Appendix H

Traffic VMT Memorandum

Local Access, Safety, and Circulation Study

New Zoo in Elk Grove
City of Elk Grove, California

October 16, 2023

Prepared for:

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EXECUTIVE SUMMARY

This report documents the results of a local access, safety, and circulation study completed for the proposed New Zoo in Elk Grove Project (the " Zoo", "Proposed Project", or "Project"). The Project site is bounded by Lotz Parkway on the east, Kammerer Road on the south, and future B Street on the west. The Proposed Project is anticipated to consist of developing the currently vacant parcel for the relocated Sacramento Zoo. Visitor access to the Project site is proposed to be provided from both Classical Way and B Street. Employee access to the Project site is proposed to be provided via Lotz Parkway. The Project proposes two visitor parking lots: a north lot on the north side of Classical Way and a south lot between Classical Way and Kammerer Road to the south.

This study was performed in a manner consistent with the current City of Elk Grove *Transportation Analysis Guidelines*[1].

The following transportation facilities were included in this evaluation:

Intersections:

1. Classical Way @ B Street
2. Classical Way @ Site Entrance
3. Classical Way @ Lotz Parkway
4. Kammerer Road @ Lotz Parkway
5. Kammerer Road @ Lent Ranch Parkway
6. Kammerer Road @ Promenade Parkway
7. Kammerer Road @ SR-99 Southbound Ramps
8. Kammerer Road @ SR-99 Northbound Ramps

Roadway Segments:

A. Lotz Parkway, north of Classical Way
B. Kammerer Road, west of Lotz Parkway
C. Kammerer Road, between Lotz Parkway & Lent Ranch Parkway
D. Kammerer Road, between Lent Ranch Parkway & Promenade Parkway
E. Kammerer Road, between Promenade Parkway & SR-99 SB Ramps

This study was conducted for the study facilities for No Project conditions under Existing (2023) and for both No Project and Plus Project conditions under Opening Year (2028) assuming Phase 1 buildout, and Cumulative Year (2050) assuming Phase 2 buildout scenarios.

Significant findings of this study include:

- The Proposed Project Phase 1 is estimated to generate 860 total new weekday visitor trips, with 25 visitor trips occurring during the Weekday AM peak-hour, 189 visitor trips during the Weekday PM peak-hour, and 731 visitor trips occurring during the Weekend Midday peak-hour. The Phase 1 Project is estimated to generate 370 total daily employee trips, with 263 employee trips during the Weekday AM peak-hour, 203 employee trips during the Weekday PM peak-hour, and no employee trips during the Weekend Midday peak-hour.
- The Proposed Project Phase 2 is estimated to generate 932 total new weekday visitor trips, with 27 visitor trips occurring during the Weekday AM peak-hour, 208 visitor trips during the Weekday PM peak-hour, and 792 visitor trips occurring during the Weekend Midday peak-hour. The Phase 2 Project is estimated to generate 401 total daily employee trips, with 285 employee trips during the Weekday AM peak-hour, 220 employee trips during the Weekday PM peak-hour, and no employee trips during the Weekend Midday peak-hour.

- As defined by the City's Roadway Performance Targets, the Project contributes to reduced operations at Intersection #6 (Kammerer Road and Promenade Parkway) during the Cumulative (2050) scenario. As the Project is not deemed to create this reduction (attributed to robust development south of Kammerer Road anticipated in the future TDM), it is acceptable that the Project should contribute to necessary future intersection improvements via fair share payment to the City's Roadway Fee Program.
- The Project creates a queueing deficiency at Intersection #3 (Classical Way and Lotz Parkway) under Cumulative (2050) study conditions. While occurrences of this deficiency are anticipated to be relatively infrequent, the Project will be conditioned to provide as much queue storage as feasible for the deficient movement. The Project creates a queueing deficiency at Intersection #4 (Kammerer Road and Lotz Parkway) under Opening Year (2028) study conditions and contributes additional queueing to a baseline deficiency under Cumulative (2050) study conditions. While occurrences of this deficiency are anticipated to be both infrequent and of short duration, the Project will be conditioned to provide as much queue storage as feasible for the deficient movement while coordinating with the City on maintaining efficient traffic signal timing parameters at Intersection #4. The Project contributes additional queueing to a baseline deficiency and creates a queueing deficiency at Intersection #7 (Kammerer Road and SR-99 Southbound Ramps) under Cumulative (2050) study conditions. While the queue lengths measured exceed existing available storage, queues are not anticipated to reach the mainline segment of SR-99 and adversely affect freeway traffic conditions.
- The zoo shall be responsible for providing a traffic management plan (TMP) to the City for approval by the Public Works Director prior to opening day or any other special events determined (by the City). The TMP shall include specific interventions for traffic conditions associated with the zoo opening and any other special events determined (by the City) to warrant a TMP. The zoo shall be responsible for implementing said interventions to which the Public Works Director has agreed.
- Per data provided by the City, the existing roadway network proximate to the project site has a limited crash history. The one study facility with significant presence in the data set (Intersection #6) exhibits a crash rate below the current statewide average for intersections of similar type. The Project is not anticipated to alter this existing condition.
- Per relevant City documents, enhanced bicycle and pedestrian infrastructure is planned to be constructed in proximity to the zoo, primarily via Class I and Class IV facilities. As part of the proposed zoo off-site improvements, the Project is considering the construction of multi-use path and grade-separated crossings along Classical Way to enhance the user experience and promote multi-modal access to the zoo.
- The existing transit network currently terminates at the intersection of Promenade Parkway and Bilby Road, approximately 0.8-miles from the project entrance. The design of the main entrance curb to the zoo is designed in a manner that would potentially facilitate extension of public transit services to the site. While regional light rail extension access has been considered, it is not an imminent improvement.

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INTRODUCTION

This report documents the results of a local access, safety, and circulation study completed for the proposed New Zoo in Elk Grove Project (the "Zoo", "Proposed Project", or "Project"). The Project site is currently bounded by Lotz Parkway on the east, Kammerer Road on the south, and future B Street on the west. This study was performed in a manner consistent with the current City of Elk Grove *Transportation Analysis Guidelines*[1].

The following sections of this report document the Proposed Project, analysis methodologies, and general study conclusions.

PROJECT DESCRIPTION

The Proposed Project is anticipated to consist of developing the currently vacant parcel for the New Zoo at Elk Grove. Visitor access to the Project site is proposed to be provided from both Classical Way and B Street. Employee access to the Project site is proposed to be provided via Lotz Parkway. The Project proposes two visitor parking lots: a north lot on the north side of Classical Way and a south lot between Classical Way and Kammerer Road to the south. The Project location is shown in **Figure 1** and the Project site plan is shown in **Figure 2**. The following transportation facilities are included in this evaluation:

Intersections:

1. Classical Way @ B Street
2. Classical Way @ Site Entrance
3. Classical Way @ Lotz Parkway
4. Kammerer Road @ Lotz Parkway
5. Kammerer Road @ Lent Ranch Parkway
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Roadway Segments:

A. Lotz Parkway, north of Classical Way
B. Kammerer Road, west of Lotz Parkway
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D. Kammerer Road, between Lent Ranch Parkway & Promenade Parkway
E. Kammerer Road, between Promenade Parkway & SR-99 SB Ramps

This study was conducted for the aforementioned study facilities for No Project conditions under Existing (2023) and for both No Project and Plus Project conditions under Opening Year (2028) assuming Phase 1 buildout[2], and Cumulative Year (2050) assuming Phase 2 buildout[2] scenarios. **Figure 3** illustrates the study intersections facilities, existing traffic control, and existing lane configurations.

[1] *Transportation Analysis Guidelines,* City of Elk Grove, adopted February 2019.

[2] *Feasibility Study for a New Zoo in Elk Grove – Final Report*, RS&S, February 28, 2022.

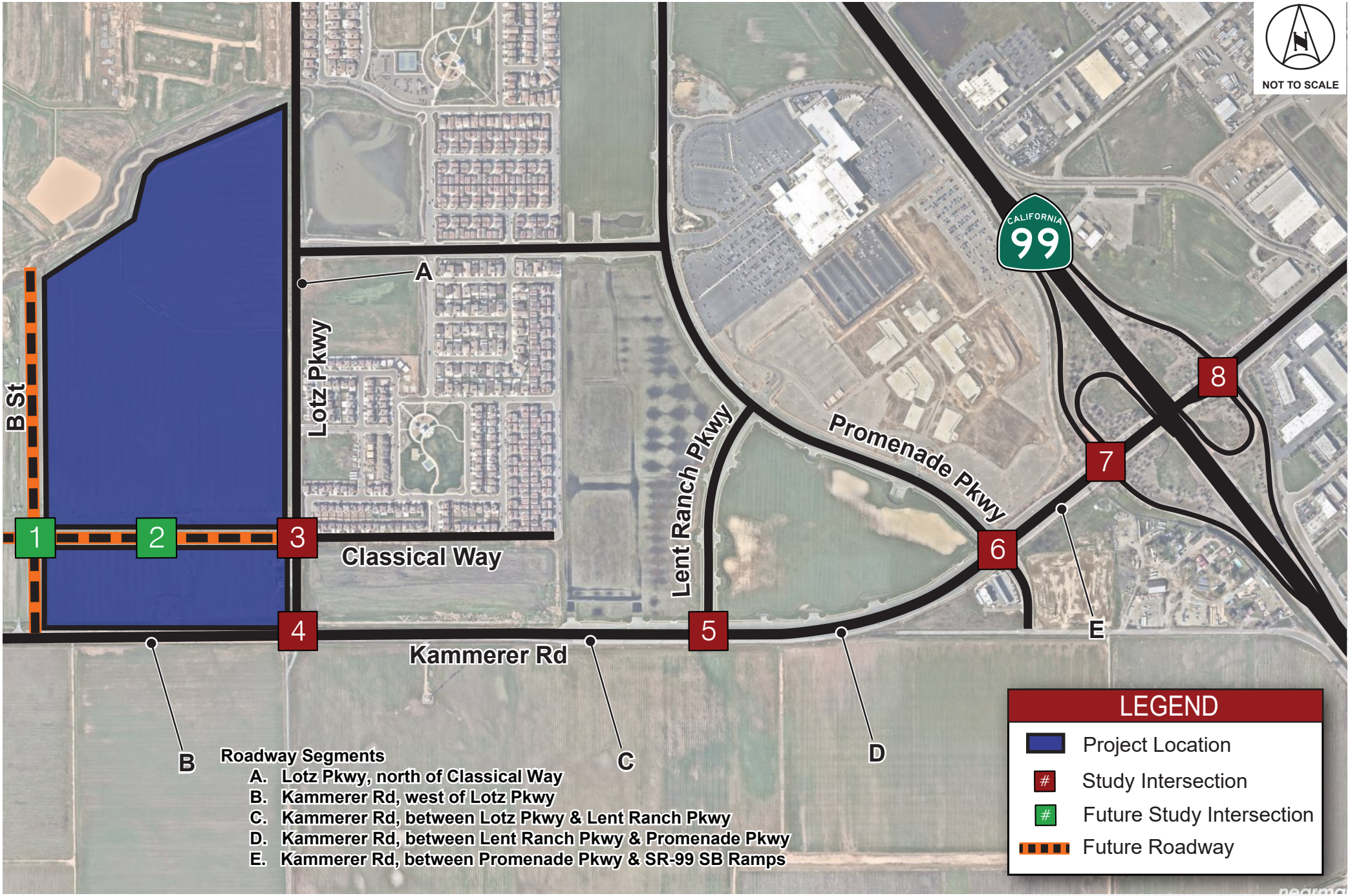

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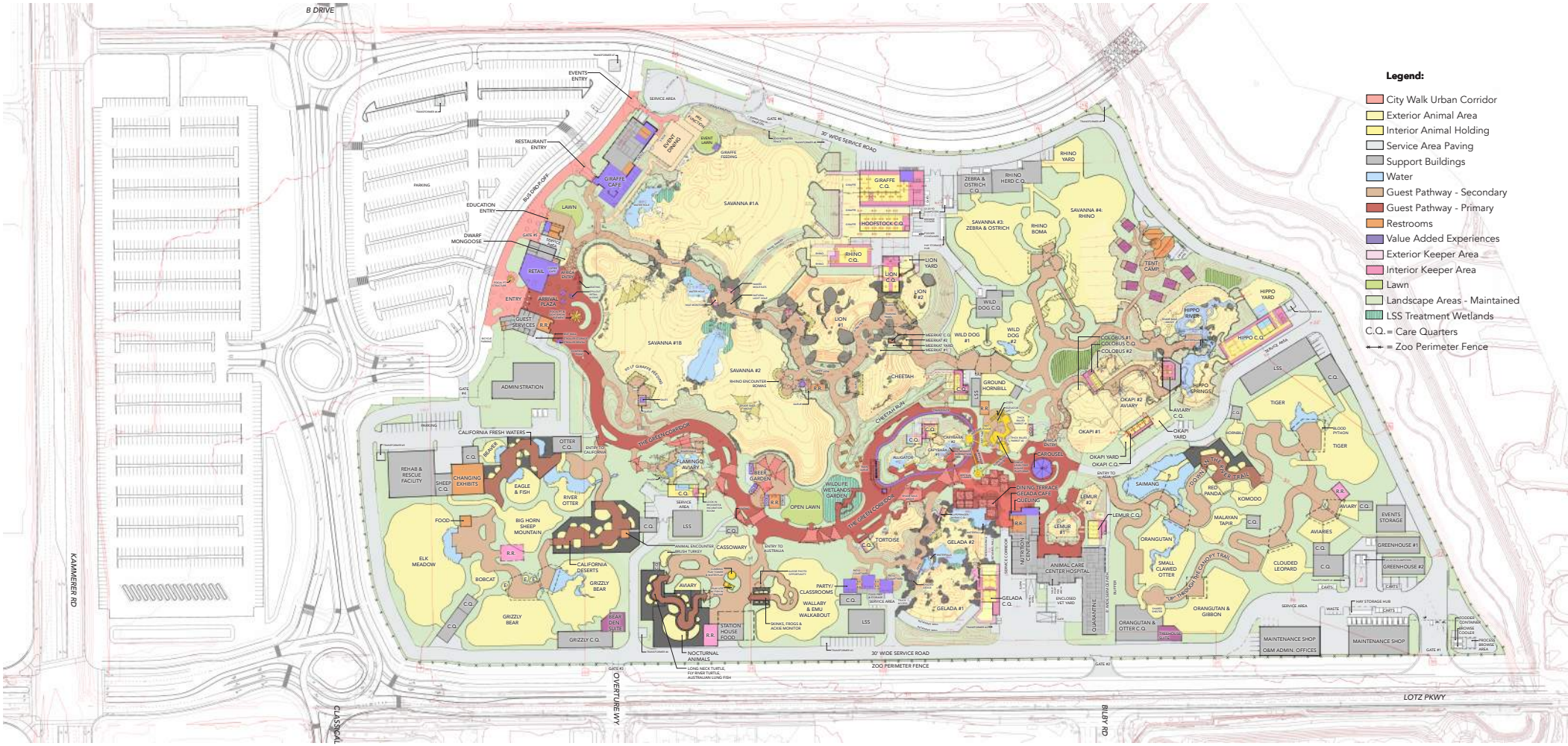
Figure 1
Project Vicinity Map and Study Facilities

NOT TO SCALE



New Zoo at Elk Grove Future

SAC ZOO
New Zoo at Elk Grove, Approvals Phase
Date: 03/31/2023

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Figure 2
Proposed Project Site Plan

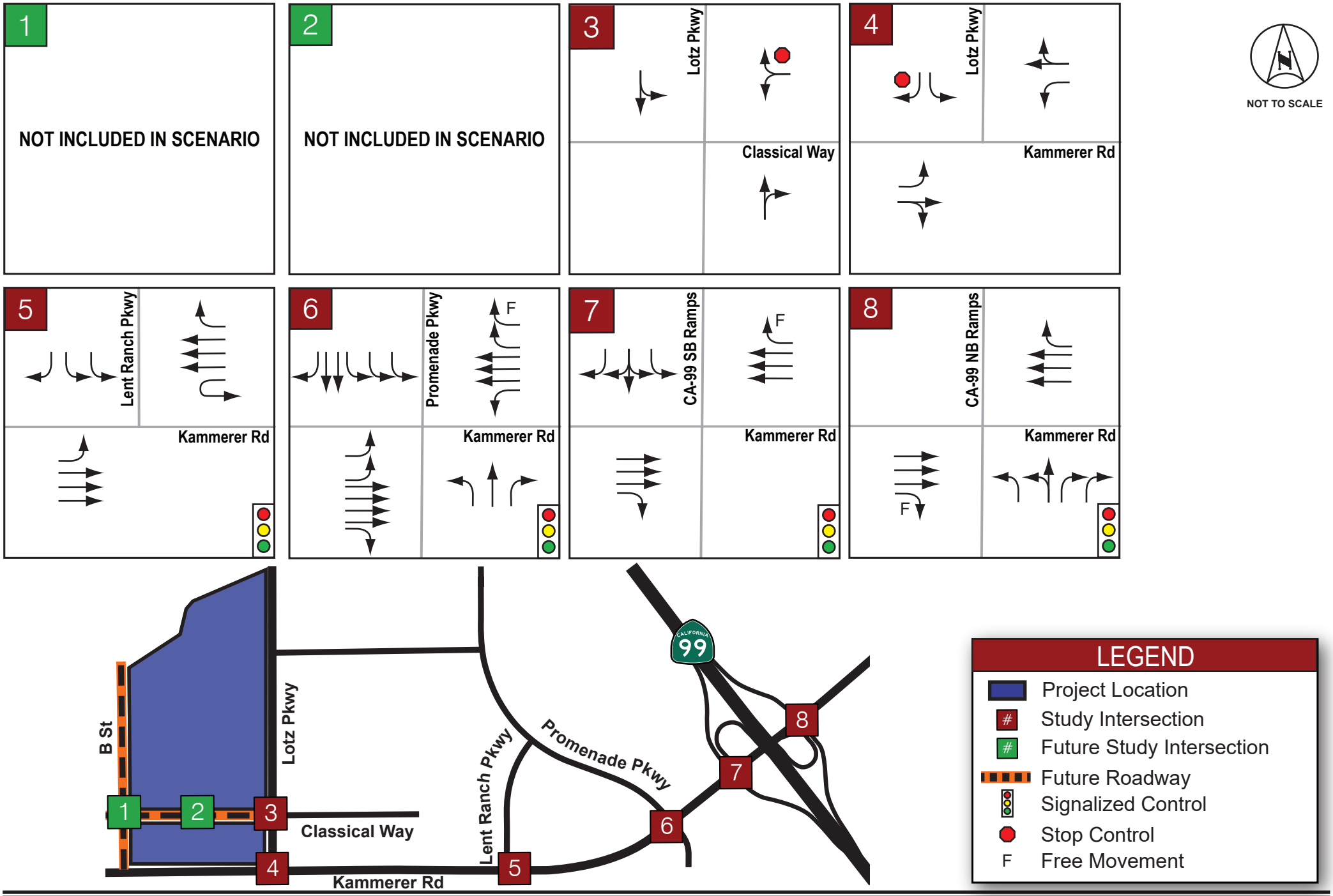

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Figure 3

Existing (2023) Study Intersections, Traffic Control, and Lane Geometry

PROJECT AREA ROADWAYS

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

Kammerer Road is an east-west arterial roadway that presently extends from Bruceville Road to SR-99 (where it turns into Grant Line Road). Kammerer Road serves as the southern boundary road of the City of Elk Grove. The existing Kammerer Road varies between two and six lanes and serves approximately 11,000 vehicles per typical weekday. Future plans call for Kammerer Road's expansion to eight lanes proximate to the SR-99 interchange and six lanes immediately west of the intersection with Lotz Parkway. This expansion is intended to occur in a manner that keeps pace with anticipated development proximate to Kammerer Road.

Lotz Parkway is a north-south collector roadway that presently extends from Kammerer Road to Kyler Road. The existing Lotz Parkway is two lanes for its duration and serves approximately 1,000 vehicles per typical weekday. Future plans call for Lotz Parkway's expansion to four lanes and for it to be extended from Kyler Road to connect with Whitelock Parkway.

Classical Way is an east-west collector roadway that presently serves the existing residential community east of Lotz Parkway proximate to the project site. Future plans call for Classical Way's extension west to Bruceville Road. Future westward segments of Classical Way are anticipated to ultimately be four lanes and serve more as arterial functions for the regional network. Classical Way will bisect the zoo parking lots at the time of opening day.

B Street is a future north-south collector roadway that is planned to extend from Kammerer Road to the residential communities beyond the drainage swale bordering the north end of the project site. B Street is planned to be two lanes wide and will serve auxiliary access points to the zoo.

ASSESSMENT OF PROPOSED PROJECT

Proposed Project Trip Generation and Assignment

The number of trips anticipated to be generated by the Proposed Project were approximated using data provided by the City[2], the existing zoo operators[3], and professional judgement. Based on conversations with City staff in Spring 2023, it was agreed that an 8% reduction in private vehicle trips would be applicable to account for visitors and zoo staff arriving via alternative modes. The visitor and employee Proposed Project trip generation for the Weekday AM, Weekday PM, and Weekend Midday peak-hours is presented in Table 1 and Table 2.

Table 1 – Visitor Proposed Project Trip Generation

	Scenario	Daily Trips	AM Peak-Hour					Midday					PM Peak-Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips		%	Trips	%	Trips
PH1 Zoo	Weekday	860	25	80%	20	20%	5						189	40%	76	60%	113
	Weekend	3,545						731	60%	441	40%	290					
PH2 Zoo	Weekday	932	27	81%	22	19%	5						208	41%	86	59%	122
	Weekend	3,841						792	60%	478	40%	314					
Reductions																	
8% alternative modes (per City)		*0.92*															
PH1 Zoo Net Vehicle	Weekday	**791**	**23**		**19**		**4**						**174**		**70**		**104**
	Weekend	**3,261**						**673**		**406**		**267**					
PH2 Zoo Net Vehicle	Weekday	**857**	**25**		**20**		**5**						**191**		**79**		**112**
	Weekend	**3,534**						**729**		**440**		**289**					

Table 2 – Employee Proposed Project Trip Generation

	Scenario	Daily Trips	AM Peak-Hour					Midday					PM Peak-Hour				
			Total Trips	IN		OUT		Total Trips	IN		OUT		Total Trips	IN		OUT	
				%	Trips	%	Trips		%	Trips	%	Trips		%	Trips	%	Trips
PH1 Zoo	Weekday	370	263	98%	258	2%	5						203	2%	5	98%	198
	Weekend	370						0		0		0					
PH2 Zoo	Weekday	401	285	98%	280	2%	5						220	2%	5	98%	215
	Weekend	401						0		0		0					
Reductions																	
8% alternative modes (per City)		*0.92*															
PH1 Zoo Net Vehicle	Weekday	**340**	**242**		**237**		**5**						**187**		**5**		**182**
	Weekend	**340**						**0**		**0**		**0**					
PH2 Zoo Net Vehicle	Weekday	**369**	**262**		**258**		**4**						**202**		**5**		**197**
	Weekend	**369**						**0**		**0**		**0**					

Project traffic was distributed and assigned to the roadway network based on local understanding of vehicular patterns in the study area, input from City staff, anticipation of advance wayfinding installations and enhanced GPS routing, and professional judgement. As the areas surrounding the Project site are not fully built out, it is anticipated that the proximate roadway network and surrounding developments will vary between analysis scenarios.

[3] *Zoo Traffic Analysis Support – Data Collection*, Fehr & Peers, December 9, 2021.

STUDY METHODOLOGY

Intersection Analysis

While level of service (LOS) has traditionally been used in evaluating intersection performance, the City of Elk Grove utilizes a Performance Target system, where roadways and intersections are designed to a target design capacity (ADT for segments) or delay (for intersections), but individual locations may fluctuate above or below this target based upon a number of factors (e.g., location, land use context, available right-of-way, cost to construct the improvements, cost to maintain the improvements). These Intersection Performance Targets are presented in Table 3. The delay metrics presented in this study were determined using methods defined in the *Highway Capacity Manual (HCM)* and appropriate traffic analysis software (Synchro® or VISSIM®).

Table 3 – Intersection Performance Targets

Intersection Control	Delay (seconds)
Stop (Side-Street & All-Way)	< 35.1
Signal	< 55.1
Roundabout	< 35.1

Source: *Transportation Analysis Guidelines*, City of Elk Grove

Roadway Segment Analysis

Roadway segments were assessed using the Average Daily Traffic (ADT) and evaluated against relevant Roadway Segment Performance Targets to identify operational deficiencies per the City's guidelines[1].

Analysis Scenarios

As described in the following sections, the delay analysis was conducted for the study facilities for the following scenarios: Existing (2023) Conditions, Opening Year (2028) Conditions, Opening Year (2028) plus Project Conditions, Cumulative (2050) Conditions, and Cumulative (2050) plus Project Conditions.

EXISTING (2023) CONDITIONS

Existing traffic counts were collected to establish the existing conditions of the study area intersections. Counts were performed on Saturday, April 29, 2023, between 10 AM-2 PM and on Tuesday, May 2, 2023, between 6-9 AM and 4-7 PM. Existing (2023) Conditions Weekday AM, Weekday PM, and Weekend Midday peak-hour traffic volumes are presented in Figure 4. The relevant traffic count data sheets are provided in Appendix A.

Intersections

Table 4 presents the intersection operating conditions for this scenario. As indicated in Table 4, the study intersections operate within the City's Intersection Performance Targets. Analysis worksheets are included in Appendix B.

Table 4 – Existing (2023) Intersection Delay

ID	Intersection	Peak Hour	Performance Target (Delay, in seconds)	Existing (2023)	
				Control	Delay (sec)
1	Classical Way @ B St	AM	-	Not Included in Analysis Scenario	
		PM			
		Wknd Midday			
2	Classical Way @ Site Entrance	AM	-	Not Included in Analysis Scenario	
		PM			
		Wknd Midday			
3	Classical Way @ Lotz Pkwy	AM	35.1	SSSC	2.5(9.4 WBL)
		PM			1.2(9.5 WBL)
		Wknd Midday			2.0(9.1 WBL)
4	Kammerer Rd @ Lotz Pkwy	AM	35.1	SSSC	1.6(15.1 SBL)
		PM			2.3(33.4 SBL)
		Wknd Midday			0.9(14.2 SBL)
5	Kammerer Rd @ Lent Ranch Pkwy	AM	55.1	Signal	1.5
		PM			1.6
		Wknd Midday			2.6
6	Kammerer Rd @ Promenade Pkwy	AM	55.1	Signal	23.1
		PM			24.3
		Wknd Midday			23.0
7	Kammerer Rd @ SR-99 Southbound Ramps	AM	55.1	Signal	9.2
		PM			9.5
		Wknd Midday			9.4
8	Kammerer Rd @ SR-99 Northbound Ramps	AM	55.1	SIgnal	11.3
		PM			10.3
		Wknd Midday			9.5

Note: Side Street Stop Controlled (SSSC) reported as intersection delay followed by worst movement's delay.

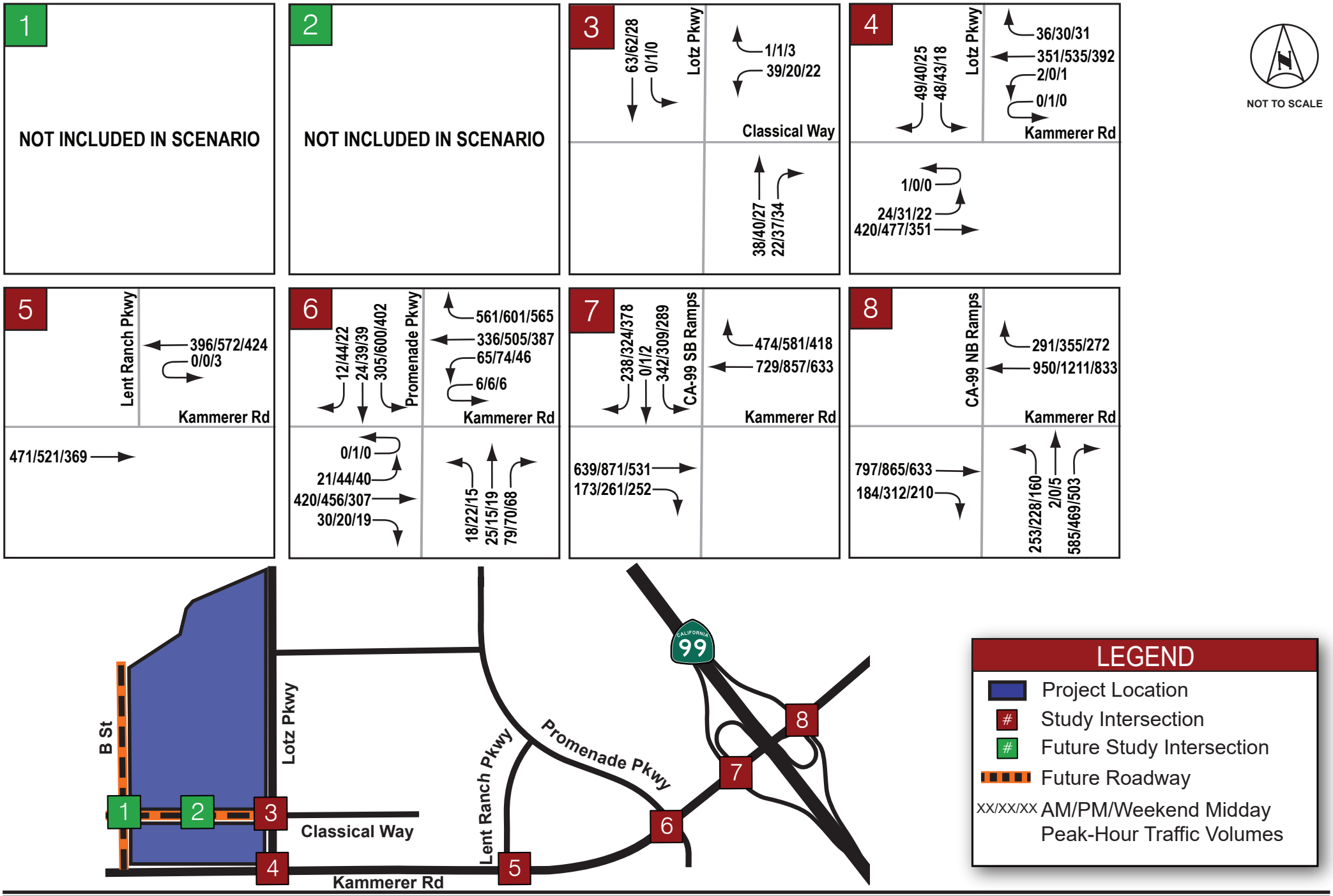

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Figure 4
Existing (2023) Peak-Hour Traffic Volumes

Roadway Segments

Table 5 presents the roadway segment operating conditions for this analysis scenario. As shown, all study roadway segments operate below the City's appropriate ADT design targets[1].

Table 5 – Existing (2023) Roadway Segment Operations

Segment	Location	Facility Type	No. of Lanes	Weekday Existing (2023) ADT	Weekend Existing (2023) ADT[1]	Existing ADT Design Target[2]
A	Lotz Pkwy, north of Classical Way	Collector	2	1,057	1,018	14,600
B	Kammerer Rd, west of Lotz Pkwy	Arterial	2	10,685	10,295	19,600
C	Kammerer Rd, between Lotz Pkwy & Lent Ranch Pkwy	Arterial	2	11,026	10,624	19,600
D	Kammerer Rd, between Lent Ranch Pkwy & Promenade Pkwy	Arterial	6	10,952	10,553	54,000
E	Kammerer Rd, between Promenade Pkwy & SR-99 SB Ramps	Arterial	6	28,349	27,315	54,000

[1]Weekday ADT related to Weekend using available PeMS 2022 data

[2]Transportation Analysis Guidelines, City of Elk Grove, Adopted February 2019

OPENING YEAR (2028) CONDITIONS

The traffic volumes anticipated in the Opening Year (2028) condition were developed from the City's updated version of the Transportation Demand Model (TDM). In coordination with City staff[4], assumptions were made regarding both development intensity of surrounding undeveloped parcels and constructed roadway network links at the time of the 2028 analysis scenario. Using these volumes, intersection delay performance was determined at the study facilities. As a result of funding by proximate development, Intersection #4 (Kammerer Road and Lotz Parkway) was assumed to be converted from side-street stop control (SSSC) to signalized control by 2028. Figure 5 presents lane geometry information for Opening Year (2028) analysis scenario. Opening Year (2028) peak-hour traffic volumes are presented in Figure 6 for the Weekday AM, Weekday PM, and Weekend Midday peak-hours.

Intersections

Table 6 presents the intersection operating conditions for this scenario. As indicated in Table 6, the study intersections operate within the City's Intersection Performance Targets. Analysis worksheets are included in Appendix C.

[4] Email correspondence with Christopher Jordan, City of Elk Grove, March 2, 2023.

