54	22	0	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	0	1695	1790	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.7	5.0	0.0	0.0	3.1	3.2	2.4	0.4	2.7	1.0	0.0	2.1
Cycle Q Clear(g_c), s	0.7	5.0	0.0	0.0	3.1	3.2	2.4	0.4	2.7	1.0	0.0	2.1
Prop In Lane	1.00		1.00	0.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	604	2488	1113	0	1017	537	219	115	98	85	0	76
V/C Ratio(X)	0.04	0.25	0.00	0.00	0.17	0.18	0.50	0.10	0.55	0.26	0.00	0.57
Avail Cap(c_a), veh/h	604	2488	1113	0	1017	537	710	373	317	333	0	297
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.6	4.3	0.0	0.0	20.7	20.7	36.3	35.4	36.5	36.7	0.0	37.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.4	0.7	1.7	0.4	4.8	1.6	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.5	0.0	0.0	1.5	1.7	1.2	0.2	1.3	0.5	0.0	1.1
LnGrp Delay(d),s/veh	17.6	4.5	0.0	0.0	21.0	21.4	38.1	35.8	41.2	38.3	0.0	43.8
LnGrp LOS	B	A			C	C	D	D	D	D		D
Approach Vol, veh/h		642			272			174			65	
Approach Delay, s/veh		5.0			21.2			38.9			42.0	
Approach LOS		A			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	32.2	29.0		8.8		61.2		9.9				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	5.0	24.0		15.0		34.0		16.0				
Max Q Clear Time (g_c+I1), s	2.7	5.2		4.1		7.0		4.7				
Green Ext Time (p_c), s	1.0	1.5		0.1		4.6		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay			16.0									
HCM 2010 LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	470	110	140	670	0	0	0	0	240	10	110
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	522	112	156	744	0				267	11	42
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	649	139	192	1142	0				302	12	280
Arrive On Green	0.00	0.44	0.44	0.22	1.00	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	1480	318	1774	1863	0				1393	57	1292
Grp Volume(v), veh/h	0	0	634	156	744	0				278	0	42
Grp Sat Flow(s),veh/h/ln	0	0	1798	1774	1863	0				1450	0	1292
Q Serve(g_s), s	0.0	0.0	18.4	5.0	0.0	0.0				11.1	0.0	1.6
Cycle Q Clear(g_c), s	0.0	0.0	18.4	5.0	0.0	0.0				11.1	0.0	1.6
Prop In Lane	0.00		0.18	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	0	788	192	1142	0				314	0	280
V/C Ratio(X)	0.00	0.00	0.80	0.81	0.65	0.00				0.88	0.00	0.15
Avail Cap(c_a), veh/h	0	0	788	207	1142	0				314	0	280
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.84	0.84	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	14.6	22.9	0.0	0.0				22.8	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.0	8.6	15.7	2.4	0.0				23.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	10.9	3.3	0.8	0.0				6.5	0.0	0.6
LnGrp Delay(d),s/veh	0.0	0.0	23.2	38.6	2.4	0.0				46.5	0.0	19.1
LnGrp LOS			C	D	A					D		B
Approach Vol, veh/h		634			900						320	
Approach Delay, s/veh		23.2			8.7						42.9	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.5	31.5		18.0		42.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	7.0	25.8		13.0		36.8						
Max Q Clear Time (g_c+I1), s	7.0	20.4		13.1		2.0						
Green Ext Time (p_c), s	0.0	3.1		0.0		7.8						
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	610	0	0	710	200	100	10	230	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	115	701	0	0	816	189	115	11	205			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	145	1049	0	0	1469	657	123	12	219			
Arrive On Green	0.16	1.00	0.00	0.00	0.42	0.42	0.27	0.27	0.27			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	462	44	823			
Grp Volume(v), veh/h	115	701	0	0	816	189	331	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1329	0	0			
Q Serve(g_s), s	3.7	0.0	0.0	0.0	10.5	4.8	14.6	0.0	0.0			
Cycle Q Clear(g_c), s	3.7	0.0	0.0	0.0	10.5	4.8	14.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.35		0.62			
Lane Grp Cap(c), veh/h	145	1049	0	0	1469	657	354	0	0			
V/C Ratio(X)	0.79	0.67	0.00	0.00	0.56	0.29	0.93	0.00	0.00			
Avail Cap(c_a), veh/h	177	1049	0	0	1469	657	354	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.46	0.46	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.6	0.0	0.0	0.0	13.3	11.7	21.5	0.0	0.0			
Incr Delay (d2), s/veh	7.3	1.6	0.0	0.0	1.5	1.1	31.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.1	0.5	0.0	0.0	5.4	2.2	8.4	0.0	0.0			
LnGrp Delay(d),s/veh	31.9	1.6	0.0	0.0	14.9	12.8	52.5	0.0	0.0			
LnGrp LOS	C	A			B	B	D					
Approach Vol, veh/h		816			1005			331				
Approach Delay, s/veh		5.9			14.5			52.5				
Approach LOS		A			B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.0			8.9	30.1		21.0				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		33.8			6.0	23.8		16.0				
Max Q Clear Time (g_c+I1), s		2.0			5.7	12.5		16.6				
Green Ext Time (p_c), s		9.3			0.0	5.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			17.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	430	50	20	110	0	0	0	0	90	0	180
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	467	54	22	120	0				98	0	196
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1961	226	36	2478	0				280	0	250
Arrive On Green	0.00	0.61	0.61	0.02	0.70	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3292	368	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	257	264	22	120	0				98	0	196
Grp Sat Flow(s),veh/h/ln	0	1770	1798	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	4.0	4.0	0.7	0.6	0.0				3.0	0.0	7.1
Cycle Q Clear(g_c), s	0.0	4.0	4.0	0.7	0.6	0.0				3.0	0.0	7.1
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1085	1102	36	2478	0				280	0	250
V/C Ratio(X)	0.00	0.24	0.24	0.61	0.05	0.00				0.35	0.00	0.78
Avail Cap(c_a), veh/h	0	1085	1102	177	2478	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.3	5.3	29.1	2.8	0.0				22.5	0.0	24.3
Incr Delay (d2), s/veh	0.0	0.5	0.5	15.0	0.0	0.0				0.7	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	0.3	0.0				1.5	0.0	6.4
LnGrp Delay(d),s/veh	0.0	5.8	5.8	44.1	2.8	0.0				23.3	0.0	30.7
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		521			142						294	
Approach Delay, s/veh		5.8			9.2						28.2	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		46.5		13.5	5.2	41.3						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		2.6		9.1	2.7	6.0						
Green Ext Time (p_c), s		4.4		0.4	0.0	4.0						
Intersection Summary												
HCM 2010 Ctrl Delay			13.2									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	230	290	0	0	90	250	40	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	250	315	0	0	98	272	43	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	305	2898	0	0	1027	919	70	0	63			
Arrive On Green	0.17	0.82	0.00	0.00	0.58	0.58	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	1774	0	1583			
Grp Volume(v), veh/h	250	315	0	0	98	272	43	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	8.2	1.1	0.0	0.0	1.5	5.2	1.4	0.0	0.4			
Cycle Q Clear(g_c), s	8.2	1.1	0.0	0.0	1.5	5.2	1.4	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	305	2898	0	0	1027	919	70	0	63			
V/C Ratio(X)	0.82	0.11	0.00	0.00	0.10	0.30	0.61	0.00	0.18			
Avail Cap(c_a), veh/h	444	2898	0	0	1027	919	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.98	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	24.0	1.1	0.0	0.0	5.6	6.4	28.4	0.0	27.9			
Incr Delay (d2), s/veh	7.6	0.1	0.0	0.0	0.2	0.8	8.4	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	0.5	0.0	0.0	0.8	2.5	0.9	0.0	0.4			
LnGrp Delay(d),s/veh	31.6	1.2	0.0	0.0	5.8	7.2	36.7	0.0	29.2			
LnGrp LOS	C	A			A	A	D		C			
Approach Vol, veh/h	565				370			54				
Approach Delay, s/veh	14.6				6.8			35.2				
Approach LOS	B				A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.6		6.4		14.3	39.3						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		15.0	16.5						
Max Q Clear Time (g_c+I1), s	3.1		3.4		10.2	7.2						
Green Ext Time (p_c), s	5.0		0.1		0.3	3.0						
Intersection Summary												
HCM 2010 Ctrl Delay	12.8											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2025 Build Alternative 8
AM Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	40	780	360	10	10	480		
Number	5	2	6	16	7	14		
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		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	43	848	391	11	11	522		
Adj No. of Lanes	1	3	3	1	1	2		
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	68	3302	2788	868	400	629		
Arrive On Green	0.04	0.65	0.55	0.55	0.23	0.23		
Sat Flow, veh/h	1774	5253	5253	1583	1774	2787		
Grp Volume(v), veh/h	43	848	391	11	11	522		
Grp Sat Flow(s),veh/h/ln	1774	1695	1695	1583	1774	1393		
Q Serve(g_s), s	1.9	5.6	3.0	0.3	0.4	14.3		
Cycle Q Clear(g_c), s	1.9	5.6	3.0	0.3	0.4	14.3		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	68	3302	2788	868	400	629		
V/C Ratio(X)	0.63	0.26	0.14	0.01	0.03	0.83		
Avail Cap(c_a), veh/h	222	3302	2788	868	621	975		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	37.9	5.9	8.8	8.2	24.1	29.5		
Incr Delay (d2), s/veh	9.2	0.2	0.1	0.0	0.0	3.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.1	2.6	1.4	0.1	0.2	10.5		
LnGrp Delay(d),s/veh	47.1	6.1	8.9	8.2	24.2	33.1		
LnGrp LOS	D	A	A	A	C	C		
Approach Vol, veh/h		891	402		533			
Approach Delay, s/veh		8.1	8.9		32.9			
Approach LOS		A	A		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		56.9		23.1	8.1	48.9		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		42.0		28.0	10.0	27.0		
Max Q Clear Time (g_c+I1), s		7.6		16.3	3.9	5.0		
Green Ext Time (p_c), s		10.0		1.8	0.0	8.6		
Intersection Summary								
HCM 2010 Ctrl Delay			15.5					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2025 Build Alternative 8

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	190	590	0	340	10	80	10	10	10	0	20
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	11	207	0	0	370	11	87	11	11	11	0	22
Adj No. of Lanes	1	2	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	24	2559	1145	0	3284	97	202	106	90	58	0	51
Arrive On Green	0.01	0.72	0.00	0.00	0.65	0.65	0.06	0.06	0.06	0.03	0.00	0.03
Sat Flow, veh/h	1774	3539	1583	0	5244	150	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	11	207	0	0	246	135	87	11	11	11	0	22
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	0	1695	1836	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.5	1.4	0.0	0.0	2.2	2.2	1.9	0.4	0.5	0.5	0.0	1.1
Cycle Q Clear(g_c), s	0.5	1.4	0.0	0.0	2.2	2.2	1.9	0.4	0.5	0.5	0.0	1.1
Prop In Lane	1.00		1.00	0.00		0.08	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	24	2559	1145	0	2193	1188	202	106	90	58	0	51
V/C Ratio(X)	0.46	0.08	0.00	0.00	0.11	0.11	0.43	0.10	0.12	0.19	0.00	0.43
Avail Cap(c_a), veh/h	155	2559	1145	0	2193	1188	976	512	435	155	0	139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.2	3.3	0.0	0.0	5.4	5.4	36.5	35.8	35.8	37.7	0.0	38.0
Incr Delay (d2), s/veh	13.0	0.1	0.0	0.0	0.1	0.2	1.4	0.4	0.6	1.6	0.0	5.5
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	0.3	0.7	0.0	0.0	1.1	1.2	1.0	0.2	0.2	0.3	0.0	0.6
LnGrp Delay(d),s/veh	52.1	3.3	0.0	0.0	5.5	5.6	37.9	36.2	36.4	39.3	0.0	43.5
LnGrp LOS	D	A			A	A	D	D	D	D		D
Approach Vol, veh/h		218			381			109			33	
Approach Delay, s/veh		5.8			5.5			37.6			42.1	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.1	56.8		7.6		62.8		9.6				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	7.0	24.0		7.0		36.0		22.0				
Max Q Clear Time (g_c+I1), s	2.5	4.2		3.1		3.4		3.9				
Green Ext Time (p_c), s	0.0	3.7		0.0		4.1		0.3				

Intersection Summary

HCM 2010 Ctrl Delay 11.9

HCM 2010 LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary

7: SR-86 SB Ramps & Dillon Rd

2025 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	460	70	90	560	0	0	0	0	140	10	150
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	511	68	100	622	0				156	11	87
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	878	117	127	1275	0				197	14	188
Arrive On Green	0.00	0.55	0.55	0.14	1.00	0.00				0.15	0.15	0.15
Sat Flow, veh/h	0	1606	214	1774	1863	0				1357	96	1292
Grp Volume(v), veh/h	0	0	579	100	622	0				167	0	87
Grp Sat Flow(s),veh/h/ln	0	0	1819	1774	1863	0				1452	0	1292
Q Serve(g_s), s	0.0	0.0	12.7	3.3	0.0	0.0				6.7	0.0	3.7
Cycle Q Clear(g_c), s	0.0	0.0	12.7	3.3	0.0	0.0				6.7	0.0	3.7
Prop In Lane	0.00		0.12	1.00		0.00				0.93		1.00
Lane Grp Cap(c), veh/h	0	0	994	127	1275	0				211	0	188
V/C Ratio(X)	0.00	0.00	0.58	0.79	0.49	0.00				0.79	0.00	0.46
Avail Cap(c_a), veh/h	0	0	994	177	1275	0				266	0	237
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.86	0.86	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.0	25.3	0.0	0.0				24.8	0.0	23.5
Incr Delay (d2), s/veh	0.0	0.0	2.5	8.4	1.1	0.0				9.2	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.0	1.8	0.4	0.0				3.2	0.0	1.3
LnGrp Delay(d),s/veh	0.0	0.0	11.5	33.6	1.1	0.0				34.0	0.0	24.2
LnGrp LOS			B	C	A					C		C
Approach Vol, veh/h		579			722						254	
Approach Delay, s/veh		11.5			5.6						30.6	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	8.3	38.0		13.7		46.3						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	6.0	28.8		11.0		38.8						
Max Q Clear Time (g_c+I1), s	5.3	14.7		8.7		2.0						
Green Ext Time (p_c), s	0.0	4.8		0.2		6.3						
Intersection Summary												
HCM 2010 Ctrl Delay			11.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2025 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	190	410	0	0	520	170	130	10	150	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	218	471	0	0	598	154	149	11	113			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	258	1114	0	0	1366	611	173	13	131			
Arrive On Green	0.29	1.00	0.00	0.00	0.39	0.39	0.23	0.23	0.23			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	746	55	566			
Grp Volume(v), veh/h	218	471	0	0	598	154	273	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1367	0	0			
Q Serve(g_s), s	6.9	0.0	0.0	0.0	7.5	4.0	11.5	0.0	0.0			
Cycle Q Clear(g_c), s	6.9	0.0	0.0	0.0	7.5	4.0	11.5	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.55		0.41			
Lane Grp Cap(c), veh/h	258	1114	0	0	1366	611	317	0	0			
V/C Ratio(X)	0.84	0.42	0.00	0.00	0.44	0.25	0.86	0.00	0.00			
Avail Cap(c_a), veh/h	296	1114	0	0	1366	611	433	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.75	0.75	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	20.6	0.0	0.0	0.0	13.6	12.5	22.1	0.0	0.0			
Incr Delay (d2), s/veh	12.5	0.9	0.0	0.0	1.0	1.0	9.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.2	0.3	0.0	0.0	3.8	1.9	5.2	0.0	0.0			
LnGrp Delay(d),s/veh	33.1	0.9	0.0	0.0	14.6	13.5	32.0	0.0	0.0			
LnGrp LOS	C	A			B	B	C					
Approach Vol, veh/h		689			752			273				
Approach Delay, s/veh		11.1			14.4			32.0				
Approach LOS		B			B			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.1			12.7	28.4		18.9				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		30.8			10.0	16.8		19.0				
Max Q Clear Time (g_c+I1), s		2.0			8.9	9.5		13.5				
Green Ext Time (p_c), s		5.6			0.0	3.2		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			15.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 Build Alternative 8

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↵	↑↑					↵		↵
Volume (veh/h)	0	200	30	10	180	0	0	0	0	20	0	210
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	217	33	11	196	0				22	0	228
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1859	279	20	2406	0				317	0	283
Arrive On Green	0.00	0.60	0.60	0.01	0.68	0.00				0.18	0.00	0.18
Sat Flow, veh/h	0	3181	463	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	123	127	11	196	0				22	0	228
Grp Sat Flow(s),veh/h/ln	0	1770	1781	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	1.8	1.8	0.4	1.1	0.0				0.6	0.0	8.3
Cycle Q Clear(g_c), s	0.0	1.8	1.8	0.4	1.1	0.0				0.6	0.0	8.3
Prop In Lane	0.00		0.26	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1065	1072	20	2406	0				317	0	283
V/C Ratio(X)	0.00	0.12	0.12	0.56	0.08	0.00				0.07	0.00	0.81
Avail Cap(c_a), veh/h	0	1065	1072	177	2406	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.1	5.1	29.5	3.3	0.0				20.5	0.0	23.6
Incr Delay (d2), s/veh	0.0	0.2	0.2	22.0	0.1	0.0				0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.9	0.9	0.3	0.6	0.0				0.3	0.0	7.3
LnGrp Delay(d),s/veh	0.0	5.3	5.3	51.5	3.3	0.0				20.6	0.0	29.0
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		250			207						250	
Approach Delay, s/veh		5.3			5.9						28.3	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		45.3		14.7	4.7	40.6						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		3.1		10.3	2.4	3.8						
Green Ext Time (p_c), s		2.9		0.6	0.0	2.5						
Intersection Summary												
HCM 2010 Ctrl Delay			13.6									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	100	0	0	160	30	30	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	130	109	0	0	174	33	33	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	168	2915	0	0	1973	367	61	0	55			
Arrive On Green	0.09	0.82	0.00	0.00	0.66	0.66	0.03	0.00	0.03			
Sat Flow, veh/h	1774	3632	0	0	3073	554	1774	0	1583			
Grp Volume(v), veh/h	130	109	0	0	102	105	33	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1765	1774	0	1583			
Q Serve(g_s), s	4.3	0.3	0.0	0.0	1.2	1.3	1.1	0.0	0.4			
Cycle Q Clear(g_c), s	4.3	0.3	0.0	0.0	1.2	1.3	1.1	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		0.31	1.00		1.00			
Lane Grp Cap(c), veh/h	168	2915	0	0	1172	1169	61	0	55			
V/C Ratio(X)	0.77	0.04	0.00	0.00	0.09	0.09	0.54	0.00	0.20			
Avail Cap(c_a), veh/h	355	2915	0	0	1172	1169	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.5	1.0	0.0	0.0	3.6	3.6	28.5	0.0	28.2			
Incr Delay (d2), s/veh	7.3	0.0	0.0	0.0	0.1	0.2	7.1	0.0	1.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.4	0.2	0.0	0.0	0.6	0.7	0.7	0.0	0.4			
LnGrp Delay(d),s/veh	33.8	1.0	0.0	0.0	3.8	3.8	35.6	0.0	29.9			
LnGrp LOS	C	A			A	A	D		C			
Approach Vol, veh/h	239				207			44				
Approach Delay, s/veh	18.8				3.8			34.2				
Approach LOS	B				A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.9		6.1		9.7	44.2						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		12.0	19.5						
Max Q Clear Time (g_c+I1), s	2.3		3.1		6.3	3.3						
Green Ext Time (p_c), s	2.0		0.1		0.1	1.6						
Intersection Summary												
HCM 2010 Ctrl Delay	13.9											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2025 Build Alternative 8

PM Peak Hour

								
Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations								
Volume (veh/h)	90	920	340	10	60	660		
Number	5	2	6	16	7	14		
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		
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		
Adj Flow Rate, veh/h	98	1000	370	11	65	717		
Adj No. of Lanes	1	3	3	1	1	2		
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	127	2956	2274	708	521	819		
Arrive On Green	0.07	0.58	0.45	0.45	0.29	0.29		
Sat Flow, veh/h	1774	5253	5253	1583	1774	2787		
Grp Volume(v), veh/h	98	1000	370	11	65	717		
Grp Sat Flow(s),veh/h/ln	1774	1695	1695	1583	1774	1393		
Q Serve(g_s), s	4.3	8.2	3.5	0.3	2.1	19.6		
Cycle Q Clear(g_c), s	4.3	8.2	3.5	0.3	2.1	19.6		
Prop In Lane	1.00			1.00	1.00	1.00		
Lane Grp Cap(c), veh/h	127	2956	2274	708	521	819		
V/C Ratio(X)	0.77	0.34	0.16	0.02	0.12	0.88		
Avail Cap(c_a), veh/h	310	2956	2274	708	621	975		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	36.5	8.7	13.2	12.3	20.7	26.9		
Incr Delay (d2), s/veh	9.5	0.3	0.2	0.0	0.1	7.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.5	3.9	1.6	0.1	1.1	14.4		
LnGrp Delay(d),s/veh	46.0	9.0	13.3	12.3	20.8	34.8		
LnGrp LOS	D	A	B	B	C	C		
Approach Vol, veh/h		1098	381		782			
Approach Delay, s/veh		12.3	13.3		33.6			
Approach LOS		B	B		C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		51.5		28.5	10.7	40.8		
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		
Max Green Setting (Gmax), s		42.0		28.0	14.0	23.0		
Max Q Clear Time (g_c+I1), s		10.2		21.6	6.3	5.5		
Green Ext Time (p_c), s		11.2		1.9	0.1	8.6		
Intersection Summary								
HCM 2010 Ctrl Delay			19.9					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2025 Build Alternative 8

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	570	390	0	230	20	100	10	50	20	0	40
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	22	620	0	0	250	22	109	11	54	22	0	43
Adj No. of Lanes	1	2	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	624	2483	1111	0	1371	118	224	118	100	85	0	76
Arrive On Green	0.35	0.70	0.00	0.00	0.29	0.29	0.06	0.06	0.06	0.05	0.00	0.05
Sat Flow, veh/h	1774	3539	1583	0	4936	412	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	22	620	0	0	176	96	109	11	54	22	0	43
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	0	1695	1790	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.7	5.1	0.0	0.0	3.1	3.2	2.4	0.4	2.6	1.0	0.0	2.1
Cycle Q Clear(g_c), s	0.7	5.1	0.0	0.0	3.1	3.2	2.4	0.4	2.6	1.0	0.0	2.1
Prop In Lane	1.00		1.00	0.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	624	2483	1111	0	975	515	224	118	100	85	0	76
V/C Ratio(X)	0.04	0.25	0.00	0.00	0.18	0.19	0.49	0.09	0.54	0.26	0.00	0.57
Avail Cap(c_a), veh/h	624	2483	1111	0	975	515	1020	536	455	155	0	139
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	17.0	4.3	0.0	0.0	21.4	21.5	36.2	35.3	36.4	36.7	0.0	37.3
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.4	0.8	1.6	0.3	4.5	1.6	0.0	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.5	0.0	0.0	1.5	1.7	1.2	0.2	1.3	0.5	0.0	1.1
LnGrp Delay(d),s/veh	17.0	4.6	0.0	0.0	21.8	22.2	37.9	35.7	40.8	38.3	0.0	43.8
LnGrp LOS	B	A			C	C	D	D	D	D		D
Approach Vol, veh/h		642			272			174			65	
Approach Delay, s/veh		5.0			22.0			38.6			42.0	
Approach LOS		A			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	33.1	28.0		8.8		61.1		10.0				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	7.0	23.0		7.0		35.0		23.0				
Max Q Clear Time (g_c+I1), s	2.7	5.2		4.1		7.1		4.6				
Green Ext Time (p_c), s	1.7	1.5		0.0		4.7		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			16.2									
HCM 2010 LOS			B									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2025 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	470	110	140	670	0	0	0	0	240	10	110
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	522	112	156	744	0				267	11	42
Adj No. of Lanes	0	1	0	1	1	0				0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	649	139	192	1142	0				302	12	280
Arrive On Green	0.00	0.44	0.44	0.22	1.00	0.00				0.22	0.22	0.22
Sat Flow, veh/h	0	1480	318	1774	1863	0				1393	57	1292
Grp Volume(v), veh/h	0	0	634	156	744	0				278	0	42
Grp Sat Flow(s),veh/h/ln	0	0	1798	1774	1863	0				1450	0	1292
Q Serve(g_s), s	0.0	0.0	18.4	5.0	0.0	0.0				11.1	0.0	1.6
Cycle Q Clear(g_c), s	0.0	0.0	18.4	5.0	0.0	0.0				11.1	0.0	1.6
Prop In Lane	0.00		0.18	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	0	788	192	1142	0				314	0	280
V/C Ratio(X)	0.00	0.00	0.80	0.81	0.65	0.00				0.88	0.00	0.15
Avail Cap(c_a), veh/h	0	0	788	207	1142	0				314	0	280
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.84	0.84	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	14.6	22.9	0.0	0.0				22.8	0.0	19.0
Incr Delay (d2), s/veh	0.0	0.0	8.6	15.7	2.4	0.0				23.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	10.9	3.3	0.8	0.0				6.5	0.0	0.6
LnGrp Delay(d),s/veh	0.0	0.0	23.2	38.6	2.4	0.0				46.5	0.0	19.1
LnGrp LOS			C	D	A					D		B
Approach Vol, veh/h		634			900						320	
Approach Delay, s/veh		23.2			8.7						42.9	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.5	31.5		18.0		42.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	7.0	25.8		13.0		36.8						
Max Q Clear Time (g_c+I1), s	7.0	20.4		13.1		2.0						
Green Ext Time (p_c), s	0.0	3.1		0.0		7.8						
Intersection Summary												
HCM 2010 Ctrl Delay			19.6									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2025 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	610	0	0	710	200	100	10	230	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	115	701	0	0	816	189	115	11	205			
Adj No. of Lanes	1	1	0	0	2	1	0	1	0			
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	145	1049	0	0	1469	657	123	12	219			
Arrive On Green	0.16	1.00	0.00	0.00	0.42	0.42	0.27	0.27	0.27			
Sat Flow, veh/h	1774	1863	0	0	3632	1583	462	44	823			
Grp Volume(v), veh/h	115	701	0	0	816	189	331	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1863	0	0	1770	1583	1329	0	0			
Q Serve(g_s), s	3.7	0.0	0.0	0.0	10.5	4.8	14.6	0.0	0.0			
Cycle Q Clear(g_c), s	3.7	0.0	0.0	0.0	10.5	4.8	14.6	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.35		0.62			
Lane Grp Cap(c), veh/h	145	1049	0	0	1469	657	354	0	0			
V/C Ratio(X)	0.79	0.67	0.00	0.00	0.56	0.29	0.93	0.00	0.00			
Avail Cap(c_a), veh/h	177	1049	0	0	1469	657	354	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.46	0.46	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	24.6	0.0	0.0	0.0	13.3	11.7	21.5	0.0	0.0			
Incr Delay (d2), s/veh	7.3	1.6	0.0	0.0	1.5	1.1	31.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.1	0.5	0.0	0.0	5.4	2.2	8.4	0.0	0.0			
LnGrp Delay(d),s/veh	31.9	1.6	0.0	0.0	14.9	12.8	52.5	0.0	0.0			
LnGrp LOS	C	A			B	B	D					
Approach Vol, veh/h		816			1005			331				
Approach Delay, s/veh		5.9			14.5			52.5				
Approach LOS		A			B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		39.0			8.9	30.1		21.0				
Change Period (Y+Rc), s		5.2			4.0	5.2		5.0				
Max Green Setting (Gmax), s		33.8			6.0	23.8		16.0				
Max Q Clear Time (g_c+I1), s		2.0			5.7	12.5		16.6				
Green Ext Time (p_c), s		9.3			0.0	5.9		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			17.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2025 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	430	50	20	110	0	0	0	0	90	0	180
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	467	54	22	120	0				98	0	196
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1961	226	36	2478	0				280	0	250
Arrive On Green	0.00	0.61	0.61	0.02	0.70	0.00				0.16	0.00	0.16
Sat Flow, veh/h	0	3292	368	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	257	264	22	120	0				98	0	196
Grp Sat Flow(s),veh/h/ln	0	1770	1798	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	4.0	4.0	0.7	0.6	0.0				3.0	0.0	7.1
Cycle Q Clear(g_c), s	0.0	4.0	4.0	0.7	0.6	0.0				3.0	0.0	7.1
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1085	1102	36	2478	0				280	0	250
V/C Ratio(X)	0.00	0.24	0.24	0.61	0.05	0.00				0.35	0.00	0.78
Avail Cap(c_a), veh/h	0	1085	1102	177	2478	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.99	0.99	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	5.3	5.3	29.1	2.8	0.0				22.5	0.0	24.3
Incr Delay (d2), s/veh	0.0	0.5	0.5	15.0	0.0	0.0				0.7	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	0.3	0.0				1.5	0.0	6.4
LnGrp Delay(d),s/veh	0.0	5.8	5.8	44.1	2.8	0.0				23.3	0.0	30.7
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		521			142						294	
Approach Delay, s/veh		5.8			9.2						28.2	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		46.5		13.5	5.2	41.3						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		2.6		9.1	2.7	6.0						
Green Ext Time (p_c), s		4.4		0.4	0.0	4.0						
Intersection Summary												
HCM 2010 Ctrl Delay			13.2									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2025 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	230	290	0	0	90	250	40	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	250	315	0	0	98	272	43	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	305	2898	0	0	1027	919	70	0	63			
Arrive On Green	0.17	0.82	0.00	0.00	0.58	0.58	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	1774	0	1583			
Grp Volume(v), veh/h	250	315	0	0	98	272	43	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	8.2	1.1	0.0	0.0	1.5	5.2	1.4	0.0	0.4			
Cycle Q Clear(g_c), s	8.2	1.1	0.0	0.0	1.5	5.2	1.4	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	305	2898	0	0	1027	919	70	0	63			
V/C Ratio(X)	0.82	0.11	0.00	0.00	0.10	0.30	0.61	0.00	0.18			
Avail Cap(c_a), veh/h	444	2898	0	0	1027	919	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.98	0.98	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	24.0	1.1	0.0	0.0	5.6	6.4	28.4	0.0	27.9			
Incr Delay (d2), s/veh	7.6	0.1	0.0	0.0	0.2	0.8	8.4	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	4.6	0.5	0.0	0.0	0.8	2.5	0.9	0.0	0.4			
LnGrp Delay(d),s/veh	31.6	1.2	0.0	0.0	5.8	7.2	36.7	0.0	29.2			
LnGrp LOS	C	A			A	A	D		C			
Approach Vol, veh/h	565				370			54				
Approach Delay, s/veh	14.6				6.8			35.2				
Approach LOS	B				A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.6		6.4		14.3	39.3						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		15.0	16.5						
Max Q Clear Time (g_c+I1), s	3.1		3.4		10.2	7.2						
Green Ext Time (p_c), s	5.0		0.1		0.3	3.0						
Intersection Summary												
HCM 2010 Ctrl Delay	12.8											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	530	130	240	450	280	110	710	350	300	720	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	74	558	120	253	474	177	116	747	307	316	758	25
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	93	820	359	286	982	430	146	829	341	378	1282	42
Arrive On Green	0.06	0.24	0.24	0.09	0.29	0.29	0.08	0.34	0.34	0.11	0.37	0.37
Sat Flow, veh/h	1691	3374	1476	3343	3438	1506	1774	2443	1004	3442	3496	115
Grp Volume(v), veh/h	74	558	120	253	474	177	116	541	513	316	384	399
Grp Sat Flow(s),veh/h/ln	1691	1687	1476	1672	1719	1506	1774	1770	1677	1721	1770	1842
Q Serve(g_s), s	3.5	12.3	5.5	6.1	9.4	7.8	5.3	23.8	23.9	7.4	14.4	14.4
Cycle Q Clear(g_c), s	3.5	12.3	5.5	6.1	9.4	7.8	5.3	23.8	23.9	7.4	14.4	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.60	1.00		0.06
Lane Grp Cap(c), veh/h	93	820	359	286	982	430	146	601	569	378	649	675
V/C Ratio(X)	0.79	0.68	0.33	0.89	0.48	0.41	0.79	0.90	0.90	0.84	0.59	0.59
Avail Cap(c_a), veh/h	124	1112	486	286	1217	533	195	622	590	378	649	675
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.2	28.1	25.5	37.1	24.2	23.7	36.9	25.7	25.8	35.7	21.0	21.0
Incr Delay (d2), s/veh	16.4	0.4	0.2	25.7	0.1	0.2	10.8	18.2	19.1	14.2	3.3	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	5.8	2.3	3.9	4.4	3.2	3.0	14.6	14.0	4.3	7.5	7.8
LnGrp Delay(d),s/veh	54.6	28.5	25.7	62.8	24.4	23.9	47.6	44.0	44.8	49.9	24.2	24.1
LnGrp LOS	D	C	C	E	C	C	D	D	D	D	C	C
Approach Vol, veh/h		752			904			1170			1099	
Approach Delay, s/veh		30.6			35.0			44.7			31.6	
Approach LOS		C			D			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.0	35.5	7.5	27.9	13.2	33.3	11.0	24.4				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9	28.8	6.0	29.0	* 9	28.8	7.0	27.0				
Max Q Clear Time (g_c+I1), s	7.3	16.4	5.5	11.4	9.4	25.9	8.1	14.3				
Green Ext Time (p_c), s	0.0	11.6	0.0	5.0	0.0	2.0	0.0	4.4				
Intersection Summary												
HCM 2010 Ctrl Delay			36.1									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 No Build
AM Peak Hour

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↕↔		↙	↕↔	↙	↗		
Volume (veh/h)	870	310	290	870	100	200		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	916	297	305	916	105	84		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1199	387	361	2563	165	147		
Arrive On Green	0.46	0.46	0.21	0.75	0.09	0.09		
Sat Flow, veh/h	2698	842	1723	3529	1774	1583		
Grp Volume(v), veh/h	615	598	305	916	105	84		
Grp Sat Flow(s),veh/h/ln	1752	1696	1723	1719	1774	1583		
Q Serve(g_s), s	15.3	15.5	8.9	4.9	3.0	2.7		
Cycle Q Clear(g_c), s	15.3	15.5	8.9	4.9	3.0	2.7		
Prop In Lane		0.50	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	806	780	361	2563	165	147		
V/C Ratio(X)	0.76	0.77	0.84	0.36	0.64	0.57		
Avail Cap(c_a), veh/h	837	810	426	2753	317	283		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	11.8	11.8	20.0	2.3	23.0	22.9		
Incr Delay (d2), s/veh	4.2	4.5	12.7	0.1	4.1	3.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.3	8.1	5.5	2.2	1.6	2.5		
LnGrp Delay(d),s/veh	16.0	16.3	32.7	2.4	27.1	26.3		
LnGrp LOS	B	B	C	A	C	C		
Approach Vol, veh/h	1213			1221	189			
Approach Delay, s/veh	16.1			10.0	26.7			
Approach LOS	B			A	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				43.7		8.9	15.0	28.7
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				42.1		9.4	13.0	25.1
Max Q Clear Time (g_c+I1), s				6.9		5.0	10.9	17.5
Green Ext Time (p_c), s				24.0		0.2	0.2	6.7
Intersection Summary								
HCM 2010 Ctrl Delay			14.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	1030	30	20	1050	10	100	5	50	10	5	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	1084	29	21	1105	11	105	5	46	11	5	4
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	2198	59	25	2219	22	225	15	60	312	131	105
Arrive On Green	0.01	0.63	0.63	0.01	0.64	0.64	0.14	0.14	0.14	0.14	0.14	0.14
Sat Flow, veh/h	1757	3487	93	1723	3487	35	934	108	436	1348	960	768
Grp Volume(v), veh/h	11	545	568	21	545	571	156	0	0	11	0	9
Grp Sat Flow(s),veh/h/ln	1757	1752	1828	1723	1719	1803	1478	0	0	1348	0	1727
Q Serve(g_s), s	0.4	10.3	10.3	0.8	10.4	10.4	5.8	0.0	0.0	0.0	0.0	0.3
Cycle Q Clear(g_c), s	0.4	10.3	10.3	0.8	10.4	10.4	6.3	0.0	0.0	0.4	0.0	0.3
Prop In Lane	1.00		0.05	1.00		0.02	0.67		0.29	1.00		0.44
Lane Grp Cap(c), veh/h	15	1104	1152	25	1094	1147	299	0	0	312	0	236
V/C Ratio(X)	0.75	0.49	0.49	0.83	0.50	0.50	0.52	0.00	0.00	0.04	0.00	0.04
Avail Cap(c_a), veh/h	85	1503	1568	139	1530	1605	537	0	0	532	0	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.6	6.1	6.1	30.4	6.0	6.0	25.7	0.0	0.0	23.2	0.0	23.1
Incr Delay (d2), s/veh	53.7	0.4	0.4	46.5	0.4	0.4	1.4	0.0	0.0	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.0	5.2	0.7	5.0	5.2	2.7	0.0	0.0	0.2	0.0	0.1
LnGrp Delay(d),s/veh	84.3	6.5	6.5	76.9	6.4	6.4	27.1	0.0	0.0	23.2	0.0	23.2
LnGrp LOS	F	A	A	E	A	A	C			C		C
Approach Vol, veh/h	1124				1137		156				20	
Approach Delay, s/veh	7.3				7.7		27.1				23.2	
Approach LOS	A				A		C				C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	12.9		4.5	44.3	12.9		4.9	43.9				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	18.5		3.0	55.0	18.5		5.0	53.0				
Max Q Clear Time (g_c+I1), s	8.3		2.4	12.4	2.4		2.8	12.3				
Green Ext Time (p_c), s	0.6		0.0	26.9	0.8		0.0	26.1				
Intersection Summary												
HCM 2010 Ctrl Delay			8.9									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	439.5	0.0	0.0	0.0	439.5
Denied Del/Veh (s)	1355.6	0.0	0.0	0.1	665.3
Total Delay (hr)	105.4	2.1	78.7	0.5	186.7
Total Del/Veh (s)	798.7	6.8	1817.2	149.4	378.3

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	850	350	40	10	570	240	80	1430	10	10	1610	500
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	895	368	0	11	600	0	84	1505	11	11	1695	361
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	412	170	512	5	287	248	58	931	417	18	851	381
Arrive On Green	0.33	0.33	0.00	0.16	0.16	0.00	0.04	0.32	0.32	0.01	0.29	0.29
Sat Flow, veh/h	1262	519	1568	33	1792	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	1263	0	0	611	0	0	84	1505	11	11	1695	361
Grp Sat Flow(s),veh/h/ln	1782	0	1568	1825	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	49.0	0.0	0.0	24.0	0.0	0.0	6.0	48.4	0.9	1.1	44.2	41.0
Cycle Q Clear(g_c), s	49.0	0.0	0.0	24.0	0.0	0.0	6.0	48.4	0.9	1.1	44.2	41.0
Prop In Lane	0.71		1.00	0.02		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	582	0	512	292	0	248	58	931	417	18	851	381
V/C Ratio(X)	2.17	0.00	0.00	2.09	0.00	0.00	1.45	1.62	0.03	0.62	1.99	0.95
Avail Cap(c_a), veh/h	582	0	512	292	0	248	58	931	417	48	851	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	0.0	63.0	0.0	0.0	72.0	50.8	34.7	73.7	52.9	51.8
Incr Delay (d2), s/veh	532.3	0.0	0.0	503.0	0.0	0.0	276.3	282.3	0.0	30.4	450.5	33.2
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	110.1	0.0	0.0	52.9	0.0	0.0	6.8	55.8	0.3	0.6	70.9	18.1
LnGrp Delay(d),s/veh	582.8	0.0	0.0	566.0	0.0	0.0	348.3	333.1	34.8	104.1	503.4	84.9
LnGrp LOS	F			F			F	F	C	F	F	F
Approach Vol, veh/h	1263				611		1600				2067	
Approach Delay, s/veh	582.8				566.0		331.9				428.2	
Approach LOS	F				F		F				F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	6.8	56.2			56.0	11.0	52.0	31.0				
Change Period (Y+Rc), s	5.0	7.8			7.0	5.0	7.8	7.0				
Max Green Setting (Gmax), s	5.0	45.2			49.0	6.0	44.2	24.0				
Max Q Clear Time (g_c+I1), s	3.1	50.4			51.0	8.0	46.2	26.0				
Green Ext Time (p_c), s	0.0	0.0			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	450.8											
HCM 2010 LOS	F											

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑						↵	↵
Volume (veh/h)	0	750	70	120	1310	0	0	0	0	260	10	290
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	789	65	126	1379	0				274	11	229
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	2527	207	155	3358	0				316	13	292
Arrive On Green	0.00	0.53	0.53	0.17	1.00	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	4949	392	1774	5253	0				1394	56	1292
Grp Volume(v), veh/h	0	558	296	126	1379	0				285	0	229
Grp Sat Flow(s),veh/h/ln	0	1695	1783	1774	1695	0				1450	0	1292
Q Serve(g_s), s	0.0	8.4	8.4	6.1	0.0	0.0				17.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	8.4	8.4	6.1	0.0	0.0				17.0	0.0	15.0
Prop In Lane	0.00		0.22	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1792	942	155	3358	0				328	0	292
V/C Ratio(X)	0.00	0.31	0.31	0.81	0.41	0.00				0.87	0.00	0.78
Avail Cap(c_a), veh/h	0	1792	942	256	3358	0				500	0	445
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.62	0.62	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.0	12.0	36.4	0.0	0.0				33.5	0.0	32.7
Incr Delay (d2), s/veh	0.0	0.5	0.9	2.4	0.2	0.0				6.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.0	4.3	3.1	0.1	0.0				7.4	0.0	5.5
LnGrp Delay(d),s/veh	0.0	12.4	12.9	38.9	0.2	0.0				40.3	0.0	35.1
LnGrp LOS		B	B	D	A					D		D
Approach Vol, veh/h		854			1505						514	
Approach Delay, s/veh		12.6			3.5						38.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.9	52.8		25.4		64.6						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	13.0	31.8		31.0		48.8						
Max Q Clear Time (g_c+I1), s	8.1	10.4		19.0		2.0						
Green Ext Time (p_c), s	0.1	12.2		1.3		17.2						
Intersection Summary												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
8: SR-86 NB Ramps & Dillon Rd

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Volume (veh/h)	190	820	0	0	1270	430	160	10	330	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	200	863	0	0	1337	415	168	11	293			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	197	2757	0	0	1966	612	164	11	286			
Arrive On Green	0.22	1.00	0.00	0.00	0.39	0.39	0.34	0.34	0.34			
Sat Flow, veh/h	1774	5253	0	0	5253	1583	476	31	830			
Grp Volume(v), veh/h	200	863	0	0	1337	415	472	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583	1336	0	0			
Q Serve(g_s), s	10.0	0.0	0.0	0.0	19.7	19.6	31.0	0.0	0.0			
Cycle Q Clear(g_c), s	10.0	0.0	0.0	0.0	19.7	19.6	31.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.36		0.62			
Lane Grp Cap(c), veh/h	197	2757	0	0	1966	612	460	0	0			
V/C Ratio(X)	1.01	0.31	0.00	0.00	0.68	0.68	1.03	0.00	0.00			
Avail Cap(c_a), veh/h	197	2757	0	0	1966	612	460	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.94	0.94	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	35.0	0.0	0.0	0.0	23.0	22.9	29.5	0.0	0.0			
Incr Delay (d2), s/veh	65.9	0.3	0.0	0.0	1.9	5.9	48.6	0.0	0.0			
Initial Q Delay(d3),s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.4	0.1	0.0	0.0	9.5	9.5	17.6	0.0	0.0			
LnGrp Delay(d),s/veh	101.0	0.3	0.0	0.0	24.9	28.9	78.1	0.0	0.0			
LnGrp LOS	F	A			C	C	F					
Approach Vol, veh/h	1063				1752			472				
Approach Delay, s/veh	19.2				25.8			78.1				
Approach LOS	B				C			E				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2				5		8					
Phs Duration (G+Y+Rc), s	54.0				14.0		36.0					
Change Period (Y+Rc), s	5.2				4.0		5.0					
Max Green Setting (Gmax), s	48.8				10.0		31.0					
Max Q Clear Time (g_c+I1), s	2.0				12.0		33.0					
Green Ext Time (p_c), s	19.7				0.0		0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	31.2											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	340	30	40	570	0	0	0	0	20	0	240
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	370	33	43	620	0				22	0	261
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1833	163	61	2329	0				355	0	317
Arrive On Green	0.00	0.56	0.56	0.03	0.66	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	3382	292	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	198	205	43	620	0				22	0	261
Grp Sat Flow(s),veh/h/ln	0	1770	1811	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	3.3	3.4	1.4	4.4	0.0				0.6	0.0	9.5
Cycle Q Clear(g_c), s	0.0	3.3	3.4	1.4	4.4	0.0				0.6	0.0	9.5
Prop In Lane	0.00		0.16	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	986	1009	61	2329	0				355	0	317
V/C Ratio(X)	0.00	0.20	0.20	0.71	0.27	0.00				0.06	0.00	0.82
Avail Cap(c_a), veh/h	0	986	1009	177	2329	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.96	0.96	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.6	6.6	28.7	4.3	0.0				19.4	0.0	23.0
Incr Delay (d2), s/veh	0.0	0.5	0.5	13.7	0.3	0.0				0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.7	1.8	0.9	2.2	0.0				0.3	0.0	8.2
LnGrp Delay(d),s/veh	0.0	7.1	7.1	42.4	4.5	0.0				19.5	0.0	28.3
LnGrp LOS		A	A	D	A					B		C
Approach Vol, veh/h		403			663						283	
Approach Delay, s/veh		7.1			7.0						27.6	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		44.0		16.0	6.0	37.9						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		6.4		11.5	3.4	5.4						
Green Ext Time (p_c), s		7.3		0.7	0.0	6.0						
Intersection Summary												
HCM 2010 Ctrl Delay			11.3									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 No Build
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	140	220	0	0	580	40	30	0	40	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	152	239	0	0	630	43	33	0	43			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	195	2868	0	0	2131	145	85	0	76			
Arrive On Green	0.11	0.81	0.00	0.00	0.63	0.63	0.05	0.00	0.05			
Sat Flow, veh/h	1774	3632	0	0	3456	229	1774	0	1583			
Grp Volume(v), veh/h	152	239	0	0	331	342	33	0	43			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1822	1774	0	1583			
Q Serve(g_s), s	5.0	0.8	0.0	0.0	5.1	5.1	1.1	0.0	1.6			
Cycle Q Clear(g_c), s	5.0	0.8	0.0	0.0	5.1	5.1	1.1	0.0	1.6			
Prop In Lane	1.00		0.00	0.00		0.13	1.00		1.00			
Lane Grp Cap(c), veh/h	195	2868	0	0	1122	1155	85	0	76			
V/C Ratio(X)	0.78	0.08	0.00	0.00	0.30	0.30	0.39	0.00	0.57			
Avail Cap(c_a), veh/h	355	2868	0	0	1122	1155	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.99	0.99	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.0	1.2	0.0	0.0	4.9	4.9	27.7	0.0	28.0			
Incr Delay (d2), s/veh	6.6	0.1	0.0	0.0	0.7	0.7	2.9	0.0	6.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	0.4	0.0	0.0	2.6	2.7	0.6	0.0	1.5			
LnGrp Delay(d),s/veh	32.6	1.2	0.0	0.0	5.6	5.6	30.6	0.0	34.5			
LnGrp LOS	C	A			A	A	C		C			
Approach Vol, veh/h		391			673			76				
Approach Delay, s/veh		13.4			5.6			32.8				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		53.1		6.9	10.6	42.5						
Change Period (Y+Rc), s		4.5		4.0	4.0	4.5						
Max Green Setting (Gmax), s		35.5		16.0	12.0	19.5						
Max Q Clear Time (g_c+I1), s		2.8		3.6	7.0	7.1						
Green Ext Time (p_c), s		6.7		0.1	0.2	4.6						
Intersection Summary												
HCM 2010 Ctrl Delay			10.1									
HCM 2010 LOS			B									

Intersection

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	50	630	20	30	560
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	43	54	685	22	33	609

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1066	353	0 0 707 0
Stage 1	696	-	- - - -
Stage 2	370	-	- - - -
Critical Hdwy	6.84	6.94	- - 4.14 -
Critical Hdwy Stg 1	5.84	-	- - - -
Critical Hdwy Stg 2	5.84	-	- - - -
Follow-up Hdwy	3.52	3.32	- - 2.22 -
Pot Cap-1 Maneuver	217	643	- - 887 -
Stage 1	456	-	- - - -
Stage 2	669	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	205	643	- - 887 -
Mov Cap-2 Maneuver	205	-	- - - -
Stage 1	456	-	- - - -
Stage 2	632	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	20.4	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 330	887	-
HCM Lane V/C Ratio	-	- 0.296	0.037	-
HCM Control Delay (s)	-	- 20.4	9.2	0.2
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 1.2	0.1	-

