COUNTY OF EL DORADO
DEPARTMENT OF TRANSPORTATION

INTEROFFICE MEMORANDUM

Date: June 8, 2021

To: El Dorado County Planning Commission

From: Natalie Porter, Supervising Civil Engineer
Tia Raamot, Transportation Planner

Subject: The Haven Apartments SB 35 Project
TC-X Policies and Updated Findings

Updated Findings for the Mercy El Dorado Haven Apartments project are being provided on June 8, 2021 to clarify the inapplicability of certain TC-X policies to ministerial projects under SB 35. The traffic analysis for this project was initially completed in November 16, 2020 before Department of Transportation had updated its completeness checklist for ministerial projects, including SB 35 projects. An updated completeness checklist for ministerial projects was finalized in March 2021 and the traffic analysis requested under the updated completeness checklist is limited to the objective transportation standards and General Plan policies only.

While the traffic analysis for this project and the original Findings conclude there was no impact under certain TC-X policies, those policies should not have been applied to the ministerial SB 35 project, as reflected in the Updated Findings. The November 16, 2020 Traffic Impact Study is also attached to this memorandum.

Transportation Impact Study

El Dorado Haven
County of El Dorado, California

November 16, 2020

Prepared for:

Mercy Housing California

Prepared by:

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EXECUTIVE SUMMARY

This report documents the results of a transportation impact analysis completed for the El Dorado Haven project proposed to be located south of State Route (SR) 49 along Rest Lane in El Dorado County, California (the "proposed project" or "project"). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA), as well as satisfy local County and State guidelines for traffic operations, safety, and Vehicle Miles Traveled (VMT) performance. This study was performed in accordance with the scopes of work commonly required by Eldorado County, and in a manner consistent with El Dorado County Community Development Agency's *Transportation Impact Study Guidelines*. In addition this study conforms to the SB 35 completeness checklist with the exception of checklist items exempted as part of the scope of this study. The remaining sections of this report document the proposed project, analysis methodologies, impacts and mitigation, and general study conclusions.

The 4.6-acre project site is proposed to be developed with 65 affordable housing apartment units across four buildings. Access to the site will be provided via one existing driveway (Rest Lane) that currently provides access to the adjacent Snowline Hospice Clinical Office. The following intersections are included in this evaluation:

1. SR-49 @ Pleasant Valley Road
2. SR-49 @ Forni Road
3. SR-49 @ Koki Lane
4. SR-49 @ Rest Lane
5. SR-49 @ Patterson Drive
6. SR-49 @ Missouri Flat Road
7. SR-49/Fowler Lane @ Pleasant Valley Road

Based on the County's requirements, this LOS analysis was conducted for the above facilities for the following scenarios:

A. Existing (2020) Conditions
B. Existing (2020) plus Proposed Project Conditions[+]
C. Near-Term (2030) Conditions[++]
D. Near-Term (2030) plus Proposed Project Conditions[+++]

[+] Scenario adds currently proposed project to Existing (2020) Conditions
[++] Scenario established by interpolating between the current El Dorado County Travel Demand Model (TDM) existing and Cumulative year volumes for the study area roadway segments
[+++] Scenario adds currently proposed project to Near-Term (2030) Conditions

Significant findings of this study include:

- As defined by the County, the addition of the proposed project to the Existing (2020) and Near-Term (2030) Conditions does not significantly worsen the study facilities. As a result, the effect of the project is considered to be ***less than significant.***
- Per the guidelines published by the Governor's Office of Planning and Research (OPR), a quantitative Vehicle Miles Traveled (VMT) assessment is not required for this project. As the project is comprised of 100-percent affordable housing, the project is assumed to have a less than significant impact with respect to VMT. No additional or qualitative assessment is anticipated to be warranted or required.

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INTRODUCTION

This report documents the results of a traffic impact analysis completed for the El Dorado Haven project proposed to be located south of State Route (SR) 49 along Rest Lane in El Dorado County, California (the "proposed project" or "project"). The purpose of this impact analysis is to identify potential environmental impacts to transportation facilities as required by the California Environmental Quality Act (CEQA), as well as meet local County and State guidelines for traffic operations, safety, and Vehicle Miles Traveled (VMT) performance. This study was performed in accordance with the scopes of work commonly required by Eldorado County, and in a manner consistent with El Dorado County Community Development Agency's *Transportation Impact Study Guidelines*[1]. In addition this study conforms to the SB 35 completeness checklist with the exception of checklist items exempted as part of the scope of this study[2]. The remaining sections of this report document the proposed project, analysis methodologies, impacts and mitigation, and general study conclusions.

PROJECT DESCRIPTION

The 4.6-acre project site is proposed to be developed with 65 affordable housing apartment units across four buildings. Access to the site will be provided via one existing driveway (Rest Lane) along SR-49 that currently provides access to the adjacent Snowline Hospice Clinical Office. The project location is shown in Figure 1, and the proposed project site plan is shown in Figure 2. Figure 3 illustrates the study facilities, existing traffic control, and existing lane configurations. The following intersections are included in this evaluation:

1. SR-49 @ Pleasant Valley Road
2. SR-49 @ Forni Road
3. SR-49 @ Koki Lane
4. SR-49 @ Rest Lane (Project Access)
5. SR-49 @ Patterson Drive
6. SR-49 @ Missouri Flat Road
7. SR-49/ Fowler Lane @ Pleasant Valley Road

In addition, the following roadway segments were evaluated:

1. SR 49, between Forni Road and Rest Lane
2. SR 49 between Rest Lane and Missouri Flat Road

PROJECT AREA ROADWAYS

The following are descriptions of the primary roadways in the vicinity of the project.

State Route 49 (SR 49) is an east-west highway located north of the project site. Generally, SR 49 serves all of El Dorado County's major population centers and provides connections to Amador County to the south and the Placer County to the north. Primary access to the project site from SR 49 is provided at Rest Lane.

Pleasant Valley Road is an east-west arterial roadway that has its western terminus at Mother Lode Drive near Kingsville, and eastern terminus in Pleasant Valley in eastern El Dorado County. Through the project area, Pleasant Valley Road transitions to SR 49 for approximately 2 miles, and transitions back to Pleasant Valley Road east of Diamond Springs.

[1] *Transportation Impact Study Guidelines,* El Dorado County Community Development Agency, November 2014.
[2] Letter from Natalie Porter, El Dorado County, to Matt Weir, Kimley-Horn, November 4, 2020.

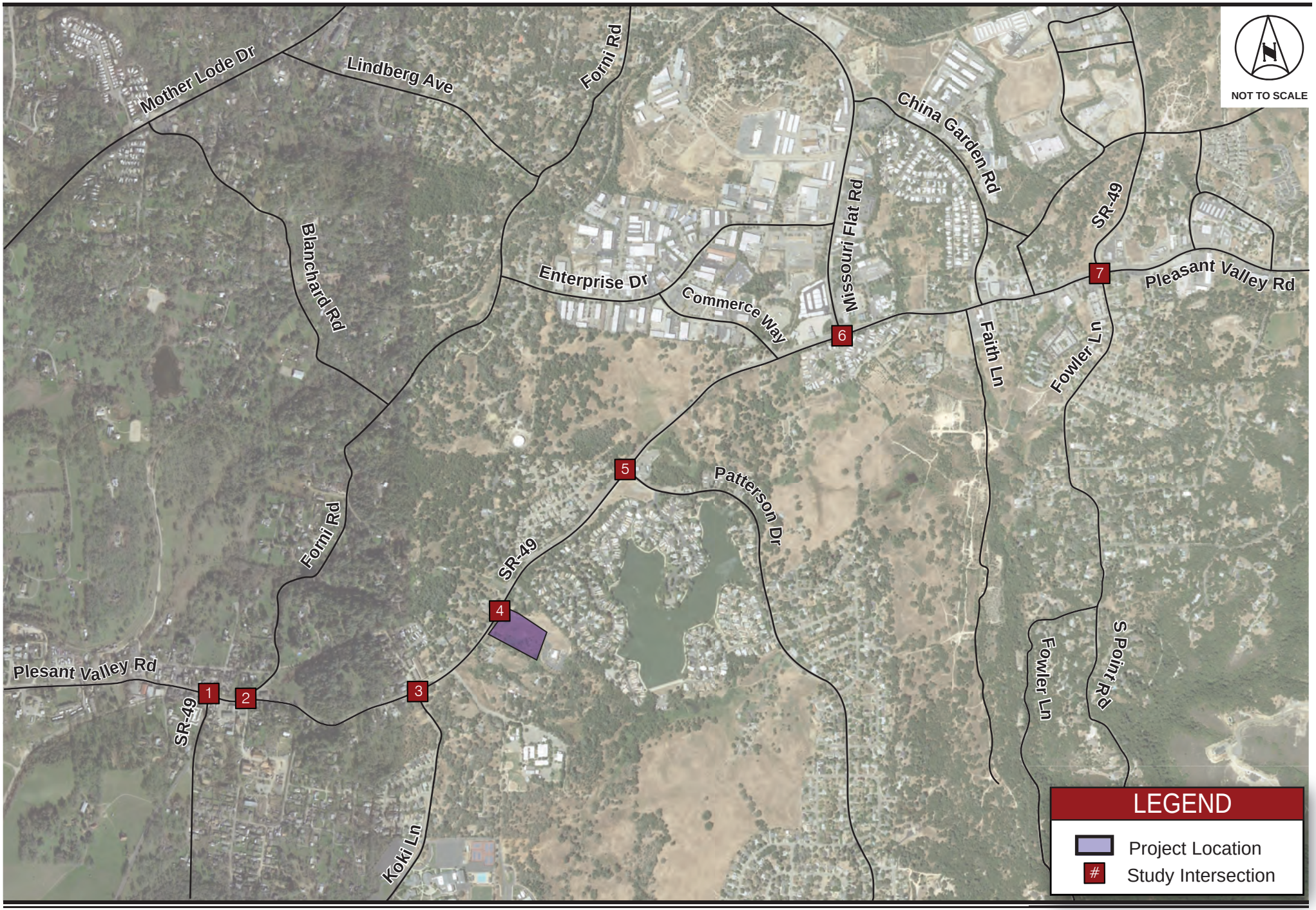

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Figure 1
Project Vicinity Map

Figure 2
Project Site Plan

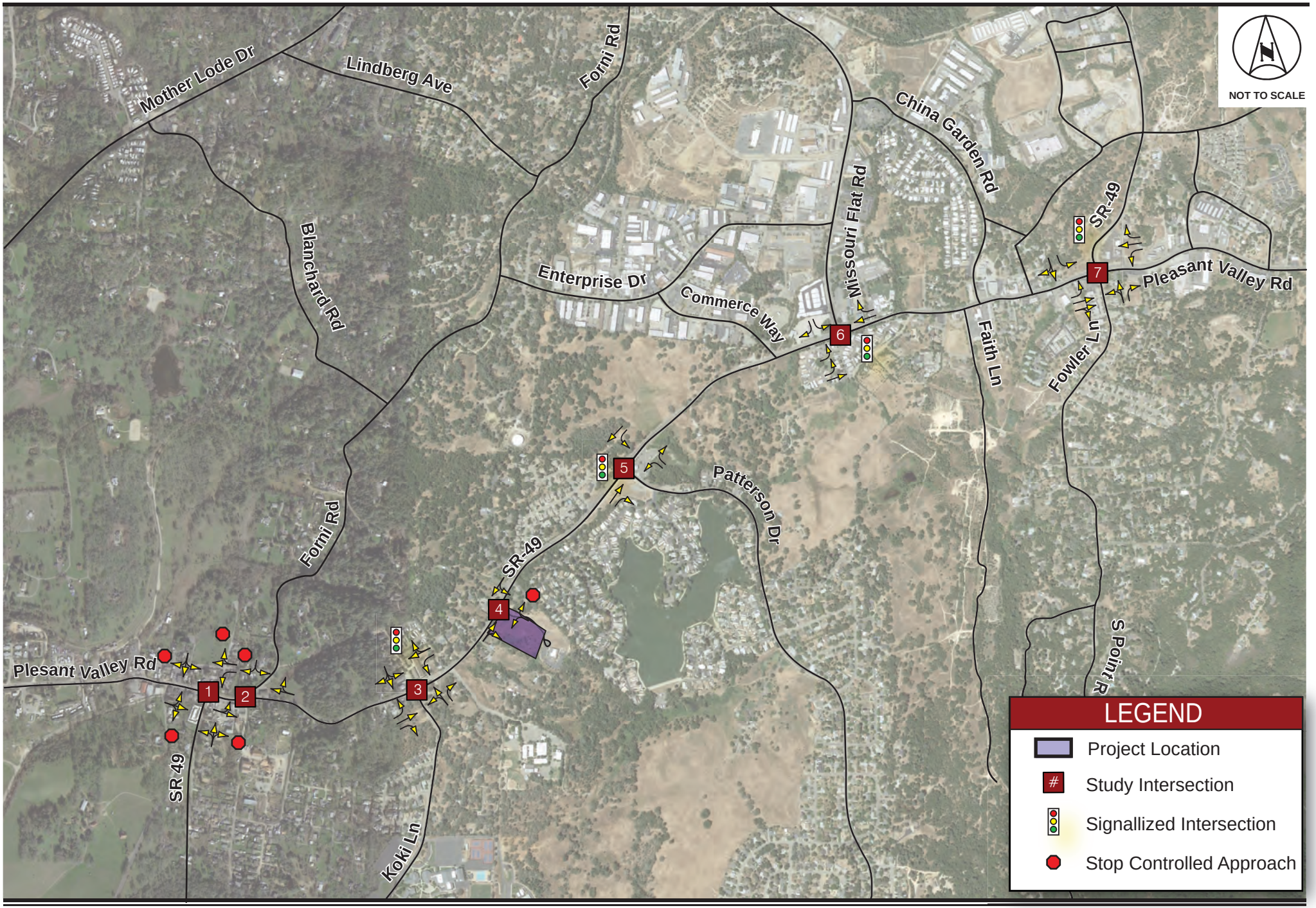

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Figure 3
Roadway Lane Geometry

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation

The proposed project includes 65 affordable housing apartment units across four buildings. Trip generation for development projects is typically calculated based on rates contained in the Institute of Transportation Engineers' (ITE) publication, *Trip Generation Manual*. The *Trip Generation Manual* is a standard reference used by jurisdictions throughout the country for the estimation of trip generation potential of proposed developments. A trip is defined in the *Trip Generation Manual* as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site. In addition, a single visit to a site is counted as two trips (i.e., one to and one from the site).

Trip generation for the proposed project was estimated using ITE's *Trip Generation Manual*, *10th Edition* based on the "Multifamily Housing" category (ITE Land Use 221). The anticipated trip generation for this project is shown in Table 1.

Table 1 – Proposed Project Trip Generation

Land Use (ITE Code)	Size	Daily Trips	AM Peak-Hour					PM Peak-Hour				
			Total Trips	In		Out		Total Trips	In		Out	
				%	Trips	%	Trips		%	Trips	%	Trips
Multifamily Housing (Mid-Rise) (221)	65 dwelling units	353	22	23%	5	77%	17	29	62%	18	38%	11
Net New Project Trips		**353**	**22**		**5**		**17**	**29**		**18**		**11**

Source: ITE Trip Generation Manual, 10th Edition.

As shown in Table 1, the proposed project is estimated to generate 353 total new daily trips, with 22 new trips occurring during the AM peak-hour, and 29 new trips occurring during the PM peak-hour.

Proposed Project Trip Distribution

Project traffic was distributed and assigned to the roadway network based on local understanding of vehicular patterns in the study area, using distribution represented in adjacent projects' studies, existing traffic volumes, and professional judgement. The project trip distribution percentages are illustrated in Figure 4. The resulting AM and PM peak-hour traffic volumes attributed to the proposed project are illustrated in Figure 5.

TRAFFIC IMPACT ANALYSIS METHODOLOGY

This transportation impact study was performed in accordance with the County's transportation impact study guidelines modified by the streamlined process requirements detailed in SB 35 which includes a checklist for evaluation of traffic studies.

Level of Service Definitions

Analysis of transportation facility significant environmental impacts is based on the concept of Level of Service (LOS). The LOS of a facility is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual (HCM) 6th Edition*.

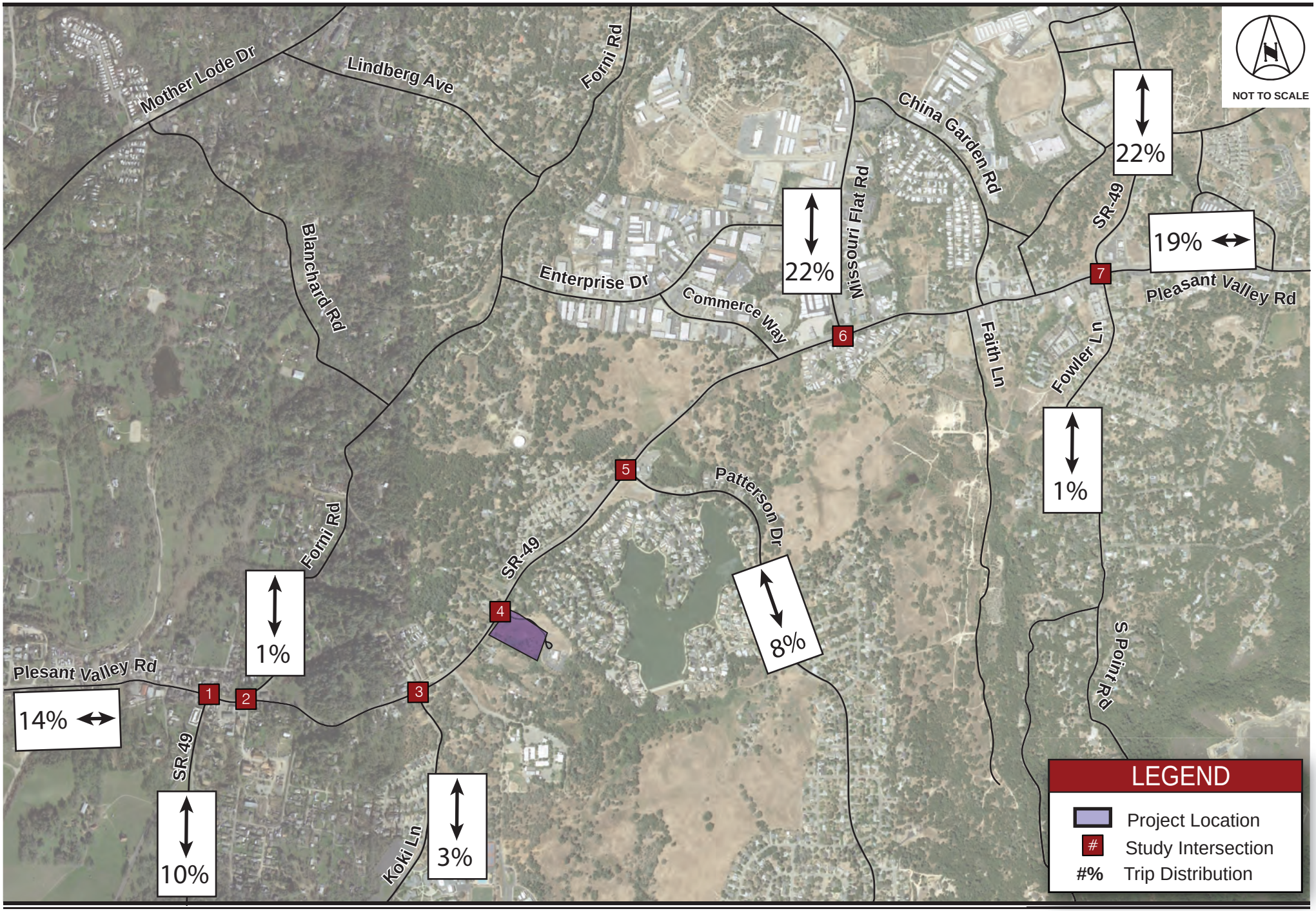

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Figure 4
Project Trip Distribution

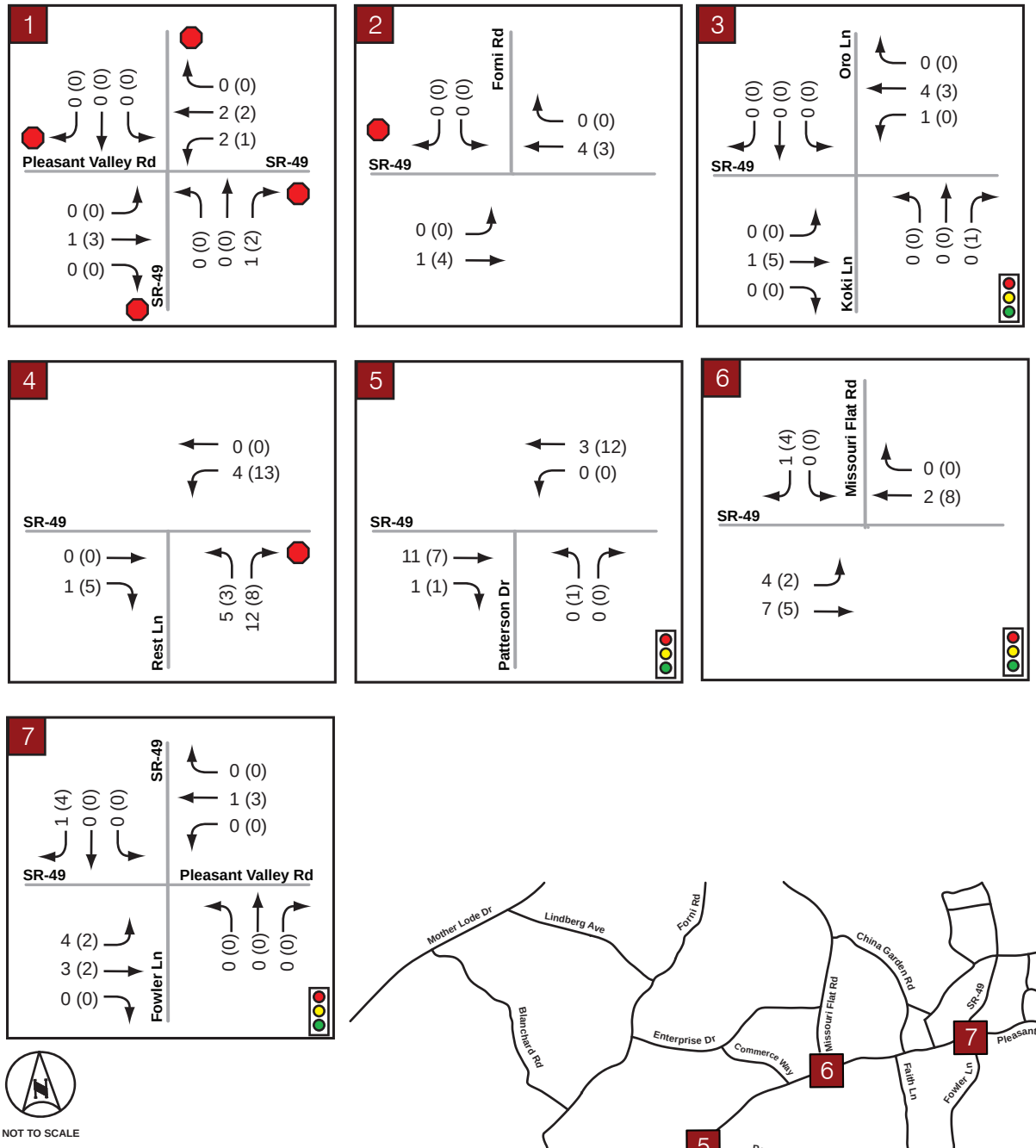


Figure 5
Project Trip Assignment

Intersection Analysis

The HCM includes procedures for analyzing side-street stop controlled (SSSC), all-way stop controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. Table 2 presents intersection LOS definitions as defined in the HCM.

Table 2 – Intersection Level of Service Criteria

Level of Service (LOS)	Un-Signalized	Signalized
	Average Control Delay* (sec/veh)	Control Delay per Vehicle (sec/veh)
A	≤ 10	≤ 10
B	> 10 – 15	> 10 – 20
C	> 15 – 25	> 20 – 35
D	> 25 – 35	> 35 – 55
E	> 35 – 50	> 55 – 80
F	> 50	> 80

Source: Highway Capacity Manual, 6th Edition
* Applied to the worst lane/lane group(s) for SSSC

Roadway Segment Analysis

The HCM also includes procedures for analyzing multi-lane and two-lane roadway segments. For multilane roadways segments, LOS is determined based on the density of the traffic stream. For two-lane highways, the LOS calculation is dependent on the class of the roadway. Class I two-lane highways are highways generally have high speeds, Class II two-lane highways are lower speed highways that typically serve scenic routes or areas of rugged terrain, and Class III two-lane highways typically serve moderately developed areas with higher densities of local traffic and access. Specifically, for Class III highways, the percent of free-flow speed, which is the measure representing the ability of vehicles to travel at the posted speed limit, is used to determine LOS. SR 49 is considered a Class II facility, in the project vicinity. The LOS criteria for two-lane (Class II) segments are shown in Table 3.

Table 3 – Two-Lane Roadway Segment (Class II) Level of Service Criteria

Level of Service (LOS)	Percent Time Spent Following (PTSF) (%)
A	≤ 40
B	> 40 – 55
C	> 55 – 70
D	> 70 – 85
E	> 85

Source: Highway Capacity Manual, 6th Ed

Based on the above information and direction from County's representative, this LOS analysis was conducted for the study facilities for the following scenarios:

A. Existing (2020) Conditions
B. Existing (2020) plus Proposed Project Conditions[+]
C. Near-Term (2030) Conditions[++]
D. Near-Term (2030) plus Proposed Project Conditions[+++]

[+] Scenario adds currently proposed project to Existing (2020) Conditions
[++] Scenario established by interpolating between the current El Dorado County Travel Demand Model (TDM) existing and Cumulative year volumes for the study area roadway segments
[+++] Scenario adds currently proposed project to Near-Term (2030) Conditions

The following is a discussion of the analyses completed for these scenarios.

EXISTING (2020) CONDITIONS

Weekday AM and PM peak period intersection turning movement traffic volumes are based on the existing conditions' turning movement volumes per a study recently completed for the adjacent El Dorado Senior Resort project[3]. That study's Existing (2018) Conditions traffic volumes were increased at a rate of 1-percent per year to the year 2020 to establish Existing (2020) Conditions for use in this analysis. These counts were conducted between the hours of 6:00 a.m. and 9:00 a.m. and 4:00 p.m. and 7:00 p.m. Existing roadway segments counts were collected over two weekdays in May 2018. It is worth noting that a two percent heavy vehicle factor was incorporated in this, and all subsequent analysis scenarios.

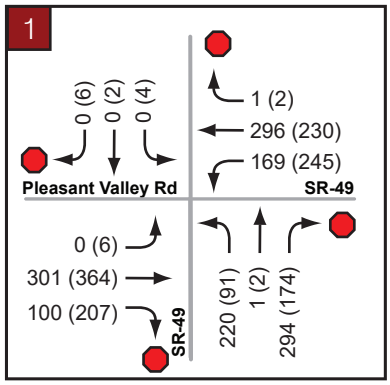
Existing (2020) peak-hour turn movement volumes are presented in Table 4, and the traffic count data sheets are provided in Appendix A. Analysis worksheets for this scenario are provided in Appendix B. Table 4 presents the peak-hour intersection operating conditions for this analysis scenario.