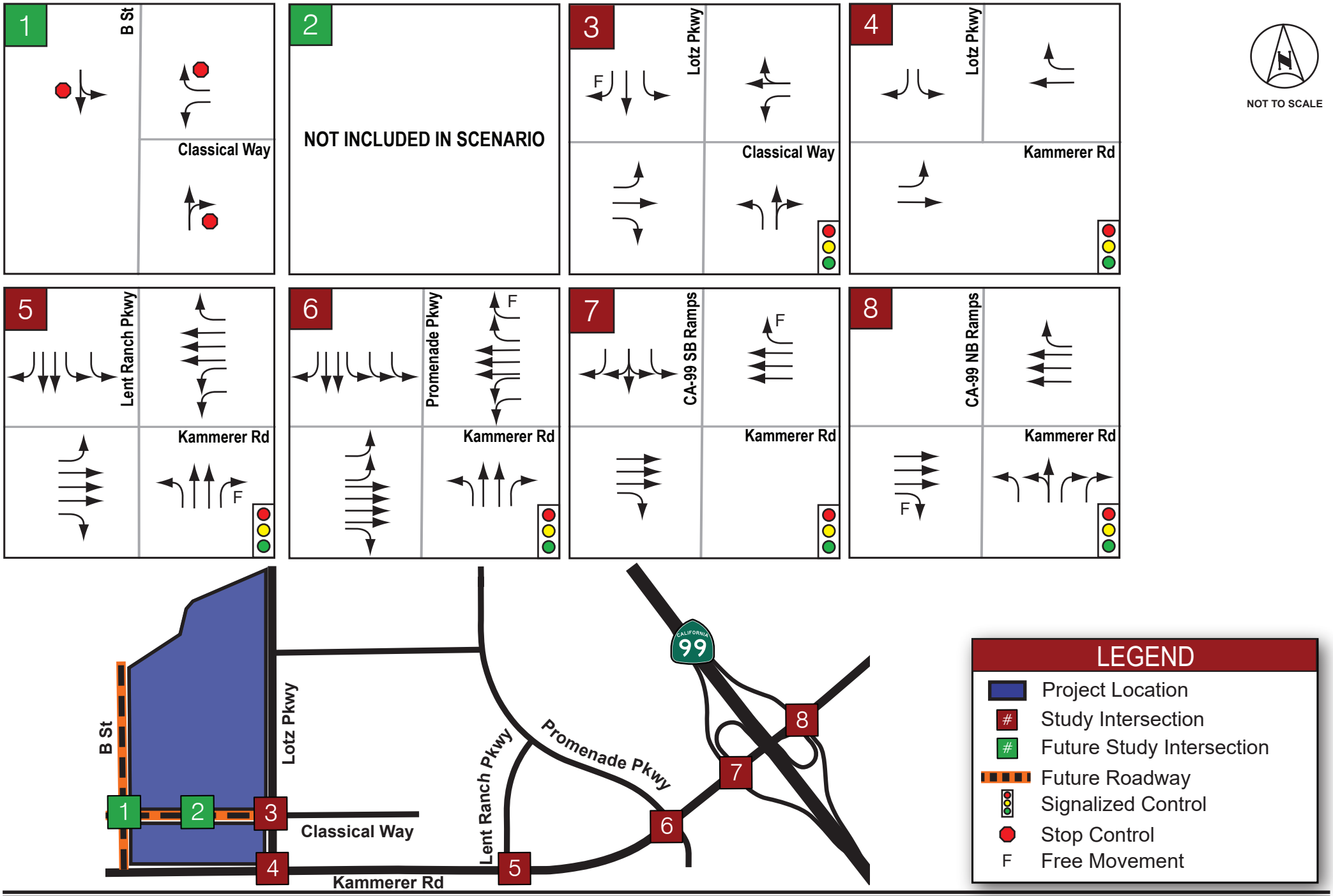

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Figure 5

Opening Year (2028) Study Intersections, Traffic Control, and Lane Geometry

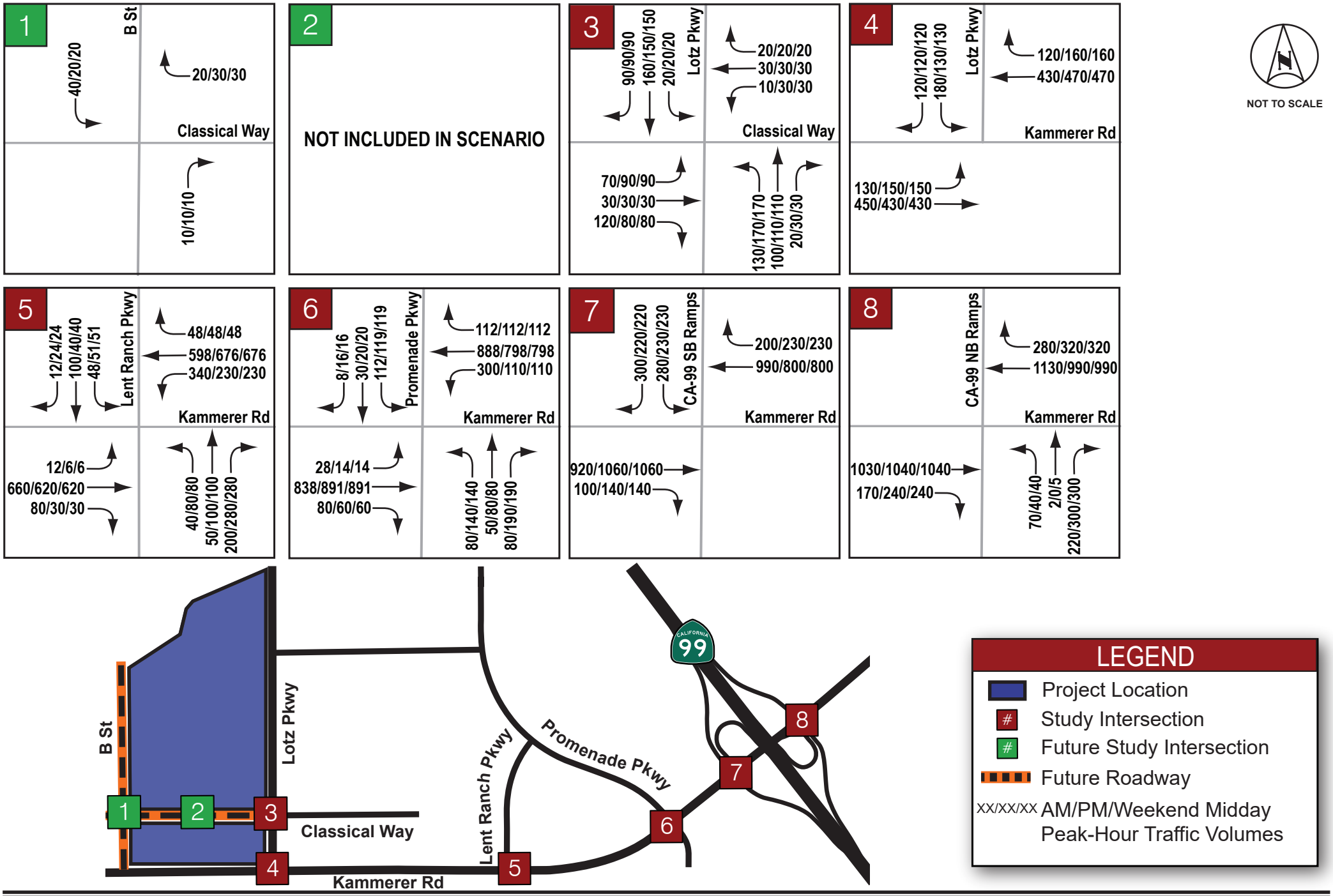

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Figure 6
Opening Year (2028) Peak-Hour Traffic Volumes

Table 6 – Opening Year (2028) Intersection Delay

ID	Intersection	Peak Hour	Performance Target (Delay, in seconds)	Opening Year (2028)	
				Control	Delay (sec)
1	Classical Way @ B St	AM	35.1	AWSC	7.6
		PM			7.8
		Wknd Midday			7.8
2	Classical Way @ Site Entrance	AM	-	Not Included in Analysis Scenario	
		PM			
		Wknd Midday			
3	Classical Way @ Lotz Pkwy	AM	55.1	Signal	16.1
		PM			17.5
		Wknd Midday			17.2
4	Kammerer Rd @ Lotz Pkwy	AM	55.1	Signal	12.2
		PM			12.9
		Wknd Midday			12.2
5	Kammerer Rd @ Lent Ranch Pkwy	AM	55.1	Signal	20.3
		PM			20.4
		Wknd Midday			20.4
6	Kammerer Rd @ Promenade Pkwy	AM	55.1	Signal	25.1
		PM			24.9
		Wknd Midday			26.9
7	Kammerer Rd @ SR-99 Southbound Ramps	AM	55.1	Signal	9.3
		PM			8.9
		Wknd Midday			8.8
8	Kammerer Rd @ SR-99 Northbound Ramps	AM	55.1	Signal	8.4
		PM			8.7
		Wknd Midday			8.6

Roadway Segments

Table 7 presents the roadway segment operating conditions for this analysis scenario. As shown, all study roadway segments operate below the City's appropriate ADT design targets[1].

Table 7 – Opening Year (2028) Roadway Segment Operations

Segment	Location	Facility Type	No. of Lanes	Weekday Opening Year (2028) ADT	Weekend Opening Year (2028) ADT[1]	Opening Year ADT Design Target[2]
A	Lotz Pkwy, north of Classical Way	Collector	2	5,568	5,365	14,600
B	Kammerer Rd, west of Lotz Pkwy	Arterial	2	18,109	17,448	19,600
C	Kammerer Rd, between Lotz Pkwy & Lent Ranch Pkwy	Arterial	2	18,795	18,110	19,600
D	Kammerer Rd, between Lent Ranch Pkwy & Promenade Pkwy	Arterial	6	20,741	19,985	54,000
E	Kammerer Rd, between Promenade Pkwy & SR-99 SB Ramps	Arterial	6	40,906	39,414	54,000

[1]Weekday ADT related to Weekend using available PeMS 2022 data

[2]Transportation Analysis Guidelines, City of Elk Grove, Adopted February 2019

OPENING YEAR (2028) PLUS PROJECT CONDITIONS

The number of trips anticipated to be generated by the Proposed Project were approximated using data provided by the City[2], the existing zoo operators[3], and professional judgement. As the zoo is planned to be developed in stages as different funding sources become available, Phase 1 buildout[2] of the zoo was assumed for this analysis. These trips were then assigned to the roadway network based on local understanding of vehicular patterns in the study area, input from City staff, anticipation of advance wayfinding installations and enhanced GPS routing, and professional judgement. These Project volume patterns were subsequently added to the previously developed base Opening Year (2028) volumes to evaluate operations at the study facilities. Project trip distribution for Opening Year (2028) is illustrated in Figure 7. The corresponding trip assignment is shown in Figure 8.

Figure 9 presents lane geometry information for the Opening Year (2028) plus Project analysis scenario. Opening Year (2028) plus Project peak-hour traffic volumes are presented in Figure 10 for the Weekday AM, Weekday PM, and Weekend Midday peak-hours.

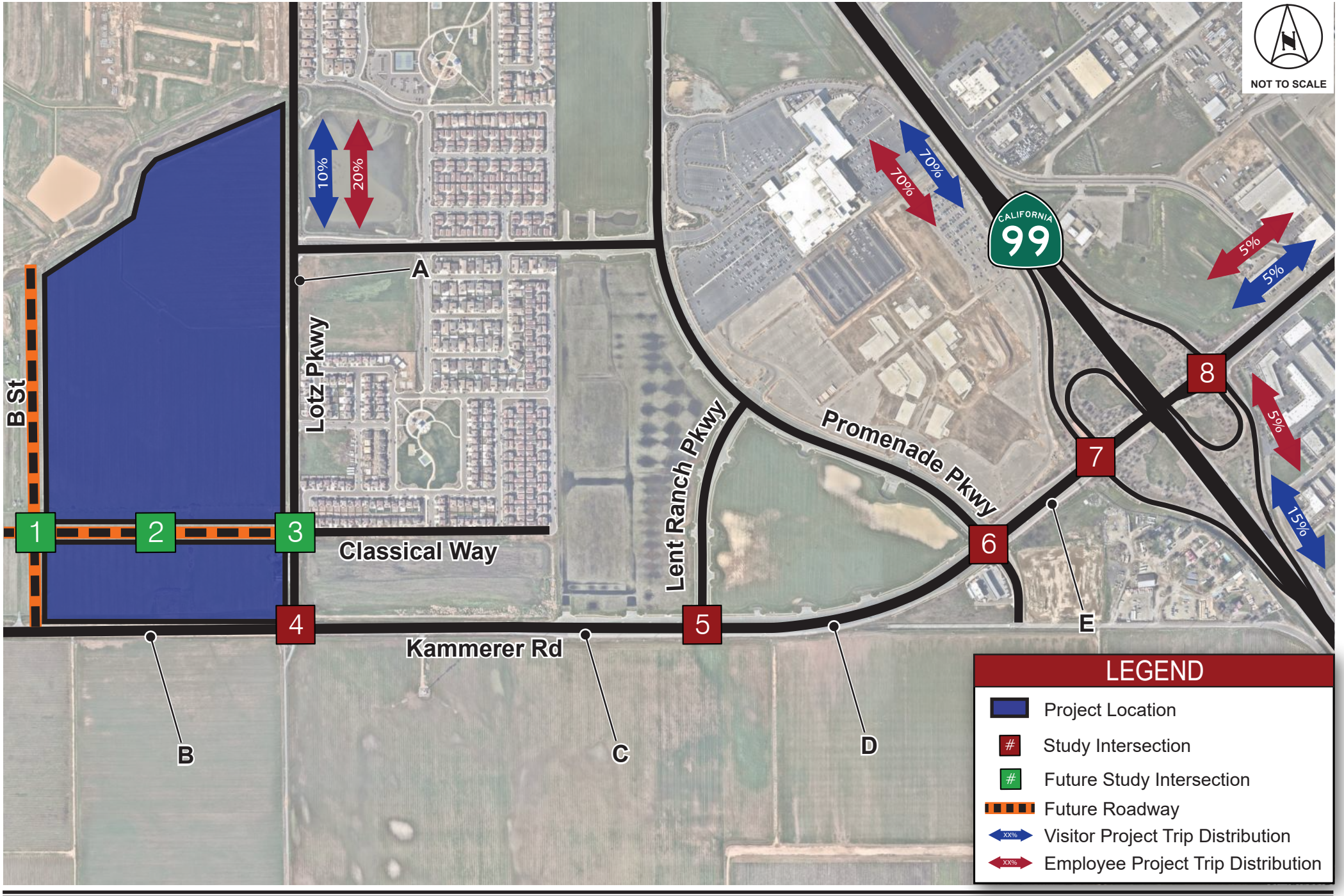

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Figure 7
Opening Year (2028) Project Trip Distribution

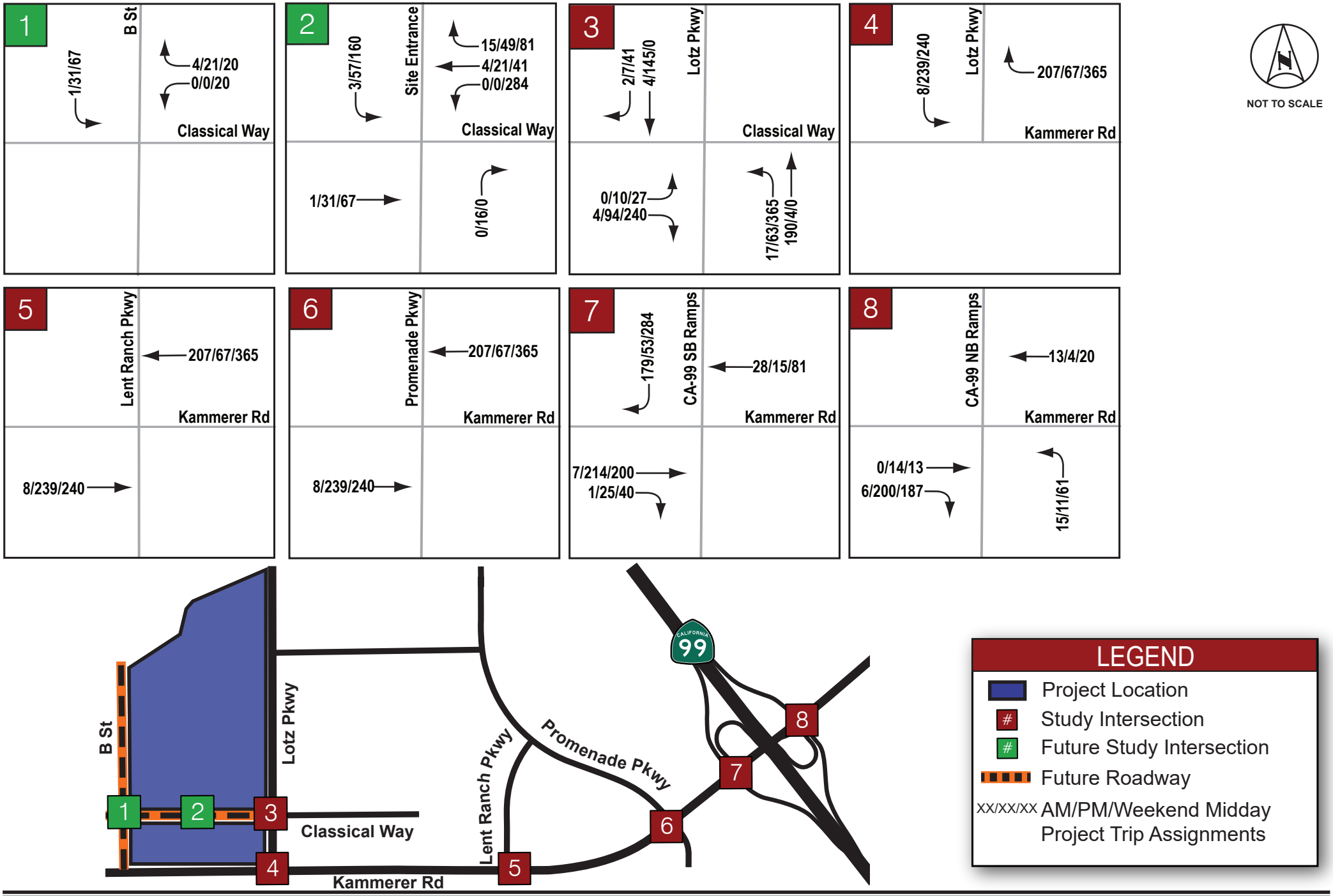

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Figure 8
Opening Year (2028) Project Trip Assignment

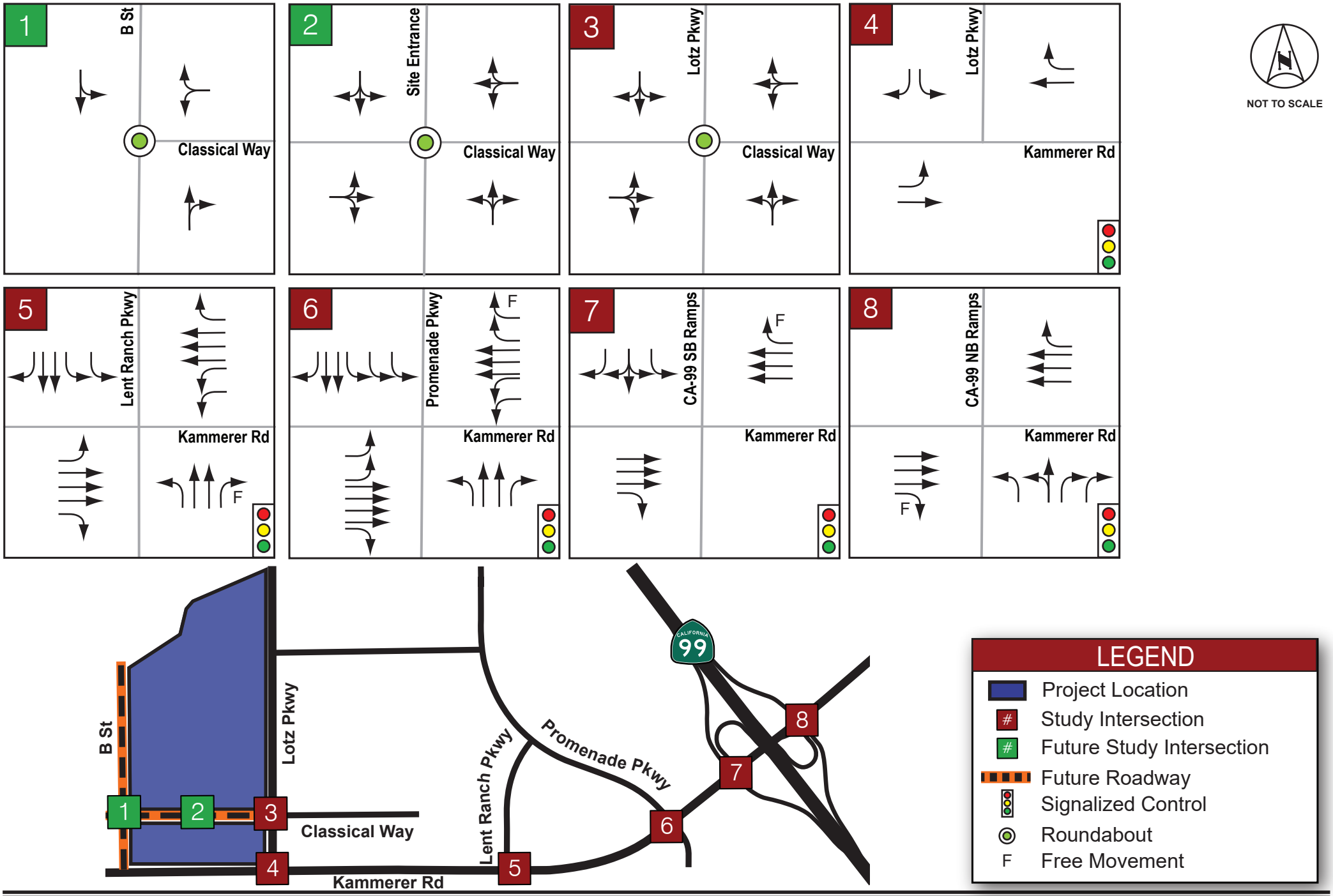

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Figure 9

Opening Year (2028) plus Project Study Intersections, Traffic Control, and Lane Geometry

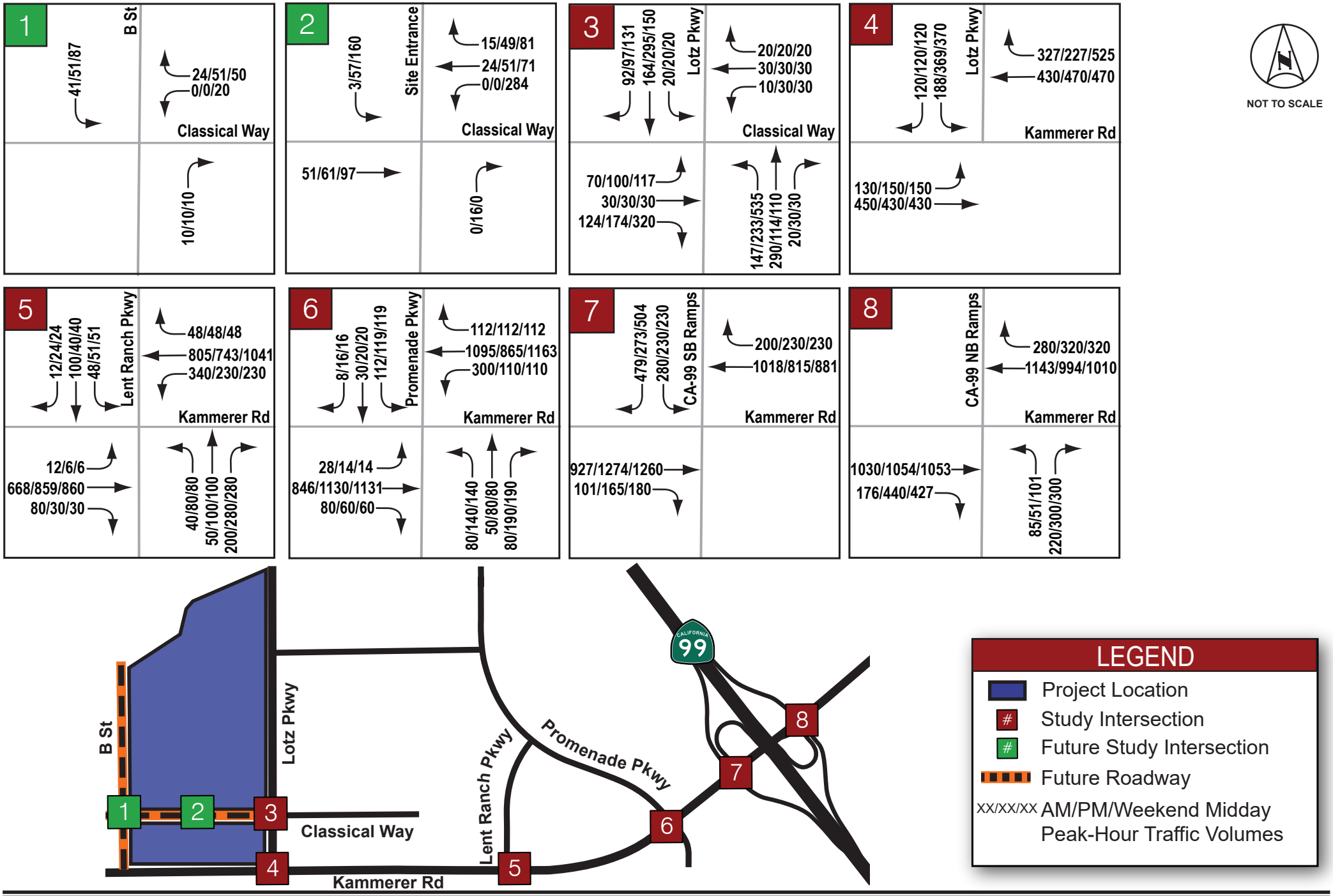

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Figure 10

Opening Year (2028) plus Project Peak-Hour Traffic Volumes

Intersections

Table 8 presents the intersection operating conditions for this scenario. As indicated in Table 8, the study intersections operate within the City's Intersection Performance Targets. Analysis Worksheets are included in Appendix D.

Table 8 – Opening Year (2028) plus Project Intersection Delay

ID	Intersection	Peak Hour	Performance Target (Delay, in seconds)	Opening Year (2028)		Opening Year (2028) plus Project	
				Control	Delay (sec)	Control	Delay (sec)
1	Classical Way @ B St	AM	35.1	AWSC	7.6	RAB*	3.6
		PM			7.8		3.7
		Wknd Midday			7.8		3.9
2	Classical Way @ Site Entrance	AM	35.1	Not Included in Analysis Scenario		RAB*	3.7
		PM					4.1
		Wknd Midday					5.3
3	Classical Way @ Lotz Pkwy	AM	55.1	Signal	16.1	RAB*	6.3
		PM			17.5		7.2
		Wknd Midday			17.2		9.8
4	Kammerer Rd @ Lotz Pkwy	AM	55.1	Signal	12.2	Signal	13.0
		PM			12.9		30.3
		Wknd Midday			12.2		49.0
5	Kammerer Rd @ Lent Ranch Pkwy	AM	55.1	Signal	20.3	Signal	20.1
		PM			20.4		20.8
		Wknd Midday			20.4		20.7
6	Kammerer Rd @ Promenade Pkwy	AM	55.1	Signal	25.1	Signal	25.4
		PM			24.9		25.7
		Wknd Midday			26.9		28.2
7	Kammerer Rd @ SR-99 Southbound Ramps	AM	55.1	Signal	9.3	Signal	10.1
		PM			8.9		9.1
		Wknd Midday			8.8		11.0
8	Kammerer Rd @ SR-99 Northbound Ramps	AM	55.1	Signal	8.4	Signal	8.5
		PM			8.7		8.7
		Wknd Midday			8.6		8.7

*Results reported from SIDRA analysis outputs

Roadway Segments

Table 9 presents the roadway segment operating conditions for this analysis scenario. As shown, all study roadway segments operate below the City's appropriate ADT design targets[1]. As the Project is expected to be self-mitigating, Segment C (Kammerer Road, between Lotz Parkway and Lent Ranch Parkway) reflects necessary expansion from a two-lane arterial to a four-lane arterial due to anticipated daily volumes resulting from the addition of the Zoo.

Table 9 – Opening Year (2028) plus Project Roadway Segment Operations

Segment	Location	Facility Type	No. of Lanes	Weekday Opening Year (2028) plus Project ADT	Weekend Opening Year (2028) plus Project ADT[1]	Opening Year ADT Design Target[2]
A	Lotz Pkwy, north of Classical Way	Collector	2	5,728	5,794	14,600
B	Kammerer Rd, west of Lotz Pkwy	Arterial	2	18,109	17,448	19,600
C	Kammerer Rd, between Lotz Pkwy & Lent Ranch Pkwy	Arterial	4	19,865	21,597	37,200
D	Kammerer Rd, between Lent Ranch Pkwy & Promenade Pkwy	Arterial	6	21,811	23,472	54,000
E	Kammerer Rd, between Promenade Pkwy & SR-99 SB Ramps	Arterial	6	41,976	42,901	54,000

[1]Weekday ADT related to Weekend using available PeMS 2022 data

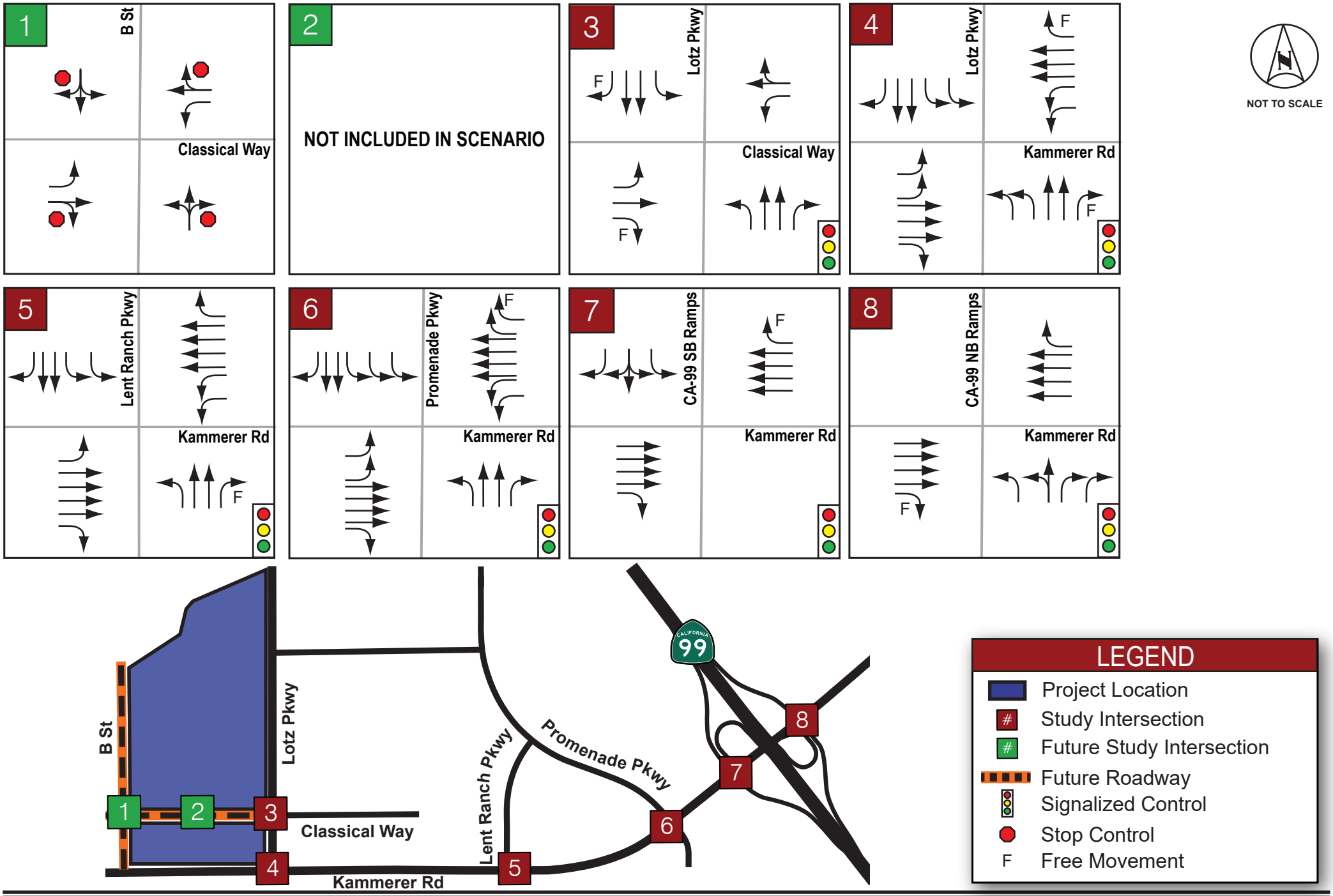
[2]Transportation Analysis Guidelines, City of Elk Grove, Adopted February 2019

CUMULATIVE (2050) CONDITIONS

The traffic volumes anticipated in the Cumulative (2050) condition were developed from the City's updated version of the Transportation Demand Model (TDM). The Cumulative (2050) condition assumes full build-out of all available parcels in proximity to the project site and of the nearby transportation network. Using these volumes, intersection delay performance was determined at the study facilities. Figure 11 presents anticipated lane geometry information for the baseline Cumulative (2050) analysis scenario. Cumulative (2050) peak-hour traffic volumes are presented in Figure 12 for the Weekday AM, Weekday PM, and Weekend Midday peak-hours.