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	550	160	300	490	400	200	870	350	420	1170	90
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1845	1845	1845	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	122	561	143	306	500	290	204	888	319	429	1194	84
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	149	781	338	320	841	369	225	962	344	465	1299	91
Arrive On Green	0.08	0.22	0.22	0.09	0.24	0.24	0.13	0.38	0.38	0.14	0.39	0.39
Sat Flow, veh/h	1774	3539	1530	3408	3505	1541	1774	2537	908	3442	3351	235
Grp Volume(v), veh/h	122	561	143	306	500	290	204	618	589	429	630	648
Grp Sat Flow(s),veh/h/ln	1774	1770	1530	1704	1752	1541	1774	1770	1675	1721	1770	1816
Q Serve(g_s), s	7.2	15.6	8.6	9.5	13.5	18.8	12.1	35.5	35.8	13.1	36.0	36.2
Cycle Q Clear(g_c), s	7.2	15.6	8.6	9.5	13.5	18.8	12.1	35.5	35.8	13.1	36.0	36.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.54	1.00		0.13
Lane Grp Cap(c), veh/h	149	781	338	320	841	369	225	671	635	465	686	704
V/C Ratio(X)	0.82	0.72	0.42	0.96	0.59	0.78	0.91	0.92	0.93	0.92	0.92	0.92
Avail Cap(c_a), veh/h	167	897	388	320	922	405	225	671	636	465	686	704
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.0	38.4	35.7	48.0	35.9	37.9	45.9	31.5	31.6	45.5	31.0	31.0
Incr Delay (d2), s/veh	21.6	1.8	0.3	38.3	0.5	7.9	35.2	19.5	21.1	23.4	18.8	18.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	7.8	3.6	6.2	6.6	8.8	8.1	21.0	20.2	7.8	21.1	21.7
LnGrp Delay(d),s/veh	69.6	40.2	36.0	86.3	36.4	45.8	81.0	51.1	52.8	68.9	49.8	49.8
LnGrp LOS	E	D	D	F	D	D	F	D	D	E	D	D
Approach Vol, veh/h	826				1096		1411				1707	
Approach Delay, s/veh	43.8				52.8		56.1				54.6	
Approach LOS	D				D		E				D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.7	46.8	12.0	30.0	18.6	45.9	14.0	28.0				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 14	41.3	10.0	28.0	* 14	40.4	10.0	27.0				
Max Q Clear Time (g_c+I1), s	14.1	38.2	9.2	20.8	15.1	37.8	11.5	17.6				
Green Ext Time (p_c), s	0.0	3.1	0.0	3.4	0.0	2.6	0.0	4.0				
Intersection Summary												
HCM 2010 Ctrl Delay	52.9											
HCM 2010 LOS	D											
Notes												

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 No Build
PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↱	↑↑	↱	↱		
Volume (veh/h)	1070	250	260	830	360	330		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1827	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	1126	224	274	874	379	216		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	4	2	2	2	2		
Cap, veh/h	1233	244	290	2281	426	380		
Arrive On Green	0.43	0.43	0.16	0.64	0.24	0.24		
Sat Flow, veh/h	2980	572	1774	3632	1774	1583		
Grp Volume(v), veh/h	674	676	274	874	379	216		
Grp Sat Flow(s),veh/h/ln	1736	1724	1774	1770	1774	1583		
Q Serve(g_s), s	26.8	27.1	11.2	8.6	15.2	8.8		
Cycle Q Clear(g_c), s	26.8	27.1	11.2	8.6	15.2	8.8		
Prop In Lane		0.33	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	741	736	290	2281	426	380		
V/C Ratio(X)	0.91	0.92	0.95	0.38	0.89	0.57		
Avail Cap(c_a), veh/h	744	739	290	2288	459	409		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	19.7	19.9	30.4	6.2	27.0	24.6		
Incr Delay (d2), s/veh	15.4	16.5	38.5	0.1	18.3	1.6		
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	16.1	8.6	4.2	9.5	7.9		
LnGrp Delay(d),s/veh	35.2	36.4	68.9	6.3	45.3	26.2		
LnGrp LOS	D	D	E	A	D	C		
Approach Vol, veh/h	1350			1148	595			
Approach Delay, s/veh	35.8			21.2	38.3			
Approach LOS	D			C	D			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				51.9		21.6	16.0	35.9
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				47.5		19.0	12.0	31.5
Max Q Clear Time (g_c+I1), s				10.6		17.2	13.2	29.1
Green Ext Time (p_c), s				26.0		0.4	0.0	2.2
Intersection Summary								
HCM 2010 Ctrl Delay			30.9					
HCM 2010 LOS			C					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	1260	90	40	980	30	60	5	20	30	5	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	1326	93	42	1032	30	63	5	6	32	5	4
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	2229	156	51	2348	68	198	8	9	246	77	61
Arrive On Green	0.04	0.68	0.68	0.03	0.67	0.67	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1740	3291	230	1774	3512	102	1150	96	110	1398	960	768
Grp Volume(v), veh/h	53	698	721	42	520	542	74	0	0	32	0	9
Grp Sat Flow(s),veh/h/ln	1740	1736	1786	1774	1770	1845	1357	0	0	1398	0	1727
Q Serve(g_s), s	1.9	13.7	13.8	1.5	8.7	8.7	3.1	0.0	0.0	0.0	0.0	0.3
Cycle Q Clear(g_c), s	1.9	13.7	13.8	1.5	8.7	8.7	3.4	0.0	0.0	1.1	0.0	0.3
Prop In Lane	1.00		0.13	1.00		0.06	0.85		0.08	1.00		0.44
Lane Grp Cap(c), veh/h	65	1175	1209	51	1183	1233	214	0	0	246	0	138
V/C Ratio(X)	0.81	0.59	0.60	0.82	0.44	0.44	0.35	0.00	0.00	0.13	0.00	0.07
Avail Cap(c_a), veh/h	83	1405	1446	169	1517	1581	544	0	0	567	0	535
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.1	5.5	5.5	30.4	4.9	4.9	28.4	0.0	0.0	27.2	0.0	26.8
Incr Delay (d2), s/veh	36.4	0.6	0.6	26.2	0.3	0.3	1.0	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	6.6	6.8	1.1	4.3	4.5	1.3	0.0	0.0	0.5	0.0	0.2
LnGrp Delay(d),s/veh	66.6	6.1	6.1	56.6	5.2	5.2	29.4	0.0	0.0	27.4	0.0	27.0
LnGrp LOS	E	A	A	E	A	A	C			C		C
Approach Vol, veh/h	1472				1104				74			
Approach Delay, s/veh	8.3				7.2				29.4			
Approach LOS	A				A				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.5	6.4	47.1		9.5	5.8	47.7				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		19.5	3.0	54.0		19.5	6.0	51.0				
Max Q Clear Time (g_c+I1), s		5.4	3.9	10.7		3.1	3.5	15.8				
Green Ext Time (p_c), s		0.4	0.0	31.4		0.4	0.0	26.9				
Intersection Summary												
HCM 2010 Ctrl Delay	8.7											
HCM 2010 LOS	A											

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	585.2	0.0	0.0	0.0	585.2
Denied Del/Veh (s)	1469.1	0.0	0.0	0.1	807.8
Total Delay (hr)	104.7	1.8	33.4	0.3	140.1
Total Del/Veh (s)	759.7	5.9	877.2	102.8	294.4

HCM 2010 Signalized Intersection Summary
56: SR-86 & Avenue 50

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	260	980	90	10	350	20	100	1680	130	190	1680	630
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	274	1032	0	11	368	0	105	1768	137	200	1768	431
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	3	3	3	25	25	25	25	25	25
Cap, veh/h	123	462	502	5	179	157	58	947	424	106	1044	467
Arrive On Green	0.32	0.32	0.00	0.10	0.10	0.00	0.04	0.33	0.33	0.07	0.36	0.36
Sat Flow, veh/h	383	1443	1568	53	1789	1568	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	1306	0	0	379	0	0	105	1768	137	200	1768	431
Grp Sat Flow(s),veh/h/ln	1826	0	1568	1842	0	1568	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	48.0	0.0	0.0	15.0	0.0	0.0	6.0	49.2	12.0	11.0	54.2	48.0
Cycle Q Clear(g_c), s	48.0	0.0	0.0	15.0	0.0	0.0	6.0	49.2	12.0	11.0	54.2	48.0
Prop In Lane	0.21		1.00	0.03		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	584	0	502	184	0	157	58	947	424	106	1044	467
V/C Ratio(X)	2.24	0.00	0.00	2.06	0.00	0.00	1.81	1.87	0.32	1.88	1.69	0.92
Avail Cap(c_a), veh/h	584	0	502	184	0	157	58	947	424	106	1044	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	0.0	67.5	0.0	0.0	72.0	50.4	37.9	69.5	47.9	45.9
Incr Delay (d2), s/veh	561.6	0.0	0.0	494.2	0.0	0.0	425.6	393.9	0.6	431.1	316.6	24.3
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	115.3	0.0	0.0	32.9	0.0	0.0	9.2	71.4	4.3	17.1	67.5	20.3
LnGrp Delay(d),s/veh	612.6	0.0	0.0	561.7	0.0	0.0	497.6	444.3	38.5	500.6	364.5	70.2
LnGrp LOS	F			F			F	F	D	F	F	E
Approach Vol, veh/h	1306				379		2010				2399	
Approach Delay, s/veh	612.6				561.7		419.5				323.0	
Approach LOS	F				F		F				F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2			4	5	6	8				
Phs Duration (G+Y+Rc), s	16.0	57.0			55.0	11.0	62.0	22.0				
Change Period (Y+Rc), s	5.0	7.8			7.0	5.0	7.8	7.0				
Max Green Setting (Gmax), s	11.0	49.2			48.0	6.0	54.2	15.0				
Max Q Clear Time (g_c+I1), s	13.0	51.2			50.0	8.0	56.2	17.0				
Green Ext Time (p_c), s	0.0	0.0			0.0	0.0	0.0	0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			431.7									
HCM 2010 LOS			F									

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↰	↑↑↑						↱	↰
Volume (veh/h)	0	1080	110	220	1540	0	0	0	0	560	10	140
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	1137	94	232	1621	0				589	11	16
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	1685	139	226	2626	0				556	10	498
Arrive On Green	0.00	0.35	0.35	0.25	1.00	0.00				0.39	0.39	0.39
Sat Flow, veh/h	0	4944	395	1774	5253	0				1422	27	1274
Grp Volume(v), veh/h	0	807	424	232	1621	0				600	0	16
Grp Sat Flow(s),veh/h/ln	0	1695	1781	1774	1695	0				1449	0	1274
Q Serve(g_s), s	0.0	22.2	22.3	14.0	0.0	0.0				43.0	0.0	0.9
Cycle Q Clear(g_c), s	0.0	22.2	22.3	14.0	0.0	0.0				43.0	0.0	0.9
Prop In Lane	0.00		0.22	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1196	628	226	2626	0				566	0	498
V/C Ratio(X)	0.00	0.67	0.68	1.03	0.62	0.00				1.06	0.00	0.03
Avail Cap(c_a), veh/h	0	1196	628	226	2626	0				566	0	498
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.63	0.63	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.2	30.2	41.0	0.0	0.0				33.5	0.0	20.7
Incr Delay (d2), s/veh	0.0	3.1	5.7	54.6	0.7	0.0				54.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.1	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	10.9	12.0	10.2	0.2	0.0				25.7	0.0	0.3
LnGrp Delay(d),s/veh	0.0	33.3	36.0	95.7	0.7	0.0				88.0	0.0	20.7
LnGrp LOS		C	D	F	A					F		C
Approach Vol, veh/h		1231			1853						616	
Approach Delay, s/veh		34.2			12.6						86.3	
Approach LOS		C			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.0	44.0		48.0		62.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	14.0	38.8		43.0		56.8						
Max Q Clear Time (g_c+I1), s	16.0	24.3		45.0		2.0						
Green Ext Time (p_c), s	0.0	11.5		0.0		27.5						
Intersection Summary												
HCM 2010 Ctrl Delay			32.1									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
8: SR-86 NB Ramps & Dillon Rd

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	100	1540	0	0	1670	480	90	10	320	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.97	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	103	1588	0	0	1722	430	93	10	254			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	132	3184	0	0	2622	796	98	11	267			
Arrive On Green	0.15	1.00	0.00	0.00	0.52	0.52	0.28	0.28	0.28			
Sat Flow, veh/h	1774	5253	0	0	5253	1544	347	37	949			
Grp Volume(v), veh/h	103	1588	0	0	1722	430	357	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1544	1334	0	0			
Q Serve(g_s), s	6.2	0.0	0.0	0.0	27.3	20.6	28.9	0.0	0.0			
Cycle Q Clear(g_c), s	6.2	0.0	0.0	0.0	27.3	20.6	28.9	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.26		0.71			
Lane Grp Cap(c), veh/h	132	3184	0	0	2622	796	375	0	0			
V/C Ratio(X)	0.78	0.50	0.00	0.00	0.66	0.54	0.95	0.00	0.00			
Avail Cap(c_a), veh/h	161	3184	0	0	2622	796	376	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.51	0.51	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	46.0	0.0	0.0	0.0	19.5	17.9	38.8	0.0	0.0			
Incr Delay (d2), s/veh	7.8	0.3	0.0	0.0	1.3	2.6	33.8	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.1	0.0	0.0	13.1	9.3	14.1	0.0	0.0			
LnGrp Delay(d),s/veh	53.8	0.3	0.0	0.0	20.8	20.5	72.6	0.0	0.0			
LnGrp LOS	D	A			C	C	E					
Approach Vol, veh/h	1691				2152		357					
Approach Delay, s/veh	3.5				20.8		72.6					
Approach LOS	A				C		E					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2				5	6	8					
Phs Duration (G+Y+Rc), s	74.1				12.2	61.9	35.9					
Change Period (Y+Rc), s	5.2				4.0	5.2	5.0					
Max Green Setting (Gmax), s	68.8				10.0	54.8	31.0					
Max Q Clear Time (g_c+I1), s	2.0				8.2	29.3	30.9					
Green Ext Time (p_c), s	44.1				0.0	21.4	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay	18.2											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary

9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	1090	50	40	360	0	0	0	0	100	0	130
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	1185	54	43	391	0				109	0	141
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2184	99	61	2599	0				220	0	196
Arrive On Green	0.00	0.63	0.63	0.03	0.73	0.00				0.12	0.00	0.12
Sat Flow, veh/h	0	3541	157	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	608	631	43	391	0				109	0	141
Grp Sat Flow(s),veh/h/ln	0	1770	1835	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	11.5	11.5	1.4	2.0	0.0				3.4	0.0	5.1
Cycle Q Clear(g_c), s	0.0	11.5	11.5	1.4	2.0	0.0				3.4	0.0	5.1
Prop In Lane	0.00		0.09	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1121	1162	61	2599	0				220	0	196
V/C Ratio(X)	0.00	0.54	0.54	0.71	0.15	0.00				0.50	0.00	0.72
Avail Cap(c_a), veh/h	0	1121	1162	177	2599	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.97	0.97	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.1	6.1	28.7	2.4	0.0				24.5	0.0	25.3
Incr Delay (d2), s/veh	0.0	1.9	1.8	13.9	0.1	0.0				1.7	0.0	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	6.4	0.9	1.0	0.0				1.8	0.0	4.6
LnGrp Delay(d),s/veh	0.0	8.0	8.0	42.6	2.5	0.0				26.2	0.0	30.1
LnGrp LOS		A	A	D	A					C		C
Approach Vol, veh/h		1239			434						250	
Approach Delay, s/veh		8.0			6.5						28.4	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		48.6		11.4	6.0	42.5						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		4.0		7.1	3.4	13.5						
Green Ext Time (p_c), s		14.9		0.4	0.0	9.2						
Intersection Summary												
HCM 2010 Ctrl Delay			10.3									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 No Build
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	260	930	0	0	360	80	40	0	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	283	1011	0	0	391	87	43	0	22			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	338	2882	0	0	1607	354	78	0	70			
Arrive On Green	0.19	0.81	0.00	0.00	0.56	0.56	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	2978	636	1774	0	1583			
Grp Volume(v), veh/h	283	1011	0	0	238	240	43	0	22			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1751	1774	0	1583			
Q Serve(g_s), s	9.2	4.5	0.0	0.0	4.1	4.2	1.4	0.0	0.8			
Cycle Q Clear(g_c), s	9.2	4.5	0.0	0.0	4.1	4.2	1.4	0.0	0.8			
Prop In Lane	1.00		0.00	0.00		0.36	1.00		1.00			
Lane Grp Cap(c), veh/h	338	2882	0	0	986	975	78	0	70			
V/C Ratio(X)	0.84	0.35	0.00	0.00	0.24	0.25	0.55	0.00	0.32			
Avail Cap(c_a), veh/h	444	2882	0	0	986	975	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.85	0.85	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.4	1.4	0.0	0.0	6.8	6.8	28.1	0.0	27.8			
Incr Delay (d2), s/veh	9.0	0.3	0.0	0.0	0.6	0.6	5.9	0.0	2.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.3	2.2	0.0	0.0	2.1	2.2	0.8	0.0	0.8			
LnGrp Delay(d),s/veh	32.4	1.7	0.0	0.0	7.4	7.4	34.0	0.0	30.3			
LnGrp LOS	C	A			A	A	C		C			
Approach Vol, veh/h	1294				478			65				
Approach Delay, s/veh	8.4				7.4			32.8				
Approach LOS	A				A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.4		6.6		15.4	37.9						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		15.0	16.5						
Max Q Clear Time (g_c+I1), s	6.5		3.4		11.2	6.2						
Green Ext Time (p_c), s	12.7		0.1		0.3	6.7						
Intersection Summary												
HCM 2010 Ctrl Delay			9.0									
HCM 2010 LOS			A									

Intersection

Int Delay, s/veh 1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	40	540	50	70	500
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	33	43	587	54	76	543

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1038	321	0
Stage 1	614	-	-
Stage 2	424	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	227	675	939
Stage 1	502	-	-
Stage 2	628	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	201	675	939
Mov Cap-2 Maneuver	201	-	-
Stage 1	502	-	-
Stage 2	555	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.8	0	1.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	336	939
HCM Lane V/C Ratio	-	-	0.226	0.081
HCM Control Delay (s)	-	-	18.8	9.2
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.9	0.3

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	680	130	350	550	350	100	670	380	320	690	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	74	716	120	368	579	250	105	705	339	337	726	25
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	93	926	405	309	1111	487	133	745	358	349	1216	42
Arrive On Green	0.06	0.27	0.27	0.09	0.32	0.32	0.07	0.32	0.32	0.10	0.35	0.35
Sat Flow, veh/h	1691	3374	1478	3343	3438	1508	1774	2314	1112	3442	3490	120
Grp Volume(v), veh/h	74	716	120	368	579	250	105	539	505	337	368	383
Grp Sat Flow(s),veh/h/ln	1691	1687	1478	1672	1719	1508	1774	1770	1657	1721	1770	1841
Q Serve(g_s), s	3.7	16.9	5.6	8.0	11.9	11.7	5.0	25.8	25.8	8.5	14.8	14.8
Cycle Q Clear(g_c), s	3.7	16.9	5.6	8.0	11.9	11.7	5.0	25.8	25.8	8.5	14.8	14.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.07
Lane Grp Cap(c), veh/h	93	926	405	309	1111	487	133	570	533	349	617	641
V/C Ratio(X)	0.79	0.77	0.30	1.19	0.52	0.51	0.79	0.95	0.95	0.96	0.60	0.60
Avail Cap(c_a), veh/h	117	1051	460	309	1190	522	172	572	535	349	617	641
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	40.5	29.0	24.8	39.3	23.9	23.8	39.4	28.7	28.7	38.8	23.2	23.2
Incr Delay (d2), s/veh	19.8	2.7	0.1	114.2	0.1	0.3	12.7	26.1	27.4	38.5	3.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	8.2	2.3	8.5	5.7	4.9	2.9	16.7	15.8	5.8	7.9	8.2
LnGrp Delay(d),s/veh	60.2	31.6	25.0	153.5	24.0	24.1	52.2	54.8	56.1	77.3	26.7	26.6
LnGrp LOS	E	C	C	F	C	C	D	D	E	E	C	C
Approach Vol, veh/h		910			1197			1149			1088	
Approach Delay, s/veh		33.1			63.9			55.1			42.3	
Approach LOS		C			E			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	35.7	7.8	32.5	13.0	33.4	12.0	28.3				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 8.4	28.4	6.0	30.0	* 8.8	28.0	8.0	27.0				
Max Q Clear Time (g_c+I1), s	7.0	16.8	5.7	13.9	10.5	27.8	10.0	18.9				
Green Ext Time (p_c), s	0.0	10.7	0.0	6.3	0.0	0.1	0.0	4.2				

Intersection Summary

HCM 2010 Ctrl Delay	49.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 Build Alternative 7
AM Peak Hour

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↕↕		↘	↕↕	↘	↗		
Volume (veh/h)	1080	300	340	1150	100	230		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	1137	287	358	1211	105	115		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1343	336	401	2661	181	162		
Arrive On Green	0.48	0.48	0.23	0.77	0.10	0.10		
Sat Flow, veh/h	2871	695	1723	3529	1774	1583		
Grp Volume(v), veh/h	713	711	358	1211	105	115		
Grp Sat Flow(s),veh/h/ln	1752	1722	1723	1719	1774	1583		
Q Serve(g_s), s	24.3	24.9	13.8	8.4	3.9	4.8		
Cycle Q Clear(g_c), s	24.3	24.9	13.8	8.4	3.9	4.8		
Prop In Lane		0.40	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	847	832	401	2661	181	162		
V/C Ratio(X)	0.84	0.85	0.89	0.46	0.58	0.71		
Avail Cap(c_a), veh/h	856	841	427	2731	310	277		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	15.4	15.6	25.5	2.7	29.4	29.8		
Incr Delay (d2), s/veh	7.7	8.6	19.9	0.1	2.9	5.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	13.5	13.6	8.8	3.9	2.0	4.4		
LnGrp Delay(d),s/veh	23.1	24.2	45.4	2.9	32.3	35.5		
LnGrp LOS	C	C	D	A	C	D		
Approach Vol, veh/h	1424			1569	220			
Approach Delay, s/veh	23.7			12.6	34.0			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				57.6		11.0	19.9	37.7
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				54.5		12.0	17.0	33.5
Max Q Clear Time (g_c+I1), s				10.4		6.8	15.8	26.9
Green Ext Time (p_c), s				35.0		0.3	0.2	6.2
Intersection Summary								
HCM 2010 Ctrl Delay			19.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	1270	30	30	1390	10	100	10	60	10	10	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	1337	29	32	1463	11	105	11	56	11	11	-7
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	14	2295	50	38	2336	18	199	22	69	281	265	0
Arrive On Green	0.01	0.65	0.65	0.02	0.67	0.67	0.14	0.14	0.14	0.14	0.14	0.00
Sat Flow, veh/h	1757	3508	76	1723	3497	26	854	158	488	1329	1863	0
Grp Volume(v), veh/h	11	668	698	32	719	755	172	0	0	11	4	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1831	1723	1719	1804	1500	0	0	1329	1863	0
Q Serve(g_s), s	0.5	15.8	15.9	1.4	17.7	17.8	7.6	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	0.5	15.8	15.9	1.4	17.7	17.8	8.2	0.0	0.0	0.6	0.1	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.61		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	14	1147	1198	38	1148	1205	291	0	0	281	265	0
V/C Ratio(X)	0.76	0.58	0.58	0.84	0.63	0.63	0.59	0.00	0.00	0.04	0.02	0.00
Avail Cap(c_a), veh/h	71	1249	1305	116	1271	1334	449	0	0	423	463	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	7.2	7.2	36.2	7.0	7.0	30.8	0.0	0.0	27.6	27.4	0.0
Incr Delay (d2), s/veh	56.8	0.7	0.7	36.6	0.9	0.9	1.9	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.8	8.2	1.0	8.5	8.9	3.6	0.0	0.0	0.2	0.1	0.0
LnGrp Delay(d),s/veh	93.7	7.9	7.8	72.8	8.0	7.9	32.8	0.0	0.0	27.7	27.4	0.0
LnGrp LOS	F	A	A	E	A	A	C			C	C	
Approach Vol, veh/h	1377		1506				172		15			
Approach Delay, s/veh	8.5		9.3				32.8		27.6			
Approach LOS	A		A				C		C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	15.1		4.6	54.7	15.1		5.6	53.7				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	18.5		3.0	55.0	18.5		5.0	53.0				
Max Q Clear Time (g_c+I1), s	10.2		2.5	19.8	2.6		3.4	17.9				
Green Ext Time (p_c), s	0.6		0.0	29.9	0.9		0.0	29.9				
Intersection Summary												
HCM 2010 Ctrl Delay	10.4											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
4: Tyler St/Magnolia & Avenue 50

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	1090	240	340	1100	10	300	10	340	10	10	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	11	1147	253	358	1158	11	316	11	147	11	11	32
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	19	1234	272	396	1792	801	361	379	322	20	20	59
Arrive On Green	0.01	0.30	0.30	0.23	0.52	0.52	0.20	0.20	0.20	0.06	0.06	0.06
Sat Flow, veh/h	1757	4119	909	1740	3471	1553	1774	1863	1583	340	340	990
Grp Volume(v), veh/h	11	935	465	358	1158	11	316	11	147	54	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1671	1740	1736	1553	1774	1863	1583	1671	0	0
Q Serve(g_s), s	0.5	20.6	20.6	15.2	18.4	0.3	13.1	0.4	6.2	2.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	20.6	20.6	15.2	18.4	0.3	13.1	0.4	6.2	2.4	0.0	0.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	0.20		0.59
Lane Grp Cap(c), veh/h	19	1005	500	396	1792	801	361	379	322	99	0	0
V/C Ratio(X)	0.57	0.93	0.93	0.90	0.65	0.01	0.88	0.03	0.46	0.54	0.00	0.00
Avail Cap(c_a), veh/h	92	1014	505	411	1792	801	396	416	353	351	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.5	25.9	25.9	28.6	13.4	9.0	29.4	24.3	26.6	34.8	0.0	0.0
Incr Delay (d2), s/veh	24.3	14.3	23.9	22.5	0.8	0.0	18.1	0.0	1.0	4.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	11.5	12.7	9.7	8.9	0.1	8.2	0.2	2.8	1.2	0.0	0.0
LnGrp Delay(d),s/veh	61.8	40.2	49.8	51.1	14.2	9.0	47.5	24.3	27.6	39.4	0.0	0.0
LnGrp LOS	E	D	D	D	B	A	D	C	C	D		
Approach Vol, veh/h	1411				1527				474			
Approach Delay, s/veh	43.5				22.8				40.8			
Approach LOS	D				C				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		19.5	21.3	26.8		8.5	4.8	43.3				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		17.0	18.0	23.0		16.0	4.0	37.0				
Max Q Clear Time (g_c+I1), s		15.1	17.2	22.6		4.4	2.5	20.4				
Green Ext Time (p_c), s		0.3	0.1	0.2		0.1	0.0	13.7				
Intersection Summary												
HCM 2010 Ctrl Delay	34.0											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑					↵		↵↵
Volume (veh/h)	0	1400	40	10	950	0	0	0	0	10	0	500
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	1474	42	11	1000	0				11	0	526
Adj No. of Lanes	0	3	0	1	3	0				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2939	84	24	3327	0				392	0	615
Arrive On Green	0.00	0.58	0.58	0.01	0.65	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	5250	145	1774	5253	0				1774	0	2787
Grp Volume(v), veh/h	0	983	533	11	1000	0				11	0	526
Grp Sat Flow(s),veh/h/ln	0	1695	1837	1774	1695	0				1774	0	1393
Q Serve(g_s), s	0.0	13.8	13.8	0.5	6.8	0.0				0.4	0.0	14.5
Cycle Q Clear(g_c), s	0.0	13.8	13.8	0.5	6.8	0.0				0.4	0.0	14.5
Prop In Lane	0.00		0.08	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1960	1062	24	3327	0				392	0	615
V/C Ratio(X)	0.00	0.50	0.50	0.46	0.30	0.00				0.03	0.00	0.86
Avail Cap(c_a), veh/h	0	1960	1062	111	3327	0				488	0	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.29	0.29	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.0	10.0	39.2	6.0	0.0				24.4	0.0	29.9
Incr Delay (d2), s/veh	0.0	0.3	0.5	13.0	0.2	0.0				0.0	0.0	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.5	7.1	0.3	3.2	0.0				0.2	0.0	6.2
LnGrp Delay(d),s/veh	0.0	10.3	10.5	52.1	6.2	0.0				24.5	0.0	37.8
LnGrp LOS		B	B	D	A					C		D
Approach Vol, veh/h		1516			1011						537	
Approach Delay, s/veh		10.4			6.7						37.5	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.1	51.3		22.7		57.3						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	5.0	38.0		22.0		48.0						
Max Q Clear Time (g_c+I1), s	2.5	15.8		16.5		8.8						
Green Ext Time (p_c), s	0.0	17.0		1.2		25.7						
Intersection Summary												
HCM 2010 Ctrl Delay			13.9									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	540	850	0	1060	10	80	10	10	10	0	60
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	0	568	0	0	1116	11	84	11	11	11	0	63
Adj No. of Lanes	1	3	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	2	3575	1113	0	3651	36	201	105	90	94	0	84
Arrive On Green	0.00	0.70	0.00	0.00	0.70	0.70	0.06	0.06	0.06	0.05	0.00	0.05
Sat Flow, veh/h	1774	5085	1583	0	5360	51	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	0	568	0	0	729	398	84	11	11	11	0	63
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	0	1695	1854	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.0	3.0	0.0	0.0	6.5	6.5	1.8	0.4	0.5	0.5	0.0	3.1
Cycle Q Clear(g_c), s	0.0	3.0	0.0	0.0	6.5	6.5	1.8	0.4	0.5	0.5	0.0	3.1
Prop In Lane	1.00		1.00	0.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	2	3575	1113	0	2384	1303	201	105	90	94	0	84
V/C Ratio(X)	0.00	0.16	0.00	0.00	0.31	0.31	0.42	0.10	0.12	0.12	0.00	0.75
Avail Cap(c_a), veh/h	111	3575	1113	0	2384	1303	444	233	198	222	0	198
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)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.0	0.0	0.0	4.5	4.5	36.5	35.8	35.9	36.1	0.0	37.4
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.3	0.6	1.4	0.4	0.6	0.6	0.0	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.0	0.0	3.1	3.5	0.9	0.2	0.2	0.2	0.0	1.7
LnGrp Delay(d),s/veh	0.0	4.1	0.0	0.0	4.8	5.1	37.9	36.2	36.5	36.7	0.0	50.1
LnGrp LOS		A			A	A	D	D	D	D		D
Approach Vol, veh/h		568			1127			106			74	
Approach Delay, s/veh		4.1			4.9			37.5			48.1	
Approach LOS		A			A			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	0.0	61.2		9.2		61.2		9.5				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	5.0	35.0		10.0		45.0		10.0				
Max Q Clear Time (g_c+I1), s	0.0	8.5		5.1		5.0		3.8				
Green Ext Time (p_c), s	0.0	13.8		0.1		16.7		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay			8.2									
HCM 2010 LOS			A									
Notes												
User approved volume balancing among the lanes for turning movement.												

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑						↵	↵
Volume (veh/h)	0	730	60	120	1210	0	0	0	0	260	10	290
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	768	54	126	1274	0				274	11	229
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	2561	179	155	3358	0				316	13	292
Arrive On Green	0.00	0.53	0.53	0.17	1.00	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	5013	339	1774	5253	0				1394	56	1292
Grp Volume(v), veh/h	0	536	286	126	1274	0				285	0	229
Grp Sat Flow(s),veh/h/ln	0	1695	1794	1774	1695	0				1450	0	1292
Q Serve(g_s), s	0.0	8.0	8.0	6.1	0.0	0.0				17.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	8.0	8.0	6.1	0.0	0.0				17.0	0.0	15.0
Prop In Lane	0.00		0.19	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1792	948	155	3358	0				328	0	292
V/C Ratio(X)	0.00	0.30	0.30	0.81	0.38	0.00				0.87	0.00	0.78
Avail Cap(c_a), veh/h	0	1792	948	256	3358	0				500	0	445
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.9	11.9	36.4	0.0	0.0				33.5	0.0	32.7
Incr Delay (d2), s/veh	0.0	0.4	0.8	2.8	0.2	0.0				6.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	4.2	3.1	0.1	0.0				7.4	0.0	5.5
LnGrp Delay(d),s/veh	0.0	12.3	12.7	39.2	0.2	0.0				40.3	0.0	35.1
LnGrp LOS		B	B	D	A					D		D
Approach Vol, veh/h		822			1400						514	
Approach Delay, s/veh		12.4			3.7						38.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.9	52.8		25.4		64.6						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	13.0	31.8		31.0		48.8						
Max Q Clear Time (g_c+I1), s	8.1	10.0		19.0		2.0						
Green Ext Time (p_c), s	0.1	11.4		1.3		15.4						
Intersection Summary												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Volume (veh/h)	190	800	0	0	1170	420	160	10	260	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	200	842	0	0	1232	404	168	11	220			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	217	2916	0	0	2069	644	178	12	233			
Arrive On Green	0.24	1.00	0.00	0.00	0.41	0.41	0.31	0.31	0.31			
Sat Flow, veh/h	1774	5253	0	0	5253	1583	568	37	743			
Grp Volume(v), veh/h	200	842	0	0	1232	404	399	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583	1348	0	0			
Q Serve(g_s), s	9.9	0.0	0.0	0.0	17.1	18.3	26.0	0.0	0.0			
Cycle Q Clear(g_c), s	9.9	0.0	0.0	0.0	17.1	18.3	26.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.42		0.55			
Lane Grp Cap(c), veh/h	217	2916	0	0	2069	644	422	0	0			
V/C Ratio(X)	0.92	0.29	0.00	0.00	0.60	0.63	0.94	0.00	0.00			
Avail Cap(c_a), veh/h	217	2916	0	0	2069	644	434	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.94	0.94	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	33.6	0.0	0.0	0.0	20.9	21.3	30.1	0.0	0.0			
Incr Delay (d2), s/veh	38.2	0.2	0.0	0.0	1.3	4.6	28.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.1	0.1	0.0	0.0	8.2	8.8	13.0	0.0	0.0			
LnGrp Delay(d),s/veh	71.8	0.2	0.0	0.0	22.2	25.8	58.9	0.0	0.0			
LnGrp LOS	E	A			C	C	E					
Approach Vol, veh/h	1042				1636		399					
Approach Delay, s/veh	14.0				23.1		58.9					
Approach LOS	B				C		E					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2				5	6	8					
Phs Duration (G+Y+Rc), s	56.8				15.0	41.8	33.2					
Change Period (Y+Rc), s	5.2				4.0	5.2	5.0					
Max Green Setting (Gmax), s	50.8				11.0	35.8	29.0					
Max Q Clear Time (g_c+l1), s	2.0				11.9	20.3	28.0					
Green Ext Time (p_c), s	18.0				0.0	10.2	0.2					
Intersection Summary												
HCM 2010 Ctrl Delay			24.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	290	20	20	420	0	0	0	0	20	0	270
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	305	21	21	442	0				21	0	284
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1872	128	35	2277	0				381	0	340
Arrive On Green	0.00	0.56	0.56	0.02	0.64	0.00				0.21	0.00	0.21
Sat Flow, veh/h	0	3455	230	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	160	166	21	442	0				21	0	284
Grp Sat Flow(s),veh/h/ln	0	1770	1822	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	2.6	2.7	0.7	3.1	0.0				0.6	0.0	10.3
Cycle Q Clear(g_c), s	0.0	2.6	2.7	0.7	3.1	0.0				0.6	0.0	10.3
Prop In Lane	0.00		0.13	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	986	1015	35	2277	0				381	0	340
V/C Ratio(X)	0.00	0.16	0.16	0.60	0.19	0.00				0.06	0.00	0.83
Avail Cap(c_a), veh/h	0	986	1015	177	2277	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.5	6.5	29.2	4.4	0.0				18.7	0.0	22.5
Incr Delay (d2), s/veh	0.0	0.4	0.3	15.2	0.2	0.0				0.1	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	1.4	0.5	1.5	0.0				0.3	0.0	8.9
LnGrp Delay(d),s/veh	0.0	6.8	6.8	44.4	4.5	0.0				18.8	0.0	28.4
LnGrp LOS		A	A	D	A					B		C
Approach Vol, veh/h		326			463						305	
Approach Delay, s/veh		6.8			6.4						27.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		43.1		16.9	5.2	37.9						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		5.1		12.3	2.7	4.7						
Green Ext Time (p_c), s		5.2		0.7	0.0	4.5						
Intersection Summary												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 Build Alternative 7
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	130	180	0	0	410	60	30	0	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	137	189	0	0	432	63	32	0	21			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	177	2899	0	0	2026	294	69	0	62			
Arrive On Green	0.10	0.82	0.00	0.00	0.65	0.65	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	3196	450	1774	0	1583			
Grp Volume(v), veh/h	137	189	0	0	245	250	32	0	21			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1783	1774	0	1583			
Q Serve(g_s), s	4.5	0.6	0.0	0.0	3.4	3.4	1.1	0.0	0.8			
Cycle Q Clear(g_c), s	4.5	0.6	0.0	0.0	3.4	3.4	1.1	0.0	0.8			
Prop In Lane	1.00		0.00	0.00		0.25	1.00		1.00			
Lane Grp Cap(c), veh/h	177	2899	0	0	1155	1164	69	0	62			
V/C Ratio(X)	0.77	0.07	0.00	0.00	0.21	0.21	0.46	0.00	0.34			
Avail Cap(c_a), veh/h	355	2899	0	0	1155	1164	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.3	1.0	0.0	0.0	4.2	4.2	28.2	0.0	28.1			
Incr Delay (d2), s/veh	7.0	0.0	0.0	0.0	0.4	0.4	4.7	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.6	0.3	0.0	0.0	1.8	1.8	0.6	0.0	0.7			
LnGrp Delay(d),s/veh	33.4	1.1	0.0	0.0	4.6	4.6	32.9	0.0	31.3			
LnGrp LOS	C	A			A	A	C		C			
Approach Vol, veh/h		326			495			53				
Approach Delay, s/veh		14.6			4.6			32.3				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		53.7		6.3	10.0	43.7						
Change Period (Y+Rc), s		4.5		4.0	4.0	4.5						
Max Green Setting (Gmax), s		35.5		16.0	12.0	19.5						
Max Q Clear Time (g_c+I1), s		2.6		3.1	6.5	5.4						
Green Ext Time (p_c), s		4.7		0.1	0.1	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay			10.0									
HCM 2010 LOS			B									

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	50	600	20	30	560
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	53	632	21	32	589

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1000	326	0 0 653 0
Stage 1	642	-	- - - -
Stage 2	358	-	- - - -
Critical Hdwy	6.84	6.94	- - 4.14 -
Critical Hdwy Stg 1	5.84	-	- - - -
Critical Hdwy Stg 2	5.84	-	- - - -
Follow-up Hdwy	3.52	3.32	- - 2.22 -
Pot Cap-1 Maneuver	240	670	- - 930 -
Stage 1	486	-	- - - -
Stage 2	678	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	228	670	- - 930 -
Mov Cap-2 Maneuver	228	-	- - - -
Stage 1	486	-	- - - -
Stage 2	643	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 360	930	-
HCM Lane V/C Ratio	-	- 0.263	0.034	-
HCM Control Delay (s)	-	- 18.5	9	0.2
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 1	0.1	-

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	650	150	380	860	350	200	790	490	600	1120	90
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	126	684	141	400	905	250	211	832	455	632	1179	88
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	117	709	310	386	907	397	232	795	430	604	1348	100
Arrive On Green	0.07	0.21	0.21	0.12	0.26	0.26	0.13	0.36	0.36	0.18	0.40	0.40
Sat Flow, veh/h	1691	3374	1475	3343	3438	1505	1774	2213	1198	3442	3338	249
Grp Volume(v), veh/h	126	684	141	400	905	250	211	664	623	632	624	643
Grp Sat Flow(s),veh/h/ln	1691	1687	1475	1672	1719	1505	1774	1770	1642	1721	1770	1817
Q Serve(g_s), s	9.0	26.1	10.9	15.0	34.2	19.1	15.3	46.7	46.7	22.8	42.3	42.4
Cycle Q Clear(g_c), s	9.0	26.1	10.9	15.0	34.2	19.1	15.3	46.7	46.7	22.8	42.3	42.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		0.14
Lane Grp Cap(c), veh/h	117	709	310	386	907	397	232	636	590	604	715	734
V/C Ratio(X)	1.08	0.97	0.46	1.04	1.00	0.63	0.91	1.04	1.06	1.05	0.87	0.88
Avail Cap(c_a), veh/h	117	709	310	386	907	397	232	636	590	604	715	734
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	60.5	50.9	44.9	57.5	47.8	42.2	55.7	41.7	41.7	53.6	35.7	35.7
Incr Delay (d2), s/veh	105.1	25.3	0.4	55.7	29.3	2.4	35.0	47.7	53.0	49.5	13.4	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	14.6	4.4	9.9	19.9	8.2	9.8	31.2	29.8	15.0	23.3	23.9
LnGrp Delay(d),s/veh	165.7	76.2	45.2	113.2	77.1	44.7	90.7	89.3	94.7	103.1	49.0	49.0
LnGrp LOS	F	E	D	F	E	D	F	F	F	F	D	D
Approach Vol, veh/h	951				1555				1498			
Approach Delay, s/veh	83.4				81.2				91.7			
Approach LOS	F				F				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.2	58.0	12.0	38.8	27.0	52.2	19.0	31.8				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 17	52.5	9.0	34.3	* 23	46.7	15.0	27.3				
Max Q Clear Time (g_c+I1), s	17.3	44.4	11.0	36.2	24.8	48.7	17.0	28.1				
Green Ext Time (p_c), s	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 2010 Ctrl Delay 79.7
HCM 2010 LOS E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 Build Alternative 7
PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↖	↑↑	↖	↗		
Volume (veh/h)	1510	230	280	1320	270	470		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	1589	213	295	1389	284	368		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1628	215	298	2516	339	302		
Arrive On Green	0.52	0.52	0.17	0.73	0.19	0.19		
Sat Flow, veh/h	3206	411	1723	3529	1774	1583		
Grp Volume(v), veh/h	883	919	295	1389	284	368		
Grp Sat Flow(s),veh/h/ln	1752	1772	1723	1719	1774	1583		
Q Serve(g_s), s	53.3	56.6	18.8	20.0	17.0	21.0		
Cycle Q Clear(g_c), s	53.3	56.6	18.8	20.0	17.0	21.0		
Prop In Lane		0.23	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	916	926	298	2516	339	302		
V/C Ratio(X)	0.96	0.99	0.99	0.55	0.84	1.22		
Avail Cap(c_a), veh/h	916	926	298	2516	339	302		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.2	26.0	45.4	6.6	42.9	44.5		
Incr Delay (d2), s/veh	21.4	27.6	49.6	0.3	16.8	124.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	31.0	34.4	13.0	9.4	9.9	27.0		
LnGrp Delay(d),s/veh	46.7	53.6	95.0	6.9	59.6	168.6		
LnGrp LOS	D	D	F	A	E	F		
Approach Vol, veh/h	1802			1684	652			
Approach Delay, s/veh	50.2			22.4	121.1			
Approach LOS	D			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				85.0		25.0	23.0	62.0
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				80.5		21.0	19.0	57.5
Max Q Clear Time (g_c+I1), s				22.0		23.0	20.8	58.6
Green Ext Time (p_c), s				52.0		0.0	0.0	0.0
Intersection Summary								
HCM 2010 Ctrl Delay			50.0					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	1850	80	50	1520	30	30	10	20	30	10	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	1947	81	53	1600	32	32	11	14	32	11	46
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	66	2394	99	66	2407	48	116	34	24	231	26	108
Arrive On Green	0.04	0.70	0.70	0.04	0.70	0.70	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1757	3430	142	1723	3446	69	492	421	297	1380	315	1316
Grp Volume(v), veh/h	53	988	1040	53	797	835	57	0	0	32	0	57
Grp Sat Flow(s),veh/h/ln	1757	1752	1820	1723	1719	1796	1211	0	0	1380	0	1631
Q Serve(g_s), s	2.2	29.0	29.9	2.3	19.3	19.5	1.4	0.0	0.0	0.0	0.0	2.5
Cycle Q Clear(g_c), s	2.2	29.0	29.9	2.3	19.3	19.5	3.9	0.0	0.0	1.3	0.0	2.5
Prop In Lane	1.00		0.08	1.00		0.04	0.56		0.25	1.00		0.81
Lane Grp Cap(c), veh/h	66	1223	1270	66	1201	1254	175	0	0	231	0	134
V/C Ratio(X)	0.80	0.81	0.82	0.80	0.66	0.67	0.33	0.00	0.00	0.14	0.00	0.43
Avail Cap(c_a), veh/h	71	1223	1270	139	1250	1306	442	0	0	480	0	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	7.8	7.9	35.4	6.3	6.3	33.0	0.0	0.0	31.9	0.0	32.4
Incr Delay (d2), s/veh	43.6	4.2	4.5	19.7	1.4	1.3	1.1	0.0	0.0	0.3	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	15.2	16.3	1.4	9.3	10.0	1.2	0.0	0.0	0.6	0.0	1.2
LnGrp Delay(d),s/veh	79.0	12.0	12.4	55.1	7.7	7.6	34.1	0.0	0.0	32.1	0.0	34.6
LnGrp LOS	E	B	B	E	A	A	C			C		C
Approach Vol, veh/h	2081				1685				57		89	
Approach Delay, s/veh	13.9				9.1				34.1		33.7	
Approach LOS	B				A				C		C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	10.6		6.8	56.8	10.6		6.8	56.8				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	19.5		3.0	54.0	19.5		6.0	51.0				
Max Q Clear Time (g_c+I1), s	5.9		4.2	21.5	4.5		4.3	31.9				
Green Ext Time (p_c), s	0.5		0.0	30.4	0.6		0.0	18.7				
Intersection Summary												
HCM 2010 Ctrl Delay	12.6											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary

4: Tyler St/Magnolia & Avenue 50

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1630	270	130	1320	10	270	10	570	10	10	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	1716	284	137	1389	11	284	11	389	11	11	11
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	2	1872	307	162	1978	885	433	455	387	27	27	27
Arrive On Green	0.00	0.43	0.43	0.09	0.57	0.57	0.24	0.24	0.24	0.05	0.05	0.05
Sat Flow, veh/h	1757	4351	714	1740	3471	1553	1774	1863	1583	577	577	577
Grp Volume(v), veh/h	0	1321	679	137	1389	11	284	11	389	33	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1708	1740	1736	1553	1774	1863	1583	1732	0	0
Q Serve(g_s), s	0.0	31.8	32.3	6.7	24.7	0.3	12.4	0.4	21.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.8	32.3	6.7	24.7	0.3	12.4	0.4	21.0	1.6	0.0	0.0
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	0.33		0.33
Lane Grp Cap(c), veh/h	2	1445	735	162	1978	885	433	455	387	81	0	0
V/C Ratio(X)	0.00	0.91	0.92	0.85	0.70	0.01	0.66	0.02	1.01	0.41	0.00	0.00
Avail Cap(c_a), veh/h	82	1522	774	162	1978	885	433	455	387	322	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.0	23.2	38.4	13.3	8.0	29.3	24.7	32.5	39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.6	16.2	31.9	1.1	0.0	3.6	0.0	47.4	3.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.4	18.4	4.6	12.1	0.1	6.5	0.2	14.2	0.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	31.6	39.4	70.3	14.4	8.0	32.8	24.7	79.9	43.2	0.0	0.0
LnGrp LOS		C	D	E	B	A	C	C	F	D		
Approach Vol, veh/h	2000				1537				684			
Approach Delay, s/veh	34.3				19.3				59.5			
Approach LOS	C				B				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	12.0	41.0		8.0	0.0	53.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	8.0	39.0		16.0	4.0	43.0				
Max Q Clear Time (g_c+I1), s		23.0	8.7	34.3		3.6	0.0	26.7				
Green Ext Time (p_c), s		0.0	0.0	2.7		0.1	0.0	15.3				
Intersection Summary												
HCM 2010 Ctrl Delay	33.0											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑					↵		↵↵
Volume (veh/h)	0	2120	90	10	830	0	0	0	0	190	0	630
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	2232	95	11	874	0				200	0	663
Adj No. of Lanes	0	3	0	1	3	0				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	2997	127	24	3433	0				355	0	557
Arrive On Green	0.00	0.60	0.60	0.01	0.68	0.00				0.20	0.00	0.20
Sat Flow, veh/h	0	5171	212	1774	5253	0				1774	0	2787
Grp Volume(v), veh/h	0	1509	818	11	874	0				200	0	663
Grp Sat Flow(s),veh/h/ln	0	1695	1825	1774	1695	0				1774	0	1393
Q Serve(g_s), s	0.0	25.7	26.1	0.5	5.4	0.0				8.1	0.0	16.0
Cycle Q Clear(g_c), s	0.0	25.7	26.1	0.5	5.4	0.0				8.1	0.0	16.0
Prop In Lane	0.00		0.12	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2031	1093	24	3433	0				355	0	557
V/C Ratio(X)	0.00	0.74	0.75	0.46	0.25	0.00				0.56	0.00	1.19
Avail Cap(c_a), veh/h	0	2031	1093	177	3433	0				355	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.20	0.20	1.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.6	11.7	39.2	5.1	0.0				28.9	0.0	32.0
Incr Delay (d2), s/veh	0.0	0.5	1.0	13.0	0.2	0.0				2.0	0.0	102.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	12.1	13.2	0.3	2.6	0.0				4.2	0.0	14.0
LnGrp Delay(d),s/veh	0.0	12.1	12.6	52.1	5.3	0.0				30.9	0.0	134.2
LnGrp LOS		B	B	D	A					C		F
Approach Vol, veh/h		2327			885						863	
Approach Delay, s/veh		12.3			5.9						110.3	
Approach LOS		B			A						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	6.1	52.9		21.0		59.0						
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0						
Max Green Setting (Gmax), s	8.0	41.0		16.0		54.0						
Max Q Clear Time (g_c+I1), s	2.5	28.1		18.0		7.4						
Green Ext Time (p_c), s	0.0	12.1		0.0		38.1						
Intersection Summary												
HCM 2010 Ctrl Delay			31.6									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2045 Build Alternative 7
PM Peak Hour

																					
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR									
Lane Configurations																					
Volume (veh/h)	20	1680	610	0	630	20	110	10	130	20	0	120									
Number	1	6	16	5	2	12	3	8	18	7	4	14									
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0									
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00									
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00									
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900									
Adj Flow Rate, veh/h	21	1768	0	0	663	21	116	11	137	21	0	126									
Adj No. of Lanes	1	3	1	0	3	0	2	1	1	1	1	0									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95									
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2									
Cap, veh/h	41	3059	952	0	2612	82	395	208	176	177	0	158									
Arrive On Green	0.02	0.60	0.00	0.00	0.52	0.52	0.11	0.11	0.11	0.10	0.00	0.10									
Sat Flow, veh/h	1774	5085	1583	0	5232	160	3548	1863	1583	1774	0	1583									
Grp Volume(v), veh/h	21	1768	0	0	443	241	116	11	137	21	0	126									
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	0	1695	1835	1774	1863	1583	1774	0	1583									
Q Serve(g_s), s	0.9	17.0	0.0	0.0	5.8	5.9	2.4	0.4	6.7	0.9	0.0	6.2									
Cycle Q Clear(g_c), s	0.9	17.0	0.0	0.0	5.8	5.9	2.4	0.4	6.7	0.9	0.0	6.2									
Prop In Lane	1.00		1.00	0.00		0.09	1.00		1.00	1.00		1.00									
Lane Grp Cap(c), veh/h	41	3059	952	0	1748	946	395	208	176	177	0	158									
V/C Ratio(X)	0.51	0.58	0.00	0.00	0.25	0.25	0.29	0.05	0.78	0.12	0.00	0.80									
Avail Cap(c_a), veh/h	111	3059	952	0	1748	946	488	256	218	200	0	178									
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00									
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00									
Uniform Delay (d), s/veh	38.6	9.7	0.0	0.0	10.8	10.8	32.7	31.8	34.6	32.8	0.0	35.2									
Incr Delay (d2), s/veh	9.3	0.8	0.0	0.0	0.3	0.6	0.4	0.1	13.1	0.3	0.0	20.2									
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0									
%ile BackOfQ(50%),veh/ln	0.6	8.1	0.0	0.0	2.8	3.1	1.2	0.2	3.6	0.4	0.0	3.6									
LnGrp Delay(d),s/veh	47.9	10.5	0.0	0.0	11.1	11.4	33.1	31.9	47.7	33.1	0.0	55.4									
LnGrp LOS	D	B			B	B	C	C	D	C		E									
Approach Vol, veh/h	1789			684			264			147											
Approach Delay, s/veh	11.0			11.2			40.6			52.2											
Approach LOS	B			B			D			D											
Timer	1	2	3	4	5	6	7	8													
Assigned Phs	1	2	4			6	8														
Phs Duration (G+Y+Rc), s	6.9	46.3	13.0			53.1	13.9														
Change Period (Y+Rc), s	5.0	5.0	5.0			5.0	5.0														
Max Green Setting (Gmax), s	5.0	35.0	9.0			45.0	11.0														
Max Q Clear Time (g_c+I1), s	2.9	7.9	8.2			19.0	8.7														
Green Ext Time (p_c), s	0.0	20.9	0.1			20.2	0.2														
Intersection Summary																					
HCM 2010 Ctrl Delay	15.9																				
HCM 2010 LOS	B																				
Notes																					
User approved volume balancing among the lanes for turning movement.																					