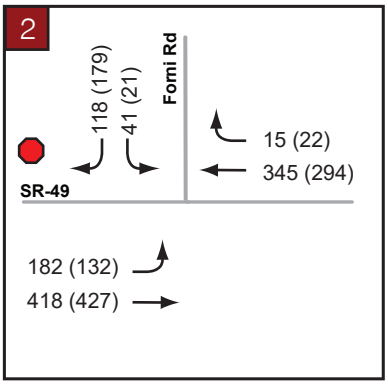
Table 4 – Existing (2020) Intersection Levels of Service

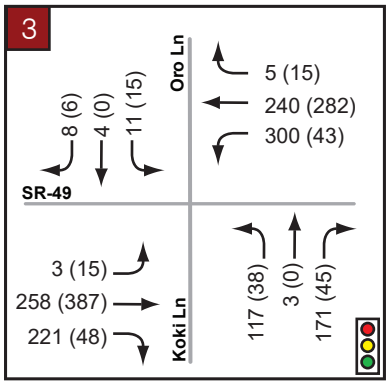
ID	Intersection	Control	Peak Hour	Existing (2020)	
				Delay (sec)	LOS
1	SR-49 @ Pleasant Valley Road	AWSC	AM	**76.5**	**F**
			PM	25.3	D
2	SR-49 @ Forni Road	SSSC	AM	**7.5 (42.5 SB)**	**E**
			PM	3.8 (15 SB)	C
3	SR-49 @ Koki Lane	Signal	AM	26.1	C
			PM	10.7	B
4	SR-49 @ Rest Lane	SSSC	AM	0.2 (13.2 NB)	B
			PM	0.4 (12.8 NB)	B
5	SR-49 @ Patterson Drive	Signal	AM	10.1	B
			PM	10.4	B
6	SR-49 @ Missouri Flat Road	Signal	AM	12.2	B
			PM	13.7	B
7	SR-49/Fowler Lane @ Pleasant Valley Road	Signal	AM	20.5	C
			PM	16.7	B

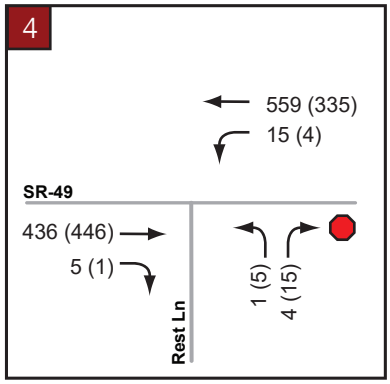
Notes: **Bold** represents unacceptable operations.

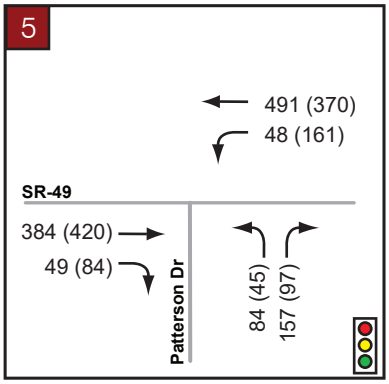
[3] *El Dorado Senior Resort Transportation Impact Study*, Kimley-Horn, August 2018.

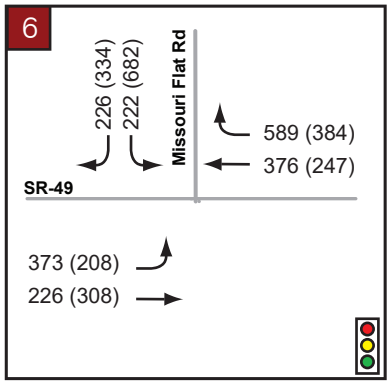


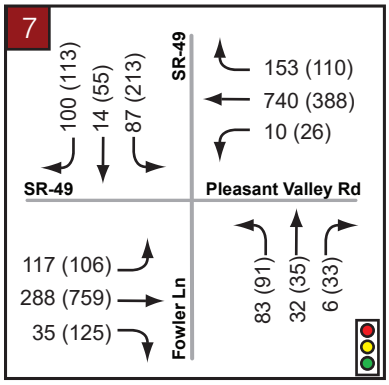












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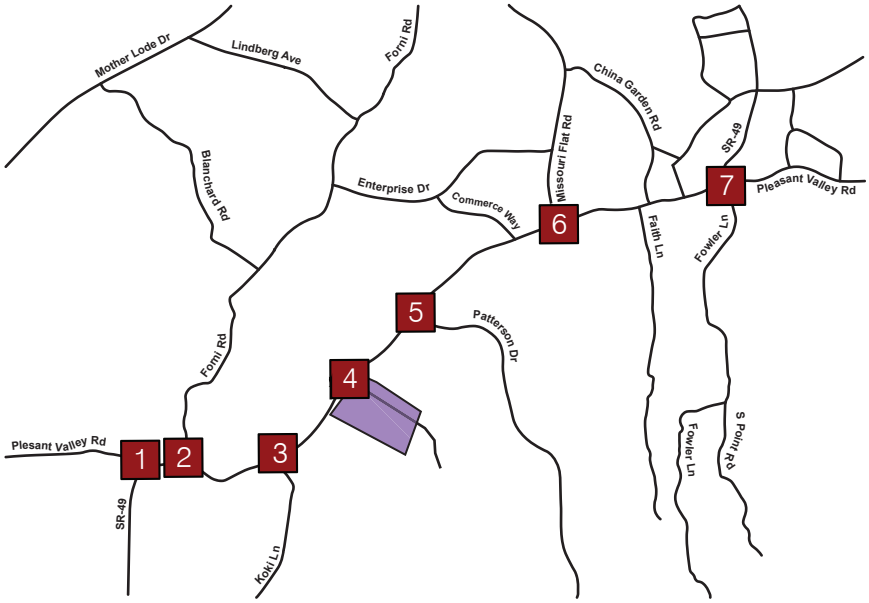


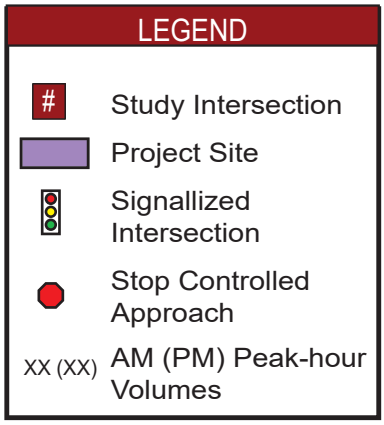


Figure 6
Existing (2020) Peak-Hour Traffic Volumes

Table 5 presents the peak-hour roadway operating conditions for this analysis scenario.

Table 5 – Existing (2020) Roadway Levels of Service

Scenario	Location	Peak-Hour	Analysis Direction	LOS	PTSF (%)	v/c
Existing (2020)	SR-49 between Forni Road and Rest Lane	AM	EB	C	57.2	0.29
			WB	D	68.9	0.46
		PM	EB	C	55.5	0.27
			WB	C	57.7	0.30
Existing (2020)	SR-49 between Rest Lane and Missouri Flat Road	AM	EB	C	59.1	0.33
			WB	C	64.5	0.40
		PM	EB	C	58.4	0.32
			WB	C	64.2	0.40

Notes:
PTSF = Percent time spent following, v/c = Volume to Capacity

As shown in Table 4, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours. As shown in Table 5, the study roadway segments operate from LOS C to LOS D during the AM and PM peak-hours.

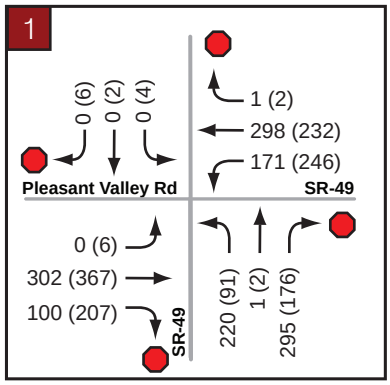
EXISTING (2020) PLUS PROPOSED PROJECT CONDITIONS

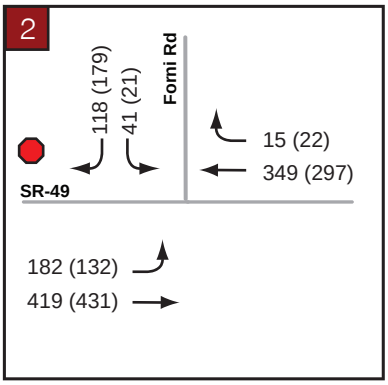
Peak-hour traffic associated with the proposed project was added to the existing traffic volumes and levels of service were determined at the study intersections. The analysis worksheets for this scenario are provided in Appendix C. Table 6 provides a summary of the intersection analysis and Figure 7 provides the AM and PM peak-hour traffic volumes at the study intersections for this analysis scenario.

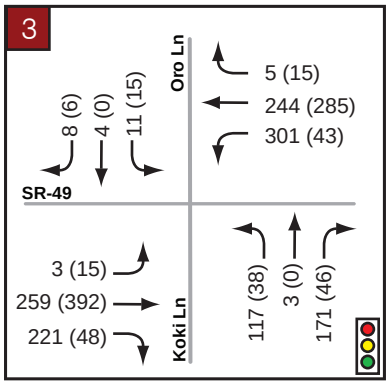
Table 6 – Existing (2020) and Existing (2020) plus Proposed Project Intersection Levels of Service

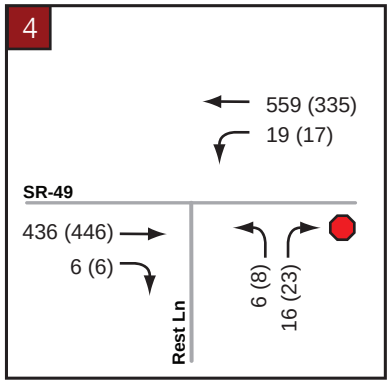
ID	Intersection	Control	Peak Hour	Existing (2020)		Existing (2020) Plus Project	
				Delay (sec)	LOS	Delay (sec)	LOS
1	SR-49 @ Pleasant Valley Road	AWSC	AM	**76.5**	**F**	**77.4**	**F**
			PM	25.3	D	26.0	D
2	SR-49 @ Forni Road	SSSC	AM	**7.5 (42.5 SB)**	**E**	**7.5 (42.5 SB)**	**E**
			PM	3.8 (15 SB)	C	3.8 (15.1 SB)	C
3	SR-49 @ Koki Lane	Signal	AM	26.3	C	26.2	C
			PM	10.7	B	10.8	B
4	SR-49 @ Rest Lane	SSSC	AM	0.2 (13.2 NB)	B	0.5 (14.5 NB)	B
			PM	0.4 (12.8 NB)	B	0.7 (13.2 NB)	B
5	SR-49 @ Patterson Drive	Signal	AM	16.3	B	10.1	B
			PM	10.4	B	10.4	B
6	SR-49 @ Missouri Flat Road	Signal	AM	12.2	B	12.3	B
			PM	13.7	B	14.0	B
7	SR-49/Fowler Lane @ Pleasant Valley Road	Signal	AM	20.5	C	20.8	C
			PM	16.7	B	16.7	B

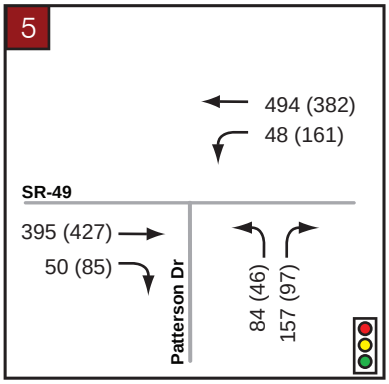
Notes: **Bold** represents unacceptable operations.

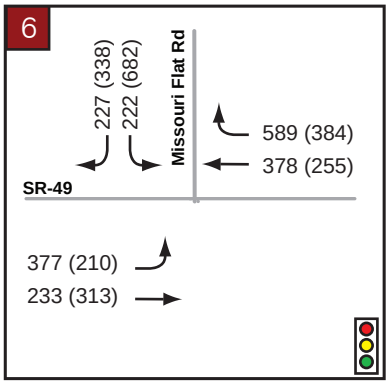


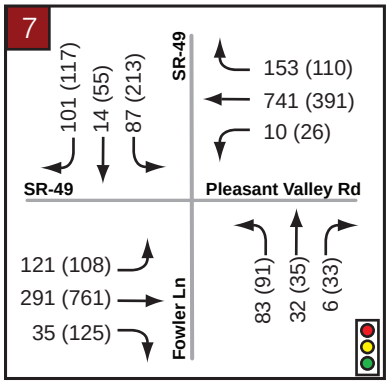












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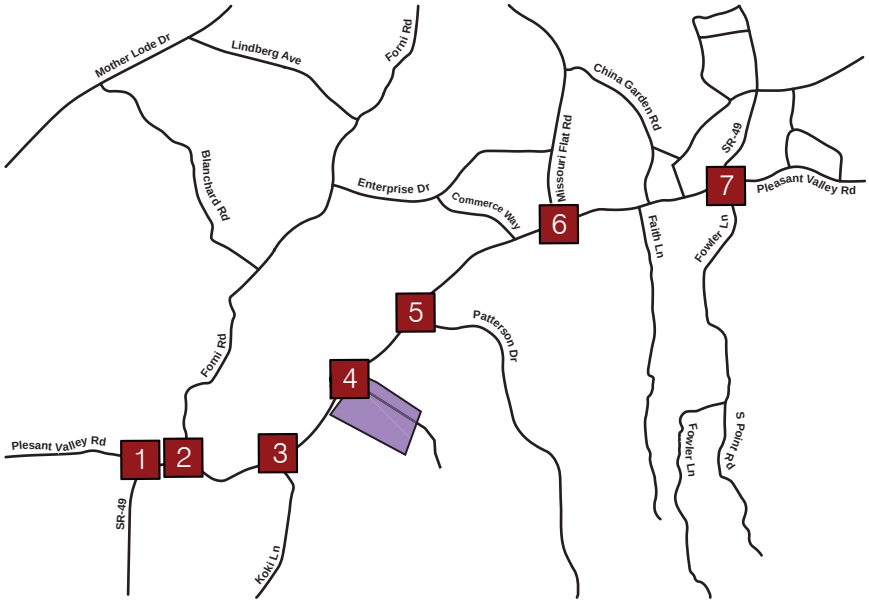


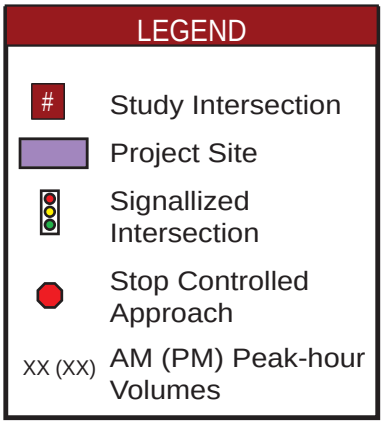


Figure 7
Existing (2020) plus Proposed Project Peak-Hour Traffic Volumes

Table 7 presents the peak-hour roadway operating conditions for this analysis scenario.

Table 7 – Existing (2020) plus Proposed Project Roadway Levels of Service

Scenario	Location	Peak-Hour	Analysis Direction	LOS	PTSF (%)	v/c
Existing (2020) Plus Project	SR-49 between Forni Road and Rest Lane	AM	EB	C	57.2	0.29
			WB	D	69.0	0.46
		PM	EB	C	55.8	0.28
			WB	C	57.9	0.30
Existing (2020) Plus Project	SR-49 between Rest Lane and Missouri Flat Road	AM	EB	C	59.8	0.34
			WB	C	64.7	0.40
		PM	EB	C	58.8	0.32
			WB	C	64.7	0.40

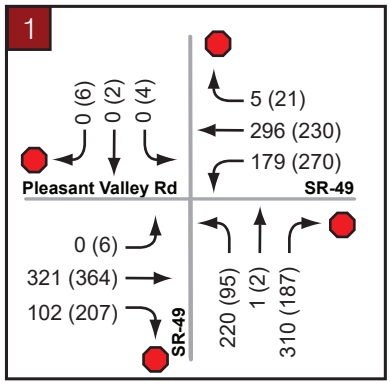
Notes:
PTSF = Percent time spent following, v/c = Volume to Capacity

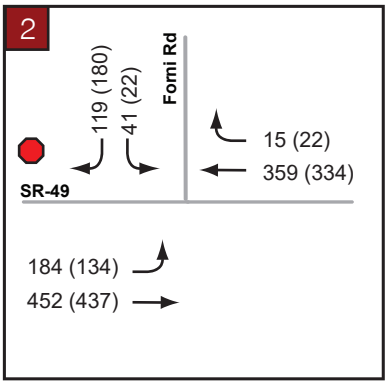
As shown in Table 6, the study intersections operate from LOS A to LOS F with the addition of project traffic during the AM and PM peak-hours. As shown in Table 7, the study roadway segments operate from LOS B to LOS D in the AM and PM peak-hours.

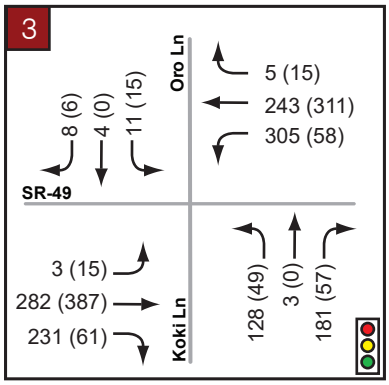
NEAR-TERM (2030) CONDITIONS

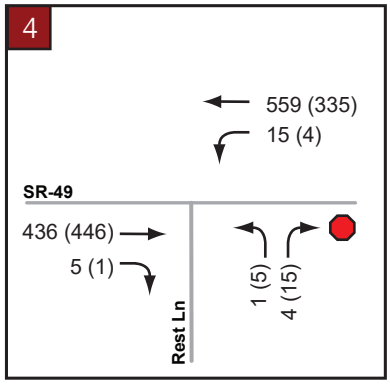
Based on the availability of model data and as directed by the County, traffic volume estimates for the Near-Term (2030) Condition were determined by interpolating selected El Dorado County TDM 2018 and 2040 analysis results based on the most recent version of the model. Specifically, these volumes were achieved by estimating turning movements using 2018 and 2040 land use scenarios and then conducting a straight-line analysis to establish year 2030 turning movement estimates. The difference between the resulting 2030 traffic estimate and the 2018 model results (the growth) was interpolated to represent ten (10) years of growth, and was then added to Existing (2020) traffic volumes to establish base Near-Term (2030) traffic estimates for this study.

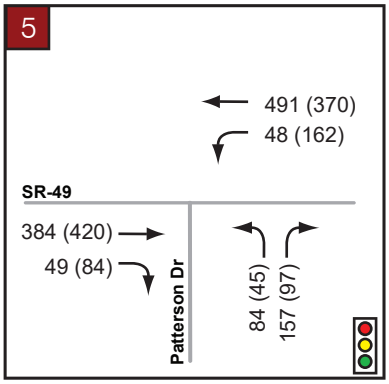
The analysis worksheets for this scenario are provided in Appendix D. Table 8 provides a summary of the intersection analysis and Figure 8 provides the AM and PM traffic volumes for this analysis scenario. Table 9 presents the peak-hour roadway operating conditions for this analysis scenario. As shown in Table 8, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours. As shown in Table 9, the study roadway segments operate from LOS C to LOS D in the AM and PM peak-hours.

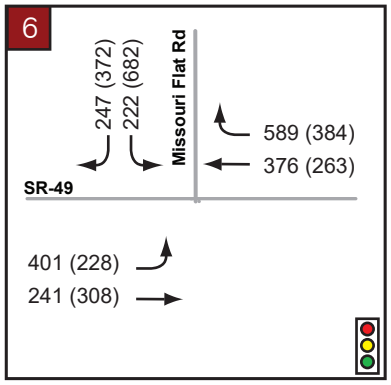


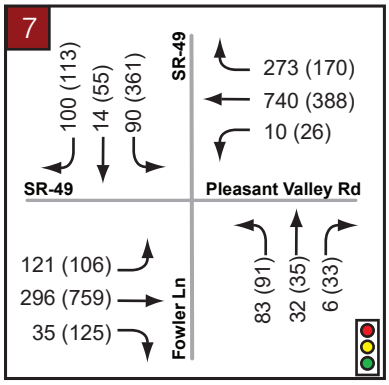












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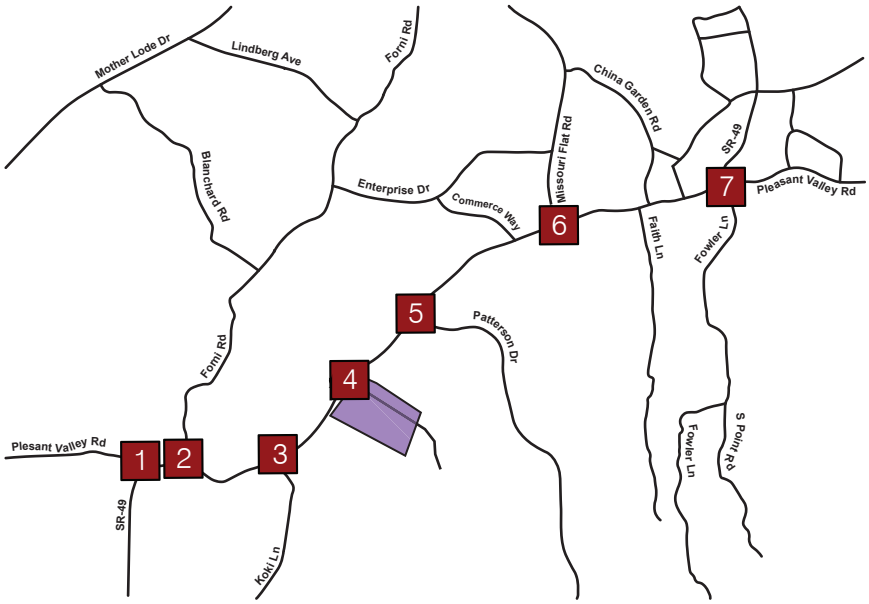


LEGEND

#	Study Intersection
	Project Site
	Signallized Intersection
	Stop Controlled Approach
XX (XX)	AM (PM) Peak-hour Volumes

Figure 8
Near Term (2030) Peak-Hour Traffic Volumes

Table 8 – Near-Term (2028) Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Near Term (2030)	
				Delay (sec)	LOS
1	SR-49 @ Pleasant Valley Road	AWSC	AM	**86.6**	**F**
			PM	27.4	D
2	SR-49 @ Forni Road	SSSC	AM	**8.4 (51.3 SB)**	**F**
			PM	3.9 (16.3 SB)	C
3	SR-49 @ Koki Lane	Signal	AM	26.8	C
			PM	11.3	B
4	SR-49 @ Rest Lane	SSSC	AM	0.2 (13.2 NB)	B
			PM	0.4 (12.8 NB)	B
5	SR-49 @ Patterson Drive	Signal	AM	10.1	B
			PM	10.4	B
6	SR-49 @ Missouri Flat Road	Signal	AM	12.6	B
			PM	12.7	B
7	SR-49/Fowler Lane @ Pleasant Valley Road	Signal	AM	18.9	B
			PM	19.8	B

Notes: **Bold** represents unacceptable operations.

Table 9 – Near-Term (2030) Roadway Levels of Service

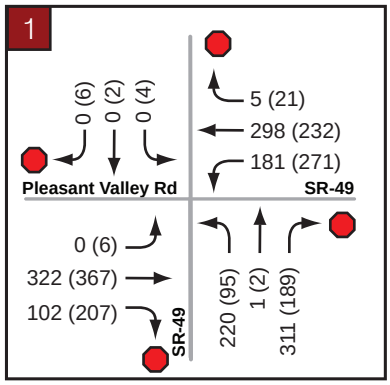
Scenario	Location	Peak-Hour	Analysis Direction	LOS	PTSF (%)	v/c
Near Term (2030)	SR-49 between Forni Road and Rest Lane	AM	EB	C	61.4	0.34
			WB	C	55.6	0.28
		PM	EB	C	59.5	0.32
			WB	C	61.7	0.35
Near Term (2030)	SR-49 between Rest Lane and Missouri Flat Road	AM	EB	C	62.5	0.37
			WB	D	65.7	0.42
		PM	EB	C	59.9	0.34
			WB	D	68.2	0.46

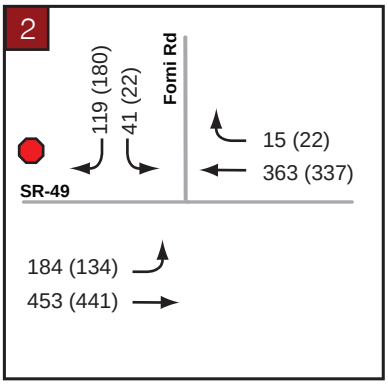
Notes:
PTSF = Percent time spent following, v/c = Volume to Capacity

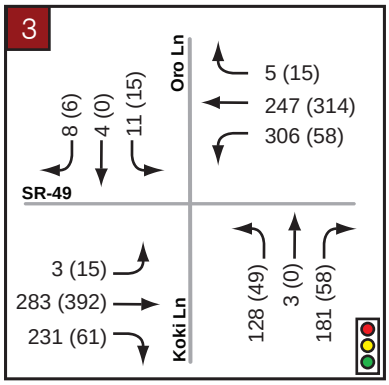
NEAR-TERM (2030) PLUS PROPOSED PROJECT CONDITIONS

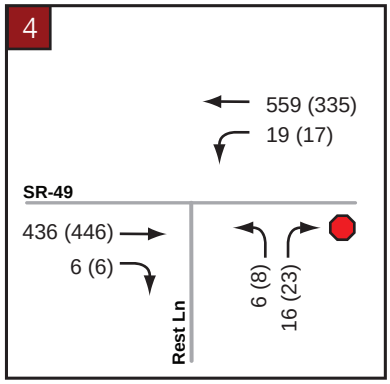
Peak-hour traffic associated with the proposed project was added to the Near-Term (2030) traffic volumes, and levels of service were determined at the study facilities.

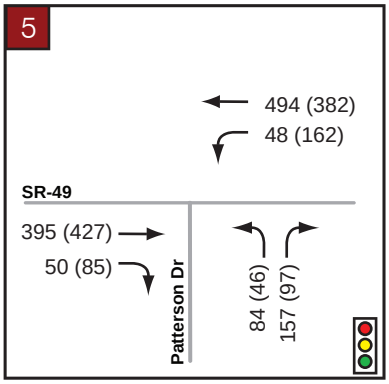
The analysis worksheets for this scenario are provided in Appendix E. Table 10 provides a summary of the intersection operating conditions for this analysis scenario. Figure 9 provides the AM and PM traffic volumes for this analysis scenario. Table 11 presents the peak-hour roadway operating conditions for this analysis scenario. As shown in Table 10, the study intersections operate from LOS B to LOS F during the AM and PM peak-hours. As shown in Table 11, the study roadway segments operate from LOS C to LOS D in the AM and PM peak-hours.