Intersections

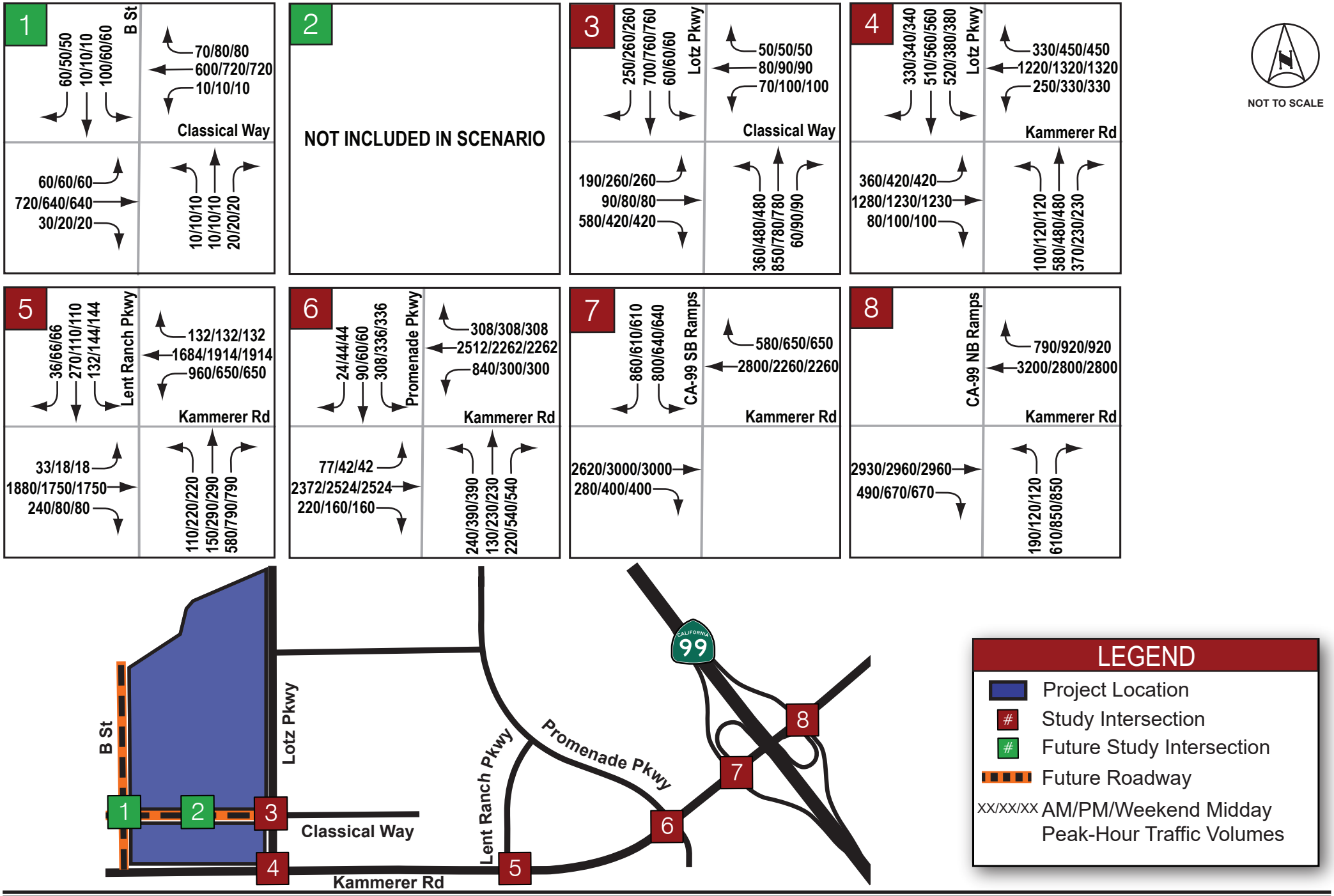
Table 10 presents the intersection operating conditions for this scenario. As indicated in Table 10, two study intersection operate beyond the City's Intersection Performance Targets. Analysis worksheets are included in Appendix E.



Kimley»Horn

Figure 11

Cumulative (2050) Study Intersections, Traffic Control, and Lane Geometry



Kimley»Horn

Figure 12
Cumulative (2050) Peak-Hour Traffic Volumes

Table 10 – Cumulative (2050) Intersection Delay

ID	Intersection	Peak Hour	Performance Target (Delay, in seconds)	Cumulative Year (2050)	
				Control	Delay (sec)
1	Classical Way @ B St	AM	35.1	AWSC	**35.3**
		PM			32.5
		Wknd Midday			32.5
2	Classical Way @ Site Entrance	AM	-	Not Included in Analysis Scenario	
		PM			
		Wknd Midday			
3	Classical Way @ Lotz Pkwy	AM	55.1	Signal	29.5
		PM			47.9
		Wknd Midday			47.9
4	Kammerer Rd @ Lotz Pkwy	AM	55.1	Signal	50.3
		PM			42.7
		Wknd Midday			42.7
5	Kammerer Rd @ Lent Ranch Pkwy	AM	55.1	Signal	49.6
		PM			35.4
		Wknd Midday			35.4
6	Kammerer Rd @ Promenade Pkwy	AM	55.1	Signal	**108.3**
		PM			**181.1**
		Wknd Midday			**181.1**
7	Kammerer Rd @ SR-99 Southbound Ramps	AM	55.1	Signal	38.2
		PM			22.5
		Wknd Midday			22.5
8	Kammerer Rd @ SR-99 Northbound Ramps	AM	55.1	SIgnal	18.3
		PM			32.6
		Wknd Midday			32.6

Note: **Bold** represents conditions beyond the Intersection Performance Threshold

Roadway Segments

Table 11 presents the roadway segment operating conditions for this analysis scenario. As shown, all study roadway segments operate below the City's appropriate ADT design targets[1] for Weekday and Weekend traffic volumes.

Table 11 – Cumulative (2050) Roadway Segment Operations

Segment	Location	Facility Type	No. of Lanes	Weekday Cumulative (2050) ADT	Weekend Cumulative (2050) ADT[1]	Cumulative ADT Design Target[2]
A	Lotz Pkwy, north of Classical Way	Collector	4	30,678	29,559	31,400
B	Kammerer Rd, west of Lotz Pkwy	Arterial	6	54,205	52,228	54,000
C	Kammerer Rd, between Lotz Pkwy & Lent Ranch Pkwy	Expressway	8	57,452	55,357	97,200
D	Kammerer Rd, between Lent Ranch Pkwy & Promenade Pkwy	Expressway	8	71,085	68,493	97,200
E	Kammerer Rd, between Promenade Pkwy & SR-99 SB Ramps	Expressway	8	94,206	90,770	97,200

[1]Weekday ADT related to Weekend using available PeMS 2022 data

[2]Transportation Analysis Guidelines, City of Elk Grove, Adopted February 2019

CUMULATIVE (2050) PLUS PROJECT CONDITIONS

The number of trips anticipated to be generated by the Proposed Project were approximated using data provided by the City[2], the existing zoo operators[3], and professional judgement. As the zoo is planned to be developed in stages as different funding sources become available, Phase 2 buildout[2] of the zoo was assumed for this analysis. These trips were then assigned to the roadway network based on local understanding of vehicular patterns in the study area, input from City staff, anticipation of advanced wayfinding installations and enhanced GPS routing, and professional judgment. These project volume patterns were subsequently added to the previously developed base Cumulative (2050) volumes to evaluate operations at the study facilities. Project Trip distribution for Cumulative (2050) is illustrated in Figure 13. The corresponding trip assignment is shown in Figure 14.

Figure 15 presents lane geometry information for the Cumulative (2050) plus Project analysis scenario. Cumulative (2050) plus Project peak-hour traffic volumes are presented in Figure 16 for the Weekday AM, Weekday PM, and Weekend Midday peak-hours.

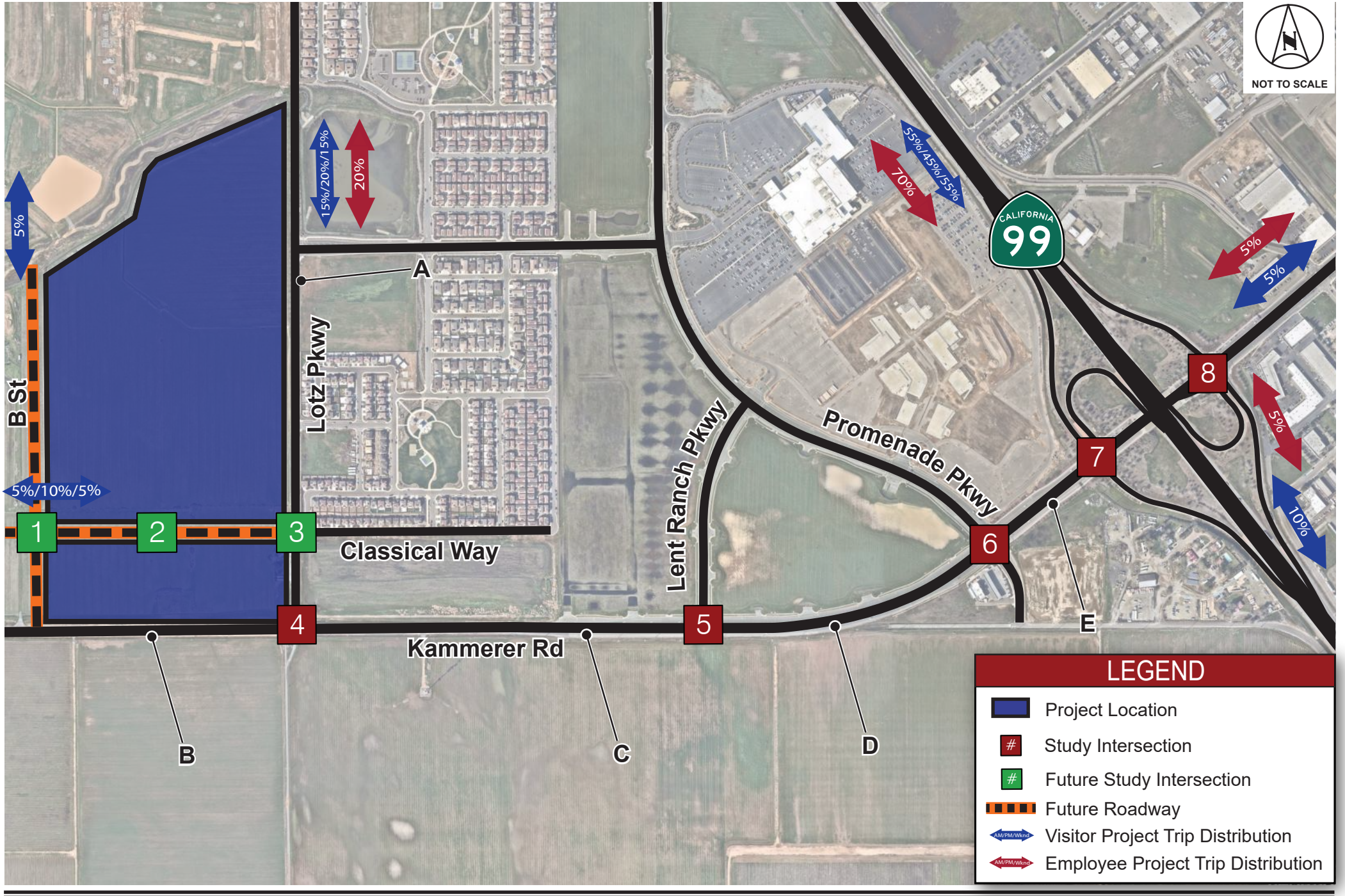


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Figure 13
Cumulative (2050) Project Trip Distribution

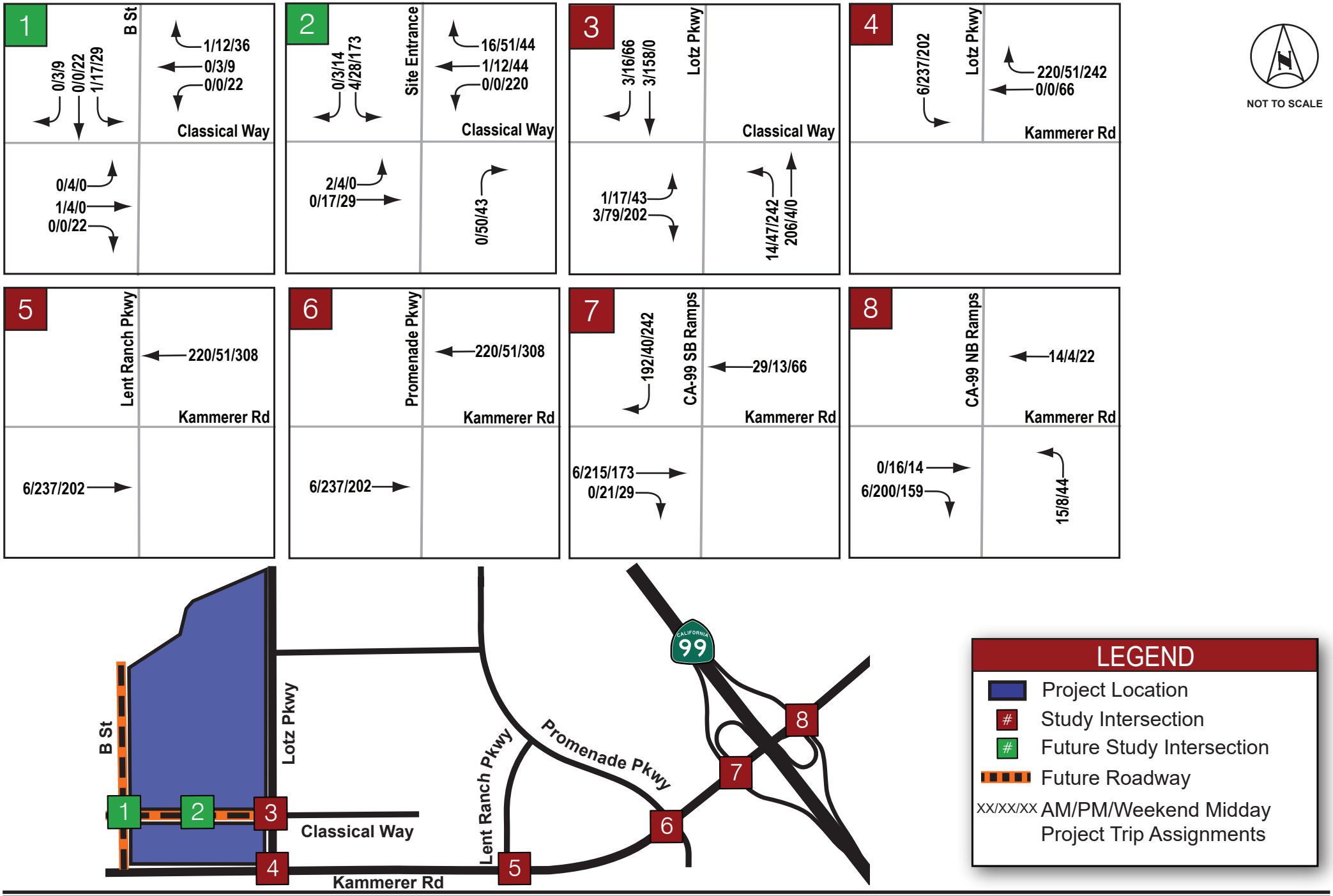

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Figure 14
Cumulative (2050) Project Trip Assignment

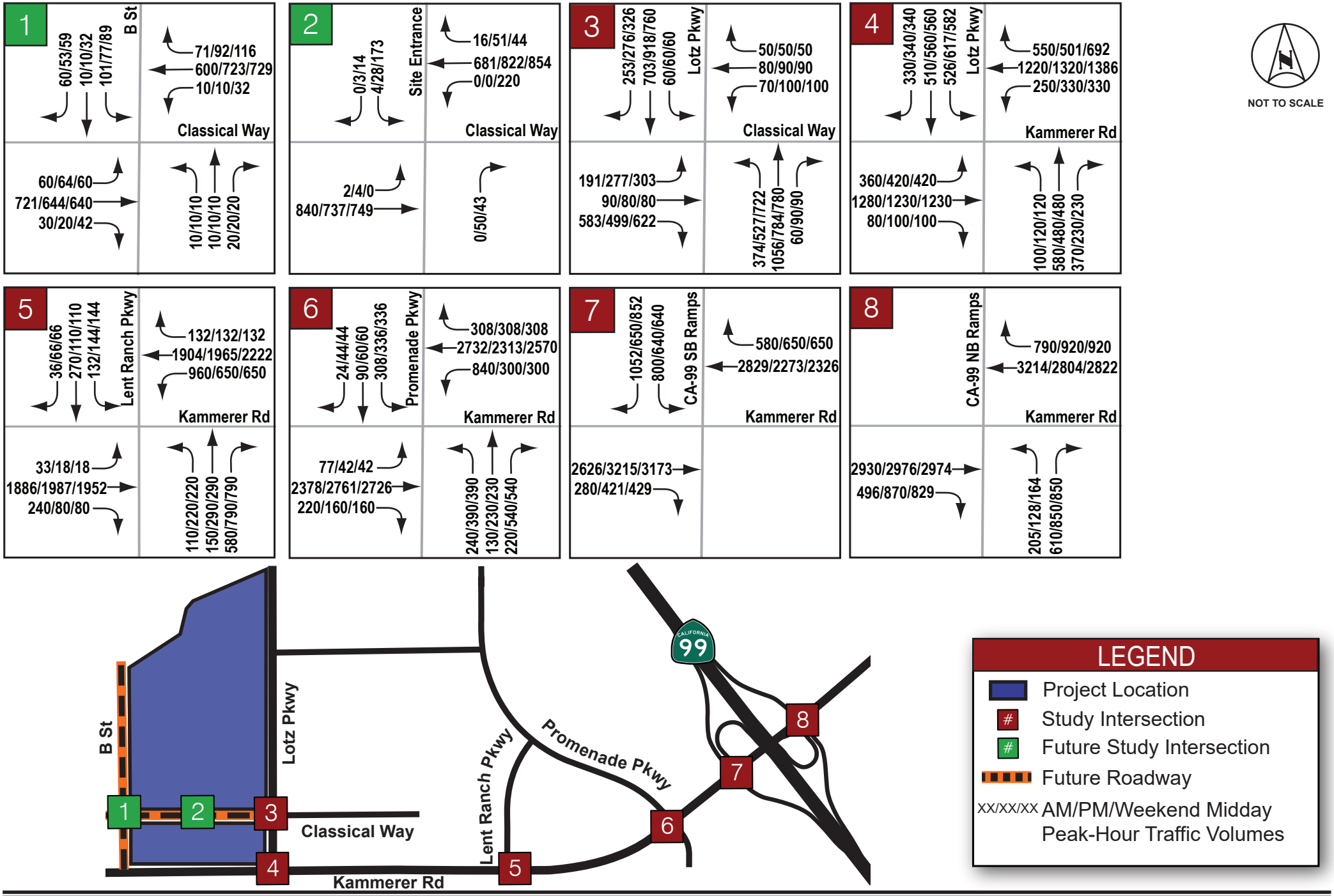

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Figure 15
Cumulative (2050) plus Project Peak-Hour Traffic Volumes

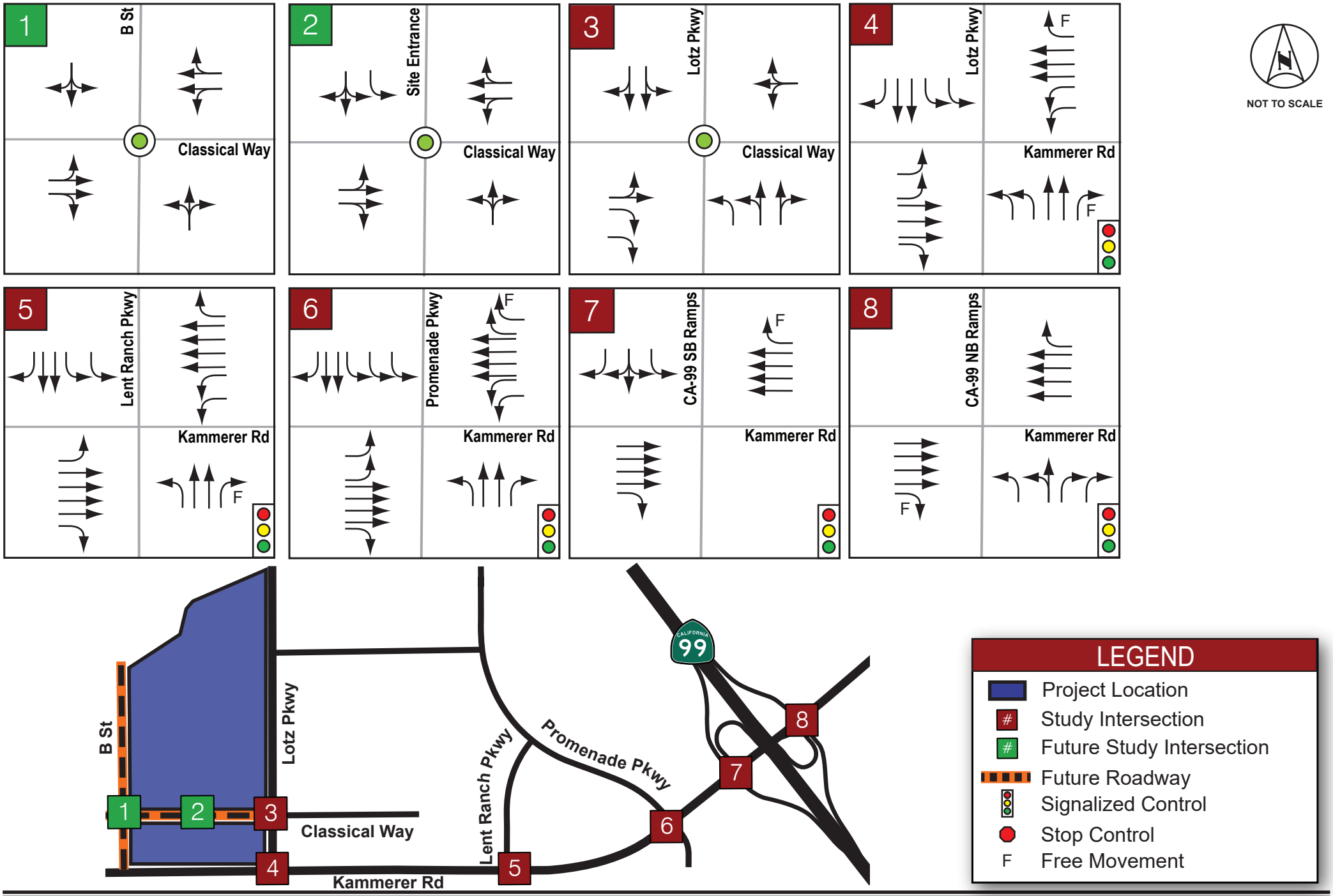

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Figure 16

Cumulative (2050) plus Project Study Intersections, Traffic Control, and Lane Geometry

Intersections

Table 12 presents the intersection operating conditions for this scenario. As indicated in Table 12, one study intersection operates beyond the City's Intersection Performance Targets. Analysis worksheets are included in Appendix F.

Table 12 – Cumulative (2050) plus Project Intersection Delay

ID	Intersection	Peak Hour	Performance Target (Delay, in seconds)	Cumulative Year (2050)		Cumulative Year (2050) plus Project	
				Control	Delay (sec)	Control	Delay (sec)
1	Classical Way @ B St	AM	35.1	AWSC	**35.3**	RAB+	5.9
		PM			32.5		5.8
		Wknd Midday			32.5		6.2
2	Classical Way @ Site Entrance	AM	35.1	Not Included in Analysis Scenario		RAB*	0.7
		PM					3.4
		Wknd Midday					11.1
3	Classical Way @ Lotz Pkwy	AM	55.1	Signal	29.5	RAB*	9.9
		PM			47.9		24.5
		Wknd Midday			47.9		25.1
4	Kammerer Rd @ Lotz Pkwy	AM	55.1	Signal	50.3	Signal*	43.7
		PM			42.7		44.8
		Wknd Midday			42.7		53.3
5	Kammerer Rd @ Lent Ranch Pkwy	AM	55.1	Signal	49.6	Signal	48.9
		PM			35.4		40.5
		Wknd Midday			35.4		39.5
6	Kammerer Rd @ Promenade Pkwy	AM	55.1	Signal	**108.3**	Signal	**115.0**
		PM			**181.1**		**202.4**
		Wknd Midday			**181.1**		**216.3**
7	Kammerer Rd @ SR-99 Southbound Ramps	AM	55.1	Signal	38.2	Signal	44.4
		PM			22.5		28.0
		Wknd Midday			22.5		38.5
8	Kammerer Rd @ SR-99 Northbound Ramps	AM	55.1	Signal	18.3	Signal	18.4
		PM			32.6		32.6
		Wknd Midday			32.6		32.8

Note: **Bold** represents conditions beyond the Intersection Performance Threshold
+Results reported from SIDRA analysis outputs
*Results reported from VISSIM analysis outputs

Roadway Segments

Table 13 presents the roadway segment operating conditions for this analysis scenario. As indicated, the study roadway segments operate within the City's Average Daily Traffic Design Target for Weekday and Weekend Average Daily Traffic.

Table 13 – Cumulative (2050) plus Project Roadway Segment Operations

Segment	Location	Facility Type	No. of Lanes	Weekday Cumulative (2050) plus Project ADT	Weekend Cumulative (2050) plus Project ADT[1]	Cumulative ADT Design Target[2]
A	Lotz Pkwy, north of Classical Way	Collector	4	30,898	30,215	31,400
B	Kammerer Rd, west of Lotz Pkwy	Arterial	6	54,205	52,228	54,000
C	Kammerer Rd, between Lotz Pkwy & Lent Ranch Pkwy	Expressway	8	58,425	58,367	97,200
D	Kammerer Rd, between Lent Ranch Pkwy & Promenade Pkwy	Expressway	8	72,058	71,503	97,200
E	Kammerer Rd, between Promenade Pkwy & SR-99 SB Ramps	Expressway	8	95,179	93,780	97,200

[1]Weekday ADT related to Weekend using available PeMS 2022 data

[2]Transportation Analysis Guidelines, City of Elk Grove, Adopted February 2019

DEFICIENCIES AND IMPROVEMENTS

Standards of Deficiency

The City of Elk Grove's *General Plan – Mobility* chapter[5] was referenced to identify deficiencies at non-Caltrans study area intersections and roadway segments. General Plan Policy MOB-1-3 states that the City will "strive to implement the roadway performance targets (RPT) for operations of roadway segments and intersections, while balancing the effectiveness of design requirements to achieve the targets with the character of the surrounding area as well as the cost to complete the improvement and ongoing maintenance obligations." The Policy also states "To facilitate this analysis, the City shall use the following as guidelines or targets. Deviations from these metrics may be approved by the approving authority (e.g., Zoning Administrator, Planning Commission, City Council)."

From the General Plan, the following criteria were used:

> "*Intersection Performance – Generally, and except as otherwise determined by the approving authority or as provided in this General Plan, the City will seek to achieve, to the extent feasible and desired, the peak-hour delay targets identified in Table 6-3."* As specified in the City's policy and identified in the Intersection analysis tables, the performance target of less than 35.1 seconds of delay is applicable for Stop (Side-Street and All-Way) and Roundabout controlled intersections, and the performance target of less than 55.1 seconds of delay is applicable for Signalized intersections. These thresholds are previously established in Table 3 and have been included for reference in each of the intersection analysis summary tables.
>
> *"Roadway Performance – Generally, and except as otherwise determined by the approving authority or as provided in this General Plan, the City will seek to achieve, to the extent feasible and desired, the average daily traffic design targets identified in Table 6-4."* As specified in the City's policy and identified in the Roadway Segment analysis tables, the performance target ADT varies depending on anticipated facility type, number of lanes, and anticipated roadway speeds for all study roadways.

[5] *Elk Grove General Plan – Chapter 6: Mobility*, City of Elk Grove, adopted February 27, 2019.

Summary of Deficiencies and Improvements

Opening Year (2028) plus Project Conditions

As reflected in Table 8 and Table 9, the addition of the Proposed Project does not result in deficient conditions. As a result, no improvements are required beyond what has been proposed as part of the zoo off-site construction specifications.

Cumulative (2050) plus Project Conditions

As reflected in Table 12, the Project contributes trips to a baseline deficiency at one (1) study intersection as defined by the City's Roadway Performance Targets. The following is a discussion of the deficiency and its associated improvement.

Deficiencies:

D1. Intersection #6, Kammerer Road @ Promenade Parkway

As shown in Table 12, this intersection operates beyond the City's target threshold for Signalized intersections during the Weekday AM, Weekday PM, and Weekend Midday peak-hours without the Project and the Project is anticipated to contribute additional trips eastbound and westbound through the intersection (Figure 14).

Improvements:

I1. Intersection #6, Kammerer Road @ Promenade Parkway

The deficiency at this intersection during the Weekday AM, Weekday PM, and Weekend Midday peak-hours is primarily driven by high numbers of Cumulative baseline westbound left-turn movements at the intersection. The projected left-turn volumes are driven by anticipated land development south of Kammerer Road, which is reflected in the most recent version of the City's TDM. Table 6 confirms that in the Opening Year (2028), when little to no development south of Kammerer Road is anticipated and Phase 1 of the zoo is operational, the subject intersection performs at an acceptable condition per City policy. Therefore, as the zoo does not drive additional vehicle trips to the over-capacity westbound left-turn, the City may consider a fair share payment from the Zoo towards an ultimate intersection geometry solution, should one be identified and prove necessary. In collaboration with Caltrans, the City might consider converting the intersection's northbound right-turn to a channelized free movement feeding an auxiliary lane connecting with the eastbound right-turn at Intersection #7. In conjunction with this improvement, the City may also consider coordinated signal timings from Intersection #5 to Intersection #8, improving operations through platooning on high-volume through movements.

OTHER CONSIDERATIONS

Intersection Queueing Evaluation

A queuing study was conducted to evaluate the capacity of the turn lanes at the study intersections. Synchro, SIDRA, and VISSIM reports were used to conduct the queuing analysis. The 95th percentile vehicle queues were compared against the existing vehicle storage lengths at select intersection movements to determine if the queues are anticipated to exceed their available storage. Results of the queuing evaluation are presented in Table 14. Analysis sheets that include the anticipated vehicle queues are presented in Appendices B-F. While some of the VISSIM maximum queue length reported movements exceed their provided storage capacities, these same movements show average queue lengths that are contained well within the storage capacity provided. As such, it is concluded that any such spillback beyond the provided storage for these movements is likely to be an infrequent occurrence.

Table 14 – Intersection Queuing Evaluation Results

Intersection / Analysis Scenario	Movement	AM Peak-Hour		PM Peak-Hour		Weekend Midday	
		Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)	Available Storage (ft)	95th % Queue (ft)
#3 Classical Way @ Lotz Pkwy	**SBR**						
Existing (2023)		-	-	-	-	-	-
Opening Year (2028)		100	6	100	7	100	7
Opening Year (2028) plus Project+		475	32	475	63	475	64
Cumulative (2050)		100	91	100	91	100	95
Cumulative (2050) plus Project*		475	250	475	615	475	615
#4 Kammerer Rd @ Lotz Pkwy	**SBL**						
Existing (2023)		-	25	-	35	-	25
Opening Year (2028)		100	48	100	35	100	36
Opening Year (2028) plus Project		175	143	175	271	175	289
Cumulative (2050)		100	414	100	282	100	282
Cumulative (2050) plus Project*		175	380	175	512	175	485
#7 Kammerer Rd @ SR-99 SB Ramps	**SBR**						
Existing (2023)		540	66	540	121	540	58
Opening Year (2028)			109		83		77
Opening Year (2028) plus Project			164		98		172
Cumulative (2050)			587		398		398
Cumulative (2050) plus Project			783		474		643
#8 Kammerer Rd @ SR-99 NB Ramps	**NBL**						
Existing (2023)		180	89	180	108	180	54
Opening Year (2028)			35		23		23
Opening Year (2028) plus Project			41		29		46
Cumulative (2050)			108		64		64
Cumulative (2050) plus Project			116		76		84

Notes: For approaches with dual lanes, the longest queue length is reported. Shaded cell indicates queue exceeds storage by > 25' (one vehicle length)
+SIDRA analysis output reported
*VISSIM maximum queue length output reported

As presented in Table 14, the addition of the Proposed Project is generally anticipated to add modest amounts of queueing. Shaded cells in the table represent conditions where the reported queue exceeds available vehicle storage capacity by more than one vehicle length (25 ft). The addition of the Proposed Project results in the following:

- The southbound right-turn queue at Classical Way and Lotz Parkway (Intersection #3) will exceed the available storage capacity during the Weekday PM and Weekend Midday peak-hours under Cumulative (2050) plus Project conditions. As the project is intended to be self-improving, the storage capacity can be extended as feasible to accommodate additional queueing anticipated from the project without reaching the intersection of Overture Way and Lotz Parkway, which is approximately 625 ft to the north. The Cumulative (2050) plus Project condition reports maximum queue length taken from a detailed microsimulation (VISSIM) analysis completed as part of a separate scope of work. This analysis considered the close relationship between both the future

signal at Overture Way and Lotz Parkway and the proposed roundabout configuration at Classical Way and Lotz Parkway (Intersection #3). This analysis revealed the average queue length for this same movement to be lower than the maximum queue length, indicating that occurrences of queue spill back beyond available storage and between the intersections are anticipated to be both relatively infrequent and of short duration. To better manage this dynamic, the project would be requested to provide adequate storage as feasible and the City may monitor the signal timing parameters at Overture Way and Lotz Parkway so as to ensure the most efficient operations possible.