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑						↵	↵
Volume (veh/h)	0	910	110	200	1430	0	0	0	0	530	10	60
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	958	107	211	1505	0				558	11	-13
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	1634	182	226	2626	0				555	11	505
Arrive On Green	0.00	0.35	0.35	0.25	1.00	0.00				0.39	0.39	0.00
Sat Flow, veh/h	0	4799	516	1774	5253	0				1421	28	1292
Grp Volume(v), veh/h	0	700	365	211	1505	0				569	0	-13
Grp Sat Flow(s),veh/h/ln	0	1695	1757	1774	1695	0				1449	0	1292
Q Serve(g_s), s	0.0	18.5	18.6	12.8	0.0	0.0				43.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	18.5	18.6	12.8	0.0	0.0				43.0	0.0	0.0
Prop In Lane	0.00		0.29	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1196	620	226	2626	0				566	0	505
V/C Ratio(X)	0.00	0.59	0.59	0.93	0.57	0.00				1.00	0.00	-0.03
Avail Cap(c_a), veh/h	0	1196	620	226	2626	0				566	0	505
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.16	0.16	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.0	29.1	40.6	0.0	0.0				33.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	4.1	11.3	0.1	0.0				38.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.0	9.7	6.9	0.0	0.0				23.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	31.1	33.1	51.9	0.1	0.0				72.5	0.0	0.0
LnGrp LOS		C	C	D	A					F		
Approach Vol, veh/h		1065			1716						556	
Approach Delay, s/veh		31.8			6.5						74.2	
Approach LOS		C			A						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.0	44.0		48.0		62.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	14.0	38.8		43.0		56.8						
Max Q Clear Time (g_c+I1), s	14.8	20.6		45.0		2.0						
Green Ext Time (p_c), s	0.0	12.6		0.0		23.0						
Intersection Summary												
HCM 2010 Ctrl Delay			25.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
8: SR-86 NB Ramps & Dillon Rd

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Volume (veh/h)	100	1340	0	0	1520	380	110	10	460	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	105	1411	0	0	1600	362	116	11	430			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	134	2374	0	0	1806	562	120	11	446			
Arrive On Green	0.15	0.93	0.00	0.00	0.36	0.36	0.44	0.44	0.44			
Sat Flow, veh/h	1774	5253	0	0	5253	1583	273	26	1013			
Grp Volume(v), veh/h	105	1411	0	0	1600	362	557	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583	1312	0	0			
Q Serve(g_s), s	6.3	4.5	0.0	0.0	32.6	21.0	45.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.3	4.5	0.0	0.0	32.6	21.0	45.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.21		0.77			
Lane Grp Cap(c), veh/h	134	2374	0	0	1806	562	578	0	0			
V/C Ratio(X)	0.79	0.59	0.00	0.00	0.89	0.64	0.96	0.00	0.00			
Avail Cap(c_a), veh/h	161	2374	0	0	1806	562	608	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	45.9	2.1	0.0	0.0	33.4	29.7	29.9	0.0	0.0			
Incr Delay (d2), s/veh	10.0	0.7	0.0	0.0	6.8	5.6	26.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	2.0	0.0	0.0	16.4	10.0	20.7	0.0	0.0			
LnGrp Delay(d),s/veh	55.8	2.8	0.0	0.0	40.2	35.2	56.6	0.0	0.0			
LnGrp LOS	E	A			D	D	E					
Approach Vol, veh/h	1516		1962			557						
Approach Delay, s/veh	6.5		39.3			56.6						
Approach LOS	A		D			E						
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		5			6		8				
Phs Duration (G+Y+Rc), s	56.6		12.3			44.3		53.4				
Change Period (Y+Rc), s	5.2		4.0			5.2		5.0				
Max Green Setting (Gmax), s	48.8		10.0			34.8		51.0				
Max Q Clear Time (g_c+I1), s	6.5		8.3			34.6		47.4				
Green Ext Time (p_c), s	28.5		0.0			0.2		1.0				
Intersection Summary												
HCM 2010 Ctrl Delay	29.3											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↵	↑↑					↵		↵
Volume (veh/h)	0	850	40	30	220	0	0	0	0	220	0	340
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	895	42	32	232	0				232	0	358
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1827	86	49	2212	0				414	0	369
Arrive On Green	0.00	0.53	0.53	0.03	0.63	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	3535	162	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	460	477	32	232	0				232	0	358
Grp Sat Flow(s),veh/h/ln	0	1770	1834	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	9.9	9.9	1.1	1.6	0.0				6.9	0.0	13.4
Cycle Q Clear(g_c), s	0.0	9.9	9.9	1.1	1.6	0.0				6.9	0.0	13.4
Prop In Lane	0.00		0.09	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	939	974	49	2212	0				414	0	369
V/C Ratio(X)	0.00	0.49	0.49	0.65	0.10	0.00				0.56	0.00	0.97
Avail Cap(c_a), veh/h	0	939	974	177	2212	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	8.9	28.9	4.5	0.0				20.3	0.0	22.8
Incr Delay (d2), s/veh	0.0	1.8	1.8	12.0	0.1	0.0				1.7	0.0	38.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	5.4	0.7	0.8	0.0				3.5	0.0	14.4
LnGrp Delay(d),s/veh	0.0	10.8	10.7	40.9	4.6	0.0				22.0	0.0	61.3
LnGrp LOS		B	B	D	A					C		E
Approach Vol, veh/h		937			264						590	
Approach Delay, s/veh		10.7			9.0						45.9	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		42.0		18.0	5.7	36.3						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		3.6		15.4	3.1	11.9						
Green Ext Time (p_c), s		9.4		0.0	0.0	7.0						
Intersection Summary												
HCM 2010 Ctrl Delay			22.0									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 Build Alternative 7
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	290	780	0	0	210	700	40	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	305	821	0	0	221	737	42	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	359	2899	0	0	973	871	69	0	62			
Arrive On Green	0.20	0.82	0.00	0.00	0.55	0.55	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	1774	0	1583			
Grp Volume(v), veh/h	305	821	0	0	221	737	42	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	9.9	3.3	0.0	0.0	3.9	23.5	1.4	0.0	0.4			
Cycle Q Clear(g_c), s	9.9	3.3	0.0	0.0	3.9	23.5	1.4	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	359	2899	0	0	973	871	69	0	62			
V/C Ratio(X)	0.85	0.28	0.00	0.00	0.23	0.85	0.61	0.00	0.18			
Avail Cap(c_a), veh/h	444	2899	0	0	973	871	473	0	422			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.0	1.3	0.0	0.0	6.9	11.4	28.4	0.0	27.9			
Incr Delay (d2), s/veh	10.8	0.2	0.0	0.0	0.5	9.9	8.2	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	1.6	0.0	0.0	2.0	12.4	0.8	0.0	0.4			
LnGrp Delay(d),s/veh	33.8	1.5	0.0	0.0	7.5	21.3	36.6	0.0	29.2			
LnGrp LOS	C	A			A	C	D		C			
Approach Vol, veh/h	1126				958			53				
Approach Delay, s/veh	10.2				18.1			35.1				
Approach LOS	B				B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.7		6.3		16.2	37.5						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		15.0	16.5						
Max Q Clear Time (g_c+I1), s	5.3		3.4		11.9	25.5						
Green Ext Time (p_c), s	16.8		0.1		0.3	0.0						
Intersection Summary												
HCM 2010 Ctrl Delay	14.4											
HCM 2010 LOS	B											

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	40	810	50	70	340
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	42	853	53	74	358

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1205	453	0 0 905 0
Stage 1	879	-	- - - -
Stage 2	326	-	- - - -
Critical Hdwy	6.84	6.94	- - 4.14 -
Critical Hdwy Stg 1	5.84	-	- - - -
Critical Hdwy Stg 2	5.84	-	- - - -
Follow-up Hdwy	3.52	3.32	- - 2.22 -
Pot Cap-1 Maneuver	176	554	- - 747 -
Stage 1	366	-	- - - -
Stage 2	704	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	154	554	- - 747 -
Mov Cap-2 Maneuver	154	-	- - - -
Stage 1	366	-	- - - -
Stage 2	617	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	24	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 262	747	-
HCM Lane V/C Ratio	-	- 0.281	0.099	-
HCM Control Delay (s)	-	- 24	10.3	0.5
HCM Lane LOS	-	- C	B	A
HCM 95th %tile Q(veh)	-	- 1.1	0.3	-

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	680	130	350	550	350	100	670	380	320	690	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	74	716	120	368	579	250	105	705	339	337	726	25
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	93	926	405	309	1111	487	133	745	358	349	1216	42
Arrive On Green	0.06	0.27	0.27	0.09	0.32	0.32	0.07	0.32	0.32	0.10	0.35	0.35
Sat Flow, veh/h	1691	3374	1478	3343	3438	1508	1774	2314	1112	3442	3490	120
Grp Volume(v), veh/h	74	716	120	368	579	250	105	539	505	337	368	383
Grp Sat Flow(s),veh/h/ln	1691	1687	1478	1672	1719	1508	1774	1770	1657	1721	1770	1841
Q Serve(g_s), s	3.7	16.9	5.6	8.0	11.9	11.7	5.0	25.8	25.8	8.5	14.8	14.8
Cycle Q Clear(g_c), s	3.7	16.9	5.6	8.0	11.9	11.7	5.0	25.8	25.8	8.5	14.8	14.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.67	1.00		0.07
Lane Grp Cap(c), veh/h	93	926	405	309	1111	487	133	570	533	349	617	641
V/C Ratio(X)	0.79	0.77	0.30	1.19	0.52	0.51	0.79	0.95	0.95	0.96	0.60	0.60
Avail Cap(c_a), veh/h	117	1051	460	309	1190	522	172	572	535	349	617	641
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	40.5	29.0	24.8	39.3	23.9	23.8	39.4	28.7	28.7	38.8	23.2	23.2
Incr Delay (d2), s/veh	19.8	2.7	0.1	114.2	0.1	0.3	12.7	26.1	27.4	38.5	3.5	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	8.2	2.3	8.5	5.7	4.9	2.9	16.7	15.8	5.8	7.9	8.2
LnGrp Delay(d),s/veh	60.2	31.6	25.0	153.5	24.0	24.1	52.2	54.8	56.1	77.3	26.7	26.6
LnGrp LOS	E	C	C	F	C	C	D	D	E	E	C	C
Approach Vol, veh/h		910			1197			1149			1088	
Approach Delay, s/veh		33.1			63.9			55.1			42.3	
Approach LOS		C			E			E			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.7	35.7	7.8	32.5	13.0	33.4	12.0	28.3				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 8.4	28.4	6.0	30.0	* 8.8	28.0	8.0	27.0				
Max Q Clear Time (g_c+I1), s	7.0	16.8	5.7	13.9	10.5	27.8	10.0	18.9				
Green Ext Time (p_c), s	0.0	10.7	0.0	6.3	0.0	0.1	0.0	4.2				

Intersection Summary

HCM 2010 Ctrl Delay	49.7
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 Build Alternative 8
AM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↱		↱	↑↑	↱	↱		
Volume (veh/h)	1080	300	340	1150	100	230		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	1137	287	358	1211	105	115		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1343	336	401	2661	181	162		
Arrive On Green	0.48	0.48	0.23	0.77	0.10	0.10		
Sat Flow, veh/h	2871	695	1723	3529	1774	1583		
Grp Volume(v), veh/h	713	711	358	1211	105	115		
Grp Sat Flow(s),veh/h/ln	1752	1722	1723	1719	1774	1583		
Q Serve(g_s), s	24.3	24.9	13.8	8.4	3.9	4.8		
Cycle Q Clear(g_c), s	24.3	24.9	13.8	8.4	3.9	4.8		
Prop In Lane		0.40	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	847	832	401	2661	181	162		
V/C Ratio(X)	0.84	0.85	0.89	0.46	0.58	0.71		
Avail Cap(c_a), veh/h	856	841	427	2731	310	277		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	15.4	15.6	25.5	2.7	29.4	29.8		
Incr Delay (d2), s/veh	7.7	8.6	19.9	0.1	2.9	5.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	13.5	13.6	8.8	3.9	2.0	4.4		
LnGrp Delay(d),s/veh	23.1	24.2	45.4	2.9	32.3	35.5		
LnGrp LOS	C	C	D	A	C	D		
Approach Vol, veh/h	1424			1569	220			
Approach Delay, s/veh	23.7			12.6	34.0			
Approach LOS	C			B	C			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				57.6		11.0	19.9	37.7
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				54.5		12.0	17.0	33.5
Max Q Clear Time (g_c+I1), s				10.4		6.8	15.8	26.9
Green Ext Time (p_c), s				35.0		0.3	0.2	6.2
Intersection Summary								
HCM 2010 Ctrl Delay			19.0					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	1270	30	30	1390	10	100	10	60	10	10	0
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	1337	29	32	1463	11	105	11	56	11	11	-7
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	14	2295	50	38	2336	18	199	22	69	281	265	0
Arrive On Green	0.01	0.65	0.65	0.02	0.67	0.67	0.14	0.14	0.14	0.14	0.14	0.00
Sat Flow, veh/h	1757	3508	76	1723	3497	26	854	158	488	1329	1863	0
Grp Volume(v), veh/h	11	668	698	32	719	755	172	0	0	11	4	0
Grp Sat Flow(s),veh/h/ln	1757	1752	1831	1723	1719	1804	1500	0	0	1329	1863	0
Q Serve(g_s), s	0.5	15.8	15.9	1.4	17.7	17.8	7.6	0.0	0.0	0.0	0.1	0.0
Cycle Q Clear(g_c), s	0.5	15.8	15.9	1.4	17.7	17.8	8.2	0.0	0.0	0.6	0.1	0.0
Prop In Lane	1.00		0.04	1.00		0.01	0.61		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	14	1147	1198	38	1148	1205	291	0	0	281	265	0
V/C Ratio(X)	0.76	0.58	0.58	0.84	0.63	0.63	0.59	0.00	0.00	0.04	0.02	0.00
Avail Cap(c_a), veh/h	71	1249	1305	116	1271	1334	449	0	0	423	463	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.8	7.2	7.2	36.2	7.0	7.0	30.8	0.0	0.0	27.6	27.4	0.0
Incr Delay (d2), s/veh	56.8	0.7	0.7	36.6	0.9	0.9	1.9	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	7.8	8.2	1.0	8.5	8.9	3.6	0.0	0.0	0.2	0.1	0.0
LnGrp Delay(d),s/veh	93.7	7.9	7.8	72.8	8.0	7.9	32.8	0.0	0.0	27.7	27.4	0.0
LnGrp LOS	F	A	A	E	A	A	C			C	C	
Approach Vol, veh/h	1377				1506				172		15	
Approach Delay, s/veh	8.5				9.3				32.8		27.6	
Approach LOS	A				A				C		C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	15.1		4.6	54.7	15.1		5.6	53.7				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	18.5		3.0	55.0	18.5		5.0	53.0				
Max Q Clear Time (g_c+I1), s	10.2		2.5	19.8	2.6		3.4	17.9				
Green Ext Time (p_c), s	0.6		0.0	29.9	0.9		0.0	29.9				
Intersection Summary												
HCM 2010 Ctrl Delay	10.4											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
4: Tyler St/Magnolia & Avenue 50

2045 Build Alternative 8

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	1090	240	340	1100	10	300	10	340	10	10	30
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	11	1147	253	358	1158	11	316	11	147	11	11	32
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	19	1234	272	396	1792	801	361	379	322	20	20	59
Arrive On Green	0.01	0.30	0.30	0.23	0.52	0.52	0.20	0.20	0.20	0.06	0.06	0.06
Sat Flow, veh/h	1757	4119	909	1740	3471	1553	1774	1863	1583	340	340	990
Grp Volume(v), veh/h	11	935	465	358	1158	11	316	11	147	54	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1671	1740	1736	1553	1774	1863	1583	1671	0	0
Q Serve(g_s), s	0.5	20.6	20.6	15.2	18.4	0.3	13.1	0.4	6.2	2.4	0.0	0.0
Cycle Q Clear(g_c), s	0.5	20.6	20.6	15.2	18.4	0.3	13.1	0.4	6.2	2.4	0.0	0.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	0.20		0.59
Lane Grp Cap(c), veh/h	19	1005	500	396	1792	801	361	379	322	99	0	0
V/C Ratio(X)	0.57	0.93	0.93	0.90	0.65	0.01	0.88	0.03	0.46	0.54	0.00	0.00
Avail Cap(c_a), veh/h	92	1014	505	411	1792	801	396	416	353	351	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	37.5	25.9	25.9	28.6	13.4	9.0	29.4	24.3	26.6	34.8	0.0	0.0
Incr Delay (d2), s/veh	24.3	14.3	23.9	22.5	0.8	0.0	18.1	0.0	1.0	4.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	11.5	12.7	9.7	8.9	0.1	8.2	0.2	2.8	1.2	0.0	0.0
LnGrp Delay(d),s/veh	61.8	40.2	49.8	51.1	14.2	9.0	47.5	24.3	27.6	39.4	0.0	0.0
LnGrp LOS	E	D	D	D	B	A	D	C	C	D		
Approach Vol, veh/h	1411				1527				474			
Approach Delay, s/veh	43.5				22.8				40.8			
Approach LOS	D				C				D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	19.5		21.3	26.8	8.5		4.8	43.3				
Change Period (Y+Rc), s	4.0		4.0	4.0	4.0		4.0	4.0				
Max Green Setting (Gmax), s	17.0		18.0	23.0	16.0		4.0	37.0				
Max Q Clear Time (g_c+I1), s	15.1		17.2	22.6	4.4		2.5	20.4				
Green Ext Time (p_c), s	0.3		0.1	0.2	0.1		0.0	13.7				
Intersection Summary												
HCM 2010 Ctrl Delay	34.0											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2045 Build Alternative 8
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (veh/h)	40	1400	0	0	950	10	0	0	0	10	0	500	
Number	5	2	12	1	6	16				7	4	14	
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863				1863	0	1863	
Adj Flow Rate, veh/h	42	1474	0	0	1000	11				11	0	526	
Adj No. of Lanes	1	3	0	0	3	1				1	0	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95	
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2	
Cap, veh/h	67	3320	0	0	2809	875				394	0	619	
Arrive On Green	0.04	0.65	0.00	0.00	0.55	0.55				0.22	0.00	0.22	
Sat Flow, veh/h	1774	5253	0	0	5253	1583				1774	0	2787	
Grp Volume(v), veh/h	42	1474	0	0	1000	11				11	0	526	
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583				1774	0	1393	
Q Serve(g_s), s	1.9	11.3	0.0	0.0	8.8	0.3				0.4	0.0	14.5	
Cycle Q Clear(g_c), s	1.9	11.3	0.0	0.0	8.8	0.3				0.4	0.0	14.5	
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00	
Lane Grp Cap(c), veh/h	67	3320	0	0	2809	875				394	0	619	
V/C Ratio(X)	0.62	0.44	0.00	0.00	0.36	0.01				0.03	0.00	0.85	
Avail Cap(c_a), veh/h	200	3320	0	0	2809	875				510	0	801	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00	
Upstream Filter(I)	0.29	0.29	0.00	0.00	1.00	1.00				1.00	0.00	1.00	
Uniform Delay (d), s/veh	37.9	6.8	0.0	0.0	10.0	8.1				24.4	0.0	29.8	
Incr Delay (d2), s/veh	2.8	0.1	0.0	0.0	0.4	0.0				0.0	0.0	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	
%ile BackOfQ(50%),veh/ln	1.0	5.2	0.0	0.0	4.2	0.1				0.2	0.0	10.9	
LnGrp Delay(d),s/veh	40.7	6.9	0.0	0.0	10.3	8.1				24.4	0.0	36.7	
LnGrp LOS	D	A			B	A				C		D	
Approach Vol, veh/h	1516			1011						537			
Approach Delay, s/veh	7.8			10.3						36.5			
Approach LOS	A			B						D			
Timer	1	2	3	4	5	6	7	8					
Assigned Phs	2			4		5	6						
Phs Duration (G+Y+Rc), s	57.2			22.8		8.0	49.2						
Change Period (Y+Rc), s	5.0			5.0		5.0	5.0						
Max Green Setting (Gmax), s	47.0			23.0		9.0	33.0						
Max Q Clear Time (g_c+I1), s	13.3			16.5		3.9	10.8						
Green Ext Time (p_c), s	23.4			1.3		0.0	17.2						
Intersection Summary													
HCM 2010 Ctrl Delay	13.7												
HCM 2010 LOS	B												

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2045 Build Alternative 8

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	540	850	0	1060	10	80	10	10	10	0	60
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	21	568	0	0	1116	11	84	11	11	11	0	63
Adj No. of Lanes	1	3	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	41	3580	1115	0	3210	32	201	105	90	92	0	82
Arrive On Green	0.02	0.70	0.00	0.00	0.62	0.62	0.06	0.06	0.06	0.05	0.00	0.05
Sat Flow, veh/h	1774	5085	1583	0	5360	51	3548	1863	1583	1774	0	1583
Grp Volume(v), veh/h	21	568	0	0	729	398	84	11	11	11	0	63
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	0	1695	1854	1774	1863	1583	1774	0	1583
Q Serve(g_s), s	0.9	3.0	0.0	0.0	8.4	8.4	1.8	0.4	0.5	0.5	0.0	3.1
Cycle Q Clear(g_c), s	0.9	3.0	0.0	0.0	8.4	8.4	1.8	0.4	0.5	0.5	0.0	3.1
Prop In Lane	1.00		1.00	0.00		0.03	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	41	3580	1115	0	2096	1146	201	105	90	92	0	82
V/C Ratio(X)	0.51	0.16	0.00	0.00	0.35	0.35	0.42	0.10	0.12	0.12	0.00	0.77
Avail Cap(c_a), veh/h	111	3580	1115	0	2096	1146	931	489	416	111	0	99
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	3.9	0.0	0.0	7.4	7.4	36.5	35.8	35.9	36.2	0.0	37.4
Incr Delay (d2), s/veh	9.3	0.1	0.0	0.0	0.5	0.8	1.4	0.4	0.6	0.6	0.0	25.1
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	1.4	0.0	0.0	4.0	4.5	0.9	0.2	0.2	0.2	0.0	2.0
LnGrp Delay(d),s/veh	47.9	4.0	0.0	0.0	7.9	8.3	37.9	36.2	36.5	36.8	0.0	62.5
LnGrp LOS	D	A			A	A	D	D	D	D		E
Approach Vol, veh/h		589			1127			106			74	
Approach Delay, s/veh		5.6			8.0			37.5			58.7	
Approach LOS		A			A			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.9	54.5		9.1		61.3		9.5				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	5.0	29.0		5.0		39.0		21.0				
Max Q Clear Time (g_c+I1), s	2.9	10.4		5.1		5.0		3.8				
Green Ext Time (p_c), s	0.0	11.2		0.0		15.6		0.3				

Intersection Summary

HCM 2010 Ctrl Delay 10.9

HCM 2010 LOS B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↵	↑↑↑						↵	↵
Volume (veh/h)	0	730	60	120	1210	0	0	0	0	260	10	290
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	768	54	126	1274	0				274	11	229
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	2561	179	155	3358	0				316	13	292
Arrive On Green	0.00	0.53	0.53	0.17	1.00	0.00				0.23	0.23	0.23
Sat Flow, veh/h	0	5013	339	1774	5253	0				1394	56	1292
Grp Volume(v), veh/h	0	536	286	126	1274	0				285	0	229
Grp Sat Flow(s),veh/h/ln	0	1695	1794	1774	1695	0				1450	0	1292
Q Serve(g_s), s	0.0	8.0	8.0	6.1	0.0	0.0				17.0	0.0	15.0
Cycle Q Clear(g_c), s	0.0	8.0	8.0	6.1	0.0	0.0				17.0	0.0	15.0
Prop In Lane	0.00		0.19	1.00		0.00				0.96		1.00
Lane Grp Cap(c), veh/h	0	1792	948	155	3358	0				328	0	292
V/C Ratio(X)	0.00	0.30	0.30	0.81	0.38	0.00				0.87	0.00	0.78
Avail Cap(c_a), veh/h	0	1792	948	256	3358	0				500	0	445
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.9	11.9	36.4	0.0	0.0				33.5	0.0	32.7
Incr Delay (d2), s/veh	0.0	0.4	0.8	2.8	0.2	0.0				6.8	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.8	4.2	3.1	0.1	0.0				7.4	0.0	5.5
LnGrp Delay(d),s/veh	0.0	12.3	12.7	39.2	0.2	0.0				40.3	0.0	35.1
LnGrp LOS		B	B	D	A					D		D
Approach Vol, veh/h		822			1400						514	
Approach Delay, s/veh		12.4			3.7						38.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.9	52.8		25.4		64.6						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	13.0	31.8		31.0		48.8						
Max Q Clear Time (g_c+I1), s	8.1	10.0		19.0		2.0						
Green Ext Time (p_c), s	0.1	11.4		1.3		15.4						
Intersection Summary												
HCM 2010 Ctrl Delay			12.8									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2045 Build Alternative 8

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	190	800	0	0	1170	420	160	10	260	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	200	842	0	0	1232	404	168	11	220			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	217	2916	0	0	2069	644	178	12	233			
Arrive On Green	0.24	1.00	0.00	0.00	0.41	0.41	0.31	0.31	0.31			
Sat Flow, veh/h	1774	5253	0	0	5253	1583	568	37	743			
Grp Volume(v), veh/h	200	842	0	0	1232	404	399	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583	1348	0	0			
Q Serve(g_s), s	9.9	0.0	0.0	0.0	17.1	18.3	26.0	0.0	0.0			
Cycle Q Clear(g_c), s	9.9	0.0	0.0	0.0	17.1	18.3	26.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.42		0.55			
Lane Grp Cap(c), veh/h	217	2916	0	0	2069	644	422	0	0			
V/C Ratio(X)	0.92	0.29	0.00	0.00	0.60	0.63	0.94	0.00	0.00			
Avail Cap(c_a), veh/h	217	2916	0	0	2069	644	434	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.94	0.94	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	33.6	0.0	0.0	0.0	20.9	21.3	30.1	0.0	0.0			
Incr Delay (d2), s/veh	38.2	0.2	0.0	0.0	1.3	4.6	28.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	7.1	0.1	0.0	0.0	8.2	8.8	13.0	0.0	0.0			
LnGrp Delay(d),s/veh	71.8	0.2	0.0	0.0	22.2	25.8	58.9	0.0	0.0			
LnGrp LOS	E	A			C	C	E					
Approach Vol, veh/h	1042			1636			399					
Approach Delay, s/veh	14.0			23.1			58.9					
Approach LOS	B			C			E					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	56.8			15.0			33.2					
Change Period (Y+Rc), s	5.2			4.0			5.0					
Max Green Setting (Gmax), s	50.8			11.0			29.0					
Max Q Clear Time (g_c+I1), s	2.0			11.9			28.0					
Green Ext Time (p_c), s	18.0			0.0			0.2					
Intersection Summary												
HCM 2010 Ctrl Delay	24.6											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	290	20	20	420	0	0	0	0	20	0	270
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	305	21	21	442	0				21	0	284
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1872	128	35	2277	0				381	0	340
Arrive On Green	0.00	0.56	0.56	0.02	0.64	0.00				0.21	0.00	0.21
Sat Flow, veh/h	0	3455	230	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	160	166	21	442	0				21	0	284
Grp Sat Flow(s),veh/h/ln	0	1770	1822	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	2.6	2.7	0.7	3.1	0.0				0.6	0.0	10.3
Cycle Q Clear(g_c), s	0.0	2.6	2.7	0.7	3.1	0.0				0.6	0.0	10.3
Prop In Lane	0.00		0.13	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	986	1015	35	2277	0				381	0	340
V/C Ratio(X)	0.00	0.16	0.16	0.60	0.19	0.00				0.06	0.00	0.83
Avail Cap(c_a), veh/h	0	986	1015	177	2277	0				621	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.98	0.98	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	6.5	6.5	29.2	4.4	0.0				18.7	0.0	22.5
Incr Delay (d2), s/veh	0.0	0.4	0.3	15.2	0.2	0.0				0.1	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	1.4	0.5	1.5	0.0				0.3	0.0	8.9
LnGrp Delay(d),s/veh	0.0	6.8	6.8	44.4	4.5	0.0				18.8	0.0	28.4
LnGrp LOS		A	A	D	A					B		C
Approach Vol, veh/h		326			463						305	
Approach Delay, s/veh		6.8			6.4						27.7	
Approach LOS		A			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		43.1		16.9	5.2	37.9						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		30.5		21.0	6.0	* 21						
Max Q Clear Time (g_c+I1), s		5.1		12.3	2.7	4.7						
Green Ext Time (p_c), s		5.2		0.7	0.0	4.5						
Intersection Summary												
HCM 2010 Ctrl Delay			12.4									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 Build Alternative 8
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	130	180	0	0	410	60	30	0	20	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	137	189	0	0	432	63	32	0	21			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	177	2899	0	0	2026	294	69	0	62			
Arrive On Green	0.10	0.82	0.00	0.00	0.65	0.65	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	3196	450	1774	0	1583			
Grp Volume(v), veh/h	137	189	0	0	245	250	32	0	21			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1783	1774	0	1583			
Q Serve(g_s), s	4.5	0.6	0.0	0.0	3.4	3.4	1.1	0.0	0.8			
Cycle Q Clear(g_c), s	4.5	0.6	0.0	0.0	3.4	3.4	1.1	0.0	0.8			
Prop In Lane	1.00		0.00	0.00		0.25	1.00		1.00			
Lane Grp Cap(c), veh/h	177	2899	0	0	1155	1164	69	0	62			
V/C Ratio(X)	0.77	0.07	0.00	0.00	0.21	0.21	0.46	0.00	0.34			
Avail Cap(c_a), veh/h	355	2899	0	0	1155	1164	473	0	422			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.3	1.0	0.0	0.0	4.2	4.2	28.2	0.0	28.1			
Incr Delay (d2), s/veh	7.0	0.0	0.0	0.0	0.4	0.4	4.7	0.0	3.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.6	0.3	0.0	0.0	1.8	1.8	0.6	0.0	0.7			
LnGrp Delay(d),s/veh	33.4	1.1	0.0	0.0	4.6	4.6	32.9	0.0	31.3			
LnGrp LOS	C	A			A	A	C		C			
Approach Vol, veh/h		326			495			53				
Approach Delay, s/veh		14.6			4.6			32.3				
Approach LOS		B			A			C				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		53.7		6.3	10.0	43.7						
Change Period (Y+Rc), s		4.5		4.0	4.0	4.5						
Max Green Setting (Gmax), s		35.5		16.0	12.0	19.5						
Max Q Clear Time (g_c+I1), s		2.6		3.1	6.5	5.4						
Green Ext Time (p_c), s		4.7		0.1	0.1	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay			10.0									
HCM 2010 LOS			B									

Intersection

Int Delay, s/veh 1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	50	600	20	30	560
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	53	632	21	32	589

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1000	326	0
Stage 1	642	-	-
Stage 2	358	-	-
Critical Hdwy	6.84	6.94	4.14
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	2.22
Pot Cap-1 Maneuver	240	670	930
Stage 1	486	-	-
Stage 2	678	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	228	670	930
Mov Cap-2 Maneuver	228	-	-
Stage 1	486	-	-
Stage 2	643	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.5	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 360	930	-
HCM Lane V/C Ratio	-	- 0.263	0.034	-
HCM Control Delay (s)	-	- 18.5	9	0.2
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 1	0.1	-

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	650	150	380	860	350	200	790	490	600	1120	90
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	126	684	141	400	905	250	211	832	455	632	1179	88
Adj No. of Lanes	1	2	1	2	2	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	117	709	309	386	907	397	232	795	430	604	1348	100
Arrive On Green	0.07	0.21	0.21	0.12	0.26	0.26	0.13	0.36	0.36	0.18	0.40	0.40
Sat Flow, veh/h	1691	3374	1473	3343	3438	1505	1774	2213	1198	3442	3338	249
Grp Volume(v), veh/h	126	684	141	400	905	250	211	664	623	632	624	643
Grp Sat Flow(s),veh/h/ln	1691	1687	1473	1672	1719	1505	1774	1770	1642	1721	1770	1817
Q Serve(g_s), s	9.0	26.1	10.9	15.0	34.2	19.1	15.3	46.7	46.7	22.8	42.3	42.4
Cycle Q Clear(g_c), s	9.0	26.1	10.9	15.0	34.2	19.1	15.3	46.7	46.7	22.8	42.3	42.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.73	1.00		0.14
Lane Grp Cap(c), veh/h	117	709	309	386	907	397	232	636	590	604	715	734
V/C Ratio(X)	1.08	0.97	0.46	1.04	1.00	0.63	0.91	1.04	1.06	1.05	0.87	0.88
Avail Cap(c_a), veh/h	117	709	309	386	907	397	232	636	590	604	715	734
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	60.5	50.9	44.9	57.5	47.8	42.2	55.7	41.7	41.7	53.6	35.7	35.7
Incr Delay (d2), s/veh	105.1	25.3	0.4	55.7	29.3	2.4	35.0	47.7	53.0	49.5	13.4	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	14.6	4.4	9.9	19.9	8.2	9.8	31.2	29.8	15.0	23.3	23.9
LnGrp Delay(d),s/veh	165.7	76.2	45.2	113.2	77.1	44.7	90.7	89.3	94.7	103.1	49.0	49.0
LnGrp LOS	F	E	D	F	E	D	F	F	F	F	D	D
Approach Vol, veh/h	951				1555				1498			
Approach Delay, s/veh	83.4				81.2				91.7			
Approach LOS	F				F				F			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.2	58.0	12.0	38.8	27.0	52.2	19.0	31.8				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 17	52.5	9.0	34.3	* 23	46.7	15.0	27.3				
Max Q Clear Time (g_c+I1), s	17.3	44.4	11.0	36.2	24.8	48.7	17.0	28.1				
Green Ext Time (p_c), s	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0				

Intersection Summary

HCM 2010 Ctrl Delay 79.7
HCM 2010 LOS E

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary

2: Leoco Ln & Avenue 50

2045 Build Alternative 8
PM Peak Hour

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑↘		↙	↑↑	↙	↗		
Volume (veh/h)	1510	230	280	1320	270	470		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	1589	213	295	1389	284	368		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1628	215	298	2516	339	302		
Arrive On Green	0.52	0.52	0.17	0.73	0.19	0.19		
Sat Flow, veh/h	3206	411	1723	3529	1774	1583		
Grp Volume(v), veh/h	883	919	295	1389	284	368		
Grp Sat Flow(s),veh/h/ln	1752	1772	1723	1719	1774	1583		
Q Serve(g_s), s	53.3	56.6	18.8	20.0	17.0	21.0		
Cycle Q Clear(g_c), s	53.3	56.6	18.8	20.0	17.0	21.0		
Prop In Lane		0.23	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	916	926	298	2516	339	302		
V/C Ratio(X)	0.96	0.99	0.99	0.55	0.84	1.22		
Avail Cap(c_a), veh/h	916	926	298	2516	339	302		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	25.2	26.0	45.4	6.6	42.9	44.5		
Incr Delay (d2), s/veh	21.4	27.6	49.6	0.3	16.8	124.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	31.0	34.4	13.0	9.4	9.9	27.0		
LnGrp Delay(d),s/veh	46.7	53.6	95.0	6.9	59.6	168.6		
LnGrp LOS	D	D	F	A	E	F		
Approach Vol, veh/h	1802			1684	652			
Approach Delay, s/veh	50.2			22.4	121.1			
Approach LOS	D			C	F			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				85.0		25.0	23.0	62.0
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				80.5		21.0	19.0	57.5
Max Q Clear Time (g_c+I1), s				22.0		23.0	20.8	58.6
Green Ext Time (p_c), s				52.0		0.0	0.0	0.0
Intersection Summary								
HCM 2010 Ctrl Delay			50.0					
HCM 2010 LOS			D					

HCM 2010 Signalized Intersection Summary

3: Peter Rabbit Ln & Avenue 50

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	1850	80	50	1520	30	30	10	20	30	10	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	1947	81	53	1600	32	32	11	14	32	11	46
Adj No. of Lanes	1	2	0	1	2	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	66	2394	99	66	2407	48	116	34	24	231	26	108
Arrive On Green	0.04	0.70	0.70	0.04	0.70	0.70	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1757	3430	142	1723	3446	69	492	421	297	1380	315	1316
Grp Volume(v), veh/h	53	988	1040	53	797	835	57	0	0	32	0	57
Grp Sat Flow(s),veh/h/ln	1757	1752	1820	1723	1719	1796	1211	0	0	1380	0	1631
Q Serve(g_s), s	2.2	29.0	29.9	2.3	19.3	19.5	1.4	0.0	0.0	0.0	0.0	2.5
Cycle Q Clear(g_c), s	2.2	29.0	29.9	2.3	19.3	19.5	3.9	0.0	0.0	1.3	0.0	2.5
Prop In Lane	1.00		0.08	1.00		0.04	0.56		0.25	1.00		0.81
Lane Grp Cap(c), veh/h	66	1223	1270	66	1201	1254	175	0	0	231	0	134
V/C Ratio(X)	0.80	0.81	0.82	0.80	0.66	0.67	0.33	0.00	0.00	0.14	0.00	0.43
Avail Cap(c_a), veh/h	71	1223	1270	139	1250	1306	442	0	0	480	0	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.4	7.8	7.9	35.4	6.3	6.3	33.0	0.0	0.0	31.9	0.0	32.4
Incr Delay (d2), s/veh	43.6	4.2	4.5	19.7	1.4	1.3	1.1	0.0	0.0	0.3	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	15.2	16.3	1.4	9.3	10.0	1.2	0.0	0.0	0.6	0.0	1.2
LnGrp Delay(d),s/veh	79.0	12.0	12.4	55.1	7.7	7.6	34.1	0.0	0.0	32.1	0.0	34.6
LnGrp LOS	E	B	B	E	A	A	C			C		C
Approach Vol, veh/h	2081				1685				57		89	
Approach Delay, s/veh	13.9				9.1				34.1		33.7	
Approach LOS	B				A				C		C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		3	4	6		7	8				
Phs Duration (G+Y+Rc), s	10.6		6.8	56.8	10.6		6.8	56.8				
Change Period (Y+Rc), s	4.5		4.0	5.0	4.5		4.0	5.0				
Max Green Setting (Gmax), s	19.5		3.0	54.0	19.5		6.0	51.0				
Max Q Clear Time (g_c+I1), s	5.9		4.2	21.5	4.5		4.3	31.9				
Green Ext Time (p_c), s	0.5		0.0	30.4	0.6		0.0	18.7				
Intersection Summary												
HCM 2010 Ctrl Delay	12.6											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary

4: Tyler St/Magnolia & Avenue 50

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1630	270	130	1320	10	270	10	570	10	10	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	0	1716	284	137	1389	11	284	11	389	11	11	11
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	2	1872	307	162	1978	885	433	455	387	27	27	27
Arrive On Green	0.00	0.43	0.43	0.09	0.57	0.57	0.24	0.24	0.24	0.05	0.05	0.05
Sat Flow, veh/h	1757	4351	714	1740	3471	1553	1774	1863	1583	577	577	577
Grp Volume(v), veh/h	0	1321	679	137	1389	11	284	11	389	33	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1708	1740	1736	1553	1774	1863	1583	1732	0	0
Q Serve(g_s), s	0.0	31.8	32.3	6.7	24.7	0.3	12.4	0.4	21.0	1.6	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.8	32.3	6.7	24.7	0.3	12.4	0.4	21.0	1.6	0.0	0.0
Prop In Lane	1.00		0.42	1.00		1.00	1.00		1.00	0.33		0.33
Lane Grp Cap(c), veh/h	2	1445	735	162	1978	885	433	455	387	81	0	0
V/C Ratio(X)	0.00	0.91	0.92	0.85	0.70	0.01	0.66	0.02	1.01	0.41	0.00	0.00
Avail Cap(c_a), veh/h	82	1522	774	162	1978	885	433	455	387	322	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.0	23.2	38.4	13.3	8.0	29.3	24.7	32.5	39.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	8.6	16.2	31.9	1.1	0.0	3.6	0.0	47.4	3.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.4	18.4	4.6	12.1	0.1	6.5	0.2	14.2	0.8	0.0	0.0
LnGrp Delay(d),s/veh	0.0	31.6	39.4	70.3	14.4	8.0	32.8	24.7	79.9	43.2	0.0	0.0
LnGrp LOS		C	D	E	B	A	C	C	F	D		
Approach Vol, veh/h	2000				1537				684			
Approach Delay, s/veh	34.3				19.3				59.5			
Approach LOS	C				B				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	12.0	41.0		8.0	0.0	53.0				
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0	4.0	4.0				
Max Green Setting (Gmax), s		21.0	8.0	39.0		16.0	4.0	43.0				
Max Q Clear Time (g_c+I1), s		23.0	8.7	34.3		3.6	0.0	26.7				
Green Ext Time (p_c), s		0.0	0.0	2.7		0.1	0.0	15.3				
Intersection Summary												
HCM 2010 Ctrl Delay	33.0											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
5: Avenue 50 & SR-86 Southbound Off-Ramp

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	2120	0	0	830	10	0	0	0	190	0	630
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863				1863	0	1863
Adj Flow Rate, veh/h	95	2232	0	0	874	11				200	0	663
Adj No. of Lanes	1	3	0	0	3	1				1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				2	0	2
Cap, veh/h	123	3242	0	0	2573	801				421	0	662
Arrive On Green	0.07	0.64	0.00	0.00	0.51	0.51				0.24	0.00	0.24
Sat Flow, veh/h	1774	5253	0	0	5253	1583				1774	0	2787
Grp Volume(v), veh/h	95	2232	0	0	874	11				200	0	663
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583				1774	0	1393
Q Serve(g_s), s	4.2	22.7	0.0	0.0	8.2	0.3				7.8	0.0	19.0
Cycle Q Clear(g_c), s	4.2	22.7	0.0	0.0	8.2	0.3				7.8	0.0	19.0
Prop In Lane	1.00		0.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	123	3242	0	0	2573	801				421	0	662
V/C Ratio(X)	0.78	0.69	0.00	0.00	0.34	0.01				0.47	0.00	1.00
Avail Cap(c_a), veh/h	244	3242	0	0	2573	801				421	0	662
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.20	0.20	0.00	0.00	1.00	1.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	36.6	9.4	0.0	0.0	11.8	9.8				26.2	0.0	30.5
Incr Delay (d2), s/veh	2.1	0.2	0.0	0.0	0.4	0.0				0.8	0.0	35.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	10.4	0.0	0.0	3.9	0.1				3.9	0.0	16.1
LnGrp Delay(d),s/veh	38.7	9.6	0.0	0.0	12.1	9.9				27.0	0.0	65.9
LnGrp LOS	D	A			B	A				C		F
Approach Vol, veh/h	2327				885				863			
Approach Delay, s/veh	10.8				12.1				56.9			
Approach LOS	B				B				E			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	56.0		24.0		10.5	45.5						
Change Period (Y+Rc), s	5.0		5.0		5.0	5.0						
Max Green Setting (Gmax), s	51.0		19.0		11.0	35.0						
Max Q Clear Time (g_c+I1), s	24.7		21.0		6.2	10.2						
Green Ext Time (p_c), s	23.3		0.0		0.1	22.1						
Intersection Summary												
HCM 2010 Ctrl Delay	20.8											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary

6: SR-86 Northbound Off-Ramp & Avenue 50

2045 Build Alternative 8

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	1680	610	0	630	20	110	10	130	20	20	120
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	0	1863	1900	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	21	1768	0	0	663	21	116	11	137	21	21	126
Adj No. of Lanes	1	3	1	0	3	0	2	1	1	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	41	2992	932	0	2545	80	395	208	176	200	26	156
Arrive On Green	0.02	0.59	0.00	0.00	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1774	5085	1583	0	5232	160	3548	1863	1583	1774	231	1387
Grp Volume(v), veh/h	21	1768	0	0	443	241	116	11	137	21	0	147
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	0	1695	1835	1774	1863	1583	1774	0	1618
Q Serve(g_s), s	0.9	17.6	0.0	0.0	6.0	6.0	2.4	0.4	6.7	0.9	0.0	7.1
Cycle Q Clear(g_c), s	0.9	17.6	0.0	0.0	6.0	6.0	2.4	0.4	6.7	0.9	0.0	7.1
Prop In Lane	1.00		1.00	0.00		0.09	1.00		1.00	1.00		0.86
Lane Grp Cap(c), veh/h	41	2992	932	0	1704	922	395	208	176	200	0	182
V/C Ratio(X)	0.51	0.59	0.00	0.00	0.26	0.26	0.29	0.05	0.78	0.11	0.00	0.81
Avail Cap(c_a), veh/h	111	2992	932	0	1704	922	488	256	218	244	0	222
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.6	10.4	0.0	0.0	11.4	11.4	32.7	31.8	34.6	31.9	0.0	34.6
Incr Delay (d2), s/veh	9.3	0.9	0.0	0.0	0.4	0.7	0.4	0.1	13.1	0.2	0.0	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	8.4	0.0	0.0	2.9	3.2	1.2	0.2	3.6	0.4	0.0	4.0
LnGrp Delay(d),s/veh	47.9	11.3	0.0	0.0	11.8	12.1	33.1	31.9	47.7	32.1	0.0	50.8
LnGrp LOS	D	B			B	B	C	C	D	C		D
Approach Vol, veh/h	1789				684			264			168	
Approach Delay, s/veh	11.7				11.9			40.6			48.5	
Approach LOS	B				B			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	6.9	45.2		14.0		52.1		13.9				
Change Period (Y+Rc), s	5.0	5.0		5.0		5.0		5.0				
Max Green Setting (Gmax), s	5.0	33.0		11.0		43.0		11.0				
Max Q Clear Time (g_c+I1), s	2.9	8.0		9.1		19.6		8.7				
Green Ext Time (p_c), s	0.0	19.5		0.1		18.6		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay	16.5											
HCM 2010 LOS	B											
Notes												