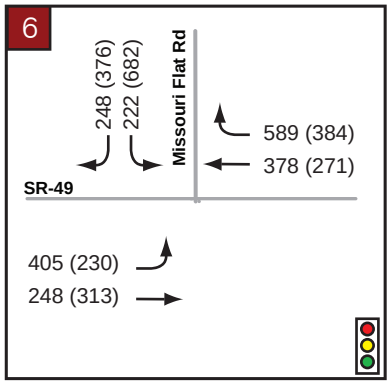


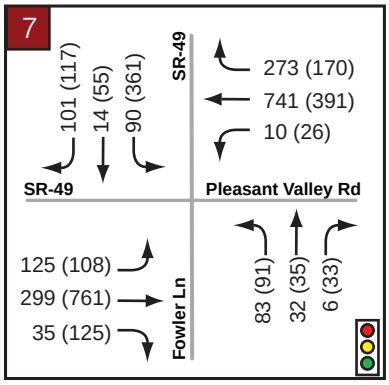












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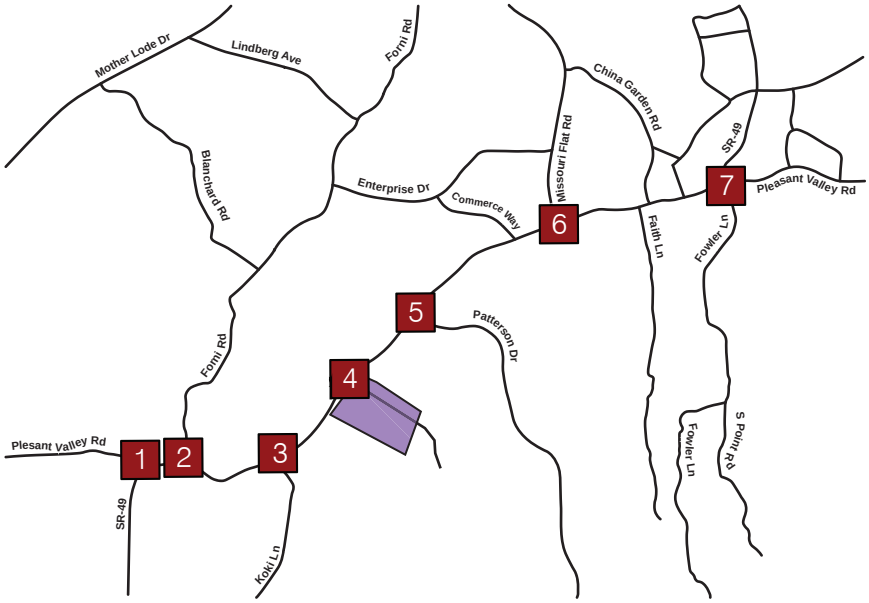


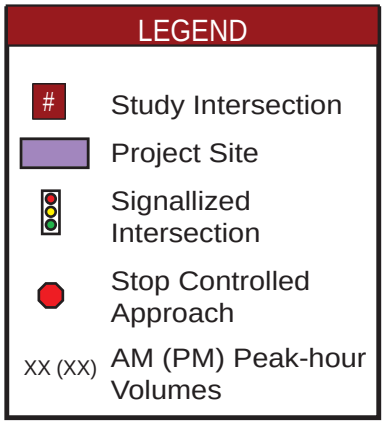


Figure 9
Near Term (2030) Plus Proposed Project Peak-Hour Traffic Volumes

Table 10 – Near-Term (2030) and Near-Term (2030) plus Proposed Project Intersection Levels of Service

ID	Intersection	Control	Peak Hour	Near Term (2030)		Near Term (2030) Plus Project	
				Delay (sec)	LOS	Delay (sec)	LOS
1	SR-49 @ Pleasant Valley Road	AWSC	AM	**86.6**	**F**	**87.0**	**F**
			PM	27.4	D	28.1	D
2	SR-49 @ Forni Road	SSSC	AM	**8.4 (51.3 SB)**	**F**	**8.5 (52.3 SB)**	**F**
			PM	3.9 (16.3 SB)	C	3.9 (16.4 SB)	C
3	SR-49 @ Koki Lane	Signal	AM	26.8	C	26.9	C
			PM	11.3	B	11.3	B
4	SR-49 @ Rest Lane	SSSC	AM	0.2 (13.2 NB)	B	0.5 (14.5 NB)	C
			PM	0.4 (12.8 NB)	B	0.7 (13.2 NB)	B
5	SR-49 @ Patterson Drive	Signal	AM	10.1	B	10.1	B
			PM	10.4	B	10.4	B
6	SR-49 @ Missouri Flat Road	Signal	AM	12.6	B	12.6	B
			PM	12.7	B	12.8	B
7	SR-49/Fowler Lane @ Pleasant Valley Road	Signal	AM	18.9	B	19.1	B
			PM	19.8	B	19.8	B

Notes: **Bold** represents unacceptable operations.

Table 11 – Near-Term (2030) plus Proposed Project Roadway Levels of Service

Scenario	Location	Peak-Hour	Analysis Direction	LOS	PTSF (%)	v/c
Near Term (2030) Plus Project	SR-49 between Forni Road and Rest Lane	AM	EB	C	61.4	0.35
			WB	C	55.8	0.28
		PM	EB	C	59.7	0.32
			WB	C	61.8	0.35
Near Term (2030) Plus Project	SR-49 between Rest Lane and Missouri Flat Road	AM	EB	C	63.0	0.38
			WB	D	65.8	0.42
		PM	EB	C	60.3	0.34
			WB	D	68.6	0.47

Notes:
PTSF = Percent time spent following, v/c = Volume to Capacity

IMPACTS AND MITIGATION

Standards of Significance

Project impacts were determined by comparing conditions with the proposed project to those without the project. Impacts for intersections are created when traffic from the proposed project forces the LOS to fall below a specific threshold.

The County's standards[4] specify the following:

> "Level of Service (LOS) for County-maintained roads and State highways within the unincorporated areas of the County *shall not be worse than* ***LOS E in the Community Regions***." (El Dorado County General Plan Policy TC-Xd). The study facilities are located within the El Dorado/Diamond Springs Community Region.

[4] *Transportation Impact Study Guidelines,* El Dorado County Community Development Agency, November 2014.

"If a project causes the peak-hour LOS or volume/capacity ratio on a county road or State highway that would otherwise meet the County standards (without the project) to exceed the [given] values, then the impact shall be considered significant."

"If any county road or state highway fails to meet the [given] standards for peak-hour LOS or volume/capacity ratios without the proposed project, and the project will worsen conditions on the road or highway, then the impact shall be considered significant." According to General Plan Policy TC- Xe[5], 'worsen' is defined as "a 2 percent increase in traffic during the a.m. peak-hour, p.m. peak-hour, or daily, or the addition of 100 or more daily trips, or the addition of 10 or more trips during the a.m. peak-hour or the p.m. peak-hour."

Additionally, The County's standards[5] specify the following regarding mitigation:

"When a project identifies an impact on the County's roadway network for a scenario with or without the project, a separate analysis must be done to identify what improvements are needed for mitigation and when the improvements must be in place. The timing of the proposed mitigation must be in compliance with General Plan Policy TC-Xf:

For all other discretionary projects that worsen (defined as a project that triggers Policy TC-Xe [A} or [B] or [C]) traffic on the County road system, the County shall do one of the following:

(1) condition the project to construct all road improvements necessary to maintain or attain Level of Service standards as detailed in this Transportation and Circulation Element; or
(2) ensure the construction of the necessary road improvements are included in the County's 20-year CIP."

Impacts and Mitigation

Existing (2020) plus Proposed Project Conditions
As reflected in **Table 6** and **Table 7**, the addition of the proposed project does not result in a significant impact as defined by the County.

Near-Term (2030) plus Proposed Project Conditions
As reflected in **Table 10** and **Table 11**, the addition of the proposed project does not result in a significant impact as defined by the County.

OTHER CONSIDERATIONS

Site Plan, Access, and On-site Circulation Evaluation

The site plan for the proposed project (**Figure 2**) was qualitatively reviewed for general access and on-site circulation. According to the site plan, access to the site will be provided via one (1) existing driveway (Rest Lane) onto SR 49. Level of service and delay data was previously reported for the project driveway intersection (Intersection #4). This access point, as well as the on-site circulation system provides adequate access to/from SR 49.

In addition, *Fire Safe Regulations*[6] state that on-site roadways shall "provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency…" All project roadways shall be designed and constructed in accordance with these requirements.

[5] *El Dorado County General Plan, Transportation and Circulation Element*, July 2004.
[6] *Fire Safe Regulations*, Title 14 Natural Resources, Division 1.5 Department of Forestry, Chapter 7 – Fire Protection, Subchapter 2 SRA Safe Regulations, Article 2 Emergency Access, El Dorado County Building Department.

Intersection Queuing Evaluation

Vehicle queuing for the study intersections was evaluated. For the queuing analysis, the anticipated vehicle queues for critical movements at these intersections were evaluated. The calculated vehicle queues were compared to actual or anticipated vehicle storage/segment lengths. Results of the queuing evaluation are presented in Table 12. Analysis sheets that include the anticipated vehicle queues are presented in Appendices B, C, E, and F. As presented in Table 12, the addition of the proposed project adds minor queue lengths to the westbound left turn storage at intersection #1 (SR-49 @ Pleasant Valley Road) in the AM and PM peak hour under existing and near term conditions as well as the eastbound left turn storage at intersection #7 in the near term conditions AM peak hour. In both cases, the 95th percentile queue exceeds storage capacity in the base (no project) scenario and the project is anticipated to increase queues by less than 25 feet (1 vehicle).

Table 12 – Intersection Queuing Evaluation Results for Select Locations

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#1 SR-49 @ Pleasant Valley Road	**WBL**				
Existing (2020)		75	**175**	75	63
Existing (2020) plus Project			**175**		63
Near-Term (2030)			**180**		**78**
Near-Term (2030) plus Project			**185**		**78**
#3 SR-49 @ Koki Lane	**EBL**				
Existing (2020)		60	10	60	30
Existing (2020) plus Project			10		30
Near-Term (2030)			11		31
Near-Term (2030) plus Project			11		31
#4 SR-49 @ Rest Lane	**WBL**				
Existing (2020)		160	0	160	0
Existing (2020) plus Project			0		0
Near-Term (2030)			0		0
Near-Term (2030) plus Project			3		3
#5 SR-49 @ Patterson Dr	**WBL**				
Existing (2020)		415	43	415	108
Existing (2020) plus Project			43		108
Near-Term (2030)			42		109
Near-Term (2030) plus Project			42		109
#6 SR-49 @ Missouri Flat Road	**EBL**				
Existing (2020)		175	142	175	81
Existing (2020) plus Project			142		81
Near-Term (2030)			152		134
Near-Term (2030) plus Project			153		137
#7 SR-49 @ Fowler Ln/Pleasant Valley Rd	**EBL**				
Existing (2020)		210	168	210	136
Existing (2020) plus Project			168		136
Near-Term (2030)			**235**		165
Near-Term (2030) plus Project			**244**		170

Source: *Highway Capacity Manual (HCM) 6th Ed.* methodology per Synchro© v10.

Bicycle and Pedestrian Facilities Evaluation

The proposed project site will include pedestrian facilities to support circulation throughout the site. Pedestrian paths will be provided to accommodate access between the various project facilities.

There are currently no bike lanes on SR 49 in the project vicinity, and sidewalks are limited or not continuous. There is a marked bike pocket at the intersection of SR 49 at Patterson Drive in the eastbound direction. Existing shoulders are not sufficient to accommodate safe bicycle and pedestrian travel on SR 49 between Pleasant Valley Road and Diamond Springs.

According to Caltrans' *State Route 49 Transportation Concept Report* for Segment # 2 (ED PM 9.494/11.239) between Union Mine Road and Missouri Flat Road, a Class II bike lane plan concept has been developed for SR 49 between Pleasant Valley Road and Diamond Springs, and a shared use path for pedestrian and bicyclists concept has been developed for SR 49 between Missouri Flat Rout and Forni Road. Shoulder widening to 8-feet to provide pedestrian and bicyclist access along the highway is currently planned. In addition, road widening on SR 49 from Pleasant Valley Road to Missouri Flat Road is currently planned to add a two-way left-turn lane.

While the project will not result in removal of a bikeway/bike lanes, it is required to include pedestrian/bicycle paths connecting to adjacent commercial, research and development, or industrial projects and any schools, parks, or other public facilities. The proposed project will be required to construct on-site roadway and pedestrian facilities in accordance with County design guidelines. These on-site pedestrian and bicycle facilities will connect the project with the proposed adjacent bicycle and pedestrian facilities on SR 49.

CEQA/SB 743 ASSESSMENT

Per the guidelines published by the Governor's Office of Planning and Research (OPR)[7], a quantitative Vehicle Miles Traveled (VMT) assessment is not required for this project. As noted on Page 14 of the OPR guidance, "Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT." In addition, "…low-wage workers in particular would be more likely to choose a residential location close to their workplace, if one is available…Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations." As the project is comprised of 100-percent affordable housing, the project is assumed to have a less than significant impact with respect to VMT. No additional or qualitative assessment is anticipated to be warranted or required.

CONCLUSIONS

Significant findings of this study include:

- As defined by the County, the addition of the proposed project to the Existing (2020) and Near-Term (2030) Conditions does not significantly worsen the study facilities. As a result, the effect of the project is considered to be *less than significant.*
- Per the guidelines published by the Governor's Office of Planning and Research (OPR), a quantitative Vehicle Miles Traveled (VMT) assessment is not required for this project. As the project is comprised of 100-percent affordable housing, the project is assumed to have a less than significant impact with respect to VMT. No additional or qualitative assessment is anticipated to be warranted or required.

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

Appendix A

Traffic Count Data Sheets

Prepared by National Data & Surveying Services

SR-49 & Pleasant Valley Rd

Peak Hour Turning Movement Count

ID: 18-07158-001
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

PEAK HOURS	COUNT PERIODS
07:15 AM - 08:15 AM	06:00 AM - 09:00 AM
NONE	NONE
04:15 PM - 05:15 PM	04:00 PM - 07:00 PM

CONTROL: 3-Way Stop(NB/EB/WB)

	AM	NOON	PM
TEV	1355	0	1307
PHF	0.79		0.97

SR-49 SOUTHBOUND

	Left	Thru	Right	Peds	
AM	0	0	0	0	2 AM
NOON	0	0	0	0	0 NOON
PM	6	2	4	0	8 PM

Pleasant Valley Rd EASTBOUND

	Left	Thru	Right	Peds	
AM	0	506	0	322	AM
NOON	0	0	0	0	NOON
PM	0	0	2	0	PM
	0	0	4	0	
	295	0	357	1	
	98	0	203	0	

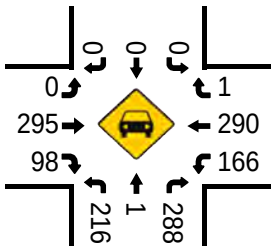
WESTBOUND Pleasant Valley Rd

	Left	Thru	Right	Peds	
PM	0	2	0	1	PM
NOON	1	225	0	290	NOON
AM	1	240	0	166	AM
	0	0	0	0	
		532	0	583	

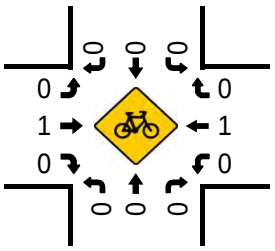
NORTHBOUND SR-49

	Left	Thru	Right	Peds	
PM	445	0	89	2	171 PM
NOON	0	0	0	0	0 NOON
AM	264	0	216	1	288 AM

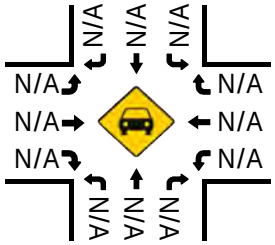
Total Vehicles (AM)



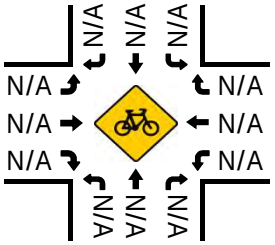
Bikes (AM)



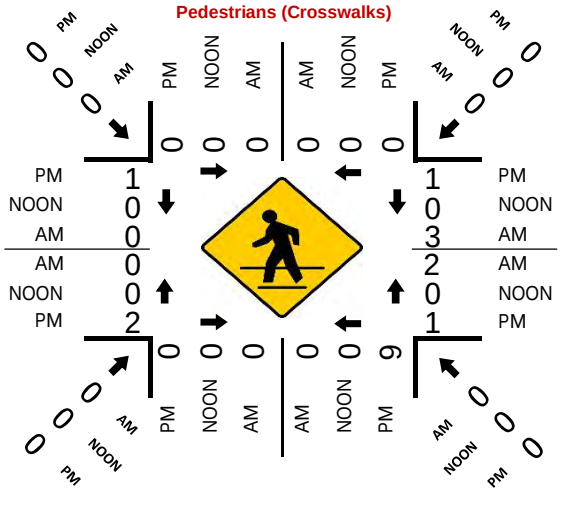
Total Vehicles (Noon)



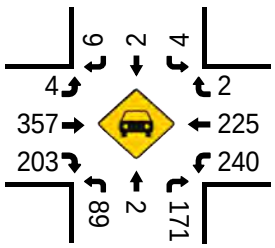
Bikes (NOON)



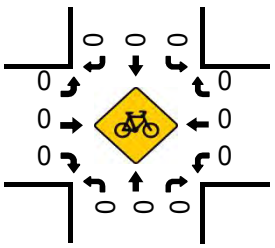
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Forni Rd & SR-49

Peak Hour Turning Movement Count

ID: 18-07158-002
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

PEAK HOURS

AM	07:15 AM - 08:15 AM
NOON	NONE
PM	04:00 PM - 05:00 PM

COUNT PERIODS

AM	06:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 07:00 PM

Forni Rd — SOUTHBOUND

AM	116	0	40	0	194	AM
NOON	0	0	0	0	0	NOON
PM	175	0	21	0	151	PM

SR-49 — EASTBOUND

AM	NOON	PM	
456	0	464	
0	0	0	0
178	0	129	0
410	0	419	1
0	0	0	0
AM	NOON	PM	

SR-49 — WESTBOUND

PM	NOON	AM	
22	0	15	0
288	0	338	1
1	0	4	0
0	0	0	0
443	0	450	
PM	NOON	AM	

Forni Rd — NORTHBOUND

PM	1	0	1	0	3	PM
NOON	0	0	0	0	0	NOON
AM	4	0	2	1	0	AM

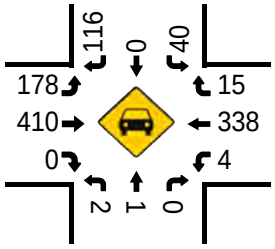
	0	1	0	0
	0	0	1	0

CONTROL

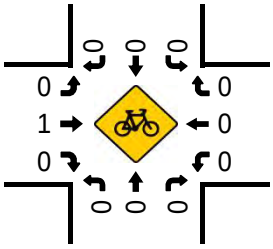
1-Way Stop(SB)

TEV	1104 AM	0 NOON	1059 PM
PHF	0.80		0.94

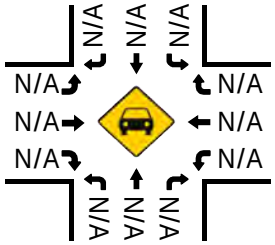
Total Vehicles (AM)



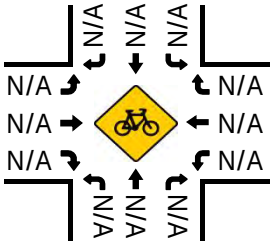
Bikes (AM)



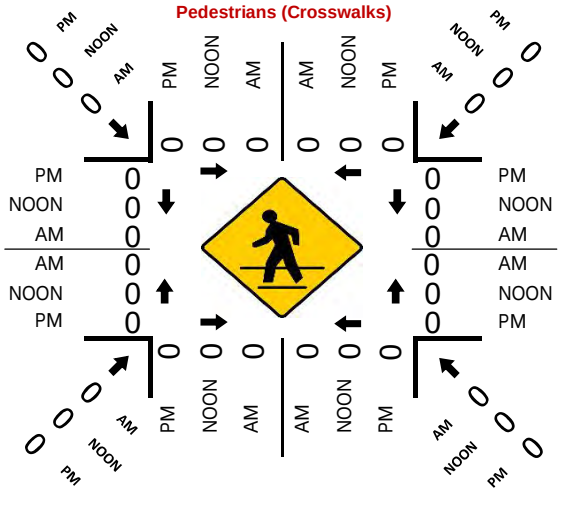
Total Vehicles (Noon)



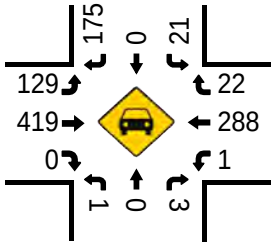
Bikes (NOON)



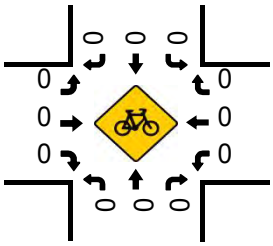
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Koki Ln & SR-49

Peak Hour Turning Movement Count

ID: 18-07158-003
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

	PEAK HOURS	COUNT PERIODS
AM	07:15 AM - 08:15 AM	06:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:00 PM - 05:00 PM	04:00 PM - 07:00 PM

Koki Ln – SOUTHBOUND

	↲	↓	↳	U-turn	⇧
AM	8	4	11	0	11
NOON	0	0	0	0	0
PM	6	0	15	0	30
Lanes	0	1	0	0	

SR-49 – EASTBOUND

	AM	NOON	PM	Lanes
⇦	358	0	319	
U-turn	0	0	0	0
Left	3	0	15	1
Through	253	0	379	1
Right	217	0	47	1

SR-49 – WESTBOUND

	PM	NOON	AM	Lanes
Right	15	0	5	0
Through	276	0	235	1
Left	42	0	294	1
U-turn	0	0	0	0
⇨	438	0	432	

Koki Ln – NORTHBOUND

	⇩	U-turn	Left	Through	Right
Lanes		0	0.5	0.5	1
PM	89	0	37	0	44
NOON	0	0	0	0	0
AM	515	0	115	3	168

CONTROL

Signalized

	AM	NOON	PM
TEV	1316	0	876
PHF	0.71		0.94

Total Vehicles (AM)

Approach	Right	Through	Left
Southbound	8	4	11
Eastbound	217	253	3
Westbound	5	235	294
Northbound	168	3	115

Total Vehicles (Noon)

Approach	Right	Through	Left
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Total Vehicles (PM)

Approach	Right	Through	Left
Southbound	6	0	15
Eastbound	47	379	15
Westbound	15	276	42
Northbound	44	0	37

Bikes (AM)

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

Bikes (NOON)

Approach	Right	Through	Left
Southbound	N/A	N/A	N/A
Eastbound	N/A	N/A	N/A
Westbound	N/A	N/A	N/A
Northbound	N/A	N/A	N/A

Bikes (PM)

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

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North leg	→	0	0	1
North leg	←	0	0	2
West leg	↓	4	0	1
West leg	↑	0	0	1
East leg	↓	0	0	1
East leg	↑	0	0	0
South leg	→	1	0	0
South leg	←	1	0	0
NW diagonal	↘	0	0	0
NE diagonal	↙	0	0	0
SW diagonal	↗	0	0	0
SE diagonal	↖	0	0	0

Prepared by National Data & Surveying Services

Patterson Dr & SR-49

Peak Hour Turning Movement Count

ID: 18-07158-004
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

PEAK HOURS

AM: 07:15 AM - 08:15 AM
NOON: NONE
PM: 05:00 PM - 06:00 PM

COUNT PERIODS

AM: 06:00 AM - 09:00 AM
NOON: NONE
PM: 04:00 PM - 07:00 PM

CONTROL: Signalized

	AM	NOON	PM
TEV	1188	0	1154
PHF	0.84		0.96

Patterson Dr — SOUTHBOUND

	Left	Thru	Right	Peds	
AM	0	0	0	0	0 AM
NOON	0	0	0	0	0 NOON
PM	0	0	0	0	0 PM

SR-49 — EASTBOUND

	AM	NOON	PM
Thru	563	0	407
Left	0	0	0
Right	376	0	412
Peds	48	0	82

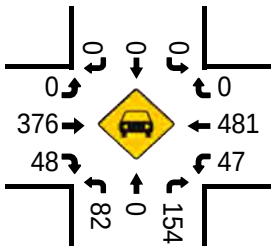
SR-49 — WESTBOUND

	PM	NOON	AM
Thru	507	0	530
Left	0	0	0
Right	158	0	47
Peds	0	0	0

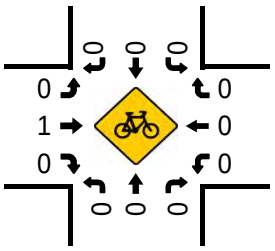
Patterson Dr — NORTHBOUND

	Left	Thru	Right	Peds	
PM	240	0	44	0	95 PM
NOON	0	0	0	0	0 NOON
AM	95	0	82	0	154 AM

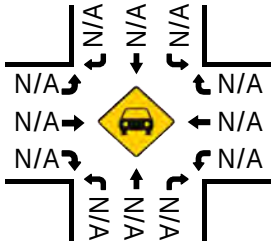
Total Vehicles (AM)



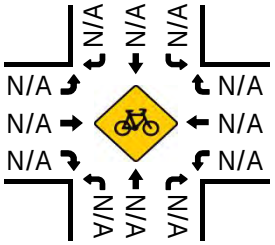
Bikes (AM)



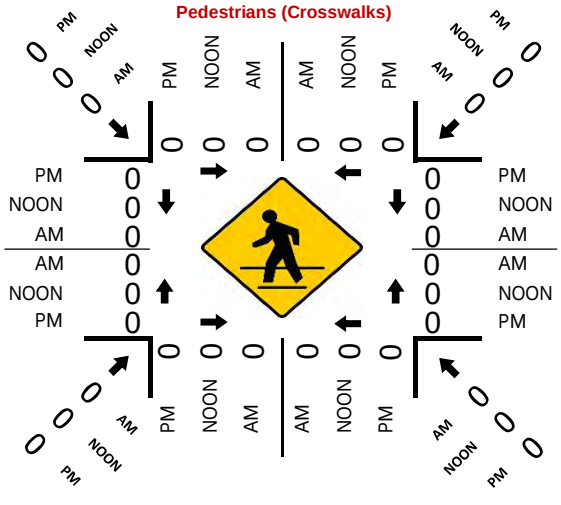
Total Vehicles (Noon)



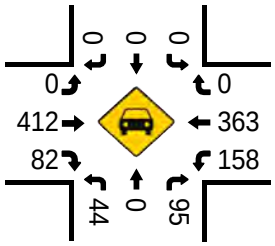
Bikes (NOON)



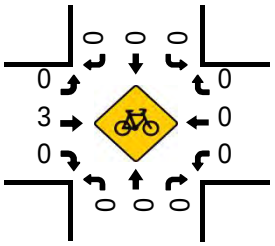
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Missouri Flat Rd & SR-49