- The southbound left-turn queue at Kammerer Road and Lotz Parkway (Intersection #4) will exceed the available storage capacity during the Weekday PM and Weekend Midday peak-hours under Opening Year (2028) plus Project conditions and the Weekday AM, Weekday PM, and Weekend Midday peak-hours under both Cumulative (2050) and Cumulative (2050) plus Project conditions. As the project is intended to be self-improving, the Opening Year (2028) storage capacity can be extended as necessary to accommodate additional queueing anticipated from the project without reaching the intersection of Classical Way and Lotz Parkway (Intersection #3). The Cumulative (2050) plus Project condition reports maximum queue length taken from a detailed microsimulation (VISSIM) analysis completed as part of a separate scope of work. This analysis considered the close relationship between both the signal at Kammerer Road and Lotz Parkway (Intersection #4) and the proposed roundabout configuration at Classical Way and Lotz Parkway (Intersection #3). This analysis revealed the average queue length for this same movement to be significantly lower than the maximum queue length, indicating that any such occurrences of queue spill back are anticipated to be both infrequent and of short duration. To better manage this dynamic, the project would be requested to provide adequate storage (per the proposed Opening Year (2028) improvement) and the City may monitor the signal timing parameters at the intersection so as to ensure the most efficient operations possible.
- The southbound right-turn queue at Kammerer Road and SR-99 Southbound Ramps (Intersection #7) will exceed the available storage capacity during the Weekday AM peak-hour under Cumulative (2050) scenarios for both No Project and Plus Project conditions and the Weekend Midday peak-hour under Cumulative (2050) scenario Plus Project conditions. While the reported queue length does exceed the space provided within the existing southbound right-turn pocket, the existing ramp configuration at the intersection with Kammerer Road includes a split right-through-left lane which traps one of the two existing ramp lanes coming from SR-99. Taking into consideration the longer queue occurring during the Weekday AM peak-hour, the ramp still projects to offer 800-ft of clear distance from back of queue before reaching the SR-99 freeway mainline. Per the California Highway Design Manual[6], this is sufficient decision sight distance for a vehicle traveling between 50 and 55 miles per hour to come to a complete stop prior to reaching the back of queue.

[6] *Table 201.7 – Highway Design Manual*, Caltrans, July 1, 2020.

Opening Period Traffic Management

The findings presented in this study and others associated with the development of the zoo have focused on quantitatively assessing the "peak of peak" scenarios to ensure the infrastructure demands of the project will be appropriately sized and controlled. However, it is important to recognize that for an indeterminate (assumed to be short-term) period after opening, the "newness" of the zoo may create conditions that differ from those assumed, analyzed, and documented herein. Factors that may contribute to these assumed conditions are generally linked to the anticipated unfamiliarity with the project and may include abnormal inefficiencies associated with ticket processing, routing, and other general societal factors. As such, the zoo shall be responsible for monitoring the following performance metrics and mitigating as deemed appropriate by the City:

- Queueing – the zoo shall be responsible for monitoring undesirable queueing conditions in the immediate project vicinity. These undesirable conditions include spillback from the main entrance gates onto Classical Way and from Classical Way through the adjacent Lotz Parkway intersections.
- External Parking – the zoo shall be responsible for monitoring and addressing complaints from residents proximate to the project site regarding zoo patrons attempting to circumvent the paid parking requirements by using nearby residential streets.

The following interventions should also be considered to alleviate the aforementioned conditions should they arise:

- Encourage online prepurchase of tickets and parking for all zoo patrons. Tickets will be made available for specific dates and times. This strategy is suggested to alleviate processing times on-site and to spread arrivals/departures for patrons more evenly across the day, thereby reducing "peaky" behavior. It will be the responsibility of the zoo to proactively broadcast this message to the public and ensure that as few prospective visitors as possible are turned away at the gate (bringing unnecessary traffic to the area).
- Provide manual traffic management. Should queueing conditions extend beyond the driveway limits, the zoo shall be responsible for providing in-person flagging and guidance to patrons accessing the site. This intervention is intended to maximize available storage and decrease processing times.
- Message sign utilization. Per coordination with City staff[7], the zoo shall use a combination of changeable message signs (CMSs) and static overhead signage located along Kammerer Road, Lotz Parkway, and Classical Way. This combination of signage will broadcast up-to-date information regarding parking conditions and inform drivers of appropriate advanced positioning lanes. This strategy will enable patrons to make informed driver decisions, thereby decreasing processing times and increasing efficient usage of the available roadway capacity.
- Should external parking become an issue, the zoo shall coordinate with the City on deployment of a residential parking permit program (RPPP) for proximate residential developments. The RPPP will be targeted at limiting the numbers of zoo visitors who utilize residential infrastructure off-site as opposed to the on-site facilities provided by the zoo.

The zoo shall be responsible for providing a traffic management plan (TMP) to the City for approval by the Public Works Director prior to opening day or any other special events determined (by the City). The TMP shall include specific interventions for traffic conditions associated with the zoo opening and any other special events determined (by the City) to warrant a TMP. The zoo shall be responsible for implementing said interventions to which the Public Works Director has agreed.

[7] Conversation with Christopher Jordan and Jeff Werner, City of Elk Grove, August 8, 2023.

ACCESS AND SAFETY EVALUATION

Collision Data

The safety evaluation reviewed the existence of any current deficiencies in the local area such as crash rates or geometric features. Based on collision data provided by the City, there were 10 collisions at Intersection #6 (Kammerer Road and Promenade Parkway) within the four-year period between 2018 and 2021. As shown in **Figure 17,** of the 10 crashes, the primary crash type was sideswipe (5). All of these crashes resulted in no incidences of severe injuries and no fatalities. The provided crash data was combined with intersection entering average daily traffic (ADT) to develop an existing intersection crash rate of 0.270 crashes per million entering vehicles. Per Caltrans data[8], the basic average crash rate for a four-legged signalized suburban intersection is 0.420 crashes per million entering vehicles.

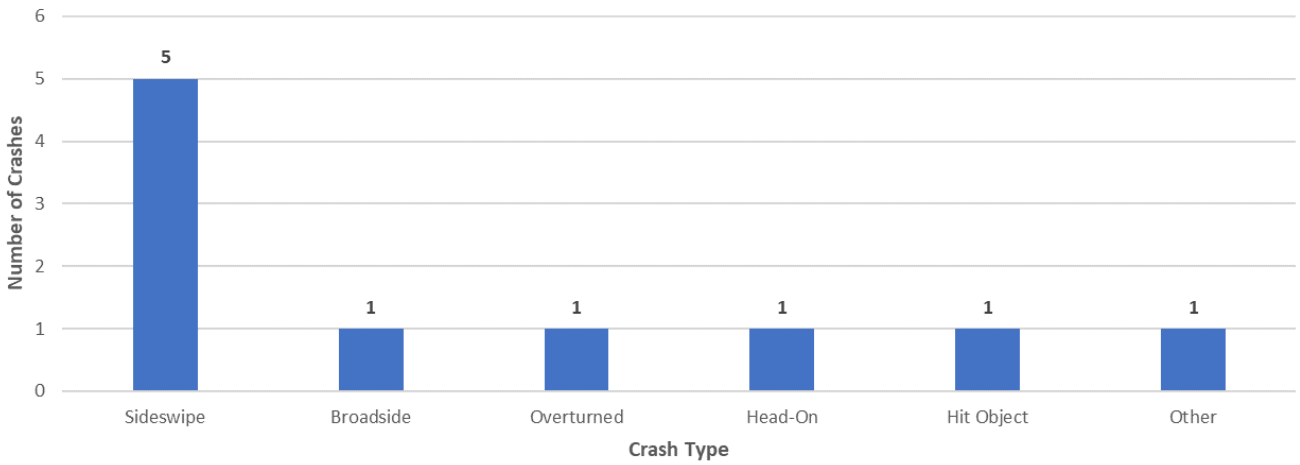


Figure 17 – Intersection #6 (Kammerer Road and Promenade Parkway) Collision Summary

Proposed Project Access

Visitor access to the site is proposed to be provided from both Classical Way and B Street. Descriptions of the site access driveways are listed below:

- The main entrance (Intersection #2) will be roundabout control and serves as access/egress for the primary parking lot, the north lot. All movements are allowed. The intersection will be located on Classical Way approximately 700-ft west of Lotz Parkway.
- One ingress only driveway from B Street into the north lot. All ingress movements are allowed. The driveway will be located approximately 300-ft north of Classical Way.
- One egress only driveway from the north lot and the main zoo curb area onto B Street. All egressing movements are allowed. The driveway will be located approximately 700-ft north of Classical Way.
- One ingress only driveway from B Street into the south lot. All ingress movements are allowed. The driveway will be located approximately 300-ft south of Classical Way.

According to the Project site plan (**Figure 2**), adequate sight distance will be provided on-site to facilitate safe and orderly circulation. The Project roadways are anticipated to allow for adequate access and on-site circulation for emergency vehicles.

All required parking is anticipated to be accommodated entirely on-site via the use of the north lot (547 spaces) and the south lot (1,087 spaces). The north lot is anticipated to be able to accommodate almost all typical, weekday visitor demand during Phase 1 of zoo development. The south lot is anticipated to be utilized primarily during peak weekends and after Phase 2 of zoo development is complete.

[8] *2019 Crash Data on California State Highways*, Caltrans.

BICYCLE, PEDESTRIAN, AND TRANSIT FACILITY EVALUATION

Bicycle Facilities

The City's bicycle plan[9] and observation of existing conditions reveal that the only bicycle facilities proximate to the project site are existing Class II facilities on Kammerer Road from the SR-99 interchange to Lent Ranch Road and on Promenade Parkway from West Stockton Boulevard to Kammerer Road. The plan reveals that at the time of publication, all of the existing roadway segments and study intersections (with the exception of Lotz Parkway, which was not included) held a Level of Traffic Stress (LTS) score of 4, indicating that only the most dedicated bicyclists would be likely to utilize these facilities. The City plan proposes the construction of a Class I Multi-Use Path along the stretch of Kammerer Road from the SR-99 interchange extending past the project boundary roads of B Street and Lotz Parkway. The City plan also proposes the construction of Class I bikeway crossings at the northern corners of the zoo property with B Street and Lotz Parkway.

As part of the project off-site improvement considerations, multi-use paths and grade separated under-crossings have been proposed along the project frontage with Classical Way. The goal of the improvements will be to connect with proposed City multi-use path infrastructure as it is constructed and better link the zoo with neighboring residential communities via alternative transportation modes.

Pedestrian Facilities

The City's pedestrian plan[9] and observation of existing conditions reveal that the primary pedestrian facilities proximate to the Project site are sidewalks along developed frontages. There is one existing multi-use path facility within the residential community located on the east side of Lotz Parkway, across from the project site. The plan does not provide LTS scores for the existing pedestrian infrastructure. The fragmented nature of the facilities due to differing levels of development and associated improvements result in a fractured network that is not conducive to heavy pedestrian usage. The City plan proposes the construction of a Class I Multi-Use Path along the stretch of Kammerer Road from the SR-99 interchange extending past the project boundary roads of B Street and Lotz Parkway. The City plan also proposes the construction of Class I crossings at the northern corners of the zoo property with B Street and Lotz Parkway.

As part of the project off-site improvement considerations, multi-use paths and grade separated under-crossings have been proposed along the project frontage with Classical Way. The goal of the improvements will be to connect with proposed City multi-use path infrastructure as it is constructed and better link the zoo with neighboring residential communities via alternative transportation modes.

Transit Facilities

The City of Elk Grove is served by Sacramento Regional Transit (Sac RT) for public transit services. Sac RT operates *Bus Route 110*, which provides service between the Cosumnes River College Sac RT light rail stop and Sky River Casino (located at the corner of Bilby Road and Promenade Parkway). Route 110 provides weekday service at 30-minute headways from 6:41 AM to 9:41 PM, and Saturday service every hour from 6:56 AM to 5:56 PM. As the main curb entrance frontage for the zoo is designed with mass transit vehicles in mind, it is feasible that this existing public transit route could be modified and extended to include service directly to the zoo. While light rail extension services to the project area have been conceptualized as part of previous City efforts[10], this connection will likely not be part of the transit network at the time of zoo opening.

[9] *Bicycle, Pedestrian, and Trails Master Plan*, City of Elk Grove, May 2021.
[10] *Kammerer Road Urban Design Strategies*, City of Elk Grove, January 2021.

CONCLUSIONS

Significant findings of this study include:

- The Proposed Project Phase 1 is estimated to generate 860 total new weekday visitor trips, with 25 visitor trips occurring during the Weekday AM peak-hour, 189 visitor trips during the Weekday PM peak-hour, and 731 visitor trips occurring during the Weekend Midday peak-hour. The Phase 1 Project is estimated to generate 370 total daily employee trips, with 263 employee trips during the Weekday AM peak-hour, 203 employee trips during the Weekday PM peak-hour, and no employee trips during the Weekend Midday peak-hour.
- The Proposed Project Phase 2 is estimated to generate 932 total new weekday visitor trips, with 27 visitor trips occurring during the Weekday AM peak-hour, 208 visitor trips during the Weekday PM peak-hour, and 792 visitor trips occurring during the Weekend Midday peak-hour. The Phase 2 project is estimated to generate 401 total daily employee trips, with 285 employee trips during the Weekday AM peak-hour, 220 employee trips during the Weekday PM peak-hour, and no employee trips during the Weekend Midday peak-hour.
- As defined by the City's Roadway Performance Targets, the Project contributes to reduced operations at Intersection #6 (Kammerer Road and Promenade Parkway) during the Cumulative (2050) scenario. As the Project is not deemed to create this reduction (attributed to robust development south of Kammerer Road anticipated in the future TDM), it is acceptable that the Project should contribute to necessary future intersection improvements via fair share payment to the City's Roadway Fee Program.
- The Project creates a queueing deficiency at Intersection #3 (Classical Way and Lotz Parkway) under Cumulative (2050) study conditions. While occurrences of this deficiency are anticipated to be relatively infrequent, the Project will be conditioned to provide as much queue storage as feasible for the deficient movement. The Project creates a queueing deficiency at Intersection #4 (Kammerer Road and Lotz Parkway) under Opening Year (2028) study conditions and contributes additional queueing to a baseline deficiency under Cumulative (2050) study conditions. While occurrences of this deficiency are anticipated to be both infrequent and of short duration, the Project will be conditioned to provide as much queue storage as feasible for the deficient movement while coordinating with the City on maintaining efficient traffic signal timing parameters at Intersection #4. The Project contributes additional queueing to a baseline deficiency and creates a queueing deficiency at Intersection #7 (Kammerer Road and SR-99 Southbound Ramps) under Cumulative (2050) study conditions. While the queue lengths measured exceed existing available storage, queues are not anticipated to reach the mainline segment of SR-99 and adversely affect freeway traffic conditions.
- The zoo shall be responsible for providing a traffic management plan (TMP) to the City for approval by the Public Works Director prior to opening day or any other special events determined (by the City). The TMP shall include specific interventions for traffic conditions associated with the zoo opening and any other special events determined (by the City) to warrant a TMP. The zoo shall be responsible for implementing said interventions to which the Public Works Director has agreed.
- Per data provided by the City, the existing roadway network proximate to the Project site has a limited crash history. The one study facility with significant presence in the data set (Intersection #6) exhibits a crash rate below the current statewide average for intersections of similar type. The Project is not anticipated to alter this existing condition.
- Per relevant City documents, enhanced bicycle and pedestrian infrastructure is planned to be constructed in proximity to the zoo, primarily via Class I Multi-Use Paths. As part of the proposed zoo off-site improvements, the project is considering the construction of multi-use path and grade-separated crossings along Classical Way to enhance the user experience and promote multi-modal access to the zoo.

- The existing transit network currently terminates at the intersection of Promenade Parkway and Bilby Road, approximately 0.8-miles from the Project entrance. The design of the main entrance curb to the zoo is designed in a manner that would potentially facilitate extension of public transit services to the site. While regional light rail extension access has been considered, it is not an imminent improvement.

Appendix A

Traffic Count Data Sheets

National Data & Surveying Services Intersection Turning Movement Count

Location: Lotz Pkwy & Classical Wy
City: Elk Grove
Control: 1-Way Stop(WB)

Project ID: 23-070098-001
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Lotz Pkwy				Lotz Pkwy				Classical Wy				Classical Wy				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	3	3	0	0	3	0	0	0	0	0	0	3	0	0	0	12
6:15 AM	0	10	4	0	0	5	0	0	0	0	0	0	2	0	0	0	21
6:30 AM	0	14	0	0	0	5	0	0	0	0	0	0	2	0	0	0	21
6:45 AM	0	16	4	0	0	5	0	0	0	0	0	0	7	0	0	0	32
7:00 AM	0	8	4	0	0	12	0	0	0	0	0	0	7	0	1	0	32
7:15 AM	0	5	5	0	0	15	0	0	0	0	0	0	11	0	1	0	37
7:30 AM	0	13	4	0	0	16	0	0	0	0	0	0	11	0	0	0	44
7:45 AM	0	12	3	0	0	16	0	0	0	0	0	0	7	0	0	0	38
8:00 AM	0	8	10	0	0	16	0	0	0	0	0	0	10	0	0	0	44
8:15 AM	0	7	3	0	1	13	0	0	0	0	0	0	8	0	0	0	32
8:30 AM	0	8	7	0	0	12	0	0	0	0	0	0	4	0	0	0	31
8:45 AM	0	8	4	0	0	10	0	0	0	0	0	0	11	0	0	0	33
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	112	51	0	1	128	0	0	0	0	0	0	83	0	2	0	377
APPROACH %'s :	0.00%	68.71%	31.29%	0.00%	0.78%	99.22%	0.00%	0.00%					97.65%	0.00%	2.35%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	38	22	0	0	63	0	0	0	0	0	0	39	0	1	0	163
PEAK HR FACTOR :	0.000	0.731	0.550	0.000	0.000	0.984	0.000	0.000	0.000	0.000	0.000	0.000	0.886	0.000	0.250	0.000	0.926
		0.833				0.984								0.833			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	5	11	0	0	13	0	0	0	0	0	0	7	0	0	0	36
4:15 PM	0	11	15	0	1	8	0	0	0	0	0	0	4	0	1	0	40
4:30 PM	0	12	6	0	0	13	0	0	0	0	0	0	3	0	0	0	34
4:45 PM	0	12	5	0	0	28	0	0	0	0	0	0	6	0	0	0	51
5:00 PM	0	7	4	0	0	13	0	0	0	0	0	0	7	0	0	0	31
5:15 PM	0	11	4	0	0	12	0	0	0	0	0	0	2	0	0	0	29
5:30 PM	0	14	8	0	0	17	0	0	0	0	0	0	4	0	0	0	43
5:45 PM	0	4	5	0	1	15	0	0	0	0	0	0	4	0	1	0	30
6:00 PM	0	13	5	0	0	13	0	0	0	0	0	0	4	0	0	0	35
6:15 PM	0	12	7	0	2	5	0	0	0	0	0	0	8	0	1	0	35
6:30 PM	0	4	1	0	0	8	0	0	0	0	0	0	7	0	1	0	21
6:45 PM	0	6	4	0	0	4	0	0	0	0	0	0	1	0	0	0	15
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	111	75	0	4	149	0	0	0	0	0	0	57	0	4	0	400
APPROACH %'s :	0.00%	59.68%	40.32%	0.00%	2.61%	97.39%	0.00%	0.00%					93.44%	0.00%	6.56%	0.00%	
PEAK HR :	04:00 PM - 05:00 PM																TOTAL
PEAK HR VOL :	0	40	37	0	1	62	0	0	0	0	0	0	20	0	1	0	161
PEAK HR FACTOR :	0.000	0.833	0.617	0.000	0.250	0.554	0.000	0.000	0.000	0.000	0.000	0.000	0.714	0.000	0.250	0.000	0.789
		0.740				0.563								0.750			

National Data & Surveying Services Intersection Turning Movement Count

Location: Lotz Pkwy & Classical Wy
City: Elk Grove
Control: 1-Way Stop(WB)

Project ID: 23-070098-001
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Lotz Pkwy				Lotz Pkwy				Classical Wy				Classical Wy				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	6	2	0	1	6	0	0	0	0	0	0	7	0	0	0	22
10:15 AM	0	7	4	0	1	12	0	0	0	0	0	0	6	0	0	0	30
10:30 AM	0	4	3	0	1	10	0	0	0	0	0	0	13	0	1	0	32
10:45 AM	0	3	3	0	1	11	0	0	0	0	0	0	8	0	1	0	27
11:00 AM	0	1	3	0	1	10	0	0	0	0	0	0	4	0	0	0	19
11:15 AM	0	1	6	0	0	6	0	1	0	0	0	0	3	0	0	0	17
11:30 AM	0	6	4	0	0	8	0	0	0	0	0	0	5	0	1	0	24
11:45 AM	0	9	5	0	0	11	0	0	0	0	0	0	4	0	1	0	30
12:00 PM	0	7	6	0	0	12	0	0	0	0	0	0	5	0	1	0	31
12:15 PM	0	6	4	0	0	10	0	0	0	0	0	0	6	0	1	0	27
12:30 PM	0	5	4	0	0	7	0	0	0	0	0	0	0	0	0	0	16
12:45 PM	0	6	3	0	0	2	0	0	0	0	0	0	6	0	0	0	17
1:00 PM	0	7	6	0	0	10	0	0	0	0	0	0	3	0	1	0	27
1:15 PM	0	5	10	0	0	3	0	0	0	0	0	0	7	0	1	0	26
1:30 PM	0	9	9	0	0	7	0	0	0	0	0	0	5	0	0	0	30
1:45 PM	0	6	9	0	0	8	0	0	0	0	0	0	7	0	1	0	31
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	88	81	0	5	133	0	1	0	0	0	0	89	0	9	0	406
APPROACH %'s :	0.00%	52.07%	47.93%	0.00%	3.60%	95.68%	0.00%	0.72%					90.82%	0.00%	9.18%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	27	34	0	0	28	0	0	0	0	0	0	22	0	3	0	114
PEAK HR FACTOR :	0.000	0.750	0.850	0.000	0.000	0.700	0.000	0.000	0.000	0.000	0.000	0.000	0.786	0.000	0.750	0.000	0.919
		0.847				0.700								0.781			

National Data & Surveying Services Intersection Turning Movement Count

Location: Lotz Pkwy & Kammerer Rd
City: Elk Grove
Control: 1-Way Stop(SB)

Project ID: 23-070098-002
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Lotz Pkwy				Lotz Pkwy				Kammerer Rd				Kammerer Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	3	0	3	0	0	54	0	0	0	30	6	0	96
6:15 AM	0	0	0	0	7	0	0	0	4	48	0	0	0	42	10	0	111
6:30 AM	0	0	0	0	4	0	3	0	3	81	0	0	0	60	11	0	162
6:45 AM	0	0	0	0	7	0	5	0	5	70	0	0	0	66	15	0	168
7:00 AM	0	0	0	0	12	0	7	0	2	89	0	0	0	62	10	0	182
7:15 AM	0	0	0	0	16	0	10	0	5	101	0	0	0	64	5	0	201
7:30 AM	0	0	0	0	12	0	14	0	4	98	0	0	0	96	13	0	237
7:45 AM	0	0	0	0	11	0	12	0	8	116	0	1	0	101	7	0	256
8:00 AM	0	0	0	0	13	0	14	0	7	95	0	0	0	79	11	0	219
8:15 AM	0	0	0	0	12	0	9	0	5	111	0	0	2	75	5	0	219
8:30 AM	3	0	0	0	13	0	3	0	9	91	0	0	1	78	6	0	204
8:45 AM	0	0	0	0	11	0	9	0	8	64	0	0	0	67	4	0	163
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	3	0	0	0	121	0	89	0	60	1018	0	1	3	820	103	0	2218
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	57.62%	0.00%	42.38%	0.00%	5.56%	94.35%	0.00%	0.09%	0.32%	88.55%	11.12%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	48	0	49	0	24	420	0	1	2	351	36	0	931
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.923	0.000	0.875	0.000	0.750	0.905	0.000	0.250	0.250	0.869	0.692	0.000	0.909
					0.898				0.890				0.892				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	12	0	8	0	7	110	0	0	1	114	10	0	262
4:15 PM	0	0	0	0	6	0	6	0	17	100	0	0	0	126	9	0	264
4:30 PM	0	0	0	0	7	0	9	0	11	115	0	0	0	138	6	0	286
4:45 PM	0	0	0	0	18	0	15	0	6	109	0	0	0	116	11	0	275
5:00 PM	0	0	0	0	11	0	10	0	5	144	0	0	0	136	6	1	313
5:15 PM	0	0	0	0	7	0	6	0	9	109	0	0	0	145	7	0	283
5:30 PM	0	0	0	0	11	0	11	0	7	87	0	0	0	122	14	0	252
5:45 PM	0	0	0	0	8	0	11	0	5	98	0	0	0	113	4	0	239
6:00 PM	0	0	0	0	9	0	7	0	11	100	0	0	0	95	7	0	229
6:15 PM	0	0	0	0	8	0	6	0	9	67	0	0	0	105	10	0	205
6:30 PM	0	0	0	0	6	0	8	0	4	71	0	0	0	82	1	0	172
6:45 PM	0	0	0	0	4	0	2	0	4	59	0	0	0	55	6	0	130
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	107	0	99	0	95	1169	0	0	1	1347	91	1	2910
APPROACH %'s :					51.94%	0.00%	48.06%	0.00%	7.52%	92.48%	0.00%	0.00%	0.07%	93.54%	6.32%	0.07%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	43	0	40	0	31	477	0	0	0	535	30	1	1157
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.597	0.000	0.667	0.000	0.705	0.828	0.000	0.000	0.000	0.922	0.682	0.250	0.924
					0.629				0.852				0.931				

National Data & Surveying Services Intersection Turning Movement Count

Location: Lotz Pkwy & Kammerer Rd
City: Elk Grove
Control: 1-Way Stop(SB)

Project ID: 23-070098-002
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Lotz Pkwy				Lotz Pkwy				Kammerer Rd				Kammerer Rd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1	0	1	0	0	1	0	0	0	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	5	0	6	1	2	74	0	0	0	58	5	0	151
10:15 AM	0	0	1	0	11	0	8	0	4	76	0	0	0	73	8	0	181
10:30 AM	0	0	0	0	14	0	8	0	3	78	0	0	0	77	4	0	184
10:45 AM	0	0	0	0	12	0	7	0	1	110	0	0	0	82	4	0	216
11:00 AM	0	0	0	0	8	0	6	1	2	93	0	0	0	73	1	0	184
11:15 AM	0	0	0	0	7	0	2	0	5	83	0	0	0	79	2	1	179
11:30 AM	0	0	0	0	6	0	7	0	6	78	0	0	0	86	4	0	187
11:45 AM	0	0	0	0	10	0	4	0	9	75	0	1	0	95	5	0	199
12:00 PM	0	0	0	0	5	0	13	0	4	92	0	0	0	81	9	0	204
12:15 PM	0	0	0	0	8	0	8	0	4	95	0	0	0	77	6	0	198
12:30 PM	0	0	0	0	4	0	3	0	3	107	0	0	0	97	8	0	222
12:45 PM	0	0	0	0	4	0	3	0	4	96	0	0	0	98	3	0	208
1:00 PM	0	0	0	0	3	0	10	0	7	84	0	0	0	99	6	0	209
1:15 PM	0	0	0	0	6	0	5	0	3	63	0	0	0	101	12	0	190
1:30 PM	0	0	0	0	5	0	7	0	8	108	0	0	1	94	10	0	233
1:45 PM	0	0	0	0	9	0	5	0	9	87	0	0	0	89	6	0	205
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	1	0	117	0	102	2	74	1399	0	1	1	1359	93	1	3150
APPROACH %'s :	0.00%	0.00%	100.00%	0.00%	52.94%	0.00%	46.15%	0.90%	5.02%	94.91%	0.00%	0.07%	0.07%	93.47%	6.40%	0.07%	
PEAK HR :	12:45 PM - 01:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	18	0	25	0	22	351	0	0	1	392	31	0	840
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.750	0.000	0.625	0.000	0.688	0.813	0.000	0.000	0.250	0.970	0.646	0.000	0.901
					0.827				0.804				0.938				

National Data & Surveying Services Intersection Turning Movement Count

Location: Lent Ranch Pkwy & Kammerer Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-003
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Lent Ranch Pkwy				Lent Ranch Pkwy				Kammerer Rd				Kammerer Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	1	0	1	3	0	0	0	3	1	1	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	56	0	0	0	37	0	0	93
6:15 AM	0	0	0	0	0	0	0	0	0	56	0	0	0	52	0	0	108
6:30 AM	0	0	0	0	0	0	0	0	0	81	0	0	0	70	0	0	151
6:45 AM	0	0	0	0	0	0	0	0	0	72	0	0	0	81	0	0	153
7:00 AM	0	0	0	0	0	0	0	0	0	101	0	0	0	72	0	0	173
7:15 AM	0	0	0	0	0	0	0	0	0	116	0	0	0	71	0	0	187
7:30 AM	0	0	0	0	0	0	0	0	0	108	0	0	0	107	0	0	215
7:45 AM	0	0	0	0	0	0	0	0	0	129	0	0	0	108	0	0	237
8:00 AM	0	0	0	0	0	0	0	0	0	114	0	0	0	96	0	0	210
8:15 AM	0	0	0	0	0	0	0	0	0	120	0	0	0	85	0	0	205
8:30 AM	0	0	0	0	0	0	0	0	0	107	0	0	0	76	0	0	183
8:45 AM	0	0	0	0	0	0	0	0	0	75	0	0	0	71	0	0	146
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1135	0	0	0	926	0	0	2061
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	471	0	0	0	396	0	0	867
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.913	0.000	0.000	0.000	0.917	0.000	0.000	0.915
										0.913				0.917			

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	1	0	1	3	0	0	0	3	1	1	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	121	0	0	0	128	0	0	249
4:15 PM	0	0	0	0	0	0	0	0	0	107	0	0	0	136	0	0	243
4:30 PM	0	0	0	0	0	0	0	0	0	121	0	0	0	141	0	0	262
4:45 PM	0	0	0	0	0	0	0	0	0	120	0	0	0	140	0	0	260
5:00 PM	0	0	0	0	0	0	0	0	0	159	0	0	0	154	0	0	313
5:15 PM	0	0	0	0	0	0	0	0	0	121	0	0	0	137	0	0	258
5:30 PM	0	0	0	0	0	0	0	0	0	98	0	0	0	136	0	0	234
5:45 PM	0	0	0	0	0	0	0	0	0	105	0	0	0	113	0	0	218
6:00 PM	0	0	0	0	0	0	0	0	0	110	0	0	0	100	0	0	210
6:15 PM	0	0	0	0	0	0	0	0	0	75	0	0	0	115	0	0	190
6:30 PM	0	0	0	0	0	0	0	0	0	76	0	0	0	83	0	0	159
6:45 PM	0	0	0	0	0	0	0	0	0	64	0	0	0	62	0	0	126
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1277	0	0	0	1445	0	0	2722
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	521	0	0	0	572	0	0	1093
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.819	0.000	0.000	0.000	0.929	0.000	0.000	0.873
										0.819				0.929			

National Data & Surveying Services Intersection Turning Movement Count

Location: Lent Ranch Pkwy & Kammerer Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-003
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Lent Ranch Pkwy				Lent Ranch Pkwy				Kammerer Rd				Kammerer Rd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	2	0	1	0	1	3	0	0	0	3	1	1	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	0	0	0	0	0	79	0	0	0	67	0	0	146
10:15 AM	0	0	0	0	0	0	0	0	0	83	0	0	0	81	0	0	164
10:30 AM	0	0	0	0	0	0	0	0	0	97	0	0	0	77	0	0	174
10:45 AM	0	0	0	0	0	0	0	0	0	118	0	0	0	91	0	0	209
11:00 AM	0	0	0	0	0	0	0	0	0	102	0	0	0	69	0	0	171
11:15 AM	0	0	0	0	0	0	0	0	0	94	0	0	0	86	0	1	181
11:30 AM	0	0	0	0	0	0	0	0	0	80	0	0	0	86	0	0	166
11:45 AM	0	0	0	0	0	0	0	0	0	89	0	0	0	103	0	1	193
12:00 PM	0	0	0	0	0	0	0	0	0	97	0	0	0	87	0	0	184
12:15 PM	0	0	0	0	0	0	0	0	0	101	0	0	0	90	0	0	191
12:30 PM	0	0	0	0	0	0	0	0	0	109	0	0	0	98	0	0	207
12:45 PM	0	0	0	0	0	0	0	0	0	104	0	0	0	102	0	0	206
1:00 PM	0	0	0	0	0	0	0	0	0	83	0	0	0	104	0	0	187
1:15 PM	0	0	0	0	0	0	0	0	0	73	0	0	0	114	0	1	188
1:30 PM	0	0	0	0	0	0	0	0	0	109	0	0	0	104	0	2	215
1:45 PM	0	0	0	0	0	0	0	0	0	97	0	0	0	95	0	1	193
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	0	0	1515	0	0	0	1454	0	6	2975
APPROACH %'s :									0.00%	100.00%	0.00%	0.00%	0.00%	99.59%	0.00%	0.41%	
PEAK HR :	12:45 PM - 01:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	369	0	0	0	424	0	3	796
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.846	0.000	0.000	0.000	0.930	0.000	0.375	0.926
										0.846				0.928			