HCM 2010 Signalized Intersection Summary
7: SR-86 SB Ramps & Dillon Rd

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑	↑↑↑						↑	↑
Volume (veh/h)	0	910	110	200	1430	0	0	0	0	530	10	60
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1900	1520	1520
Adj Flow Rate, veh/h	0	958	107	211	1505	0				558	11	-13
Adj No. of Lanes	0	3	0	1	3	0				0	1	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				25	25	25
Cap, veh/h	0	1634	182	226	2626	0				555	11	505
Arrive On Green	0.00	0.35	0.35	0.25	1.00	0.00				0.39	0.39	0.00
Sat Flow, veh/h	0	4799	516	1774	5253	0				1421	28	1292
Grp Volume(v), veh/h	0	700	365	211	1505	0				569	0	-13
Grp Sat Flow(s),veh/h/ln	0	1695	1757	1774	1695	0				1449	0	1292
Q Serve(g_s), s	0.0	18.5	18.6	12.8	0.0	0.0				43.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	18.5	18.6	12.8	0.0	0.0				43.0	0.0	0.0
Prop In Lane	0.00		0.29	1.00		0.00				0.98		1.00
Lane Grp Cap(c), veh/h	0	1196	620	226	2626	0				566	0	505
V/C Ratio(X)	0.00	0.59	0.59	0.93	0.57	0.00				1.00	0.00	-0.03
Avail Cap(c_a), veh/h	0	1196	620	226	2626	0				566	0	505
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.16	0.16	0.00				1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	29.0	29.1	40.6	0.0	0.0				33.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	2.1	4.1	11.3	0.1	0.0				38.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	9.0	9.7	6.9	0.0	0.0				23.3	0.0	0.0
LnGrp Delay(d),s/veh	0.0	31.1	33.1	51.9	0.1	0.0				72.5	0.0	0.0
LnGrp LOS		C	C	D	A					F		
Approach Vol, veh/h		1065			1716						556	
Approach Delay, s/veh		31.8			6.5						74.2	
Approach LOS		C			A						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	18.0	44.0		48.0		62.0						
Change Period (Y+Rc), s	4.0	5.2		5.0		5.2						
Max Green Setting (Gmax), s	14.0	38.8		43.0		56.8						
Max Q Clear Time (g_c+l1), s	14.8	20.6		45.0		2.0						
Green Ext Time (p_c), s	0.0	12.6		0.0		23.0						
Intersection Summary												
HCM 2010 Ctrl Delay			25.9									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

8: SR-86 NB Ramps & Dillon Rd

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  			 				
Volume (veh/h)	100	1340	0	0	1520	380	110	10	460	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1520	1900			
Adj Flow Rate, veh/h	105	1411	0	0	1600	362	116	11	430			
Adj No. of Lanes	1	3	0	0	3	1	0	1	0			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	0	25	0			
Cap, veh/h	134	2374	0	0	1806	562	120	11	446			
Arrive On Green	0.15	0.93	0.00	0.00	0.36	0.36	0.44	0.44	0.44			
Sat Flow, veh/h	1774	5253	0	0	5253	1583	273	26	1013			
Grp Volume(v), veh/h	105	1411	0	0	1600	362	557	0	0			
Grp Sat Flow(s),veh/h/ln	1774	1695	0	0	1695	1583	1312	0	0			
Q Serve(g_s), s	6.3	4.5	0.0	0.0	32.6	21.0	45.4	0.0	0.0			
Cycle Q Clear(g_c), s	6.3	4.5	0.0	0.0	32.6	21.0	45.4	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	0.21		0.77			
Lane Grp Cap(c), veh/h	134	2374	0	0	1806	562	578	0	0			
V/C Ratio(X)	0.79	0.59	0.00	0.00	0.89	0.64	0.96	0.00	0.00			
Avail Cap(c_a), veh/h	161	2374	0	0	1806	562	608	0	0			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.62	0.62	0.00	0.00	1.00	1.00	1.00	0.00	0.00			
Uniform Delay (d), s/veh	45.9	2.1	0.0	0.0	33.4	29.7	29.9	0.0	0.0			
Incr Delay (d2), s/veh	10.0	0.7	0.0	0.0	6.8	5.6	26.7	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.4	2.0	0.0	0.0	16.4	10.0	20.7	0.0	0.0			
LnGrp Delay(d),s/veh	55.8	2.8	0.0	0.0	40.2	35.2	56.6	0.0	0.0			
LnGrp LOS	E	A			D	D	E					
Approach Vol, veh/h	1516			1962			557					
Approach Delay, s/veh	6.5			39.3			56.6					
Approach LOS	A			D			E					
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			5			8					
Phs Duration (G+Y+Rc), s	56.6			12.3			53.4					
Change Period (Y+Rc), s	5.2			4.0			5.0					
Max Green Setting (Gmax), s	48.8			10.0			51.0					
Max Q Clear Time (g_c+I1), s	6.5			8.3			47.4					
Green Ext Time (p_c), s	28.5			0.0			1.0					
Intersection Summary												
HCM 2010 Ctrl Delay	29.3											
HCM 2010 LOS	C											

HCM 2010 Signalized Intersection Summary
9: Avenue 52 & SR-86 Southbound Off-Ramp

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑	↑↑					↑		↑
Volume (veh/h)	0	850	40	30	220	0	0	0	0	220	0	340
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	0	1863
Adj Flow Rate, veh/h	0	895	42	32	232	0				232	0	358
Adj No. of Lanes	0	2	0	1	2	0				1	0	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	0	2	2	2	2	0				2	0	2
Cap, veh/h	0	1827	86	49	2212	0				414	0	369
Arrive On Green	0.00	0.53	0.53	0.03	0.63	0.00				0.23	0.00	0.23
Sat Flow, veh/h	0	3535	162	1774	3632	0				1774	0	1583
Grp Volume(v), veh/h	0	460	477	32	232	0				232	0	358
Grp Sat Flow(s),veh/h/ln	0	1770	1834	1774	1770	0				1774	0	1583
Q Serve(g_s), s	0.0	9.9	9.9	1.1	1.6	0.0				6.9	0.0	13.4
Cycle Q Clear(g_c), s	0.0	9.9	9.9	1.1	1.6	0.0				6.9	0.0	13.4
Prop In Lane	0.00		0.09	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	939	974	49	2212	0				414	0	369
V/C Ratio(X)	0.00	0.49	0.49	0.65	0.10	0.00				0.56	0.00	0.97
Avail Cap(c_a), veh/h	0	939	974	177	2212	0				414	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.9	8.9	28.9	4.5	0.0				20.3	0.0	22.8
Incr Delay (d2), s/veh	0.0	1.8	1.8	12.0	0.1	0.0				1.7	0.0	38.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.2	5.4	0.7	0.8	0.0				3.5	0.0	14.4
LnGrp Delay(d),s/veh	0.0	10.8	10.7	40.9	4.6	0.0				22.0	0.0	61.3
LnGrp LOS		B	B	D	A					C		E
Approach Vol, veh/h		937			264						590	
Approach Delay, s/veh		10.7			9.0						45.9	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		42.0		18.0	5.7	36.3						
Change Period (Y+Rc), s		4.5		4.0	4.0	* 4.5						
Max Green Setting (Gmax), s		37.5		14.0	6.0	* 28						
Max Q Clear Time (g_c+I1), s		3.6		15.4	3.1	11.9						
Green Ext Time (p_c), s		9.4		0.0	0.0	7.0						
Intersection Summary												
HCM 2010 Ctrl Delay			22.0									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: SR-86 Northbound Off-Ramp & Avenue 52

2045 Build Alternative 8
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	290	780	0	0	210	700	40	0	10	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1900	1863	0	1863			
Adj Flow Rate, veh/h	305	821	0	0	221	737	42	0	11			
Adj No. of Lanes	1	2	0	0	2	0	1	0	1			
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
Percent Heavy Veh, %	2	2	0	0	2	2	2	0	2			
Cap, veh/h	359	2899	0	0	973	871	69	0	62			
Arrive On Green	0.20	0.82	0.00	0.00	0.55	0.55	0.04	0.00	0.04			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	1774	0	1583			
Grp Volume(v), veh/h	305	821	0	0	221	737	42	0	11			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1770	1583	1774	0	1583			
Q Serve(g_s), s	9.9	3.3	0.0	0.0	3.9	23.5	1.4	0.0	0.4			
Cycle Q Clear(g_c), s	9.9	3.3	0.0	0.0	3.9	23.5	1.4	0.0	0.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	359	2899	0	0	973	871	69	0	62			
V/C Ratio(X)	0.85	0.28	0.00	0.00	0.23	0.85	0.61	0.00	0.18			
Avail Cap(c_a), veh/h	444	2899	0	0	973	871	473	0	422			
HCM Platoon Ratio	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	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.0	1.3	0.0	0.0	6.9	11.4	28.4	0.0	27.9			
Incr Delay (d2), s/veh	10.8	0.2	0.0	0.0	0.5	9.9	8.2	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.9	1.6	0.0	0.0	2.0	12.4	0.8	0.0	0.4			
LnGrp Delay(d),s/veh	33.8	1.5	0.0	0.0	7.5	21.3	36.6	0.0	29.2			
LnGrp LOS	C	A			A	C	D		C			
Approach Vol, veh/h	1126				958			53				
Approach Delay, s/veh	10.2				18.1			35.1				
Approach LOS	B				B			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		5	6						
Phs Duration (G+Y+Rc), s	53.7		6.3		16.2	37.5						
Change Period (Y+Rc), s	4.5		4.0		4.0	4.5						
Max Green Setting (Gmax), s	35.5		16.0		15.0	16.5						
Max Q Clear Time (g_c+I1), s	5.3		3.4		11.9	25.5						
Green Ext Time (p_c), s	16.8		0.1		0.3	0.0						
Intersection Summary												
HCM 2010 Ctrl Delay	14.4											
HCM 2010 LOS	B											

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	30	40	810	50	70	340
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	42	853	53	74	358

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	1205	453	0 0 905 0
Stage 1	879	-	- - - -
Stage 2	326	-	- - - -
Critical Hdwy	6.84	6.94	- - 4.14 -
Critical Hdwy Stg 1	5.84	-	- - - -
Critical Hdwy Stg 2	5.84	-	- - - -
Follow-up Hdwy	3.52	3.32	- - 2.22 -
Pot Cap-1 Maneuver	176	554	- - 747 -
Stage 1	366	-	- - - -
Stage 2	704	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	154	554	- - 747 -
Mov Cap-2 Maneuver	154	-	- - - -
Stage 1	366	-	- - - -
Stage 2	617	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	24	0	2.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 262	747	-
HCM Lane V/C Ratio	-	- 0.281	0.099	-
HCM Control Delay (s)	-	- 24	10.3	0.5
HCM Lane LOS	-	- C	B	A
HCM 95th %tile Q(veh)	-	- 1.1	0.3	-

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 7 Mitigated
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	650	150	380	860	350	200	790	490	600	1120	90
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	126	684	141	400	905	250	211	832	455	632	1179	88
Adj No. of Lanes	1	2	1	2	2	1	1	3	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	153	770	337	438	957	419	179	1348	623	707	1233	92
Arrive On Green	0.09	0.23	0.23	0.13	0.28	0.28	0.10	0.27	0.27	0.21	0.37	0.37
Sat Flow, veh/h	1691	3374	1476	3343	3438	1506	1774	5085	1569	3442	3338	249
Grp Volume(v), veh/h	126	684	141	400	905	250	211	832	455	632	624	643
Grp Sat Flow(s),veh/h/ln	1691	1687	1476	1672	1719	1506	1774	1695	1569	1721	1770	1817
Q Serve(g_s), s	7.8	21.0	8.7	12.6	27.5	15.3	10.8	15.4	26.3	19.1	36.7	36.9
Cycle Q Clear(g_c), s	7.8	21.0	8.7	12.6	27.5	15.3	10.8	15.4	26.3	19.1	36.7	36.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	153	770	337	438	957	419	179	1348	623	707	654	671
V/C Ratio(X)	0.82	0.89	0.42	0.91	0.95	0.60	1.18	0.62	0.73	0.89	0.96	0.96
Avail Cap(c_a), veh/h	237	853	373	438	957	419	179	1348	623	896	663	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	39.9	35.2	45.8	37.8	33.4	48.0	34.5	27.4	41.3	32.8	32.9
Incr Delay (d2), s/veh	6.9	9.9	0.3	22.8	17.4	1.6	122.7	1.8	6.5	8.4	25.4	25.4
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	3.9	10.8	3.6	7.2	15.4	6.6	11.3	7.4	12.4	9.9	22.5	23.1
LnGrp Delay(d),s/veh	54.7	49.8	35.5	68.6	55.1	35.0	170.7	36.3	34.0	49.7	58.2	58.3
LnGrp LOS	D	D	D	E	E	C	F	D	C	D	E	E
Approach Vol, veh/h		951			1555			1498			1899	
Approach Delay, s/veh		48.3			55.4			54.5			55.4	
Approach LOS		D			E			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	45.0	12.7	34.2	26.1	33.8	18.0	28.9				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 11	40.0	15.0	27.0	* 28	23.0	14.0	27.0				
Max Q Clear Time (g_c+l1), s	12.8	38.9	9.8	29.5	21.1	28.3	14.6	23.0				
Green Ext Time (p_c), s	0.0	0.6	0.1	0.0	0.8	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			54.0									
HCM 2010 LOS			D									
Notes												
User approved pedestrian interval to be less than phase max green.												

HCM 2010 Signalized Intersection Summary

1: Harrison St & Avenue 50

2045 Build Alternative 8 Mitigated
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	650	150	380	860	350	200	790	490	600	1120	90
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1776	1810	1810	1810	1863	1863	1863	1863	1863	1900
Adj Flow Rate, veh/h	126	684	141	400	905	250	211	832	455	632	1179	88
Adj No. of Lanes	1	2	1	2	2	1	1	3	1	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	153	770	336	438	957	419	179	1348	623	707	1233	92
Arrive On Green	0.09	0.23	0.23	0.13	0.28	0.28	0.10	0.27	0.27	0.21	0.37	0.37
Sat Flow, veh/h	1691	3374	1475	3343	3438	1506	1774	5085	1569	3442	3338	249
Grp Volume(v), veh/h	126	684	141	400	905	250	211	832	455	632	624	643
Grp Sat Flow(s),veh/h/ln	1691	1687	1475	1672	1719	1506	1774	1695	1569	1721	1770	1817
Q Serve(g_s), s	7.8	21.0	8.7	12.6	27.5	15.3	10.8	15.4	26.3	19.1	36.7	36.9
Cycle Q Clear(g_c), s	7.8	21.0	8.7	12.6	27.5	15.3	10.8	15.4	26.3	19.1	36.7	36.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.14
Lane Grp Cap(c), veh/h	153	770	336	438	957	419	179	1348	623	707	654	671
V/C Ratio(X)	0.82	0.89	0.42	0.91	0.95	0.60	1.18	0.62	0.73	0.89	0.96	0.96
Avail Cap(c_a), veh/h	237	853	373	438	957	419	179	1348	623	896	663	680
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	39.9	35.2	45.8	37.8	33.4	48.0	34.5	27.4	41.3	32.8	32.9
Incr Delay (d2), s/veh	6.9	9.9	0.3	22.8	17.4	1.6	122.7	1.8	6.5	8.4	25.4	25.4
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	3.9	10.8	3.6	7.2	15.4	6.6	11.3	7.4	12.4	9.9	22.5	23.1
LnGrp Delay(d),s/veh	54.7	49.8	35.5	68.6	55.1	35.0	170.7	36.3	34.0	49.7	58.2	58.3
LnGrp LOS	D	D	D	E	E	C	F	D	C	D	E	E
Approach Vol, veh/h		951			1555			1498			1899	
Approach Delay, s/veh		48.3			55.4			54.5			55.4	
Approach LOS		D			E			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.0	45.0	12.7	34.2	26.1	33.8	18.0	28.9				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 11	40.0	15.0	27.0	* 28	23.0	14.0	27.0				
Max Q Clear Time (g_c+I1), s	12.8	38.9	9.8	29.5	21.1	28.3	14.6	23.0				
Green Ext Time (p_c), s	0.0	0.6	0.1	0.0	0.8	0.0	0.0	1.2				
Intersection Summary												
HCM 2010 Ctrl Delay			54.0									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 50 and Avenue 52
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,110	vph
Peak-hour factor, PHF	0.84	
Peak 15-min volume, v_{15}	330	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,467	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	733	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.31	
Density, D	10.5	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,110	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	100	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,110	100		vph
Peak-hour factor, PHF	0.84	0.94		
Peak 15-min volume, v_{15}	330	27		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,467	107		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	1,467	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	1,467	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,359	pcph	4,800	pcph	No
Ramp volume, v_R	107	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}		pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?					
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?					
If yes, $v_{12A} =$		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	1,467	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.33	
Density, D_R	15.5	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.308	
Space mean speed in ramp influence area, S_R	61.4	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.4	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,010	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25	mph
Volume on ramp	590	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,010	590		vph
Peak-hour factor, PHF	0.84	0.94		
Peak 15-min volume, v_{15}	301	157		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,335	634		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,335	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,335	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,969	pcph	4,800	pcph	No
Ramp volume, v_R	634	pcph	1,900	pcph	No
Outer lanes volume, v_3 or v_{av34}		pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?					
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?					
If yes, $v_{12A} =$		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,969	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.43	
Density, D_R	16.8	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.319	
Space mean speed in ramp influence area, S_R	61.1	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.1	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,600	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	70	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,600	70		vph
Peak-hour factor, PHF	0.84	0.94		
Peak 15-min volume, v_{15}	476	19		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,114	75		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,114	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,114	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,189	pcph	4,800	pcph	No
Ramp volume, v_R	75	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}		pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?					
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?					
If yes, $v_{12A} =$		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,189	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.48	
Density, D_R	18.8	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.302	
Space mean speed in ramp influence area, S_R	61.5	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 50 and Dillon Road
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,670	vph
Peak-hour factor, PHF	0.84	
Peak 15-min volume, v_{15}	497	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,207	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,103	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Rd Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,670	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	290	vph
Length of deceleration lane(s)	220	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,670	290		vph
Peak-hour factor, PHF	0.84	0.94		
Peak 15-min volume, v_{15}	497	77		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,207	312		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Rd Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,207	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,207	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,895	pcph	4,800	pcph	No
Ramp volume, v_R	312	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}		pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?					
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?					
If yes, $v_{12A} =$		pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,207	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.50	
Density, D_R	21.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.326	
Space mean speed in ramp influence area, S_R	60.9	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.9	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	NB Mainline South of Avenue 50
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,370	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	349	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,552	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	776	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.32	
Density, D	11.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,370	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	160	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,370	160		vph
Peak-hour factor, PHF	0.98	0.91		
Peak 15-min volume, v_{15}	349	44		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,552	178		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	1,552	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,552	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,374	pcph	4,800	pcph	No
Ramp volume, v_R	178	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	1,552	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.35	
Density, D_R	16.2	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.314	
Space mean speed in ramp influence area, S_R	61.2	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.2	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,210	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25	mph
Volume on ramp	390	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,210	390		vph
Peak-hour factor, PHF	0.98	0.91		
Peak 15-min volume, v_{15}	309	107		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,371	433		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,371	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,371	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,803	pcph	4,800	pcph	No
Ramp volume, v_R	433	pcph	1,900	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,803	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.39	
Density, D_R	15.6	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.315	
Space mean speed in ramp influence area, S_R	61.2	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.2	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,600	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	20	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,600	20		vph
Peak-hour factor, PHF	0.98	0.91		
Peak 15-min volume, v_{15}	408	5		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,812	22		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,812	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,812	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,834	pcph	4,800	pcph	No
Ramp volume, v_R	22	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,834	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.40	
Density, D_R	16.0	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.291	
Space mean speed in ramp influence area, S_R	61.8	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.8	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline North of Avenue 50
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,620	vph
Peak-hour factor, PHF	0.98	
Peak 15-min volume, v_{15}	413	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,835	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	917	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.38	
Density, D	13.1	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Rd Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,620	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	340	vph
Length of deceleration lane(s)	220	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,620	340		vph
Peak-hour factor, PHF	0.98	0.91		
Peak 15-min volume, v_{15}	413	93		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,835	377		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Rd Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	1,835	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,835	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,458	pcph	4,800	pcph	No
Ramp volume, v_R	377	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	1,835	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.42	
Density, D_R	18.1	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.332	
Space mean speed in ramp influence area, S_R	60.7	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.7	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,340	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	170	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,340	170		vph
Peak-hour factor, PHF	0.91	0.88		
Peak 15-min volume, v_{15}	368	48		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,642	195		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,642	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,642	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,837	pcph	4,800	pcph	No
Ramp volume, v_R	195	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,837	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.40	
Density, D_R	16.0	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.291	
Space mean speed in ramp influence area, S_R	61.8	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.8	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Dillon Road and Avenue 50
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,510	vph
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v_{15}	415	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,850	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	925	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	13.2	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,510	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	490	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,510	490		vph
Peak-hour factor, PHF	0.91	0.88		
Peak 15-min volume, v_{15}	415	139		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,850	562		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	1,850	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,850	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,288	pcph	4,800	pcph	No
Ramp volume, v_R	562	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	1,850	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.42	
Density, D_R	18.8	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.349	
Space mean speed in ramp influence area, S_R	60.2	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.2	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,020	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	50	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,020	50		vph
Peak-hour factor, PHF	0.91	0.88		
Peak 15-min volume, v_{15}	280	14		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,250	57		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,250	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,250	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,307	pcph	4,800	pcph	No
Ramp volume, v_R	57	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,307	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.28	
Density, D_R	11.9	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.281	
Space mean speed in ramp influence area, S_R	62.1	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	62.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Avenue 50 and Avenue 52
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,070	vph
Peak-hour factor, PHF	0.91	
Peak 15-min volume, v_{15}	294	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,311	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	656	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.27	
Density, D	9.4	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,490	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	260	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,490	260		vph
Peak-hour factor, PHF	0.88	0.95		
Peak 15-min volume, v_{15}	423	68		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,888	276		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,888	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	1,888	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,164	pcph	4,800	pcph	No
Ramp volume, v_R	276	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,164	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.47	
Density, D_R	18.5	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.301	
Space mean speed in ramp influence area, S_R	61.6	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.6	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Dillon Road and Avenue 50
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,750	vph
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v_{15}	497	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,217	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,109	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.46	
Density, D	15.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,750	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	720	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,750	720		vph
Peak-hour factor, PHF	0.88	0.95		
Peak 15-min volume, v_{15}	497	189		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,217	765		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,217	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,217	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,452	pcph	4,800	pcph	No
Ramp volume, v_R	765	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,217	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.50	
Density, D_R	22.0	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.367	
Space mean speed in ramp influence area, S_R	59.7	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	59.7	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,030	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	100	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,030	100		vph
Peak-hour factor, PHF	0.88	0.95		
Peak 15-min volume, v_{15}	293	26		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,305	106		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,305	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	1,305	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,411	pcph	4,800	pcph	No
Ramp volume, v_R	106	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	1,411	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.31	
Density, D_R	12.7	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.283	
Space mean speed in ramp influence area, S_R	62.1	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	62.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Avenue 50 and Avenue 52
Alternative	Opening Year (2025) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,130	vph
Peak-hour factor, PHF	0.88	
Peak 15-min volume, v_{15}	321	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,432	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	716	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.30	
Density, D	10.2	pcpmpl
Level of service, LOS	A	

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 52 and Avenue 50
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,620	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	426	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	1,893	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	946	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.39	
Density, D	13.5	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,620	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	100	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,620	100		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	426	26		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,893	106		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	1,893	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,893	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	1,787	pcph	4,800	pcph	No
Ramp volume, v_R	106	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	1,893	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.43	
Density, D_R	19.2	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.308	
Space mean speed in ramp influence area, S_R	61.4	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.4	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,520	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25	mph
Volume on ramp	850	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,520	850		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	400	224		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,776	904		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,776	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	1,776	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,680	pcph	4,800	pcph	No
Ramp volume, v_R	904	pcph	1,900	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,680	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.58	
Density, D_R	22.2	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_s or D_s	0.348	
Space mean speed in ramp influence area, S_R	60.3	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.3	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,370	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	240	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,370	240		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	624	63		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,769	255		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,769	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,769	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	3,024	pcph	4,800	pcph	No
Ramp volume, v_R	255	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	3,024	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.66	
Density, D_R	25.2	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.347	
Space mean speed in ramp influence area, S_R	60.3	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.3	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 50 and Dillon Road
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	2,610	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	687	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	3,050	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,525	pcphpl
Average passenger-car speed, S	68.8	mph
Volume-to-capacity ratio, v/c	0.64	
Density, D	22.2	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,610	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	430	vph
Length of deceleration lane(s)	220	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,610	430		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	687	113		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	3,050	457		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	3,050	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	3,050	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,592	pcph	4,800	pcph	No
Ramp volume, v_R	457	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	3,050	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.69	
Density, D_R	28.5	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.339	
Space mean speed in ramp influence area, S_R	60.5	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 52 and Avenue 50
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	2,010	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	529	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,349	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,174	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.49	
Density, D	16.8	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,010	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	250	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,010	250		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	529	66		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,349	266		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,349	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,349	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,083	pcph	4,800	pcph	No
Ramp volume, v_R	266	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,349	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.53	
Density, D_R	23.1	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.322	
Space mean speed in ramp influence area, S_R	61.0	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.0	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,760	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	25	mph
Volume on ramp	610	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,760	610		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	463	161		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,056	649		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Loop On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,056	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	2,056	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,705	pcph	4,800	pcph	No
Ramp volume, v_R	649	pcph	1,900	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,705	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.59	
Density, D_R	22.5	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_s or D_s	0.349	
Space mean speed in ramp influence area, S_R	60.2	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.2	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,370	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	20	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,370	20		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	624	5		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,769	21		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,769	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	2,769	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,790	pcph	4,800	pcph	No
Ramp volume, v_R	21	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,790	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.61	
Density, D_R	23.5	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_s or D_s	0.331	
Space mean speed in ramp influence area, S_R	60.7	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.7	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Mainline Between Avenue 50 and Dillon Road
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	2,390	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	629	veh
Trucks and buses	22.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.901	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,793	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,396	pcphpl
Average passenger-car speed, S	69.6	mph
Volume-to-capacity ratio, v/c	0.58	
Density, D	20.1	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Road Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,390	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	580	vph
Length of deceleration lane(s)	220	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,390	580		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	629	153		veh
Trucks and buses	22.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.901	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,793	617		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Northbound SR-86
Segment	Dillon Road Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,793	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,793	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,176	pcph	4,800	pcph	No
Ramp volume, v_R	617	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,793	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.63	
Density, D_R	26.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.353	
Space mean speed in ramp influence area, S_R	60.1	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.1	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,010	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	190	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,010	190		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	529	50		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,359	202		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,359	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,359	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,561	pcph	4,800	pcph	No
Ramp volume, v_R	202	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,561	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.56	
Density, D_R	21.6	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.318	
Space mean speed in ramp influence area, S_R	61.1	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.1	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Dillon Road and Avenue 50
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	2,200	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	579	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,582	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,291	pcphpl
Average passenger-car speed, S	69.9	mph
Volume-to-capacity ratio, v/c	0.54	
Density, D	18.5	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,200	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	510	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,200	510		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	579	134		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,582	542		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,582	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,582	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,040	pcph	4,800	pcph	No
Ramp volume, v_R	542	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,582	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.59	
Density, D_R	25.1	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.347	
Space mean speed in ramp influence area, S_R	60.3	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.3	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,690	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	50	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,690	50		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	445	13		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,984	53		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,984	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,984	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,037	pcph	4,800	pcph	No
Ramp volume, v_R	53	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,037	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.44	
Density, D_R	17.6	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.297	
Space mean speed in ramp influence area, S_R	61.7	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.7	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Avenue 50 and Avenue 52
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	AM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,740	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	458	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,042	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,021	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.43	
Density, D	14.6	pcpmpl
Level of service, LOS	B	

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,190	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	320	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,190	320		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	576	84		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,570	340		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Dillon Road On-ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	2,570	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{Fi}	2,570	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,911	pcph	4,800	pcph	No
Ramp volume, v_R	340	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,911	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.63	
Density, D_R	24.3	pcpmpl
Level of service for ramp-freeway junction area of influence	C	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.339	
Space mean speed in ramp influence area, S_R	60.5	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	60.5	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Dillon Road and Avenue 50
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	2,510	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	661	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,946	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,473	pcphpl
Average passenger-car speed, S	69.1	mph
Volume-to-capacity ratio, v/c	0.61	
Density, D	21.3	pcpmpl
Level of service, LOS	C	

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	2,510	vph

Off Ramp Data

Type of diverge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	820	vph
Length of deceleration lane(s)	150	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	2,510	820		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	661	216		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	2,946	872		pcph

HCM 2010: Freeway Diverge Segment

Diverge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Off-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Diverge Area

L_{EQ} =		ft	(Equation 13-12 or 13-13)
P_{FM} =	1.000		(Equation 13-9, 13-10, or 13-11)
v_{12} =	2,946	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	2,946	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,074	pcph	4,800	pcph	No
Ramp volume, v_R	872	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Diverge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{12A}	2,946	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.67	
Density, D_R	28.2	pcpmpl
Level of service for ramp-freeway junction area of influence	D	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.376	
Space mean speed in ramp influence area, S_R	59.5	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	59.5	mph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	70	mph
Volume on freeway	1,690	vph

On Ramp Data

Type of merge	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45	mph
Volume on ramp	100	vph
Length of acceleration lane(s)	600	ft

Adjacent Ramp Data

	<u>Upstream</u>		<u>Downstream</u>	
Does adjacent ramp exist?	No		No	
Volume on adjacent ramp		vph		vph
Type of adjacent ramp				
Distance to adjacent ramp		ft		ft

Conversion to pcph Under Base Conditions

<u>Junction Components</u>	<u>Freeway</u>	<u>Ramp</u>	<u>Adj. Ramp</u>	
Volume, V	1,690	100		vph
Peak-hour factor, PHF	0.95	0.95		
Peak 15-min volume, v_{15}	445	26		veh
Trucks and buses	23.0%	2.0%		
Recreational vehicles	0.0%	0.0%		
Terrain type	Level	Level		
Grade				
Length				mi
Trucks and buses PCE, E_T	1.5	1.5		
Recreational vehicle PCE, E_R	1.2	1.2		
Heavy vehicle adjustment, f_{HV}	0.897	0.990		
Driver population factor, f_p	1.00	1.00		
Flow rate, v_p	1,984	106		pcph

HCM 2010: Freeway Merge Segment

Merge Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Avenue 50 Slip On-Ramp
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Estimation of Volume in Merge Area

L_{EQ} =		ft	(Equation 13-6 or 13-7)
P_{FM} =	1.000		(Equation 13-3, 13-4, or 13-5)
v_{12} =	1,984	pcph	

Capacity Checks

	<u>Actual</u>		<u>Maximum</u>		<u>LOS F?</u>
Entering freeway volume, v_{FI}	1,984	pcph	4,800	pcph	No
Exiting freeway volume, v_{FO}	2,090	pcph	4,800	pcph	No
Ramp volume, v_R	106	pcph	2,100	pcph	No
Outer lanes volume, v_3 or v_{av34}	#VALUE!	pcph	(Equation 13-14 or 13-17)		
Is v_3 or $v_{av34} > 2,700$ pcph?	#VALUE!				
Is v_3 or $v_{av34} > 1.5 v_{12} / 2$?	#VALUE!				
If yes, $v_{12A} =$	#VALUE!	pcph	(Equation 13-15, 13-16, 13-18, or 13-19)		

Flow Entering Merge Influence Area

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
v_{R12}	2,090	pcph	4,600	pcph	No

Level of Service Determination

Volume-to-capacity ratio, v/c	0.45	
Density, D_R	18.0	pcpmpl
Level of service for ramp-freeway junction area of influence	B	

Speed Estimation

Intermediate speed variable, M_S or D_S	0.299	
Space mean speed in ramp influence area, S_R	61.6	mph
Space mean speed in outer lanes, S_O		mph
Space mean speed for all vehicles, S	61.6	mph

HCM 2010: Freeway Basic Segment

Basic Operational Analysis

Project	SR-86/Ave 50 Interchange
Freeway	Southbound SR-86
Segment	Mainline Between Avenue 50 and Avenue 52
Alternative	Design Year (2045) Build Alt 7 and Alt 8
Time period	PM Peak Hour

Flow Inputs and Adjustments

Volume, V	1,790	vph
Peak-hour factor, PHF	0.95	
Peak 15-min volume, v_{15}	471	veh
Trucks and buses	23.0%	
Recreational vehicles	0.0%	
Terrain type	Level	
Grade		
Length		mi
Trucks and buses PCE, E_T	1.5	
Recreational vehicle PCE, E_R	1.2	
Heavy vehicle adjustment, f_{HV}	0.897	
Driver population factor, f_p	1.00	
Flow rate, v_p	2,101	pcph
Number of lanes, N	2	

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-side lateral clearance	>6	ft
Total ramp density, TRD	1.00	ramps/mi
Lane width adjustment, f_{LW}	0.0	mph
Lateral clearance adjustment, f_{LC}	0.0	mph
TRD adjustment	3.2	mph
Calculated free-flow speed, FFS	72.2	mph
Measured free-flow speed, FFS		mph
Free-flow speed curve	70	mph

Capacity Checks for Segments with Ramps

	<u>Actual</u>		<u>Maximum</u>		<u>Violation?</u>
Entering freeway volume		pcph		pcph	
Exiting freeway volume		pcph		pcph	
On-ramp volume		pcph		pcph	
Off-ramp volume		pcph		pcph	

LOS and Performance Measures

Flow rate, v_p	1,050	pcphpl
Average passenger-car speed, S	70.0	mph
Volume-to-capacity ratio, v/c	0.44	
Density, D	15.0	pcpmpl
Level of service, LOS	B	

APPENDIX C

Final Technical Memorandum of Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project





MEMORANDUM

Date: July 11, 2017

To: Andy Cheah, TranSystems/Athalye

From: Anna Luo, P.E.
Elliot Huang, P.E.

Subject: *Traffic Methodology and Volumes for State Route 86/Avenue 50 New Interchange Project (Caltrans EA 08-0C970)*

OC16-0471

The City of Coachella, in cooperation with Caltrans, proposes to replace the existing at-grade intersection at the State Route 86 (SR-86) and Avenue 50 with a new interchange. As part of this project, the existing two-lane Avenue 50 low water crossing over Coachella Valley Stormwater Channel (CVSC) will also be replaced with an improved six-lane (three lanes in each direction) bridge structure. The current geometries of the SR-86/Avenue 50 intersection and Avenue 50 Bridge would not adequately accommodate future growth and result in unacceptable operations along Avenue 50 by Year 2045. In addition, the existing low water crossing built in 1970 is functionally deficient and does not meet safety standards because of flooding during storm events; CVSC swells well above the roadway surface during periods of heavy rainfall. The proposed improvements are anticipated to relieve traffic congestion and improve traffic operations and safety along the Avenue 50 in the study area.

Fehr & Peers is working with TranSystems/Athalye and the City of Coachella in preparation of traffic report in support of the PA/ED document for the SR-86/Avenue 50 New Interchange and Avenue 50 Bridge Project. This memorandum presents the traffic forecasting and operations analysis methodology as well as traffic volume forecasts developed for this project. The traffic forecasting and operations analysis methodology was previously approved by Caltrans on November 7, 2016.

The purpose of this memorandum is to summarize the traffic volume forecasts for Caltrans' approval prior to being used for the traffic operations analysis. The remainder of this memorandum is divided into the following sections: Analysis Scenario, Study Area, Traffic Forecasting Methodology, Traffic Operations Analysis Methodology, and Traffic Volume Forecasts.

Analysis Scenario

Per discussion at the project kick-off meeting with the Project Development Team (PDT) in September 2016, the proposed project includes two phases which have different opening years. Phase 1 is the Avenue 50 Bridge expected to complete construction and be open to traffic by Year 2020; while the SR-86/Avenue 50

interchange improvement is Phase 2 and anticipated to complete and open to traffic by Year 2025. Per the discussion at the PDT meeting on February 15, 2017, two build alternatives will be analyzed.

Therefore, the following scenarios will be analyzed as part of the traffic study:

- Existing (2015) Conditions
- Opening Year 2020 No Build Conditions
- Opening Year 2020 With Phase 1 (One Build Alternative for Avenue 50 Bridge)
- Opening Year 2025 No Build Conditions
- Opening Year 2025 With Phase 2 (Two Build Alternatives for SR-86/Avenue 50 Interchange)
- Design Year 2045 No Build Conditions
- Design Year 2045 With Phase 1 & Phase 2 combined (Two Build Alternatives for SR-86/Avenue 50 Interchange)

Study Area

The study area consists of study intersections along Avenue 50 (between Harrison Street and SR-86), SR-86 mainline segment between Dillon Road and Avenue 52, and SR-86 ramp intersections at Dillon Road and Avenue 52. The study facilities are identified below and will be evaluated during the weekday AM (7:00AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hours at study intersections and mainline/ramp locations and on a weekday basis for study arterial roadway segments.

Study Intersections

1. Avenue 50 / Harrison Street
2. Avenue 50 / Leoco Lane
3. Avenue 50 / Peter Rabbit Lane
4. Avenue 50 / Tyler Street
5. Avenue 50 / Southbound SR-86 Ramps
6. Avenue 50 / Northbound SR-86 Ramps
7. Dillon Road / Southbound SR-86 Ramps
8. Dillon Road / Northbound SR-86 Ramps
9. Avenue 52 / Southbound SR-86 Ramps
10. Avenue 52 / Northbound SR-86 Ramps / Tyler Street
11. Tyler Street / Calle Mendoza

SR-86 Mainline Segments:

1. Northbound and Southbound SR-86: between Dillon Road and Avenue 50
2. Northbound and Southbound SR-86: between Avenue 50 and Avenue 52

SR-86 Ramp Junctions:

1. Northbound SR-86 Off-ramp to Avenue 50 (future)
2. Northbound SR-86 On-ramp from Avenue 50 (future)

3. Southbound SR-86 Off-ramp to Avenue 50 (future)
4. Southbound SR-86 On-ramp from Avenue 50 (future)

Study Roadway Segments

1. Avenue 50 Bridge: between Tyler Street and SR-86
2. Avenue 50: between Leoco Lane and Peter Rabbit Lane
3. Avenue 50: west of Harrison Street

Scenario Study Locations

The study locations vary by scenario. All the study locations listed above will be analyzed under existing and Design Year 2045 conditions. Under Opening Year 2020, completion of Phase 1 (Avenue 50 Bridge) is not anticipated to result in significant traffic addition to the SR-86 mainline and adjacent ramps at Dillon Road and Avenue 52. Therefore, the study area under Phase 1 Opening Year 2020 consists of the six study intersections and three roadway segments along Avenue 50, and none of the SR-86 mainline/ramp junctions or adjacent ramp intersections at Dillon Road and Avenue 52 will be evaluated under Year 2020. Similarly, the study area under Phase 2 (SR-86/Avenue 50 Interchange) Opening Year 2025 consists of the SR-86 mainline/ramp junctions and ramp intersections at Dillon Road, Avenue 50, and Avenue 52. Other local intersections and roadway segments along Avenue 50 west of SR-86 will not be analyzed under Year 2025. A summary of the study locations and the scenarios they will be analyzed in is provided below:

Existing Conditions:

- Study intersections #1 through #11
- Three roadway segments along Avenue 50
- SR-86 mainline/ramps segments

Opening Year 2020:

- Study intersections along Avenue 50: Intersections #1 through #6, plus #11
- Three roadway segments along Avenue 50

Opening Year 2025:

- Study intersections that are SR-86 ramp terminals: Intersections #5 through #10
- SR-86 mainline/ramps segments

Design Year 2045:

- Study intersections #1 through #11
- Three roadway segments along Avenue 50
- SR-86 mainline/ramps segments

Traffic Forecasting Methodology

The traffic forecasts for this project was developed using the Coachella Valley Model, which was developed in 2012 for the City of Coachella General Plan update based on the Riverside County Traffic Analysis Model (RivTAM). The RivTAM was created from the Southern California Association of Governments (SCAG) 2008 Regional Transportation Plan (RTP) model. The Coachella Valley Model assumed the build-out Socio-Economic Data (SED) for the City of Coachella and reflected a more refined roadway network in the Coachella Area.

At the beginning of this project, SCAG's 2016 RTP model became available. This model contains the most recent SED assumptions for the SCAG region, including the Coachella Valley area. Based on conversations with City of Coachella staff and the discussion with Caltrans at the project kick-off meeting, the PDT (including Caltrans, the City of Coachella, and the consultant team) have agreed the SCAG's 2016 RTP SED data was the most appropriate assumptions for land use growth to use for the traffic forecasting. This data reflects the most updated population and employment growth projections for the City of Coachella and the entire CVAG region. Therefore, the Coachella Valley Model was updated to include the 2040 land use assumptions consistent with the SCAG's 2016 RTP, and the updated model was used to develop traffic forecasts for the project.

Compared to the land use projections developed for previous years, the SCAG's 2016 RTP land use projections show slower growth and the Great Recession had a significant impact on the regional growth. This slow growth applied for not only the City of Coachella and the CVAG region, but also southern California and the State as a whole.

Separate future year models were developed to forecast traffic volumes with and without the proposed project. Future traffic forecasts at the study intersections and roadway segments under the opening year and design year were developed using the difference methodology which is consistent with methodologies delineated in the National Cooperative Highway Research Program Report (NCHRP) 255 published by the Transportation Research Board (TRB): Highway Traffic Data for Urbanized Area Project Planning and Design (Transportation Research Board, December 1982). The Base Year and Future Year models were used to calculate the annual growth at study facilities, which was applied to existing traffic counts (collected Fall 2015) to develop the opening year and design year traffic projections. Since the future model reflects Year 2040 conditions, the opening year 2020 and design year 2045 forecasts was developed using a calculated annual growth amount between existing and the 2040 traffic forecasts. The resulting traffic forecasts from the difference methodology were balanced where appropriate. The balanced forecasts for each scenario were compared to existing traffic counts and one another to ensure the reasonableness of the forecasts. Overall, after applying all difference method calculations and balancing operations the average annual growth rate comes out to be approximately 3% - 5% per year. The forecasted volumes for locations in the study area are presented on figures attached at the end of this memorandum.

Traffic Operations Analysis Methodology

This section describes the traffic operations analysis methodology. The information contained in this section is identical to what was provided in the Traffic Forecasting and Operations Assessment Methodology (Fehr & Peers, October 2016) which was approved by Caltrans on November 7, 2016.

Intersection Analysis

Intersection operations will be conducted using methodologies contained in the Highway Capacity Manual (HCM 2010) (Transportation Research Board, 2010), and was considered as the state-of-the-practice methodologies for evaluating intersection operations at the NTP of the project.

The HCM 2010 methodology for signalized intersections estimates the average control delay for vehicles at the intersection while the methodology for unsignalized intersections estimates the worst-case movement control delay for two-way stop-controlled intersections and the average control delay for all-way stop-controlled intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (congested conditions). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for both signalized and unsignalized intersections are provided in Table 1.

TABLE 1: INTERSECTION LOS CRITERIA			
Level of Service	Description	Signalized Intersections	Unsignalized Intersections
		Average Stopped Delay per Vehicle (seconds)	Average Control Delay (seconds/vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0	≤ 10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	> 10.0 to 15.0
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	> 15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	> 25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	> 35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	> 50.0
Source: <i>Highway Capacity Manual</i> (Transportation Research Board, 2010).			

Freeway Analysis

Freeway mainline and ramps will be evaluated using a HCS equivalent tool which applies methodologies contained in the *Highway Capacity Manual* (HCM 2010) (Transportation Research Board, 2010). The LOS will be calculated for each study facility based on density in number of vehicles per hour per lane. Table 2 below describes the LOS thresholds for freeway sections identified in the HCM 2010.

TABLE 2: FREEWAY MAINLINE AND RAMP JUNCTION/WEAVE SECTION LOS THRESHOLD			
Level of Service	Description	Density (vplpm) ¹	
		Mainline (Basic)	Ramp / Weave
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11	≤ 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 to 18	> 10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26	> 20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26 to 35	> 28 to 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45	> 35 to 45 ²
F	Represents a breakdown in flow.	> 45	> 45 ²
Notes: 1. Density is reported in vehicles per lane per mile (vplpm). 2. The maximum density for ramp junctions and weaving sections under LOS E is not defined in the HCM. The maximum density for basic segments of 45 vplpm was assumed to apply to ramp junctions and weaving sections. Source: <i>Highway Capacity Manual (Transportation Research Board, 2010)</i>			

Level of Service Criteria

The following level of service (LOS) criteria was employed to determine if the project would result in any traffic operational deficiencies to the study area. The LOS criteria are in accordance with the City of Coachella and Caltrans guidelines.

City of Coachella

Intersection

According to City of Coachella General Plan Circulation Element (2014), LOS D is the maximum acceptable level of congestion that should be maintained during the peak commute hours. Hence, any of the intersections within Coachella's jurisdiction operating at LOS E or F are considered deficient/unsatisfactory and vehicular traffic on Coachella's roadway system should not exceed these capacities.

Roadway Segment

In accordance with the City of Coachella General Plan Circulation Element (2014), LOS C or better shall be maintained along County roads and state highways. LOS D is allowed in "Community Development areas, only at intersections of any combination of Secondary Highways, Major Highways, Arterials, Urban Arterials, Expressways, conventional state highways or freeway ramp intersections. LOS E may be allowed in designated community centers to the extent that it would support transit-oriented development and walkable communities." For the purposes of this evaluation, LOS D is the minimum acceptable LOS for study roadway segments along Avenue 50.

Caltrans

Caltrans strives to have freeway facilities operate at a level of service between C and D. Therefore, LOS D was used as the threshold for freeway facilities analysis. Any future LOS on freeway facilities that are projected to operate at unacceptable LOS (worse than LOS D) needs to be mitigated.

Therefore, LOS D is considered as the acceptable LOS criteria for all the study intersections, freeway segments, and roadway segments in this traffic analysis

Operations Analysis Tools & Assumptions

The following tools and assumptions will be used to analyze intersection traffic operations:

- The operations analysis of all intersections will be conducted using Synchro 8.0 software
- The operations analysis of freeway mainline and ramp junctions will be conducted using HCM 2010.
- Existing lane configuration and roadway geometry will be gathered from field observations
- Existing signal timing data will be obtained from Caltrans and City of Coachella
- A base saturation flow rate of 1,900 pc/hr/ln will be used in the intersection assessment
- Existing peak hour factor (PHF) will be determined based on the traffic counts
- Opening year PHF is assumed to be the same as existing conditions
- Design year PHF is assumed to be 0.95 or existing conditions, whichever is higher
- Heavy vehicle percentages will be determined based on the traffic counts

- o Caltrans traffic counts database will be used to estimate heavy vehicle percentages on the highway system
- o Vehicle classification counts will be used to identify heavy vehicle percentages collected on Avenue 50
- Performance measures reported for study intersections are vehicle delay and LOS
- Performance measures reported for study freeway facilities are density and LOS
- Roadway segments will be analyzed on a daily basis
- Any potential impacts will be identified using the City's traffic impact study guidelines

Traffic Volume Forecasts

Traffic volume forecasts for the roadway study segments are presented in Table 3 below. Traffic volume forecasts for intersection, mainline, and ramp study locations are presented in figures at the end of this memorandum.

Table 3 Roadway Segment ADT Volumes						
Segment	Existing 2015	Opening Year No Build 2020	Opening Year With Phase 1 2020	Design Year No Project 2045	Design Year Alternative 7 2045	Design Year Alternative 8 2045
Avenue 50, Bridge Between Tyler Street & SR-86	10,473	13,830	15,480	30,570	32,350	32,350
Avenue 50, Between Leoco Lane and Peter Rabbit Lane	16,203	17,880	18,500	26,270	31,240	31,240
Avenue 50, West of Harrison Street	10,144	11,020	11,070	15,370	16,930	16,930
Source: Fehr & Peers, 2017						

Please note that the figures at the end of this memorandum are not to imply turn lane configurations. The figures are meant to represent the volumes only. The number of turn pockets and lanes will be evaluated in the Traffic Operations Report.