Peak Hour Turning Movement Count

ID: 18-07158-005
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

PEAK HOURS

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

COUNT PERIODS

AM	06:00 AM - 09:00 AM
NOON	NONE
PM	04:00 PM - 07:00 PM

Missouri Flat Rd — SOUTHBOUND

AM	222	0	218	0	943	AM
NOON	0	0	0	0	0	NOON
PM	327	0	669	0	580	PM

EASTBOUND — SR-49

AM	NOON	PM		
591	0	569	⇦	
0	0	0	↶	0
366	0	204	↱	2
222	0	302	→	1
0	0	0	↷	0
AM	NOON	PM		

WESTBOUND — SR-49

PM	NOON	AM		
376	0	577	↰	1
242	0	369	←	1
0	0	0	↶	0
0	0	0	↶	0
971	0	440	⇨	
PM	NOON	AM		

	1	0	1	0
	0	0	0	0

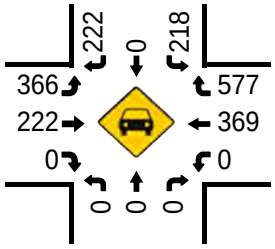
CONTROL: Signalized

TEV	1974 AM	0 NOON	2120 PM
PHF	0.92		0.97

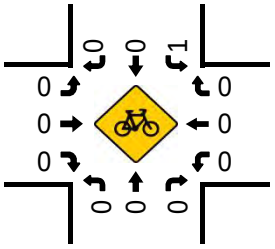
NORTHBOUND — Missouri Flat Rd

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

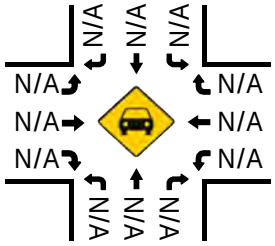
Total Vehicles (AM)



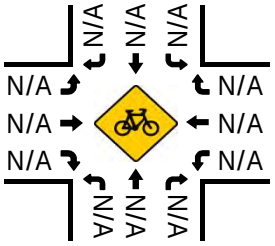
Bikes (AM)



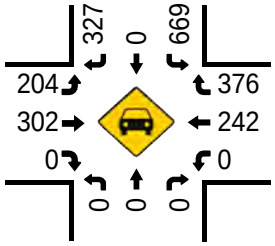
Total Vehicles (Noon)



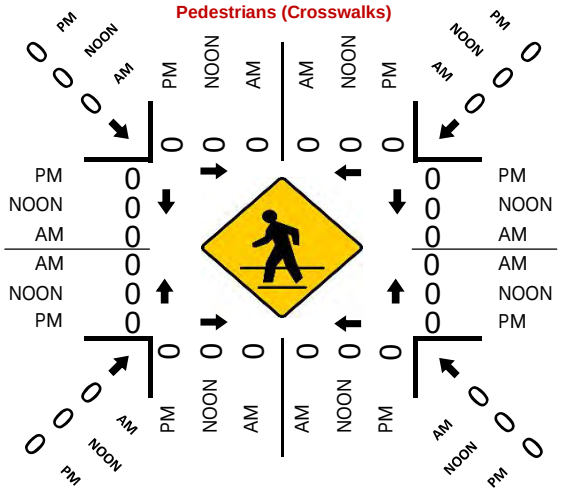
Bikes (NOON)



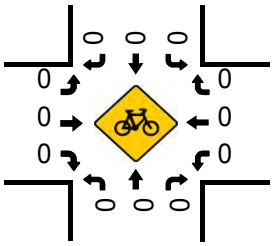
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

SR-49 / Fowler Ln & Pleasant Valley Rd

Peak Hour Turning Movement Count

ID: 18-07158-006
City: Diamond Springs

Day: Tuesday
Date: 05/01/2018

Period	Peak Hours	Count Periods
AM	07:30 AM - 08:30 AM	06:00 AM - 09:00 AM
NOON	NONE	NONE
PM	04:30 PM - 05:30 PM	04:00 PM - 07:00 PM

SOUTHBOUND – SR-49/Fowler Ln

	Right	Through	Left	U-Turn	Departure
Lanes	0.5	0.5	1	0	
AM	98	14	85	0	296
NOON	0	0	0	0	0
PM	111	54	209	0	246

EASTBOUND – Pleasant Valley Rd

	Lanes	AM	NOON	PM
Departure		904	0	580
U-Turn	0	0	0	0
Left	1	115	0	104
Through	1.5	282	0	744
Right	0.5	34	0	123

WESTBOUND – Pleasant Valley Rd

	Lanes	PM	NOON	AM
Right	1	108	0	150
Through	1	380	0	725
Left	1	25	0	10
U-Turn	0	0	0	0
Departure		985	0	373

NORTHBOUND – SR-49/Fowler Ln

	Departure	U-Turn	Left	Through	Right
Lanes		0	0.5	0.5	1
PM	202	0	89	34	32
NOON	0	0	0	0	0
AM	58	0	81	31	6

CONTROL: Signalized

	AM	NOON	PM
TEV	1631	0	2013
PHF	0.91		0.98

Total Vehicles (AM)

SB: 98 ↲, 14 ↓, 85 ↳; EB: 115 left, 282 through, 34 right; WB: 150 right, 725 through, 10 left; NB: 81 left, 31 through, 6 right

Total Vehicles (Noon)

All movements: N/A

Total Vehicles (PM)

SB: 111, 54, 209; EB: 104 left, 744 through, 123 right; WB: 108 right, 380 through, 25 left; NB: 89 left, 34 through, 32 right

Bikes (AM)

SB: 0, 0, 0; EB: 0, 0, 0; WB: 0, 0, 0; NB: 0, 0, 0

Bikes (NOON)

All movements: N/A

Bikes (PM)

SB: 0, 0, 0; EB: 0 left, 0 through, 0 right; WB: 0 right, 1 through, 0 left; NB: 0, 0, 0

Pedestrians (Crosswalks)

Crosswalk	Direction	AM	NOON	PM
North	West side	1	0	1
North	East side	0	0	0
West	Upper	0	0	0
West	Lower	0	0	0
East	Upper	0	0	1
East	Lower	0	0	1
South	West side	0	0	0
South	East side	0	0	0
Diagonal NW		0	0	0
Diagonal NE		0	0	0
Diagonal SW		0	0	0
Diagonal SE		0	0	0

Prepared by NDS/ATD

VOLUME

SR-49 Bet. Forni Rd & Koki Ln

Day: Tuesday
Date: 5/1/2018

City: El Dorado County
Project #: CA18_7159_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,333	4,079	8,412

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		1		3		12:00			73		61		134	
00:15			5		4		9		12:15			60		75		135	
00:30			2		2		4		12:30			73		63		136	
00:45			1	10	2	9	3	19	12:45			84	290	86	285	170	575
01:00			0		1		1		13:00			77		58		135	
01:15			4		0		4		13:15			55		63		118	
01:30			1		2		3		13:30			66		47		113	
01:45			0	5	0	3	0	8	13:45			90	288	67	235	157	523
02:00			2		3		5		14:00			74		72		146	
02:15			0		1		1		14:15			55		68		123	
02:30			1		0		1		14:30			84		97		181	
02:45			5	8	3	7	8	15	14:45			91	304	107	344	198	648
03:00			0		2		2		15:00			91		160		251	
03:15			0		1		1		15:15			95		95		190	
03:30			2		0		2		15:30			89		76		165	
03:45			2	4	3	6	5	10	15:45			70	345	86	417	156	762
04:00			9		6		15		16:00			102		74		176	
04:15			5		4		9		16:15			113		78		191	
04:30			7		14		21		16:30			101		76		177	
04:45			5	26	8	32	13	58	16:45			106	422	66	294	172	716
05:00			6		15		21		17:00			97		73		170	
05:15			18		19		37		17:15			93		73		166	
05:30			8		36		44		17:30			98		62		160	
05:45			12	44	26	96	38	140	17:45			90	378	57	265	147	643
06:00			20		31		51		18:00			87		55		142	
06:15			18		47		65		18:15			73		57		130	
06:30			27		54		81		18:30			49		44		93	
06:45			29	94	49	181	78	275	18:45			53	262	37	193	90	455
07:00			49		61		110		19:00			22		47		69	
07:15			101		86		187		19:15			50		37		87	
07:30			161		71		232		19:30			33		34		67	
07:45			100	411	89	307	189	718	19:45			34	139	26	144	60	283
08:00			80		82		162		20:00			38		43		81	
08:15			88		94		182		20:15			46		23		69	
08:30			73		84		157		20:30			13		31		44	
08:45			70	311	71	331	141	642	20:45			27	124	24	121	51	245
09:00			46		53		99		21:00			26		21		47	
09:15			50		54		104		21:15			22		15		37	
09:30			44		56		100		21:30			23		10		33	
09:45			59	199	62	225	121	424	21:45			19	90	12	58	31	148
10:00			53		52		105		22:00			20		10		30	
10:15			60		54		114		22:15			11		6		17	
10:30			54		66		120		22:30			12		11		23	
10:45			76	243	57	229	133	472	22:45			4	47	6	33	10	80
11:00			55		76		131		23:00			5		2		7	
11:15			79		67		146		23:15			13		6		19	
11:30			78		41		119		23:30			3		4		7	
11:45			51	263	66	250	117	513	23:45			5	26	2	14	7	40
TOTALS				1618		1676		3294	TOTALS				2715		2403		5118
SPLIT %				49.1%		50.9%		39.2%	SPLIT %				53.0%		47.0%		60.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,333	4,079	8,412

AM Peak Hour			07:15	07:45	07:15	PM Peak Hour		16:00	14:30	14:30
AM Pk Volume			442	349	770	PM Pk Volume		422	459	820
Pk Hr Factor			0.686	0.928	0.830	Pk Hr Factor		0.934	0.717	0.817
7 - 9 Volume	0	0	722	638	1360	4 - 6 Volume	0	800	559	1359
7 - 9 Peak Hour			07:15	07:45	07:15	4 - 6 Peak Hour		16:00	16:00	16:00
7 - 9 Pk Volume	0	0	442	349	770	4 - 6 Pk Volume	0	422	294	716
Pk Hr Factor	0.000	0.000	0.686	0.928	0.830	Pk Hr Factor	0.000	0.934	0.942	0.937

Prepared by NDS/ATD

VOLUME

SR-49 Bet. Forni Rd & Koki Ln

Day: Wednesday
Date: 5/2/2018

City: El Dorado County
Project #: CA18_7159_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,461	4,130	8,591

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			7		3		10		12:00			63		79		142	
00:15			4		4		8		12:15			70		71		141	
00:30			5		7		12		12:30			67		50		117	
00:45			2	18	1	15	3	33	12:45			67	267	49	249	116	516
01:00			0		2		2		13:00			63		82		145	
01:15			1		1		2		13:15			71		79		150	
01:30			0		1		1		13:30			89		86		175	
01:45			4	5	0	4	4	9	13:45			76	299	78	325	154	624
02:00			1		1		2		14:00			68		54		122	
02:15			0		2		2		14:15			84		86		170	
02:30			1		3		4		14:30			89		92		181	
02:45			1	3	0	6	1	9	14:45			110	351	96	328	206	679
03:00			0		2		2		15:00			102		135		237	
03:15			2		0		2		15:15			88		95		183	
03:30			3		2		5		15:30			91		86		177	
03:45			4	9	1	5	5	14	15:45			87	368	71	387	158	755
04:00			5		6		11		16:00			95		83		178	
04:15			7		7		14		16:15			101		63		164	
04:30			6		15		21		16:30			118		58		176	
04:45			5	23	8	36	13	59	16:45			111	425	64	268	175	693
05:00			10		14		24		17:00			102		70		172	
05:15			12		22		34		17:15			83		79		162	
05:30			14		36		50		17:30			93		56		149	
05:45			10	46	33	105	43	151	17:45			81	359	59	264	140	623
06:00			16		32		48		18:00			63		69		132	
06:15			17		36		53		18:15			62		43		105	
06:30			22		56		78		18:30			60		50		110	
06:45			35	90	49	173	84	263	18:45			56	241	46	208	102	449
07:00			61		43		104		19:00			48		39		87	
07:15			104		87		191		19:15			42		46		88	
07:30			143		67		210		19:30			33		30		63	
07:45			120	428	91	288	211	716	19:45			50	173	33	148	83	321
08:00			82		82		164		20:00			33		48		81	
08:15			94		109		203		20:15			40		27		67	
08:30			73		77		150		20:30			36		35		71	
08:45			58	307	62	330	120	637	20:45			40	149	35	145	75	294
09:00			62		54		116		21:00			23		16		39	
09:15			68		63		131		21:15			26		21		47	
09:30			66		61		127		21:30			23		18		41	
09:45			61	257	58	236	119	493	21:45			19	91	9	64	28	155
10:00			55		51		106		22:00			17		11		28	
10:15			57		76		133		22:15			15		13		28	
10:30			49		54		103		22:30			9		6		15	
10:45			72	233	61	242	133	475	22:45			2	43	6	36	8	79
11:00			47		57		104		23:00			7		7		14	
11:15			68		58		126		23:15			10		5		15	
11:30			75		60		135		23:30			3		4		7	
11:45			61	251	74	249	135	500	23:45			5	25	3	19	8	44
TOTALS				1670		1689		3359	TOTALS				2791		2441		5232
SPLIT %				49.7%		50.3%		39.1%	SPLIT %				53.3%		46.7%		60.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,461	4,130	8,591

AM Peak Hour			07:15	07:45	07:30	PM Peak Hour			16:15	14:30	14:30
AM Pk Volume			449	359	788	PM Pk Volume			432	418	807
Pk Hr Factor			0.785	0.823	0.934	Pk Hr Factor			0.915	0.774	0.851
7 - 9 Volume	0	0	735	618	1353	4 - 6 Volume	0	0	784	532	1316
7 - 9 Peak Hour			07:15	07:45	07:30	4 - 6 Peak Hour			16:15	16:30	16:00
7 - 9 Pk Volume	0	0	449	359	788	4 - 6 Pk Volume	0	0	432	271	693
Pk Hr Factor	0.000	0.000	0.785	0.823	0.934	Pk Hr Factor	0.000	0.000	0.915	0.858	0.973

Prepared by NDS/ATD

VOLUME

Koki Ln Bet. SR-49 & Union Mine Rd

Day: Tuesday
Date: 5/1/2018

City: El Dorado County
Project #: CA18_7159_002

DAILY TOTALS	NB	SB	EB	WB	Total
	1,270	1,237	0	0	2,507

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	6		12						18	
00:15	0		0						0		12:15	11		8						19	
00:30	0		0						0		12:30	9		18						27	
00:45	0		0						0		12:45	81	107	17	55					98	162
01:00	0		0						0		13:00	19		16						35	
01:15	0		0						0		13:15	34		13						47	
01:30	0		0						0		13:30	15		4						19	
01:45	0		0						0		13:45	7	75	7	40					14	115
02:00	0		0						0		14:00	7		12						19	
02:15	0		0						0		14:15	15		19						34	
02:30	0		0						0		14:30	23		42						65	
02:45	0		0						0		14:45	92	137	62	135					154	272
03:00	0		0						0		15:00	190		44						234	
03:15	0		0						0		15:15	46		26						72	
03:30	0		0						0		15:30	27		23						50	
03:45	0		0						0		15:45	17	280	11	104					28	384
04:00	0		0						0		16:00	11		11						22	
04:15	0		0						0		16:15	18		17						35	
04:30	0		0						0		16:30	24		26						50	
04:45	0		0						0		16:45	14	67	16	70					30	137
05:00	0		0						0		17:00	13		19						32	
05:15	0		0						0		17:15	47		23						70	
05:30	0		0						0		17:30	32		19						51	
05:45	0		1	1					1	1	17:45	23	115	29	90					52	205
06:00	0		9						9		18:00	21		8						29	
06:15	1		5						6		18:15	12		14						26	
06:30	5		10						15		18:30	16		7						23	
06:45	12	18	20	44					32	62	18:45	8	57	6	35					14	92
07:00	19		48						67		19:00	5		4						9	
07:15	75		170						245		19:15	6		4						10	
07:30	68		166						234		19:30	1		1						2	
07:45	58	220	85	469					143	689	19:45	2	14	13	22					15	36
08:00	16		12						28		20:00	36		8						44	
08:15	5		6						11		20:15	7		2						9	
08:30	4		7						11		20:30	1		1						2	
08:45	3	28	12	37					15	65	20:45	11	55	1	12					12	67
09:00	3		17						20		21:00	2		1						3	
09:15	11		23						34		21:15	1		1						2	
09:30	13		14						27		21:30	2		0						2	
09:45	10	37	10	64					20	101	21:45	2	7	0	2					2	9
10:00	4		3						7		22:00	0		0						0	
10:15	2		4						6		22:15	0		0						0	
10:30	5		3						8		22:30	0		0						0	
10:45	7	18	12	22					19	40	22:45	1	1	1	1					2	2
11:00	14		18						32		23:00	0		0						0	
11:15	10		4						14		23:15	0		0						0	
11:30	5		7						12		23:30	0		0						0	
11:45	5	34	5	34					10	68	23:45	0		0						0	
TOTALS		355		671						1026	TOTALS		915		566						1481
SPLIT %		34.6%		65.4%						40.9%	SPLIT %		61.8%		38.2%						59.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,270	1,237	0	0	2,507

AM Peak Hour	07:00	07:00			07:00	PM Peak Hour	14:45	14:30			14:30
AM Pk Volume	220	469			689	PM Pk Volume	355	174			525
Pk Hr Factor	0.733	0.690			0.703	Pk Hr Factor	0.467	0.702			0.561
7 - 9 Volume	248	506	0	0	754	4 - 6 Volume	182	160	0	0	342
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	17:00	17:00			17:00
7 - 9 Pk Volume	220	469	0	0	689	4 - 6 Pk Volume	115	90	0	0	205
Pk Hr Factor	0.733	0.690	0.000	0.000	0.703	Pk Hr Factor	0.612	0.776	0.000	0.000	0.732

Prepared by NDS/ATD

VOLUME

Koki Ln Bet. SR-49 & Union Mine Rd

Day: Wednesday
Date: 5/2/2018

City: El Dorado County
Project #: CA18_7159_002

DAILY TOTALS	NB	SB	EB	WB	Total
	1,266	1,168	0	0	2,434

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00	0		0						0		12:00	8		8						16	
00:15	0		0						0		12:15	10		11						21	
00:30	0		0						0		12:30	12		12						24	
00:45	0		0						0		12:45	8	38	16	47					24	85
01:00	0		0						0		13:00	71		16						87	
01:15	1		0						1		13:15	21		11						32	
01:30	0		0						0		13:30	28		16						44	
01:45	0	1	0						0	1	13:45	12	132	8	51					20	183
02:00	0		0						0		14:00	11		7						18	
02:15	0		0						0		14:15	11		24						35	
02:30	0		0						0		14:30	31		47						78	
02:45	0		0						0		14:45	100	153	64	142					164	295
03:00	0		0						0		15:00	172		41						213	
03:15	0		0						0		15:15	34		23						57	
03:30	0		0						0		15:30	24		8						32	
03:45	0		0						0		15:45	8	238	3	75					11	313
04:00	0		0						0		16:00	19		10						29	
04:15	0		0						0		16:15	8		11						19	
04:30	0		0						0		16:30	16		23						39	
04:45	0		0						0		16:45	18	61	16	60					34	121
05:00	0		0						0		17:00	14		18						32	
05:15	2		1						3		17:15	44		11						55	
05:30	0		0						0		17:30	12		18						30	
05:45	0	2	0	1					0	3	17:45	31	101	20	67					51	168
06:00	0		0						0		18:00	12		15						27	
06:15	0		6						6		18:15	10		7						17	
06:30	10		17						27		18:30	18		7						25	
06:45	15	25	19	42					34	67	18:45	7	47	8	37					15	84
07:00	17		51						68		19:00	12		3						15	
07:15	68		153						221		19:15	13		6						19	
07:30	85		166						251		19:30	5		4						9	
07:45	41	211	64	434					105	645	19:45	12	42	12	25					24	67
08:00	17		17						34		20:00	31		5						36	
08:15	4		7						11		20:15	11		6						17	
08:30	9		12						21		20:30	28		3						31	
08:45	3	33	14	50					17	83	20:45	6	76	0	14					6	90
09:00	6		25						31		21:00	0		2						2	
09:15	19		8						27		21:15	0		1						1	
09:30	6		9						15		21:30	2		0						2	
09:45	5	36	6	48					11	84	21:45	0	2	0	3					0	5
10:00	9		9						18		22:00	0		0						0	
10:15	6		11						17		22:15	0		0						0	
10:30	5		8						13		22:30	1		0						1	
10:45	9	29	10	38					19	67	22:45	0	1	0						0	1
11:00	6		10						16		23:00	0		0						0	
11:15	9		6						15		23:15	0		0						0	
11:30	12		11						23		23:30	0		0						0	
11:45	11	38	7	34					18	72	23:45	0		0						0	
TOTALS		375		647						1022	TOTALS		891		521						1412
SPLIT %		36.7%		63.3%						42.0%	SPLIT %		63.1%		36.9%						58.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	1,266	1,168	0	0	2,434

AM Peak Hour	07:00	07:00			07:00	PM Peak Hour	14:30	14:15			14:30
AM Pk Volume	211	434			645	PM Pk Volume	337	176			512
Pk Hr Factor	0.621	0.654			0.642	Pk Hr Factor	0.490	0.688			0.601
7 - 9 Volume	244	484	0	0	728	4 - 6 Volume	162	127	0	0	289
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	17:00	16:15			17:00
7 - 9 Pk Volume	211	434	0	0	645	4 - 6 Pk Volume	101	68	0	0	168
Pk Hr Factor	0.621	0.654	0.000	0.000	0.642	Pk Hr Factor	0.574	0.739	0.000	0.000	0.764

Appendix B

Analysis Worksheets for Existing (2020) Conditions

Intersection	
Intersection Delay, s/veh	76.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	301	100	169	296	1	220	1	294	0	0	0
Future Vol, veh/h	0	301	100	169	296	1	220	1	294	0	0	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	381	127	214	375	1	278	1	372	0	0	0
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	57.8	29.9	133.2	0
HCM LOS	F	D	F	-

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	43%	0%	100%	0%	0%
Vol Thru, %	0%	75%	0%	100%	100%
Vol Right, %	57%	25%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	515	401	169	297	0
LT Vol	220	0	169	0	0
Through Vol	1	301	0	296	0
RT Vol	294	100	0	1	0
Lane Flow Rate	652	508	214	376	0
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.209	0.954	0.48	0.791	0
Departure Headway (Hd)	6.677	7.497	8.807	8.285	9.943
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	548	487	413	440	0
Service Time	4.692	5.497	6.507	5.985	7.943
HCM Lane V/C Ratio	1.19	1.043	0.518	0.855	0
HCM Control Delay	133.2	57.8	19.4	35.8	12.9
HCM Lane LOS	F	F	C	E	N
HCM 95th-tile Q	24.2	11.8	2.5	7	0

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	182	418	345	15	41	118
Future Vol, veh/h	182	418	345	15	41	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	225	516	426	19	51	146

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	445	0	-	0	1402	436
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	966	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1115	-	-	-	154	620
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1115	-	-	-	110	620
Mov Cap-2 Maneuver	-	-	-	-	110	-
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	369	-

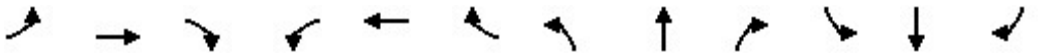
Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	42.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1115	-	-	-	282
HCM Lane V/C Ratio	0.202	-	-	-	0.696
HCM Control Delay (s)	9	0	-	-	42.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.8	-	-	-	4.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	363	311	423	345	169	241	32
Act Effct Green (s)	7.7	20.8	20.8	27.1	47.4	13.1	13.1	9.0
Actuated g/C Ratio	0.10	0.26	0.26	0.33	0.59	0.16	0.16	0.11
v/c Ratio	0.02	0.76	0.54	0.72	0.32	0.59	0.53	0.16
Control Delay	39.0	40.9	11.7	37.6	17.2	43.8	9.8	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	40.9	11.7	37.6	17.2	43.8	9.8	30.7
LOS	D	D	B	D	B	D	A	C
Approach Delay		27.5			28.5	23.8		30.7
Approach LOS		C			C	C		C
Queue Length 50th (ft)	2	165	27	187	72	79	0	10
Queue Length 95th (ft)	10	271	56	#414	256	147	18	31
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	591	872	849	591	1087	593	689	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.42	0.37	0.72	0.32	0.28	0.35	0.06

Intersection Summary	
Cycle Length: 125.1	
Actuated Cycle Length: 81	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 53.5%	ICU Level of Service A
Analysis Period (min) 15	

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	258	221	300	240	5	117	3	171	11	4	8
Future Volume (veh/h)	3	258	221	300	240	5	117	3	171	11	4	8
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		0.97	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	363	311	423	338	7	165	4	241	15	6	11
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	518	472	390	475	416	9	343	8	309	42	17	31
Arrive On Green	0.29	0.25	0.25	0.27	0.23	0.23	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	1870	1545	1781	1825	38	1741	42	1569	801	320	588
Grp Volume(v), veh/h	4	363	311	423	0	345	169	0	241	32	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1545	1781	0	1862	1783	0	1569	1709	0	0
Q Serve(g_s), s	0.1	11.7	12.3	14.9	0.0	11.4	5.5	0.0	9.5	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.1	11.7	12.3	14.9	0.0	11.4	5.5	0.0	9.5	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	0.98		1.00	0.47		0.34
Lane Grp Cap(c), veh/h	518	472	390	475	0	425	351	0	309	90	0	0
V/C Ratio(X)	0.01	0.77	0.80	0.89	0.00	0.81	0.48	0.00	0.78	0.36	0.00	0.00
Avail Cap(c_a), veh/h	518	1006	831	684	0	1001	685	0	603	656	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.4	22.6	22.8	23.0	0.0	23.8	23.2	0.0	24.8	29.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	1.4	8.0	0.0	1.4	0.4	0.0	1.6	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.9	4.3	6.8	0.0	4.9	2.2	0.0	3.5	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	23.6	24.2	30.9	0.0	25.3	23.6	0.0	26.4	30.7	0.0	0.0
LnGrp LOS	B	C	C	C	A	C	C	A	C	C	A	A
Approach Vol, veh/h		678			768			410			32	
Approach Delay, s/veh		23.8			28.4			25.2			30.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.3	21.3		6.9	21.9	19.7		16.5				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	25.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	16.9	14.3		3.2	2.1	13.4		11.5				
Green Ext Time (p_c), s	0.5	2.0		0.1	0.0	1.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		26.1	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	436	5	15	559	1	4
Future Vol, veh/h	436	5	15	559	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	474	5	16	608	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	1117	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	640	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1083	-	229	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1083	-	224	588
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0.2	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	444	-	-	1083	-
HCM Lane V/C Ratio	0.012	-	-	0.015	-
HCM Control Delay (s)	13.2	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