National Data & Surveying Services Intersection Turning Movement Count

Location: Promenade Pkwy & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-004
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Promenade Pkwy				Promenade Pkwy				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	3	2	1	0	2	4	1	0	1	3	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	1	3	10	0	52	2	1	0	1	54	1	0	13	36	29	1	204
6:15 AM	2	2	8	0	57	2	1	0	2	53	1	0	13	48	52	0	241
6:30 AM	4	3	16	0	42	2	2	0	4	69	3	0	17	65	70	1	298
6:45 AM	8	4	9	0	53	5	1	0	3	71	3	0	15	72	87	1	332
7:00 AM	4	3	11	0	81	3	3	0	3	95	2	0	22	64	87	3	381
7:15 AM	4	4	19	0	89	7	3	0	1	111	5	0	22	66	64	1	396
7:30 AM	5	2	16	0	75	2	2	0	5	96	6	0	19	98	91	0	417
7:45 AM	6	5	14	0	59	4	3	0	4	118	8	0	18	99	137	2	477
8:00 AM	4	8	17	0	87	8	5	0	3	105	6	0	19	87	131	3	483
8:15 AM	5	6	24	0	84	4	2	0	7	104	8	0	15	79	155	1	494
8:30 AM	3	6	24	0	75	8	2	0	7	93	8	0	13	71	138	0	448
8:45 AM	4	7	14	0	74	5	0	0	9	58	7	0	20	66	116	3	383
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	50	53	182	0	828	52	25	0	49	1027	58	0	206	851	1157	16	4554
APPROACH %'s :	17.54%	18.60%	63.86%	0.00%	91.49%	5.75%	2.76%	0.00%	4.32%	90.56%	5.11%	0.00%	9.24%	38.16%	51.88%	0.72%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	18	25	79	0	305	24	12	0	21	420	30	0	65	336	561	6	1902
PEAK HR FACTOR :	0.750	0.781	0.823	0.000	0.876	0.750	0.600	0.000	0.750	0.890	0.938	0.000	0.855	0.848	0.905	0.500	0.963
	0.871				0.853				0.906				0.945				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	3	2	1	0	2	4	1	0	1	3	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	3	2	13	0	150	8	8	0	8	98	8	0	12	119	125	5	559
4:15 PM	6	7	15	0	136	12	10	0	10	97	6	1	15	117	139	2	573
4:30 PM	5	6	18	0	120	10	8	0	12	101	4	0	19	130	155	0	588
4:45 PM	6	3	17	0	153	13	11	0	9	109	6	0	20	121	136	2	606
5:00 PM	9	2	14	0	169	10	14	0	10	136	6	1	16	134	132	0	653
5:15 PM	2	4	21	0	158	6	11	0	13	110	4	0	19	120	178	4	650
5:30 PM	6	5	19	0	134	10	6	0	4	84	6	0	21	138	153	1	587
5:45 PM	3	2	20	0	129	4	8	0	8	99	2	0	10	88	139	1	513
6:00 PM	2	5	11	0	121	8	6	0	6	90	8	1	14	91	137	1	501
6:15 PM	5	7	23	0	84	8	3	0	8	64	6	0	18	109	113	0	448
6:30 PM	2	9	13	0	92	3	5	0	12	62	4	0	10	74	97	0	383
6:45 PM	1	2	8	0	95	6	2	0	8	54	2	0	7	59	99	0	343
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	50	54	192	0	1541	98	92	0	108	1104	62	3	181	1300	1603	16	6404
APPROACH %'s :	16.89%	18.24%	64.86%	0.00%	89.02%	5.66%	5.31%	0.00%	8.46%	86.45%	4.86%	0.23%	5.84%	41.94%	51.71%	0.52%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	22	15	70	0	600	39	44	0	44	456	20	1	74	505	601	6	2497
PEAK HR FACTOR :	0.611	0.625	0.833	0.000	0.888	0.750	0.786	0.000	0.846	0.838	0.833	0.250	0.925	0.942	0.844	0.375	0.956
	0.922				0.885				0.851				0.924				

National Data & Surveying Services Intersection Turning Movement Count

Location: Promenade Pkwy & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-004
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Promenade Pkwy				Promenade Pkwy				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	1	0	3	2	1	0	2	4	1	0	1	3	2	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	2	4	13	0	74	5	5	0	4	68	5	0	8	60	87	1	336
10:15 AM	0	3	19	0	67	4	4	0	5	74	6	0	7	77	98	3	367
10:30 AM	3	5	21	0	66	3	4	0	4	81	8	0	29	71	87	0	382
10:45 AM	1	8	22	0	68	6	2	0	5	110	2	0	14	87	119	2	446
11:00 AM	1	6	18	0	72	4	3	0	9	93	5	0	21	67	111	3	413
11:15 AM	2	11	25	0	85	4	4	0	7	69	10	0	19	79	127	2	444
11:30 AM	8	7	18	0	85	10	2	0	4	76	7	0	15	82	126	1	441
11:45 AM	1	9	20	0	93	7	7	0	3	81	8	0	11	90	124	3	457
12:00 PM	5	5	9	0	83	7	7	0	9	82	0	0	13	79	124	2	425
12:15 PM	5	2	14	0	132	9	7	0	5	85	5	0	11	74	108	0	457
12:30 PM	2	5	14	0	86	5	8	0	4	104	7	0	14	95	145	1	490
12:45 PM	4	3	20	0	90	5	5	0	7	99	4	0	20	88	106	1	452
1:00 PM	4	4	17	0	108	10	3	0	12	68	3	0	11	95	139	1	475
1:15 PM	4	5	16	0	89	6	7	0	10	58	4	0	21	104	141	3	468
1:30 PM	6	7	20	0	107	6	12	0	10	94	9	0	11	99	154	1	536
1:45 PM	1	3	15	0	98	17	0	0	8	87	3	0	3	89	131	1	456
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	49	87	281	0	1403	108	80	0	106	1329	86	0	228	1336	1927	25	7045
APPROACH %'s :	11.75%	20.86%	67.39%	0.00%	88.18%	6.79%	5.03%	0.00%	6.97%	87.38%	5.65%	0.00%	6.48%	38.00%	54.81%	0.71%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	15	19	68	0	402	39	22	0	40	307	19	0	46	387	565	6	1935
PEAK HR FACTOR :	0.625	0.679	0.850	0.000	0.931	0.574	0.458	0.000	0.833	0.816	0.528	0.000	0.548	0.930	0.917	0.500	0.903
	0.773				0.926				0.810				0.933				

National Data & Surveying Services Intersection Turning Movement Count

Location: Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-005
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp				Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.3	0.3	1.3	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	0	0	0	0	27	0	31	0	0	89	25	0	0	49	70	0	291
6:15 AM	0	0	0	0	46	1	45	0	0	79	42	0	0	67	82	0	362
6:30 AM	0	0	0	0	58	0	67	0	0	97	31	0	0	91	77	0	421
6:45 AM	0	0	0	0	86	1	52	0	0	102	32	0	0	118	89	0	480
7:00 AM	0	0	0	0	48	1	46	0	0	142	46	0	0	131	109	0	523
7:15 AM	0	0	0	0	74	0	43	0	0	161	53	0	0	109	94	0	534
7:30 AM	0	0	0	0	67	0	52	0	0	147	45	0	0	156	107	0	574
7:45 AM	0	0	0	0	76	0	64	0	0	165	31	0	0	192	120	0	648
8:00 AM	0	0	0	0	88	0	49	0	0	166	44	0	0	191	114	0	652
8:15 AM	0	0	0	0	99	0	58	0	0	154	46	0	0	191	103	0	651
8:30 AM	0	0	0	0	79	0	67	0	0	154	52	0	0	155	137	0	644
8:45 AM	0	0	0	0	73	0	61	0	0	116	32	0	0	144	108	0	534
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	821	3	635	0	0	1572	479	0	0	1594	1210	0	6314
APPROACH %'s :					56.27%	0.21%	43.52%	0.00%	0.00%	76.65%	23.35%	0.00%	0.00%	56.85%	43.15%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	0	0	0	342	0	238	0	0	639	173	0	0	729	474	0	2595
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.864	0.000	0.888	0.000	0.000	0.962	0.832	0.000	0.000	0.949	0.865	0.000	0.995
							0.924				0.967				0.964		

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.3	0.3	1.3	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	86	2	74	0	0	199	70	0	0	180	170	0	781
4:15 PM	0	0	0	0	75	0	80	0	0	195	50	0	0	198	148	0	746
4:30 PM	0	0	0	0	82	0	81	0	0	191	53	0	0	218	133	0	758
4:45 PM	0	0	0	0	75	1	78	0	0	219	59	0	0	201	137	0	770
5:00 PM	0	0	0	0	67	0	72	0	0	240	82	0	0	213	154	0	828
5:15 PM	0	0	0	0	85	0	93	0	0	221	67	0	0	225	157	0	848
5:30 PM	0	0	0	0	67	0	99	0	0	178	65	0	0	215	113	0	737
5:45 PM	0	0	0	0	70	1	81	0	0	192	45	0	0	156	140	0	685
6:00 PM	0	0	0	0	66	2	80	0	0	162	61	0	0	171	124	0	666
6:15 PM	0	0	0	0	66	1	85	1	0	134	49	0	0	147	80	0	563
6:30 PM	0	0	0	0	58	0	72	0	0	123	40	0	0	109	82	0	484
6:45 PM	0	0	0	0	38	0	58	0	0	123	38	0	0	107	55	0	419
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	835	7	953	1	0	2177	679	0	0	2140	1493	0	8285
APPROACH %'s :					46.49%	0.39%	53.06%	0.06%	0.00%	76.23%	23.77%	0.00%	0.00%	58.90%	41.10%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	309	1	324	0	0	871	261	0	0	857	581	0	3204
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.909	0.250	0.871	0.000	0.000	0.907	0.796	0.000	0.000	0.952	0.925	0.000	0.945
							0.890				0.879				0.941		

National Data & Surveying Services Intersection Turning Movement Count

Location: Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-005
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp				Golden State Hwy/S Sacramento Fwy/SR 99 SB Ramp				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	0	0	0	1.3	0.3	1.3	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	0	0	0	0	49	1	52	0	0	121	33	0	0	111	82	0	449
10:15 AM	0	0	0	0	63	1	52	0	0	132	33	0	0	132	88	0	501
10:30 AM	0	0	0	0	56	2	51	0	0	126	40	0	0	130	86	0	491
10:45 AM	0	0	0	0	60	1	64	0	0	152	52	0	0	163	114	0	606
11:00 AM	0	0	0	0	59	1	68	0	0	146	38	0	0	129	104	0	545
11:15 AM	0	0	0	0	72	1	96	0	0	153	30	0	0	131	96	0	579
11:30 AM	0	0	0	0	68	2	81	0	0	133	42	0	0	151	105	0	582
11:45 AM	0	0	0	0	49	1	81	0	0	160	42	0	0	147	95	0	575
12:00 PM	0	0	0	0	66	0	77	0	0	133	40	0	0	133	107	0	556
12:15 PM	0	0	0	0	64	0	69	0	0	173	61	0	0	125	103	0	595
12:30 PM	0	0	0	0	54	0	87	0	0	144	57	0	0	167	107	0	616
12:45 PM	0	0	0	0	60	1	73	0	0	170	44	0	0	144	108	0	600
1:00 PM	0	0	0	0	61	0	94	0	0	135	55	0	0	150	109	0	604
1:15 PM	0	0	0	0	74	1	107	0	0	108	62	0	0	170	98	0	620
1:30 PM	0	0	0	0	82	1	98	0	0	149	71	0	0	159	112	0	672
1:45 PM	0	0	0	0	72	0	79	0	0	139	64	0	0	154	99	0	607
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	0	0	0	0	1009	13	1229	0	0	2274	764	0	0	2296	1613	0	9198
APPROACH %'s :					44.82%	0.58%	54.60%	0.00%	0.00%	74.85%	25.15%	0.00%	0.00%	58.74%	41.26%	0.00%	
PEAK HR :	01:00 PM - 02:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	289	2	378	0	0	531	252	0	0	633	418	0	2503
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.881	0.500	0.883	0.000	0.000	0.891	0.887	0.000	0.000	0.931	0.933	0.000	0.931
					0.919				0.890				0.970				

National Data & Surveying Services Intersection Turning Movement Count

Location: Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-006
Date: 5/2/2023

Data - Totals

NS/EW Streets:	Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp				Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
6:00 AM	26	0	134	0	0	0	0	0	0	76	38	0	0	88	53	0	415
6:15 AM	41	0	132	0	0	0	0	0	0	95	32	0	0	108	41	0	449
6:30 AM	50	0	164	0	0	0	0	0	0	106	44	0	0	129	56	0	549
6:45 AM	60	0	141	0	0	0	0	0	0	141	49	0	0	136	52	0	579
7:00 AM	56	0	129	0	0	0	0	0	0	132	61	0	0	184	78	0	640
7:15 AM	51	0	163	0	0	0	0	0	0	167	64	0	0	153	59	0	657
7:30 AM	58	1	163	0	0	0	0	0	0	164	54	0	0	204	66	0	710
7:45 AM	76	1	184	0	0	0	0	0	0	193	48	0	0	244	77	0	823
8:00 AM	55	1	151	0	0	0	0	0	0	196	49	0	0	242	61	0	755
8:15 AM	69	0	133	0	0	0	0	0	0	206	44	0	0	230	82	0	764
8:30 AM	53	0	117	0	0	0	0	0	0	202	43	0	0	234	71	0	720
8:45 AM	48	0	107	0	0	0	0	0	0	151	34	0	0	204	57	0	601
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	643	3	1718	0	0	0	0	0	0	1829	560	0	0	2156	753	0	7662
APPROACH %'s :	27.20%	0.13%	72.67%	0.00%					0.00%	76.56%	23.44%	0.00%	0.00%	74.11%	25.89%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	253	2	585	0	0	0	0	0	0	797	184	0	0	950	291	0	3062
PEAK HR FACTOR :	0.832	0.500	0.795	0.000	0.000	0.000	0.000	0.000	0.000	0.967	0.939	0.000	0.000	0.973	0.887	0.000	0.930
	0.805								0.981				0.967				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	47	0	94	0	0	0	0	0	0	228	49	0	0	300	82	0	800
4:15 PM	43	1	94	0	0	0	0	0	0	205	73	0	0	305	87	0	808
4:30 PM	61	0	98	0	0	0	0	0	0	208	60	0	0	288	87	0	802
4:45 PM	49	0	119	0	0	0	0	0	0	213	86	0	0	291	92	0	850
5:00 PM	48	0	125	0	0	0	0	0	0	218	89	0	0	317	90	0	887
5:15 PM	70	0	127	0	0	0	0	0	0	226	77	0	0	315	86	0	901
5:30 PM	54	0	124	0	0	0	0	0	0	180	68	0	0	271	69	0	766
5:45 PM	57	0	130	0	0	0	0	0	0	186	75	0	0	242	69	0	759
6:00 PM	51	0	87	0	0	0	0	0	0	153	76	0	0	245	66	0	678
6:15 PM	42	1	84	0	0	0	0	0	0	120	77	0	0	181	56	0	561
6:30 PM	30	0	65	0	0	0	0	0	0	121	63	0	0	161	48	0	488
6:45 PM	38	0	62	0	0	0	0	0	0	118	41	0	0	126	49	0	434
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	590	2	1209	0	0	0	0	0	0	2176	834	0	0	3042	881	0	8734
APPROACH %'s :	32.76%	0.11%	67.13%	0.00%					0.00%	72.29%	27.71%	0.00%	0.00%	77.54%	22.46%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	228	0	469	0	0	0	0	0	0	865	312	0	0	1211	355	0	3440
PEAK HR FACTOR :	0.814	0.000	0.923	0.000	0.000	0.000	0.000	0.000	0.000	0.957	0.876	0.000	0.000	0.955	0.965	0.000	0.954
	0.885								0.958				0.962				

National Data & Surveying Services Intersection Turning Movement Count

Location: Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp & Kammerer Rd/Grant Line Rd
City: Elk Grove
Control: Signalized

Project ID: 23-070098-006
Date: 4/29/2023

Data - Totals

NS/EW Streets:	Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp				Golden State Hwy/S Sacramento Fwy/SR 99 NB Ramp				Kammerer Rd/Grant Line Rd				Kammerer Rd/Grant Line Rd				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1.5	0.5	2	0	0	0	0	0	0	3	1	0	0	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
10:00 AM	45	0	122	0	0	0	0	0	0	118	62	0	0	144	77	0	568
10:15 AM	52	0	142	0	0	0	0	0	0	135	50	0	0	174	67	0	620
10:30 AM	46	0	138	0	0	0	0	0	0	146	46	0	0	164	74	0	614
10:45 AM	47	0	131	0	0	0	0	0	0	154	47	0	0	230	70	0	679
11:00 AM	37	0	129	0	0	0	0	0	0	156	60	0	0	198	75	0	655
11:15 AM	40	3	130	0	0	0	0	0	0	165	49	0	0	185	54	0	626
11:30 AM	36	2	113	0	0	0	0	0	0	158	54	0	0	220	73	0	656
11:45 AM	60	0	121	0	0	0	0	0	0	137	59	0	0	190	75	0	642
12:00 PM	47	0	143	0	0	0	0	0	0	160	52	0	0	187	83	0	672
12:15 PM	50	0	118	0	0	0	0	0	0	163	63	0	0	176	48	0	618
12:30 PM	59	1	110	0	0	0	0	0	0	157	52	0	0	216	73	0	668
12:45 PM	64	1	98	0	0	0	0	0	0	157	61	0	0	187	50	0	618
1:00 PM	53	0	100	0	0	0	0	0	0	157	49	0	0	213	54	0	626
1:15 PM	75	0	124	0	0	0	0	0	0	137	47	0	0	186	43	0	612
1:30 PM	75	1	124	0	0	0	0	0	0	160	70	0	0	197	74	0	701
1:45 PM	47	0	97	0	0	0	0	0	0	171	41	0	0	205	59	0	620
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	833	8	1940	0	0	0	0	0	0	2431	862	0	0	3072	1049	0	10195
APPROACH %'s :	29.95%	0.29%	69.76%	0.00%					0.00%	73.82%	26.18%	0.00%	0.00%	74.55%	25.45%	0.00%	
PEAK HR :	10:45 AM - 11:45 AM																TOTAL
PEAK HR VOL :	160	5	503	0	0	0	0	0	0	633	210	0	0	833	272	0	2616
PEAK HR FACTOR :	0.851	0.417	0.960	0.000	0.000	0.000	0.000	0.000	0.000	0.959	0.875	0.000	0.000	0.905	0.907	0.000	0.963
	0.938								0.976				0.921				

Appendix B

Analysis Worksheets for Existing (2023) Conditions

Intersection	
Int Delay, s/veh	2.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	1	38	22	0	63
Future Vol, veh/h	39	1	38	22	0	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	83	83	98	98
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	1	46	27	0	64

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	124	60	0	0	73	0
Stage 1	60	-	-	-	-	-
Stage 2	64	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	871	1005	-	-	1527	-
Stage 1	963	-	-	-	-	-
Stage 2	959	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	871	1005	-	-	1527	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	963	-	-	-	-	-
Stage 2	959	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	874	1527	-
HCM Lane V/C Ratio	-	-	0.055	-	-
HCM Control Delay (s)	-	-	9.4	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	25	420	351	36	48	49
Future Vol, veh/h	25	420	351	36	48	49
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	180
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	472	394	40	53	54

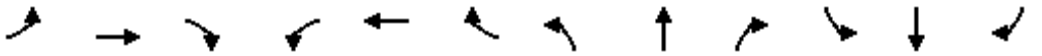
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	434	0	-	0	942	414
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	528	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1126	-	-	-	292	638
Stage 1	-	-	-	-	667	-
Stage 2	-	-	-	-	592	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1126	-	-	-	282	638
Mov Cap-2 Maneuver	-	-	-	-	410	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	592	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1126	-	-	-	410	638
HCM Lane V/C Ratio	0.025	-	-	-	0.13	0.085
HCM Control Delay (s)	8.3	0	-	-	15.1	11.2
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4	0.3

Lane Group	EBT	WBT
Lane Group Flow (vph)	518	430
v/c Ratio	0.10	0.08
Control Delay	0.0	0.0
Queue Delay	0.0	0.0
Total Delay	0.0	0.0
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	847	1034
Turn Bay Length (ft)		
Base Capacity (vph)	5085	5085
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.10	0.08

Intersection Summary



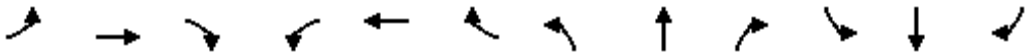
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	471	0	0	396	0	0	0	0	0	0	0
Future Volume (veh/h)	0	471	0	0	396	0	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	518	0	0	430	0				0	0	0
Peak Hour Factor	0.91	0.91	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2				2	0	2
Cap, veh/h	13	2877	0	13	2877	893				24	0	11
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.00				0.00	0.00	0.00
Sat Flow, veh/h	1781	5274	0	1781	5106	1585				3456	0	1585
Grp Volume(v), veh/h	0	518	0	0	430	0				0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	0	1781	1702	1585				1728	0	1585
Q Serve(g_s), s	0.0	0.7	0.0	0.0	0.6	0.0				0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.7	0.0	0.0	0.6	0.0				0.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	13	2877	0	13	2877	893				24	0	11
V/C Ratio(X)	0.00	0.18	0.00	0.00	0.15	0.00				0.00	0.00	0.00
Avail Cap(c_a), veh/h	3136	25171	0	3136	25171	7814				9734	0	4465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.5	0.0	0.0	1.5	0.0				0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.5	0.0	0.0	1.5	0.0				0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				A	A	A
Approach Vol, veh/h		518			430						0	
Approach Delay, s/veh		1.5			1.5						0.0	
Approach LOS		A			A							

Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	0.0	14.2			0.0	14.2		0.0				
Change Period (Y+Rc), s	6.2	6.2			6.2	6.2		5.1				
Max Green Setting (Gmax), s	25.0	70.0			25.0	70.0		40.0				
Max Q Clear Time (g_c+I1), s	0.0	2.6			0.0	2.7		0.0				
Green Ext Time (p_c), s	0.0	1.6			0.0	2.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	1.5
HCM 6th LOS	A

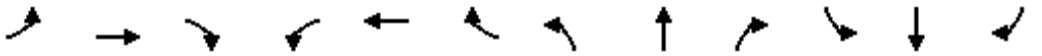
Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	23	462	33	75	354	591	21	29	91	359	28	14
v/c Ratio	0.04	0.43	0.10	0.25	0.25	0.49	0.07	0.08	0.23	0.41	0.03	0.03
Control Delay	26.4	27.0	0.6	28.6	20.9	4.2	26.2	25.4	5.2	27.1	22.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	27.0	0.6	28.6	20.9	4.2	26.2	25.4	5.2	27.1	22.0	0.2
Queue Length 50th (ft)	4	52	0	28	33	0	8	10	0	48	3	0
Queue Length 95th (ft)	14	77	0	66	76	43	25	31	22	71	15	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	2115	6408	1583	681	5085	2787	654	1004	908	4453	3529	1579
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.07	0.02	0.11	0.07	0.21	0.03	0.03	0.10	0.08	0.01	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	420	30	71	336	561	18	25	79	305	24	12
Future Volume (veh/h)	21	420	30	71	336	561	18	25	79	305	24	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	23	462	33	75	354	0	21	29	91	359	28	14
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.87	0.87	0.87	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	181	1011	249	226	1183		95	310	263	867	1013	452
Arrive On Green	0.05	0.16	0.16	0.13	0.23	0.00	0.05	0.17	0.17	0.17	0.29	0.29
Sat Flow, veh/h	3456	6434	1585	1781	5106	2790	1781	1870	1585	5023	3554	1585
Grp Volume(v), veh/h	23	462	33	75	354	0	21	29	91	359	28	14
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1781	1702	1395	1781	1870	1585	1674	1777	1585
Q Serve(g_s), s	0.4	4.1	1.1	2.4	3.6	0.0	0.7	0.8	3.2	4.1	0.4	0.4
Cycle Q Clear(g_c), s	0.4	4.1	1.1	2.4	3.6	0.0	0.7	0.8	3.2	4.1	0.4	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	181	1011	249	226	1183		95	310	263	867	1013	452
V/C Ratio(X)	0.13	0.46	0.13	0.33	0.30		0.22	0.09	0.35	0.41	0.03	0.03
Avail Cap(c_a), veh/h	2173	7080	1744	700	7224		672	1029	872	4738	2737	1221
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	24.3	23.1	25.3	20.2	0.0	28.8	22.5	23.5	23.5	16.4	16.4
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.3	0.1	0.0	0.4	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.4	0.4	0.9	1.2	0.0	0.3	0.4	1.1	1.4	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	24.5	23.2	25.6	20.2	0.0	29.3	22.5	23.8	23.6	16.4	16.4
LnGrp LOS	C	C	C	C	C		C	C	C	C	B	B
Approach Vol, veh/h		518			429			141			401	
Approach Delay, s/veh		24.6			21.2			24.3			22.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	20.9	16.8	16.4	14.3	16.2	9.2	23.9
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	40.0	90.0	60.0	35.0	25.0	70.0	24.0	49.0
Max Q Clear Time (g_c+I1), s	2.4	5.6	6.1	5.2	4.4	6.1	2.7	2.4
Green Ext Time (p_c), s	0.0	1.4	0.7	0.2	0.1	1.9	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

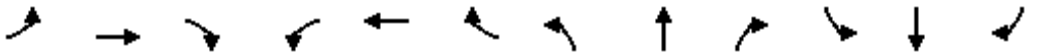
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	659	178	759	494	219	215	197
v/c Ratio	0.29	0.22	0.34	0.51	0.46	0.47	0.38
Control Delay	8.6	2.5	8.9	3.1	18.6	17.0	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	2.5	8.9	3.1	18.6	17.0	9.1
Queue Length 50th (ft)	33	0	39	0	48	43	14
Queue Length 95th (ft)	68	26	79	41	123	117	66
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	5085	1583	5085	1583	1681	1567	1504
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.11	0.15	0.31	0.13	0.14	0.13

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	639	173	0	729	474	0	0	0	342	0	238
Future Volume (veh/h)	0	639	173	0	729	474	0	0	0	342	0	238
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	659	178	0	759	0				453	0	173
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	1933	600	0	1933					1044	0	465
Arrive On Green	0.00	0.38	0.38	0.00	0.38	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	659	178	0	759	0				453	0	173
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	3.5	2.9	0.0	4.1	0.0				3.9	0.0	3.2
Cycle Q Clear(g_c), s	0.0	3.5	2.9	0.0	4.1	0.0				3.9	0.0	3.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1933	600	0	1933					1044	0	465
V/C Ratio(X)	0.00	0.34	0.30	0.00	0.39					0.43	0.00	0.37
Avail Cap(c_a), veh/h	0	9539	2961	0	9539					6656	0	2961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	8.1	0.0	8.5	0.0				10.7	0.0	10.5
Incr Delay (d2), s/veh	0.0	0.1	0.4	0.0	0.2	0.0				0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.6	0.0	0.8	0.0				1.1	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.5	8.5	0.0	8.7	0.0				10.8	0.0	10.7
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		837			759						626	
Approach Delay, s/veh		8.5			8.7						10.8	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		20.7				20.7		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		70.0				70.0		70.0				
Max Q Clear Time (g_c+I1), s		6.1				5.5		5.9				
Green Ext Time (p_c), s		8.1				8.1		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

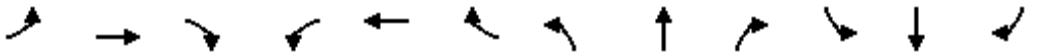
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	813	188	979	300	156	158	722
v/c Ratio	0.36	0.24	0.43	0.34	0.29	0.30	0.68
Control Delay	10.8	4.2	11.3	2.7	17.4	17.4	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	4.2	11.3	2.7	17.4	17.4	14.8
Queue Length 50th (ft)	56	7	70	0	37	38	67
Queue Length 95th (ft)	110	43	135	38	89	90	132
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4988	1555	4988	1558	1474	1479	2476
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.12	0.20	0.19	0.11	0.11	0.29

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	797	184	0	950	291	253	2	585	0	0	0
Future Volume (veh/h)	0	797	184	0	950	291	253	2	585	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	813	0	0	979	300	313	0	722			
Peak Hour Factor	0.98	0.98	0.98	0.97	0.97	0.97	0.81	0.81	0.81			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2348		0	2348	729	1052	0	936			
Arrive On Green	0.00	0.46	0.00	0.00	0.46	0.46	0.30	0.00	0.30			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	813	0	0	979	300	313	0	722			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	5.1	0.0	0.0	6.4	6.3	3.4	0.0	10.4			
Cycle Q Clear(g_c), s	0.0	5.1	0.0	0.0	6.4	6.3	3.4	0.0	10.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2348		0	2348	729	1052	0	936			
V/C Ratio(X)	0.00	0.35		0.00	0.42	0.41	0.30	0.00	0.77			
Avail Cap(c_a), veh/h	0	7120		0	7120	2210	3548	0	3157			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	8.7	0.0	0.0	9.1	9.0	13.7	0.0	16.1			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.5	0.1	0.0	0.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.6	1.5	1.2	0.0	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.8	0.0	0.0	9.2	9.6	13.7	0.0	16.7			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		813			1279			1035				
Approach Delay, s/veh		8.8			9.3			15.8				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		29.6		20.6		29.6						
Change Period (Y+Rc), s		6.5		5.8		6.5						
Max Green Setting (Gmax), s		70.0		50.0		70.0						
Max Q Clear Time (g_c+I1), s		8.4		12.4		7.1						
Green Ext Time (p_c), s		14.6		2.4		8.9						

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

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	1	40	37	1	62
Future Vol, veh/h	20	1	40	37	1	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	75	75	74	74	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	1	54	50	1	89

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	170	79	0	0	104	0
Stage 1	79	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	820	981	-	-	1488	-
Stage 1	944	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	819	981	-	-	1488	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	825	1488	-
HCM Lane V/C Ratio	-	-	0.034	0.001	-
HCM Control Delay (s)	-	-	9.5	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	31	477	1	535	30	43	40
Future Vol, veh/h	31	477	1	535	30	43	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	-	None	-	None
Storage Length	-	-	-	-	-	0	180
Veh in Median Storage, #	-	0	-	0	-	0	-
Grade, %	-	0	-	0	-	0	-
Peak Hour Factor	85	85	93	93	93	70	70
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	36	561	1	575	32	61	57

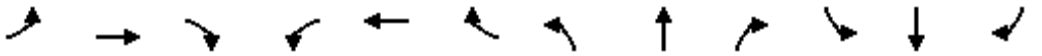
Major/Minor	Major1		Major2			Minor2	
Conflicting Flow All	607	0	-	-	0	1224	591
Stage 1	-	-	-	-	-	591	-
Stage 2	-	-	-	-	-	633	-
Critical Hdwy	4.12	-	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	971	-	-	-	-	198	507
Stage 1	-	-	-	-	-	553	-
Stage 2	-	-	-	-	-	529	-
Platoon blocked, %		-		-	-		
Mov Cap-1 Maneuver	971	-	-	-	-	187	507
Mov Cap-2 Maneuver	-	-	-	-	-	187	-
Stage 1	-	-	-	-	-	523	-
Stage 2	-	-	-	-	-	529	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5		23.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	971	-	-	-	187	507
HCM Lane V/C Ratio	0.038	-	-	-	0.328	0.113
HCM Control Delay (s)	8.9	0	-	-	33.4	13
HCM Lane LOS	A	A	-	-	D	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4	0.4

Lane Group	EBT	WBT
Lane Group Flow (vph)	635	615
v/c Ratio	0.12	0.12
Control Delay	0.0	0.0
Queue Delay	0.0	0.0
Total Delay	0.0	0.0
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	847	1034
Turn Bay Length (ft)		
Base Capacity (vph)	5085	5085
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.12	0.12

Intersection Summary



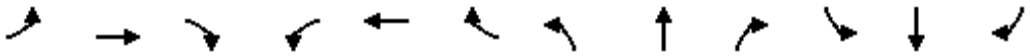
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	521	0	0	572	0	0	0	0	0	0	0
Future Volume (veh/h)	0	521	0	0	572	0	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	635	0	0	615	0				0	0	0
Peak Hour Factor	0.82	0.82	0.92	0.92	0.93	0.93				0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2				2	0	2
Cap, veh/h	13	2877	0	13	2877	893				24	0	11
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.00				0.00	0.00	0.00
Sat Flow, veh/h	1781	5274	0	1781	5106	1585				3456	0	1585
Grp Volume(v), veh/h	0	635	0	0	615	0				0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	0	1781	1702	1585				1728	0	1585
Q Serve(g_s), s	0.0	0.9	0.0	0.0	0.8	0.0				0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.9	0.0	0.0	0.8	0.0				0.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	13	2877	0	13	2877	893				24	0	11
V/C Ratio(X)	0.00	0.22	0.00	0.00	0.21	0.00				0.00	0.00	0.00
Avail Cap(c_a), veh/h	3136	25171	0	3136	25171	7814				9734	0	4465
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	0.00				0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	1.5	0.0	0.0	1.5	0.0				0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	1.6	0.0	0.0	1.6	0.0				0.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A				A	A	A
Approach Vol, veh/h		635			615						0	
Approach Delay, s/veh		1.6			1.6						0.0	
Approach LOS		A			A							

Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	0.0	14.2			0.0	14.2		0.0				
Change Period (Y+Rc), s	6.2	6.2			6.2	6.2		5.1				
Max Green Setting (Gmax), s	25.0	70.0			25.0	70.0		40.0				
Max Q Clear Time (g_c+I1), s	0.0	2.8			0.0	2.9		0.0				
Green Ext Time (p_c), s	0.0	2.4			0.0	2.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	1.6
HCM 6th LOS	A

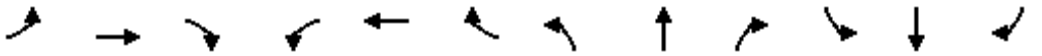
Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	536	24	87	549	653	24	16	76	674	44	49
v/c Ratio	0.12	0.44	0.06	0.34	0.43	0.55	0.10	0.06	0.22	0.65	0.04	0.09
Control Delay	33.7	29.8	0.3	36.5	27.6	4.4	33.5	32.1	4.1	32.1	21.8	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.7	29.8	0.3	36.5	27.6	4.4	33.5	32.1	4.1	32.1	21.8	1.5
Queue Length 50th (ft)	11	67	0	39	88	0	10	7	0	108	6	0
Queue Length 95th (ft)	29	95	0	88	128	45	35	26	16	152	22	6
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	1746	6408	1583	562	5085	2787	540	829	770	3807	3185	1434
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.08	0.02	0.15	0.11	0.23	0.04	0.02	0.10	0.18	0.01	0.03

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	456	20	80	505	601	22	15	70	600	39	44
Future Volume (veh/h)	45	456	20	80	505	601	22	15	70	600	39	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	536	24	87	549	0	24	16	76	674	44	49
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	330	1009	249	242	1006		106	283	240	902	964	430
Arrive On Green	0.10	0.16	0.16	0.14	0.20	0.00	0.06	0.15	0.15	0.18	0.27	0.27
Sat Flow, veh/h	3456	6434	1585	1781	5106	2790	1781	1870	1585	5023	3554	1585
Grp Volume(v), veh/h	53	536	24	87	549	0	24	16	76	674	44	49
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1781	1702	1395	1781	1870	1585	1674	1777	1585
Q Serve(g_s), s	0.9	4.9	0.8	2.8	6.2	0.0	0.8	0.5	2.7	8.1	0.6	1.5
Cycle Q Clear(g_c), s	0.9	4.9	0.8	2.8	6.2	0.0	0.8	0.5	2.7	8.1	0.6	1.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	330	1009	249	242	1006		106	283	240	902	964	430
V/C Ratio(X)	0.16	0.53	0.10	0.36	0.55		0.23	0.06	0.32	0.75	0.05	0.11
Avail Cap(c_a), veh/h	2169	7066	1741	699	7210		671	1027	870	4729	2732	1219
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	24.7	23.0	25.0	23.0	0.0	28.6	23.1	24.1	24.8	17.1	17.5
Incr Delay (d2), s/veh	0.1	0.2	0.1	0.3	0.2	0.0	0.4	0.0	0.3	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.6	0.3	1.1	2.2	0.0	0.4	0.2	0.9	2.9	0.2	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	24.9	23.1	25.4	23.2	0.0	29.0	23.2	24.4	25.2	17.1	17.5
LnGrp LOS	C	C	C	C	C		C	C	C	C	B	B
Approach Vol, veh/h		613			636			116			767	
Approach Delay, s/veh		24.9			23.5			25.2			24.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.3	18.8	17.2	15.4	14.8	16.2	9.6	23.1
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	40.0	90.0	60.0	35.0	25.0	70.0	24.0	49.0
Max Q Clear Time (g_c+I1), s	2.9	8.2	10.1	4.7	4.8	6.9	2.8	3.5
Green Ext Time (p_c), s	0.1	2.2	1.3	0.2	0.1	2.2	0.0	0.2

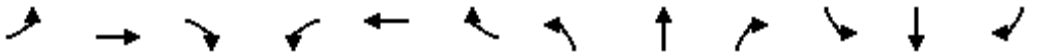
Intersection Summary	
HCM 6th Ctrl Delay	24.3
HCM 6th LOS	C

Notes

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	990	297	912	618	246	240	226
v/c Ratio	0.39	0.32	0.36	0.56	0.54	0.53	0.48
Control Delay	9.4	2.3	9.2	3.1	24.0	19.1	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.4	2.3	9.2	3.2	24.0	19.1	16.6
Queue Length 50th (ft)	65	0	58	0	70	52	40
Queue Length 95th (ft)	118	31	111	45	171	147	121
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	4972	1554	4972	1562	1644	1485	1472
Starvation Cap Reductn	0	0	0	71	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.19	0.18	0.41	0.15	0.16	0.15

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	871	261	0	857	581	0	0	0	309	1	324
Future Volume (veh/h)	0	871	261	0	857	581	0	0	0	309	1	324
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	990	297	0	912	0				463	0	240
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2506	778	0	2506					856	0	381
Arrive On Green	0.00	0.49	0.49	0.00	0.49	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	990	297	0	912	0				463	0	240
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	5.6	5.4	0.0	5.1	0.0				5.2	0.0	6.2
Cycle Q Clear(g_c), s	0.0	5.6	5.4	0.0	5.1	0.0				5.2	0.0	6.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2506	778	0	2506					856	0	381
V/C Ratio(X)	0.00	0.40	0.38	0.00	0.36					0.54	0.00	0.63
Avail Cap(c_a), veh/h	0	7812	2425	0	7812					5450	0	2425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.4	7.3	0.0	7.2	0.0				15.2	0.0	15.6
Incr Delay (d2), s/veh	0.0	0.1	0.4	0.0	0.1	0.0				0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	1.1	0.0	1.0	0.0				1.8	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.5	7.7	0.0	7.3	0.0				15.4	0.0	16.2
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1287			912						703	
Approach Delay, s/veh		7.6			7.3						15.7	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		29.0				29.0		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		70.0				70.0		70.0				
Max Q Clear Time (g_c+I1), s		7.1				7.6		8.2				
Green Ext Time (p_c), s		10.4				14.9		1.3				

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

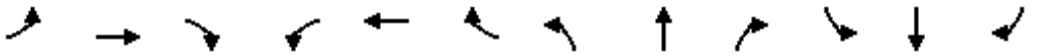
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	901	325	1261	370	128	128	527
v/c Ratio	0.33	0.34	0.46	0.36	0.31	0.31	0.63
Control Delay	8.2	3.6	9.2	2.0	24.3	24.3	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.2	3.6	9.2	2.0	24.3	24.3	17.5
Queue Length 50th (ft)	56	15	86	0	40	40	57
Queue Length 95th (ft)	110	60	164	34	108	108	142
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4844	1518	4844	1525	1372	1372	2312
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.21	0.26	0.24	0.09	0.09	0.23

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	865	312	0	1211	355	228	0	469	0	0	0
Future Volume (veh/h)	0	865	312	0	1211	355	228	0	469	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	901	0	0	1261	370	256	0	527			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2872		0	2872	892	787	0	700			
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.56	0.22	0.00	0.22			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	901	0	0	1261	370	256	0	527			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	5.3	0.0	0.0	8.1	7.6	3.4	0.0	8.8			
Cycle Q Clear(g_c), s	0.0	5.3	0.0	0.0	8.1	7.6	3.4	0.0	8.8			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2872		0	2872	892	787	0	700			
V/C Ratio(X)	0.00	0.31		0.00	0.44	0.41	0.33	0.00	0.75			
Avail Cap(c_a), veh/h	0	6296		0	6296	1955	3138	0	2792			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	6.6	0.0	0.0	7.2	7.1	18.6	0.0	20.7			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.4	0.1	0.0	0.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.8	1.6	1.3	0.0	3.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	6.7	0.0	0.0	7.4	7.5	18.7	0.0	21.3			
LnGrp LOS	A	A		A	A	A	B	A	C			
Approach Vol, veh/h		901			1631			783				
Approach Delay, s/veh		6.7			7.4			20.4				
Approach LOS		A			A			C				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	38.4	18.3	38.4
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	70.0	50.0	70.0
Max Q Clear Time (g_c+I1), s	10.1	10.8	7.3
Green Ext Time (p_c), s	21.8	1.7	10.2

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Int Delay, s/veh	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	3	27	34	0	28
Future Vol, veh/h	22	3	27	34	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	78	78	85	85	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	4	32	40	0	40

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	92	52	0	0	72	0
Stage 1	52	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	908	1016	-	-	1528	-
Stage 1	970	-	-	-	-	-
Stage 2	982	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	908	1016	-	-	1528	-
Mov Cap-2 Maneuver	908	-	-	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	982	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	920	1528	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	22	351	392	31	18	25
Future Vol, veh/h	22	351	392	31	18	25
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	180
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	80	80	94	94	83	83
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	439	417	33	22	30

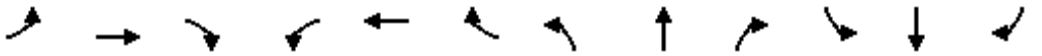
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	450	0	-	0	929	434
Stage 1	-	-	-	-	434	-
Stage 2	-	-	-	-	495	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1110	-	-	-	297	622
Stage 1	-	-	-	-	653	-
Stage 2	-	-	-	-	613	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1110	-	-	-	287	622
Mov Cap-2 Maneuver	-	-	-	-	415	-
Stage 1	-	-	-	-	631	-
Stage 2	-	-	-	-	613	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1110	-	-	-	415	622
HCM Lane V/C Ratio	0.025	-	-	-	0.052	0.048
HCM Control Delay (s)	8.3	0	-	-	14.2	11.1
HCM Lane LOS	A	A	-	-	B	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.2

Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	434	3	456
v/c Ratio	0.09	0.01	0.09
Control Delay	1.5	13.0	0.0
Queue Delay	0.0	0.0	0.0
Total Delay	1.5	13.0	0.0
Queue Length 50th (ft)	0	0	0
Queue Length 95th (ft)	23	6	0
Internal Link Dist (ft)	847		1034
Turn Bay Length (ft)		230	
Base Capacity (vph)	5085	1426	5085
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.09	0.00	0.09

Intersection Summary



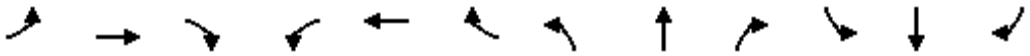
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	369	0	3	424	0	0	0	0	0	0	0
Future Volume (veh/h)	0	369	0	3	424	0	0	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	434	0	3	456	0				0	0	0
Peak Hour Factor	0.85	0.85	0.92	0.92	0.93	0.93				0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	2	2	2				2	0	2
Cap, veh/h	9	1992	0	9	3562	1106				17	0	8
Arrive On Green	0.00	0.39	0.00	0.00	0.70	0.00				0.00	0.00	0.00
Sat Flow, veh/h	1781	5274	0	1781	5106	1585				3456	0	1585
Grp Volume(v), veh/h	0	434	0	3	456	0				0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1702	0	1781	1702	1585				1728	0	1585
Q Serve(g_s), s	0.0	1.2	0.0	0.0	0.6	0.0				0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	1.2	0.0	0.0	0.6	0.0				0.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	9	1992	0	9	3562	1106				17	0	8
V/C Ratio(X)	0.00	0.22	0.00	0.34	0.13	0.00				0.00	0.00	0.00
Avail Cap(c_a), veh/h	2172	17434	0	2172	17434	5412				6742	0	3093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	1.00	1.00	0.00				0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	4.2	0.0	10.2	1.0	0.0				0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	8.2	0.0	0.0				0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	4.2	0.0	18.4	1.0	0.0				0.0	0.0	0.0
LnGrp LOS	A	A	A	B	A	A				A	A	A
Approach Vol, veh/h		434			459						0	
Approach Delay, s/veh		4.2			1.1						0.0	
Approach LOS		A			A							

Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	0.0	20.5			6.3	14.2		0.0				
Change Period (Y+Rc), s	6.2	6.2			6.2	6.2		5.1				
Max Green Setting (Gmax), s	25.0	70.0			25.0	70.0		40.0				
Max Q Clear Time (g_c+I1), s	0.0	2.6			2.0	3.2		0.0				
Green Ext Time (p_c), s	0.0	1.7			0.0	1.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	2.6
HCM 6th LOS	A

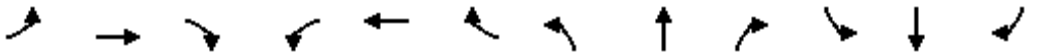
Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	49	379	23	56	416	608	19	25	88	432	42	24
v/c Ratio	0.09	0.33	0.06	0.19	0.43	0.59	0.06	0.07	0.23	0.49	0.04	0.05
Control Delay	27.8	26.0	0.4	28.7	26.5	5.2	27.2	26.4	4.9	28.4	18.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	26.0	0.4	28.7	26.5	5.2	27.2	26.4	4.9	28.4	18.8	0.2
Queue Length 50th (ft)	9	42	0	21	58	0	7	9	0	61	5	0
Queue Length 95th (ft)	22	57	0	55	89	43	22	26	12	92	21	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	2080	6408	1583	670	5085	2787	643	987	895	4378	3501	1567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.06	0.01	0.08	0.08	0.22	0.03	0.03	0.10	0.10	0.01	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	307	19	52	387	565	15	19	68	402	39	22
Future Volume (veh/h)	40	307	19	52	387	565	15	19	68	402	39	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	379	23	56	416	0	19	25	88	432	42	24
Peak Hour Factor	0.81	0.81	0.81	0.93	0.93	0.93	0.77	0.77	0.77	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	318	1035	255	195	913		88	310	263	889	1042	465
Arrive On Green	0.09	0.16	0.16	0.11	0.18	0.00	0.05	0.17	0.17	0.18	0.29	0.29
Sat Flow, veh/h	3456	6434	1585	1781	5106	2790	1781	1870	1585	5023	3554	1585
Grp Volume(v), veh/h	49	379	23	56	416	0	19	25	88	432	42	24
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1781	1702	1395	1781	1870	1585	1674	1777	1585
Q Serve(g_s), s	0.8	3.3	0.8	1.8	4.5	0.0	0.6	0.7	3.0	4.8	0.5	0.7
Cycle Q Clear(g_c), s	0.8	3.3	0.8	1.8	4.5	0.0	0.6	0.7	3.0	4.8	0.5	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	318	1035	255	195	913		88	310	263	889	1042	465
V/C Ratio(X)	0.15	0.37	0.09	0.29	0.46		0.22	0.08	0.33	0.49	0.04	0.05
Avail Cap(c_a), veh/h	2226	7254	1787	717	7402		689	1054	894	4854	2805	1251
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	23.2	22.2	25.4	22.8	0.0	28.3	21.9	22.9	23.0	15.7	15.7
Incr Delay (d2), s/veh	0.1	0.1	0.1	0.3	0.1	0.0	0.4	0.0	0.3	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	1.1	0.3	0.7	1.6	0.0	0.3	0.3	1.0	1.7	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	23.3	22.2	25.7	22.9	0.0	28.8	21.9	23.2	23.2	15.7	15.8
LnGrp LOS	C	C	C	C	C		C	C	C	C	B	B
Approach Vol, veh/h		451			472			132			498	
Approach Delay, s/veh		23.5			23.3			23.7			22.2	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	17.3	16.8	16.1	13.0	16.2	8.9	24.0
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	40.0	90.0	60.0	35.0	25.0	70.0	24.0	49.0
Max Q Clear Time (g_c+I1), s	2.8	6.5	6.8	5.0	3.8	5.3	2.6	2.7
Green Ext Time (p_c), s	0.1	1.7	0.8	0.2	0.0	1.5	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

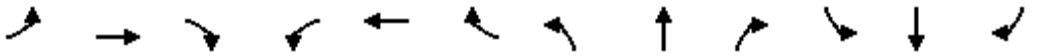
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	597	283	653	431	251	242	234
v/c Ratio	0.29	0.35	0.32	0.48	0.49	0.45	0.40
Control Delay	9.3	2.9	9.5	3.3	16.9	10.1	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	2.9	9.5	3.3	16.9	10.1	7.1
Queue Length 50th (ft)	32	0	35	0	51	24	11
Queue Length 95th (ft)	62	32	69	41	124	84	58
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	5085	1583	5085	1583	1681	1489	1504
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.18	0.13	0.27	0.15	0.16	0.16

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	531	252	0	633	418	0	0	0	289	2	378
Future Volume (veh/h)	0	531	252	0	633	418	0	0	0	289	2	378
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	597	283	0	653	0				458	0	258
Peak Hour Factor	0.89	0.89	0.89	0.97	0.97	0.97				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2017	626	0	2017					1017	0	453
Arrive On Green	0.00	0.40	0.40	0.00	0.40	0.00				0.29	0.00	0.29
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	597	283	0	653	0				458	0	258
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	3.1	5.1	0.0	3.4	0.0				4.1	0.0	5.3
Cycle Q Clear(g_c), s	0.0	3.1	5.1	0.0	3.4	0.0				4.1	0.0	5.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2017	626	0	2017					1017	0	453
V/C Ratio(X)	0.00	0.30	0.45	0.00	0.32					0.45	0.00	0.57
Avail Cap(c_a), veh/h	0	9281	2881	0	9281					6476	0	2881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	8.6	0.0	8.1	0.0				11.3	0.0	11.7
Incr Delay (d2), s/veh	0.0	0.1	0.7	0.0	0.1	0.0				0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	1.0	0.0	0.7	0.0				1.2	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.1	9.3	0.0	8.2	0.0				11.4	0.0	12.2
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		880			653						716	
Approach Delay, s/veh		8.5			8.2						11.7	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		21.7				21.7		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		70.0				70.0		70.0				
Max Q Clear Time (g_c+I1), s		5.4				7.1		7.3				
Green Ext Time (p_c), s		6.7				8.2		1.3				

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

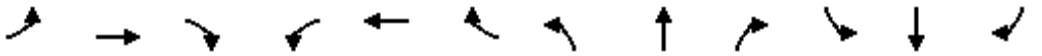
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	646	214	905	296	87	88	535
v/c Ratio	0.28	0.26	0.39	0.34	0.20	0.20	0.52
Control Delay	7.7	2.3	8.4	2.3	15.8	15.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	2.3	8.4	2.3	15.8	15.8	6.8
Queue Length 50th (ft)	32	1	48	0	16	16	15
Queue Length 95th (ft)	55	25	78	28	54	55	58
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	5085	1583	5085	1583	1651	1660	2744
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.18	0.19	0.05	0.05	0.19

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	633	210	0	833	272	160	5	503	0	0	0
Future Volume (veh/h)	0	633	210	0	833	272	160	5	503	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	646	0	0	905	296	174	0	535			
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2394		0	2394	743	893	0	795			
Arrive On Green	0.00	0.47	0.00	0.00	0.47	0.47	0.25	0.00	0.25			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	646	0	0	905	296	174	0	535			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	3.4	0.0	0.0	5.0	5.3	1.7	0.0	6.7			
Cycle Q Clear(g_c), s	0.0	3.4	0.0	0.0	5.0	5.3	1.7	0.0	6.7			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2394		0	2394	743	893	0	795			
V/C Ratio(X)	0.00	0.27		0.00	0.38	0.40	0.19	0.00	0.67			
Avail Cap(c_a), veh/h	0	8148		0	8148	2529	4061	0	3614			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.1	0.0	0.0	7.5	7.6	12.9	0.0	14.8			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.1	0.5	0.0	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.0	0.0	1.0	1.1	0.6	0.0	2.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.2	0.0	0.0	7.7	8.1	13.0	0.0	15.2			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		646			1201			709				
Approach Delay, s/veh		7.2			7.8			14.6				
Approach LOS		A			A			B				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	27.1	16.8	27.1
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	70.0	50.0	70.0
Max Q Clear Time (g_c+I1), s	7.3	8.7	5.4
Green Ext Time (p_c), s	13.2	1.6	6.6

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

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix C

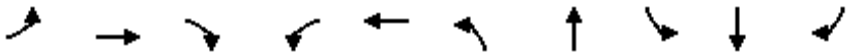
Analysis Worksheets for
Opening Year (2028) Conditions

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	20	0	10	40	0
Future Vol, veh/h	0	20	0	10	40	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	100	5	0	0	5
Mvmt Flow	0	22	0	11	43	0
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.5	6.5	7.4
HCM LOS	A	A	A

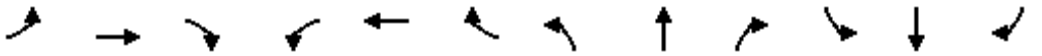
Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	100%
Vol Thru, %	0%	100%	0%	0%
Vol Right, %	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	0	20	40
LT Vol	0	0	0	40
Through Vol	0	0	0	0
RT Vol	10	0	20	0
Lane Flow Rate	11	0	22	43
Geometry Grp	2	7	7	2
Degree of Util (X)	0.01	0	0.034	0.05
Departure Headway (Hd)	3.455	4.596	5.597	4.146
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1031	0	641	863
Service Time	1.494	2.317	3.318	2.176
HCM Lane V/C Ratio	0.011	0	0.034	0.05
HCM Control Delay	6.5	7.3	8.5	7.4
HCM Lane LOS	A	N	A	A
HCM 95th-tile Q	0	0	0.1	0.2



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	76	33	130	12	60	157	144	20	163	92
v/c Ratio	0.34	0.09	0.27	0.05	0.19	0.61	0.14	0.09	0.27	0.16
Control Delay	23.5	14.8	3.7	19.6	13.5	33.4	9.0	20.0	15.0	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	14.8	3.7	19.6	13.5	33.4	9.0	20.0	15.0	1.2
Queue Length 50th (ft)	12	5	0	2	6	27	9	3	24	0
Queue Length 95th (ft)	#62	27	22	14	31	#115	59	21	79	6
Internal Link Dist (ft)		1428			228		505		161	
Turn Bay Length (ft)	100			100		100		100		100
Base Capacity (vph)	226	835	852	235	820	259	1107	222	943	804
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.04	0.15	0.05	0.07	0.61	0.13	0.09	0.17	0.11

Intersection Summary

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



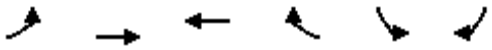
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	30	120	10	30	20	130	100	20	20	160	90
Future Volume (veh/h)	70	30	120	10	30	20	130	100	20	20	160	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	76	33	130	12	36	24	157	120	24	20	163	0
Peak Hour Factor	0.92	0.92	0.92	0.83	0.83	0.83	0.83	0.83	0.83	0.98	0.98	0.98
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	126	341	305	28	134	89	205	376	75	44	298	
Arrive On Green	0.08	0.19	0.19	0.02	0.13	0.13	0.11	0.24	0.24	0.03	0.16	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1030	687	1810	1537	307	1725	1900	1459
Grp Volume(v), veh/h	76	33	130	12	0	60	157	0	144	20	163	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1717	1810	0	1845	1725	1900	1459
Q Serve(g_s), s	1.5	0.5	2.4	0.2	0.0	1.1	2.9	0.0	2.2	0.4	2.7	0.0
Cycle Q Clear(g_c), s	1.5	0.5	2.4	0.2	0.0	1.1	2.9	0.0	2.2	0.4	2.7	0.0
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.17	1.00		1.00
Lane Grp Cap(c), veh/h	126	341	305	28	0	224	205	0	451	44	298	
V/C Ratio(X)	0.60	0.10	0.43	0.42	0.00	0.27	0.77	0.00	0.32	0.46	0.55	
Avail Cap(c_a), veh/h	245	943	845	264	0	901	290	0	1022	251	1025	
HCM Platoon Ratio	1.00	1.00	1.00	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	1.00	0.00
Uniform Delay (d), s/veh	15.4	11.5	12.2	16.7	0.0	13.4	14.8	0.0	10.6	16.5	13.3	0.0
Incr Delay (d2), s/veh	4.5	0.1	0.9	9.6	0.0	0.6	7.6	0.0	0.4	7.3	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.2	0.8	0.2	0.0	0.4	1.4	0.0	0.7	0.2	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.9	11.6	13.2	26.3	0.0	14.1	22.3	0.0	11.0	23.8	14.9	0.0
LnGrp LOS	B	B	B	C	A	B	C	A	B	C	B	
Approach Vol, veh/h		239			72			301			183	
Approach Delay, s/veh		15.1			16.1			16.9			15.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	12.9	5.0	11.0	8.4	9.9	7.1	9.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.4	4.2	2.2	4.4	4.9	4.7	3.5	3.1
Green Ext Time (p_c), s	0.0	0.6	0.0	0.4	0.0	0.7	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Notes

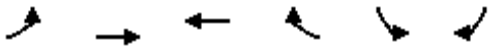
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	146	506	483	135	200	133
v/c Ratio	0.54	0.47	0.72	0.24	0.59	0.28
Control Delay	36.3	8.7	23.4	4.1	28.8	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	8.7	23.4	4.1	28.8	6.2
Queue Length 50th (ft)	50	85	141	0	64	0
Queue Length 95th (ft)	#141	182	267	29	137	37
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	270	1339	932	736	1063	1190
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	0.54	0.38	0.52	0.18	0.19	0.11

Intersection Summary

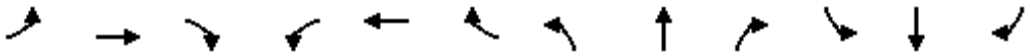
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	450	430	120	180	120
Future Volume (veh/h)	130	450	430	120	180	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	146	506	483	135	200	133
Peak Hour Factor	0.89	0.89	0.89	0.89	0.90	0.90
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	188	1031	643	460	296	320
Arrive On Green	0.11	0.57	0.35	0.35	0.20	0.20
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	146	506	483	135	200	133
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	3.3	6.7	9.5	3.0	5.1	3.0
Cycle Q Clear(g_c), s	3.3	6.7	9.5	3.0	5.1	3.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	188	1031	643	460	296	320
V/C Ratio(X)	0.78	0.49	0.75	0.29	0.68	0.42
Avail Cap(c_a), veh/h	391	1936	1346	963	1534	1656
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	17.5	5.1	11.5	9.4	14.8	14.0
Incr Delay (d2), s/veh	6.7	0.4	1.8	0.4	2.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.7	2.4	2.5	1.6	2.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.2	5.5	13.3	9.7	17.5	14.9
LnGrp LOS	C	A	B	A	B	B
Approach Vol, veh/h		652	618		333	
Approach Delay, s/veh		9.7	12.5		16.5	
Approach LOS		A	B		B	

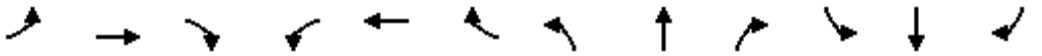
Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		27.7		12.7	8.8	18.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		43.5		42.5	9.0	30.0
Max Q Clear Time (g_c+I1), s		8.7		7.1	5.3	11.5
Green Ext Time (p_c), s		2.9		1.1	0.1	2.9

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	13	725	88	370	650	52	43	54	217	52	109	13
v/c Ratio	0.05	0.63	0.19	0.52	0.26	0.06	0.14	0.11	0.54	0.09	0.23	0.04
Control Delay	29.9	26.3	3.0	28.3	12.6	0.1	28.5	29.0	10.6	27.2	29.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	26.3	3.0	28.3	12.6	0.1	28.5	29.0	10.6	27.2	29.8	0.2
Queue Length 50th (ft)	5	107	0	76	57	0	17	11	0	10	23	0
Queue Length 95th (ft)	21	151	16	129	124	0	46	27	58	26	47	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	257	2464	835	737	2846	944	314	2401	1143	610	2401	1116
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.29	0.11	0.50	0.23	0.06	0.14	0.02	0.19	0.09	0.05	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	660	80	340	598	48	40	50	200	48	100	12
Future Volume (veh/h)	12	660	80	340	598	48	40	50	200	48	100	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	725	88	370	650	52	43	54	0	52	109	13
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	1084	336	492	1661	516	168	483		370	528	235
Arrive On Green	0.03	0.21	0.21	0.14	0.33	0.33	0.09	0.14	0.00	0.11	0.15	0.15
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	13	725	88	370	650	52	43	54	0	52	109	13
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.4	7.7	2.7	6.1	5.8	1.3	1.3	0.8	0.0	0.8	1.6	0.4
Cycle Q Clear(g_c), s	0.4	7.7	2.7	6.1	5.8	1.3	1.3	0.8	0.0	0.8	1.6	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	1084	336	492	1661	516	168	483		370	528	235
V/C Ratio(X)	0.25	0.67	0.26	0.75	0.39	0.10	0.26	0.11		0.14	0.21	0.06
Avail Cap(c_a), veh/h	272	2602	808	781	2975	923	333	2535		646	2535	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	21.3	19.3	24.3	15.4	13.9	24.7	22.3	0.0	23.8	22.0	21.5
Incr Delay (d2), s/veh	0.9	0.3	0.2	0.9	0.1	0.0	0.3	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.5	0.9	2.1	1.8	0.4	0.5	0.3	0.0	0.3	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.9	21.6	19.5	25.1	15.4	13.9	25.0	22.4	0.0	23.9	22.1	21.6
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		826			1072			97			174	
Approach Delay, s/veh		21.5			18.7			23.5			22.6	
Approach LOS		C			B			C			C	

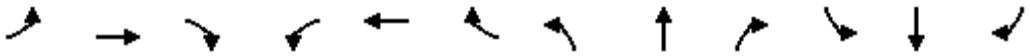
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	25.4	10.7	14.9	14.6	18.7	11.4	14.2
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	13.3	30.0	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.4	7.8	3.3	3.6	8.1	9.7	2.8	2.8
Green Ext Time (p_c), s	0.0	2.6	0.0	0.4	0.3	2.8	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

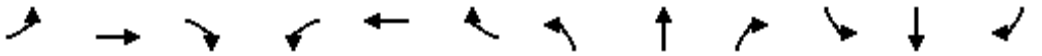
User approved ignoring U-Turning movement.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	921	88	316	935	118	92	57	92	132	35	9
v/c Ratio	0.06	0.61	0.19	0.55	0.45	0.10	0.26	0.10	0.25	0.17	0.06	0.02
Control Delay	30.8	27.1	3.4	34.0	19.3	4.8	31.2	29.2	5.3	30.1	29.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	27.1	3.4	34.0	19.3	4.8	31.2	29.2	5.3	30.1	29.0	0.1
Queue Length 50th (ft)	6	114	0	70	101	0	39	12	0	19	7	0
Queue Length 95th (ft)	20	145	19	121	191	19	85	28	22	36	20	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	484	3542	928	571	2939	1661	360	2445	1131	773	2445	1131
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.26	0.09	0.55	0.32	0.07	0.26	0.02	0.08	0.17	0.01	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	838	80	300	888	112	80	50	80	112	30	8
Future Volume (veh/h)	28	838	80	300	888	112	80	50	80	112	30	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	921	88	316	935	0	92	57	92	132	35	9
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.87	0.87	0.87	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1384	341	526	1548		229	562	250	712	609	272
Arrive On Green	0.06	0.22	0.22	0.15	0.30	0.00	0.13	0.16	0.16	0.14	0.17	0.17
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	31	921	88	316	935	0	92	57	92	132	35	9
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.6	9.5	3.3	6.2	11.3	0.0	3.4	1.0	3.7	1.7	0.6	0.3
Cycle Q Clear(g_c), s	0.6	9.5	3.3	6.2	11.3	0.0	3.4	1.0	3.7	1.7	0.6	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	222	1384	341	526	1548		229	562	250	712	609	272
V/C Ratio(X)	0.14	0.67	0.26	0.60	0.60		0.40	0.10	0.37	0.19	0.06	0.03
Avail Cap(c_a), veh/h	479	3498	862	566	2904		272	2415	1077	766	2415	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	25.9	23.5	28.5	21.4	0.0	28.9	26.0	27.1	27.3	25.0	24.9
Incr Delay (d2), s/veh	0.1	0.2	0.1	1.0	0.1	0.0	0.4	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.2	1.1	2.4	3.9	0.0	1.5	0.4	1.3	0.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	26.1	23.7	29.5	21.6	0.0	29.3	26.0	27.5	27.3	25.0	24.9
LnGrp LOS	C	C	C	C	C		C	C	C	C	C	C
Approach Vol, veh/h		1040			1251			241			176	
Approach Delay, s/veh		26.1			23.6			27.8			26.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	28.1	16.0	17.2	17.2	21.7	15.1	18.2
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	41.0	11.0	49.0	11.8	39.2	11.0	49.0
Max Q Clear Time (g_c+I1), s	2.6	13.3	3.7	5.7	8.2	11.5	5.4	2.6
Green Ext Time (p_c), s	0.0	4.0	0.1	0.4	0.2	4.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	948	103	1031	208	219	209	202
v/c Ratio	0.41	0.13	0.44	0.25	0.47	0.47	0.45
Control Delay	9.2	2.6	9.5	2.4	19.8	17.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	2.6	9.5	2.4	19.8	17.1	16.8
Queue Length 50th (ft)	52	0	57	0	50	40	37
Queue Length 95th (ft)	104	20	114	27	131	118	109
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	4264	1344	4264	1361	1567	1413	1405
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.08	0.24	0.15	0.14	0.15	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	920	100	0	990	200	0	0	0	280	0	300
Future Volume (veh/h)	0	920	100	0	990	200	0	0	0	280	0	300
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	948	103	0	1031	0				409	0	214
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2266	703	0	2266					935	0	416
Arrive On Green	0.00	0.44	0.44	0.00	0.44	0.00				0.26	0.00	0.26
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	948	103	0	1031	0				409	0	214
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	5.3	1.6	0.0	5.9	0.0				4.0	0.0	4.8
Cycle Q Clear(g_c), s	0.0	5.3	1.6	0.0	5.9	0.0				4.0	0.0	4.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2266	703	0	2266					935	0	416
V/C Ratio(X)	0.00	0.42	0.15	0.00	0.46					0.44	0.00	0.51
Avail Cap(c_a), veh/h	0	4817	1495	0	4817					4101	0	1825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	6.9	0.0	8.1	0.0				12.9	0.0	13.2
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.2	0.0				0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.1	0.3	0.0	1.2	0.0				1.3	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.1	7.1	0.0	8.3	0.0				13.0	0.0	13.5
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1051			1031						623	
Approach Delay, s/veh		8.0			8.3						13.2	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.1				25.1		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		7.9				7.3		6.8				
Green Ext Time (p_c), s		10.7				10.4		1.1				