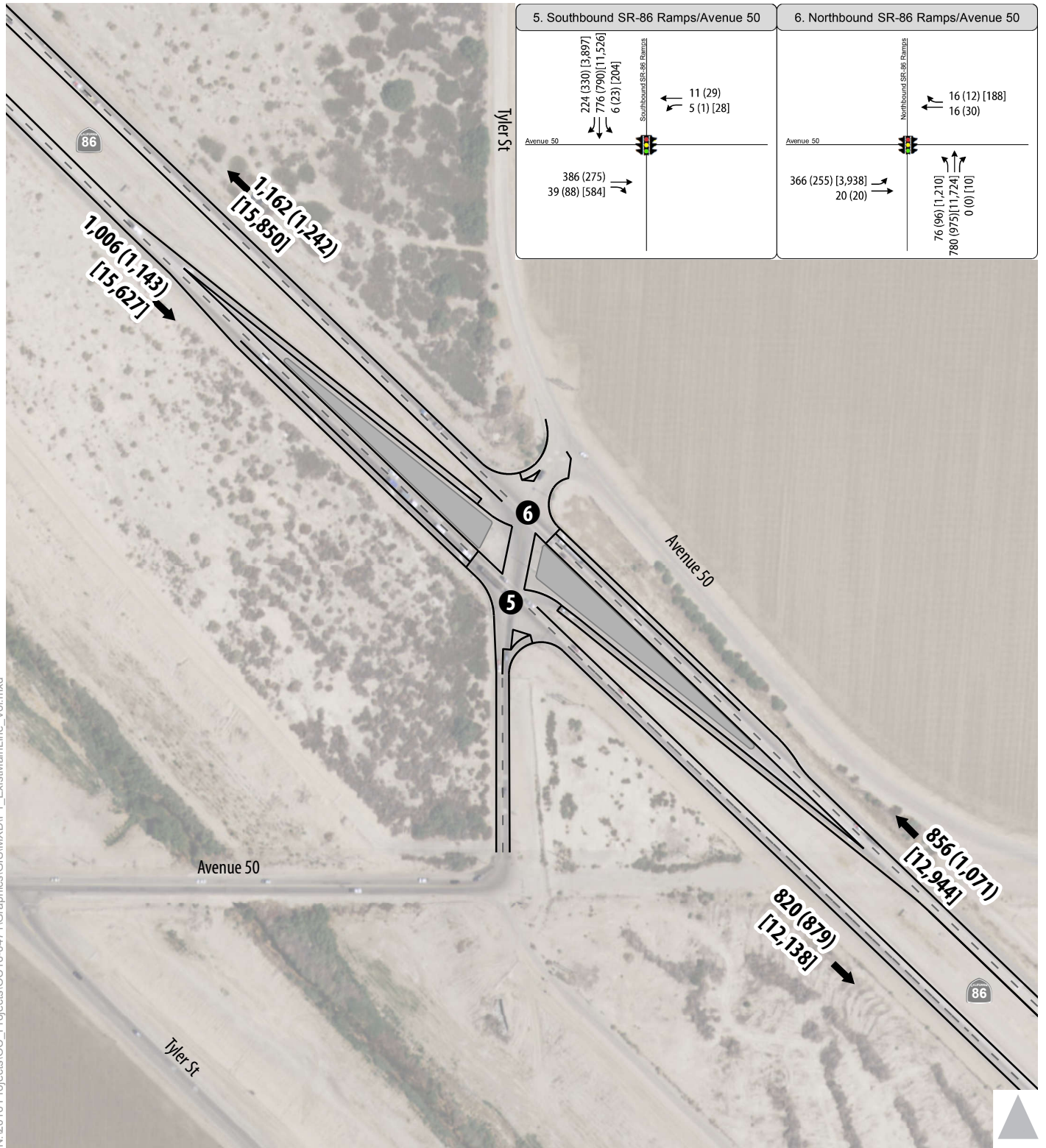
Mainline ADT volumes and truck percentage by axles is provided in Table 4 below. As shown, the heavy vehicle (Class 4 or higher) percentage is 23% for the SR-86 mainline. The heavy vehicle percentage will be used in the traffic operations analysis. Please note that a PCE factor of 2.0 is accounted for as part of the heavy vehicle percentage in the traffic operations analysis. A detailed breakdown of vehicle classification is provided in the raw traffic count reports, which are attached at the end of this memorandum.

Table 4
SR-86 Mainline ADT and Truck Classification

Vehicle Class	Northbound ADT	Southbound ADT	Total ADT	Total %
1 - Motorcycles	17	19	36	0.1%
2 - Passenger Cars	9,041	7,695	16,736	66.7%
3 - 2 Axles, 4-Tire Single Units	1,010	1,602	2,612	10.4%
4 - Buses	24	28	52	0.2%
5 - 2 Axles, 6-Tire Single Units	346	439	785	3.1%
6 - 3 Axles, Single Unit	168	128	296	1.2%
7 - 4 or More Axles, Single Unit	7	0	7	0.0%
8 - 3 to 4 Axles, Single Trailer	156	30	186	0.7%
9 - 5 Axles, Single Trailer	1,717	1,759	3,476	13.9%
10 - 6 or More Axles, Single Trailer	51	4	55	0.2%
11 - 5 or Less Axles, Multi-Trailers	311	411	722	2.9%
12 - 6 Axles, Multi-Trailers	96	23	119	0.5%
13 - 7 or More Axles, Multi-Trailers	0	0	0	0.0%
All Vehicles	12,944	12,138	25,082	100.0%

Source: Fehr & Peers, 2017

Attachment 1: Traffic Volume Forecasts

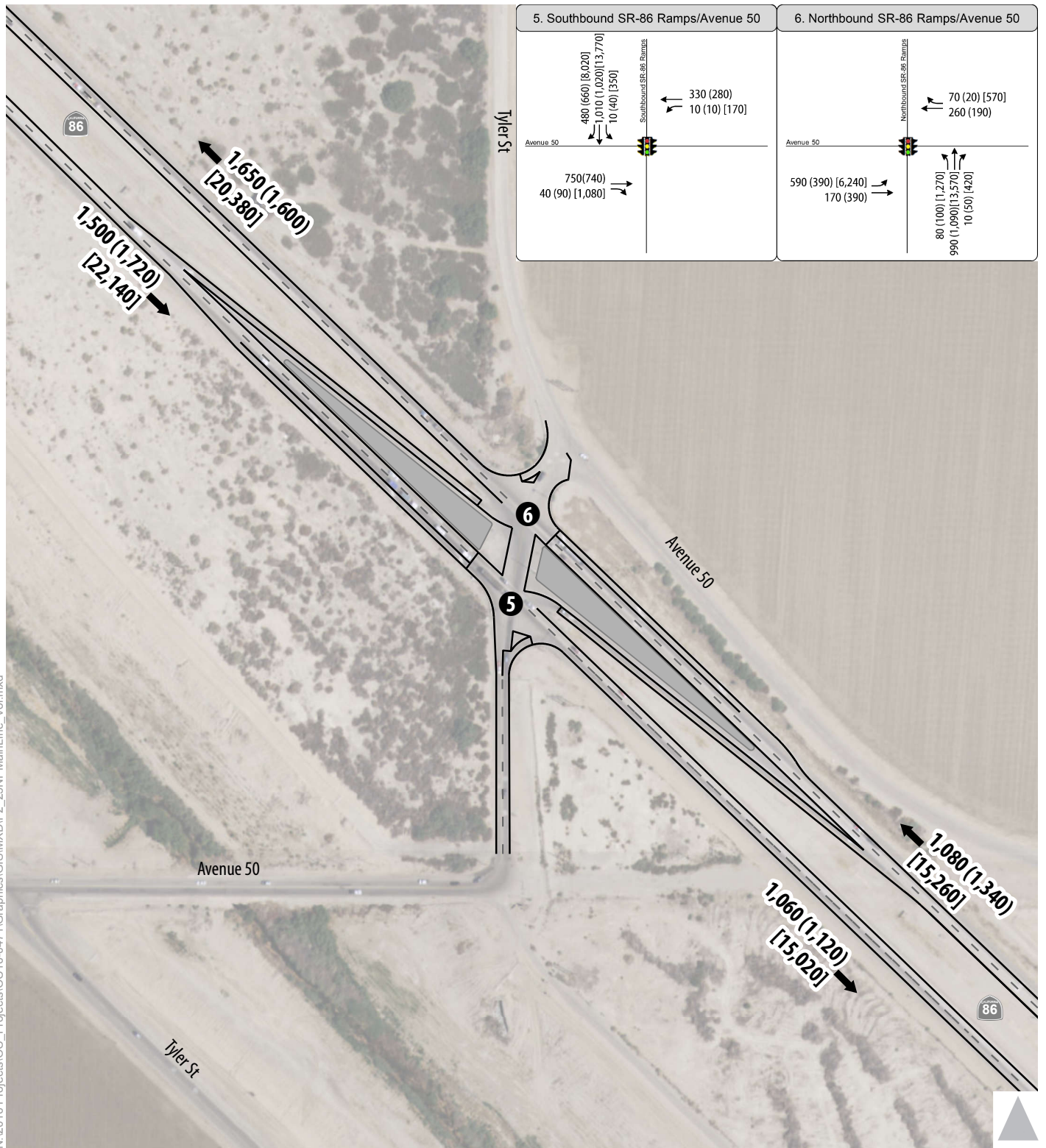


1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 1



Existing Year 2015
 Average Daily Traffic Volume Forecasts

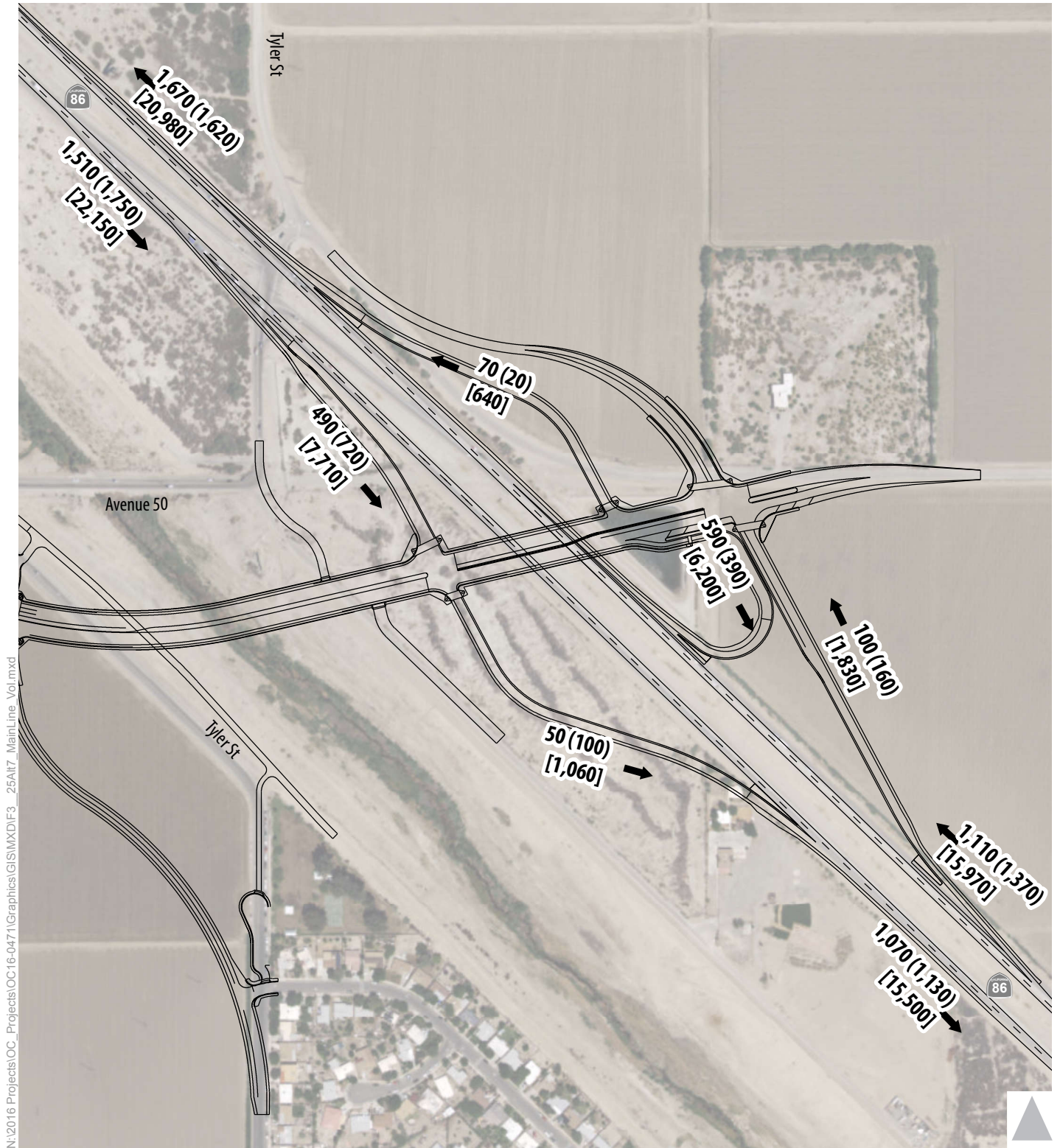


1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 2



Opening Year 2025 No Project
 Mainline Traffic Volume Forecasts



1000 (1,500) - AM (PM) Volume
 [5,000] - Average Daily Traffic Volume

Figure 3



Opening Year 2025 Build Alternative 7
 Mainline Traffic Volume Forecasts

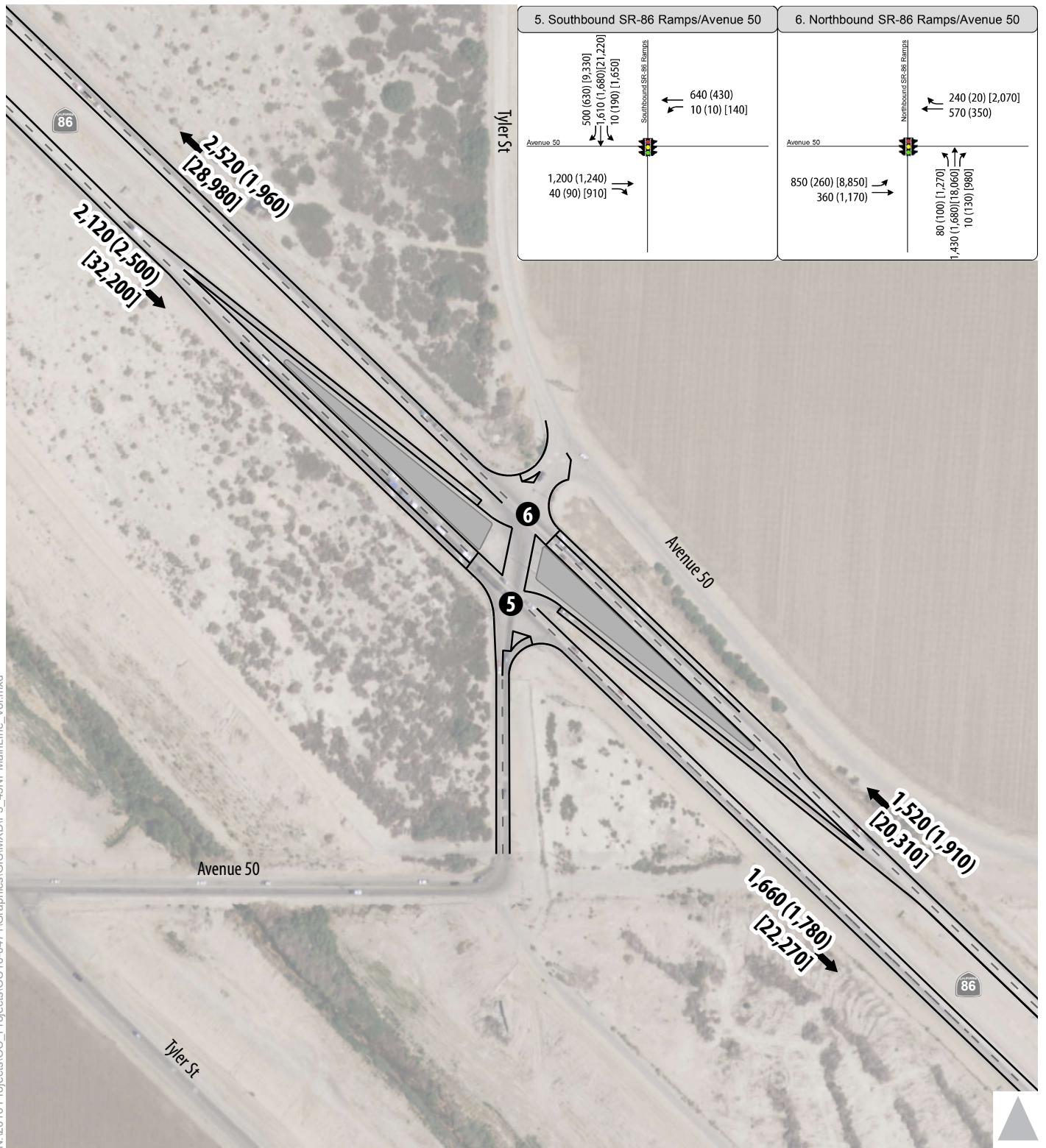


1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 4



Opening Year 2025 Build Alternative 8
Mainline Traffic Volume Forecasts

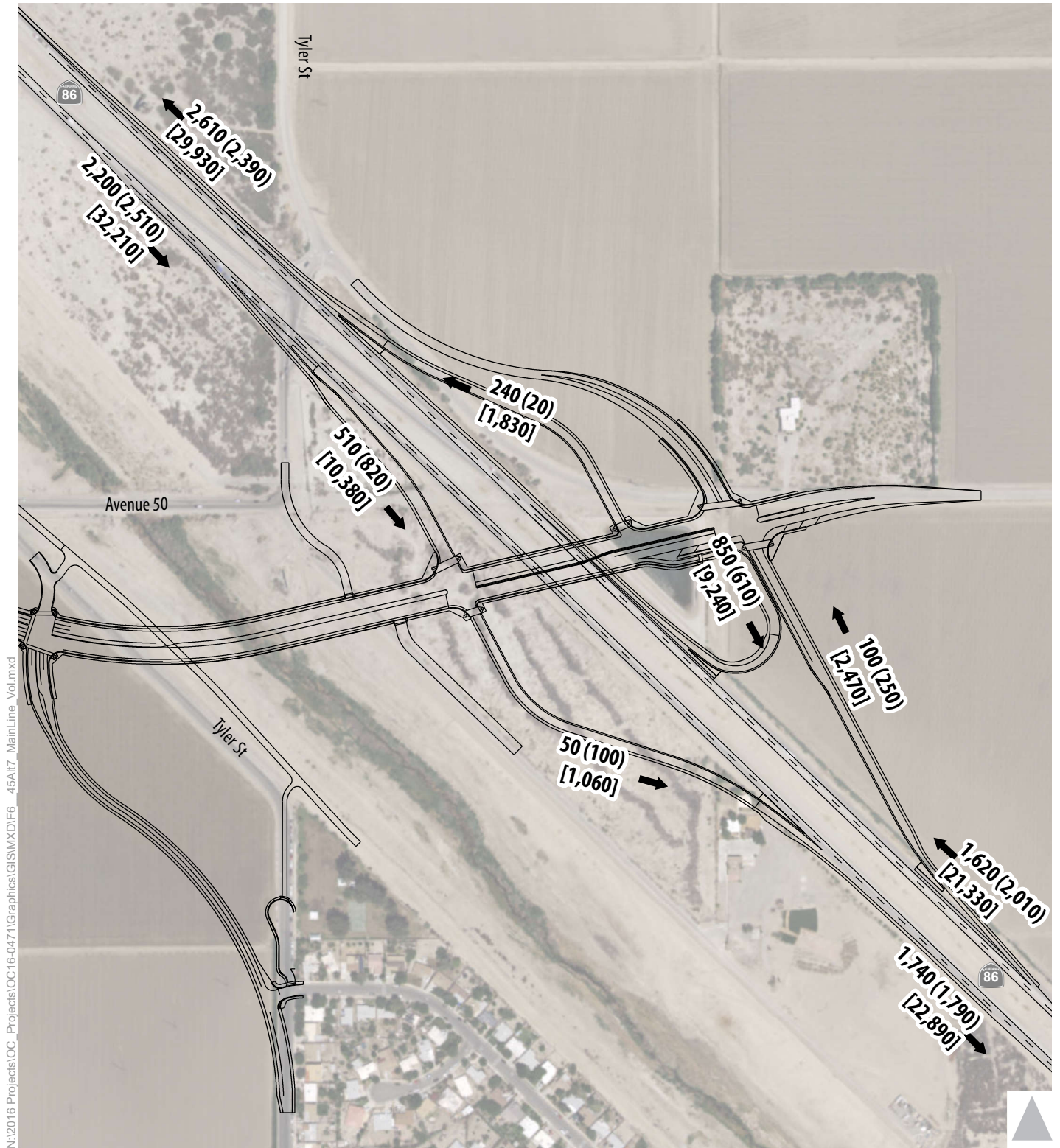


1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 5



Design Year 2045 No Project
 Mainline Traffic Volume Forecasts



1000 (1,500) - AM (PM) Volume
 [5,000] - Average Daily Traffic Volume

Figure 6



Design Year 2045 Build Alternative 7
 Mainline Traffic Volume Forecasts

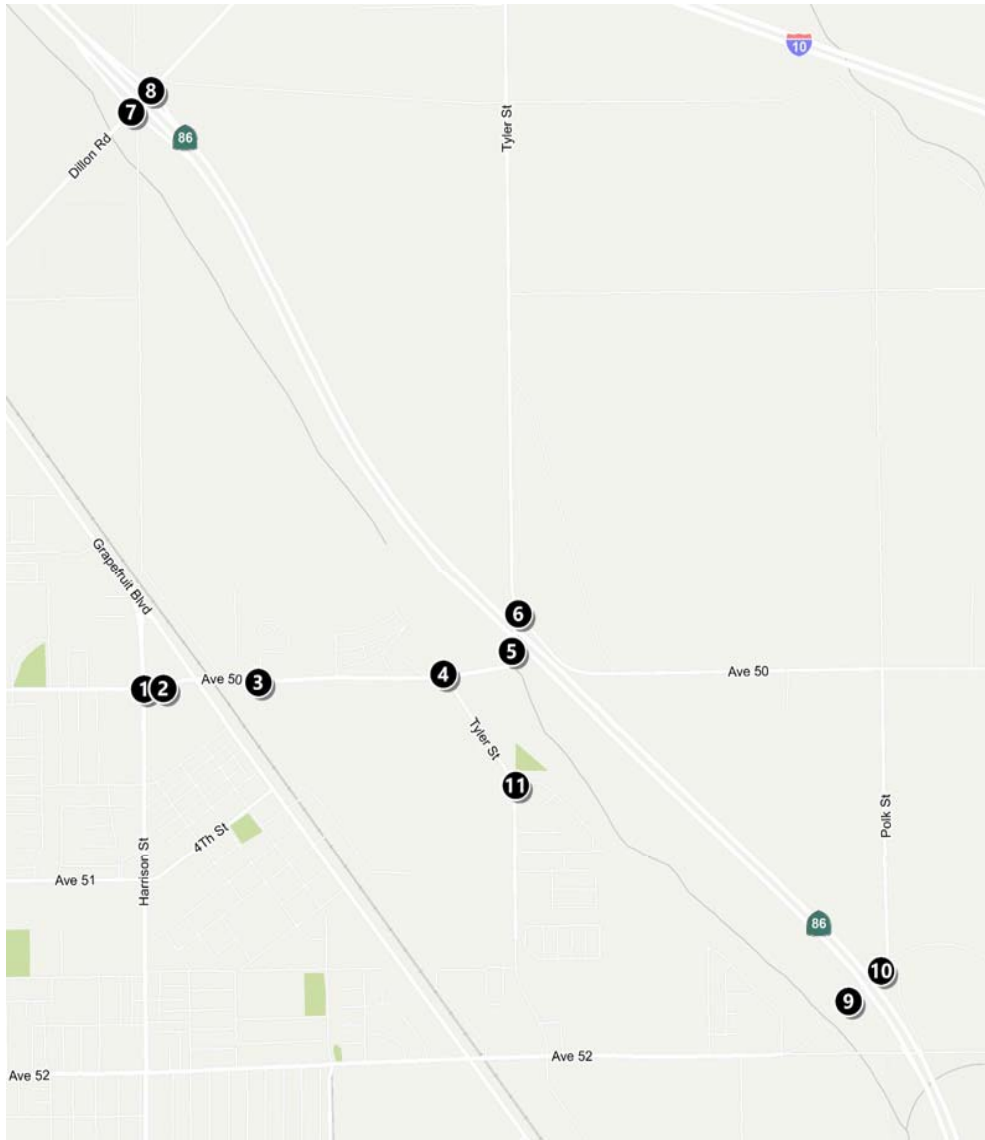


1000 (1,500) - AM (PM) Volume
[5,000] - Average Daily Traffic Volume

Figure 7



Design Year 2045 Build Alternative 8
Mainline Traffic Volume Forecasts



1. Harrison Street/Avenue 50 Harrison Street Avenue 50 24 (80) 323 (782) 77 (157) 68 (119) 246 (228) 81 (105) 149 (150) 157 (227) 156 (240) 80 (142) 478 (495) 205 (172)	2. Leoco Lane/Avenue 50 Avenue 50 Leoco Lane 413 (535) 133 (171) 462 (473) 66 (84) 49 (82) 122 (134)	3. Peter Rabbit Lane/Avenue 50 Peter Rabbit Lane Avenue 50 7 (49) 0 (0) 3 (25) 1 (24) 521 (630) 14 (7) 10 (50) 551 (545) 23 (12) 18 (27) 1 (0) 7 (14)
4. Tyler Street/Avenue 50 Tyler Street Avenue 50 2 (1) 0 (0) 0 (0) 0 (0) 0 (0) 346 (301) 231 (245) 0 (0) 276 (261) 0 (0) 79 (62)	5. Southbound SR-86 Ramps/Avenue 50 Avenue 50 Southbound SR-86 Ramps 224 (330) 776 (790) 6 (23) 11 (29) 5 (1) 386 (275) 39 (88)	6. Northbound SR-86 Ramps/Avenue 50 Avenue 50 Northbound SR-86 Ramps 16 (12) 16 (30) 366 (255) 20 (20) 76 (96) 780 (975) 0 (0)
7. Southbound SR-86 Ramps/Dillon Road Dillon Road Southbound SR-86 Ramps 74 (132) 2 (1) 78 (92) 226 (278) 80 (114) 322 (250) 70 (104)	8. Northbound SR-86 Ramps/Dillon Road Dillon Road Northbound SR-86 Ramps 48 (114) 192 (302) 188 (92) 212 (250) 114 (90) 2 (4) 98 (119)	9. Southbound SR-86 Ramps/Avenue 52 Avenue 52 Southbound SR-86 Ramps 175 (100) 598 (713) 13 (24) 61 (52) 2 (10) 153 (218) 27 (46)
10. Northbound SR-86 Ramps/Avenue 52 Avenue 52 Northbound SR-86 Ramps 17 (26) 34 (31) 115 (195) 51 (47) 29 (31) 687 (813) 9 (7)	11. Tyler Street/Calle Mendoza Tyler Street Calle Mendoza 276 (240) 21 (61) 48 (31) 32 (21) 307 (292) 14 (41)	

AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

Figure 8
Peak Hour Intersection Volumes
Existing Year 2015



1. Harrison Street/Avenue 50 Harrison Street Avenue 50 30 (80) 390 (850) 110 (200) 170 (190) 200 (280) 170 (250) 70 (120) 340 (270) 90 (110) 80 (150) 520 (560) 230 (200)	2. Leoco Lane/Avenue 50 Avenue 50 Leoco Lane 480 (590) 160 (190) 570 (560) 110 (110) 60 (130) 130 (170)	3. Peter Rabbit Lane/Avenue 50 Avenue 50 Peter Rabbit Lane 10 (50) 5 (5) 10 (30) 10 (30) 600 (700) 20 (10) 10 (50) 660 (660) 30 (20) 30 (30) 5 (5) 10 (20)
4. Tyler Street/Avenue 50 Avenue 50 Tyler Street 5 (5) 0 (0) 5 (5) 5 (5) 340 (460) 110 (90) 5 (5) 430 (450) 240 (250) 280 (270) 0 (0) 130 (100)	5. Southbound SR-86 Ramps/Avenue 50 Avenue 50 Southbound SR-86 Ramps 270 (380) 920 (940) 10 (50) 190 (180) 10 (10) 530 (470) 40 (90)	6. Northbound SR-86 Ramps/Avenue 50 Avenue 50 Northbound SR-86 Ramps 50 (20) 120 (90) 450 (260) 90 (260) 80 (100) 890 (1,090) 10 (20)
11. Tyler Street/Calle Mendoza Tyler Street Calle Mendoza 320 (270) 30 (70) 50 (40) 40 (30) 360 (330) 20 (50)		



AM (PM) Traffic Volumes

Signalized Intersection

Stop Controlled Approach

Figure 9
Peak Hour Intersection Volumes
Opening Year 2020 No Project



1. Harrison Street/Avenue 50 Harrison Street Avenue 50 30 (80) 370 (820) 100 (210) 70 (120) 320 (280) 90 (110) 180 (180) 220 (290) 200 (300) 80 (150) 500 (550) 250 (210)	2. Leoco Lane/Avenue 50 Avenue 50 Leoco Lane 540 (650) 180 (210) 580 (600) 90 (100) 60 (120) 140 (180)	3. Peter Rabbit Lane/Avenue 50 Peter Rabbit Lane Avenue 50 10 (30) 680 (780) 20 (20) 10 (50) 5 (5) 10 (30) 10 (50) 680 (710) 30 (20) 30 (30) 5 (5) 20 (20)
4. Tyler Street/Avenue 50 Tyler Street Avenue 50 5 (5) 0 (0) 5 (5) 5 (5) 460 (510) 240 (250) 5 (5) 420 (550) 150 (140) 280 (270) 0 (0) 140 (120)	5. Southbound SR-86 Ramps/Avenue 50 Southbound SR-86 Ramps Avenue 50 350 (490) 880 (910) 10 (30) 230 (210) 10 (10) 570 (550) 40 (90)	6. Northbound SR-86 Ramps/Avenue 50 Northbound SR-86 Ramps Avenue 50 40 (20) 160 (120) 480 (320) 100 (260) 80 (100) 880 (1080) 10 (20)
11. Tyler Street/Calle Mendoza Tyler Street Calle Mendoza 360 (320) 30 (70) 50 (40) 40 (30) 370 (350) 20 (50)		



AM (PM) Traffic Volumes

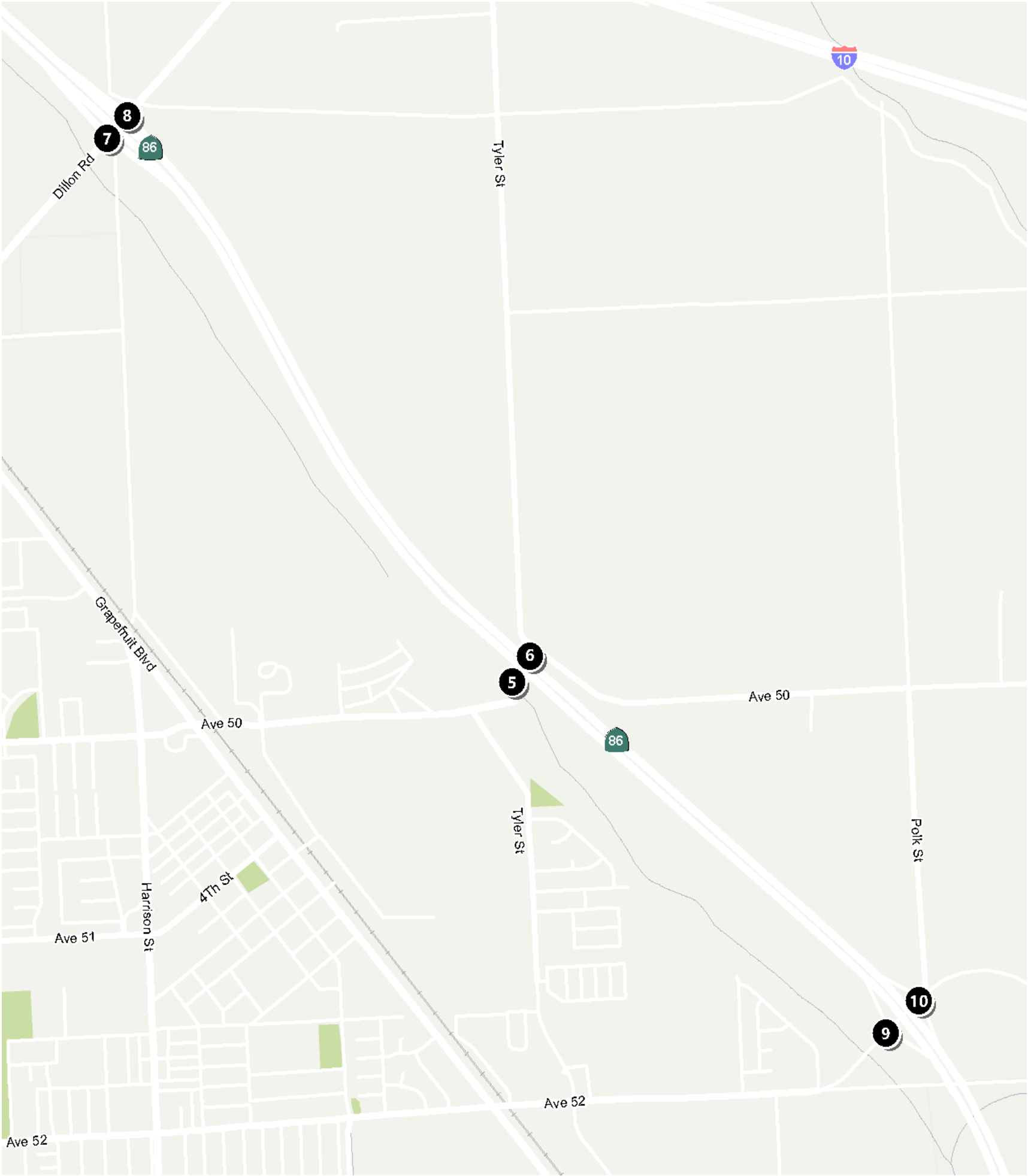


Signalized Intersection



Stop Controlled Approach

Figure 10
Peak Hour Intersection Volumes
Opening Year 2020 Plus Project



5. Southbound SR-86 Ramps/Avenue 50	6. Northbound SR-86 Ramps/Avenue 50	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road	9. Southbound SR-86 Ramps/Avenue 52	10. Northbound SR-86 Ramps/Avenue 52

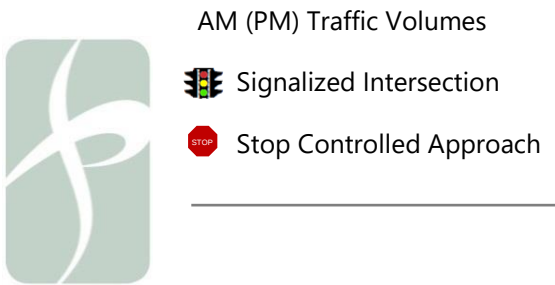
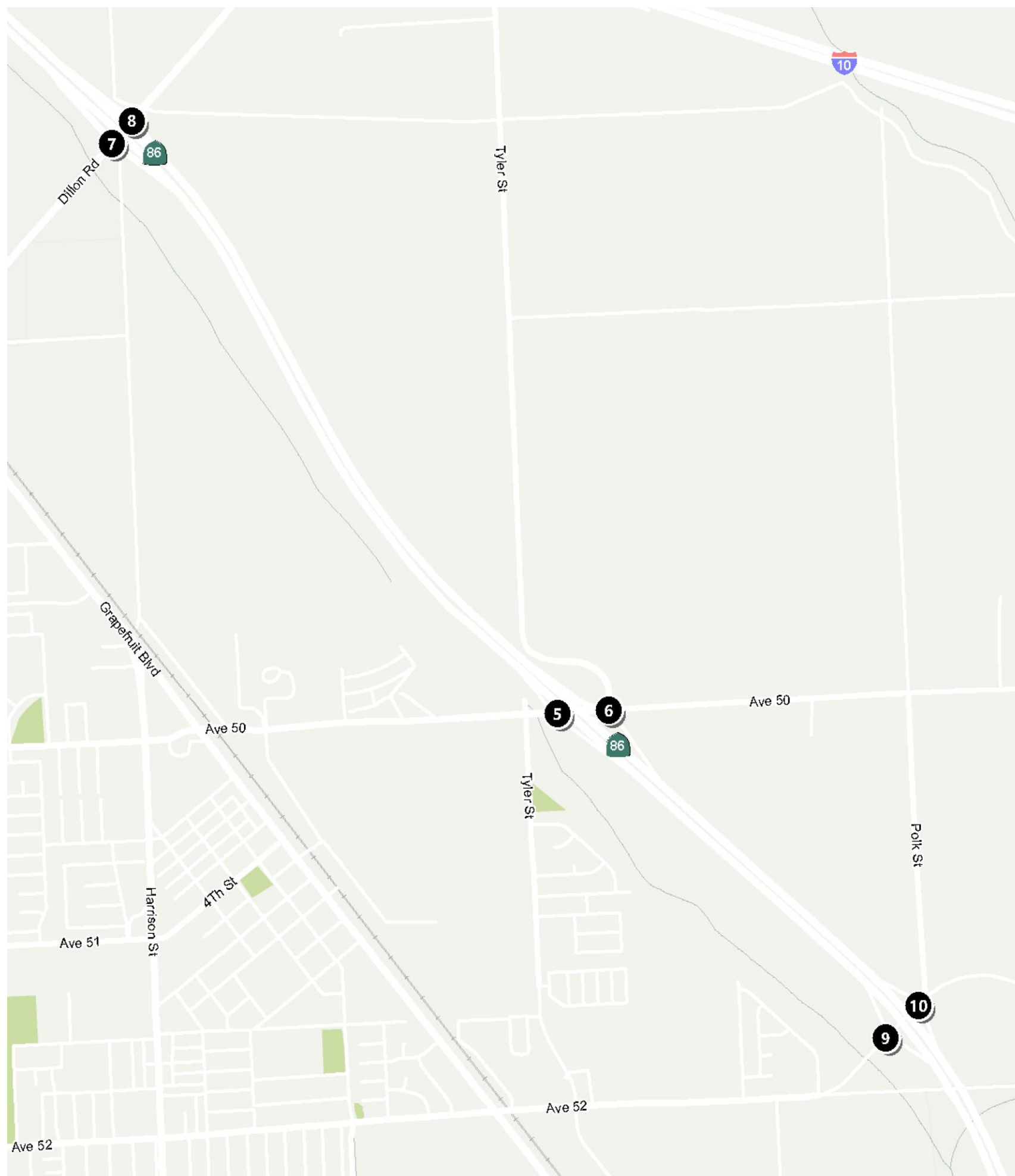
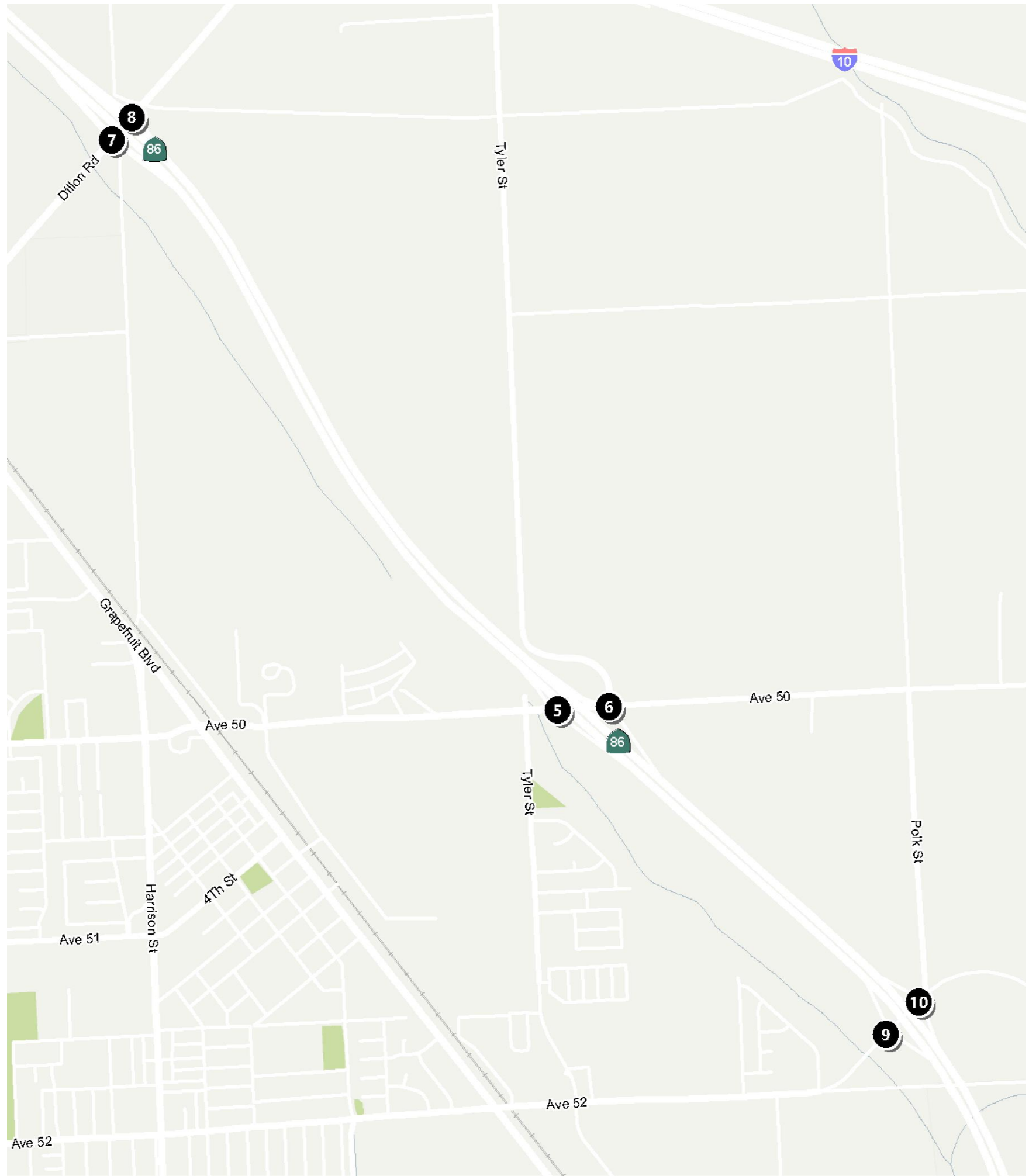


Figure 11
Peak Hour Intersection Volumes
Opening Year 2025 No Project



5. Southbound SR-86 Ramps/Avenue 50	6. Northbound SR-86 Ramps/Avenue 50	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road	9. Southbound SR-86 Ramps/Avenue 52	10. Northbound SR-86 Ramps/Avenue 52

Figure 12
Peak Hour Intersection Volumes
Opening Year 2025 Plus Project
Alternative 7



5. Southbound SR-86 Ramps/Avenue 50	6. Northbound SR-86 Ramps/Avenue 50	7. Southbound SR-86 Ramps/Dillon Road
8. Northbound SR-86 Ramps/Dillon Road	9. Southbound SR-86 Ramps/Avenue 52	10. Northbound SR-86 Ramps/Avenue 52

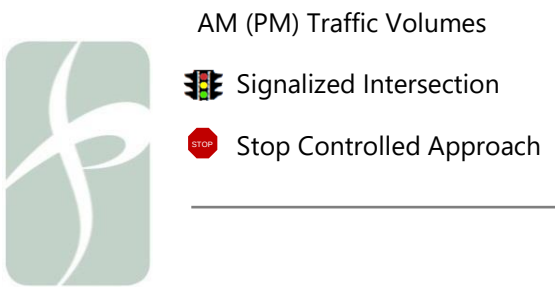


Figure 13
 Peak Hour Intersection Volumes
 Opening Year 2025 Plus Project
 Alternative 8

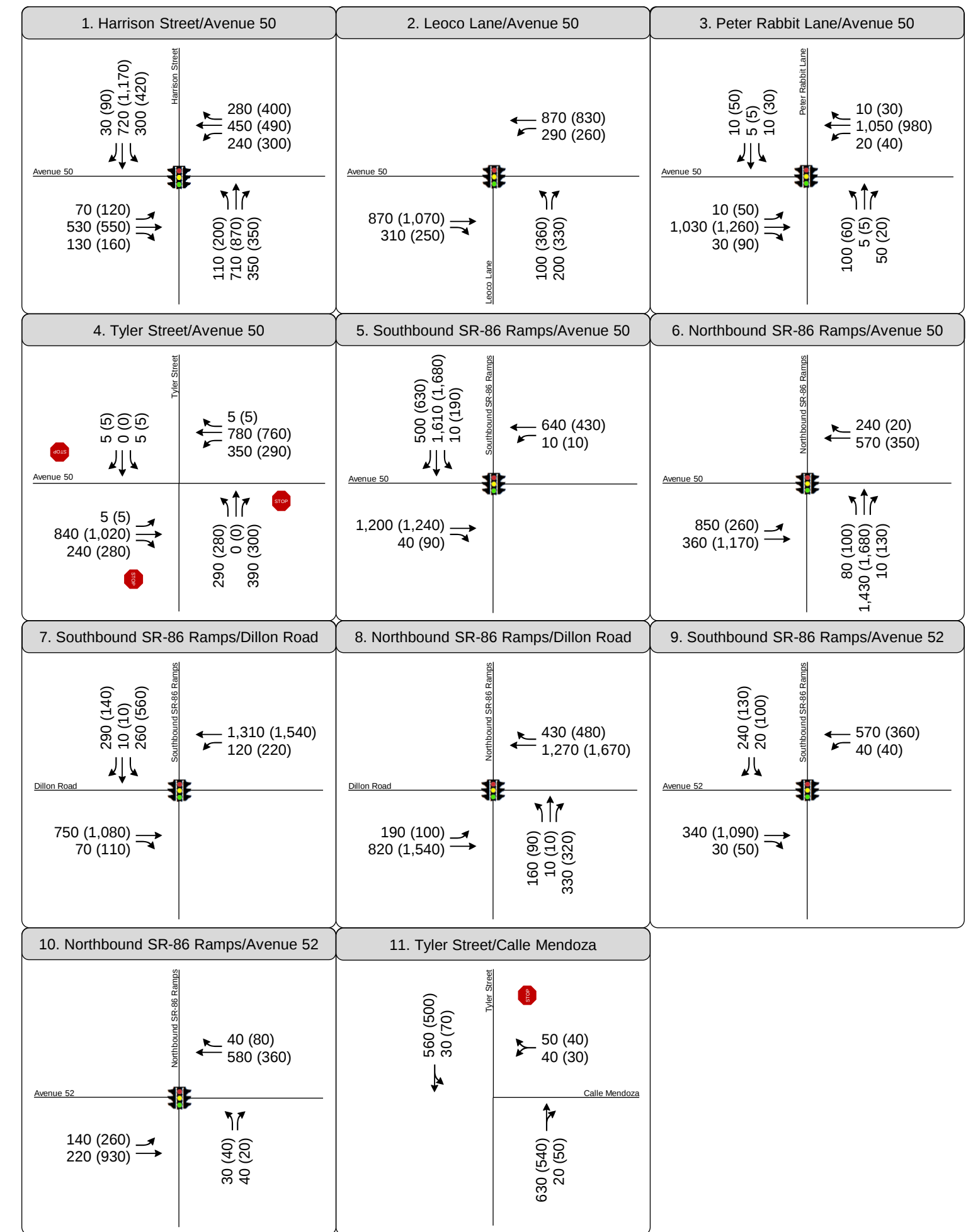
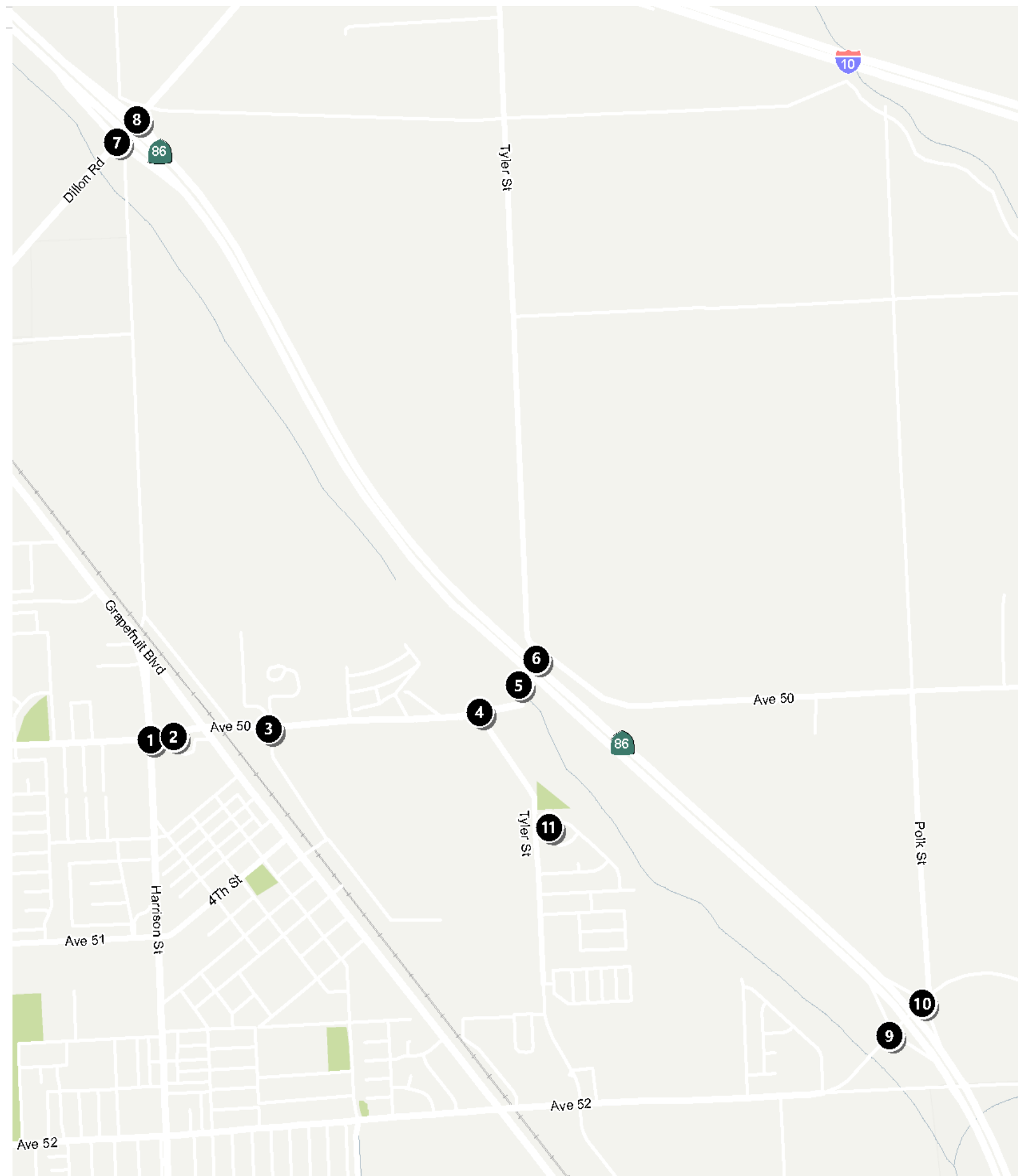