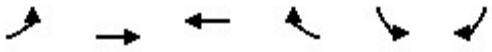
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	457	58	48	585	100	187
Act Effct Green (s)	17.2	17.2	7.4	30.4	8.7	17.6
Actuated g/C Ratio	0.38	0.38	0.16	0.67	0.19	0.39
v/c Ratio	0.64	0.09	0.17	0.47	0.29	0.26
Control Delay	17.3	3.7	21.7	6.7	21.3	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	3.7	21.7	6.7	21.3	3.3
LOS	B	A	C	A	C	A
Approach Delay	15.8			7.9	9.6	
Approach LOS	B			A	A	
Queue Length 50th (ft)	101	0	11	77	22	0
Queue Length 95th (ft)	170	14	43	133	65	27
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1550	1021	1863	1226	1310
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.05	0.31	0.08	0.14

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 45.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	384	49	48	491	84	157
Future Volume (veh/h)	384	49	48	491	84	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	457	58	48	585	100	187
Peak Hour Factor	0.84	0.84	1.00	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	575	477	132	923	370	446
Arrive On Green	0.31	0.31	0.07	0.49	0.21	0.21
Sat Flow, veh/h	1870	1551	1781	1870	1781	1585
Grp Volume(v), veh/h	457	58	48	585	100	187
Grp Sat Flow(s),veh/h/ln	1870	1551	1781	1870	1781	1585
Q Serve(g_s), s	8.2	1.0	0.9	8.4	1.7	3.5
Cycle Q Clear(g_c), s	8.2	1.0	0.9	8.4	1.7	3.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	575	477	132	923	370	446
V/C Ratio(X)	0.80	0.12	0.36	0.63	0.27	0.42
Avail Cap(c_a), veh/h	3078	2553	1222	3078	1466	1422
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	11.6	9.1	16.1	6.8	12.1	10.7
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	0.3	2.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.5	9.1	16.7	7.1	12.3	10.9
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	515			633	287	
Approach Delay, s/veh	12.2			7.8	11.4	
Approach LOS	B			A	B	

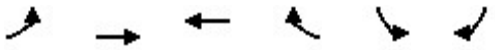
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	17.0				23.8	12.7
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	25.0	60.0				60.0	30.0
Max Q Clear Time (g_c+I1), s	2.9	10.2				10.4	5.5
Green Ext Time (p_c), s	0.0	1.0				1.4	0.2

Intersection Summary		
HCM 6th Ctrl Delay		10.1
HCM 6th LOS		B



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	405	246	409	640	241	246
Act Effct Green (s)	12.9	36.6	19.5	37.5	13.6	27.2
Actuated g/C Ratio	0.22	0.62	0.33	0.63	0.23	0.46
v/c Ratio	0.55	0.21	0.67	0.62	0.60	0.29
Control Delay	25.7	6.1	24.6	8.4	29.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.7	6.1	24.6	8.4	29.0	2.4
LOS	C	A	C	A	C	A
Approach Delay		18.3	14.7		15.5	
Approach LOS		B	B		B	
Queue Length 50th (ft)	63	31	117	86	73	0
Queue Length 95th (ft)	142	81	267	210	180	31
Internal Link Dist (ft)		587	765		74	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1532	1796	1330	1451	948	1155
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.14	0.31	0.44	0.25	0.21

Intersection Summary			
Cycle Length: 107.7			
Actuated Cycle Length: 59.5			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 54.3%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	373	226	376	589	222	226
Future Volume (veh/h)	373	226	376	589	222	226
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	405	246	409	640	241	246
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	573	1194	731	911	328	554
Arrive On Green	0.17	0.64	0.39	0.39	0.18	0.18
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	405	246	409	640	241	246
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	5.4	2.7	8.3	14.1	6.3	5.8
Cycle Q Clear(g_c), s	5.4	2.7	8.3	14.1	6.3	5.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	573	1194	731	911	328	554
V/C Ratio(X)	0.71	0.21	0.56	0.70	0.74	0.44
Avail Cap(c_a), veh/h	1764	1528	1528	1586	1091	1234
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	19.3	3.7	11.6	7.4	18.9	12.3
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.4	1.2	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	2.0	0.6	2.9	12.5	2.4	5.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.9	3.7	11.9	7.8	20.1	12.5
LnGrp LOS	B	A	B	A	C	B
Approach Vol, veh/h		651	1049		487	
Approach Delay, s/veh		13.8	9.4		16.2	
Approach LOS		B	A		B	

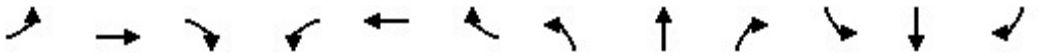
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		35.4		13.6	12.1	23.2
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		40.0		30.0	25.0	40.0
Max Q Clear Time (g_c+I1), s		4.7		8.3	7.4	16.1
Green Ext Time (p_c), s		0.9		0.8	0.7	3.0

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	354	11	813	168	126	7	96	125
Act Effct Green (s)	11.9	64.5	5.4	51.1	51.1	13.7	13.7	10.1	10.1
Actuated g/C Ratio	0.12	0.63	0.05	0.50	0.50	0.13	0.13	0.10	0.10
v/c Ratio	0.62	0.16	0.12	0.87	0.21	0.52	0.03	0.55	0.48
Control Delay	58.4	9.9	55.4	36.9	11.8	49.5	0.2	58.4	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.4	9.9	55.4	36.9	11.8	49.5	0.2	58.4	18.7
LOS	E	A	E	D	B	D	A	E	B
Approach Delay		22.8		32.9		46.9			35.9
Approach LOS		C		C		D			D
Queue Length 50th (ft)	77	37	7	416	31	75	0	58	9
Queue Length 95th (ft)	168	117	30	#1043	109	148	0	135	72
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	355	2210	355	934	810	541	519	355	412
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.16	0.03	0.87	0.21	0.23	0.01	0.27	0.30

Intersection Summary			
Cycle Length: 134.7			
Actuated Cycle Length: 101.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 31.6		Intersection LOS: C	
Intersection Capacity Utilization 69.0%		ICU Level of Service C	
Analysis Period (min) 15			

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	288	35	10	740	153	83	32	6	87	14	100
Future Volume (veh/h)	117	288	35	10	740	153	83	32	6	87	14	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	316	38	11	813	168	91	35	7	96	15	110
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	1812	216	20	907	768	137	53	167	193	21	154
Arrive On Green	0.09	0.57	0.57	0.01	0.48	0.48	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1781	3197	381	1781	1870	1583	1304	501	1585	1781	194	1421
Grp Volume(v), veh/h	129	174	180	11	813	168	126	0	7	96	0	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1801	1781	1870	1583	1805	0	1585	1781	0	1615
Q Serve(g_s), s	5.0	3.3	3.4	0.4	27.9	4.3	4.7	0.0	0.3	3.6	0.0	5.3
Cycle Q Clear(g_c), s	5.0	3.3	3.4	0.4	27.9	4.3	4.7	0.0	0.3	3.6	0.0	5.3
Prop In Lane	1.00		0.21	1.00		1.00	0.72		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	165	1007	1021	20	907	768	190	0	167	193	0	175
V/C Ratio(X)	0.78	0.17	0.18	0.56	0.90	0.22	0.66	0.00	0.04	0.50	0.00	0.71
Avail Cap(c_a), veh/h	506	1261	1278	506	1327	1124	769	0	675	506	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.3	7.3	7.3	34.7	16.5	10.5	30.3	0.0	28.3	29.6	0.0	30.4
Incr Delay (d2), s/veh	3.0	0.0	0.0	9.0	4.5	0.1	1.5	0.0	0.0	0.7	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.1	1.1	0.2	11.5	1.4	2.1	0.0	0.1	1.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.2	7.4	7.4	43.7	21.0	10.5	31.8	0.0	28.4	30.3	0.0	32.4
LnGrp LOS	C	A	A	D	C	B	C	A	C	C	A	C
Approach Vol, veh/h		483			992			133			221	
Approach Delay, s/veh		14.5			19.5			31.6			31.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.5	38.8		10.6	3.8	44.5		11.5				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	20.0	50.0		20.0	20.0	50.0		30.0				
Max Q Clear Time (g_c+I1), s	7.0	29.9		7.3	2.4	5.4		6.7				
Green Ext Time (p_c), s	0.1	4.3		0.5	0.0	1.4		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		20.5	
HCM 6th LOS		C	

Intersection	
Intersection Delay, s/veh	25.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	364	207	245	230	2	91	2	174	4	2	6
Future Vol, veh/h	6	364	207	245	230	2	91	2	174	4	2	6
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	375	213	253	237	2	94	2	179	4	2	6
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	39.3	14.6	15	10.6
HCM LOS	E	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	1%	100%	0%	33%
Vol Thru, %	1%	63%	0%	99%	17%
Vol Right, %	65%	36%	0%	1%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	267	577	245	232	12
LT Vol	91	6	245	0	4
Through Vol	2	364	0	230	2
RT Vol	174	207	0	2	6
Lane Flow Rate	275	595	253	239	12
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.479	0.905	0.476	0.416	0.025
Departure Headway (Hd)	6.27	5.479	6.779	6.264	7.413
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	573	660	528	572	486
Service Time	4.348	3.54	4.556	4.04	5.413
HCM Lane V/C Ratio	0.48	0.902	0.479	0.418	0.025
HCM Control Delay	15	39.3	15.6	13.5	10.6
HCM Lane LOS	B	E	C	B	B
HCM 95th-tile Q	2.6	11.5	2.5	2	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	132	427	294	22	21	179
Future Vol, veh/h	132	427	294	22	21	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	140	454	313	23	22	190

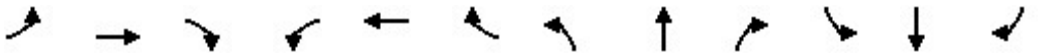
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	336	0	-	0	1059	325
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	734	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1223	-	-	-	249	716
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1223	-	-	-	211	716
Mov Cap-2 Maneuver	-	-	-	-	211	-
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	475	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1223	-	-	-	572
HCM Lane V/C Ratio	0.115	-	-	-	0.372
HCM Control Delay (s)	8.3	0	-	-	15
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	412	51	46	316	40	48	22
Act Effct Green (s)	7.3	28.0	28.0	7.5	29.3	9.6	9.6	9.4
Actuated g/C Ratio	0.14	0.55	0.55	0.15	0.58	0.19	0.19	0.18
v/c Ratio	0.06	0.40	0.06	0.18	0.30	0.12	0.14	0.06
Control Delay	29.0	16.9	5.1	30.6	15.7	24.8	4.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	16.9	5.1	30.6	15.7	24.8	4.9	0.3
LOS	C	B	A	C	B	C	A	A
Approach Delay		16.1			17.6	13.9		0.3
Approach LOS		B			B	B		A
Queue Length 50th (ft)	2	32	0	5	23	4	0	0
Queue Length 95th (ft)	30	359	21	67	291	51	17	0
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	1121	1459	1253	1121	1445	1121	1007	1116
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.28	0.04	0.04	0.22	0.04	0.05	0.02

Intersection Summary			
Cycle Length: 125.1			
Actuated Cycle Length: 50.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.40			
Intersection Signal Delay: 16.1		Intersection LOS: B	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	387	48	43	282	15	38	0	45	15	0	6
Future Volume (veh/h)	15	387	48	43	282	15	38	0	45	15	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	412	51	46	300	16	40	0	48	16	0	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	175	599	506	75	465	25	194	0	172	50	0	19
Arrive On Green	0.10	0.32	0.32	0.04	0.26	0.26	0.11	0.00	0.11	0.04	0.00	0.04
Sat Flow, veh/h	1781	1870	1578	1781	1759	94	1781	0	1577	1251	0	469
Grp Volume(v), veh/h	16	412	51	46	0	316	40	0	48	22	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1578	1781	0	1853	1781	0	1577	1720	0	0
Q Serve(g_s), s	0.3	5.9	0.7	0.8	0.0	4.7	0.6	0.0	0.9	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.3	5.9	0.7	0.8	0.0	4.7	0.6	0.0	0.9	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.73		0.27
Lane Grp Cap(c), veh/h	175	599	506	75	0	490	194	0	172	69	0	0
V/C Ratio(X)	0.09	0.69	0.10	0.61	0.00	0.65	0.21	0.00	0.28	0.32	0.00	0.00
Avail Cap(c_a), veh/h	865	2118	1787	1441	0	2098	1441	0	1276	1392	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	9.2	7.4	14.6	0.0	10.1	12.6	0.0	12.7	14.4	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	3.0	0.0	0.5	0.2	0.0	0.3	1.0	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	0.1	1.7	0.2	0.3	0.0	1.4	0.2	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	9.7	7.4	17.5	0.0	10.6	12.7	0.0	13.0	15.4	0.0	0.0
LnGrp LOS	B	A	A	B	A	B	B	A	B	B	A	A
Approach Vol, veh/h		479			362			88			22	
Approach Delay, s/veh		9.5			11.5			12.9			15.4	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	14.8		4.7	6.0	13.1		7.1				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	25.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	2.8	7.9		2.4	2.3	6.7		2.9				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.2		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		10.7	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	446	1	4	335	5	15
Future Vol, veh/h	446	1	4	335	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	485	1	4	364	5	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	486	0	858	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1077	-	327	581
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1077	-	325	581
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	485	-	-	1077	-
HCM Lane V/C Ratio	0.045	-	-	0.004	-
HCM Control Delay (s)	12.8	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

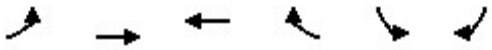
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	438	88	168	385	47	101
Act Effct Green (s)	17.8	27.0	9.6	33.5	8.5	19.4
Actuated g/C Ratio	0.37	0.57	0.20	0.70	0.18	0.41
v/c Ratio	0.63	0.10	0.47	0.29	0.15	0.14
Control Delay	18.3	1.5	24.3	4.7	22.8	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	1.5	24.3	4.7	22.8	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.5			10.6	9.6	
Approach LOS	B			B	A	
Queue Length 50th (ft)	103	0	42	43	11	0
Queue Length 95th (ft)	203	12	108	73	44	23
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1840	1443	985	1863	1181	1231
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.06	0.17	0.21	0.04	0.08

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 47.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	420	84	161	370	45	97
Future Volume (veh/h)	420	84	161	370	45	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	438	88	168	385	47	101
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	549	716	270	1032	294	502
Arrive On Green	0.29	0.29	0.15	0.55	0.17	0.17
Sat Flow, veh/h	1870	1547	1781	1870	1781	1585
Grp Volume(v), veh/h	438	88	168	385	47	101
Grp Sat Flow(s),veh/h/ln	1870	1547	1781	1870	1781	1585
Q Serve(g_s), s	8.3	1.3	3.4	4.5	0.9	1.8
Cycle Q Clear(g_c), s	8.3	1.3	3.4	4.5	0.9	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	549	716	270	1032	294	502
V/C Ratio(X)	0.80	0.12	0.62	0.37	0.16	0.20
Avail Cap(c_a), veh/h	2914	2673	1156	2914	1388	1475
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	12.5	6.0	15.3	4.9	13.8	9.6
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.3	1.2	0.9	0.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.6	6.0	16.2	5.0	13.9	9.7
LnGrp LOS	B	A	B	A	B	A
Approach Vol, veh/h	526			553	148	
Approach Delay, s/veh	12.3			8.4	11.0	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	9.9	17.1				27.0	11.5
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	25.0	60.0				60.0	30.0
Max Q Clear Time (g_c+I1), s	5.4	10.3				6.5	3.8
Green Ext Time (p_c), s	0.1	1.0				0.8	0.1

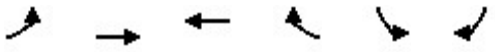
Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	214	318	255	396	703	344
Act Effct Green (s)	8.6	26.8	14.1	48.6	30.3	43.6
Actuated g/C Ratio	0.13	0.41	0.21	0.74	0.46	0.66
v/c Ratio	0.48	0.42	0.64	0.32	0.86	0.30
Control Delay	31.3	15.3	31.3	1.3	31.7	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	15.3	31.3	1.3	31.7	1.5
LOS	C	B	C	A	C	A
Approach Delay		21.8	13.1		21.8	
Approach LOS		C	B		C	
Queue Length 50th (ft)	40	87	93	5	230	0
Queue Length 95th (ft)	81	141	165	26	#578	30
Internal Link Dist (ft)		587	765		211	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1317	1819	1143	1254	815	1468
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.17	0.22	0.32	0.86	0.23

Intersection Summary	
Cycle Length: 107.7	
Actuated Cycle Length: 65.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 19.2	Intersection LOS: B
Intersection Capacity Utilization 67.3%	ICU Level of Service C
Analysis Period (min) 15	

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	208	308	247	384	682	334
Future Volume (veh/h)	208	308	247	384	682	334
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	214	318	255	396	703	344
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	351	719	377	1015	782	857
Arrive On Green	0.10	0.38	0.20	0.20	0.44	0.44
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	214	318	255	396	703	344
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	2.9	6.2	6.2	5.9	18.0	6.3
Cycle Q Clear(g_c), s	2.9	6.2	6.2	5.9	18.0	6.3
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	351	719	377	1015	782	857
V/C Ratio(X)	0.61	0.44	0.68	0.39	0.90	0.40
Avail Cap(c_a), veh/h	1755	1519	1519	1984	1085	1127
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	21.2	11.2	18.2	4.2	12.8	6.6
Incr Delay (d2), s/veh	0.6	0.2	0.8	0.1	6.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.2	2.5	0.0	6.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.8	11.4	19.0	4.3	19.1	6.8
LnGrp LOS	C	B	B	A	B	A
Approach Vol, veh/h		532	651		1047	
Approach Delay, s/veh		15.6	10.1		15.1	
Approach LOS		B	B		B	

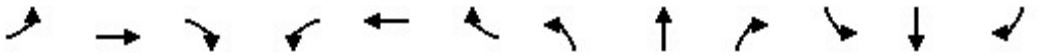
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.0		26.2	9.0	14.0
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		40.0		30.0	25.0	40.0
Max Q Clear Time (g_c+I1), s		8.2		20.0	4.9	8.2
Green Ext Time (p_c), s		1.3		1.6	0.4	1.7

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	108	902	27	396	112	129	34	217	171
Act Effct Green (s)	10.1	30.1	6.3	22.9	22.9	13.3	13.3	15.8	15.8
Actuated g/C Ratio	0.13	0.40	0.08	0.30	0.30	0.18	0.18	0.21	0.21
v/c Ratio	0.46	0.65	0.18	0.70	0.21	0.41	0.10	0.59	0.43
Control Delay	43.2	22.3	45.0	33.6	9.0	36.2	3.2	39.7	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.2	22.3	45.0	33.6	9.0	36.2	3.2	39.7	25.0
LOS	D	C	D	C	A	D	A	D	C
Approach Delay		24.5		29.1		29.3			33.2
Approach LOS		C		C		C			C
Queue Length 50th (ft)	45	140	11	157	6	53	0	86	40
Queue Length 95th (ft)	136	367	50	373	52	136	9	#265	146
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	525	2455	525	1317	1121	800	729	525	542
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.37	0.05	0.30	0.10	0.16	0.05	0.41	0.32

Intersection Summary	
Cycle Length: 134.7	
Actuated Cycle Length: 75.5	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	759	125	26	388	110	91	35	33	213	55	113
Future Volume (veh/h)	106	759	125	26	388	110	91	35	33	213	55	113
Initial Q (Qb), 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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	774	128	27	396	112	93	36	34	217	56	115
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1070	177	45	555	460	195	75	237	306	94	193
Arrive On Green	0.08	0.35	0.35	0.03	0.30	0.30	0.15	0.15	0.15	0.17	0.17	0.17
Sat Flow, veh/h	1781	3051	504	1781	1870	1549	1301	504	1580	1781	546	1121
Grp Volume(v), veh/h	108	451	451	27	396	112	129	0	34	217	0	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1779	1781	1870	1549	1805	0	1580	1781	0	1666
Q Serve(g_s), s	2.9	10.7	10.7	0.7	9.2	2.7	3.2	0.0	0.9	5.6	0.0	4.6
Cycle Q Clear(g_c), s	2.9	10.7	10.7	0.7	9.2	2.7	3.2	0.0	0.9	5.6	0.0	4.6
Prop In Lane	1.00		0.28	1.00		1.00	0.72		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	140	623	624	45	555	460	270	0	237	306	0	286
V/C Ratio(X)	0.77	0.72	0.72	0.60	0.71	0.24	0.48	0.00	0.14	0.71	0.00	0.60
Avail Cap(c_a), veh/h	734	1829	1831	734	1926	1595	1115	0	976	734	0	686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	13.7	13.7	23.4	15.2	12.9	18.9	0.0	17.9	19.0	0.0	18.6
Incr Delay (d2), s/veh	3.3	0.6	0.6	4.8	0.6	0.1	0.5	0.0	0.1	1.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.7	3.7	0.3	3.4	0.8	1.2	0.0	0.3	2.1	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	14.3	14.3	28.2	15.9	13.0	19.4	0.0	18.0	20.1	0.0	19.3
LnGrp LOS	C	B	B	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		1010			535			163			388	
Approach Delay, s/veh		15.5			15.9			19.1			19.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.8	19.0		11.3	4.2	21.6		11.4				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	20.0	50.0		20.0	20.0	50.0		30.0				
Max Q Clear Time (g_c+I1), s	4.9	11.2		7.6	2.7	12.7		5.2				
Green Ext Time (p_c), s	0.1	1.8		0.8	0.0	4.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Existing Conditions Roadway Analysis			Inputs												Results		
Segment	TOD	Direction	Volume	# of Lanes	Type	Speed Limit	Lane Width	Grade	Pavement Condition	Shoulder Width	Median Type	PHF	Total Trucks	Driver Pop	LOS	PTSF (%)	v/c
1	AM	EB	458	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	57.2	0.29
		WB	718	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	68.9	0.46
	PM	EB	430	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	55.5	0.27
		WB	468	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	57.7	0.3
2	AM	EB	513	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	59.1	0.33
		WB	627	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	64.5	0.4
	PM	EB	499	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	58.4	0.32
		WB	620	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	64.2	0.4

Appendix C

Analysis Worksheets for
Existing (2020) plus Proposed Project Conditions

Intersection	
Intersection Delay, s/veh	77.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	302	100	171	298	1	220	1	295	0	0	0
Future Vol, veh/h	0	302	100	171	298	1	220	1	295	0	0	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	382	127	216	377	1	278	1	373	0	0	0
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	58.8	30.4	134.8	0
HCM LOS	F	D	F	-

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	43%	0%	100%	0%	0%
Vol Thru, %	0%	75%	0%	100%	100%
Vol Right, %	57%	25%	0%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	516	402	171	299	0
LT Vol	220	0	171	0	0
Through Vol	1	302	0	298	0
RT Vol	295	100	0	1	0
Lane Flow Rate	653	509	216	378	0
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.213	0.958	0.486	0.797	0
Departure Headway (Hd)	6.687	7.513	8.823	8.302	9.977
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	549	489	411	439	0
Service Time	4.702	5.513	6.523	6.002	7.977
HCM Lane V/C Ratio	1.189	1.041	0.526	0.861	0
HCM Control Delay	134.8	58.8	19.6	36.5	13
HCM Lane LOS	F	F	C	E	N
HCM 95th-tile Q	24.3	11.9	2.6	7.1	0

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	182	419	349	15	41	118
Future Vol, veh/h	182	419	349	15	41	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	225	517	431	19	51	146

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	450	0	-	0	1408	441
Stage 1	-	-	-	-	441	-
Stage 2	-	-	-	-	967	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1110	-	-	-	153	616
Stage 1	-	-	-	-	648	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	1110	-	-	-	110	616
Mov Cap-2 Maneuver	-	-	-	-	110	-
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	369	-

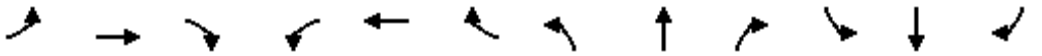
Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	42.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1110	-	-	-	282
HCM Lane V/C Ratio	0.202	-	-	-	0.696
HCM Control Delay (s)	9.1	0	-	-	42.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.8	-	-	-	4.8

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	365	311	424	351	169	241	32
Act Effct Green (s)	7.7	20.9	20.9	27.1	47.5	13.2	13.2	9.0
Actuated g/C Ratio	0.09	0.26	0.26	0.33	0.59	0.16	0.16	0.11
v/c Ratio	0.02	0.76	0.54	0.72	0.32	0.59	0.53	0.16
Control Delay	39.0	41.0	11.9	37.7	17.3	43.8	9.8	30.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.0	41.0	11.9	37.7	17.3	43.8	9.8	30.7
LOS	D	D	B	D	B	D	A	C
Approach Delay		27.7			28.5	23.8		30.7
Approach LOS		C			C	C		C
Queue Length 50th (ft)	2	166	28	188	74	79	0	10
Queue Length 95th (ft)	10	272	57	#416	261	147	18	31
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	591	871	847	591	1087	592	689	581
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.42	0.37	0.72	0.32	0.29	0.35	0.06

Intersection Summary	
Cycle Length: 125.1	
Actuated Cycle Length: 81.1	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 27.2	Intersection LOS: C
Intersection Capacity Utilization 53.6%	ICU Level of Service A
Analysis Period (min) 15	

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	259	221	301	244	5	117	3	171	11	4	8
Future Volume (veh/h)	3	259	221	301	244	5	117	3	171	11	4	8
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		0.97	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	365	311	424	344	7	165	4	241	15	6	11
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	513	472	390	475	422	9	343	8	309	42	17	31
Arrive On Green	0.29	0.25	0.25	0.27	0.23	0.23	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	1870	1545	1781	1825	37	1741	42	1569	801	320	588
Grp Volume(v), veh/h	4	365	311	424	0	351	169	0	241	32	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1545	1781	0	1863	1783	0	1569	1709	0	0
Q Serve(g_s), s	0.1	11.8	12.3	14.9	0.0	11.6	5.5	0.0	9.5	1.2	0.0	0.0
Cycle Q Clear(g_c), s	0.1	11.8	12.3	14.9	0.0	11.6	5.5	0.0	9.5	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	0.98		1.00	0.47		0.34
Lane Grp Cap(c), veh/h	513	472	390	475	0	431	351	0	309	89	0	0
V/C Ratio(X)	0.01	0.77	0.80	0.89	0.00	0.81	0.48	0.00	0.78	0.36	0.00	0.00
Avail Cap(c_a), veh/h	513	1004	829	683	0	1000	684	0	601	655	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	16.6	22.6	22.8	23.0	0.0	23.7	23.2	0.0	24.8	29.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.0	1.4	8.1	0.0	1.4	0.4	0.0	1.6	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.0	4.3	6.9	0.0	5.0	2.2	0.0	3.5	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.6	23.7	24.3	31.1	0.0	25.2	23.6	0.0	26.5	30.7	0.0	0.0
LnGrp LOS	B	C	C	C	A	C	C	A	C	C	A	A
Approach Vol, veh/h		680			775			410			32	
Approach Delay, s/veh		23.9			28.4			25.3			30.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	20.4	21.4		6.9	21.8	20.0		16.5				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	25.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	16.9	14.3		3.2	2.1	13.6		11.5				
Green Ext Time (p_c), s	0.5	2.0		0.1	0.0	1.3		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		26.2	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	436	6	19	559	6	16
Future Vol, veh/h	436	6	19	559	6	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	474	7	21	608	7	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	481	0	1128	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	650	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1082	-	226	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1082	-	219	587
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	505	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	403	-	-	1082	-
HCM Lane V/C Ratio	0.059	-	-	0.019	-
HCM Control Delay (s)	14.5	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