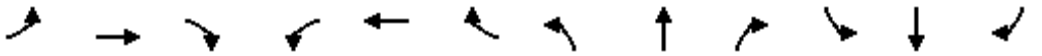
Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1051	173	1165	289	43	43	272
v/c Ratio	0.39	0.19	0.43	0.29	0.12	0.12	0.42
Control Delay	7.2	3.2	7.5	1.7	19.8	19.8	17.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	3.2	7.5	1.7	19.8	19.8	17.8
Queue Length 50th (ft)	58	9	66	0	10	10	31
Queue Length 95th (ft)	83	30	94	23	35	35	69
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4064	1285	4064	1323	1609	1609	2669
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.13	0.29	0.22	0.03	0.03	0.10

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1030	170	0	1130	280	70	0	220	0	0	0
Future Volume (veh/h)	0	1030	170	0	1130	280	70	0	220	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1051	0	0	1165	289	86	0	272			
Peak Hour Factor	0.98	0.98	0.98	0.97	0.97	0.97	0.81	0.81	0.81			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2575		0	2575	799	830	0	738			
Arrive On Green	0.00	0.50	0.00	0.00	0.50	0.50	0.23	0.00	0.23			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1051	0	0	1165	289	86	0	272			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.0	0.0	0.0	6.9	5.2	0.9	0.0	3.4			
Cycle Q Clear(g_c), s	0.0	6.0	0.0	0.0	6.9	5.2	0.9	0.0	3.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2575		0	2575	799	830	0	738			
V/C Ratio(X)	0.00	0.41		0.00	0.45	0.36	0.10	0.00	0.37			
Avail Cap(c_a), veh/h	0	4419		0	4419	1372	3974	0	3536			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.2	0.0	0.0	7.4	7.0	14.1	0.0	15.1			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.4	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.4	1.0	0.3	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	0.0	0.0	7.6	7.4	14.1	0.0	15.2			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1051			1454			358				
Approach Delay, s/veh		7.4			7.6			14.9				
Approach LOS		A			A			B				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	30.1	16.7	30.1
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	40.5	52.2	40.5
Max Q Clear Time (g_c+I1), s	8.9	5.4	8.0
Green Ext Time (p_c), s	14.7	0.8	11.1

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

Notes

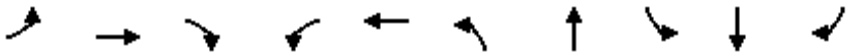
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	30	0	10	20	0
Future Vol, veh/h	0	30	0	10	20	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	100	5	0	0	5
Mvmt Flow	0	33	0	11	22	0
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.6	6.5	7.3
HCM LOS	A	A	A

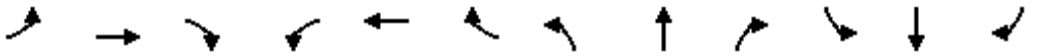
Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	100%
Vol Thru, %	0%	100%	0%	0%
Vol Right, %	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	0	30	20
LT Vol	0	0	0	20
Through Vol	0	0	0	0
RT Vol	10	0	30	0
Lane Flow Rate	11	0	33	22
Geometry Grp	2	7	7	2
Degree of Util (X)	0.01	0	0.05	0.025
Departure Headway (Hd)	3.458	4.557	5.557	4.166
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1028	0	647	856
Service Time	1.504	2.269	3.269	2.207
HCM Lane V/C Ratio	0.011	0	0.051	0.026
HCM Control Delay	6.5	7.3	8.6	7.3
HCM Lane LOS	A	N	A	A
HCM 95th-tile Q	0	0	0.2	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	98	33	87	40	67	230	190	29	214	129
v/c Ratio	0.50	0.10	0.20	0.21	0.25	0.60	0.17	0.14	0.38	0.24
Control Delay	35.3	19.8	1.8	26.3	17.0	29.7	9.0	25.0	19.1	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	19.8	1.8	26.3	17.0	29.7	9.0	25.0	19.1	3.5
Queue Length 50th (ft)	28	7	0	11	11	64	25	8	57	0
Queue Length 95th (ft)	#97	31	6	32	33	#126	66	24	84	7
Internal Link Dist (ft)		1428			228		505		161	
Turn Bay Length (ft)	100			100		100		100		100
Base Capacity (vph)	197	704	739	193	679	383	1111	204	777	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.05	0.12	0.21	0.10	0.60	0.17	0.14	0.28	0.19

Intersection Summary

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



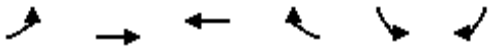
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	30	80	30	30	20	170	110	30	20	150	90
Future Volume (veh/h)	90	30	80	30	30	20	170	110	30	20	150	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	98	33	87	40	40	27	230	149	41	29	214	0
Peak Hour Factor	0.92	0.92	0.92	0.75	0.75	0.75	0.74	0.74	0.74	0.70	0.70	0.70
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	141	279	250	81	120	81	296	440	121	60	338	
Arrive On Green	0.08	0.16	0.16	0.05	0.12	0.12	0.16	0.31	0.31	0.03	0.18	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1025	692	1810	1434	395	1725	1900	1459
Grp Volume(v), veh/h	98	33	87	40	0	67	230	0	190	29	214	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1716	1810	0	1829	1725	1900	1459
Q Serve(g_s), s	2.2	0.6	1.9	0.8	0.0	1.4	4.8	0.0	3.2	0.6	4.1	0.0
Cycle Q Clear(g_c), s	2.2	0.6	1.9	0.8	0.0	1.4	4.8	0.0	3.2	0.6	4.1	0.0
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	141	279	250	81	0	200	296	0	561	60	338	
V/C Ratio(X)	0.70	0.12	0.35	0.49	0.00	0.33	0.78	0.00	0.34	0.49	0.63	
Avail Cap(c_a), veh/h	236	847	759	230	0	787	456	0	1067	246	900	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.5	14.3	14.8	18.3	0.0	15.9	15.7	0.0	10.5	18.6	15.0	0.0
Incr Delay (d2), s/veh	6.1	0.2	0.8	4.5	0.0	1.0	4.5	0.0	0.4	6.0	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	0.7	0.4	0.0	0.5	2.0	0.0	1.0	0.3	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	14.5	15.6	22.8	0.0	16.9	20.3	0.0	10.9	24.6	16.9	0.0
LnGrp LOS	C	B	B	C	A	B	C	A	B	C	B	
Approach Vol, veh/h		218			107			420			243	
Approach Delay, s/veh		19.0			19.1			16.0			17.8	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	16.5	6.3	10.6	10.9	11.5	7.8	9.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	22.9	5.0	18.5	9.9	18.6	5.5	18.0
Max Q Clear Time (g_c+I1), s	2.6	5.2	2.8	3.9	6.8	6.1	4.2	3.4
Green Ext Time (p_c), s	0.0	0.9	0.0	0.3	0.2	0.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	17.5
HCM 6th LOS	B

Notes

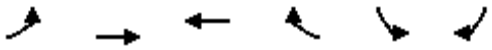
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	176	506	505	172	186	171
v/c Ratio	0.63	0.46	0.72	0.28	0.58	0.35
Control Delay	40.0	8.1	23.1	3.9	29.9	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	8.1	23.1	3.9	29.9	6.3
Queue Length 50th (ft)	63	82	150	0	62	0
Queue Length 95th (ft)	#160	162	285	34	94	18
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	278	1317	906	738	1022	1160
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	0.63	0.38	0.56	0.23	0.18	0.15

Intersection Summary

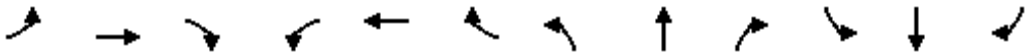
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	430	470	160	130	120
Future Volume (veh/h)	150	430	470	160	130	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	176	506	505	172	186	171
Peak Hour Factor	0.85	0.85	0.93	0.93	0.70	0.70
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	226	1074	659	472	280	302
Arrive On Green	0.13	0.60	0.36	0.36	0.19	0.19
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	176	506	505	172	186	171
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	4.2	6.8	10.5	4.2	5.1	4.2
Cycle Q Clear(g_c), s	4.2	6.8	10.5	4.2	5.1	4.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	226	1074	659	472	280	302
V/C Ratio(X)	0.78	0.47	0.77	0.36	0.66	0.57
Avail Cap(c_a), veh/h	388	1843	1267	907	1426	1540
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	18.1	4.8	12.0	10.0	16.0	15.7
Incr Delay (d2), s/veh	5.7	0.3	1.9	0.5	2.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.7	2.8	3.4	1.6	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.8	5.2	13.9	10.5	18.7	17.4
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		682	677		357	
Approach Delay, s/veh		10.0	13.0		18.1	
Approach LOS		A	B		B	

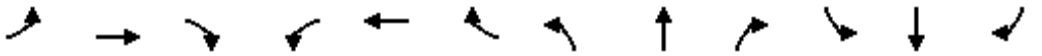
Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		30.1		12.8	10.0	20.1
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		44.0		42.0	9.5	30.0
Max Q Clear Time (g_c+I1), s		8.8		7.1	6.2	12.5
Green Ext Time (p_c), s		2.9		1.2	0.1	3.1

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	756	37	247	727	52	87	109	304	55	43	26
v/c Ratio	0.03	0.66	0.08	0.49	0.33	0.07	0.28	0.16	0.55	0.09	0.09	0.08
Control Delay	29.7	26.8	0.3	31.4	14.9	0.2	30.5	27.1	8.5	27.5	28.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	26.8	0.3	31.4	14.9	0.2	30.5	27.1	8.5	27.5	28.1	0.5
Queue Length 50th (ft)	3	105	0	49	65	0	32	22	0	10	8	0
Queue Length 95th (ft)	14	143	0	94	146	0	83	47	66	28	23	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	256	2583	869	653	2812	934	313	2396	1170	609	2396	1114
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.29	0.04	0.38	0.26	0.06	0.28	0.05	0.26	0.09	0.02	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	620	30	230	676	48	80	100	280	51	40	24
Future Volume (veh/h)	6	620	30	230	676	48	80	100	280	51	40	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	756	37	247	727	52	87	109	0	55	43	26
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1117	347	361	1566	486	252	590		382	480	214
Arrive On Green	0.02	0.22	0.22	0.10	0.31	0.31	0.14	0.17	0.00	0.11	0.14	0.14
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	7	756	37	247	727	52	87	109	0	55	43	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	8.0	1.1	4.1	6.8	1.4	2.6	1.6	0.0	0.9	0.6	0.9
Cycle Q Clear(g_c), s	0.2	8.0	1.1	4.1	6.8	1.4	2.6	1.6	0.0	0.9	0.6	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	29	1117	347	361	1566	486	252	590		382	480	214
V/C Ratio(X)	0.24	0.68	0.11	0.68	0.46	0.11	0.35	0.18		0.14	0.09	0.12
Avail Cap(c_a), veh/h	271	2717	843	689	2958	918	331	2521		642	2521	1124
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.7	21.2	18.5	25.6	16.6	14.7	22.9	21.2	0.0	23.8	22.4	22.5
Incr Delay (d2), s/veh	1.5	0.3	0.0	0.9	0.1	0.0	0.3	0.1	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.6	0.4	1.5	2.1	0.5	1.0	0.6	0.0	0.3	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.3	21.5	18.6	26.4	16.7	14.7	23.2	21.3	0.0	23.9	22.4	22.6
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		800			1026			196			124	
Approach Delay, s/veh		21.4			18.9			22.2			23.1	
Approach LOS		C			B			C			C	

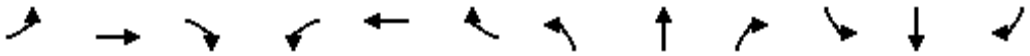
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	24.4	13.5	14.2	12.4	19.1	11.6	16.0
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	11.8	31.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.2	8.8	4.6	2.9	6.1	10.0	2.9	3.6
Green Ext Time (p_c), s	0.0	2.9	0.0	0.2	0.2	2.9	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes

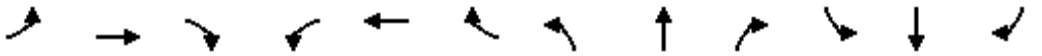
User approved ignoring U-Turning movement.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	1048	71	120	867	122	152	87	207	134	22	18
v/c Ratio	0.04	0.69	0.15	0.24	0.41	0.10	0.35	0.15	0.48	0.19	0.04	0.05
Control Delay	31.1	29.4	2.1	31.6	17.4	4.2	31.2	29.2	9.0	30.6	29.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.1	29.4	2.1	31.6	17.4	4.2	31.2	29.2	9.0	30.6	29.2	0.2
Queue Length 50th (ft)	3	134	0	26	95	0	69	18	0	20	4	0
Queue Length 95th (ft)	12	156	7	53	179	20	133	41	57	38	15	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	447	3257	863	492	2650	1511	439	2306	1103	715	2260	1055
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.32	0.08	0.24	0.33	0.08	0.35	0.04	0.19	0.19	0.01	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	891	60	110	798	112	140	80	190	119	20	16
Future Volume (veh/h)	14	891	60	110	798	112	140	80	190	119	20	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1048	71	120	867	0	152	87	207	134	22	18
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	131	1532	378	470	1717		253	578	258	699	567	253
Arrive On Green	0.04	0.24	0.24	0.14	0.34	0.00	0.14	0.16	0.16	0.14	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	16	1048	71	120	867	0	152	87	207	134	22	18
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.3	11.0	2.6	2.3	10.1	0.0	5.9	1.6	9.3	1.7	0.4	0.7
Cycle Q Clear(g_c), s	0.3	11.0	2.6	2.3	10.1	0.0	5.9	1.6	9.3	1.7	0.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	131	1532	378	470	1717		253	578	258	699	567	253
V/C Ratio(X)	0.12	0.68	0.19	0.26	0.50		0.60	0.15	0.80	0.19	0.04	0.07
Avail Cap(c_a), veh/h	467	3389	835	513	2759		289	2400	1070	746	2352	1049
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.4	25.7	22.5	28.6	19.6	0.0	29.8	26.6	29.9	28.2	26.3	26.4
Incr Delay (d2), s/veh	0.2	0.2	0.1	0.1	0.1	0.0	1.4	0.0	2.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.7	0.9	0.9	3.4	0.0	2.6	0.7	3.4	0.7	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.6	25.9	22.6	28.7	19.7	0.0	31.2	26.7	32.1	28.2	26.3	26.5
LnGrp LOS	C	C	C	C	B		C	C	C	C	C	C
Approach Vol, veh/h		1135			987			446			174	
Approach Delay, s/veh		25.8			20.8			30.7			27.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.0	31.1	16.1	17.8	16.3	23.8	16.3	17.6
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	40.0	11.0	50.0	11.0	39.0	12.0	49.0
Max Q Clear Time (g_c+I1), s	2.3	12.1	3.7	11.3	4.3	13.0	7.9	2.7
Green Ext Time (p_c), s	0.0	3.6	0.1	0.7	0.1	4.7	0.1	0.1

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

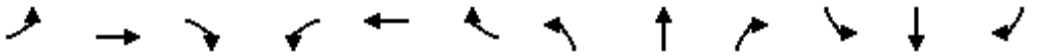
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1205	159	851	245	175	169	161
v/c Ratio	0.47	0.18	0.33	0.27	0.42	0.40	0.39
Control Delay	8.6	1.9	7.6	1.9	21.9	15.7	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.6	1.9	7.6	1.9	21.9	15.7	15.4
Queue Length 50th (ft)	69	0	45	0	44	27	24
Queue Length 95th (ft)	113	20	79	25	117	92	83
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	4096	1306	4096	1322	1553	1417	1394
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.21	0.19	0.11	0.12	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	1060	140	0	800	230	0	0	0	230	0	220
Future Volume (veh/h)	0	1060	140	0	800	230	0	0	0	230	0	220
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1205	159	0	851	0				335	0	165
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2543	789	0	2543					844	0	375
Arrive On Green	0.00	0.50	0.50	0.00	0.50	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	1205	159	0	851	0				335	0	165
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	7.2	2.6	0.0	4.7	0.0				3.7	0.0	4.1
Cycle Q Clear(g_c), s	0.0	7.2	2.6	0.0	4.7	0.0				3.7	0.0	4.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2543	789	0	2543					844	0	375
V/C Ratio(X)	0.00	0.47	0.20	0.00	0.33					0.40	0.00	0.44
Avail Cap(c_a), veh/h	0	4348	1350	0	4348					3702	0	1647
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.6	6.5	0.0	7.0	0.0				14.9	0.0	15.1
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.0				0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.5	0.0	0.9	0.0				1.3	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.8	6.7	0.0	7.1	0.0				15.0	0.0	15.4
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1364			851						500	
Approach Delay, s/veh		7.7			7.1						15.1	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		29.6				29.6		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		6.7				9.2		6.1				
Green Ext Time (p_c), s		8.5				13.9		0.9				

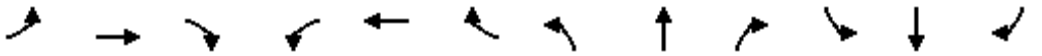
Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1083	250	1031	333	22	23	337
v/c Ratio	0.43	0.29	0.41	0.35	0.05	0.05	0.46
Control Delay	8.3	4.2	8.2	2.1	17.1	17.2	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	4.2	8.2	2.1	17.1	17.2	17.3
Queue Length 50th (ft)	60	14	57	0	5	5	38
Queue Length 95th (ft)	98	46	93	28	23	23	91
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4320	1366	4320	1395	1626	1626	2697
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.18	0.24	0.24	0.01	0.01	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1040	240	0	990	320	40	0	300	0	0	0
Future Volume (veh/h)	0	1040	240	0	990	320	40	0	300	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1083	0	0	1031	333	45	0	337			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2463		0	2463	765	867	0	771			
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.48	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1083	0	0	1031	333	45	0	337			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.2	0.0	0.0	5.9	6.2	0.4	0.0	4.0			
Cycle Q Clear(g_c), s	0.0	6.2	0.0	0.0	5.9	6.2	0.4	0.0	4.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2463		0	2463	765	867	0	771			
V/C Ratio(X)	0.00	0.44		0.00	0.42	0.44	0.05	0.00	0.44			
Avail Cap(c_a), veh/h	0	4612		0	4612	1432	4148	0	3691			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.6	0.0	0.0	7.5	7.6	13.0	0.0	14.4			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.6	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.0	0.0	1.2	1.2	0.1	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.8	0.0	0.0	7.7	8.2	13.0	0.0	14.5			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1083			1364			382				
Approach Delay, s/veh		7.8			7.8			14.3				
Approach LOS		A			A			B				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	28.1	16.7	28.1
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	40.5	52.2	40.5
Max Q Clear Time (g_c+I1), s	8.2	6.0	8.2
Green Ext Time (p_c), s	13.5	0.8	11.4

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

Notes

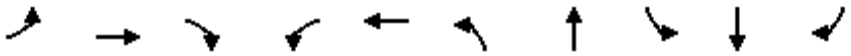
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	7.8
Intersection LOS	A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	30	0	10	20	0
Future Vol, veh/h	0	30	0	10	20	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	100	5	0	0	5
Mvmt Flow	0	33	0	11	22	0
Number of Lanes	1	1	1	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	2	0
HCM Control Delay	8.6	6.5	7.3
HCM LOS	A	A	A

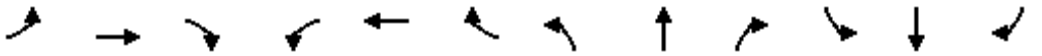
Lane	NBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	0%	0%	0%	100%
Vol Thru, %	0%	100%	0%	0%
Vol Right, %	100%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	0	30	20
LT Vol	0	0	0	20
Through Vol	0	0	0	0
RT Vol	10	0	30	0
Lane Flow Rate	11	0	33	22
Geometry Grp	2	7	7	2
Degree of Util (X)	0.01	0	0.05	0.025
Departure Headway (Hd)	3.458	4.557	5.557	4.166
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	1028	0	647	856
Service Time	1.504	2.269	3.269	2.207
HCM Lane V/C Ratio	0.011	0	0.051	0.026
HCM Control Delay	6.5	7.3	8.6	7.3
HCM Lane LOS	A	N	A	A
HCM 95th-tile Q	0	0	0.2	0.1



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	98	33	87	38	64	200	164	29	214	129
v/c Ratio	0.49	0.10	0.20	0.19	0.24	0.56	0.15	0.14	0.37	0.23
Control Delay	34.6	19.6	1.8	25.8	16.8	28.1	8.8	24.6	18.7	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.6	19.6	1.8	25.8	16.8	28.1	8.8	24.6	18.7	3.4
Queue Length 50th (ft)	28	7	0	11	10	54	21	8	56	0
Queue Length 95th (ft)	#96	30	7	32	34	#137	68	24	83	7
Internal Link Dist (ft)		1428			228		505		161	
Turn Bay Length (ft)	100			100		100		100		100
Base Capacity (vph)	199	714	747	196	687	372	1112	207	808	707
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.05	0.12	0.19	0.09	0.54	0.15	0.14	0.26	0.18

Intersection Summary

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



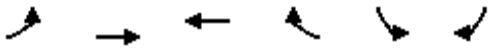
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	30	80	30	30	20	170	110	30	20	150	90
Future Volume (veh/h)	90	30	80	30	30	20	170	110	30	20	150	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	98	33	87	38	38	26	200	129	35	29	214	0
Peak Hour Factor	0.92	0.92	0.92	0.78	0.78	0.78	0.85	0.85	0.85	0.70	0.70	0.70
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	143	287	258	79	121	83	260	417	113	60	343	
Arrive On Green	0.08	0.16	0.16	0.04	0.12	0.12	0.14	0.29	0.29	0.03	0.18	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1018	697	1810	1439	390	1725	1900	1459
Grp Volume(v), veh/h	98	33	87	38	0	64	200	0	164	29	214	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1715	1810	0	1830	1725	1900	1459
Q Serve(g_s), s	2.2	0.6	1.8	0.8	0.0	1.3	4.1	0.0	2.7	0.6	4.0	0.0
Cycle Q Clear(g_c), s	2.2	0.6	1.8	0.8	0.0	1.3	4.1	0.0	2.7	0.6	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.41	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h	143	287	258	79	0	204	260	0	530	60	343	
V/C Ratio(X)	0.69	0.11	0.34	0.48	0.00	0.31	0.77	0.00	0.31	0.48	0.62	
Avail Cap(c_a), veh/h	243	872	782	237	0	810	451	0	1100	254	948	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.9	13.7	14.2	17.8	0.0	15.4	15.7	0.0	10.6	18.1	14.4	0.0
Incr Delay (d2), s/veh	5.8	0.2	0.8	4.5	0.0	0.9	4.8	0.0	0.3	6.0	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.2	0.6	0.4	0.0	0.5	1.7	0.0	0.9	0.3	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	13.9	15.0	22.3	0.0	16.2	20.5	0.0	10.9	24.0	16.3	0.0
LnGrp LOS	C	B	B	C	A	B	C	A	B	C	B	
Approach Vol, veh/h		218			102			364			243	
Approach Delay, s/veh		18.3			18.5			16.1			17.2	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	15.5	6.2	10.6	10.0	11.4	7.7	9.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.6	22.9	5.0	18.5	9.5	19.0	5.5	18.0
Max Q Clear Time (g_c+I1), s	2.6	4.7	2.8	3.8	6.1	6.0	4.2	3.3
Green Ext Time (p_c), s	0.0	0.8	0.0	0.3	0.2	0.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	17.2
HCM 6th LOS	B

Notes

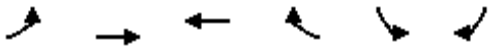
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	188	538	500	170	157	145
v/c Ratio	0.65	0.48	0.71	0.28	0.53	0.33
Control Delay	39.5	7.7	21.9	3.8	28.8	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	7.7	21.9	3.8	28.8	6.8
Queue Length 50th (ft)	64	82	141	0	50	0
Queue Length 95th (ft)	#149	145	267	32	100	32
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	288	1367	940	758	1060	1190
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	0.65	0.39	0.53	0.22	0.15	0.12

Intersection Summary

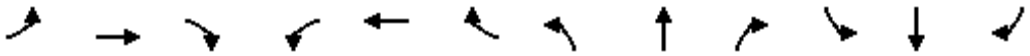
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	430	470	160	130	120
Future Volume (veh/h)	150	430	470	160	130	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	188	538	500	170	157	145
Peak Hour Factor	0.80	0.80	0.94	0.94	0.83	0.83
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	241	1097	660	472	251	271
Arrive On Green	0.14	0.61	0.36	0.36	0.17	0.17
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	188	538	500	170	157	145
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	4.3	6.9	10.0	4.0	4.1	3.5
Cycle Q Clear(g_c), s	4.3	6.9	10.0	4.0	4.1	3.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	241	1097	660	472	251	271
V/C Ratio(X)	0.78	0.49	0.76	0.36	0.63	0.54
Avail Cap(c_a), veh/h	402	1909	1312	939	1477	1595
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	17.3	4.5	11.6	9.6	15.9	15.6
Incr Delay (d2), s/veh	5.4	0.3	1.8	0.5	2.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.5	2.6	0.1	1.3	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.7	4.8	13.4	10.1	18.5	17.3
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		726	670		302	
Approach Delay, s/veh		9.5	12.5		17.9	
Approach LOS		A	B		B	

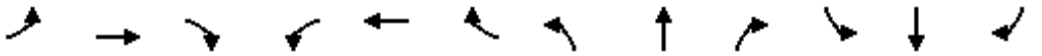
Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	29.8	11.6	10.2	19.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	44.0	42.0	9.5	30.0
Max Q Clear Time (g_c+I1), s	8.9	6.1	6.3	12.0
Green Ext Time (p_c), s	3.1	1.0	0.1	3.1

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	729	35	247	727	52	87	109	304	55	43	26
v/c Ratio	0.03	0.65	0.08	0.49	0.33	0.07	0.28	0.16	0.55	0.09	0.08	0.08
Control Delay	29.3	26.9	0.3	31.0	15.0	0.2	30.1	26.7	8.4	27.1	27.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.3	26.9	0.3	31.0	15.0	0.2	30.1	26.7	8.4	27.1	27.7	0.5
Queue Length 50th (ft)	3	100	0	48	65	0	31	21	0	9	8	0
Queue Length 95th (ft)	14	144	0	93	146	0	82	47	65	28	23	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	259	2607	875	659	2838	942	316	2419	1178	614	2419	1123
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.28	0.04	0.37	0.26	0.06	0.28	0.05	0.26	0.09	0.02	0.02

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	620	30	230	676	48	80	100	280	51	40	24
Future Volume (veh/h)	6	620	30	230	676	48	80	100	280	51	40	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	729	35	247	727	52	87	109	0	55	43	26
Peak Hour Factor	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1087	337	362	1537	477	253	595		384	485	216
Arrive On Green	0.02	0.21	0.21	0.10	0.30	0.30	0.14	0.17	0.00	0.11	0.14	0.14
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	7	729	35	247	727	52	87	109	0	55	43	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.2	7.7	1.0	4.0	6.8	1.4	2.6	1.5	0.0	0.8	0.6	0.8
Cycle Q Clear(g_c), s	0.2	7.7	1.0	4.0	6.8	1.4	2.6	1.5	0.0	0.8	0.6	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	29	1087	337	362	1537	477	253	595		384	485	216
V/C Ratio(X)	0.24	0.67	0.10	0.68	0.47	0.11	0.34	0.18		0.14	0.09	0.12
Avail Cap(c_a), veh/h	273	2741	851	695	2985	927	334	2544		648	2544	1135
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	21.2	18.6	25.3	16.7	14.8	22.7	21.0	0.0	23.6	22.1	22.2
Incr Delay (d2), s/veh	1.5	0.3	0.0	0.9	0.1	0.0	0.3	0.1	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.5	0.4	1.4	2.1	0.5	1.0	0.6	0.0	0.3	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	21.5	18.6	26.2	16.8	14.9	23.0	21.0	0.0	23.6	22.2	22.3
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		771			1026			196			124	
Approach Delay, s/veh		21.4			19.0			21.9			22.9	
Approach LOS		C			B			C			C	

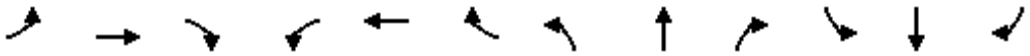
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	23.9	13.4	14.2	12.3	18.7	11.6	16.0
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	11.8	31.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.2	8.8	4.6	2.8	6.0	9.7	2.8	3.5
Green Ext Time (p_c), s	0.0	2.9	0.0	0.2	0.2	2.8	0.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	20.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

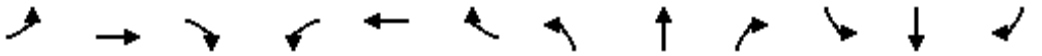
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	1100	74	118	858	120	182	104	247	128	22	17
v/c Ratio	0.04	0.69	0.15	0.24	0.39	0.09	0.43	0.18	0.58	0.18	0.04	0.05
Control Delay	31.7	29.1	2.2	32.2	17.0	4.2	34.8	30.1	13.5	31.2	29.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	29.1	2.2	32.2	17.0	4.2	34.8	30.1	13.5	31.2	29.1	0.2
Queue Length 50th (ft)	3	140	0	26	91	0	84	23	16	19	4	0
Queue Length 95th (ft)	11	157	6	54	179	20	#149	40	54	38	15	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	441	3282	869	486	2670	1520	422	2241	1078	706	2231	1043
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.34	0.09	0.24	0.32	0.08	0.43	0.05	0.23	0.18	0.01	0.02

Intersection Summary

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)	14	891	60	110	798	112	140	80	190	119	20	16
Future Volume (veh/h)	14	891	60	110	798	112	140	80	190	119	20	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1100	74	118	858	0	182	104	247	128	22	17
Peak Hour Factor	0.81	0.81	0.81	0.93	0.93	0.93	0.77	0.77	0.77	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	136	1573	388	448	1709		246	665	297	663	643	287
Arrive On Green	0.04	0.24	0.24	0.13	0.33	0.00	0.14	0.19	0.19	0.13	0.18	0.18
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	17	1100	74	118	858	0	182	104	247	128	22	17
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.4	12.2	2.9	2.4	10.5	0.0	7.7	1.9	11.7	1.8	0.4	0.7
Cycle Q Clear(g_c), s	0.4	12.2	2.9	2.4	10.5	0.0	7.7	1.9	11.7	1.8	0.4	0.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	136	1573	388	448	1709		246	665	297	663	643	287
V/C Ratio(X)	0.12	0.70	0.19	0.26	0.50		0.74	0.16	0.83	0.19	0.03	0.06
Avail Cap(c_a), veh/h	442	3273	806	486	2663		255	2235	997	706	2226	993
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.3	26.9	23.4	30.7	20.8	0.0	32.4	26.6	30.6	30.3	26.4	26.5
Incr Delay (d2), s/veh	0.2	0.2	0.1	0.1	0.1	0.0	9.2	0.0	2.4	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.2	1.0	0.9	3.7	0.0	3.9	0.8	4.3	0.7	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.4	27.1	23.5	30.8	20.9	0.0	41.6	26.7	33.0	30.3	26.4	26.6
LnGrp LOS	D	C	C	C	C		D	C	C	C	C	C
Approach Vol, veh/h		1191			976			533			167	
Approach Delay, s/veh		27.1			22.1			34.7			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.3	32.4	16.1	20.4	16.4	25.3	16.6	20.0
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	40.8	11.0	49.2	11.0	39.8	11.2	49.0
Max Q Clear Time (g_c+I1), s	2.4	12.5	3.8	13.7	4.4	14.2	9.7	2.7
Green Ext Time (p_c), s	0.0	3.6	0.1	0.9	0.1	4.9	0.0	0.1

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

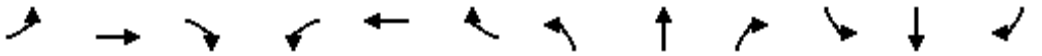
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1191	157	825	237	170	164	155
v/c Ratio	0.47	0.18	0.32	0.26	0.41	0.39	0.37
Control Delay	8.5	1.9	7.6	1.9	21.5	14.6	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	1.9	7.6	1.9	21.5	14.6	14.2
Queue Length 50th (ft)	68	0	43	0	42	24	21
Queue Length 95th (ft)	112	20	75	25	113	85	77
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	4130	1315	4130	1330	1563	1424	1403
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.20	0.18	0.11	0.12	0.11