Figure 14
Peak Hour Intersection Volumes
Design Year 2045 No Project



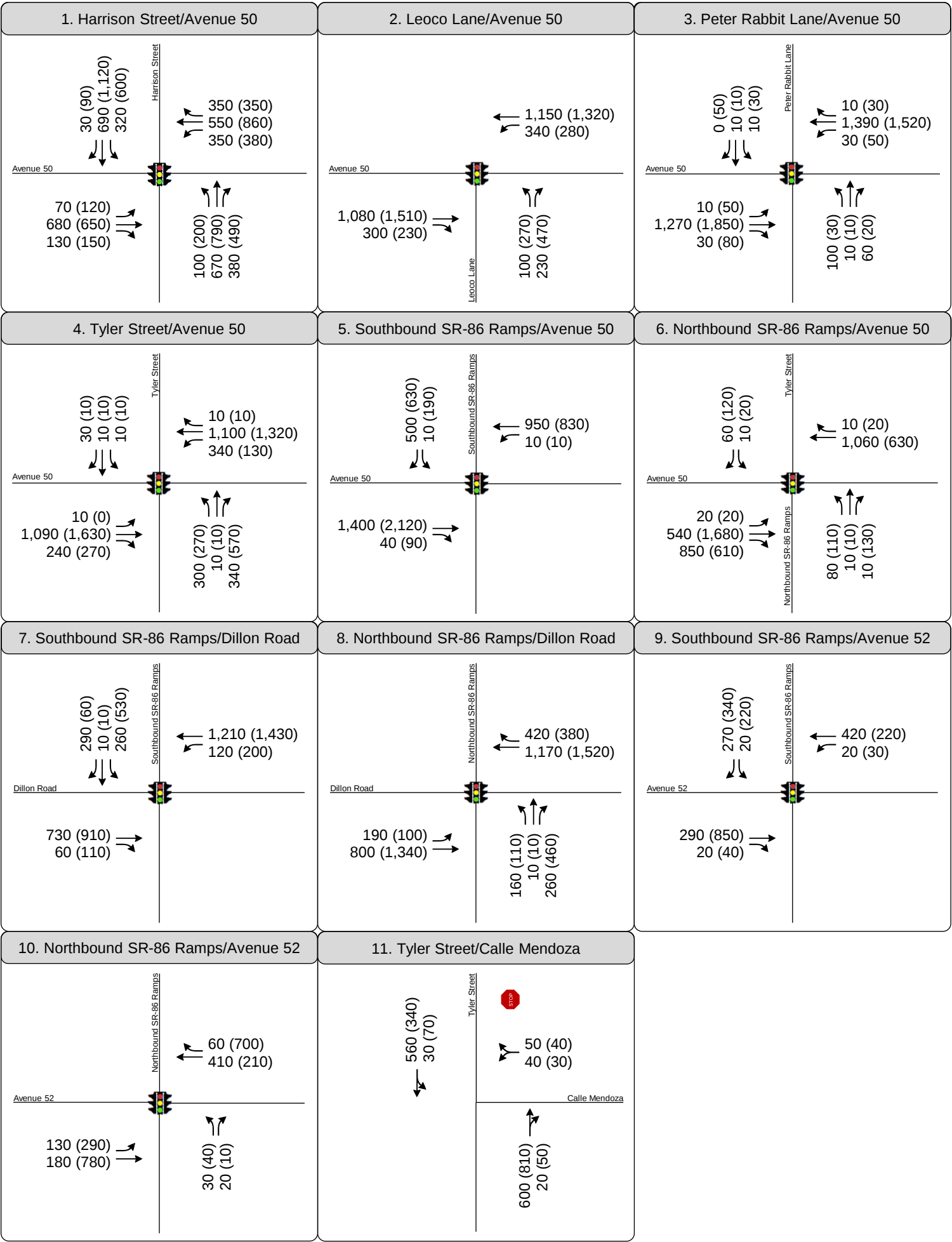
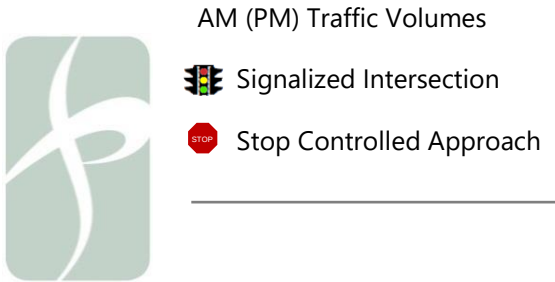


Figure 15
 Peak Hour Intersection Volumes
 Design Year 2045 Plus Project
 Alternative 7



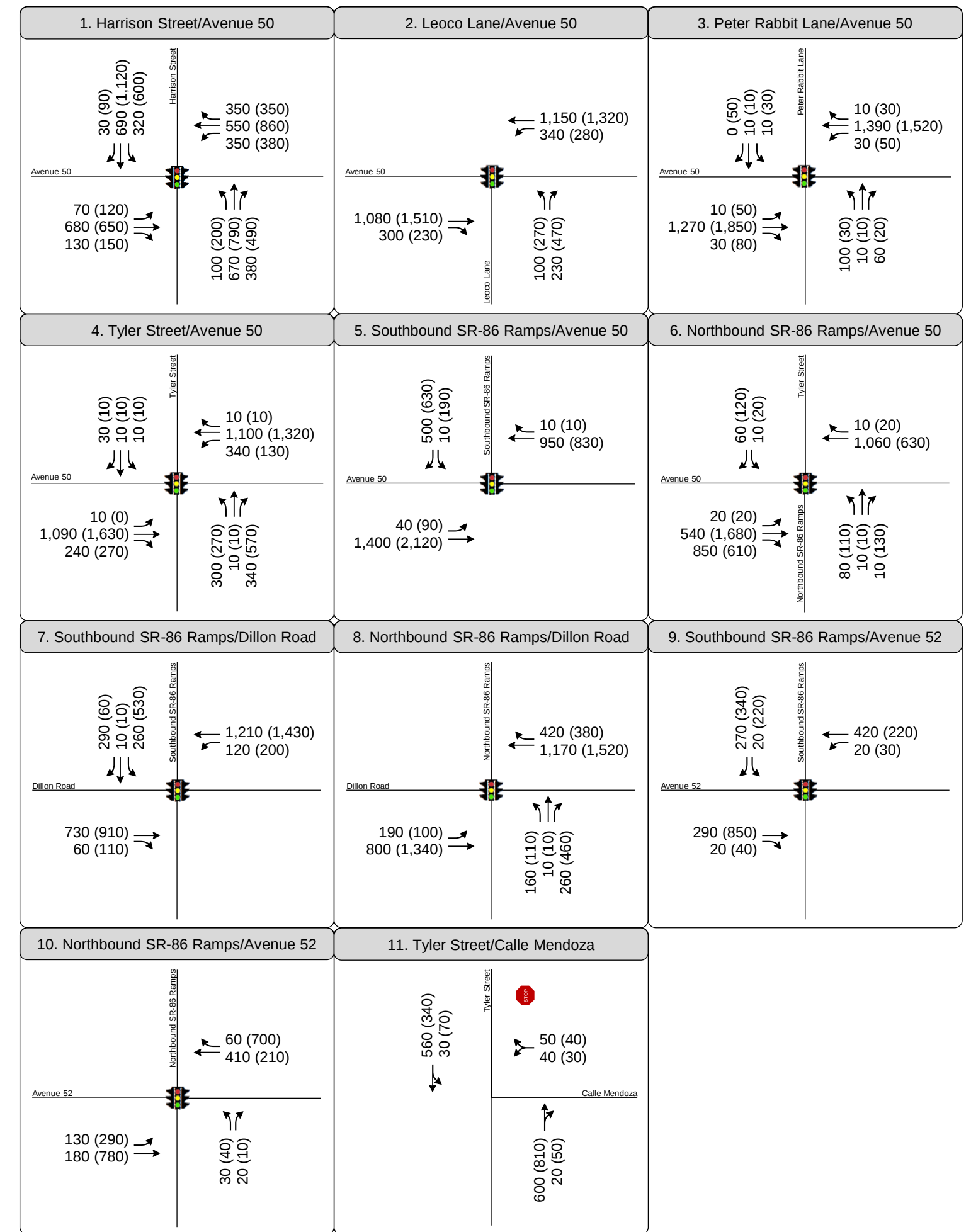
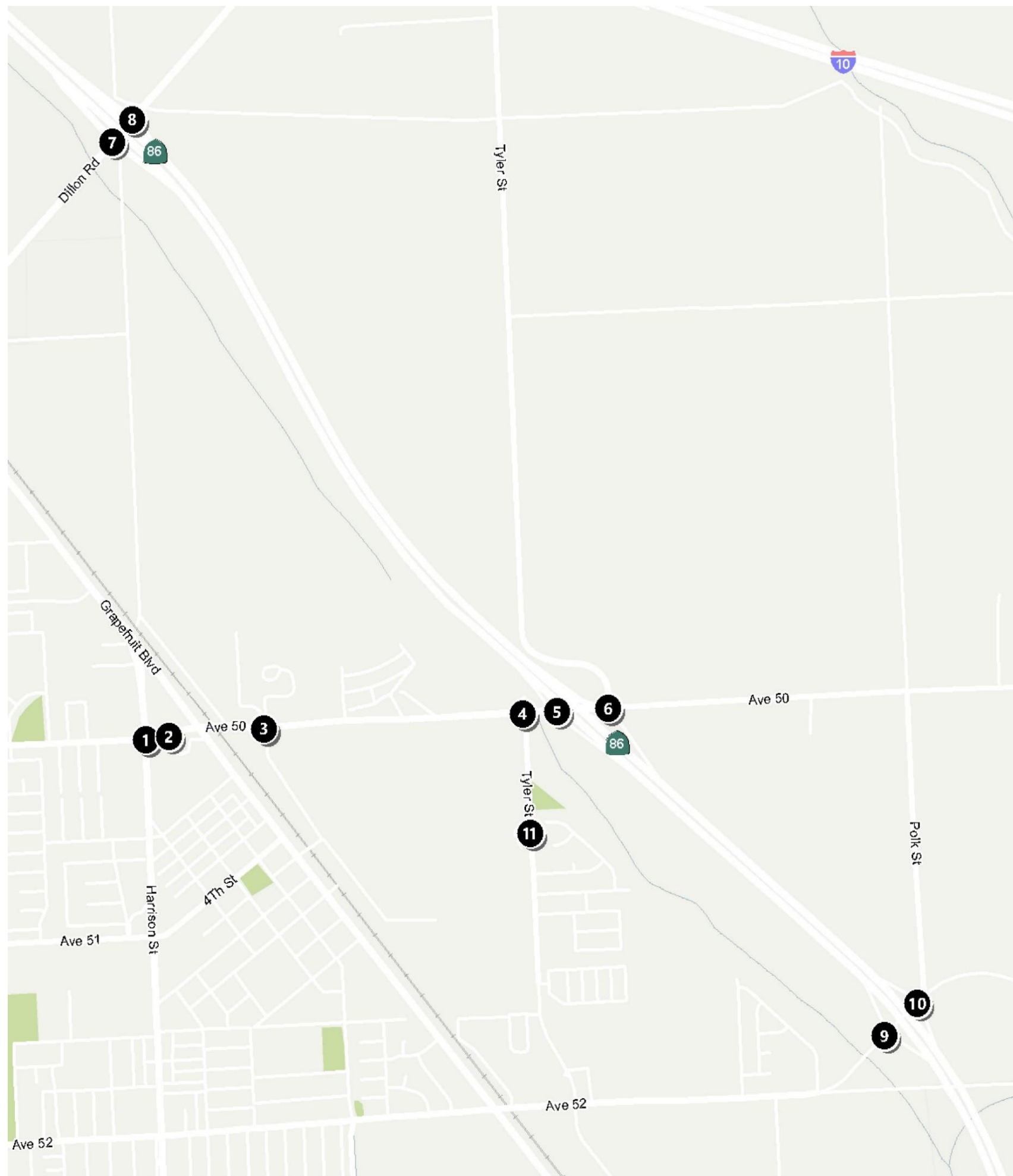


Figure 16
Peak Hour Intersection Volumes
Design Year 2045 Plus Project
Alternative 8

Attachment 2: Traffic Count Data

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 Bridge between Tyler and SR-86

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	11	0	0	0	0	0	11	12:00	50	7	0	2	0	0	59
0:15	12	0	0	1	0	0	13	12:15	43	6	0	2	0	0	51
0:30	4	0	0	0	0	0	4	12:30	43	4	0	2	0	0	49
0:45	8	0	0	0	0	0	8	12:45	53	9	0	3	0	0	65
1:00	7	0	0	0	0	0	7	13:00	56	6	0	0	0	0	62
1:15	5	1	0	1	0	0	7	13:15	59	6	0	2	0	1	68
1:30	4	0	0	1	0	0	5	13:30	57	7	0	1	0	0	65
1:45	7	0	0	0	0	0	7	13:45	53	4	0	3	0	1	61
2:00	5	0	0	0	0	0	5	14:00	52	4	0	1	0	1	58
2:15	3	1	0	0	0	0	4	14:15	53	8	0	3	0	0	64
2:30	9	0	0	0	0	0	9	14:30	88	5	0	1	0	0	94
2:45	7	0	0	0	0	0	7	14:45	68	4	1	1	0	0	74
3:00	3	0	0	1	0	0	4	15:00	73	12	3	3	0	0	91
3:15	8	0	0	0	0	0	8	15:15	58	7	0	1	0	0	66
3:30	12	0	0	0	0	0	12	15:30	91	6	1	6	0	0	104
3:45	8	0	0	0	0	0	8	15:45	76	4	0	4	0	0	84
4:00	4	0	1	2	0	0	7	16:00	80	1	1	2	0	0	84
4:15	21	0	2	0	0	0	23	16:15	90	2	0	2	0	0	94
4:30	26	0	1	1	0	0	28	16:30	89	0	0	3	0	1	93
4:45	33	2	0	2	0	2	39	16:45	72	2	0	4	0	0	78
5:00	36	1	0	0	0	0	37	17:00	93	0	1	1	0	0	95
5:15	53	1	0	1	0	0	55	17:15	87	1	0	2	0	0	90
5:30	83	3	3	1	0	0	90	17:30	75	1	0	0	0	1	77
5:45	98	4	2	3	0	0	107	17:45	82	1	0	2	0	0	85
6:00	94	5	0	2	0	1	102	18:00	82	1	1	1	0	0	85
6:15	97	5	2	1	0	1	106	18:15	84	0	0	3	0	0	87
6:30	121	6	2	1	0	3	133	18:30	68	1	0	0	0	0	69
6:45	76	12	2	1	0	0	91	18:45	59	4	0	0	0	0	63
7:00	98	5	4	2	0	2	111	19:00	53	1	0	2	0	0	56
7:15	88	2	1	2	0	0	93	19:15	53	1	0	1	0	0	55
7:30	107	6	0	2	0	0	115	19:30	48	0	0	1	0	0	49
7:45	103	2	1	4	0	0	110	19:45	52	2	0	1	0	0	55
8:00	73	1	1	2	0	0	77	20:00	51	0	0	0	0	0	51
8:15	73	2	1	1	0	0	77	20:15	51	0	0	0	0	0	51
8:30	62	0	1	2	0	0	65	20:30	59	0	0	1	0	0	60
8:45	51	2	2	2	0	0	57	20:45	37	0	0	0	0	0	37
9:00	59	4	1	4	0	2	70	21:00	38	3	0	1	0	0	42
9:15	52	2	1	0	0	0	55	21:15	27	0	0	1	0	0	28
9:30	57	5	1	2	0	0	65	21:30	55	0	0	0	0	0	55
9:45	40	8	2	0	0	1	51	21:45	35	0	0	0	0	0	35
10:00	44	5	0	2	0	0	51	22:00	18	0	0	1	0	0	19
10:15	50	5	3	3	0	0	61	22:15	25	0	0	1	0	0	26
10:30	43	5	1	0	0	0	49	22:30	16	0	0	0	0	0	16
10:45	55	8	1	2	0	0	66	22:45	22	0	0	0	0	0	22
11:00	55	8	1	2	0	0	66	23:00	13	0	0	1	0	0	14
11:15	35	3	2	4	1	0	45	23:15	12	0	0	0	0	0	12
11:30	58	4	0	4	0	0	66	23:30	25	0	0	1	0	0	26
11:45	54	5	2	0	0	0	61	23:45	15	0	0	1	0	0	16
TOTAL	2,112	123	41	59	1	12	2,348	TOTAL	2,639	120	8	68	0	5	2,840
AM PEAK HOUR							5:45 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							448	AM PEAK VOLUME							366

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,751	243	49	127	1	17	5,188
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	91.6%	4.7%	0.9%	2.4%	0.0%	0.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	9,612	473	101	248	5	34	10,473
CLASS 6	Buses	% OF TOTAL	91.8%	4.5%	1.0%	2.4%	0.0%	0.3%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 Bridge between Tyler and SR-86

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	17	0	0	0	0	0	17	12:00	45	2	2	2	0	0	51
0:15	10	0	0	0	0	0	10	12:15	49	8	1	1	0	0	59
0:30	7	0	0	0	0	0	7	12:30	61	2	1	2	1	0	67
0:45	9	0	0	0	0	0	9	12:45	64	5	2	4	0	0	75
1:00	6	0	0	0	0	0	6	13:00	60	4	0	3	0	1	68
1:15	6	0	0	0	0	0	6	13:15	74	5	1	3	0	0	83
1:30	8	0	0	0	0	0	8	13:30	50	3	1	2	0	2	58
1:45	8	0	0	0	0	0	8	13:45	78	6	1	1	0	0	86
2:00	7	0	0	0	0	0	7	14:00	63	9	0	0	0	0	72
2:15	11	0	0	0	0	0	11	14:15	75	6	0	2	0	0	83
2:30	7	1	0	0	0	0	8	14:30	80	8	0	6	0	0	94
2:45	4	0	0	0	0	0	4	14:45	83	10	1	0	0	0	94
3:00	5	0	0	0	0	0	5	15:00	99	6	3	4	0	0	112
3:15	3	0	0	0	0	0	3	15:15	114	9	0	4	0	0	127
3:30	1	0	0	0	0	0	1	15:30	112	3	4	2	0	0	121
3:45	6	0	0	0	0	0	6	15:45	125	5	2	1	0	1	134
4:00	5	0	0	0	0	0	5	16:00	130	6	0	5	0	0	141
4:15	8	0	0	1	0	0	9	16:15	104	0	1	1	0	0	106
4:30	11	3	0	1	0	0	15	16:30	108	1	2	3	0	1	115
4:45	19	0	0	1	0	0	20	16:45	113	4	0	4	0	0	121
5:00	13	1	0	0	0	0	14	17:00	107	4	1	0	1	0	113
5:15	23	1	0	1	0	0	25	17:15	120	1	1	0	0	0	122
5:30	53	1	0	1	0	0	55	17:30	122	1	2	2	0	0	127
5:45	66	2	0	4	0	1	73	17:45	103	3	1	1	0	1	109
6:00	33	0	0	0	0	0	33	18:00	87	0	0	0	0	0	87
6:15	48	3	0	1	0	0	52	18:15	97	4	1	0	0	0	102
6:30	51	5	0	1	0	2	59	18:30	86	3	0	1	0	0	90
6:45	72	2	0	1	0	1	76	18:45	82	3	0	1	0	0	86
7:00	51	1	1	5	0	1	59	19:00	78	0	0	0	0	0	78
7:15	64	0	2	0	1	0	67	19:15	68	4	0	3	0	0	75
7:30	85	3	1	3	0	0	92	19:30	46	0	0	0	0	0	46
7:45	92	3	1	1	0	0	97	19:45	53	1	0	0	0	0	54
8:00	65	1	1	0	0	0	67	20:00	39	1	0	0	0	0	40
8:15	55	0	1	4	0	1	61	20:15	51	0	0	0	0	0	51
8:30	60	0	2	3	0	0	65	20:30	64	2	0	0	0	0	66
8:45	57	0	3	4	0	1	65	20:45	56	1	0	1	0	0	58
9:00	35	7	0	2	1	0	45	21:00	56	1	0	0	0	0	57
9:15	32	7	1	1	0	0	41	21:15	47	1	0	0	0	0	48
9:30	35	4	1	2	0	0	42	21:30	28	1	0	0	0	0	29
9:45	40	3	1	3	0	0	47	21:45	38	1	0	0	0	0	39
10:00	31	4	1	1	0	0	37	22:00	43	0	0	1	0	0	44
10:15	41	5	0	2	0	2	50	22:15	30	0	0	2	0	0	32
10:30	52	6	0	3	0	0	61	22:30	36	0	0	0	0	0	36
10:45	52	5	0	1	0	0	58	22:45	22	0	0	1	0	0	23
11:00	39	3	1	0	0	2	45	23:00	21	0	0	2	0	0	23
11:15	49	5	0	2	0	0	56	23:15	23	1	1	1	0	0	26
11:30	37	9	1	2	0	0	49	23:30	14	1	0	0	0	0	15
11:45	49	8	4	3	0	0	64	23:45	19	1	1	1	0	0	22
TOTAL	1,538	93	22	54	2	11	1,720	TOTAL	3,323	137	30	67	2	6	3,565
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:15 PM
AM PEAK VOLUME							323	AM PEAK VOLUME							523

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,861	230	52	121	4	17	5,285
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	92.0%	4.4%	1.0%	2.3%	0.1%	0.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 between Leoco and Peter Rabbit

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	33	1	0	0	0	0	34	12:00	100	2	3	1	1	0	107
0:15	12	0	0	0	0	0	12	12:15	97	2	1	1	0	0	101
0:30	3	0	0	0	0	0	3	12:30	109	3	1	3	0	0	116
0:45	8	0	0	0	0	0	8	12:45	125	3	1	5	0	1	135
1:00	10	0	0	0	0	0	10	13:00	139	2	0	3	0	0	144
1:15	15	0	0	0	0	0	15	13:15	123	1	0	3	0	0	127
1:30	10	0	0	0	0	0	10	13:30	115	4	0	0	0	2	121
1:45	12	0	0	0	0	0	12	13:45	94	1	2	2	0	1	100
2:00	10	0	0	1	0	0	11	14:00	109	3	0	0	0	1	113
2:15	7	1	0	0	0	0	8	14:15	120	3	1	0	0	0	124
2:30	11	1	0	0	0	0	12	14:30	180	2	0	2	0	2	186
2:45	8	0	0	0	0	0	8	14:45	161	3	0	0	0	0	164
3:00	7	0	0	0	0	0	7	15:00	150	7	2	2	0	0	161
3:15	6	0	0	0	0	0	6	15:15	156	0	2	3	0	0	161
3:30	8	0	0	0	0	0	8	15:30	182	3	4	1	0	0	190
3:45	9	0	0	0	0	0	9	15:45	179	7	2	1	0	3	192
4:00	8	0	0	0	0	0	8	16:00	152	3	1	2	0	0	158
4:15	13	0	0	1	0	0	14	16:15	162	6	0	3	0	2	173
4:30	35	1	1	1	0	0	38	16:30	139	3	0	7	0	1	150
4:45	43	1	0	1	0	2	47	16:45	115	5	1	1	0	1	123
5:00	56	0	0	1	0	0	57	17:00	127	2	3	1	0	0	133
5:15	78	0	1	2	0	0	81	17:15	124	3	1	3	0	0	131
5:30	66	2	3	0	0	0	71	17:30	127	4	0	3	0	1	135
5:45	66	2	2	1	0	0	71	17:45	146	2	0	2	0	0	150
6:00	79	1	1	1	0	2	84	18:00	161	2	0	0	0	0	163
6:15	79	1	7	6	0	2	95	18:15	160	1	0	1	0	1	163
6:30	113	5	1	2	0	1	122	18:30	121	0	0	0	0	0	121
6:45	107	2	5	2	0	1	117	18:45	143	1	1	0	0	0	145
7:00	122	4	4	5	0	2	137	19:00	101	0	1	0	0	0	102
7:15	123	4	2	6	0	1	136	19:15	110	0	0	0	0	0	110
7:30	158	7	1	5	0	2	173	19:30	120	2	0	1	0	0	123
7:45	140	6	1	6	0	0	153	19:45	64	1	0	1	0	0	66
8:00	117	5	0	0	0	0	122	20:00	66	0	0	0	0	0	66
8:15	91	3	0	2	0	1	97	20:15	80	2	0	0	0	0	82
8:30	72	2	1	3	0	0	78	20:30	75	2	0	0	0	0	77
8:45	77	3	1	1	0	0	82	20:45	90	1	0	0	0	0	91
9:00	75	2	1	3	1	0	82	21:00	77	1	0	1	0	0	79
9:15	76	3	1	4	0	2	86	21:15	61	1	0	0	0	0	62
9:30	70	5	2	5	0	1	83	21:30	44	1	0	0	0	0	45
9:45	72	4	2	1	0	0	79	21:45	62	1	0	0	0	0	63
10:00	53	4	1	0	0	0	58	22:00	55	0	0	0	0	0	55
10:15	69	3	0	1	0	0	73	22:15	36	1	0	1	0	0	38
10:30	83	5	0	2	0	0	90	22:30	41	0	0	0	0	0	41
10:45	86	6	2	2	0	0	96	22:45	27	0	0	0	0	0	27
11:00	80	1	1	2	0	1	85	23:00	31	0	0	0	0	0	31
11:15	91	3	3	2	0	1	100	23:15	24	0	0	0	0	0	24
11:30	104	6	2	3	0	0	115	23:30	22	0	0	0	0	0	22
11:45	119	4	6	4	0	0	133	23:45	20	1	0	0	0	0	21
TOTAL	2,790	98	52	76	1	19	3,036	TOTAL	5,022	92	27	54	1	16	5,212
AM PEAK HOUR							7:00 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							599	AM PEAK VOLUME							713

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	7,812	190	79	130	2	35	8,248
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	94.7%	2.3%	1.0%	1.6%	0.0%	0.4%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	15,244	417	176	293	3	70	16,203
CLASS 6	Buses	% OF TOTAL	94.1%	2.6%	1.1%	1.8%	0.0%	0.4%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 between Leoco and Peter Rabbit

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	10	0	0	0	0	0	10	12:00	100	8	0	3	0	0	111
0:15	11	0	0	0	0	0	11	12:15	94	3	4	4	0	1	106
0:30	9	0	0	0	0	0	9	12:30	98	0	0	6	0	1	105
0:45	12	0	0	0	0	0	12	12:45	95	5	2	4	0	0	106
1:00	10	0	0	0	0	0	10	13:00	120	6	0	1	0	1	128
1:15	10	0	0	1	0	0	11	13:15	107	4	4	1	0	1	117
1:30	5	1	0	0	0	0	6	13:30	102	2	0	1	0	0	105
1:45	6	0	0	0	0	0	6	13:45	80	4	0	3	0	2	89
2:00	4	0	0	0	0	0	4	14:00	83	5	2	2	0	1	93
2:15	3	1	0	0	0	0	4	14:15	125	10	2	0	0	2	139
2:30	7	0	0	0	0	0	7	14:30	119	4	2	1	0	1	127
2:45	7	0	0	0	0	0	7	14:45	129	3	2	0	0	0	134
3:00	5	0	0	1	0	0	6	15:00	115	5	3	0	0	0	123
3:15	6	0	0	0	0	0	6	15:15	123	6	1	0	0	0	130
3:30	14	0	0	0	0	0	14	15:30	122	2	1	4	0	1	130
3:45	16	1	0	1	0	0	18	15:45	113	5	0	2	0	0	120
4:00	7	0	1	2	0	0	10	16:00	173	6	2	6	0	0	187
4:15	21	0	2	1	0	0	24	16:15	173	5	1	0	0	1	180
4:30	25	0	0	7	0	0	32	16:30	187	2	3	0	0	0	192
4:45	30	0	0	2	0	0	32	16:45	162	8	3	3	0	0	176
5:00	22	0	0	2	0	0	24	17:00	170	10	0	1	0	1	182
5:15	27	2	0	3	0	0	32	17:15	171	5	2	1	0	0	179
5:30	47	0	2	1	0	0	50	17:30	173	6	1	3	0	0	183
5:45	60	0	3	4	0	0	67	17:45	161	3	2	0	0	1	167
6:00	73	2	1	0	0	0	76	18:00	149	2	1	1	0	0	153
6:15	122	6	3	2	0	1	134	18:15	137	0	1	0	0	0	138
6:30	98	3	7	10	0	3	121	18:30	98	0	0	0	0	0	98
6:45	91	6	1	2	0	0	100	18:45	129	0	0	0	0	0	129
7:00	80	3	2	5	0	2	92	19:00	119	1	1	0	0	0	121
7:15	87	6	2	6	0	0	101	19:15	91	1	0	1	0	0	93
7:30	153	2	5	5	0	0	165	19:30	107	2	0	2	0	1	112
7:45	133	3	1	3	0	0	140	19:45	86	0	0	0	0	0	86
8:00	144	5	3	3	0	0	155	20:00	96	0	0	0	0	0	96
8:15	111	6	3	5	0	3	128	20:15	85	0	0	0	0	0	85
8:30	105	2	1	3	0	1	112	20:30	87	0	0	0	0	0	87
8:45	89	2	2	5	0	1	99	20:45	80	1	0	0	0	0	81
9:00	77	6	1	4	0	2	90	21:00	70	0	0	0	0	0	70
9:15	68	2	3	5	1	2	81	21:15	66	0	0	0	0	0	66
9:30	64	5	1	2	0	0	72	21:30	69	1	0	1	0	0	71
9:45	52	4	4	3	0	1	64	21:45	58	0	0	0	0	0	58
10:00	62	3	3	1	0	0	69	22:00	42	1	0	0	0	0	43
10:15	65	9	1	4	0	0	79	22:15	40	0	0	0	0	0	40
10:30	77	3	0	5	0	0	85	22:30	24	0	0	2	0	0	26
10:45	86	0	1	3	0	3	93	22:45	28	0	0	1	0	0	29
11:00	93	6	0	1	0	0	100	23:00	25	0	0	0	0	1	26
11:15	106	4	1	1	0	0	112	23:15	17	2	0	2	0	0	21
11:30	98	1	1	3	0	0	103	23:30	23	0	0	0	0	0	23
11:45	86	4	2	1	0	0	93	23:45	17	1	0	0	0	0	18
TOTAL	2,594	98	57	107	1	19	2,876	TOTAL	4,838	129	40	56	0	16	5,079
AM PEAK HOUR							7:30 AM	AM PEAK HOUR							4:00 PM
AM PEAK VOLUME							588	AM PEAK VOLUME							735

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	7,432	227	97	163	1	35	7,955
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.4%	2.9%	1.2%	2.0%	0.0%	0.4%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015

CITY: Coachella

JOB #: SC0780

LOCATION: Avenue 50 west of Harrison

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	8	1	0	0	0	0	9	12:00	55	6	0	1	0	1	63
0:15	4	0	0	0	0	0	4	12:15	60	4	2	3	0	1	70
0:30	2	2	0	0	0	0	4	12:30	73	4	0	2	0	1	80
0:45	8	0	0	0	0	0	8	12:45	76	2	1	1	0	2	82
1:00	5	0	0	0	0	0	5	13:00	71	2	0	0	0	0	73
1:15	3	0	0	0	0	0	3	13:15	58	2	1	1	0	1	63
1:30	2	0	0	1	0	0	3	13:30	71	5	0	0	0	0	76
1:45	3	0	0	0	0	0	3	13:45	57	3	0	1	0	4	65
2:00	3	0	0	0	0	0	3	14:00	64	2	2	0	0	1	69
2:15	3	0	0	0	0	0	3	14:15	87	5	1	1	0	2	96
2:30	3	0	0	0	0	0	3	14:30	97	3	0	1	0	1	102
2:45	4	0	0	0	0	0	4	14:45	89	3	0	0	0	0	92
3:00	5	0	0	0	0	0	5	15:00	81	3	0	1	0	1	86
3:15	3	0	0	0	0	0	3	15:15	82	3	1	0	0	0	86
3:30	13	0	0	0	0	0	13	15:30	79	4	3	3	0	3	92
3:45	5	0	0	0	0	0	5	15:45	100	3	1	0	0	1	105
4:00	5	0	0	0	0	0	5	16:00	120	2	0	1	0	1	124
4:15	13	0	0	0	0	0	13	16:15	113	5	0	1	0	2	121
4:30	16	0	0	0	0	0	16	16:30	81	4	1	2	0	0	88
4:45	19	0	0	0	0	0	19	16:45	83	1	0	1	0	2	87
5:00	24	3	0	0	0	1	28	17:00	89	4	0	1	0	0	94
5:15	36	2	0	1	0	0	39	17:15	83	3	0	1	0	0	87
5:30	60	0	0	1	0	1	62	17:30	95	2	0	1	0	2	100
5:45	77	2	0	1	0	0	80	17:45	117	1	0	1	0	0	119
6:00	53	5	0	1	0	2	61	18:00	87	0	1	0	0	1	89
6:15	54	3	0	0	0	1	58	18:15	80	1	0	0	0	0	81
6:30	55	5	0	1	0	1	62	18:30	79	1	0	0	0	1	81
6:45	63	2	2	1	0	1	69	18:45	75	1	0	0	0	0	76
7:00	55	0	2	4	0	1	62	19:00	71	2	0	0	0	0	73
7:15	69	5	0	2	0	1	77	19:15	55	1	1	0	0	1	58
7:30	92	3	2	0	0	2	99	19:30	56	0	0	0	0	0	56
7:45	104	3	1	3	0	0	111	19:45	39	1	0	0	0	2	42
8:00	85	2	0	1	0	2	90	20:00	56	0	0	0	0	0	56
8:15	47	2	0	1	0	0	50	20:15	61	0	0	0	0	1	62
8:30	37	7	1	0	0	2	47	20:30	44	0	0	0	0	0	44
8:45	61	2	0	0	0	1	64	20:45	44	1	0	0	0	1	46
9:00	56	1	0	0	0	4	61	21:00	48	1	0	0	0	0	49
9:15	53	3	0	0	0	1	57	21:15	52	0	0	0	0	0	52
9:30	48	1	0	3	0	0	52	21:30	43	2	0	0	0	1	46
9:45	49	3	0	0	0	2	54	21:45	48	2	0	0	0	0	50
10:00	51	3	1	0	0	0	55	22:00	20	0	0	0	0	0	20
10:15	54	6	1	2	0	2	65	22:15	23	0	0	0	0	0	23
10:30	43	2	0	2	0	0	47	22:30	20	0	0	0	0	0	20
10:45	54	2	2	2	0	1	61	22:45	12	0	0	0	0	0	12
11:00	56	5	2	1	0	1	65	23:00	11	0	0	0	0	0	11
11:15	58	5	0	5	1	1	70	23:15	9	0	0	0	0	0	9
11:30	63	2	1	0	0	1	67	23:30	13	1	0	0	0	0	14
11:45	65	1	0	1	0	1	68	23:45	11	2	0	0	0	0	13
TOTAL	1,749	83	15	34	1	30	1,912	TOTAL	3,038	92	15	24	0	34	3,203
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:30 PM
AM PEAK VOLUME							377	AM PEAK VOLUME							442

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,787	175	30	58	1	64	5,115
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.6%	3.4%	0.6%	1.1%	0.0%	1.3%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV	TOTAL: ALL	9,482	354	66	119	1	122	10,144
CLASS 6	Buses	% OF TOTAL	93.5%	3.5%	0.7%	1.2%	0.0%	1.2%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH CLASSIFICATION)

Prepared by AimTD LLC tel. 714 253 7888 pacific@aimtd.com

DATE: Thursday, November 19, 2015
JOB #: SC0780

CITY: Coachella
LOCATION: Avenue 50 west of Harrison

AM TIME	1	2	3	4	5	6	TOTAL	PM Time	1	2	3	4	5	6	TOTAL
0:00	15	0	0	0	0	0	15	12:00	52	5	0	1	0	1	59
0:15	4	0	0	0	0	0	4	12:15	49	2	0	1	0	0	52
0:30	5	0	0	0	0	0	5	12:30	44	2	1	2	0	1	50
0:45	4	0	0	0	0	0	4	12:45	63	5	1	1	0	1	71
1:00	9	0	0	0	0	0	9	13:00	74	1	0	1	0	1	77
1:15	3	0	0	0	0	0	3	13:15	83	1	0	1	0	0	85
1:30	7	0	0	0	0	0	7	13:30	66	5	1	0	0	1	73
1:45	6	0	0	0	0	0	6	13:45	52	2	2	0	0	2	58
2:00	6	0	0	0	0	0	6	14:00	88	2	0	0	0	0	90
2:15	5	0	0	0	0	0	5	14:15	81	4	1	0	0	2	88
2:30	4	1	0	0	0	0	5	14:30	85	4	0	0	0	0	89
2:45	5	0	0	0	0	0	5	14:45	94	5	2	0	0	0	101
3:00	3	0	0	0	0	0	3	15:00	102	5	0	1	0	1	109
3:15	1	0	0	0	0	0	1	15:15	95	4	0	2	0	0	101
3:30	9	0	0	0	0	0	9	15:30	103	7	0	0	0	1	111
3:45	0	1	0	0	0	0	1	15:45	106	5	1	1	0	3	116
4:00	4	0	0	0	0	0	4	16:00	133	3	0	1	0	1	138
4:15	3	0	0	0	0	0	3	16:15	106	3	0	1	0	0	110
4:30	15	0	0	3	0	0	18	16:30	124	0	0	0	0	0	124
4:45	17	0	0	1	0	0	18	16:45	96	3	1	0	0	1	101
5:00	12	0	0	0	0	0	12	17:00	101	6	0	0	0	0	107
5:15	23	0	0	3	0	0	26	17:15	109	4	0	0	0	1	114
5:30	22	2	0	2	0	1	27	17:30	119	1	0	1	0	0	121
5:45	24	2	0	1	0	0	27	17:45	92	3	0	0	0	1	96
6:00	40	3	2	1	0	2	48	18:00	88	3	0	0	0	0	91
6:15	37	0	0	1	0	3	41	18:15	82	0	0	0	0	1	83
6:30	46	2	3	6	0	1	58	18:30	95	1	0	0	0	1	97
6:45	65	2	3	3	0	2	75	18:45	86	0	0	0	0	1	87
7:00	41	5	1	4	0	1	52	19:00	65	1	0	0	0	1	67
7:15	63	3	2	4	0	1	73	19:15	62	0	0	0	0	0	62
7:30	77	5	3	2	0	0	87	19:30	65	0	0	0	0	1	66
7:45	60	2	1	1	0	2	66	19:45	44	1	1	0	0	0	46
8:00	56	4	3	2	0	0	65	20:00	54	1	0	0	0	1	56
8:15	61	3	1	1	0	3	69	20:15	63	0	0	0	0	0	63
8:30	50	3	1	2	0	1	57	20:30	54	2	0	0	0	0	56
8:45	51	7	0	0	0	3	61	20:45	36	1	0	0	0	1	38
9:00	49	1	0	0	0	1	51	21:00	42	1	0	0	0	0	43
9:15	44	3	0	0	0	2	49	21:15	49	0	0	0	0	1	50
9:30	47	2	0	1	0	2	52	21:30	25	3	0	0	0	0	28
9:45	40	5	1	1	0	0	47	21:45	31	1	0	0	0	0	32
10:00	45	3	0	1	0	0	49	22:00	33	0	0	0	0	0	33
10:15	45	2	1	1	0	1	50	22:15	23	0	0	0	0	0	23
10:30	57	3	0	0	0	0	60	22:30	18	0	0	0	0	0	18
10:45	59	2	1	2	0	2	66	22:45	17	0	0	0	0	0	17
11:00	54	5	0	0	0	0	59	23:00	14	1	0	0	0	0	15
11:15	55	2	1	1	0	3	62	23:15	13	1	0	0	0	0	14
11:30	78	1	0	1	0	1	81	23:30	15	2	0	0	0	0	17
11:45	69	3	1	2	0	0	75	23:45	9	1	0	0	0	0	10
TOTAL	1,495	77	25	47	0	32	1,676	TOTAL	3,200	102	11	14	0	26	3,353
AM PEAK HOUR							7:15 AM	AM PEAK HOUR							3:45 PM
AM PEAK VOLUME							291	AM PEAK VOLUME							488

CLASS 1	PASSENGER VEHICLES	TOTAL: AM+PM	4,695	179	36	61	0	58	5,029
CLASS 2	2-AXLE TRUCKS	% OF TOTAL	93.4%	3.6%	0.7%	1.2%	0.0%	1.2%	100.0%
CLASS 3	3-AXLE TRUCKS								
CLASS 4	4 OR MORE AXLE TRUCKS								
CLASS 5	RV								
CLASS 6	BUS								

A816

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 02, 2017

JOB #: SC1311

LOCATION#

SR-86 ML east of Avenue 50

AM TIME	NORTHWEST													TOTAL	PM Time	NORTHWEST													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	25	2	0	1	0	0	5	3	0	0	0	0	36	12:00	0	118	27	0	6	6	0	0	13	0	6	0	0	176
0:15	0	13	1	0	0	2	0	3	4	0	1	0	0	24	12:15	0	86	33	0	10	7	0	0	22	1	3	10	0	172
0:30	0	24	2	0	1	1	0	8	4	0	0	0	0	40	12:30	0	96	21	0	5	1	0	0	22	0	5	8	0	158
0:45	0	21	1	0	3	2	0	2	3	0	0	0	0	32	12:45	0	91	22	1	7	1	0	0	27	0	10	5	0	164
1:00	0	18	2	0	1	1	2	4	0	0	0	0	0	28	13:00	0	101	23	0	12	3	0	2	18	0	9	7	0	175
1:15	0	7	1	0	2	0	0	2	2	0	0	0	0	14	13:15	0	104	22	0	7	2	0	0	30	0	9	1	0	175
1:30	0	19	1	0	3	1	0	2	2	0	0	0	0	28	13:30	0	127	12	0	10	5	0	0	36	0	4	8	0	202
1:45	0	26	2	0	4	2	0	5	1	0	0	0	0	40	13:45	0	122	14	0	4	3	0	0	25	0	9	7	0	184
2:00	0	16	1	0	2	0	2	1	3	0	0	0	0	25	14:00	1	150	25	0	10	1	0	0	25	0	11	6	0	229
2:15	0	9	0	0	8	1	0	5	0	0	0	0	0	23	14:15	0	155	16	0	12	1	0	0	24	0	7	1	0	216
2:30	0	17	2	0	4	0	0	2	0	0	0	0	0	25	14:30	0	153	27	0	6	3	0	0	36	0	10	3	0	238
2:45	0	14	1	0	4	2	1	9	0	0	0	0	0	31	14:45	0	158	10	0	10	5	0	0	24	0	7	1	0	215
3:00	0	23	0	0	5	1	0	2	1	0	0	0	0	32	15:00	0	180	25	0	2	1	0	0	30	0	3	5	0	246
3:15	0	16	2	0	7	0	0	2	1	0	0	0	0	28	15:15	1	192	23	0	2	4	0	0	21	0	8	8	0	259
3:30	0	20	0	0	4	3	0	6	2	0	0	0	0	35	15:30	2	194	23	1	3	1	0	0	21	0	4	1	0	250
3:45	0	27	0	0	5	0	0	1	1	0	0	0	0	34	15:45	2	167	31	1	8	4	0	0	37	0	6	1	0	257
4:00	0	32	4	0	2	2	0	5	2	0	0	0	0	47	16:00	0	155	25	1	8	1	0	0	36	0	2	1	0	229
4:15	0	47	2	0	1	0	0	10	1	0	0	0	0	61	16:15	2	172	18	0	4	1	0	1	33	0	7	4	0	242
4:30	0	65	10	0	1	0	0	14	1	0	0	0	0	91	16:30	0	168	19	4	5	0	0	0	22	0	1	3	0	222
4:45	0	71	7	0	5	1	0	5	2	0	0	0	0	91	16:45	1	159	14	1	4	0	0	0	34	0	0	0	0	213
5:00	0	57	2	0	1	1	0	6	5	0	1	0	0	73	17:00	1	156	15	0	3	2	0	0	33	0	5	0	0	215
5:15	0	96	2	0	5	0	0	2	12	0	0	0	0	117	17:15	1	159	11	2	3	0	0	0	23	0	4	1	0	204
5:30	0	129	1	0	3	5	0	6	8	0	1	0	0	153	17:30	1	168	9	1	2	1	0	0	32	0	1	3	0	218
5:45	0	129	12	0	4	8	0	0	13	0	2	0	0	168	17:45	1	139	27	1	1	0	0	0	42	0	3	1	0	215
6:00	0	149	3	0	2	2	0	2	14	0	5	0	0	177	18:00	0	135	14	2	0	1	0	0	39	0	2	1	0	194
6:15	0	129	5	0	3	0	0	2	13	0	5	0	0	157	18:15	0	145	14	0	0	0	0	0	35	0	3	1	0	198
6:30	0	135	10	0	3	3	0	0	12	0	2	0	0	165	18:30	1	125	8	0	2	1	0	0	30	0	1	0	0	168
6:45	0	141	0	1	2	3	0	1	7	0	5	0	0	160	18:45	0	118	5	0	4	4	0	0	34	0	2	0	0	167
7:00	0	152	1	0	3	1	0	1	21	0	4	0	0	183	19:00	1	115	8	0	0	2	0	0	28	0	2	2	0	158
7:15	0	215	1	0	2	0	0	1	20	0	3	0	0	242	19:15	0	93	13	0	1	3	0	0	29	0	2	0	0	141
7:30	0	187	1	0	0	0	0	0	15	0	1	0	0	204	19:30	1	96	8	0	2	1	0	0	23	0	1	0	0	132
7:45	0	153	4	1	5	1	0	0	18	0	4	0	0	186	19:45	0	79	6	2	1	4	0	1	27	0	2	0	0	122
8:00	1	143	8	0	3	3	0	0	14	5	3	0	0	180	20:00	0	81	5	1	1	2	0	0	21	0	0	0	0	111
8:15	0	147	5	0	7	3	0	3	22	4	0	0	0	191	20:15	0	73	5	0	3	2	0	0	19	0	2	0	0	104
8:30	0	133	10	0	2	2	2	3	25	2	0	0	0	179	20:30	0	66	11	0	1	0	0	0	19	0	1	0	0	98
8:45	0	108	15	0	5	1	0	5	17	0	0	0	0	151	20:45	0	56	10	0	0	4	0	0	17	0	3	0	0	90
9:00	0	109	26	0	3	1	0	2	21	2	6	0	0	170	21:00	0	57	8	0	2	2	0	0	19	0	0	0	0	88
9:15	0	102	20	1	5	2	0	0	25	7	7	0	0	169	21:15	0	49	7	0	2	0	0	0	21	0	2	2	0	83
9:30	0	107	26	0	6	0	0	3	17	7	0	0	0	166	21:30	0	40	4	1	5	2	0	0	23	0	3	0	0	78
9:45	0	105	24	0	5	1	0	4	23	3	7	0	0	172	21:45	0	33	6	0	1	1	0	0	19	0	2	0	0	62
10:00	0	82	21	0	8	0	0	2	19	4	11	0	0	147	22:00	0	42	3	0	0	1	0	0	22	0	2	0	0	70
10:15	0	97	20	0	3	2	0	1	20	3	9	0	0	155	22:15	0	43	4	0	0	0	0	0	23	0	2	0	0	72
10:30	0	77	26	0	6	5	0	3	23	8	16	0	0	164	22:30	0	38	1	0	1	0	0	0	25	0	1	0	0	66
10:45	0	82	18	1	5	4	0	4	15	0	7	0	0	136	22:45	0	37	4	0	2	0	0	0	19	0	2	0	0	64
11:00	0	98	23	0	6	5	0	0	25	0	10	1	0	168	23:00	0	44	0	0	0	0	0	0	18	0	0	0	0	62
11:15	0	108	16	0	4	2	0	5	25	1	10	0	0	171	23:15	0	41	2	0	1	0	0	0	10	0	2	0	0	56
11:30	0	93	13	1	2	5	0	0	15	4	6	0	0	139	23:30	0	41	0	0	0	0	0	1	7	0	1	0	0	50
11:45	0	117	16	0	6	6	0	2	21	0	12	4	0	184	23:45	0	34	2	0	1	0	0	0	6	0	1	0	0	44
TOTAL	1	3,890	370	5	172	85	7	151	518	50	138	5	0	5,392	TOTAL	16	5,151	640	19	174	83	0	5	###	1	173	91	0	7,552
AM PEAK HOUR														7:00 AM	PM PEAK HOUR														3:00 PM
AM PEAK VOLUME														815	PM PEAK VOLUME														1,012

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	17	9,041	1,010	24	346	168	7	156	###	51	311	96	0	12,944
% OF TOTAL	0.1%	69.8%	7.8%	0.2%	2.7%	1.3%	0.1%	1.2%	13.3%	0.4%	2.4%	0.7%	0.0%	100.0%

Class	1	2	3	4	5	6	7	8	9	10	11	12	13	
TOTAL: ALL	36	16,736	2,612	52	785	296	7	186	###	55	722	119	0	25,082
% OF TOTAL	0.3%	129.3%	20.2%	0.4%	6.1%	2.3%	0.1%	1.4%	26.9%	0.4%	5.6%	0.9%	0.0%	100.0%

24-HOUR ROADWAY SEGMENT COUNTS (WITH FHWA CLASSIFICATION)