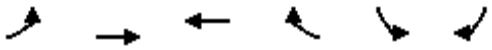
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	470	60	48	588	100	187
Act Effct Green (s)	17.5	17.5	7.4	30.8	8.7	17.7
Actuated g/C Ratio	0.38	0.38	0.16	0.68	0.19	0.39
v/c Ratio	0.65	0.09	0.17	0.47	0.30	0.26
Control Delay	17.5	3.7	21.9	6.7	21.5	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	3.7	21.9	6.7	21.5	3.3
LOS	B	A	C	A	C	A
Approach Delay	15.9			7.9	9.7	
Approach LOS	B			A	A	
Queue Length 50th (ft)	105	0	11	77	23	0
Queue Length 95th (ft)	177	15	42	135	65	27
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1550	1012	1863	1215	1301
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.05	0.32	0.08	0.14

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 45.5			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.2		Intersection LOS: B	
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	395	50	48	494	84	157
Future Volume (veh/h)	395	50	48	494	84	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	470	60	48	588	100	187
Peak Hour Factor	0.84	0.84	1.00	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	587	487	131	933	366	443
Arrive On Green	0.31	0.31	0.07	0.50	0.21	0.21
Sat Flow, veh/h	1870	1551	1781	1870	1781	1585
Grp Volume(v), veh/h	470	60	48	588	100	187
Grp Sat Flow(s),veh/h/ln	1870	1551	1781	1870	1781	1585
Q Serve(g_s), s	8.5	1.0	0.9	8.5	1.7	3.6
Cycle Q Clear(g_c), s	8.5	1.0	0.9	8.5	1.7	3.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	587	487	131	933	366	443
V/C Ratio(X)	0.80	0.12	0.37	0.63	0.27	0.42
Avail Cap(c_a), veh/h	3045	2526	1208	3045	1450	1407
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	11.6	9.0	16.2	6.8	12.3	10.8
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.3	0.3	2.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.6	9.1	16.9	7.0	12.5	11.1
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	530			636	287	
Approach Delay, s/veh	12.2			7.8	11.6	
Approach LOS	B			A	B	

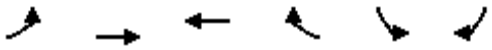
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	17.4				24.2	12.7
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	25.0	60.0				60.0	30.0
Max Q Clear Time (g_c+I1), s	2.9	10.5				10.5	5.6
Green Ext Time (p_c), s	0.0	1.1				1.4	0.2

Intersection Summary			
HCM 6th Ctrl Delay		10.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	410	253	411	640	241	247
Act Effct Green (s)	13.0	36.9	19.6	37.6	13.7	27.3
Actuated g/C Ratio	0.22	0.62	0.33	0.63	0.23	0.46
v/c Ratio	0.55	0.22	0.67	0.62	0.60	0.29
Control Delay	25.8	6.1	24.7	8.5	29.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.8	6.1	24.7	8.5	29.2	2.4
LOS	C	A	C	A	C	A
Approach Delay		18.3	14.8		15.6	
Approach LOS		B	B		B	
Queue Length 50th (ft)	64	32	119	87	74	0
Queue Length 95th (ft)	144	83	271	214	181	31
Internal Link Dist (ft)		587	765		74	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1525	1794	1324	1448	943	1152
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.14	0.31	0.44	0.26	0.21

Intersection Summary			
Cycle Length: 107.7			
Actuated Cycle Length: 59.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 16.0		Intersection LOS: B	
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	377	233	378	589	222	227
Future Volume (veh/h)	377	233	378	589	222	227
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	410	253	411	640	241	247
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	578	1196	731	911	327	556
Arrive On Green	0.17	0.64	0.39	0.39	0.18	0.18
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	410	253	411	640	241	247
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	5.5	2.8	8.4	14.2	6.3	5.9
Cycle Q Clear(g_c), s	5.5	2.8	8.4	14.2	6.3	5.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	578	1196	731	911	327	556
V/C Ratio(X)	0.71	0.21	0.56	0.70	0.74	0.44
Avail Cap(c_a), veh/h	1757	1521	1521	1581	1087	1232
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	19.4	3.7	11.7	7.5	18.9	12.3
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.4	1.2	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	2.0	0.6	2.9	12.5	2.4	5.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.0	3.7	12.0	7.8	20.2	12.5
LnGrp LOS	B	A	B	A	C	B
Approach Vol, veh/h		663	1051		488	
Approach Delay, s/veh		13.8	9.4		16.3	
Approach LOS		B	A		B	

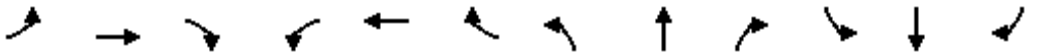
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		35.5		13.6	12.2	23.3
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		40.0		30.0	25.0	40.0
Max Q Clear Time (g_c+I1), s		4.8		8.3	7.5	16.2
Green Ext Time (p_c), s		1.0		0.8	0.7	3.0

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	358	11	814	168	126	7	96	126
Act Effct Green (s)	12.2	64.8	5.4	51.1	51.1	13.7	13.7	10.1	10.1
Actuated g/C Ratio	0.12	0.63	0.05	0.50	0.50	0.13	0.13	0.10	0.10
v/c Ratio	0.63	0.16	0.12	0.87	0.21	0.52	0.03	0.55	0.49
Control Delay	58.5	9.8	55.6	37.4	12.0	49.8	0.2	58.6	18.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.5	9.8	55.6	37.4	12.0	49.8	0.2	58.6	18.8
LOS	E	A	E	D	B	D	A	E	B
Approach Delay		23.0		33.3		47.2			36.0
Approach LOS		C		C		D			D
Queue Length 50th (ft)	80	37	7	419	31	76	0	58	9
Queue Length 95th (ft)	174	119	30	#1051	110	149	0	135	72
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	354	2213	354	931	807	539	518	354	412
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.16	0.03	0.87	0.21	0.23	0.01	0.27	0.31

Intersection Summary			
Cycle Length: 134.7			
Actuated Cycle Length: 102.1			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.87			
Intersection Signal Delay: 31.9		Intersection LOS: C	
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	291	35	10	741	153	83	32	6	87	14	101
Future Volume (veh/h)	121	291	35	10	741	153	83	32	6	87	14	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	320	38	11	814	168	91	35	7	96	15	111
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	170	1823	215	20	907	768	136	52	165	194	21	155
Arrive On Green	0.10	0.57	0.57	0.01	0.48	0.48	0.10	0.10	0.10	0.11	0.11	0.11
Sat Flow, veh/h	1781	3202	377	1781	1870	1583	1304	501	1585	1781	192	1422
Grp Volume(v), veh/h	133	176	182	11	814	168	126	0	7	96	0	126
Grp Sat Flow(s),veh/h/ln	1781	1777	1802	1781	1870	1583	1805	0	1585	1781	0	1614
Q Serve(g_s), s	5.2	3.4	3.4	0.4	28.3	4.4	4.8	0.0	0.3	3.6	0.0	5.4
Cycle Q Clear(g_c), s	5.2	3.4	3.4	0.4	28.3	4.4	4.8	0.0	0.3	3.6	0.0	5.4
Prop In Lane	1.00		0.21	1.00		1.00	0.72		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	170	1011	1026	20	907	768	188	0	165	194	0	176
V/C Ratio(X)	0.78	0.17	0.18	0.56	0.90	0.22	0.67	0.00	0.04	0.49	0.00	0.72
Avail Cap(c_a), veh/h	501	1248	1266	501	1314	1112	761	0	668	501	0	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	7.3	7.3	35.0	16.7	10.6	30.7	0.0	28.7	29.9	0.0	30.6
Incr Delay (d2), s/veh	3.0	0.0	0.0	9.1	4.7	0.1	1.5	0.0	0.0	0.7	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.1	1.1	0.2	11.7	1.4	2.1	0.0	0.1	1.5	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.4	7.4	7.4	44.1	21.5	10.6	32.2	0.0	28.7	30.6	0.0	32.7
LnGrp LOS	C	A	A	D	C	B	C	A	C	C	A	C
Approach Vol, veh/h		491			993			133			222	
Approach Delay, s/veh		14.7			19.9			32.0			31.8	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.8	39.1		10.7	3.8	45.1		11.5				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	20.0	50.0		20.0	20.0	50.0		30.0				
Max Q Clear Time (g_c+I1), s	7.2	30.3		7.4	2.4	5.4		6.8				
Green Ext Time (p_c), s	0.1	4.2		0.5	0.0	1.4		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		20.8	
HCM 6th LOS		C	

Intersection	
Intersection Delay, s/veh	26
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	367	207	246	232	2	91	2	176	4	2	6
Future Vol, veh/h	6	367	207	246	232	2	91	2	176	4	2	6
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	378	213	254	239	2	94	2	181	4	2	6
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	40.6	14.7	15.2	10.6
HCM LOS	E	B	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	34%	1%	100%	0%	33%
Vol Thru, %	1%	63%	0%	99%	17%
Vol Right, %	65%	36%	0%	1%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	269	580	246	234	12
LT Vol	91	6	246	0	4
Through Vol	2	367	0	232	2
RT Vol	176	207	0	2	6
Lane Flow Rate	277	598	254	241	12
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.484	0.913	0.479	0.421	0.026
Departure Headway (Hd)	6.284	5.494	6.796	6.281	7.449
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	569	658	528	569	483
Service Time	4.366	3.56	4.579	4.062	5.449
HCM Lane V/C Ratio	0.487	0.909	0.481	0.424	0.025
HCM Control Delay	15.2	40.6	15.7	13.6	10.6
HCM Lane LOS	C	E	C	B	B
HCM 95th-tile Q	2.6	11.8	2.6	2.1	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	132	431	297	22	21	179
Future Vol, veh/h	132	431	297	22	21	179
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	140	459	316	23	22	190

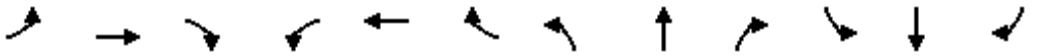
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	339	0	-	0	1067	328
Stage 1	-	-	-	-	328	-
Stage 2	-	-	-	-	739	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1220	-	-	-	246	713
Stage 1	-	-	-	-	730	-
Stage 2	-	-	-	-	472	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1220	-	-	-	208	713
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	472	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1220	-	-	-	568
HCM Lane V/C Ratio	0.115	-	-	-	0.375
HCM Control Delay (s)	8.3	0	-	-	15.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.7

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	417	51	46	319	40	49	22
Act Effct Green (s)	7.3	28.2	28.2	7.5	29.5	9.6	9.6	9.4
Actuated g/C Ratio	0.14	0.55	0.55	0.15	0.58	0.19	0.19	0.18
v/c Ratio	0.06	0.41	0.06	0.18	0.30	0.12	0.14	0.06
Control Delay	29.1	17.0	5.1	30.7	15.7	24.8	5.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.1	17.0	5.1	30.7	15.7	24.8	5.2	0.3
LOS	C	B	A	C	B	C	A	A
Approach Delay		16.1			17.5	14.0		0.3
Approach LOS		B			B	B		A
Queue Length 50th (ft)	2	32	0	5	23	5	0	0
Queue Length 95th (ft)	30	364	21	67	293	51	17	0
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	1118	1458	1253	1118	1444	1118	1004	1113
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.29	0.04	0.04	0.22	0.04	0.05	0.02

Intersection Summary			
Cycle Length: 125.1			
Actuated Cycle Length: 51			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.41			
Intersection Signal Delay: 16.1		Intersection LOS: B	
Intersection Capacity Utilization 43.4%		ICU Level of Service A	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	392	48	43	285	15	38	0	46	15	0	6
Future Volume (veh/h)	15	392	48	43	285	15	38	0	46	15	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	417	51	46	303	16	40	0	49	16	0	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	604	509	75	464	24	195	0	172	50	0	19
Arrive On Green	0.10	0.32	0.32	0.04	0.26	0.26	0.11	0.00	0.11	0.04	0.00	0.04
Sat Flow, veh/h	1781	1870	1578	1781	1760	93	1781	0	1577	1251	0	469
Grp Volume(v), veh/h	16	417	51	46	0	319	40	0	49	22	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1578	1781	0	1853	1781	0	1577	1720	0	0
Q Serve(g_s), s	0.3	6.0	0.7	0.8	0.0	4.8	0.6	0.0	0.9	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.0	0.7	0.8	0.0	4.8	0.6	0.0	0.9	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.73		0.27
Lane Grp Cap(c), veh/h	181	604	509	75	0	488	195	0	172	69	0	0
V/C Ratio(X)	0.09	0.69	0.10	0.61	0.00	0.65	0.21	0.00	0.28	0.32	0.00	0.00
Avail Cap(c_a), veh/h	859	2106	1776	1432	0	2086	1432	0	1268	1384	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	9.2	7.4	14.6	0.0	10.2	12.6	0.0	12.7	14.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	3.0	0.0	0.6	0.2	0.0	0.3	1.0	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	0.1	1.7	0.2	0.3	0.0	1.4	0.2	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	9.7	7.4	17.6	0.0	10.7	12.8	0.0	13.1	15.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	B	B	A	B	B	A	A
Approach Vol, veh/h		484			365			89			22	
Approach Delay, s/veh		9.6			11.6			12.9			15.5	
Approach LOS		A			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	14.9		4.7	6.2	13.1		7.1				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	25.0	35.0		25.0	15.0	35.0		25.0				
Max Q Clear Time (g_c+I1), s	2.8	8.0		2.4	2.3	6.8		2.9				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.3		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			10.8									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	6	17	335	8	23
Future Vol, veh/h	446	6	17	335	8	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	485	7	18	364	9	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	492	0	889	489
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1071	-	314	579
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1071	-	307	579
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	663	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	471	-	-	1071	-
HCM Lane V/C Ratio	0.072	-	-	0.017	-
HCM Control Delay (s)	13.2	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

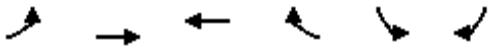
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	445	89	168	398	48	101
Act Effct Green (s)	18.0	27.2	9.6	33.7	8.5	19.4
Actuated g/C Ratio	0.38	0.57	0.20	0.70	0.18	0.41
v/c Ratio	0.64	0.10	0.47	0.30	0.15	0.14
Control Delay	18.4	1.6	24.3	4.7	23.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.4	1.6	24.3	4.7	23.0	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.6			10.5	9.7	
Approach LOS	B			B	A	
Queue Length 50th (ft)	105	0	43	45	12	0
Queue Length 95th (ft)	209	12	108	76	45	23
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1839	1441	979	1863	1175	1224
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.06	0.17	0.21	0.04	0.08

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 47.9			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	427	85	161	382	46	97
Future Volume (veh/h)	427	85	161	382	46	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	445	89	168	398	48	101
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	556	721	269	1036	294	501
Arrive On Green	0.30	0.30	0.15	0.55	0.16	0.16
Sat Flow, veh/h	1870	1547	1781	1870	1781	1585
Grp Volume(v), veh/h	445	89	168	398	48	101
Grp Sat Flow(s),veh/h/ln	1870	1547	1781	1870	1781	1585
Q Serve(g_s), s	8.5	1.3	3.4	4.7	0.9	1.8
Cycle Q Clear(g_c), s	8.5	1.3	3.4	4.7	0.9	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	556	721	269	1036	294	501
V/C Ratio(X)	0.80	0.12	0.62	0.38	0.16	0.20
Avail Cap(c_a), veh/h	2895	2657	1149	2895	1379	1466
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	12.6	6.0	15.4	4.9	13.9	9.7
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.3	1.2	1.0	0.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.6	6.0	16.3	5.0	14.0	9.8
LnGrp LOS	B	A	B	A	B	A
Approach Vol, veh/h	534			566	149	
Approach Delay, s/veh	12.3			8.3	11.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.0	17.3				27.3	11.5
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	25.0	60.0				60.0	30.0
Max Q Clear Time (g_c+I1), s	5.4	10.5				6.7	3.8
Green Ext Time (p_c), s	0.1	1.0				0.9	0.1

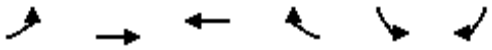
Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	216	323	263	396	703	348
Act Effct Green (s)	8.6	27.1	14.4	48.9	30.3	43.6
Actuated g/C Ratio	0.13	0.41	0.22	0.74	0.46	0.66
v/c Ratio	0.48	0.42	0.65	0.32	0.87	0.30
Control Delay	31.5	15.3	31.5	1.4	32.3	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	15.3	31.5	1.4	32.3	1.6
LOS	C	B	C	A	C	A
Approach Delay		21.8	13.4		22.1	
Approach LOS		C	B		C	
Queue Length 50th (ft)	41	89	96	6	234	0
Queue Length 95th (ft)	82	143	171	27	#579	31
Internal Link Dist (ft)		587	765		211	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1310	1818	1137	1253	810	1463
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.18	0.23	0.32	0.87	0.24

Intersection Summary	
Cycle Length: 107.7	
Actuated Cycle Length: 66.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.87	
Intersection Signal Delay: 19.5	Intersection LOS: B
Intersection Capacity Utilization 67.8%	ICU Level of Service C
Analysis Period (min) 15	

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	210	313	255	384	682	338
Future Volume (veh/h)	210	313	255	384	682	338
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	216	323	263	396	703	348
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	352	724	384	1020	781	856
Arrive On Green	0.10	0.39	0.21	0.21	0.44	0.44
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	216	323	263	396	703	348
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	3.0	6.4	6.5	5.9	18.3	6.5
Cycle Q Clear(g_c), s	3.0	6.4	6.5	5.9	18.3	6.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	352	724	384	1020	781	856
V/C Ratio(X)	0.61	0.45	0.69	0.39	0.90	0.41
Avail Cap(c_a), veh/h	1731	1499	1499	1966	1071	1115
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	21.5	11.3	18.3	4.2	13.0	6.8
Incr Delay (d2), s/veh	0.6	0.2	0.8	0.1	6.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.2	2.6	7.5	7.1	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.1	11.5	19.2	4.3	19.7	6.9
LnGrp LOS	C	B	B	A	B	A
Approach Vol, veh/h		539	659		1051	
Approach Delay, s/veh		15.7	10.2		15.4	
Approach LOS		B	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		23.4		26.5	9.1	14.3
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		40.0		30.0	25.0	40.0
Max Q Clear Time (g_c+I1), s		8.4		20.3	5.0	8.5
Green Ext Time (p_c), s		1.3		1.6	0.4	1.8

Intersection Summary		
HCM 6th Ctrl Delay		14.0
HCM 6th LOS		B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	110	905	27	399	112	129	34	217	175
Act Effct Green (s)	10.3	30.4	6.3	23.2	23.2	13.3	13.3	15.8	15.8
Actuated g/C Ratio	0.14	0.40	0.08	0.31	0.31	0.18	0.18	0.21	0.21
v/c Ratio	0.46	0.65	0.18	0.70	0.21	0.41	0.10	0.59	0.44
Control Delay	43.4	22.2	45.3	33.8	9.1	36.4	3.2	39.9	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.4	22.2	45.3	33.8	9.1	36.4	3.2	39.9	25.0
LOS	D	C	D	C	A	D	A	D	C
Approach Delay		24.5		29.2		29.5			33.3
Approach LOS		C		C		C			C
Queue Length 50th (ft)	46	141	12	158	6	54	0	87	40
Queue Length 95th (ft)	139	368	51	378	52	137	9	#268	149
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	523	2447	523	1313	1117	796	726	523	541
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.37	0.05	0.30	0.10	0.16	0.05	0.41	0.32

Intersection Summary	
Cycle Length: 134.7	
Actuated Cycle Length: 75.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.70	
Intersection Signal Delay: 27.7	Intersection LOS: C
Intersection Capacity Utilization 61.5%	ICU Level of Service B
Analysis Period (min) 15	

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	761	125	26	391	110	91	35	33	213	55	117
Future Volume (veh/h)	108	761	125	26	391	110	91	35	33	213	55	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	777	128	27	399	112	93	36	34	217	56	119
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	1073	177	45	554	459	194	75	236	306	92	195
Arrive On Green	0.08	0.35	0.35	0.03	0.30	0.30	0.15	0.15	0.15	0.17	0.17	0.17
Sat Flow, veh/h	1781	3053	503	1781	1870	1549	1301	504	1580	1781	533	1132
Grp Volume(v), veh/h	110	452	453	27	399	112	129	0	34	217	0	175
Grp Sat Flow(s),veh/h/ln	1781	1777	1779	1781	1870	1549	1805	0	1580	1781	0	1664
Q Serve(g_s), s	2.9	10.8	10.8	0.7	9.3	2.7	3.2	0.0	0.9	5.6	0.0	4.7
Cycle Q Clear(g_c), s	2.9	10.8	10.8	0.7	9.3	2.7	3.2	0.0	0.9	5.6	0.0	4.7
Prop In Lane	1.00		0.28	1.00		1.00	0.72		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	143	624	625	45	554	459	270	0	236	306	0	286
V/C Ratio(X)	0.77	0.72	0.72	0.60	0.72	0.24	0.48	0.00	0.14	0.71	0.00	0.61
Avail Cap(c_a), veh/h	732	1825	1827	732	1921	1591	1113	0	974	732	0	684
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.9	13.7	13.7	23.5	15.3	13.0	19.0	0.0	18.0	19.0	0.0	18.6
Incr Delay (d2), s/veh	3.2	0.6	0.6	4.8	0.7	0.1	0.5	0.0	0.1	1.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	3.7	3.7	0.3	3.5	0.8	1.2	0.0	0.3	2.2	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	14.3	14.3	28.3	16.0	13.1	19.5	0.0	18.1	20.1	0.0	19.4
LnGrp LOS	C	B	B	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		1015			538			163			392	
Approach Delay, s/veh		15.5			16.0			19.2			19.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	19.0		11.4	4.2	21.7		11.4				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	20.0	50.0		20.0	20.0	50.0		30.0				
Max Q Clear Time (g_c+I1), s	4.9	11.3		7.6	2.7	12.8		5.2				
Green Ext Time (p_c), s	0.1	1.8		0.8	0.0	4.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		16.7	
HCM 6th LOS		B	

Existing Plus Project Conditions Roadway Analysis			Inputs												Results		
Segment	TOD	Direction	Volume	# of Lanes	Type	Speed Limit	Lane Width	Grade	Pavement Condition	Shoulder Width	Median Type	PHF	Total Trucks	Driver Pop	LOS	PTSF (%)	v/c
1	AM	EB	459	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	57.2	0.29
		WB	723	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	69	0.46
	PM	EB	435	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	55.8	0.28
		WB	471	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	57.9	0.3
2	AM	EB	525	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	59.8	0.34
		WB	631	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	64.7	0.4
	PM	EB	507	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	58.8	0.32
		WB	633	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	64.7	0.4

Appendix D

Analysis Worksheets for
Near-Term (2030) Project Conditions

Intersection	
Intersection Delay, s/veh	86.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	321	102	179	296	5	220	1	310	0	0	0
Future Vol, veh/h	0	321	102	179	296	5	220	1	310	0	0	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	406	129	227	375	6	278	1	392	0	0	0
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	75.4	31.2	145.7	0
HCM LOS	F	D	F	-

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	41%	0%	100%	0%	0%
Vol Thru, %	0%	76%	0%	98%	100%
Vol Right, %	58%	24%	0%	2%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	531	423	179	301	0
LT Vol	220	0	179	0	0
Through Vol	1	321	0	296	0
RT Vol	310	102	0	5	0
Lane Flow Rate	672	535	227	381	0
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.24	1.024	0.509	0.8	0
Departure Headway (Hd)	6.79	7.591	8.992	8.46	10.258
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	538	482	403	431	0
Service Time	4.79	5.591	6.692	6.16	8.258
HCM Lane V/C Ratio	1.249	1.11	0.563	0.884	0
HCM Control Delay	145.7	75.4	20.7	37.4	13.3
HCM Lane LOS	F	F	C	E	N
HCM 95th-tile Q	25.6	14.2	2.8	7.2	0

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	184	452	359	15	41	119
Future Vol, veh/h	184	452	359	15	41	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	227	558	443	19	51	147

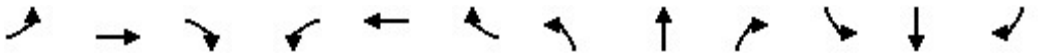
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	462	0	-	0	1465	453
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	1012	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1099	-	-	-	141	607
Stage 1	-	-	-	-	640	-
Stage 2	-	-	-	-	351	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1099	-	-	-	99	607
Mov Cap-2 Maneuver	-	-	-	-	99	-
Stage 1	-	-	-	-	449	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	51.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1099	-	-	-	262
HCM Lane V/C Ratio	0.207	-	-	-	0.754
HCM Control Delay (s)	9.1	0	-	-	51.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	5.5

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	397	325	430	349	184	255	32
Act Effct Green (s)	7.1	25.1	25.1	29.0	53.6	14.5	14.5	9.2
Actuated g/C Ratio	0.08	0.28	0.28	0.33	0.60	0.16	0.16	0.10
v/c Ratio	0.03	0.75	0.55	0.74	0.31	0.63	0.54	0.17
Control Delay	44.0	42.9	15.5	39.9	16.4	49.3	9.9	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	42.9	15.5	39.9	16.4	49.3	9.9	33.5
LOS	D	D	B	D	B	D	A	C
Approach Delay		30.6			29.4	26.4		33.5
Approach LOS		C			C	C		C
Queue Length 50th (ft)	2	214	49	225	78	106	0	12
Queue Length 95th (ft)	11	322	89	349	253	163	18	32
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	141	686	705	695	1340	523	646	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.58	0.46	0.62	0.26	0.35	0.39	0.06

Intersection Summary	
Cycle Length: 125.1	
Actuated Cycle Length: 88.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 29.2	Intersection LOS: C
Intersection Capacity Utilization 56.1%	ICU Level of Service B
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	282	231	305	243	5	128	3	181	11	4	8
Future Volume (veh/h)	3	282	231	305	243	5	128	3	181	11	4	8
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		0.97	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	397	325	430	342	7	180	4	255	15	6	11
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	534	485	400	480	418	9	353	8	318	41	17	30
Arrive On Green	0.30	0.26	0.26	0.27	0.23	0.23	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	1870	1545	1781	1825	37	1744	39	1569	801	320	587
Grp Volume(v), veh/h	4	397	325	430	0	349	184	0	255	32	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1545	1781	0	1862	1783	0	1569	1708	0	0
Q Serve(g_s), s	0.1	13.9	13.7	16.2	0.0	12.4	6.4	0.0	10.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.1	13.9	13.7	16.2	0.0	12.4	6.4	0.0	10.8	1.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	0.98		1.00	0.47		0.34
Lane Grp Cap(c), veh/h	534	485	400	480	0	426	361	0	318	88	0	0
V/C Ratio(X)	0.01	0.82	0.81	0.90	0.00	0.82	0.51	0.00	0.80	0.36	0.00	0.00
Avail Cap(c_a), veh/h	534	806	666	819	0	1553	615	0	541	589	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.1	24.2	24.2	24.5	0.0	25.5	24.7	0.0	26.4	31.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	1.5	3.7	0.0	1.5	0.4	0.0	1.8	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.9	4.9	6.9	0.0	5.3	2.6	0.0	4.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.1	25.6	25.7	28.2	0.0	27.0	25.1	0.0	28.2	32.8	0.0	0.0
LnGrp LOS	B	C	C	C	A	C	C	A	C	C	A	A
Approach Vol, veh/h		726			779			439			32	
Approach Delay, s/veh		25.6			27.7			26.9			32.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.8	22.9		7.1	23.9	20.8		17.8				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	32.0	30.0		24.0	4.0	58.0		24.0				
Max Q Clear Time (g_c+I1), s	18.2	15.9		3.3	2.1	14.4		12.8				
Green Ext Time (p_c), s	0.6	2.0		0.1	0.0	1.4		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		26.8	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	436	5	15	559	1	4
Future Vol, veh/h	436	5	15	559	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	474	5	16	608	1	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	479	0	1117	477
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	640	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1083	-	229	588
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1083	-	224	588
Mov Cap-2 Maneuver	-	-	-	-	224	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	513	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	444	-	-	1083	-
HCM Lane V/C Ratio	0.012	-	-	0.015	-
HCM Control Delay (s)	13.2	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

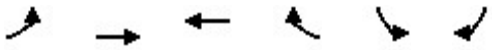
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	457	58	48	585	100	187
Act Effct Green (s)	17.3	17.3	7.3	30.5	8.6	17.4
Actuated g/C Ratio	0.38	0.38	0.16	0.68	0.19	0.39
v/c Ratio	0.64	0.09	0.17	0.46	0.30	0.26
Control Delay	16.9	3.6	21.7	6.6	21.5	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	3.6	21.7	6.6	21.5	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.4			7.8	9.7	
Approach LOS	B			A	A	
Queue Length 50th (ft)	101	0	11	77	23	0
Queue Length 95th (ft)	164	14	42	128	65	27
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1551	772	1863	936	1111
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.06	0.31	0.11	0.17

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 45			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	384	49	48	491	84	157
Future Volume (veh/h)	384	49	48	491	84	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	457	58	48	585	100	187
Peak Hour Factor	0.84	0.84	1.00	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	575	477	132	923	370	446
Arrive On Green	0.31	0.31	0.07	0.49	0.21	0.21
Sat Flow, veh/h	1870	1551	1781	1870	1781	1585
Grp Volume(v), veh/h	457	58	48	585	100	187
Grp Sat Flow(s),veh/h/ln	1870	1551	1781	1870	1781	1585
Q Serve(g_s), s	8.2	1.0	0.9	8.4	1.7	3.5
Cycle Q Clear(g_c), s	8.2	1.0	0.9	8.4	1.7	3.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	575	477	132	923	370	446
V/C Ratio(X)	0.80	0.12	0.36	0.63	0.27	0.42
Avail Cap(c_a), veh/h	3755	3115	923	4935	1119	1113
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	11.6	9.1	16.1	6.8	12.1	10.7
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.3	0.3	2.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.5	9.1	16.7	7.1	12.3	10.9
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	515			633	287	
Approach Delay, s/veh	12.2			7.8	11.4	
Approach LOS	B			A	B	

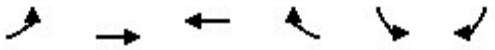
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	17.0				23.8	12.7
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	18.9	73.2				96.2	22.9
Max Q Clear Time (g_c+I1), s	2.9	10.2				10.4	5.5
Green Ext Time (p_c), s	0.0	1.0				1.4	0.1

Intersection Summary			
HCM 6th Ctrl Delay		10.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	436	262	409	640	241	268
Act Effct Green (s)	13.2	36.7	19.2	37.3	13.7	27.6
Actuated g/C Ratio	0.22	0.61	0.32	0.62	0.23	0.46
v/c Ratio	0.57	0.23	0.68	0.63	0.59	0.31
Control Delay	25.9	6.1	25.4	9.7	29.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	6.1	25.4	9.7	29.0	2.4
LOS	C	A	C	A	C	A
Approach Delay		18.5	15.8		15.0	
Approach LOS		B	B		B	
Queue Length 50th (ft)	68	34	118	100	73	0
Queue Length 95th (ft)	152	86	272	243	182	32
Internal Link Dist (ft)		587	765		74	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1286	1780	1375	1471	1023	1069
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.15	0.30	0.44	0.24	0.25

Intersection Summary			
Cycle Length: 107.7			
Actuated Cycle Length: 59.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	401	241	376	589	222	247
Future Volume (veh/h)	401	241	376	589	222	247
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	436	262	409	640	241	268
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	599	1199	727	911	332	570
Arrive On Green	0.17	0.64	0.39	0.39	0.19	0.19
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	436	262	409	640	241	268
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	6.0	2.9	8.6	14.5	6.4	6.6
Cycle Q Clear(g_c), s	6.0	2.9	8.6	14.5	6.4	6.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	599	1199	727	911	332	570
V/C Ratio(X)	0.73	0.22	0.56	0.70	0.73	0.47
Avail Cap(c_a), veh/h	1441	2473	1545	1604	1146	1294
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	3.8	12.1	7.6	19.3	12.4
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.4	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.7	3.0	12.8	2.5	6.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.3	3.8	12.3	8.0	20.4	12.7
LnGrp LOS	C	A	B	A	C	B
Approach Vol, veh/h		698	1049		509	
Approach Delay, s/veh		14.1	9.7		16.3	
Approach LOS		B	A		B	

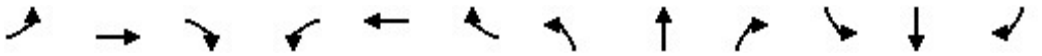
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.4		14.0	12.7	23.7
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		66.6		32.4	21.0	41.6
Max Q Clear Time (g_c+I1), s		4.9		8.6	8.0	16.5
Green Ext Time (p_c), s		1.0		0.8	0.7	3.1

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	133	363	11	813	300	126	7	99	125
Act Effct Green (s)	11.6	61.7	4.2	48.0	48.0	14.1	14.1	9.4	9.4
Actuated g/C Ratio	0.12	0.63	0.04	0.49	0.49	0.14	0.14	0.10	0.10
v/c Ratio	0.64	0.17	0.15	0.90	0.36	0.49	0.02	0.59	0.49
Control Delay	61.9	8.5	61.0	37.5	8.9	48.7	0.2	63.9	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	8.5	61.0	37.5	8.9	48.7	0.2	63.9	20.9
LOS	E	A	E	D	A	D	A	E	C
Approach Delay		22.8		30.1		46.1			39.9
Approach LOS		C		C		D			D
Queue Length 50th (ft)	79	39	7	429	48	75	0	59	9
Queue Length 95th (ft)	#235	101	31	#835	132	153	0	#182	78
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	227	2746	75	1352	1165	578	567	189	271
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.13	0.15	0.60	0.26	0.22	0.01	0.52	0.46

Intersection Summary			
Cycle Length: 134.7			
Actuated Cycle Length: 98.5			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 30.5		Intersection LOS: C	
Intersection Capacity Utilization 69.2%		ICU Level of Service C	
Analysis Period (min) 15			

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	121	296	35	10	740	273	83	32	6	90	14	100
Future Volume (veh/h)	121	296	35	10	740	273	83	32	6	90	14	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	325	38	11	813	300	91	35	7	99	15	110
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	169	1841	214	20	917	776	136	52	165	186	20	148
Arrive On Green	0.09	0.57	0.57	0.01	0.49	0.49	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3208	372	1781	1870	1583	1304	501	1585	1781	194	1421
Grp Volume(v), veh/h	133	179	184	11	813	300	126	0	7	99	0	125
Grp Sat Flow(s),veh/h/ln	1781	1777	1803	1781	1870	1583	1805	0	1585	1781	0	1615
Q Serve(g_s), s	5.2	3.4	3.4	0.4	27.9	8.5	4.8	0.0	0.3	3.8	0.0	5.3
Cycle Q Clear(g_c), s	5.2	3.4	3.4	0.4	27.9	8.5	4.8	0.0	0.3	3.8	0.0	5.3
Prop In Lane	1.00		0.21	1.00		1.00	0.72		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	169	1020	1035	20	917	776	188	0	165	186	0	168
V/C Ratio(X)	0.79	0.18	0.18	0.56	0.89	0.39	0.67	0.00	0.04	0.53	0.00	0.74
Avail Cap(c_a), veh/h	300	1898	1926	100	1787	1513	761	0	668	250	0	227
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.5	7.2	7.2	35.0	16.4	11.4	30.7	0.0	28.7	30.2	0.0	30.9
Incr Delay (d2), s/veh	3.1	0.0	0.0	9.1	1.2	0.1	1.5	0.0	0.0	0.9	0.0	5.1
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	2.3	1.1	1.1	0.2	10.7	2.7	2.1	0.0	0.1	1.6	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	7.2	7.2	44.1	17.6	11.5	32.2	0.0	28.7	31.1	0.0	36.1
LnGrp LOS	C	A	A	D	B	B	C	A	C	C	A	D
Approach Vol, veh/h		496			1124			133			224	
Approach Delay, s/veh		14.6			16.2			32.0			33.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	39.5		10.4	3.8	45.4		11.5				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	12.0	68.0		10.0	4.0	76.0		30.0				
Max Q Clear Time (g_c+I1), s	7.2	29.9		7.3	2.4	5.4		6.8				
Green Ext Time (p_c), s	0.1	5.0		0.2	0.0	1.5		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		18.9	
HCM 6th LOS		B	

Intersection	
Intersection Delay, s/veh	27.4
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	364	207	270	230	21	95	2	187	4	2	6
Future Vol, veh/h	6	364	207	270	230	21	95	2	187	4	2	6
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	375	213	278	237	22	98	2	193	4	2	6
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	43.6	15.9	16.1	10.8
HCM LOS	E	C	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	1%	100%	0%	33%
Vol Thru, %	1%	63%	0%	92%	17%
Vol Right, %	66%	36%	0%	8%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	284	577	270	251	12
LT Vol	95	6	270	0	4
Through Vol	2	364	0	230	2
RT Vol	187	207	0	21	6
Lane Flow Rate	293	595	278	259	12
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.517	0.927	0.533	0.454	0.026
Departure Headway (Hd)	6.362	5.611	6.889	6.319	7.643
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	562	642	521	567	471
Service Time	4.447	3.684	4.679	4.109	5.643
HCM Lane V/C Ratio	0.521	0.927	0.534	0.457	0.025
HCM Control Delay	16.1	43.6	17.4	14.3	10.8
HCM Lane LOS	C	E	C	B	B
HCM 95th-tile Q	3	12.2	3.1	2.4	0.1

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	134	437	334	22	22	180
Future Vol, veh/h	134	437	334	22	22	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	143	465	355	23	23	191

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	378	0	-	0	1118	367
Stage 1	-	-	-	-	367	-
Stage 2	-	-	-	-	751	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1180	-	-	-	229	678
Stage 1	-	-	-	-	701	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1180	-	-	-	192	678
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	466	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	16.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1180	-	-	-	531
HCM Lane V/C Ratio	0.121	-	-	-	0.405
HCM Control Delay (s)	8.5	0	-	-	16.3
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	1.9

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	412	65	62	347	52	61	22
Act Effct Green (s)	7.0	26.6	26.6	7.9	30.9	9.7	9.7	9.4
Actuated g/C Ratio	0.13	0.51	0.51	0.15	0.59	0.19	0.19	0.18
v/c Ratio	0.07	0.43	0.08	0.23	0.32	0.16	0.16	0.05
Control Delay	31.7	18.4	1.6	31.7	14.9	26.3	1.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	18.4	1.6	31.7	14.9	26.3	1.1	0.2
LOS	C	B	A	C	B	C	A	A
Approach Delay		16.6			17.5	12.7		0.2
Approach LOS		B			B	B		A
Queue Length 50th (ft)	3	65	0	11	25	9	0	0
Queue Length 95th (ft)	31	361	10	86	312	65	3	0
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	249	1622	1392	481	1662	1108	1012	1068
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.25	0.05	0.13	0.21	0.05	0.06	0.02

Intersection Summary			
Cycle Length: 125.1			
Actuated Cycle Length: 52.2			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.43			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 43.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	387	61	58	311	15	49	0	57	15	0	6
Future Volume (veh/h)	15	387	61	58	311	15	49	0	57	15	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	412	65	62	331	16	52	0	61	16	0	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	165	594	501	94	491	24	221	0	195	50	0	19
Arrive On Green	0.09	0.32	0.32	0.05	0.28	0.28	0.12	0.00	0.12	0.04	0.00	0.04
Sat Flow, veh/h	1781	1870	1578	1781	1769	86	1781	0	1576	1251	0	469
Grp Volume(v), veh/h	16	412	65	62	0	347	52	0	61	22	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1578	1781	0	1854	1781	0	1576	1720	0	0
Q Serve(g_s), s	0.3	6.2	1.0	1.1	0.0	5.4	0.9	0.0	1.1	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.2	1.0	1.1	0.0	5.4	0.9	0.0	1.1	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.73		0.27
Lane Grp Cap(c), veh/h	165	594	501	94	0	515	221	0	195	68	0	0
V/C Ratio(X)	0.10	0.69	0.13	0.66	0.00	0.67	0.24	0.00	0.31	0.32	0.00	0.00
Avail Cap(c_a), veh/h	275	2868	2419	605	0	3187	1390	0	1231	1274	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.5	9.7	7.9	15.1	0.0	10.4	12.8	0.0	12.9	15.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.5	0.0	2.9	0.0	0.6	0.2	0.0	0.3	1.0	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	0.1	1.8	0.2	0.4	0.0	1.6	0.3	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	10.2	7.9	18.0	0.0	11.0	13.0	0.0	13.3	16.1	0.0	0.0
LnGrp LOS	B	B	A	B	A	B	B	A	B	B	A	A
Approach Vol, veh/h		493			409			113			22	
Approach Delay, s/veh		10.0			12.0			13.2			16.1	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	15.2		4.8	6.0	13.9		7.7				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	11.0	49.7		24.0	5.0	55.7		25.3				
Max Q Clear Time (g_c+I1), s	3.1	8.2		2.4	2.3	7.4		3.1				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	1.4		0.2				

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

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	1	4	335	5	15
Future Vol, veh/h	446	1	4	335	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	485	1	4	364	5	16

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	486	0	858	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	372	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1077	-	327	581
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	697	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1077	-	325	581
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	618	-
Stage 2	-	-	-	-	694	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	485	-	-	1077	-
HCM Lane V/C Ratio	0.045	-	-	0.004	-
HCM Control Delay (s)	12.8	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

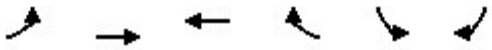
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	438	88	169	385	47	101
Act Effct Green (s)	17.6	26.9	9.3	33.1	8.5	19.2
Actuated g/C Ratio	0.37	0.57	0.20	0.70	0.18	0.41
v/c Ratio	0.63	0.10	0.48	0.30	0.15	0.14
Control Delay	18.2	1.5	24.6	4.7	22.6	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.2	1.5	24.6	4.7	22.6	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.4			10.8	9.5	
Approach LOS	B			B	A	
Queue Length 50th (ft)	102	0	42	43	11	0
Queue Length 95th (ft)	201	12	109	73	44	23
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1118	1250	1863	590	1442
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.08	0.14	0.21	0.08	0.07

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 47.3			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	420	84	162	370	45	97
Future Volume (veh/h)	420	84	162	370	45	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	438	88	169	385	47	101
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	549	716	271	1032	294	502
Arrive On Green	0.29	0.29	0.15	0.55	0.17	0.17
Sat Flow, veh/h	1870	1547	1781	1870	1781	1585
Grp Volume(v), veh/h	438	88	169	385	47	101
Grp Sat Flow(s),veh/h/ln	1870	1547	1781	1870	1781	1585
Q Serve(g_s), s	8.3	1.3	3.4	4.5	0.9	1.8
Cycle Q Clear(g_c), s	8.3	1.3	3.4	4.5	0.9	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	549	716	271	1032	294	502
V/C Ratio(X)	0.80	0.12	0.62	0.37	0.16	0.20
Avail Cap(c_a), veh/h	3311	3001	1475	5059	689	854
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	12.5	6.0	15.3	4.9	13.8	9.6
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.3	1.2	0.9	0.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.6	6.0	16.2	5.0	13.9	9.7
LnGrp LOS	B	A	B	A	B	A
Approach Vol, veh/h	526			554	148	
Approach Delay, s/veh	12.3			8.4	11.0	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.0	17.1				27.1	11.5
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	31.9	68.2				104.2	14.9
Max Q Clear Time (g_c+I1), s	5.4	10.3				6.5	3.8
Green Ext Time (p_c), s	0.1	1.0				0.8	0.1

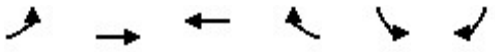
Intersection Summary		
HCM 6th Ctrl Delay		10.4
HCM 6th LOS		B



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	235	318	271	396	703	384
Act Effct Green (s)	9.4	29.7	16.0	54.9	34.5	48.8
Actuated g/C Ratio	0.13	0.40	0.22	0.75	0.47	0.66
v/c Ratio	0.54	0.42	0.67	0.33	0.85	0.34
Control Delay	40.0	20.3	37.8	3.3	28.3	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	20.3	37.8	3.3	28.3	2.6
LOS	D	C	D	A	C	A
Approach Delay		28.7	17.3		19.2	
Approach LOS		C	B		B	
Queue Length 50th (ft)	50	96	110	41	260	14
Queue Length 95th (ft)	#134	240	250	62	502	56
Internal Link Dist (ft)		587	765		211	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	505	1139	756	1505	1411	1169
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.28	0.36	0.26	0.50	0.33

Intersection Summary	
Cycle Length: 107.7	
Actuated Cycle Length: 73.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 68.7%	ICU Level of Service C
Analysis Period (min) 15	

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	228	308	263	384	682	372
Future Volume (veh/h)	228	308	263	384	682	372
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	318	271	396	703	384
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	360	727	386	1027	787	865
Arrive On Green	0.10	0.39	0.21	0.21	0.44	0.44
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	235	318	271	396	703	384
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	3.4	6.4	6.9	6.0	18.7	7.4
Cycle Q Clear(g_c), s	3.4	6.4	6.9	6.0	18.7	7.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	360	727	386	1027	787	865
V/C Ratio(X)	0.65	0.44	0.70	0.39	0.89	0.44
Avail Cap(c_a), veh/h	674	1517	1006	1553	1994	1939
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	11.5	18.9	4.2	13.2	7.0
Incr Delay (d2), s/veh	0.7	0.2	0.9	0.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.3	2.8	7.6	6.2	8.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.8	11.7	19.8	4.3	14.7	7.1
LnGrp LOS	C	B	B	A	B	A
Approach Vol, veh/h		553	667		1087	
Approach Delay, s/veh		16.4	10.6		12.0	
Approach LOS		B	B		B	

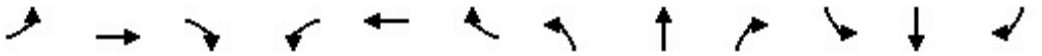
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.0		27.2	9.3	14.7
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		41.6		57.4	10.0	27.6
Max Q Clear Time (g_c+I1), s		8.4		20.7	5.4	8.9
Green Ext Time (p_c), s		1.3		2.0	0.2	1.7

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	108	902	27	396	173	129	34	368	171
Act Effct Green (s)	10.3	34.8	4.4	24.8	24.8	13.8	13.8	24.1	24.1
Actuated g/C Ratio	0.12	0.39	0.05	0.28	0.28	0.15	0.15	0.27	0.27
v/c Ratio	0.53	0.66	0.31	0.76	0.33	0.46	0.11	0.77	0.34
Control Delay	54.7	27.2	61.9	42.6	11.6	44.4	0.7	44.7	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	27.2	61.9	42.6	11.6	44.4	0.7	44.7	19.6
LOS	D	C	E	D	B	D	A	D	B
Approach Delay		30.2		34.5		35.3			36.7
Approach LOS		C		C		D			D
Queue Length 50th (ft)	55	210	14	191	17	65	0	178	38
Queue Length 95th (ft)	#165	426	#69	431	87	157	0	417	130
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	283	2094	87	916	826	663	630	805	803
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.43	0.31	0.43	0.21	0.19	0.05	0.46	0.21

Intersection Summary	
Cycle Length: 134.7	
Actuated Cycle Length: 89.3	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 33.2	Intersection LOS: C
Intersection Capacity Utilization 69.7%	ICU Level of Service C
Analysis Period (min) 15	

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	106	759	125	26	388	170	91	35	33	361	55	113
Future Volume (veh/h)	106	759	125	26	388	170	91	35	33	361	55	113
Initial Q (Qb), 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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	108	774	128	27	396	173	93	36	34	368	56	115
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1024	169	43	526	436	172	67	209	447	137	281
Arrive On Green	0.08	0.34	0.34	0.02	0.28	0.28	0.13	0.13	0.13	0.25	0.25	0.25
Sat Flow, veh/h	1781	3051	504	1781	1870	1549	1301	504	1579	1781	546	1121
Grp Volume(v), veh/h	108	451	451	27	396	173	129	0	34	368	0	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1779	1781	1870	1549	1805	0	1579	1781	0	1667
Q Serve(g_s), s	3.4	12.9	12.9	0.9	11.0	5.2	3.8	0.0	1.1	11.2	0.0	4.9
Cycle Q Clear(g_c), s	3.4	12.9	12.9	0.9	11.0	5.2	3.8	0.0	1.1	11.2	0.0	4.9
Prop In Lane	1.00		0.28	1.00		1.00	0.72		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	140	596	597	43	526	436	239	0	209	447	0	418
V/C Ratio(X)	0.77	0.76	0.76	0.62	0.75	0.40	0.54	0.00	0.16	0.82	0.00	0.41
Avail Cap(c_a), veh/h	404	1521	1522	124	1307	1082	946	0	828	1151	0	1077
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	16.9	16.9	27.7	18.7	16.6	23.2	0.0	22.0	20.3	0.0	17.9
Incr Delay (d2), s/veh	3.4	0.7	0.7	5.3	0.8	0.2	0.7	0.0	0.1	1.5	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	1.5	4.8	4.8	0.4	4.4	1.7	1.6	0.0	0.4	4.4	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	17.7	17.7	33.0	19.6	16.9	23.9	0.0	22.2	21.7	0.0	18.1
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1010			596			163			539	
Approach Delay, s/veh		18.9			19.4			23.5			20.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	20.7		17.4	4.4	23.8		11.7				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	13.0	40.0		37.0	4.0	49.0		30.0				
Max Q Clear Time (g_c+I1), s	5.4	13.0		13.2	2.9	14.9		5.8				
Green Ext Time (p_c), s	0.1	1.9		1.2	0.0	4.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		19.8	
HCM 6th LOS		B	

Near Term Conditions Roadway Analysis			Inputs												Results		
Segment	TOD	Direction	Volume	# of Lanes	Type	Speed Limit	Lane Width	Grade	Pavement Condition	Shoulder Width	Median Type	PHF	Total Trucks	Driver Pop	LOS	PTSF (%)	v/c
1	AM	EB	539	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	61.4	0.34
		WB	431	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	55.6	0.28
	PM	EB	501	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	59.5	0.32
		WB	545	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	61.7	0.35
2	AM	EB	581	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	62.5	0.37
		WB	654	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	65.7	0.42
	PM	EB	527	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	59.9	0.34
		WB	719	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	68.2	0.46

Appendix E

Analysis Worksheets for
Near-Term (2030) plus Proposed Project Conditions

Intersection	
Intersection Delay, s/veh	87
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	322	102	181	298	5	220	1	311	0	0	0
Future Vol, veh/h	0	322	102	181	298	5	220	1	311	0	0	0
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	408	129	229	377	6	278	1	394	0	0	0
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	75.2	32	146.5	0
HCM LOS	F	D	F	-

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	41%	0%	100%	0%	0%
Vol Thru, %	0%	76%	0%	98%	100%
Vol Right, %	58%	24%	0%	2%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	532	424	181	303	0
LT Vol	220	0	181	0	0
Through Vol	1	322	0	298	0
RT Vol	311	102	0	5	0
Lane Flow Rate	673	537	229	384	0
Geometry Grp	2	5	7	7	2
Degree of Util (X)	1.242	1.023	0.517	0.812	0
Departure Headway (Hd)	6.797	7.606	8.996	8.464	10.283
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	539	483	403	430	0
Service Time	4.797	5.606	6.696	6.164	8.283
HCM Lane V/C Ratio	1.249	1.112	0.568	0.893	0
HCM Control Delay	146.5	75.2	20.9	38.7	13.3
HCM Lane LOS	F	F	C	E	N
HCM 95th-tile Q	25.6	14.2	2.9	7.4	0

Intersection	
Int Delay, s/veh	8.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	184	453	363	15	41	119
Future Vol, veh/h	184	453	363	15	41	119
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	227	559	448	19	51	147

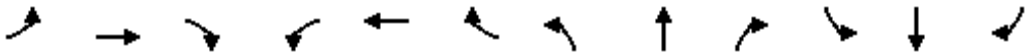
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	467	0	-	0	1471	458
Stage 1	-	-	-	-	458	-
Stage 2	-	-	-	-	1013	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1094	-	-	-	140	603
Stage 1	-	-	-	-	637	-
Stage 2	-	-	-	-	351	-
Platoon blocked, %			-	-	-	
Mov Cap-1 Maneuver	1094	-	-	-	98	603
Mov Cap-2 Maneuver	-	-	-	-	98	-
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	52.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1094	-	-	-	260
HCM Lane V/C Ratio	0.208	-	-	-	0.76
HCM Control Delay (s)	9.2	0	-	-	52.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.8	-	-	-	5.5

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	4	399	325	431	355	184	255	32
Act Effct Green (s)	7.0	25.2	25.2	29.1	54.0	14.5	14.5	9.2
Actuated g/C Ratio	0.08	0.28	0.28	0.33	0.61	0.16	0.16	0.10
v/c Ratio	0.03	0.76	0.55	0.74	0.32	0.64	0.54	0.17
Control Delay	44.3	42.9	15.5	40.0	16.3	49.5	10.0	33.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.3	42.9	15.5	40.0	16.3	49.5	10.0	33.5
LOS	D	D	B	D	B	D	A	C
Approach Delay		30.7			29.3	26.5		33.5
Approach LOS		C			C	C		C
Queue Length 50th (ft)	2	216	50	227	80	107	0	12
Queue Length 95th (ft)	11	323	90	350	255	163	18	32
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	139	683	702	692	1339	520	644	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.58	0.46	0.62	0.27	0.35	0.40	0.06