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE: Tuesday, May 02, 2017

JOB #: SC1311

LOCATION#

SR-86 ML east of Avenue 50

AM TIME	SOUTHEAST													TOTAL	PM Time	SOUTHEAST													TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	13			1	2	3	4	5	6	7	8	9	10	11	12	13	
0:00	0	36	1	0	4	1	0	0	6	0	0	0	0	48	12:00	0	84	35	2	8	2	0	0	22	0	8	0	0	161
0:15	0	35	1	0	6	1	0	0	7	0	0	0	0	50	12:15	0	78	28	0	9	2	0	1	29	0	1	0	0	148
0:30	0	30	0	0	11	0	0	0	7	0	0	0	0	48	12:30	0	79	34	2	7	0	0	3	25	0	6	0	0	156
0:45	0	32	0	0	5	1	0	0	9	0	0	0	0	47	12:45	0	89	22	1	2	0	0	0	36	0	6	0	0	156
1:00	0	30	0	0	4	1	0	0	7	0	0	0	0	42	13:00	1	87	44	1	4	1	0	0	17	0	4	0	0	159
1:15	0	19	0	0	12	1	0	0	6	0	2	0	0	40	13:15	0	82	37	1	3	2	0	0	32	0	8	0	0	165
1:30	0	20	0	0	3	2	0	0	3	0	0	0	0	28	13:30	1	104	49	4	6	0	0	0	28	0	9	0	0	201
1:45	0	14	1	0	3	0	0	0	4	0	0	0	0	22	13:45	2	92	33	1	3	0	0	1	23	1	6	1	0	163
2:00	0	17	2	0	5	2	0	0	15	0	1	1	0	43	14:00	0	122	27	1	3	1	0	1	23	0	8	0	0	186
2:15	0	24	0	0	7	1	0	0	6	0	0	0	0	38	14:15	0	84	37	4	2	2	0	0	29	0	4	0	0	162
2:30	0	35	0	0	7	2	0	0	7	0	0	0	0	51	14:30	0	110	47	4	5	0	0	1	18	0	5	0	0	190
2:45	0	10	0	0	6	2	0	0	12	0	2	0	0	32	14:45	0	116	38	0	5	2	0	0	29	0	3	0	0	193
3:00	0	14	1	0	0	0	0	4	21	0	0	0	0	40	15:00	0	129	14	0	3	1	0	0	23	0	3	3	0	176
3:15	0	5	4	0	0	0	0	0	8	0	3	0	0	20	15:15	0	130	25	0	4	0	0	0	26	2	3	0	0	190
3:30	0	20	5	0	3	0	0	3	18	0	4	0	0	53	15:30	0	144	20	0	6	1	0	0	19	0	0	0	0	190
3:45	0	18	2	0	1	1	0	1	13	0	4	0	0	40	15:45	0	180	25	0	7	1	0	2	23	0	1	2	0	241
4:00	0	14	2	0	3	0	0	0	14	0	2	0	0	35	16:00	0	140	27	0	6	0	0	1	16	0	5	0	0	195
4:15	0	12	5	0	2	0	0	2	18	0	4	0	0	43	16:15	1	152	20	0	4	2	0	0	17	0	1	0	0	197
4:30	0	23	2	0	2	1	0	2	14	0	1	0	0	45	16:30	0	147	8	0	4	3	0	0	26	0	1	0	0	189
4:45	0	34	3	0	0	1	0	0	12	1	8	0	0	59	16:45	0	145	14	0	5	4	0	0	20	0	2	1	0	191
5:00	0	46	17	0	6	1	0	1	13	0	4	0	0	88	17:00	1	177	10	0	1	2	0	0	15	0	0	2	0	208
5:15	0	47	29	0	2	1	0	0	14	0	8	0	0	101	17:15	1	212	10	0	4	7	0	0	12	0	1	0	0	247
5:30	0	77	50	0	7	2	0	2	27	0	6	0	0	171	17:30	0	185	13	0	3	3	0	0	20	0	0	0	0	224
5:45	0	66	45	2	8	5	0	0	43	0	18	0	0	187	17:45	0	135	6	0	4	1	0	0	12	0	0	0	0	158
6:00	0	66	37	0	6	0	0	0	28	0	9	0	0	146	18:00	0	150	10	0	1	3	0	0	16	0	0	2	0	182
6:15	0	71	36	0	9	1	0	0	27	0	8	0	0	152	18:15	1	119	6	0	3	6	0	0	15	0	0	0	0	150
6:30	0	73	40	0	12	1	0	1	28	0	13	0	0	168	18:30	0	159	5	0	6	0	0	0	13	0	1	0	0	184
6:45	0	89	35	1	8	2	0	0	25	0	6	0	0	166	18:45	0	124	7	0	4	2	0	0	14	0	2	0	0	153
7:00	1	104	39	0	9	2	0	0	26	0	9	0	0	190	19:00	0	94	6	0	6	3	0	0	19	0	0	0	0	128
7:15	2	126	44	1	10	4	0	1	23	0	11	0	0	222	19:15	0	87	5	0	2	1	0	0	12	0	0	0	0	107
7:30	0	148	49	0	7	3	0	0	21	0	12	0	0	240	19:30	1	95	7	0	3	1	0	0	25	0	3	0	0	135
7:45	0	139	42	0	5	3	0	0	18	0	10	0	0	217	19:45	1	92	6	0	3	2	0	0	14	0	0	0	0	118
8:00	0	113	38	0	3	0	0	0	20	0	8	0	0	182	20:00	1	90	2	0	3	2	0	0	17	0	0	0	0	115
8:15	0	97	38	0	6	0	0	0	24	0	14	2	0	181	20:15	0	98	3	0	2	1	0	0	15	0	1	1	0	121
8:30	0	88	32	0	4	1	0	1	18	0	19	0	0	163	20:30	0	75	2	0	1	0	0	0	10	0	2	0	0	90
8:45	1	87	17	0	1	0	0	0	17	0	9	1	0	133	20:45	0	74	0	0	1	0	0	0	3	0	0	0	0	78
9:00	2	71	26	0	3	2	0	0	21	0	8	3	0	136	21:00	0	68	0	0	0	0	0	0	3	0	0	0	0	71
9:15	0	66	28	1	7	3	0	0	26	0	17	2	0	150	21:15	0	69	1	0	4	0	0	0	17	0	0	0	0	91
9:30	0	61	32	0	7	4	0	0	25	0	12	1	0	142	21:30	0	58	0	0	1	0	0	0	16	0	1	0	0	76
9:45	0	76	22	1	7	1	0	0	41	0	13	0	0	161	21:45	1	66	1	0	1	1	0	0	11	0	0	0	0	81
10:00	0	69	32	0	5	0	0	0	32	0	7	0	0	145	22:00	0	81	2	0	8	0	0	0	5	0	0	0	0	96
10:15	0	76	23	0	6	0	0	1	31	0	9	0	0	146	22:15	0	56	2	0	4	0	0	0	8	0	0	0	0	70
10:30	0	60	27	0	4	1	0	0	35	0	8	0	0	135	22:30	0	65	0	0	5	2	0	0	11	0	0	0	0	83
10:45	0	80	23	0	8	4	0	0	20	0	14	0	0	149	22:45	0	68	2	0	4	0	0	1	11	0	0	0	0	86
11:00	0	62	18	0	5	0	0	0	24	0	3	0	0	112	23:00	0	55	1	0	1	0	0	0	7	0	0	0	0	64
11:15	0	80	17	0	5	3	0	0	31	0	15	0	0	151	23:15	0	42	0	0	4	1	0	0	11	0	1	0	0	59
11:30	0	69	21	0	5	2	0	0	26	0	8	1	0	132	23:30	1	43	1	0	5	1	0	0	10	0	0	0	0	61
11:45	0	82	24	1	4	1	0	0	35	0	5	0	0	152	23:45	0	33	0	0	6	1	0	0	10	0	1	0	0	51
TOTAL	6	2,731	910	7	253	64	0	19	926	1	314	11	0	5,242	TOTAL	13	4,964	692	21	186	64	0	11	833	3	97	12	0	6,896

AM PEAK HOUR
AM PEAK VOLUME
7:00 AM
869

PM PEAK HOUR
PM PEAK VOLUME
4:45 PM
870

CLASS 1	Class 1 — Motorcycles	CLASS 8	3 to 4 Axles, Single Trailer
CLASS 2	Passenger Cars	CLASS 9	5 Axles, Single Trailer
CLASS 3	2 Axles, 4-Tire Single Units	CLASS 10	6 or More Axles, Single Trailer
CLASS 4	Buses	CLASS 11	5 or Less Axles, Multi-Trailers
CLASS 5	2 Axles, 6-Tire Single Units	CLASS 12	6 Axles, Multi-Trailers
CLASS 6	3 Axles, Single Unit	CLASS 13	7 or More Axles, Multi-Trailers
CLASS 7	4 or More Axles, Single Unit		

TOTAL: AM+PM	19	7,695	1,602	28	439	128	0	30	###	4	411	23	0	12,138
% OF TOTAL	0.2%	63.4%	13.2%	0.2%	3.6%	1.1%	0.0%	0.2%	14.5%	0.0%	3.4%	0.2%	0.0%	100.0%

Class 1 2 3 4 5 6 7 8 9 10 11 12 13

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION: Coachella
NORTH & SOUTH: Harrison
EAST & WEST: Avenue 50

PROJECT #: SC0780
LOCATION #: 1
CONTROL: SIGNAL

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

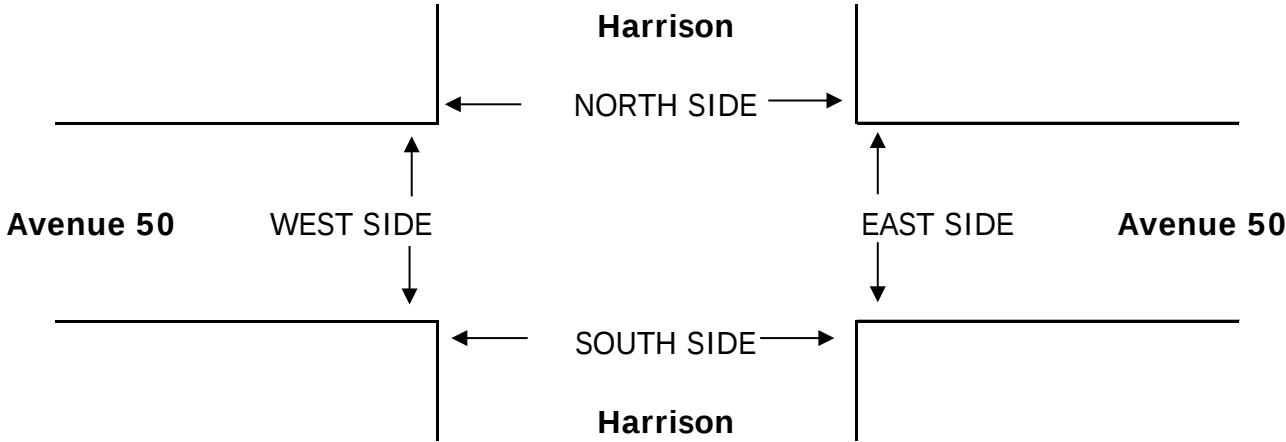
☒ Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Harrison			Harrison			Avenue 50			Avenue 50			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	2	2	0	1	1	0	2	1	1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	

AM	7:00 AM	11	94	45	20	55	8	6	48	9	24	31	21	372
	7:15 AM	26	99	56	11	48	11	12	49	16	25	47	23	423
	7:30 AM	24	106	58	23	67	4	19	68	11	49	60	30	519
	7:45 AM	15	138	55	18	80	3	20	63	30	40	49	36	547
	8:00 AM	16	123	47	24	93	7	19	47	24	32	42	37	511
	8:15 AM	25	111	45	12	83	10	10	24	16	35	33	46	450
	8:30 AM	17	94	39	12	69	10	13	12	21	44	31	29	391
	8:45 AM	30	109	31	20	83	9	19	26	19	30	22	21	419
	VOLUMES	164	874	376	140	578	62	118	337	146	279	315	243	3,632
	APPROACH %	12%	62%	27%	18%	74%	8%	20%	56%	24%	33%	38%	29%	
PM	APP/DEPART	1,414	/	1,235	780	/	1,003	601	/	853	837	/	541	0
	BEGIN PEAK HR	7:30 AM												
	VOLUMES	80	478	205	77	323	24	68	202	81	156	184	149	2,027
	APPROACH %	10%	63%	27%	18%	76%	6%	19%	58%	23%	32%	38%	30%	
	PEAK HR FACTOR	0.917			0.855			0.777			0.879			0.926
	APP/DEPART	763	/	695	424	/	560	351	/	484	489	/	288	0
	4:00 PM	55	118	52	36	167	19	26	58	38	73	69	40	751
	4:15 PM	32	134	49	39	183	21	35	65	20	55	54	50	737
	4:30 PM	41	125	39	43	181	18	12	61	16	49	64	51	700
	4:45 PM	32	126	37	37	159	19	27	40	20	64	51	41	653
	5:00 PM	33	136	37	39	206	20	24	44	28	65	59	37	728
	5:15 PM	39	132	40	50	211	23	33	38	16	59	53	35	729
	5:30 PM	39	117	49	31	184	21	25	43	32	64	62	30	697
	5:45 PM	31	110	46	37	181	16	37	53	29	52	52	48	692
	VOLUMES	302	998	349	312	1,472	157	219	402	199	481	464	332	5,687
	APPROACH %	18%	61%	21%	16%	76%	8%	27%	49%	24%	38%	36%	26%	
	APP/DEPART	1,649	/	1,550	1,941	/	2,152	820	/	1,062	1,277	/	923	0
	BEGIN PEAK HR	5:00 PM												
	VOLUMES	142	495	172	157	782	80	119	178	105	240	226	150	2,846
	APPROACH %	18%	61%	21%	15%	77%	8%	30%	44%	26%	39%	37%	24%	
	PEAK HR FACTOR	0.959			0.897			0.845			0.957			0.976
	APP/DEPART	809	/	765	1,019	/	1,127	402	/	506	616	/	448	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1



AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
PM	TOTAL
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	2	4	6
1	0	1	1	3
2	0	1	1	4
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
4	0	4	0	8
0	0	1	0	1
7	0	10	6	23
2	3	0	3	8
0	1	0	1	2
0	4	2	8	14
2	1	1	4	8
0	4	1	0	5
0	1	2	0	3
2	1	0	0	3
0	0	0	0	0
6	15	6	16	43

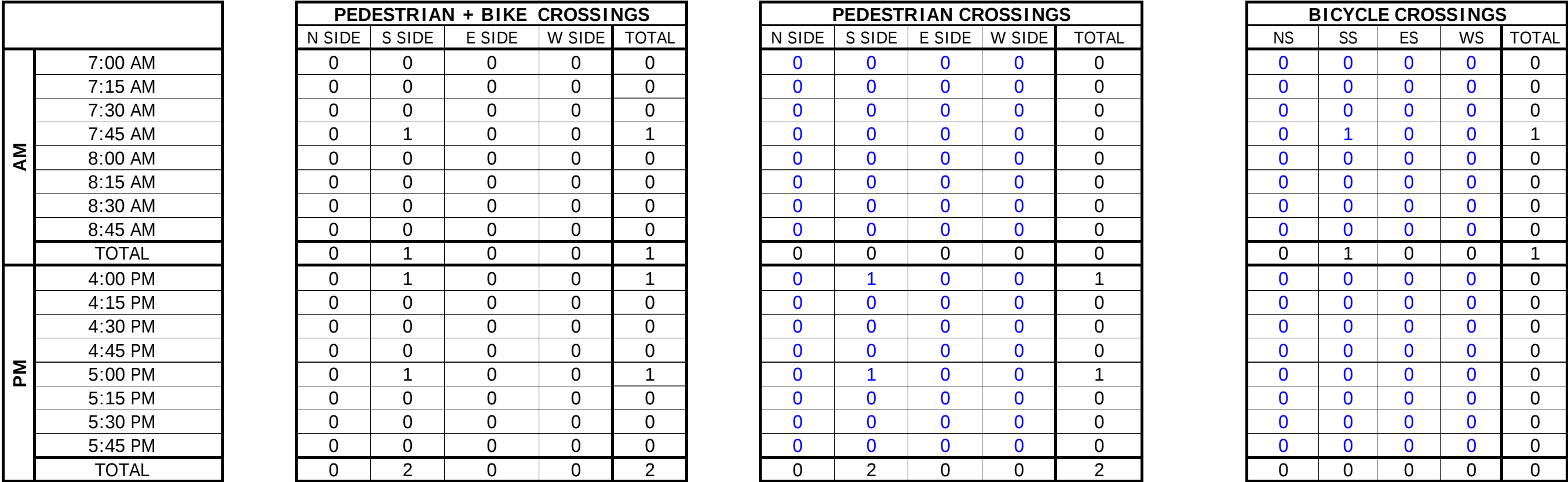
PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	2	3	5
1	0	1	1	3
2	0	1	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
4	0	4	0	8
0	0	0	0	0
7	0	8	4	19
1	3	0	2	6
0	1	0	1	2
0	4	2	7	13
2	1	1	3	7
0	4	1	0	5
0	1	2	0	3
2	0	0	0	2
0	0	0	0	0
5	14	6	13	38

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	1	1
0	0	0	0	0
0	0	0	1	1
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	1	0	1
0	0	2	2	4
1	0	0	1	2
0	0	0	0	0
0	0	0	1	1
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
1	1	0	3	5

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	Leoco			Leoco			Avenue 50			Avenue 50			
LANES:	NL 0	NT X	NR 0	SL X	ST X	SR X	EL X	ET 2	ER 0	WL 1	WT 2	WR X	TOTAL

[illegible][illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION:
NORTH & SOUTH:
EAST & WEST:

Coachella
Peter Rabbit
Avenue 50

PROJECT #:
LOCATION #:
CONTROL:

SC0780
3
SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

◀ W

▲
N

S
▼

E ▶

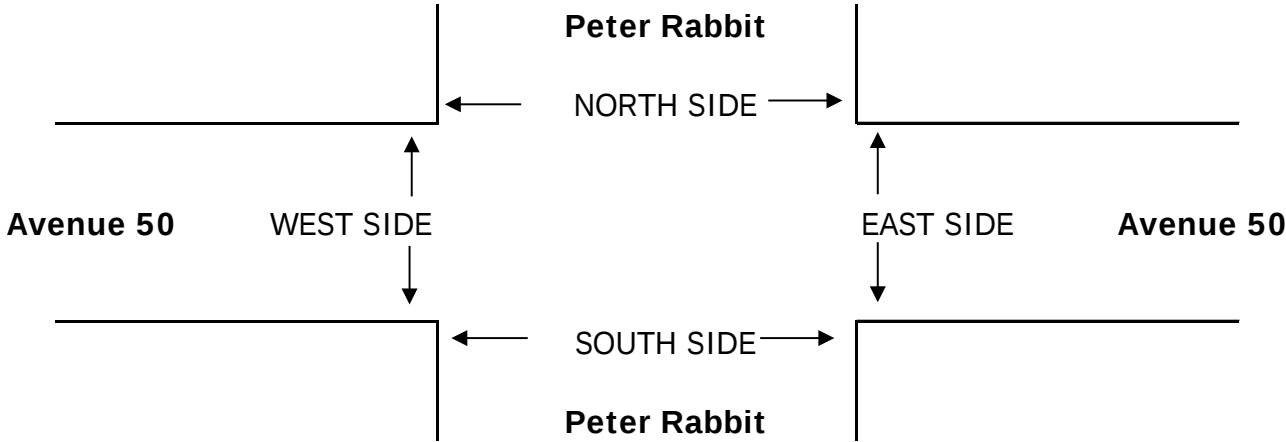
☒ Add U-Turns to Left Turns

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
	Peter Rabbit			Peter Rabbit			Avenue 50			Avenue 50				NB	SB	EB	WB	TTL
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 2	ER 0	WL 1	WT 1	WR 0	TOTAL	0	0	0	0	

AM	7:00 AM	4	0	1	3	0	2	9	122	6	3	86	6	242				
	7:15 AM	3	0	0	0	0	5	0	130	6	3	93	0	240				
	7:30 AM	5	0	3	1	0	0	2	162	9	3	145	0	330				
	7:45 AM	6	1	2	0	0	0	4	146	3	3	134	0	299				
	8:00 AM	4	0	2	2	0	2	4	113	5	5	149	1	287				
	8:15 AM	12	0	3	0	0	2	4	88	5	5	114	1	234				
	8:30 AM	4	0	6	1	0	9	4	70	4	4	99	3	204				
	8:45 AM	4	0	1	2	0	2	4	78	0	2	93	4	190				
	VOLUMES	42	1	18	9	0	22	31	909	38	28	913	15	2,026				
	APPROACH %	69%	2%	30%	29%	0%	71%	3%	93%	4%	3%	96%	2%					
PM	APP/DEPART	61	/	47	31	/	65	978	/	937	956	/	977	0				
	BEGIN PEAK HR	7:15 AM																
	VOLUMES	18	1	7	3	0	7	10	551	23	14	521	1	1,156				
	APPROACH %	69%	4%	27%	30%	0%	70%	2%	94%	4%	3%	97%	0%					
	PEAK HR FACTOR	0.722			0.500			0.844			0.865			0.876				
	APP/DEPART	26	/	12	10	/	36	584	/	562	536	/	546	0				
	4:00 PM	7	0	2	1	0	6	10	144	4	3	174	6	357				
	4:15 PM	10	0	4	6	0	8	25	145	3	0	162	8	371				
	4:30 PM	5	0	4	10	0	25	13	134	3	3	162	8	367				
	4:45 PM	5	0	4	8	0	10	2	119	2	1	161	2	314				
PM	5:00 PM	4	0	1	3	0	9	4	125	4	3	169	0	322				
	5:15 PM	4	0	0	1	0	6	5	125	1	0	169	2	313				
	5:30 PM	5	0	1	2	0	11	3	126	6	3	167	0	324				
	5:45 PM	5	0	2	0	0	3	1	146	3	0	159	0	319				
	VOLUMES	45	0	18	31	0	78	63	1,064	26	13	1,323	26	2,687				
	APPROACH %	71%	0%	29%	28%	0%	72%	5%	92%	2%	1%	97%	2%					
	APP/DEPART	63	/	89	109	/	39	1,153	/	1,113	1,362	/	1,446	0				
	BEGIN PEAK HR	4:00 PM																
	VOLUMES	27	0	14	25	0	49	50	542	12	7	659	24	1,409				
	APPROACH %	66%	0%	34%	34%	0%	66%	8%	90%	2%	1%	96%	3%					
PM	PEAK HR FACTOR	0.732			0.529			0.873			0.943			0.949				
	APP/DEPART	41	/	74	74	/	19	604	/	581	690	/	735	0				

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL
0	0	0	0	0
0	0	0	1	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	1	1

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

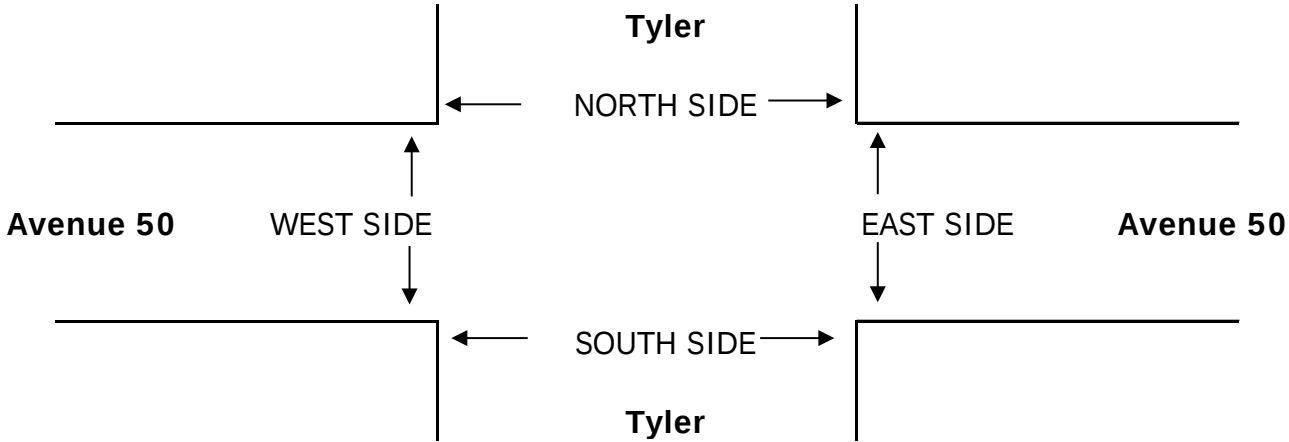


		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7:45 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	8:00 AM	0	0	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	0	0
	8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
PM	4:00 PM	0	0	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	0	0
	4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4:45 PM	1	1	0	0	2	1	1	0	0	2	0	0	0	0	0
	5:00 PM	0	0	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	0	0
	5:30 PM	0	0	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	0	0
	TOTAL	1	1	0	0	2	1	1	0	0	2	0	0	0	0	0

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

☒ Add U-Turns to Left Turns☒ Add U-Turns to Left Turns

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

[illegible][illegible][illegible][illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	SB SR-86 Ramps			SB SR-86 Ramps			Avenue 50			Avenue 50			
LANES:	NL 1	NT X	NR X	SL X	ST 2	SR 1	EL X	ET 1	ER 1	WL 0	WT 1	WR X	TOTAL

[illegible]

AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
TOTAL	
PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

[illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NB SR-86 Ramps			NB SR-86 Ramps			Avenue 50			Avenue 50			
LANES:	NL X	NT 2	NR 1	SL 1	ST X	SR X	EL 0	ET 1	ER X	WL X	WT 1	WR 1	TOTAL

0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	1	0	0	1
0	0	0	0	0
0	5	0	0	5

AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
TOTAL	
PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

[illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	SB SR-86 Ramps			SB SR-86 Ramps			Avenue 52			Avenue 52			
LANES:	NL 1	NT X	NR X	SL X	ST 2	SR 1	EL X	ET 1	ER 0	WL 0	WT 1	WR X	TOTAL

[illegible]

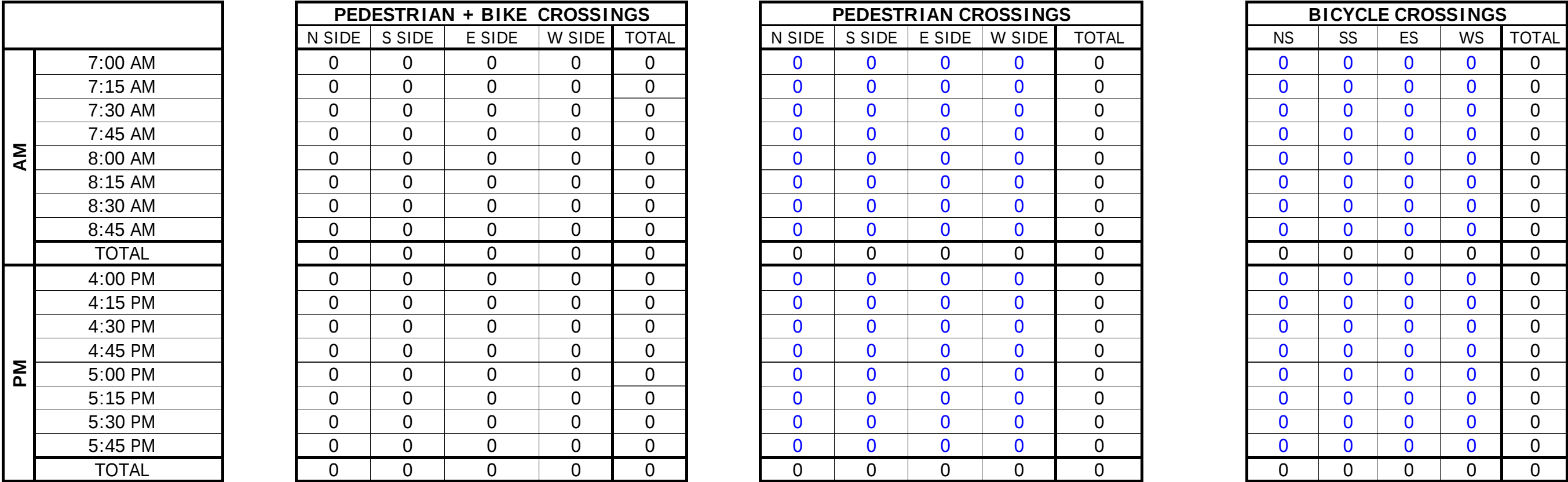
AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
TOTAL	
PM	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
TOTAL	

[illegible][illegible]

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NB SR-86 Ramps			NB SR-86 Ramps			Avenue 52			Avenue 52			
LANES:	NL X	NT 2	NR 1	SL 1	ST X	SR X	EL 0	ET 1	ER X	WL X	WT 1	WR 0	TOTAL

[illegible][illegible]

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE: Thu, Nov 19, 15	LOCATION: NORTH & SOUTH: EAST & WEST:	Coachella SB SR-86 Ramps Dillon	PROJECT #: LOCATION #: CONTROL:	SC0780 10 SIGNAL
--------------------------	---	---------------------------------------	---------------------------------------	------------------------

NOTES:	AM		▲	
	PM		N	
	MD	◀ W		E ▶
	OTHER		S	
	OTHER		▼	

☒ Add U-Turns to Left Turns

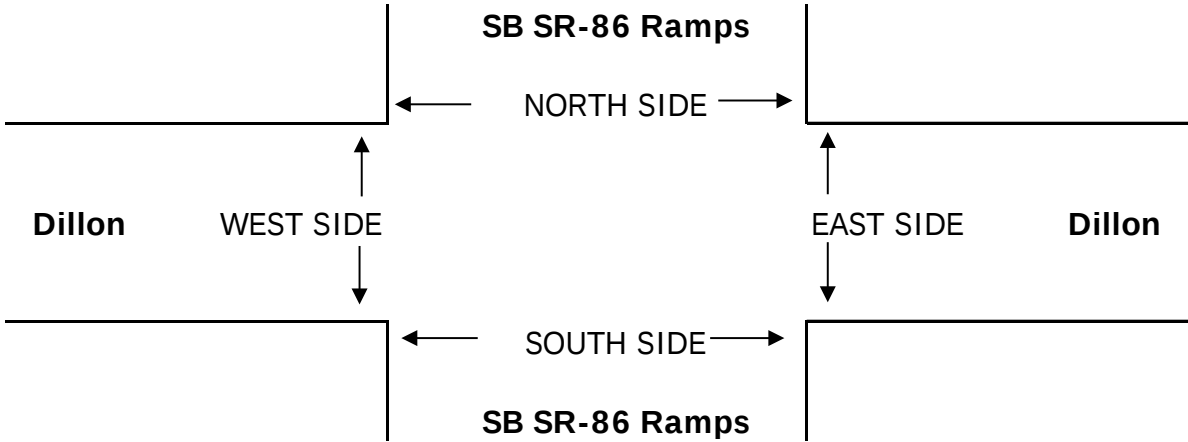
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	SB SR-86 Ramps			SB SR-86 Ramps			Dillon			Dillon			
LANES:	NL X	NT X	NR X	SL 0.5	ST 0.5	SR 1	EL X	ET 1	ER 0	WL 1	WT 1	WR X	TOTAL

U-TURNS				
NB 0	SB 0	EB 0	WB 0	TTL

AM	7:00 AM	0	0	0	10	0	7	0	54	11	24	40	0	146
	7:15 AM	0	0	0	13	0	13	0	61	22	24	31	0	164
	7:30 AM	0	0	0	8	1	24	0	93	23	18	67	0	234
	7:45 AM	0	0	0	21	0	16	0	98	17	23	55	0	230
	8:00 AM	0	0	0	25	0	17	0	82	13	20	56	0	213
	8:15 AM	0	0	0	24	1	17	0	43	17	19	48	0	169
	8:30 AM	0	0	0	14	0	8	0	41	11	16	29	0	119
	8:45 AM	0	0	0	10	0	15	0	47	10	23	36	0	141
	VOLUMES	0	0	0	125	2	117	0	519	124	167	362	0	1,416
	APPROACH %	0%	0%	0%	51%	1%	48%	0%	81%	19%	32%	68%	0%	
PM	APP/DEPART	0	/	0	244	/	293	643	/	644	529	/	479	0
	BEGIN PEAK HR	7:30 AM												
	VOLUMES	0	0	0	78	2	74	0	316	70	80	226	0	846
	APPROACH %	0%	0%	0%	51%	1%	48%	0%	82%	18%	26%	74%	0%	
	PEAK HR FACTOR	0.000			0.917			0.832			0.900			0.904
	APP/DEPART	0	/	0	154	/	152	386	/	394	306	/	300	0
	4:00 PM	0	0	0	22	0	41	0	51	26	23	84	0	247
	4:15 PM	0	0	0	23	0	36	0	54	17	30	78	0	238
	4:30 PM	0	0	0	21	0	25	0	62	27	31	55	0	221
	4:45 PM	0	0	0	21	1	29	0	75	24	27	56	0	233
	5:00 PM	0	0	0	27	0	42	0	59	36	26	63	0	253
	5:15 PM	0	0	0	18	1	40	0	61	31	25	60	0	236
	5:30 PM	0	0	0	28	0	44	0	60	23	18	40	0	213
	5:45 PM	0	0	0	44	0	31	0	61	30	22	36	0	224
	VOLUMES	0	0	0	204	2	288	0	483	214	202	472	0	1,865
	APPROACH %	0%	0%	0%	41%	0%	58%	0%	69%	31%	30%	70%	0%	
	APP/DEPART	0	/	0	494	/	418	697	/	687	674	/	760	0
	BEGIN PEAK HR	4:15 PM												
	VOLUMES	0	0	0	92	1	132	0	250	104	114	252	0	945
	APPROACH %	0%	0%	0%	41%	0%	59%	0%	71%	29%	31%	69%	0%	
	PEAK HR FACTOR	0.000			0.815			0.894			0.847			0.934
	APP/DEPART	0	/	0	225	/	219	354	/	342	366	/	384	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0



AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
PM	TOTAL
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	3	1	0	4
0	0	0	0	0
0	0	0	1	1
1	1	0	0	2
1	0	0	0	1
3	0	0	0	3
0	2	0	0	2
0	0	0	0	0
1	0	0	2	3
6	3	0	3	12

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	2	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
2	0	0	0	2
0	1	0	0	1
0	0	0	0	0
0	0	0	2	2
2	1	0	2	5

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	1	0	2
0	0	0	0	0
0	0	0	1	1
1	1	0	0	2
1	0	0	0	1
1	0	0	0	1
0	1	0	0	1
0	0	0	0	0
1	0	0	0	1
4	2	0	1	7

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 pacific@aimtd.com

DATE:
Thu, Nov 19, 15

LOCATION:
NORTH & SOUTH:
EAST & WEST:

Coachella
NB SR-86 Ramps
Dillon

PROJECT #:
LOCATION #:
CONTROL:

SC0780
11
SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

◀ W

▲
N

S
▼

E ▶

☒ Add U-Turns to Left Turns

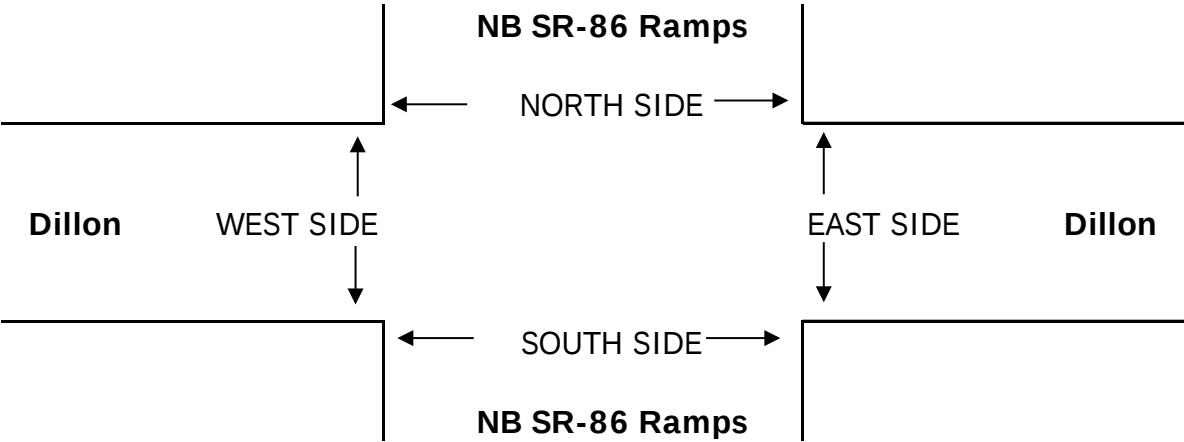
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NB SR-86 Ramps			NB SR-86 Ramps			Dillon			Dillon			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0.3	0.3	0.3	X	X	X	1	1	X	X	2	1	

U-TURNS				
NB	SB	EB	WB	TTL
0	0	0	0	

AM	7:00 AM	21	0	18	0	0	0	43	22	0	0	45	14	163
	7:15 AM	28	0	26	1	0	0	48	35	0	0	36	13	187
	7:30 AM	35	1	12	0	0	0	61	40	0	0	49	8	206
	7:45 AM	29	1	33	0	0	0	45	77	0	0	42	14	241
	8:00 AM	22	0	27	0	0	0	34	60	0	0	48	13	204
	8:15 AM	22	1	22	0	0	0	29	40	0	0	43	10	167
	8:30 AM	13	0	19	0	0	0	18	31	0	0	35	5	121
	8:45 AM	19	0	23	0	0	0	17	43	0	0	42	8	152
	VOLUMES	189	3	180	1	0	0	295	348	0	0	340	85	1,441
	APPROACH %	51%	1%	48%	100%	0%	0%	46%	54%	0%	0%	80%	20%	
PM	APP/DEPART	372	/	384	1	/	0	643	/	528	425	/	529	0
	BEGIN PEAK HR	7:15 AM												
	VOLUMES	114	2	98	1	0	0	188	212	0	0	175	48	838
	APPROACH %	53%	1%	46%	100%	0%	0%	47%	53%	0%	0%	78%	22%	
	PEAK HR FACTOR	0.849			0.250			0.820			0.914			0.869
	APP/DEPART	214	/	239	1	/	0	400	/	310	223	/	289	0
	4:00 PM	24	0	25	0	0	0	18	46	0	0	104	24	241
	4:15 PM	19	2	32	0	0	0	24	60	0	0	70	29	236
	4:30 PM	21	0	33	0	0	0	26	64	0	0	68	34	246
	4:45 PM	26	2	29	0	0	0	24	63	0	0	60	27	231
	5:00 PM	13	0	19	0	0	0	30	60	0	0	67	28	217
	5:15 PM	19	0	33	0	0	0	20	58	0	0	60	27	217
	5:30 PM	14	1	29	0	0	0	27	58	0	0	45	18	192
	5:45 PM	13	3	26	0	0	0	17	93	0	0	49	18	219
	VOLUMES	149	8	226	0	0	0	186	502	0	0	523	205	1,799
	APPROACH %	39%	2%	59%	0%	0%	0%	27%	73%	0%	0%	72%	28%	
	APP/DEPART	383	/	398	0	/	0	688	/	728	728	/	673	0
	BEGIN PEAK HR	4:00 PM												
	VOLUMES	90	4	119	0	0	0	92	233	0	0	302	114	954
	APPROACH %	42%	2%	56%	0%	0%	0%	28%	72%	0%	0%	73%	27%	
	PEAK HR FACTOR	0.934			0.000			0.903			0.813			0.970
	APP/DEPART	213	/	210	0	/	0	325	/	352	416	/	392	0

0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1

0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1



AM	7:00 AM
	7:15 AM
	7:30 AM
	7:45 AM
	8:00 AM
	8:15 AM
	8:30 AM
	8:45 AM
PM	TOTAL
	4:00 PM
	4:15 PM
	4:30 PM
	4:45 PM
	5:00 PM
	5:15 PM
	5:30 PM
	5:45 PM
	TOTAL

PEDESTRIAN + BIKE CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	3	1	0	4
0	0	0	0	0
0	3	2	0	5
2	0	0	0	2
0	1	0	0	1
1	0	0	0	1
4	0	0	0	4
3	2	0	0	5
0	1	0	0	1
2	1	0	0	3
0	1	1	0	2
12	6	1	0	19

PEDESTRIAN CROSSINGS				
N SIDE	S SIDE	E SIDE	W SIDE	TOTAL
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	2	1	0	3
0	0	0	0	0
0	2	1	0	3
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
3	0	0	0	3
2	0	0	0	2
0	0	0	0	0
0	0	0	0	0
0	0	1	0	1
5	0	1	0	6

BICYCLE CROSSINGS				
NS	SS	ES	WS	TOTAL
0	0	1	0	1
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	0	0	0	0
0	1	0	0	1
0	0	0	0	0
0	1	1	0	2
2	0	0	0	2
0	1	0	0	1
1	0	0	0	1
1	0	0	0	1
1	2	0	0	3
0	1	0	0	1
2	1	0	0	3
0	1	0	0	1
7	6	0	0	13

Memorandum

*Making Conversation
a California Way of Life*

To: JAMES SHANKEL
Senior Environmental Planner
Environmental Studies "C"

Date: September 06, 2018

File: 08-RIV-86 PM 19.2/21.6

From: RENA TANG
Branch Chief
System Planning and Forecasting, MS 726



AIALC

Subject: State Route 86/Avenue 50 New Interchange Project IS/EA (August 2018)

Per your request, the Branch of System Planning and Forecasting reviewed the Initial Study with proposed Negative Declaration/Environmental Assessment for State Route 86/Avenue 50 New Interchange Project. We have the following comments:

- Please update the corresponding tables to reflect the updated information in the attached Roadway Capacity Memo.

If you have any questions regarding the information above, you may reach me at (909) 806-3927 or Riley Keller at (909) 383-6387.



MEMORANDUM

Date: August 29, 2018

To: Andy Cheah, TranSystems

From: Anna Luo, P.E.

Subject: *Supplemental Roadway Capacity Memorandum for State Route 86/Avenue 50 New Interchange Project (EA 08-0C970)*

OC16-0471

This memorandum is intended to provide supplemental updated roadway segment analysis in support of the State Route 86/Avenue 50 New Interchange PA/ED document. The roadway segment analysis was updated in accordance with the roadway classification and capacity thresholds as identified in the City of Coachella General Plan Update (April 2015).

This memorandum includes the updated roadway analysis under the following scenarios. The updated results show all the study roadway segments would still operate at acceptable LOS D or better conditions under both Build Alternatives during the Opening Year and Design Year conditions.

- Existing (2015) Conditions (shown in Table 4 below)
- Opening Year (2020) No Build Conditions (Table 9)
- Opening Year (2020) Build Conditions (Table 10)
- Design Year (2045) No Build Conditions (Table 17)
- Design Year (2045) Build Conditions (Table 18)

Existing Conditions

Roadway segments were evaluated by comparing the daily volumes to the capacity thresholds identified in the City of Coachella General Plan Update (April 2015), and the results are displayed in **Table 4**. All the roadway segments currently operate at acceptable LOS D or better conditions under existing conditions.

**TABLE 1 – EXISTING (2015)
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	10,473	13,000 ⁴	0.81	D
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	16,203	37,400	0.43	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	10,144	13,000 ⁴	0.78	C

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification reflects future build-out of roadway segment from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

Opening Year 2020 Conditions

The 2020 roadway operations results are displayed in Table 9 and Table 10 for the No Build and Build scenarios, respectively. Under the No Build Alternative, Avenue 50 between Tyler Street and SR-86 would operate unacceptably at LOS F due to constrained capacity. The Build Alternatives would significantly improve this Avenue 50 segment between Tyler Street and SR-86 to LOS A conditions. Other two roadway segments along Avenue 50 would operate at acceptable LOS D or better conditions under both No Build and Build scenarios.

**TABLE 2 - OPENING YEAR (2020) NO BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	13,830	13,000 ⁴	1.06	F
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	17,880	37,400	0.48	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,020	13,000 ⁴	0.85	D

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification reflects future build-out of roadway segment from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

**TABLE 3 - OPENING YEAR (2020) BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (6)	15,480	56,000	0.28	A
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	18,500	37,400	0.49	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,070	13,000 ⁴	0.85	D

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification reflects future build-out of roadway segment from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

Design Year 2045 Conditions

The 2045 roadway operations results are displayed in Table 17 and Table 18 for the No Build and Build scenarios, respectively. Under the No Build Alternative, Avenue 50 between Tyler Street and SR-86 would operate unacceptably at LOS F due to constrained capacity. The Build Alternatives would significantly improve this Avenue 50 segment between Tyler Street and SR-86 to LOS A conditions. Other two roadway segments along Avenue 50 would operate at acceptable LOS D or better conditions under both No Build and Build scenarios.

**TABLE 4 – DESIGN YEAR (2045) NO BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	30,570	13,000 ⁴	2.35	F
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	26,270	37,400	0.70	C
3	Avenue 50: West of Harrison Street	Major Arterial (6)	15,370	56,000	0.27	A

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification reflects future build-out of roadway segment from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

**TABLE 5 – DESIGN YEAR (2045) BUILD ALT 7 & ALT 8
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (6)	32,350	56,000	0.58	A
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	31,240	37,400	0.84	D
3	Avenue 50: West of Harrison Street	Major Arterial (6)	16,930	56,000	0.30	A

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification reflects future build-out of roadway segment from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013)

3. LOS E represents at capacity operations.

Source: Fehr & Peers, 2017

Memorandum

*Make Conservation
a California Way of Life*

To: MEARDEY TIM
Senior Transportation Engineer
Program/Project Management

Date: August 31, 2018

From: MOE BHUYIAN
Office Chief
Traffic Operations, Region A

File: 08-Riv-86 R31.1/R34.4
PN: 0814000144
EA 0C970

Subject: SR-86/Avenue 50 New Interchange Project (dated August 29, 2018) – Supplemental Traffic Operations Analysis Technical Memorandum

Per your request, the Traffic Operations reviewed the Supplemental TOAR prepared for the above referenced project. We concur with the report. If you have any questions regarding the information above, you may reach me at (909) 383-4226.



MEMORANDUM

Date: September 28, 2018

To: Andy Cheah, TranSystems

From: Anna Luo, P.E.

Subject: *Supplemental Updated Opening Year 2021 Analysis for State Route 86/Avenue 50 New Interchange Project (EA 08-0C970)*

OC16-0471

This memorandum is intended to provide supplemental updated opening year (2021) analysis in support of the State Route 86/Avenue 50 New Interchange PA/ED document. Phase 1 of the proposed project has an updated schedule to be open to traffic by 2021; as a result, the opening year analysis for Phase 1 was updated to reflect the 2021 conditions.

This memorandum includes the updated traffic operations results for the opening year (2021) conditions. The purpose of the opening year analysis is to evaluate short-term traffic operations with and without the Phase 1 of the project: Avenue 50 Bridge widening improvements.

Roadway Operations

The 2021 roadway operations results are displayed in **Table 1** and **Table 2** for the No Build and Build scenarios, respectively. Under the No Build Alternative, Avenue 50 between Tyler Street and SR-86 would operate unacceptably at LOS F due to constrained capacity. The Build Alternatives would significantly improve this Avenue 50 segment between Tyler Street and SR-86 to LOS A conditions. Other two roadway segments along Avenue 50 would operate at acceptable LOS D or better conditions under both No Build and Build scenarios.

**TABLE 1 - OPENING YEAR (2021) NO BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (2)	14,500	13,000 ⁴	1.12	F
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	18,220	37,400	0.49	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,200	13,000 ⁴	0.86	D

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

**TABLE 1 - OPENING YEAR (2021) BUILD
ROADWAY SEGMENT ANALYSIS**

	Segment	Classification ¹	ADT	Capacity ²	V/C	LOS ³
1	Avenue 50: Bridge Between Tyler Street & SR-86	Major Arterial (6)	16,480	56,000	0.29	A
2	Avenue 50: Between Leoco Lane and Peter Rabbit Lane	Primary Arterial (4)	18,960	37,400	0.51	A
3	Avenue 50: West of Harrison Street	Major Arterial (2)	11,260	13,000 ⁴	0.87	D

Bold text indicates unacceptable level of service.

V/C = Volume/Capacity ratio, LOS = level of service

1. Classification from City of Coachella General Plan (2015)

2. Capacity from City of Coachella General Plan EIR Appendix 11.4 (2013), unless otherwise indicated.

3. LOS E represents at capacity operations.

4. Capacity is based on existing roadway condition and Riverside County Integrated Project General Plan's capacity thresholds for 2-lane Collector.

Source: Fehr & Peers, 2017

Freeway Operations

The SR-86 mainline segments were not included as study locations under 2021 conditions. In addition, SR-86 in the study area would remain as a multi-lane highway with at-grade access points, rather than a freeway by 2021. Therefore, no freeway operations were analyzed under 2021 conditions. All movements along SR-86 to and from Avenue 50 were analyzed in intersections operations described below.

Intersection Operations

Traffic operations were analyzed at the study intersections along Avenue 50 during the AM and PM peak hours under 2021 conditions. The ramp terminal intersections at Dillon Road and Avenue 52 were not included as study locations under 2021. The results are summarized in **Table 3** and **Table 4** for the No Build and Build scenarios, respectively. The technical calculations are presented in the Appendix.

Under the No Build scenario, majority of the study intersections would operate acceptably at LOS D or better conditions during both AM and PM peak hours under year 2021 conditions, except that:

- Avenue 50/Tyler Street/Magnolia intersection would remain as stop-controlled and operate at an unacceptable LOS F during both AM and PM peak hours.
- SR-86/Avenue 50 intersection would remain as an at-grade signal and operate at LOS E and F during the AM and PM peak hours, respectively.