Intersection Summary			
Cycle Length: 125.1			
Actuated Cycle Length: 89			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 29.3		Intersection LOS: C	
Intersection Capacity Utilization 56.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	283	231	306	247	5	128	3	181	11	4	8
Future Volume (veh/h)	3	283	231	306	247	5	128	3	181	11	4	8
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		0.97	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	4	399	325	431	348	7	180	4	255	15	6	11
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	531	486	402	481	423	9	353	8	318	41	17	30
Arrive On Green	0.30	0.26	0.26	0.27	0.23	0.23	0.20	0.20	0.20	0.05	0.05	0.05
Sat Flow, veh/h	1781	1870	1545	1781	1826	37	1744	39	1569	801	320	587
Grp Volume(v), veh/h	4	399	325	431	0	355	184	0	255	32	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1545	1781	0	1863	1783	0	1569	1708	0	0
Q Serve(g_s), s	0.1	14.0	13.8	16.3	0.0	12.6	6.4	0.0	10.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	0.1	14.0	13.8	16.3	0.0	12.6	6.4	0.0	10.8	1.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.02	0.98		1.00	0.47		0.34
Lane Grp Cap(c), veh/h	531	486	402	481	0	432	361	0	318	88	0	0
V/C Ratio(X)	0.01	0.82	0.81	0.90	0.00	0.82	0.51	0.00	0.80	0.36	0.00	0.00
Avail Cap(c_a), veh/h	531	803	663	816	0	1546	612	0	539	587	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	17.3	24.3	24.2	24.6	0.0	25.5	24.8	0.0	26.5	32.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.3	1.5	3.9	0.0	1.5	0.4	0.0	1.8	0.9	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.0	4.9	6.9	0.0	5.4	2.6	0.0	4.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.3	25.7	25.7	28.5	0.0	27.0	25.2	0.0	28.4	33.0	0.0	0.0
LnGrp LOS	B	C	C	C	A	C	C	A	C	C	A	A
Approach Vol, veh/h		728			786			439			32	
Approach Delay, s/veh		25.6			27.8			27.0			33.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	21.9	23.1		7.1	23.8	21.1		17.8				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	32.0	30.0		24.0	4.0	58.0		24.0				
Max Q Clear Time (g_c+I1), s	18.3	16.0		3.3	2.1	14.6		12.8				
Green Ext Time (p_c), s	0.6	2.0		0.1	0.0	1.5		0.9				

Intersection Summary			
HCM 6th Ctrl Delay		26.9	
HCM 6th LOS		C	

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	436	6	19	559	6	16
Future Vol, veh/h	436	6	19	559	6	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	474	7	21	608	7	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	481	0	1128	478
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	650	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1082	-	226	587
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1082	-	219	587
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	505	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	403	-	-	1082	-
HCM Lane V/C Ratio	0.059	-	-	0.019	-
HCM Control Delay (s)	14.5	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

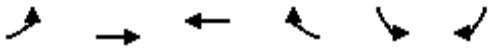
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	470	60	48	588	100	187
Act Effct Green (s)	17.6	17.6	7.3	30.8	8.6	17.5
Actuated g/C Ratio	0.39	0.39	0.16	0.68	0.19	0.39
v/c Ratio	0.65	0.09	0.17	0.46	0.30	0.26
Control Delay	17.2	3.6	21.8	6.6	21.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	3.6	21.8	6.6	21.7	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.6			7.8	9.8	
Approach LOS	B			A	A	
Queue Length 50th (ft)	105	0	11	77	23	0
Queue Length 95th (ft)	171	14	42	129	65	27
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1551	766	1863	929	1104
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.04	0.06	0.32	0.11	0.17

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 45.4			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.0		Intersection LOS: B	
Intersection Capacity Utilization 45.8%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	395	50	48	494	84	157
Future Volume (veh/h)	395	50	48	494	84	157
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	470	60	48	588	100	187
Peak Hour Factor	0.84	0.84	1.00	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	587	487	131	933	366	443
Arrive On Green	0.31	0.31	0.07	0.50	0.21	0.21
Sat Flow, veh/h	1870	1551	1781	1870	1781	1585
Grp Volume(v), veh/h	470	60	48	588	100	187
Grp Sat Flow(s),veh/h/ln	1870	1551	1781	1870	1781	1585
Q Serve(g_s), s	8.5	1.0	0.9	8.5	1.7	3.6
Cycle Q Clear(g_c), s	8.5	1.0	0.9	8.5	1.7	3.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	587	487	131	933	366	443
V/C Ratio(X)	0.80	0.12	0.37	0.63	0.27	0.42
Avail Cap(c_a), veh/h	3715	3082	914	4883	1107	1102
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	11.6	9.0	16.2	6.8	12.3	10.8
Incr Delay (d2), s/veh	1.0	0.0	0.6	0.3	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.3	0.3	2.0	0.6	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.6	9.1	16.9	7.0	12.5	11.1
LnGrp LOS	B	A	B	A	B	B
Approach Vol, veh/h	530			636	287	
Approach Delay, s/veh	12.2			7.8	11.6	
Approach LOS	B			A	B	

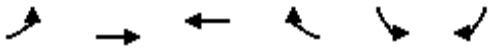
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	6.8	17.4				24.2	12.7
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	18.9	73.2				96.2	22.9
Max Q Clear Time (g_c+I1), s	2.9	10.5				10.5	5.6
Green Ext Time (p_c), s	0.0	1.1				1.4	0.1

Intersection Summary			
HCM 6th Ctrl Delay		10.1	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	440	270	411	640	241	270
Act Effct Green (s)	13.3	36.9	19.3	37.5	13.8	27.8
Actuated g/C Ratio	0.22	0.62	0.32	0.62	0.23	0.46
v/c Ratio	0.58	0.24	0.69	0.63	0.59	0.31
Control Delay	26.0	6.2	25.5	9.7	29.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	6.2	25.5	9.7	29.2	2.4
LOS	C	A	C	A	C	A
Approach Delay		18.5	15.9		15.0	
Approach LOS		B	B		B	
Queue Length 50th (ft)	69	35	120	101	74	0
Queue Length 95th (ft)	153	88	274	244	182	32
Internal Link Dist (ft)		587	765		74	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	1280	1777	1370	1469	1017	1067
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.15	0.30	0.44	0.24	0.25

Intersection Summary			
Cycle Length: 107.7			
Actuated Cycle Length: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.69			
Intersection Signal Delay: 16.5		Intersection LOS: B	
Intersection Capacity Utilization 55.2%		ICU Level of Service B	
Analysis Period (min) 15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	405	248	378	589	222	248
Future Volume (veh/h)	405	248	378	589	222	248
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	440	270	411	640	241	270
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	602	1200	726	911	333	572
Arrive On Green	0.17	0.64	0.39	0.39	0.19	0.19
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	440	270	411	640	241	270
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	6.1	3.1	8.7	14.6	6.4	6.6
Cycle Q Clear(g_c), s	6.1	3.1	8.7	14.6	6.4	6.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	602	1200	726	911	333	572
V/C Ratio(X)	0.73	0.23	0.57	0.70	0.72	0.47
Avail Cap(c_a), veh/h	1434	2461	1537	1599	1140	1291
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	19.8	3.8	12.1	7.7	19.4	12.5
Incr Delay (d2), s/veh	0.6	0.0	0.3	0.4	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.7	3.1	0.1	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.4	3.8	12.4	8.0	20.5	12.7
LnGrp LOS	C	A	B	A	C	B
Approach Vol, veh/h		710	1051		511	
Approach Delay, s/veh		14.1	9.8		16.4	
Approach LOS		B	A		B	

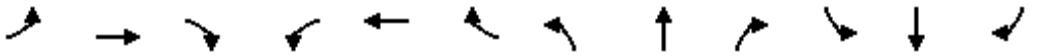
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.6		14.1	12.8	23.7
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		66.6		32.4	21.0	41.6
Max Q Clear Time (g_c+I1), s		5.1		8.6	8.1	16.6
Green Ext Time (p_c), s		1.1		0.8	0.7	3.1

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	137	367	11	814	300	126	7	99	126
Act Effct Green (s)	11.8	62.0	4.2	48.1	48.1	14.1	14.1	9.4	9.4
Actuated g/C Ratio	0.12	0.63	0.04	0.49	0.49	0.14	0.14	0.10	0.10
v/c Ratio	0.65	0.17	0.15	0.90	0.36	0.49	0.02	0.59	0.50
Control Delay	62.1	8.5	61.0	37.7	8.9	48.8	0.2	64.1	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	8.5	61.0	37.7	8.9	48.8	0.2	64.1	20.8
LOS	E	A	E	D	A	D	A	E	C
Approach Delay		23.1		30.3		46.2			39.9
Approach LOS		C		C		D			D
Queue Length 50th (ft)	82	40	7	430	48	75	0	59	9
Queue Length 95th (ft)	#244	103	31	#838	132	153	0	#182	78
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	226	2741	75	1350	1163	575	565	189	271
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.13	0.15	0.60	0.26	0.22	0.01	0.52	0.46

Intersection Summary			
Cycle Length: 134.7			
Actuated Cycle Length: 98.8			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.90			
Intersection Signal Delay: 30.6		Intersection LOS: C	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	299	35	10	741	273	83	32	6	90	14	101
Future Volume (veh/h)	125	299	35	10	741	273	83	32	6	90	14	101
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	137	329	38	11	814	300	91	35	7	99	15	111
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	1852	212	20	917	776	135	52	164	186	20	149
Arrive On Green	0.10	0.58	0.58	0.01	0.49	0.49	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	3212	368	1781	1870	1583	1304	501	1585	1781	192	1422
Grp Volume(v), veh/h	137	181	186	11	814	300	126	0	7	99	0	126
Grp Sat Flow(s),veh/h/ln	1781	1777	1804	1781	1870	1583	1805	0	1585	1781	0	1614
Q Serve(g_s), s	5.4	3.4	3.5	0.4	28.2	8.6	4.8	0.0	0.3	3.8	0.0	5.4
Cycle Q Clear(g_c), s	5.4	3.4	3.5	0.4	28.2	8.6	4.8	0.0	0.3	3.8	0.0	5.4
Prop In Lane	1.00		0.20	1.00		1.00	0.72		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	173	1024	1040	20	917	776	187	0	164	186	0	169
V/C Ratio(X)	0.79	0.18	0.18	0.56	0.89	0.39	0.67	0.00	0.04	0.53	0.00	0.75
Avail Cap(c_a), veh/h	297	1879	1907	99	1770	1498	754	0	662	248	0	225
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.7	7.2	7.2	35.4	16.5	11.5	31.0	0.0	29.0	30.5	0.0	31.2
Incr Delay (d2), s/veh	3.1	0.0	0.0	9.1	1.2	0.1	1.6	0.0	0.0	0.9	0.0	5.7
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	2.4	1.1	1.2	0.2	10.8	2.7	2.1	0.0	0.1	1.6	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.8	7.2	7.2	44.5	17.8	11.6	32.6	0.0	29.0	31.4	0.0	37.0
LnGrp LOS	C	A	A	D	B	B	C	A	C	C	A	D
Approach Vol, veh/h		504			1125			133			225	
Approach Delay, s/veh		14.7			16.4			32.4			34.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.0	39.8		10.5	3.8	46.0		11.5				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	12.0	68.0		10.0	4.0	76.0		30.0				
Max Q Clear Time (g_c+I1), s	7.4	30.2		7.4	2.4	5.5		6.8				
Green Ext Time (p_c), s	0.1	5.0		0.2	0.0	1.5		0.4				

Intersection Summary			
HCM 6th Ctrl Delay		19.1	
HCM 6th LOS		B	

Intersection	
Intersection Delay, s/veh	28.1
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	367	207	271	232	21	95	2	189	4	2	6
Future Vol, veh/h	6	367	207	271	232	21	95	2	189	4	2	6
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	378	213	279	239	22	98	2	195	4	2	6
Number of Lanes	0	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	45.2	16.1	16.3	10.9
HCM LOS	E	C	C	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	1%	100%	0%	33%
Vol Thru, %	1%	63%	0%	92%	17%
Vol Right, %	66%	36%	0%	8%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	286	580	271	253	12
LT Vol	95	6	271	0	4
Through Vol	2	367	0	232	2
RT Vol	189	207	0	21	6
Lane Flow Rate	295	598	279	261	12
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.522	0.935	0.536	0.459	0.026
Departure Headway (Hd)	6.375	5.627	6.908	6.339	7.679
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	560	640	520	563	469
Service Time	4.463	3.701	4.7	4.13	5.679
HCM Lane V/C Ratio	0.527	0.934	0.537	0.464	0.026
HCM Control Delay	16.3	45.2	17.5	14.5	10.9
HCM Lane LOS	C	E	C	B	B
HCM 95th-tile Q	3	12.5	3.1	2.4	0.1

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	134	441	337	22	22	180
Future Vol, veh/h	134	441	337	22	22	180
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	143	469	359	23	23	191

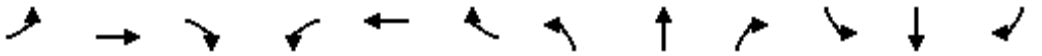
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	382	0	-	0	1126	371
Stage 1	-	-	-	-	371	-
Stage 2	-	-	-	-	755	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1176	-	-	-	227	675
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	464	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1176	-	-	-	190	675
Mov Cap-2 Maneuver	-	-	-	-	190	-
Stage 1	-	-	-	-	584	-
Stage 2	-	-	-	-	464	-

Approach	EB	WB	SB
HCM Control Delay, s	2	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1176	-	-	-	528
HCM Lane V/C Ratio	0.121	-	-	-	0.407
HCM Control Delay (s)	8.5	0	-	-	16.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.4	-	-	-	2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	16	417	65	62	350	52	62	22
Act Effct Green (s)	7.0	26.8	26.8	7.9	31.0	9.7	9.7	9.4
Actuated g/C Ratio	0.13	0.51	0.51	0.15	0.59	0.19	0.19	0.18
v/c Ratio	0.07	0.44	0.08	0.23	0.32	0.16	0.16	0.05
Control Delay	31.9	18.4	1.6	31.9	14.9	26.5	1.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	18.4	1.6	31.9	14.9	26.5	1.3	0.2
LOS	C	B	A	C	B	C	A	A
Approach Delay		16.6			17.4	12.8		0.2
Approach LOS		B			B	B		A
Queue Length 50th (ft)	3	67	0	11	26	9	0	0
Queue Length 95th (ft)	31	365	10	87	315	65	4	0
Internal Link Dist (ft)		1839			446	1093		188
Turn Bay Length (ft)	55		150	160			310	
Base Capacity (vph)	249	1619	1390	481	1661	1106	1010	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.26	0.05	0.13	0.21	0.05	0.06	0.02

Intersection Summary	
Cycle Length: 125.1	
Actuated Cycle Length: 52.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.44	
Intersection Signal Delay: 16.2	Intersection LOS: B
Intersection Capacity Utilization 43.4%	ICU Level of Service A
Analysis Period (min) 15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	392	61	58	314	15	49	0	58	15	0	6
Future Volume (veh/h)	15	392	61	58	314	15	49	0	58	15	0	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	16	417	65	62	334	16	52	0	62	16	0	6
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	599	505	94	494	24	221	0	196	50	0	19
Arrive On Green	0.09	0.32	0.32	0.05	0.28	0.28	0.12	0.00	0.12	0.04	0.00	0.04
Sat Flow, veh/h	1781	1870	1578	1781	1770	85	1781	0	1576	1251	0	469
Grp Volume(v), veh/h	16	417	65	62	0	350	52	0	62	22	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1578	1781	0	1855	1781	0	1576	1720	0	0
Q Serve(g_s), s	0.3	6.4	1.0	1.1	0.0	5.5	0.9	0.0	1.2	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.3	6.4	1.0	1.1	0.0	5.5	0.9	0.0	1.2	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.05	1.00		1.00	0.73		0.27
Lane Grp Cap(c), veh/h	167	599	505	94	0	517	221	0	196	68	0	0
V/C Ratio(X)	0.10	0.70	0.13	0.66	0.00	0.68	0.24	0.00	0.32	0.32	0.00	0.00
Avail Cap(c_a), veh/h	273	2852	2406	601	0	3169	1383	0	1224	1267	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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.5	9.7	7.9	15.2	0.0	10.4	12.9	0.0	13.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.6	0.0	2.9	0.0	0.6	0.2	0.0	0.3	1.0	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	0.1	1.8	0.2	0.4	0.0	1.7	0.3	0.0	0.3	0.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	10.2	7.9	18.1	0.0	11.0	13.1	0.0	13.4	16.2	0.0	0.0
LnGrp LOS	B	B	A	B	A	B	B	A	B	B	A	A
Approach Vol, veh/h		498			412			114			22	
Approach Delay, s/veh		10.0			12.1			13.2			16.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	15.3		4.8	6.1	14.0		7.7				
Change Period (Y+Rc), s	3.0	4.9		3.5	3.0	4.9		3.7				
Max Green Setting (Gmax), s	11.0	49.7		24.0	5.0	55.7		25.3				
Max Q Clear Time (g_c+I1), s	3.1	8.4		2.4	2.3	7.5		3.2				
Green Ext Time (p_c), s	0.0	1.9		0.0	0.0	1.5		0.2				

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	6	17	335	8	23
Future Vol, veh/h	446	6	17	335	8	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
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	485	7	18	364	9	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	492	0	889	489
Stage 1	-	-	-	-	489	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1071	-	314	579
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	677	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1071	-	307	579
Mov Cap-2 Maneuver	-	-	-	-	307	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	663	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	471	-	-	1071	-
HCM Lane V/C Ratio	0.072	-	-	0.017	-
HCM Control Delay (s)	13.2	-	-	8.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

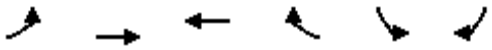
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	445	89	169	398	48	101
Act Effct Green (s)	17.9	27.1	9.4	33.4	8.5	19.2
Actuated g/C Ratio	0.38	0.57	0.20	0.70	0.18	0.40
v/c Ratio	0.64	0.10	0.48	0.30	0.15	0.14
Control Delay	18.3	1.5	24.7	4.8	22.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.3	1.5	24.7	4.8	22.7	3.4
LOS	B	A	C	A	C	A
Approach Delay	15.5			10.7	9.6	
Approach LOS	B			B	A	
Queue Length 50th (ft)	104	0	43	45	12	0
Queue Length 95th (ft)	205	12	109	76	45	23
Internal Link Dist (ft)	884			1059	1395	
Turn Bay Length (ft)		400	400			190
Base Capacity (vph)	1863	1119	1244	1863	587	1438
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.08	0.14	0.21	0.08	0.07

Intersection Summary			
Cycle Length: 130			
Actuated Cycle Length: 47.6			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 12.6		Intersection LOS: B	
Intersection Capacity Utilization 50.6%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	427	85	162	382	46	97
Future Volume (veh/h)	427	85	162	382	46	97
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	445	89	169	398	48	101
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	556	721	269	1036	294	501
Arrive On Green	0.30	0.30	0.15	0.55	0.16	0.16
Sat Flow, veh/h	1870	1547	1781	1870	1781	1585
Grp Volume(v), veh/h	445	89	169	398	48	101
Grp Sat Flow(s),veh/h/ln	1870	1547	1781	1870	1781	1585
Q Serve(g_s), s	8.5	1.3	3.5	4.7	0.9	1.8
Cycle Q Clear(g_c), s	8.5	1.3	3.5	4.7	0.9	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	556	721	269	1036	294	501
V/C Ratio(X)	0.80	0.12	0.63	0.38	0.16	0.20
Avail Cap(c_a), veh/h	3289	2982	1465	5025	684	849
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	12.6	6.0	15.4	4.9	13.9	9.7
Incr Delay (d2), s/veh	1.0	0.0	0.9	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.3	1.2	1.0	0.3	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.6	6.0	16.3	5.0	14.0	9.8
LnGrp LOS	B	A	B	A	B	A
Approach Vol, veh/h	534			567	149	
Approach Delay, s/veh	12.3			8.4	11.1	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	10.0	17.3				27.3	11.5
Change Period (Y+Rc), s	4.1	5.8				5.8	5.1
Max Green Setting (Gmax), s	31.9	68.2				104.2	14.9
Max Q Clear Time (g_c+I1), s	5.5	10.5				6.7	3.8
Green Ext Time (p_c), s	0.1	1.0				0.9	0.1

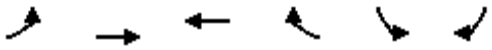
Intersection Summary			
HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	237	323	279	396	703	388
Act Effct Green (s)	9.4	30.1	16.4	55.6	34.8	49.1
Actuated g/C Ratio	0.13	0.41	0.22	0.75	0.47	0.66
v/c Ratio	0.55	0.43	0.68	0.33	0.85	0.34
Control Delay	40.6	20.4	38.1	3.3	28.7	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.6	20.4	38.1	3.3	28.7	2.8
LOS	D	C	D	A	C	A
Approach Delay		28.9	17.7		19.5	
Approach LOS		C	B		B	
Queue Length 50th (ft)	51	99	115	41	263	17
Queue Length 95th (ft)	#137	244	257	63	510	62
Internal Link Dist (ft)		587	765		211	
Turn Bay Length (ft)	130			160		
Base Capacity (vph)	499	1128	748	1501	1400	1161
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.29	0.37	0.26	0.50	0.33

Intersection Summary	
Cycle Length: 107.7	
Actuated Cycle Length: 74.3	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.85	
Intersection Signal Delay: 21.2	Intersection LOS: C
Intersection Capacity Utilization 69.2%	ICU Level of Service C
Analysis Period (min) 15	

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



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	230	313	271	384	682	376
Future Volume (veh/h)	230	313	271	384	682	376
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	237	323	279	396	703	388
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	361	733	393	1032	786	865
Arrive On Green	0.10	0.39	0.21	0.21	0.44	0.44
Sat Flow, veh/h	3456	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	237	323	279	396	703	388
Grp Sat Flow(s),veh/h/ln	1728	1870	1870	1585	1781	1585
Q Serve(g_s), s	3.4	6.6	7.2	6.0	18.9	7.7
Cycle Q Clear(g_c), s	3.4	6.6	7.2	6.0	18.9	7.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	361	733	393	1032	786	865
V/C Ratio(X)	0.66	0.44	0.71	0.38	0.89	0.45
Avail Cap(c_a), veh/h	665	1497	993	1540	1967	1916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	11.6	19.1	4.2	13.4	7.1
Incr Delay (d2), s/veh	0.8	0.2	0.9	0.1	1.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	2.3	2.9	7.7	6.3	8.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.1	11.8	20.0	4.3	14.9	7.2
LnGrp LOS	C	B	B	A	B	A
Approach Vol, veh/h		560	675		1091	
Approach Delay, s/veh		16.6	10.8		12.2	
Approach LOS		B	B		B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		24.5		27.5	9.4	15.0
Change Period (Y+Rc), s		4.1		4.6	4.0	4.1
Max Green Setting (Gmax), s		41.6		57.4	10.0	27.6
Max Q Clear Time (g_c+I1), s		8.6		20.9	5.4	9.2
Green Ext Time (p_c), s		1.3		2.0	0.2	1.7

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

Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	110	905	27	399	173	129	34	368	175
Act Effct Green (s)	10.5	35.1	4.4	25.0	25.0	13.9	13.9	24.2	24.2
Actuated g/C Ratio	0.12	0.39	0.05	0.28	0.28	0.15	0.15	0.27	0.27
v/c Ratio	0.53	0.66	0.31	0.77	0.33	0.46	0.11	0.77	0.34
Control Delay	54.8	27.2	62.2	42.9	11.7	44.6	0.7	44.9	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	27.2	62.2	42.9	11.7	44.6	0.7	44.9	19.6
LOS	D	C	E	D	B	D	A	D	B
Approach Delay		30.2		34.8		35.4			36.7
Approach LOS		C		C		D			D
Queue Length 50th (ft)	56	212	14	194	17	66	0	180	40
Queue Length 95th (ft)	#170	428	#69	435	88	157	0	417	132
Internal Link Dist (ft)		636		910		807			1084
Turn Bay Length (ft)	180		100		170		90	400	
Base Capacity (vph)	281	2083	86	911	821	660	627	801	800
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.43	0.31	0.44	0.21	0.20	0.05	0.46	0.22

Intersection Summary			
Cycle Length: 134.7			
Actuated Cycle Length: 89.7			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 33.3		Intersection LOS: C	
Intersection Capacity Utilization 69.7%		ICU Level of Service C	
Analysis Period (min) 15			

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	108	761	125	26	391	170	91	35	33	361	55	117
Future Volume (veh/h)	108	761	125	26	391	170	91	35	33	361	55	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	110	777	128	27	399	173	93	36	34	368	56	119
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	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	1027	169	43	525	435	172	67	209	447	134	284
Arrive On Green	0.08	0.34	0.34	0.02	0.28	0.28	0.13	0.13	0.13	0.25	0.25	0.25
Sat Flow, veh/h	1781	3053	503	1781	1870	1548	1301	504	1579	1781	533	1132
Grp Volume(v), veh/h	110	452	453	27	399	173	129	0	34	368	0	175
Grp Sat Flow(s),veh/h/ln	1781	1777	1779	1781	1870	1548	1805	0	1579	1781	0	1665
Q Serve(g_s), s	3.5	13.0	13.0	0.9	11.2	5.2	3.8	0.0	1.1	11.2	0.0	5.0
Cycle Q Clear(g_c), s	3.5	13.0	13.0	0.9	11.2	5.2	3.8	0.0	1.1	11.2	0.0	5.0
Prop In Lane	1.00		0.28	1.00		1.00	0.72		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	142	598	598	43	525	435	239	0	209	447	0	418
V/C Ratio(X)	0.77	0.76	0.76	0.62	0.76	0.40	0.54	0.00	0.16	0.82	0.00	0.42
Avail Cap(c_a), veh/h	403	1517	1519	124	1304	1079	944	0	826	1148	0	1073
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.9	17.0	17.0	27.7	18.9	16.7	23.3	0.0	22.1	20.3	0.0	18.0
Incr Delay (d2), s/veh	3.3	0.7	0.7	5.3	0.9	0.2	0.7	0.0	0.1	1.5	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	1.5	4.8	4.8	0.4	4.5	1.7	1.6	0.0	0.4	4.4	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	17.7	17.7	33.0	19.7	16.9	24.0	0.0	22.2	21.8	0.0	18.2
LnGrp LOS	C	B	B	C	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1015			599			163			543	
Approach Delay, s/veh		19.0			19.5			23.6			20.6	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	20.7		17.4	4.4	23.9		11.7				
Change Period (Y+Rc), s	3.0	4.6		3.0	3.0	4.6		4.1				
Max Green Setting (Gmax), s	13.0	40.0		37.0	4.0	49.0		30.0				
Max Q Clear Time (g_c+I1), s	5.5	13.2		13.2	2.9	15.0		5.8				
Green Ext Time (p_c), s	0.1	1.9		1.2	0.0	4.2		0.5				

Intersection Summary			
HCM 6th Ctrl Delay		19.8	
HCM 6th LOS		B	

Near Term Plus Project Conditions Roadway Analysis			Inputs												Results		
Segment	TOD	Direction	Volume	# of Lanes	Type	Speed Limit	Lane Width	Grade	Pavement Condition	Shoulder Width	Median Type	PHF	Total Trucks	Driver Pop	LOS	PTSF (%)	v/c
1	AM	EB	540	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	61.4	0.35
		WB	436	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	55.8	0.28
	PM	EB	506	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	59.7	0.32
		WB	548	1	Constrained	40	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	61.8	0.35
2	AM	EB	593	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	63	0.38
		WB	658	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	65.8	0.42
	PM	EB	535	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	C	60.3	0.34
		WB	732	1	Constrained	45	12	Level	4-Good	6	Undivided	0.92	2	Familiar	D	68.6	0.47