With the Avenue 50 Bridge widening in place under the Build scenario, the Avenue 50/Tyler Street/Magnolia intersection will be constructed with a traffic signal which would improve the operations at this intersection from LOS F to acceptable LOS C during both AM and PM peak hours under year 2021. The additional capacity proposed by the Avenue 50 Bridge project would attract more traffic using the Avenue 50/SR-86 intersection and result in higher delay at this intersection. However, this at-grade intersection is proposed to upgrade to an interchange by Year 2025 as phase 2 improvements of the project. All other study intersections would operate at acceptable LOS D or better conditions under the 2021 Build scenario.

**TABLE 3 - OPENING YEAR (2021) NO BUILD
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	30.3	C	37.6	D
2	Avenue 50/Leoco Lane	Signal	8.8	A	10.7	B
3	Avenue 50/ Peter Rabbit Lane	Signal	7.6	A	9.5	A
4	Avenue 50/Tyler Street	Side-street Stop	621.4	F	653.4	F
5	Avenue 50/ Southbound SR-86 Ramps	Signal	79.8	E	80.6	F
6	Avenue 50/ Northbound SR-86 Ramps					
11	Tyler Street/Calle Mendoza	Side-street Stop	15.3	C	14.9	B

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

**TABLE 4 - OPENING YEAR (2021) BUILD
INTERSECTION LOS SUMMARY**

	Intersection	Control	AM		PM	
			Delay	LOS	Delay	LOS
1	Avenue 50/Harrison Street	Signal	32.3	C	45.5	D
2	Avenue 50/Leoco Lane	Signal	8.8	A	10.4	B
3	Avenue 50/ Peter Rabbit Lane	Signal	9.1	A	12.0	B
4	Avenue 50/Tyler Street	Signal	28.2	C	23.0	C
5	Avenue 50/ Southbound SR-86 Ramps	Signal	95.5	F	96.8	F
6	Avenue 50/ Northbound SR-86 Ramps					
11	Tyler Street/Calle Mendoza	Side-street Stop	16.2	C	16.0	C

Bold text indicates unacceptable level of service.

AM = morning peak hour, PM = evening peak hour, LOS = level of service

1. For signalized intersection, delay shows whole intersection weighted average control delay using methods described in the HCM 2010.

Source: Fehr & Peers, 2017

APPENDIX

HCM 2010 Signalized Intersection Summary 2021 No Build

1: Harrison St & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	360	90	175	210	175	80	530	235	115	405	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	387	80	188	226	68	86	570	191	124	435	24
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	94	447	92	227	616	513	110	813	272	198	1050	58
Arrive On Green	0.06	0.31	0.31	0.07	0.34	0.34	0.06	0.31	0.31	0.06	0.31	0.31
Sat Flow, veh/h	1691	1423	294	3343	1810	1508	1774	2602	869	3442	3409	188
Grp Volume(v), veh/h	75	0	467	188	226	68	86	387	374	124	225	234
Grp Sat Flow(s),veh/h/ln	1691	0	1717	1672	1810	1508	1774	1770	1701	1721	1770	1827
Q Serve(g_s), s	3.2	0.0	18.8	4.1	6.9	2.3	3.5	14.2	14.2	2.6	7.4	7.5
Cycle Q Clear(g_c), s	3.2	0.0	18.8	4.1	6.9	2.3	3.5	14.2	14.2	2.6	7.4	7.5
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.51	1.00		0.10
Lane Grp Cap(c), veh/h	94	0	540	227	616	513	110	553	532	198	545	563
V/C Ratio(X)	0.80	0.00	0.87	0.83	0.37	0.13	0.78	0.70	0.70	0.63	0.41	0.42
Avail Cap(c_a), veh/h	138	0	630	227	665	554	159	590	567	248	558	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	23.7	33.8	18.3	16.8	34.0	22.2	22.3	33.9	20.2	20.2
Incr Delay (d2), s/veh	10.7	0.0	9.7	20.4	0.1	0.0	8.2	6.2	6.5	1.2	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	10.3	2.5	3.5	1.0	2.0	7.8	7.6	1.3	3.9	4.0
LnGrp Delay(d),s/veh	45.0	0.0	33.4	54.2	18.4	16.8	42.2	28.4	28.8	35.1	22.0	22.0
LnGrp LOS	D		C	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		542			482			847			583	
Approach Delay, s/veh		35.0			32.2			30.0			24.8	
Approach LOS		D			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.8	28.1	7.1	29.5	8.4	28.5	9.0	27.6				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 6.6	23.2	6.0	27.0	* 5.3	24.5	5.0	27.0				
Max Q Clear Time (g_c+l1), s	5.5	9.5	5.2	8.9	4.6	16.2	6.1	20.8				
Green Ext Time (p_c), s	0.0	10.5	0.0	2.7	0.0	6.7	0.0	1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			30.3									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
2021 No Build

2: Leoco Ln & Avenue 50
AM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↑	↑↑	↑	↑		
Volume (veh/h)	590	120	165	495	60	130		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	663	104	185	556	67	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1244	195	232	2288	136	122		
Arrive On Green	0.41	0.41	0.13	0.67	0.08	0.08		
Sat Flow, veh/h	3129	476	1723	3529	1774	1583		
Grp Volume(v), veh/h	382	385	185	556	67	10		
Grp Sat Flow(s),veh/h/ln	1752	1761	1723	1719	1774	1583		
Q Serve(g_s), s	5.4	5.4	3.4	2.1	1.2	0.2		
Cycle Q Clear(g_c), s	5.4	5.4	3.4	2.1	1.2	0.2		
Prop In Lane		0.27	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	718	721	232	2288	136	122		
V/C Ratio(X)	0.53	0.53	0.80	0.24	0.49	0.08		
Avail Cap(c_a), veh/h	904	908	261	2712	296	264		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.3	7.4	13.8	2.2	14.6	14.1		
Incr Delay (d2), s/veh	0.7	0.7	14.4	0.1	2.7	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	2.7	2.7	2.5	1.0	0.7	0.2		
LnGrp Delay(d),s/veh	8.1	8.1	28.2	2.3	17.3	14.4		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	767			741	77			
Approach Delay, s/veh	8.1			8.7	17.0			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.4		6.5	8.4	18.0
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				4.1		3.2	5.4	7.4
Green Ext Time (p_c), s				10.5		0.0	0.0	6.1
Intersection Summary								
HCM 2010 Ctrl Delay			8.8					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary
2021 No Build

3: Peter Rabbit Ln & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	680	30	20	615	10	30	5	10	10	5	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	773	31	23	699	11	34	6	3	11	6	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	1920	77	29	1007	16	241	12	6	294	75	38
Arrive On Green	0.01	0.56	0.56	0.02	0.57	0.57	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1757	3435	138	1723	1776	28	1070	189	94	1400	1173	586
Grp Volume(v), veh/h	11	394	410	23	0	710	43	0	0	11	0	9
Grp Sat Flow(s),veh/h/ln	1757	1752	1820	1723	0	1804	1353	0	0	1400	0	1759
Q Serve(g_s), s	0.2	4.8	4.8	0.5	0.0	10.5	1.1	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.2	4.8	4.8	0.5	0.0	10.5	1.2	0.0	0.0	0.2	0.0	0.2
Prop In Lane	1.00		0.08	1.00		0.02	0.79		0.07	1.00		0.33
Lane Grp Cap(c), veh/h	15	979	1017	29	0	1023	259	0	0	294	0	113
V/C Ratio(X)	0.72	0.40	0.40	0.78	0.00	0.69	0.17	0.00	0.00	0.04	0.00	0.08
Avail Cap(c_a), veh/h	141	1215	1262	138	0	1251	847	0	0	858	0	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	4.7	4.7	18.4	0.0	5.8	17.1	0.0	0.0	16.5	0.0	16.5
Incr Delay (d2), s/veh	48.1	0.3	0.3	35.1	0.0	1.4	0.3	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.4	2.5	0.5	0.0	5.5	0.5	0.0	0.0	0.1	0.0	0.1
LnGrp Delay(d),s/veh	66.7	5.0	5.0	53.5	0.0	7.2	17.4	0.0	0.0	16.6	0.0	16.8
LnGrp LOS	E	A	A	D		A	B			B		B
Approach Vol, veh/h		815			733			43			20	
Approach Delay, s/veh		5.9			8.7			17.4			16.7	
Approach LOS		A			A			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		6.9	4.3	26.3		6.9	4.6	26.0				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		17.5	3.0	26.0		17.5	3.0	26.0				
Max Q Clear Time (g_c+l1), s		3.2	2.2	12.5		2.2	2.5	6.8				
Green Ext Time (p_c), s		0.2	0.0	8.7		0.2	0.0	11.2				
Intersection Summary												
HCM 2010 Ctrl Delay			7.6									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	38.3	0.1	0.0	0.0	38.4
Denied Del/Veh (s)	200.2	0.4	0.0	0.1	91.0
Total Delay (hr)	85.7	0.3	63.5	0.0	149.5
Total Del/Veh (s)	485.1	2.0	621.4	12.7	357.7

HCM 2010 Signalized Intersection Summary
2021 No Build

56: SR-86 & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	465	90	40	10	140	55	80	910	10	10	950	280
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	511	99	0	11	154	0	88	1000	11	11	1044	135
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	475	92	502	10	136	124	87	1181	529	18	1044	467
Arrive On Green	0.32	0.32	0.00	0.08	0.08	0.00	0.06	0.41	0.41	0.01	0.36	0.36
Sat Flow, veh/h	1483	287	1568	121	1699	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	610	0	0	165	0	0	88	1000	11	11	1044	135
Grp Sat Flow(s),veh/h/ln	1771	0	1568	1821	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	48.0	0.0	0.0	12.0	0.0	0.0	9.0	46.9	0.8	1.1	54.2	11.2
Cycle Q Clear(g_c), s	48.0	0.0	0.0	12.0	0.0	0.0	9.0	46.9	0.8	1.1	54.2	11.2
Prop In Lane	0.84		1.00	0.07		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	567	0	502	146	0	124	87	1181	529	18	1044	467
V/C Ratio(X)	1.08	0.00	0.00	1.13	0.00	0.00	1.01	0.85	0.02	0.62	1.00	0.29
Avail Cap(c_a), veh/h	567	0	502	146	0	124	87	1181	529	48	1044	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	0.0	0.0	69.0	0.0	0.0	70.5	40.1	26.4	73.7	47.9	34.2
Incr Delay (d2), s/veh	60.1	0.0	0.0	114.7	0.0	0.0	100.2	6.1	0.0	30.4	28.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	32.9	0.0	0.0	10.7	0.0	0.0	6.0	19.7	0.3	0.6	25.6	4.0
LnGrp Delay(d),s/veh	111.1	0.0	0.0	183.7	0.0	0.0	170.8	46.1	26.4	104.1	75.9	34.6
LnGrp LOS	F			F			F	D	C	F	F	C
Approach Vol, veh/h	610			165			1099			1190		
Approach Delay, s/veh	111.1			183.7			55.9			71.5		
Approach LOS	F			F			E			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	69.2		55.0	14.0	62.0		19.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	58.2		48.0	9.0	54.2		12.0				
Max Q Clear Time (g_c+l1), s	3.1	48.9		50.0	11.0	56.2		14.0				
Green Ext Time (p_c), s	0.0	8.2		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	79.8											
HCM 2010 LOS	E											

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	40	50		370	20	30 330
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	43	54		402	22	33 359
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	837	413		0	0	424 0
Stage 1	413	-		-	-	- -
Stage 2	424	-		-	-	- -
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	337	639		-	-	1135 -
Stage 1	668	-		-	-	- -
Stage 2	660	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	325	639		-	-	1135 -
Mov Cap-2 Maneuver	325	-		-	-	- -
Stage 1	668	-		-	-	- -
Stage 2	636	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	15.3		0		0.7	
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	447	1135	-	
HCM Lane V/C Ratio	-	-	0.219	0.029	-	
HCM Control Delay (s)	-	-	15.3	8.3	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-	

HCM 2010 Signalized Intersection Summary 2021 No Build

1: Harrison St & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	280	110	250	290	200	150	575	205	210	865	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1845	1845	1845	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	122	286	92	255	296	86	153	587	171	214	883	74
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	3	3	3	2	2	2	2	2	2
Cap, veh/h	148	358	115	284	514	431	187	938	272	291	1082	91
Arrive On Green	0.08	0.27	0.27	0.08	0.28	0.28	0.11	0.35	0.35	0.08	0.33	0.33
Sat Flow, veh/h	1774	1340	431	3408	1845	1544	1774	2689	781	3442	3297	276
Grp Volume(v), veh/h	122	0	378	255	296	86	153	386	372	214	474	483
Grp Sat Flow(s),veh/h/ln	1774	0	1771	1704	1845	1544	1774	1770	1700	1721	1770	1804
Q Serve(g_s), s	5.7	0.0	16.7	6.2	11.6	3.6	7.1	15.3	15.4	5.1	20.7	20.7
Cycle Q Clear(g_c), s	5.7	0.0	16.7	6.2	11.6	3.6	7.1	15.3	15.4	5.1	20.7	20.7
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.46	1.00		0.15
Lane Grp Cap(c), veh/h	148	0	473	284	514	431	187	617	593	291	580	592
V/C Ratio(X)	0.83	0.00	0.80	0.90	0.58	0.20	0.82	0.63	0.63	0.73	0.82	0.82
Avail Cap(c_a), veh/h	148	0	569	284	614	514	207	617	593	352	589	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.0	0.0	28.7	38.2	26.0	23.2	36.8	22.8	22.8	37.6	25.9	25.9
Incr Delay (d2), s/veh	28.8	0.0	5.5	28.3	0.4	0.1	18.5	4.0	4.2	4.6	11.1	10.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	8.9	4.1	6.0	1.5	4.4	8.1	7.8	2.6	11.8	12.0
LnGrp Delay(d),s/veh	66.8	0.0	34.2	66.5	26.4	23.2	55.3	26.8	27.0	42.2	37.1	36.9
LnGrp LOS	E		C	E	C	C	E	C	C	D	D	D
Approach Vol, veh/h		500			637			911			1171	
Approach Delay, s/veh		42.2			42.0			31.7			37.9	
Approach LOS		D			D			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.1	33.1	10.0	28.0	11.3	34.8	11.0	27.0				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9.8	28.0	7.0	28.0	* 8.6	29.2	7.0	27.0				
Max Q Clear Time (g_c+l1), s	9.1	22.7	7.7	13.6	7.1	17.4	8.2	18.7				
Green Ext Time (p_c), s	0.0	4.9	0.0	2.5	0.1	10.8	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			37.6									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
2021 No Build

2: Leoco Ln & Avenue 50
PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	575	115	195	600	140	175		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1827	1900	1863	1863	1863	1863		
Adj Flow Rate, veh/h	605	82	205	632	147	53		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	4	4	2	2	2	2		
Cap, veh/h	1174	159	251	2255	216	193		
Arrive On Green	0.38	0.38	0.14	0.64	0.12	0.12		
Sat Flow, veh/h	3164	416	1774	3632	1774	1583		
Grp Volume(v), veh/h	341	346	205	632	147	53		
Grp Sat Flow(s),veh/h/ln	1736	1752	1774	1770	1774	1583		
Q Serve(g_s), s	5.3	5.4	4.0	2.8	2.8	1.1		
Cycle Q Clear(g_c), s	5.3	5.4	4.0	2.8	2.8	1.1		
Prop In Lane		0.24	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	663	669	251	2255	216	193		
V/C Ratio(X)	0.51	0.52	0.82	0.28	0.68	0.27		
Avail Cap(c_a), veh/h	837	845	251	2609	277	247		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	8.4	8.4	14.7	2.8	14.8	14.1		
Incr Delay (d2), s/veh	0.7	0.7	18.4	0.1	4.6	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	2.6	2.6	3.2	1.3	1.6	1.0		
LnGrp Delay(d),s/veh	9.1	9.1	33.0	2.9	19.4	14.8		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	687			837	200			
Approach Delay, s/veh	9.1			10.3	18.2			
Approach LOS	A			B	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4	6		7	8
Phs Duration (G+Y+Rc), s				27.0	8.3		9.0	18.0
Change Period (Y+Rc), s				4.5	4.0		4.0	4.5
Max Green Setting (Gmax), s				26.0	5.5		5.0	17.0
Max Q Clear Time (g_c+l1), s				4.8	4.8		6.0	7.4
Green Ext Time (p_c), s				10.3	0.0		0.0	6.1
Intersection Summary								
HCM 2010 Ctrl Delay	10.7							
HCM 2010 LOS	B							

HCM 2010 Signalized Intersection Summary
2021 No Build

3: Peter Rabbit Ln & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	685	20	10	715	30	30	5	20	30	5	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1827	1827	1900	1863	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	721	19	11	753	30	32	5	6	32	5	4
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	2000	53	15	982	39	234	12	15	298	73	58
Arrive On Green	0.04	0.58	0.58	0.01	0.55	0.55	0.08	0.08	0.08	0.08	0.08	0.08
Sat Flow, veh/h	1740	3455	91	1774	1779	71	1021	160	192	1398	960	768
Grp Volume(v), veh/h	53	362	378	11	0	783	43	0	0	32	0	9
Grp Sat Flow(s),veh/h/ln	1740	1736	1811	1774	0	1850	1373	0	0	1398	0	1727
Q Serve(g_s), s	1.2	4.5	4.5	0.2	0.0	13.2	1.1	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	1.2	4.5	4.5	0.2	0.0	13.2	1.3	0.0	0.0	0.7	0.0	0.2
Prop In Lane	1.00		0.05	1.00		0.04	0.74		0.14	1.00		0.44
Lane Grp Cap(c), veh/h	62	1005	1048	15	0	1021	261	0	0	298	0	131
V/C Ratio(X)	0.85	0.36	0.36	0.72	0.00	0.77	0.16	0.00	0.00	0.11	0.00	0.07
Avail Cap(c_a), veh/h	130	1082	1129	133	0	1154	826	0	0	837	0	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.2	4.5	4.5	19.8	0.0	7.0	17.8	0.0	0.0	17.4	0.0	17.2
Incr Delay (d2), s/veh	25.9	0.3	0.3	47.3	0.0	3.0	0.3	0.0	0.0	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.2	2.3	0.3	0.0	7.4	0.5	0.0	0.0	0.3	0.0	0.1
LnGrp Delay(d),s/veh	45.2	4.8	4.7	67.1	0.0	9.9	18.1	0.0	0.0	17.6	0.0	17.4
LnGrp LOS	D	A	A	E		A	B			B		B
Approach Vol, veh/h		793			794			43			41	
Approach Delay, s/veh		7.5			10.7			18.1			17.6	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.5	5.4	27.1		7.5	4.3	28.2				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		18.5	3.0	25.0		18.5	3.0	25.0				
Max Q Clear Time (g_c+l1), s		3.3	3.2	15.2		2.7	2.2	6.5				
Green Ext Time (p_c), s		0.2	0.0	6.9		0.2	0.0	11.1				
Intersection Summary												
HCM 2010 Ctrl Delay			9.5									
HCM 2010 LOS			A									

4: Tyler St/Magnolia & Avenue 50 Performance by approach

Approach	EB	WB	NB	SB	All
Denied Delay (hr)	69.9	0.1	0.0	0.0	70.0
Denied Del/Veh (s)	338.4	0.4	0.0	0.1	154.2
Total Delay (hr)	92.9	0.3	62.8	0.0	156.1
Total Del/Veh (s)	531.0	2.1	653.4	18.0	359.8

HCM 2010 Signalized Intersection Summary

2021 No Build

56: SR-86 & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	260	250	90	10	100	20	100	1115	25	55	970	390
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1845	1845	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	280	269	0	11	108	0	108	1199	27	59	1043	182
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	25	25	25	25	25	25
Cap, veh/h	252	242	431	10	97	91	109	1160	519	60	1064	476
Arrive On Green	0.28	0.28	0.00	0.06	0.06	0.00	0.08	0.40	0.40	0.04	0.37	0.37
Sat Flow, veh/h	917	881	1568	170	1666	1568	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	549	0	0	119	0	0	108	1199	27	59	1043	182
Grp Sat Flow(s),veh/h/ln	1799	0	1568	1836	0	1568	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	33.0	0.0	0.0	7.0	0.0	0.0	8.9	48.2	1.5	4.9	42.9	12.4
Cycle Q Clear(g_c), s	33.0	0.0	0.0	7.0	0.0	0.0	8.9	48.2	1.5	4.9	42.9	12.4
Prop In Lane	0.51		1.00	0.09		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	495	0	431	107	0	91	109	1160	519	60	1064	476
V/C Ratio(X)	1.11	0.00	0.00	1.11	0.00	0.00	0.99	1.03	0.05	0.98	0.98	0.38
Avail Cap(c_a), veh/h	495	0	431	107	0	91	109	1160	519	60	1064	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.5	0.0	0.0	56.5	0.0	0.0	55.5	35.9	21.9	57.4	37.5	27.9
Incr Delay (d2), s/veh	74.0	0.0	0.0	120.0	0.0	0.0	84.6	35.5	0.1	107.8	22.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.5	0.0	0.0	7.1	0.0	0.0	6.1	24.9	0.6	3.8	20.5	4.5
LnGrp Delay(d),s/veh	117.5	0.0	0.0	176.5	0.0	0.0	140.1	71.4	22.0	165.3	60.4	28.6
LnGrp LOS	F			F			F	F	C	F	E	C
Approach Vol, veh/h		549			119			1334			1284	
Approach Delay, s/veh		117.5			176.5			75.9			60.7	
Approach LOS		F			F			E			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	56.0		40.0	14.0	52.0		14.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	48.2		33.0	9.0	44.2		7.0				
Max Q Clear Time (g_c+l1), s	6.9	50.2		35.0	10.9	44.9		9.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay			80.6									
HCM 2010 LOS			F									

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	30	40		340	50	70 275
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	33	43		370	54	76 299
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	848	397		0	0	424 0
Stage 1	397	-		-	-	- -
Stage 2	451	-		-	-	- -
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	332	652		-	-	1135 -
Stage 1	679	-		-	-	- -
Stage 2	642	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	305	652		-	-	1135 -
Mov Cap-2 Maneuver	305	-		-	-	- -
Stage 1	679	-		-	-	- -
Stage 2	591	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	14.9		0		1.7	
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	438	1135	-	
HCM Lane V/C Ratio	-	-	0.174	0.067	-	
HCM Control Delay (s)	-	-	14.9	8.4	0	
HCM Lane LOS	-	-	B	A	A	
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-	

HCM 2010 Signalized Intersection Summary 2021 Build

1: Harrison St & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	335	90	210	235	185	80	505	260	105	380	30
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	360	80	226	253	79	86	543	218	113	409	24
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	94	427	95	231	601	501	110	790	316	185	1060	62
Arrive On Green	0.06	0.30	0.30	0.07	0.33	0.33	0.06	0.32	0.32	0.05	0.31	0.31
Sat Flow, veh/h	1691	1402	311	3343	1810	1508	1774	2464	986	3442	3396	199
Grp Volume(v), veh/h	75	0	440	226	253	79	86	389	372	113	213	220
Grp Sat Flow(s),veh/h/ln	1691	0	1713	1672	1810	1508	1774	1770	1680	1721	1770	1825
Q Serve(g_s), s	3.2	0.0	17.4	4.9	7.8	2.7	3.5	13.9	13.9	2.3	6.8	6.8
Cycle Q Clear(g_c), s	3.2	0.0	17.4	4.9	7.8	2.7	3.5	13.9	13.9	2.3	6.8	6.8
Prop In Lane	1.00		0.18	1.00		1.00	1.00		0.59	1.00		0.11
Lane Grp Cap(c), veh/h	94	0	522	231	601	501	110	567	539	185	552	570
V/C Ratio(X)	0.80	0.00	0.84	0.98	0.42	0.16	0.78	0.69	0.69	0.61	0.38	0.39
Avail Cap(c_a), veh/h	140	0	640	231	676	563	162	612	581	228	568	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	0.0	23.5	33.6	18.7	17.0	33.4	21.4	21.4	33.5	19.4	19.5
Incr Delay (d2), s/veh	9.7	0.0	7.1	52.5	0.2	0.1	7.4	5.6	6.0	1.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	9.2	3.9	3.9	1.1	1.9	7.6	7.3	1.1	3.5	3.7
LnGrp Delay(d),s/veh	43.4	0.0	30.6	86.1	18.9	17.1	40.8	27.0	27.4	34.7	21.0	21.0
LnGrp LOS	D		C	F	B	B	D	C	C	C	C	C
Approach Vol, veh/h		515			558			847			546	
Approach Delay, s/veh		32.5			45.9			28.6			23.9	
Approach LOS		C			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.7	28.1	7.0	28.5	8.1	28.7	9.0	26.5				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 6.6	23.2	6.0	27.0	* 4.8	25.0	5.0	27.0				
Max Q Clear Time (g_c+l1), s	5.5	8.8	5.2	9.8	4.3	15.9	6.9	19.4				
Green Ext Time (p_c), s	0.0	10.8	0.0	2.7	0.0	7.2	0.0	1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			32.3									
HCM 2010 LOS			C									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2021 Build

2: Leoco Ln & Avenue 50
AM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑		↑	↑↑	↑	↑		
Volume (veh/h)	590	120	165	495	60	130		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	663	104	185	556	67	10		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1244	195	232	2288	136	122		
Arrive On Green	0.41	0.41	0.13	0.67	0.08	0.08		
Sat Flow, veh/h	3129	476	1723	3529	1774	1583		
Grp Volume(v), veh/h	382	385	185	556	67	10		
Grp Sat Flow(s),veh/h/ln	1752	1761	1723	1719	1774	1583		
Q Serve(g_s), s	5.4	5.4	3.4	2.1	1.2	0.2		
Cycle Q Clear(g_c), s	5.4	5.4	3.4	2.1	1.2	0.2		
Prop In Lane		0.27	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	718	721	232	2288	136	122		
V/C Ratio(X)	0.53	0.53	0.80	0.24	0.49	0.08		
Avail Cap(c_a), veh/h	904	908	261	2712	296	264		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	7.3	7.4	13.8	2.2	14.6	14.1		
Incr Delay (d2), s/veh	0.7	0.7	14.4	0.1	2.7	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	2.7	2.7	2.5	1.0	0.7	0.2		
LnGrp Delay(d),s/veh	8.1	8.1	28.2	2.3	17.3	14.4		
LnGrp LOS	A	A	C	A	B	B		
Approach Vol, veh/h	767			741	77			
Approach Delay, s/veh	8.1			8.7	17.0			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				26.4		6.5	8.4	18.0
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				26.0		5.5	5.0	17.0
Max Q Clear Time (g_c+l1), s				4.1		3.2	5.4	7.4
Green Ext Time (p_c), s				10.5		0.0	0.0	6.1
Intersection Summary								
HCM 2010 Ctrl Delay			8.8					
HCM 2010 LOS			A					

HCM 2010 Signalized Intersection Summary

2021 Build

3: Peter Rabbit Ln & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	705	30	20	710	10	30	5	25	10	5	10
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	11	801	31	23	807	11	34	6	20	11	6	3
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	15	1954	76	29	1026	14	201	10	34	301	87	43
Arrive On Green	0.01	0.57	0.57	0.02	0.58	0.58	0.07	0.07	0.07	0.07	0.07	0.07
Sat Flow, veh/h	1757	3440	133	1723	1780	24	793	140	466	1379	1173	586
Grp Volume(v), veh/h	11	408	424	23	0	818	60	0	0	11	0	9
Grp Sat Flow(s),veh/h/ln	1757	1752	1821	1723	0	1805	1399	0	0	1379	0	1759
Q Serve(g_s), s	0.2	5.2	5.2	0.5	0.0	13.9	1.5	0.0	0.0	0.0	0.0	0.2
Cycle Q Clear(g_c), s	0.2	5.2	5.2	0.5	0.0	13.9	1.7	0.0	0.0	0.2	0.0	0.2
Prop In Lane	1.00		0.07	1.00		0.01	0.57		0.33	1.00		0.33
Lane Grp Cap(c), veh/h	15	995	1034	29	0	1040	246	0	0	301	0	130
V/C Ratio(X)	0.73	0.41	0.41	0.79	0.00	0.79	0.24	0.00	0.00	0.04	0.00	0.07
Avail Cap(c_a), veh/h	133	1107	1151	131	0	1140	835	0	0	844	0	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.6	4.8	4.8	19.4	0.0	6.5	17.9	0.0	0.0	17.1	0.0	17.1
Incr Delay (d2), s/veh	48.6	0.3	0.3	36.0	0.0	3.6	0.5	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.5	2.6	0.5	0.0	7.6	0.7	0.0	0.0	0.1	0.0	0.1
LnGrp Delay(d),s/veh	68.1	5.1	5.1	55.3	0.0	10.1	18.4	0.0	0.0	17.1	0.0	17.3
LnGrp LOS	E	A	A	E		B	B			B		B
Approach Vol, veh/h		843			841			60			20	
Approach Delay, s/veh		6.0			11.3			18.4			17.2	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		7.4	4.3	27.8		7.4	4.7	27.5				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		18.5	3.0	25.0		18.5	3.0	25.0				
Max Q Clear Time (g_c+l1), s		3.7	2.2	15.9		2.2	2.5	7.2				
Green Ext Time (p_c), s		0.2	0.0	6.9		0.3	0.0	11.7				
Intersection Summary												
HCM 2010 Ctrl Delay			9.1									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
2021 Build

4: Tyler St/Magnolia & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	485	240	165	455	5	280	0	150	5	0	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	6	545	270	185	511	6	315	0	169	6	0	6
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	14	1003	458	177	1362	609	373	392	333	71	0	71
Arrive On Green	0.01	0.30	0.30	0.10	0.39	0.39	0.21	0.00	0.21	0.08	0.00	0.08
Sat Flow, veh/h	1757	3357	1535	1740	3471	1553	1774	1863	1583	837	0	837
Grp Volume(v), veh/h	6	545	270	185	511	6	315	0	169	12	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1535	1740	1736	1553	1774	1863	1583	1673	0	0
Q Serve(g_s), s	0.2	8.0	8.8	6.0	6.2	0.1	10.1	0.0	5.6	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	8.0	8.8	6.0	6.2	0.1	10.1	0.0	5.6	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	14	1003	458	177	1362	609	373	392	333	142	0	0
V/C Ratio(X)	0.43	0.54	0.59	1.05	0.38	0.01	0.84	0.00	0.51	0.08	0.00	0.00
Avail Cap(c_a), veh/h	149	1364	623	177	1469	657	420	441	375	793	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.2	17.3	17.6	26.5	12.8	11.0	22.4	0.0	20.6	24.9	0.0	0.0
Incr Delay (d2), s/veh	19.6	0.5	1.2	80.7	0.2	0.0	13.3	0.0	1.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.8	3.9	6.8	3.0	0.1	6.3	0.0	2.5	0.2	0.0	0.0
LnGrp Delay(d),s/veh	48.8	17.8	18.8	107.3	13.0	11.0	35.7	0.0	21.8	25.2	0.0	0.0
LnGrp LOS	D	B	B	F	B	B	D		C	C		
Approach Vol, veh/h		821			702			484			12	
Approach Delay, s/veh		18.4			37.8			30.8			25.2	
Approach LOS		B			D			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.9	10.0	22.6		9.5	4.5	28.2				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		14.0	6.0	24.0		28.0	5.0	25.0				
Max Q Clear Time (g_c+l1), s		12.1	8.0	10.8		2.4	2.2	8.2				
Green Ext Time (p_c), s		0.4	0.0	6.8		0.0	0.0	7.9				
Intersection Summary												
HCM 2010 Ctrl Delay			28.2									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

2021 Build

56: SR-86 & Avenue 50
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	505	105	40	10	190	45	80	900	10	10	915	375
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	555	115	0	11	209	0	88	989	11	11	1005	239
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	489	101	523	9	162	145	87	1104	494	18	967	432
Arrive On Green	0.33	0.33	0.00	0.09	0.09	0.00	0.06	0.38	0.38	0.01	0.33	0.33
Sat Flow, veh/h	1467	304	1568	91	1731	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	670	0	0	220	0	0	88	989	11	11	1005	239
Grp Sat Flow(s),veh/h/ln	1771	0	1568	1822	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	50.0	0.0	0.0	14.0	0.0	0.0	9.0	48.2	0.8	1.1	50.2	22.7
Cycle Q Clear(g_c), s	50.0	0.0	0.0	14.0	0.0	0.0	9.0	48.2	0.8	1.1	50.2	22.7
Prop In Lane	0.83		1.00	0.05		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	590	0	523	170	0	145	87	1104	494	18	967	432
V/C Ratio(X)	1.13	0.00	0.00	1.29	0.00	0.00	1.01	0.90	0.02	0.62	1.04	0.55
Avail Cap(c_a), veh/h	590	0	523	170	0	145	87	1104	494	48	967	432
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	0.0	0.0	68.0	0.0	0.0	70.5	43.5	28.9	73.7	49.9	40.7
Incr Delay (d2), s/veh	80.1	0.0	0.0	168.6	0.0	0.0	100.2	9.9	0.0	30.4	39.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	37.6	0.0	0.0	15.0	0.0	0.0	6.0	20.7	0.3	0.6	25.3	8.3
LnGrp Delay(d),s/veh	130.1	0.0	0.0	236.6	0.0	0.0	170.8	53.4	28.9	104.1	89.7	42.7
LnGrp LOS	F			F			F	D	C	F	F	D
Approach Vol, veh/h	670			220			1088			1255		
Approach Delay, s/veh	130.1			236.6			62.6			80.9		
Approach LOS	F			F			E			F		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	65.2		57.0	14.0	58.0		21.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	54.2		50.0	9.0	50.2		14.0				
Max Q Clear Time (g_c+l1), s	3.1	50.2		52.0	11.0	52.2		16.0				
Green Ext Time (p_c), s	0.0	3.7		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	95.5											
HCM 2010 LOS	F											

Intersection

Int Delay, s/veh 1.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	50	385	20	30	375
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	43	54	418	22	33	408

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	902	429	0 0 440 0
Stage 1	429	-	- - - -
Stage 2	473	-	- - - -
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	308	626	- - 1120 -
Stage 1	657	-	- - - -
Stage 2	627	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	296	626	- - 1120 -
Mov Cap-2 Maneuver	296	-	- - - -
Stage 1	657	-	- - - -
Stage 2	603	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	16.2	0	0.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 419	1120	-
HCM Lane V/C Ratio	-	- 0.233	0.029	-
HCM Control Delay (s)	-	- 16.2	8.3	0
HCM Lane LOS	-	- C	A	A
HCM 95th %tile Q(veh)	-	- 0.9	0.1	-

HCM 2010 Signalized Intersection Summary

2021 Build

1: Harrison St & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	120	290	110	310	305	185	150	560	220	220	830	80
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1776	1900	1810	1810	1810	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	129	312	101	333	328	79	161	602	175	237	892	78
Adj No. of Lanes	1	1	0	2	1	1	1	2	0	2	2	0
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	7	7	7	5	5	5	2	2	2	2	2	2
Cap, veh/h	158	357	115	346	543	452	190	860	249	311	992	87
Arrive On Green	0.09	0.28	0.28	0.10	0.30	0.30	0.11	0.32	0.32	0.09	0.30	0.30
Sat Flow, veh/h	1691	1278	414	3343	1810	1507	1774	2703	784	3442	3289	288
Grp Volume(v), veh/h	129	0	413	333	328	79	161	394	383	237	480	490
Grp Sat Flow(s),veh/h/ln	1691	0	1692	1672	1810	1507	1774	1770	1717	1721	1770	1807
Q Serve(g_s), s	6.5	0.0	20.2	8.6	13.5	3.4	7.8	17.0	17.0	5.9	22.6	22.6
Cycle Q Clear(g_c), s	6.5	0.0	20.2	8.6	13.5	3.4	7.8	17.0	17.0	5.9	22.6	22.6
Prop In Lane	1.00		0.24	1.00		1.00	1.00		0.46	1.00		0.16
Lane Grp Cap(c), veh/h	158	0	472	346	543	452	190	563	546	311	533	545
V/C Ratio(X)	0.81	0.00	0.88	0.96	0.60	0.17	0.85	0.70	0.70	0.76	0.90	0.90
Avail Cap(c_a), veh/h	175	0	525	346	583	485	190	563	546	332	539	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.7	0.0	29.9	38.8	26.0	22.5	38.1	26.0	26.0	38.7	29.1	29.1
Incr Delay (d2), s/veh	20.7	0.0	13.1	38.2	1.0	0.1	27.4	6.2	6.5	8.2	20.0	19.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	11.1	5.8	6.9	1.4	5.2	9.3	9.1	3.1	14.0	14.3
LnGrp Delay(d),s/veh	59.4	0.0	43.1	77.0	27.0	22.5	65.6	32.2	32.5	46.8	49.1	48.8
LnGrp LOS	E		D	E	C	C	E	C	C	D	D	D
Approach Vol, veh/h		542			740			938			1207	
Approach Delay, s/veh		46.9			49.0			38.0			48.5	
Approach LOS		D			D			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.5	31.7	11.1	30.6	12.1	33.2	13.0	28.8				
Change Period (Y+Rc), s	* 4.2	5.5	3.0	4.5	* 4.2	5.5	4.0	4.5				
Max Green Setting (Gmax), s	* 9.3	26.5	9.0	28.0	* 8.4	27.4	9.0	27.0				
Max Q Clear Time (g_c+I1), s	9.8	24.6	8.5	15.5	7.9	19.0	10.6	22.2				
Green Ext Time (p_c), s	0.0	1.6	0.0	2.6	0.0	7.8	0.0	1.5				
Intersection Summary												
HCM 2010 Ctrl Delay			45.5									
HCM 2010 LOS			D									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2021 Build

2: Leoco Ln & Avenue 50
PM Peak Hour

								
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Volume (veh/h)	625	105	220	675	130	190		
Number	8	18	7	4	1	16		
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		
Adj Sat Flow, veh/h/ln	1845	1900	1810	1810	1863	1863		
Adj Flow Rate, veh/h	702	87	247	758	146	77		
Adj No. of Lanes	2	0	1	2	1	1		
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89		
Percent Heavy Veh, %	3	3	5	5	2	2		
Cap, veh/h	1195	148	308	2275	214	191		
Arrive On Green	0.38	0.38	0.18	0.66	0.12	0.12		
Sat Flow, veh/h	3232	389	1723	3529	1774	1583		
Grp Volume(v), veh/h	392	397	247	758	146	77		
Grp Sat Flow(s),veh/h/ln	1752	1776	1723	1719	1774	1583		
Q Serve(g_s), s	7.0	7.0	5.4	3.7	3.1	1.8		
Cycle Q Clear(g_c), s	7.0	7.0	5.4	3.7	3.1	1.8		
Prop In Lane		0.22	1.00		1.00	1.00		
Lane Grp Cap(c), veh/h	667	676	308	2275	214	191		
V/C Ratio(X)	0.59	0.59	0.80	0.33	0.68	0.40		
Avail Cap(c_a), veh/h	763	773	397	2640	295	263		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	9.6	9.7	15.4	2.9	16.5	15.9		
Incr Delay (d2), s/veh	1.1	1.1	8.8	0.1	3.8	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	3.5	3.5	3.3	1.7	1.7	1.6		
LnGrp Delay(d),s/veh	10.7	10.7	24.2	3.0	20.2	17.2		
LnGrp LOS	B	B	C	A	C	B		
Approach Vol, veh/h	789			1005	223			
Approach Delay, s/veh	10.7			8.2	19.2			
Approach LOS	B			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				30.3		8.7	11.0	19.4
Change Period (Y+Rc), s				4.5		4.0	4.0	4.5
Max Green Setting (Gmax), s				30.0		6.5	9.0	17.0
Max Q Clear Time (g_c+l1), s				5.7		5.1	7.4	9.0
Green Ext Time (p_c), s				13.2		0.1	0.1	5.9
Intersection Summary								
HCM 2010 Ctrl Delay			10.4					
HCM 2010 LOS			B					

HCM 2010 Signalized Intersection Summary

2021 Build

3: Peter Rabbit Ln & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	50	745	20	25	810	30	30	5	20	30	5	50
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1810	1810	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	57	847	20	28	920	34	34	6	15	34	6	49
Adj No. of Lanes	1	2	0	1	1	0	0	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3	5	5	5	2	2	2	2	2	2
Cap, veh/h	71	2358	56	32	1130	42	143	26	28	257	15	122
Arrive On Green	0.04	0.67	0.67	0.02	0.65	0.65	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1757	3500	83	1723	1733	64	556	304	322	1385	176	1434
Grp Volume(v), veh/h	57	424	443	28	0	954	55	0	0	34	0	55
Grp Sat Flow(s),veh/h/ln	1757	1752	1830	1723	0	1797	1182	0	0	1385	0	1610
Q Serve(g_s), s	2.0	6.3	6.3	1.0	0.0	23.9	1.2	0.0	0.0	0.0	0.0	2.0
Cycle Q Clear(g_c), s	2.0	6.3	6.3	1.0	0.0	23.9	3.2	0.0	0.0	1.1	0.0	2.0
Prop In Lane	1.00		0.05	1.00		0.04	0.62		0.27	1.00		0.89
Lane Grp Cap(c), veh/h	71	1181	1233	32	0	1172	197	0	0	257	0	137
V/C Ratio(X)	0.81	0.36	0.36	0.87	0.00	0.81	0.28	0.00	0.00	0.13	0.00	0.40
Avail Cap(c_a), veh/h	87	1241	1296	142	0	1331	514	0	0	561	0	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.9	4.3	4.3	29.7	0.0	7.8	26.9	0.0	0.0	25.9	0.0	26.3
Incr Delay (d2), s/veh	35.0	0.2	0.2	46.3	0.0	3.7	0.8	0.0	0.0	0.2	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	3.0	3.1	0.9	0.0	12.9	0.9	0.0	0.0	0.5	0.0	0.9
LnGrp Delay(d),s/veh	63.9	4.5	4.5	76.0	0.0	11.6	27.6	0.0	0.0	26.1	0.0	28.2
LnGrp LOS	E	A	A	E		B	C			C		C
Approach Vol, veh/h		924			982			55			89	
Approach Delay, s/veh		8.1			13.4			27.6			27.4	
Approach LOS		A			B			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.7	6.4	44.6		9.7	5.1	45.9				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		18.5	3.0	45.0		18.5	5.0	43.0				
Max Q Clear Time (g_c+I1), s		5.2	4.0	25.9		4.0	3.0	8.3				
Green Ext Time (p_c), s		0.5	0.0	13.7		0.5	0.0	20.6				
Intersection Summary												
HCM 2010 Ctrl Delay			12.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
2021 Build

4: Tyler St/Magnolia & Avenue 50

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	5	550	250	155	580	5	270	0	130	5	0	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1827	1827	1827	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	6	618	281	174	652	6	303	0	146	6	0	6
Adj No. of Lanes	1	3	0	1	2	1	1	1	1	0	1	0
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	4	4	4	2	2	2	2	2	2
Cap, veh/h	84	1047	465	195	1293	579	376	395	336	67	0	67
Arrive On Green	0.05	0.31	0.31	0.11	0.37	0.37	0.21	0.00	0.21	0.08	0.00	0.08
Sat Flow, veh/h	1757	3392	1505	1740	3471	1553	1774	1863	1583	837	0	837
Grp Volume(v), veh/h	6	611	288	174	652	6	303	0	146	12	0	0
Grp Sat Flow(s),veh/h/ln	1757	1679	1541	1740	1736	1553	1774	1863	1583	1673	0	0
Q Serve(g_s), s	0.2	9.6	9.9	6.2	9.1	0.2	10.2	0.0	5.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.2	9.6	9.9	6.2	9.1	0.2	10.2	0.0	5.0	0.4	0.0	0.0
Prop In Lane	1.00		0.98	1.00		1.00	1.00		1.00	0.50		0.50
Lane Grp Cap(c), veh/h	84	1036	476	195	1293	579	376	395	336	134	0	0
V/C Ratio(X)	0.07	0.59	0.60	0.89	0.50	0.01	0.81	0.00	0.43	0.09	0.00	0.00
Avail Cap(c_a), veh/h	84	1287	591	195	1553	695	652	684	582	748	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.5	18.3	18.4	27.4	15.2	12.4	23.4	0.0	21.4	26.7	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.5	1.2	36.8	0.3	0.0	4.1	0.0	0.9	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.5	4.4	4.9	4.4	0.1	5.4	0.0	2.2	0.2	0.0	0.0
LnGrp Delay(d),s/veh	28.8	18.8	19.6	64.2	15.5	12.4	27.5	0.0	22.3	27.0	0.0	0.0
LnGrp LOS	C	B	B	E	B	B	C		C	C		
Approach Vol, veh/h		905			832			449			12	
Approach Delay, s/veh		19.2			25.7			25.8			27.0	
Approach LOS		B			C			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.8	11.0	24.3		9.5	7.0	28.3				
Change Period (Y+Rc), s		4.5	4.0	5.0		4.5	4.0	5.0				
Max Green Setting (Gmax), s		23.0	7.0	24.0		28.0	3.0	28.0				
Max Q Clear Time (g_c+l1), s		12.2	8.2	11.9		2.4	2.2	11.1				
Green Ext Time (p_c), s		1.1	0.0	7.4		0.0	0.0	9.3				
Intersection Summary												
HCM 2010 Ctrl Delay			23.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary

2021 Build

56: SR-86 & Avenue 50
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	335	270	90	10	140	20	100	1100	25	30	935	520
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1900	1827	1827	1520	1520	1520	1520	1520	1520
Adj Flow Rate, veh/h	368	297	0	11	154	0	110	1209	27	33	1027	398
Adj No. of Lanes	0	1	1	0	1	1	1	2	1	1	2	1
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	4	4	4	25	25	25	25	25	25
Cap, veh/h	311	251	491	9	125	114	106	1178	527	39	1044	467
Arrive On Green	0.31	0.31	0.00	0.07	0.07	0.00	0.07	0.41	0.41	0.03	0.36	0.36
Sat Flow, veh/h	993	802	1568	121	1699	1553	1448	2888	1292	1448	2888	1292
Grp Volume(v), veh/h	665	0	0	165	0	0	110	1209	27	33	1027	398
Grp Sat Flow(s),veh/h/ln	1795	0	1568	1821	0	1553	1448	1444	1292	1448	1444	1292
Q Serve(g_s), s	47.0	0.0	0.0	11.0	0.0	0.0	11.0	61.2	1.9	3.4	52.9	42.6
Cycle Q Clear(g_c), s	47.0	0.0	0.0	11.0	0.0	0.0	11.0	61.2	1.9	3.4	52.9	42.6
Prop In Lane	0.55		1.00	0.07		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	562	0	491	134	0	114	106	1178	527	39	1044	467
V/C Ratio(X)	1.18	0.00	0.00	1.24	0.00	0.00	1.04	1.03	0.05	0.85	0.98	0.85
Avail Cap(c_a), veh/h	562	0	491	134	0	114	106	1178	527	48	1044	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	0.0	0.0	69.5	0.0	0.0	69.5	44.4	26.9	72.7	47.5	44.2
Incr Delay (d2), s/veh	99.2	0.0	0.0	154.6	0.0	0.0	97.4	33.3	0.1	65.8	24.0	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	38.8	0.0	0.0	11.3	0.0	0.0	7.3	29.8	0.7	2.1	24.6	17.1
LnGrp Delay(d),s/veh	150.7	0.0	0.0	224.1	0.0	0.0	167.5	77.7	26.9	138.5	71.5	58.8
LnGrp LOS	F			F			F	F	C	F	E	E
Approach Vol, veh/h	665			165			1346			1458		
Approach Delay, s/veh	150.7			224.1			84.0			69.5		
Approach LOS	F			F			F			E		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	69.0		54.0	16.0	62.0		18.0				
Change Period (Y+Rc), s	5.0	7.8		7.0	5.0	7.8		7.0				
Max Green Setting (Gmax), s	5.0	60.2		47.0	11.0	54.2		11.0				
Max Q Clear Time (g_c+l1), s	5.4	63.2		49.0	13.0	54.9		13.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 2010 Ctrl Delay	96.8											
HCM 2010 LOS	F											

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR		NBT	NBR	SBL SBT
Vol, veh/h	30	40		360	50	70 335
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	33	43		391	54	76 364
Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	934	418		0	0	446 0
Stage 1	418	-		-	-	- -
Stage 2	516	-		-	-	- -
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	295	635		-	-	1114 -
Stage 1	664	-		-	-	- -
Stage 2	599	-		-	-	- -
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	270	635		-	-	1114 -
Mov Cap-2 Maneuver	270	-		-	-	- -
Stage 1	664	-		-	-	- -
Stage 2	547	-		-	-	- -
Approach	WB		NB		SB	
HCM Control Delay, s	16		0		1.5	
HCM LOS	C					
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT	
Capacity (veh/h)	-	-	402	1114	-	
HCM Lane V/C Ratio	-	-	0.189	0.068	-	
HCM Control Delay (s)	-	-	16	8.5	0	
HCM Lane LOS	-	-	C	A	A	
HCM 95th %tile Q(veh)	-	-	0.7	0.2	-	

Memorandum

*Make Conservation
a California Way of Life.*

To: JUSTINE NIU
Senior Transportation Engineer
Design J - Oversight

Date: October 3, 2018

Cc: MEARDEY TIM
Project Manager
Program/Project Management

File: Riv-86-PM R31.1/R34.4
EA 0C970
PN: 0814000144
AAK

From: RENA TANG
Branch Chief
System Planning & Traffic Forecasting, MS 726



Subject: Supplemental Updated Opening Year 2021 (TOAR) for State Route 86/Avenue 50 New Interchange and Avenue 50 Bridge Project

Per your request, the System Planning & Traffic Forecasting has unit reviewed the Supplemental Traffic Operations Report for the State Route 86/Avenue 50 New Interchange and Avenue 50 Bridge Project. We concur with the analysis. If you have any questions regarding the information above, you may reach me at (909) 388-7017 or Afshin Karimi at (909) 383-6441.