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	1060	140	0	800	230	0	0	0	230	0	220
Future Volume (veh/h)	0	1060	140	0	800	230	0	0	0	230	0	220
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1191	157	0	825	0				324	0	159
Peak Hour Factor	0.89	0.89	0.89	0.97	0.97	0.97				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2527	785	0	2527					848	0	377
Arrive On Green	0.00	0.49	0.49	0.00	0.49	0.00				0.24	0.00	0.24
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	1191	157	0	825	0				324	0	159
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	7.1	2.6	0.0	4.5	0.0				3.5	0.0	3.9
Cycle Q Clear(g_c), s	0.0	7.1	2.6	0.0	4.5	0.0				3.5	0.0	3.9
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2527	785	0	2527					848	0	377
V/C Ratio(X)	0.00	0.47	0.20	0.00	0.33					0.38	0.00	0.42
Avail Cap(c_a), veh/h	0	4376	1358	0	4376					3725	0	1658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.7	6.5	0.0	7.0	0.0				14.7	0.0	14.9
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.0				0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.5	0.0	0.9	0.0				1.2	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.9	6.7	0.0	7.1	0.0				14.8	0.0	15.1
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1348			825						483	
Approach Delay, s/veh		7.7			7.1						14.9	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		29.3				29.3		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		6.5				9.1		5.9				
Green Ext Time (p_c), s		8.2				13.7		0.9				

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

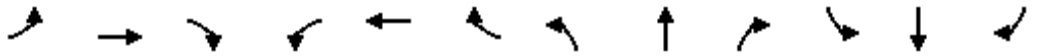
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1061	245	1076	348	21	22	319
v/c Ratio	0.41	0.28	0.42	0.36	0.05	0.05	0.46
Control Delay	7.8	3.8	7.9	2.0	18.6	18.6	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	3.8	7.9	2.0	18.6	18.6	18.0
Queue Length 50th (ft)	58	13	60	0	5	5	36
Queue Length 95th (ft)	91	42	93	27	23	24	92
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4218	1337	4218	1372	1605	1605	2663
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.18	0.26	0.25	0.01	0.01	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1040	240	0	990	320	40	0	300	0	0	0
Future Volume (veh/h)	0	1040	240	0	990	320	40	0	300	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1061	0	0	1076	348	43	0	319			
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2524		0	2524	783	846	0	753			
Arrive On Green	0.00	0.49	0.00	0.00	0.49	0.49	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1061	0	0	1076	348	43	0	319			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.1	0.0	0.0	6.2	6.5	0.4	0.0	3.9			
Cycle Q Clear(g_c), s	0.0	6.1	0.0	0.0	6.2	6.5	0.4	0.0	3.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2524		0	2524	783	846	0	753			
V/C Ratio(X)	0.00	0.42		0.00	0.43	0.44	0.05	0.00	0.42			
Avail Cap(c_a), veh/h	0	4510		0	4510	1400	4055	0	3609			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.4	0.0	0.0	7.4	7.5	13.5	0.0	14.8			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.6	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.2	1.3	0.1	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.6	0.0	0.0	7.6	8.1	13.5	0.0	15.0			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1061			1424			362				
Approach Delay, s/veh		7.6			7.7			14.8				
Approach LOS		A			A			B				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	29.2	16.7	29.2
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	40.5	52.2	40.5
Max Q Clear Time (g_c+I1), s	8.5	5.9	8.1
Green Ext Time (p_c), s	14.1	0.8	11.2

Intersection Summary	
HCM 6th Ctrl Delay	8.6
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix D

Analysis Worksheets for
Opening Year (2028) plus Project Conditions

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt00_2028_AM_DL (Site Folder: INT-3_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	12	1.0	12	1.0	1077	0.011	100	3.4	LOS A	0.0	1.1	Full	520	0.0	0.0
Approach	12	1.0	12	1.0		0.011		3.4	LOS A	0.0	1.1				
East: WB - Classical Way															
Lane 1[d]	277	1.0	277	1.0	1366	0.203	100	3.7	LOS A	1.1	26.7	Full	700	0.0	0.0
Approach	277	1.0	277	1.0		0.203		3.7	LOS A	1.1	26.7				
North: SB - B Street															
Lane 1[d]	230	1.0	230	1.0	1366	0.169	100	3.5	LOS A	0.8	21.3	Full	1000	0.0	0.0
Approach	230	1.0	230	1.0		0.169		3.5	LOS A	0.8	21.3				
All Vehicles	520	1.0	520	1.0		0.203		3.6	LOS A	1.1	26.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-4_Driveway at Classical_Alt00_2028_AM_DL (Site Folder: INT-4_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Parking Lot															
Lane 1[d]	3	1.0	3	1.0	1060	0.003	100	3.4	LOS A	0.0	0.3	Full	200	0.0	0.0
Approach	3	1.0	3	1.0		0.003		3.4	LOS A	0.0	0.3				
East: WB - Classical Way															
Lane 1[d]	293	1.0	293	1.0	1363	0.215	100	3.8	LOS A	1.1	28.7	Full	500	0.0	0.0
Approach	293	1.0	293	1.0		0.215		3.8	LOS A	1.1	28.7				
North: SB - Zoo Entrance															
Lane 1[d]	5	1.0	5	1.0	1024	0.005	100	3.6	LOS A	0.0	0.5	Full	500	0.0	0.0
Approach	5	1.0	5	1.0		0.005		3.6	LOS A	0.0	0.5				
West: EB - Classical Way															
Lane 1[d]	242	1.0	242	1.0	1360	0.178	100	3.7	LOS A	0.9	22.7	Full	700	0.0	0.0
Approach	242	1.0	242	1.0		0.178		3.7	LOS A	0.9	22.7				
All Vehicles	545	1.0	545	1.0		0.215		3.7	LOS A	1.1	28.7				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-2_Lotz at Clasical_Alt00_2028_AM_DL (Site Folder: INT-2_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

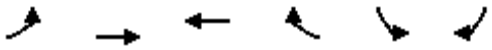
New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Lotz Pkwy															
Lane 1[d]	514	1.0	514	1.0	1196	0.430	100	7.3	LOS A	2.8	70.1	Full	525	0.0	0.0
Approach	514	1.0	514	1.0		0.430		7.3	LOS A	2.8	70.1				
East: WB - Classical Way															
Lane 1[d]	65	1.0	65	1.0	811	0.080	100	5.2	LOS A	0.3	7.4	Full	775	0.0	0.0
Approach	65	1.0	65	1.0		0.080		5.2	LOS A	0.3	7.4				
North: SB - Lotz Pkwy															
Lane 1[d]	300	1.0	300	1.0	1131	0.265	100	5.6	LOS A	1.3	31.5	Full	575	0.0	0.0
Approach	300	1.0	300	1.0		0.265		5.6	LOS A	1.3	31.5				
West: EB - Classical Way															
Lane 1[d]	243	1.0	243	1.0	1114	0.219	100	5.2	LOS A	1.0	25.5	Full	500	0.0	0.0
Approach	243	1.0	243	1.0		0.219		5.2	LOS A	1.0	25.5				
All Vehicles	1123	1.0	1123	1.0		0.430		6.3	LOS A	2.8	70.1				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

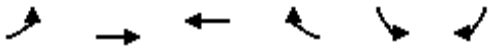
d Dominant lane on roundabout approach



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	146	506	483	367	209	133
v/c Ratio	0.55	0.47	0.71	0.51	0.60	0.28
Control Delay	37.5	8.9	23.3	4.7	29.5	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.5	8.9	23.3	4.7	29.5	6.1
Queue Length 50th (ft)	51	87	144	0	69	0
Queue Length 95th (ft)	#144	186	271	46	143	37
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	265	1313	913	838	1043	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	0.55	0.39	0.53	0.44	0.20	0.11

Intersection Summary

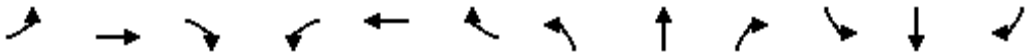
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	130	450	430	327	188	120
Future Volume (veh/h)	130	450	430	327	188	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	146	506	483	367	209	133
Peak Hour Factor	0.89	0.89	0.89	0.89	0.90	0.90
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	188	1055	682	488	299	322
Arrive On Green	0.11	0.59	0.38	0.38	0.21	0.21
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	146	506	483	367	209	133
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	3.5	7.0	9.8	10.7	5.8	3.2
Cycle Q Clear(g_c), s	3.5	7.0	9.8	10.7	5.8	3.2
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	188	1055	682	488	299	322
V/C Ratio(X)	0.78	0.48	0.71	0.75	0.70	0.41
Avail Cap(c_a), veh/h	364	1801	1252	896	1427	1540
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	18.9	5.1	11.5	11.8	16.0	15.0
Incr Delay (d2), s/veh	6.7	0.3	1.4	2.4	3.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.8	2.6	7.5	1.9	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.6	5.5	12.9	14.1	19.0	15.8
LnGrp LOS	C	A	B	B	B	B
Approach Vol, veh/h		652	850		342	
Approach Delay, s/veh		10.0	13.4		17.8	
Approach LOS		A	B		B	

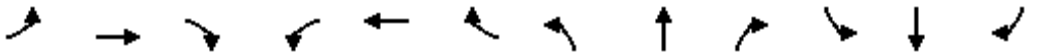
Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		30.0		13.4	9.2	20.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		43.5		42.5	9.0	30.0
Max Q Clear Time (g_c+I1), s		9.0		7.8	5.5	12.7
Green Ext Time (p_c), s		2.9		1.1	0.1	3.7

Intersection Summary	
HCM 6th Ctrl Delay	13.0
HCM 6th LOS	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	13	734	88	370	875	52	43	54	217	52	109	13
v/c Ratio	0.05	0.64	0.19	0.52	0.35	0.06	0.14	0.11	0.54	0.09	0.23	0.04
Control Delay	30.1	26.3	2.9	28.4	13.2	0.1	28.6	29.1	10.6	27.3	29.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	26.3	2.9	28.4	13.2	0.1	28.6	29.1	10.6	27.3	29.8	0.2
Queue Length 50th (ft)	5	109	0	77	82	0	17	11	0	10	23	0
Queue Length 95th (ft)	22	153	16	130	169	0	47	28	59	27	47	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	256	2459	833	736	2844	943	314	2396	1142	608	2396	1114
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.30	0.11	0.50	0.31	0.06	0.14	0.02	0.19	0.09	0.05	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	668	80	340	805	48	40	50	200	48	100	12
Future Volume (veh/h)	12	668	80	340	805	48	40	50	200	48	100	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	13	734	88	370	875	52	43	54	0	52	109	13
Peak Hour Factor	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	52	1094	339	491	1670	519	168	481		369	526	235
Arrive On Green	0.03	0.21	0.21	0.14	0.33	0.33	0.09	0.14	0.00	0.11	0.15	0.15
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	13	734	88	370	875	52	43	54	0	52	109	13
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.4	7.8	2.7	6.1	8.2	1.3	1.3	0.8	0.0	0.8	1.6	0.4
Cycle Q Clear(g_c), s	0.4	7.8	2.7	6.1	8.2	1.3	1.3	0.8	0.0	0.8	1.6	0.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	52	1094	339	491	1670	519	168	481		369	526	235
V/C Ratio(X)	0.25	0.67	0.26	0.75	0.52	0.10	0.26	0.11		0.14	0.21	0.06
Avail Cap(c_a), veh/h	271	2594	805	778	2965	920	332	2527		644	2527	1127
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.0	21.3	19.3	24.3	16.1	13.8	24.8	22.4	0.0	23.9	22.1	21.6
Incr Delay (d2), s/veh	0.9	0.3	0.1	0.9	0.1	0.0	0.3	0.0	0.0	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	0.9	2.1	2.5	0.4	0.5	0.3	0.0	0.3	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.0	21.6	19.5	25.2	16.2	13.9	25.1	22.5	0.0	24.0	22.2	21.6
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		835			1297			97			174	
Approach Delay, s/veh		21.5			18.7			23.6			22.7	
Approach LOS		C			B			C			C	

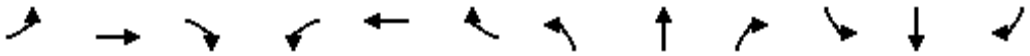
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	25.5	10.7	14.9	14.6	18.8	11.4	14.2
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	13.3	30.0	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.4	10.2	3.3	3.6	8.1	9.8	2.8	2.8
Green Ext Time (p_c), s	0.0	3.5	0.0	0.4	0.3	2.9	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

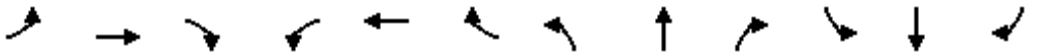
User approved ignoring U-Turning movement.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	930	88	316	1153	118	92	57	92	132	35	9
v/c Ratio	0.07	0.54	0.17	0.58	0.57	0.10	0.26	0.10	0.26	0.18	0.06	0.03
Control Delay	33.6	25.1	2.9	37.1	22.0	4.3	34.1	32.0	5.5	32.7	31.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.6	25.1	2.9	37.1	22.0	4.3	34.1	32.0	5.5	32.7	31.8	0.1
Queue Length 50th (ft)	7	115	0	79	193	0	44	13	0	21	8	0
Queue Length 95th (ft)	21	145	18	130	241	18	91	31	22	39	21	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	464	3395	895	547	2817	1597	348	2343	1089	741	2343	1089
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.27	0.10	0.58	0.41	0.07	0.26	0.02	0.08	0.18	0.01	0.01

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	846	80	300	1095	112	80	50	80	112	30	8
Future Volume (veh/h)	28	846	80	300	1095	112	80	50	80	112	30	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	31	930	88	316	1153	0	92	57	92	132	35	9
Peak Hour Factor	0.91	0.91	0.91	0.95	0.95	0.95	0.87	0.87	0.87	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	222	1394	343	525	1555		228	561	250	711	608	271
Arrive On Green	0.06	0.22	0.22	0.15	0.30	0.00	0.13	0.16	0.16	0.14	0.17	0.17
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	31	930	88	316	1153	0	92	57	92	132	35	9
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.6	9.6	3.3	6.2	14.7	0.0	3.4	1.0	3.8	1.7	0.6	0.3
Cycle Q Clear(g_c), s	0.6	9.6	3.3	6.2	14.7	0.0	3.4	1.0	3.8	1.7	0.6	0.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	222	1394	343	525	1555		228	561	250	711	608	271
V/C Ratio(X)	0.14	0.67	0.26	0.60	0.74		0.40	0.10	0.37	0.19	0.06	0.03
Avail Cap(c_a), veh/h	478	3490	860	564	2897		271	2410	1075	765	2410	1075
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	25.9	23.5	28.6	22.6	0.0	29.0	26.0	27.2	27.3	25.1	25.0
Incr Delay (d2), s/veh	0.1	0.2	0.1	1.0	0.3	0.0	0.4	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.3	1.1	2.4	5.1	0.0	1.5	0.4	1.3	0.6	0.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	26.1	23.6	29.6	22.8	0.0	29.4	26.1	27.5	27.4	25.1	25.0
LnGrp LOS	C	C	C	C	C		C	C	C	C	C	C
Approach Vol, veh/h		1049			1469			241			176	
Approach Delay, s/veh		26.1			24.3			27.9			26.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	28.2	16.0	17.2	17.2	21.9	15.1	18.2
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	41.0	11.0	49.0	11.8	39.2	11.0	49.0
Max Q Clear Time (g_c+I1), s	2.6	16.7	3.7	5.8	8.2	11.6	5.4	2.6
Green Ext Time (p_c), s	0.0	5.1	0.1	0.4	0.2	4.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

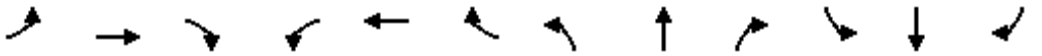
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	956	104	1060	208	274	275	276
v/c Ratio	0.42	0.14	0.46	0.25	0.53	0.58	0.57
Control Delay	10.7	3.0	11.1	2.7	20.8	20.1	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	3.0	11.1	2.7	20.8	20.1	19.6
Queue Length 50th (ft)	62	0	71	0	69	62	60
Queue Length 95th (ft)	126	23	142	31	173	172	164
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	3966	1257	3966	1280	1487	1297	1335
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.08	0.27	0.16	0.18	0.21	0.21

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	927	101	0	1018	200	0	0	0	280	0	479
Future Volume (veh/h)	0	927	101	0	1018	200	0	0	0	280	0	479
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	956	104	0	1060	0				203	0	630
Peak Hour Factor	0.97	0.97	0.97	0.96	0.96	0.96				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2279	708	0	2279					479	0	852
Arrive On Green	0.00	0.45	0.45	0.00	0.45	0.00				0.27	0.00	0.27
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	3170
Grp Volume(v), veh/h	0	956	104	0	1060	0				203	0	630
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	5.5	1.7	0.0	6.3	0.0				4.1	0.0	7.8
Cycle Q Clear(g_c), s	0.0	5.5	1.7	0.0	6.3	0.0				4.1	0.0	7.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2279	708	0	2279					479	0	852
V/C Ratio(X)	0.00	0.42	0.15	0.00	0.47					0.42	0.00	0.74
Avail Cap(c_a), veh/h	0	4671	1450	0	4671					1988	0	3539
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.1	7.1	0.0	8.4	0.0				13.0	0.0	14.4
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.0	0.2	0.0				0.2	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.3	0.0	1.3	0.0				1.3	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.3	7.2	0.0	8.6	0.0				13.3	0.0	14.9
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1060			1060						833	
Approach Delay, s/veh		8.2			8.6						14.5	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		25.8				25.8		17.4				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		8.3				7.5		9.8				
Green Ext Time (p_c), s		11.0				10.5		1.8				

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

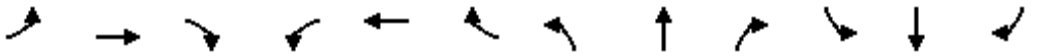
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1051	180	1178	289	52	53	272
v/c Ratio	0.38	0.20	0.43	0.29	0.14	0.14	0.42
Control Delay	7.2	3.2	7.5	1.7	20.2	20.2	18.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	3.2	7.5	1.7	20.2	20.2	18.0
Queue Length 50th (ft)	58	10	67	0	12	12	31
Queue Length 95th (ft)	83	31	95	23	41	42	70
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4042	1279	4042	1317	1600	1600	2656
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.14	0.29	0.22	0.03	0.03	0.10

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↕	↱↱			
Traffic Volume (veh/h)	0	1030	176	0	1143	280	85	0	220	0	0	0
Future Volume (veh/h)	0	1030	176	0	1143	280	85	0	220	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1051	0	0	1178	289	105	0	272			
Peak Hour Factor	0.98	0.98	0.98	0.97	0.97	0.97	0.81	0.81	0.81			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2588		0	2588	803	826	0	735			
Arrive On Green	0.00	0.51	0.00	0.00	0.51	0.51	0.23	0.00	0.23			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1051	0	0	1178	289	105	0	272			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.0	0.0	0.0	7.0	5.2	1.1	0.0	3.4			
Cycle Q Clear(g_c), s	0.0	6.0	0.0	0.0	7.0	5.2	1.1	0.0	3.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2588		0	2588	803	826	0	735			
V/C Ratio(X)	0.00	0.41		0.00	0.46	0.36	0.13	0.00	0.37			
Avail Cap(c_a), veh/h	0	4393		0	4393	1364	3950	0	3515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.2	0.0	0.0	7.4	7.0	14.3	0.0	15.2			
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.2	0.4	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.4	1.0	0.4	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.4	0.0	0.0	7.6	7.4	14.3	0.0	15.3			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1051			1467			377				
Approach Delay, s/veh		7.4			7.6			15.0				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		30.4		16.7		30.4			
Change Period (Y+Rc), s		6.5		5.8		6.5			
Max Green Setting (Gmax), s		40.5		52.2		40.5			
Max Q Clear Time (g_c+I1), s		9.0		5.4		8.0			
Green Ext Time (p_c), s		14.9		0.8		11.0			

Intersection Summary	
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt00_2028_PM_DL (Site Folder: INT-3_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	12	1.0	12	1.0	1093	0.011	100	3.4	LOS A	0.0	1.1	Full	520	0.0	0.0
Approach	12	1.0	12	1.0		0.011		3.4	LOS A	0.0	1.1				
East: WB - Classical Way															
Lane 1[d]	339	1.0	339	1.0	1366	0.248	100	3.9	LOS A	1.4	34.6	Full	700	0.0	0.0
Approach	339	1.0	339	1.0		0.248		3.9	LOS A	1.4	34.6				
North: SB - B Street															
Lane 1[d]	216	1.0	216	1.0	1366	0.158	100	3.4	LOS A	0.8	19.7	Full	1000	0.0	0.0
Approach	216	1.0	216	1.0		0.158		3.4	LOS A	0.8	19.7				
All Vehicles	567	1.0	567	1.0		0.248		3.7	LOS A	1.4	34.6				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-4_Driveway at Classical_Alt00_2028_PM_DL (Site Folder: INT-4_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Parking Lot															
Lane 1[d]	7	1.0	7	1.0	1063	0.006	100	3.4	LOS A	0.0	0.6	Full	200	0.0	0.0
Approach	7	1.0	7	1.0		0.006		3.4	LOS A	0.0	0.6				
East: WB - Classical Way															
Lane 1[d]	392	1.0	392	1.0	1363	0.288	100	4.2	LOS A	1.7	42.3	Full	500	0.0	0.0
Approach	392	1.0	392	1.0		0.288		4.2	LOS A	1.7	42.3				
North: SB - Zoo Entrance															
Lane 1[d]	17	1.0	17	1.0	960	0.018	100	3.9	LOS A	0.1	1.8	Full	500	0.0	0.0
Approach	17	1.0	17	1.0		0.018		3.9	LOS A	0.1	1.8				
West: EB - Classical Way															
Lane 1[d]	228	1.0	228	1.0	1343	0.170	100	3.8	LOS A	0.8	21.3	Full	700	0.0	0.0
Approach	228	1.0	228	1.0		0.170		3.8	LOS A	0.8	21.3				
All Vehicles	645	1.0	645	1.0		0.288		4.1	LOS A	1.7	42.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-2_Lotz at Clasical_Alt00_2028_PM_DL (Site Folder: INT-2_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

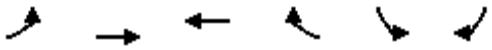
New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Lotz Pkwy															
Lane 1[d]	410	1.0	410	1.0	1165	0.352	100	6.4	LOS A	2.0	51.1	Full	525	0.0	0.0
Approach	410	1.0	410	1.0		0.352		6.4	LOS A	2.0	51.1				
East: WB - Classical Way															
Lane 1[d]	87	1.0	87	1.0	880	0.099	100	5.1	LOS A	0.4	9.5	Full	775	0.0	0.0
Approach	87	1.0	87	1.0		0.099		5.1	LOS A	0.4	9.5				
North: SB - Lotz Pkwy															
Lane 1[d]	462	1.0	462	1.0	1020	0.453	100	8.6	LOS A	2.5	62.5	Full	575	0.0	0.0
Approach	462	1.0	462	1.0		0.453		8.6	LOS A	2.5	62.5				
West: EB - Classical Way															
Lane 1[d]	246	1.0	246	1.0	933	0.263	100	6.5	LOS A	1.2	30.6	Full	500	0.0	0.0
Approach	246	1.0	246	1.0		0.263		6.5	LOS A	1.2	30.6				
All Vehicles	1204	1.0	1204	1.0		0.453		7.2	LOS A	2.5	62.5				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

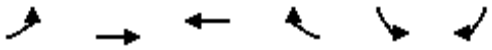
d Dominant lane on roundabout approach



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	176	506	505	244	527	171
v/c Ratio	0.90	0.59	0.89	0.42	0.89	0.23
Control Delay	86.5	20.8	48.4	5.9	43.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.5	20.8	48.4	5.9	43.3	3.5
Queue Length 50th (ft)	104	208	275	0	271	0
Queue Length 95th (ft)	#224	301	#477	53	274	14
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	195	926	637	616	719	866
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	0.90	0.55	0.79	0.40	0.73	0.20

Intersection Summary

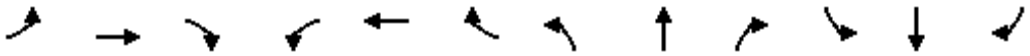
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	430	470	227	369	120
Future Volume (veh/h)	150	430	470	227	369	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	176	506	505	244	527	171
Peak Hour Factor	0.85	0.85	0.93	0.93	0.70	0.70
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	209	884	572	410	575	621
Arrive On Green	0.12	0.49	0.32	0.32	0.39	0.39
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	176	506	505	244	527	171
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	7.8	15.8	21.0	12.6	27.3	5.9
Cycle Q Clear(g_c), s	7.8	15.8	21.0	12.6	27.3	5.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	209	884	572	410	575	621
V/C Ratio(X)	0.84	0.57	0.88	0.60	0.92	0.28
Avail Cap(c_a), veh/h	209	994	683	489	769	830
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	14.3	25.8	22.9	22.8	16.3
Incr Delay (d2), s/veh	25.2	0.6	11.5	1.4	12.9	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	4.5	5.2	9.6	0.2	10.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	59.5	14.9	37.3	24.3	35.8	16.6
LnGrp LOS	E	B	D	C	D	B
Approach Vol, veh/h		682	749		698	
Approach Delay, s/veh		26.4	33.0		31.1	
Approach LOS		C	C		C	

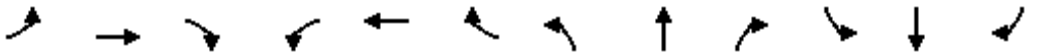
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			43.6		35.9	14.0	29.6
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			44.0		42.0	9.5	30.0
Max Q Clear Time (g_c+I1), s			17.8		29.3	9.8	23.0
Green Ext Time (p_c), s			2.8		2.1	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	1048	37	247	799	52	87	109	304	55	43	26
v/c Ratio	0.03	0.71	0.07	0.51	0.32	0.06	0.31	0.17	0.58	0.10	0.09	0.08
Control Delay	34.0	26.7	0.2	35.3	13.7	0.1	35.0	30.7	9.6	31.4	31.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.0	26.7	0.2	35.3	13.7	0.1	35.0	30.7	9.6	31.4	31.8	0.5
Queue Length 50th (ft)	3	158	0	55	73	0	36	24	1	11	9	0
Queue Length 95th (ft)	15	203	0	106	161	0	92	52	73	31	26	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	233	2352	803	594	2697	901	285	2182	1091	554	2182	1027
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.45	0.05	0.42	0.30	0.06	0.31	0.05	0.28	0.10	0.02	0.03

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	859	30	230	743	48	80	100	280	51	40	24
Future Volume (veh/h)	6	859	30	230	743	48	80	100	280	51	40	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1048	37	247	799	52	87	109	0	55	43	26
Peak Hour Factor	0.82	0.82	0.82	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1423	442	351	1858	577	238	533		368	436	194
Arrive On Green	0.02	0.28	0.28	0.10	0.36	0.36	0.13	0.15	0.00	0.11	0.12	0.12
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	7	1048	37	247	799	52	87	109	0	55	43	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.3	12.2	1.1	4.5	7.7	1.4	2.9	1.8	0.0	0.9	0.7	1.0
Cycle Q Clear(g_c), s	0.3	12.2	1.1	4.5	7.7	1.4	2.9	1.8	0.0	0.9	0.7	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	29	1423	442	351	1858	577	238	533		368	436	194
V/C Ratio(X)	0.24	0.74	0.08	0.70	0.43	0.09	0.37	0.20		0.15	0.10	0.13
Avail Cap(c_a), veh/h	246	2465	765	625	2684	833	300	2288		583	2288	1020
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	21.4	17.4	28.3	15.6	13.6	25.7	24.3	0.0	26.5	25.4	25.5
Incr Delay (d2), s/veh	1.5	0.3	0.0	1.0	0.1	0.0	0.3	0.1	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	4.0	0.4	1.7	2.4	0.5	1.2	0.7	0.0	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	21.6	17.4	29.3	15.7	13.7	26.1	24.4	0.0	26.5	25.5	25.6
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		1092			1098			196			124	
Approach Delay, s/veh		21.6			18.7			25.1			26.0	
Approach LOS		C			B			C			C	

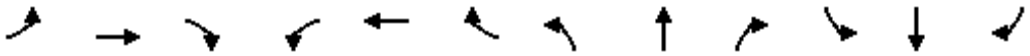
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	29.9	13.8	14.2	12.8	24.4	12.0	16.0
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	11.8	31.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.3	9.7	4.9	3.0	6.5	14.2	2.9	3.8
Green Ext Time (p_c), s	0.0	3.2	0.0	0.2	0.2	4.0	0.0	0.4

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

Notes

User approved ignoring U-Turning movement.

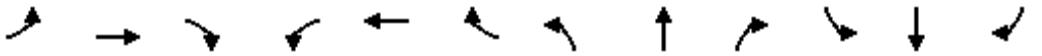
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	16	1329	71	120	940	122	152	87	207	134	22	18
v/c Ratio	0.04	0.72	0.13	0.26	0.40	0.09	0.37	0.16	0.50	0.20	0.04	0.05
Control Delay	34.2	28.7	1.6	34.9	16.3	3.7	34.9	32.4	9.9	33.8	32.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	28.7	1.6	34.9	16.3	3.7	34.9	32.4	9.9	33.8	32.4	0.3
Queue Length 50th (ft)	3	179	0	29	105	0	75	20	0	22	5	0
Queue Length 95th (ft)	12	201	6	57	193	19	#156	44	60	42	16	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	417	3035	813	458	2518	1441	409	2149	1042	666	2106	992
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.44	0.09	0.26	0.37	0.08	0.37	0.04	0.20	0.20	0.01	0.02

Intersection Summary

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)	14	1130	60	110	865	112	140	80	190	119	20	16
Future Volume (veh/h)	14	1130	60	110	865	112	140	80	190	119	20	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			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	1329	71	120	940	0	152	87	207	134	22	18
Peak Hour Factor	0.85	0.85	0.85	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	1839	453	439	1917		235	569	254	651	561	250
Arrive On Green	0.04	0.29	0.29	0.13	0.38	0.00	0.13	0.16	0.16	0.13	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	16	1329	71	120	940	0	152	87	207	134	22	18
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.4	15.0	2.7	2.5	11.4	0.0	6.5	1.7	10.2	1.9	0.4	0.8
Cycle Q Clear(g_c), s	0.4	15.0	2.7	2.5	11.4	0.0	6.5	1.7	10.2	1.9	0.4	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1839	453	439	1917		235	569	254	651	561	250
V/C Ratio(X)	0.12	0.72	0.16	0.27	0.49		0.65	0.15	0.82	0.21	0.04	0.07
Avail Cap(c_a), veh/h	428	3111	766	471	2532		265	2203	982	685	2159	963
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.6	25.9	21.5	31.8	19.3	0.0	33.2	29.2	32.7	31.4	28.8	28.9
Incr Delay (d2), s/veh	0.2	0.2	0.1	0.1	0.1	0.0	3.0	0.0	2.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.1	0.9	1.0	3.9	0.0	3.0	0.7	3.8	0.7	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.7	26.1	21.6	32.0	19.4	0.0	36.2	29.2	35.2	31.5	28.8	29.0
LnGrp LOS	D	C	C	C	B		D	C	D	C	C	C
Approach Vol, veh/h		1416			1060			446			174	
Approach Delay, s/veh		26.0			20.8			34.4			30.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.2	36.5	16.3	18.7	16.5	29.3	16.4	18.5
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	40.0	11.0	50.0	11.0	39.0	12.0	49.0
Max Q Clear Time (g_c+I1), s	2.4	13.4	3.9	12.2	4.5	17.0	8.5	2.8
Green Ext Time (p_c), s	0.0	4.0	0.1	0.7	0.1	6.1	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

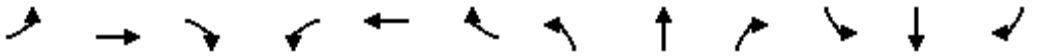
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1448	188	867	245	196	188	181
v/c Ratio	0.51	0.20	0.31	0.25	0.51	0.49	0.47
Control Delay	8.8	1.8	7.3	1.8	26.4	19.7	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	1.8	7.3	1.8	26.4	19.7	19.2
Queue Length 50th (ft)	92	0	47	0	64	42	38
Queue Length 95th (ft)	156	22	87	27	132	108	98
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	3560	1164	3560	1181	1414	1271	1274
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.16	0.24	0.21	0.14	0.15	0.14

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	1274	165	0	815	230	0	0	0	230	0	273
Future Volume (veh/h)	0	1274	165	0	815	230	0	0	0	230	0	273
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1448	188	0	867	0				361	0	196
Peak Hour Factor	0.88	0.88	0.88	0.94	0.94	0.94				0.89	0.89	0.89
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2778	862	0	2778					767	0	341
Arrive On Green	0.00	0.54	0.54	0.00	0.54	0.00				0.22	0.00	0.22
Sat Flow, veh/h	0	5274	1585	0	5274	1585				3563	0	1585
Grp Volume(v), veh/h	0	1448	188	0	867	0				361	0	196
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	9.2	3.1	0.0	4.8	0.0				4.5	0.0	5.7
Cycle Q Clear(g_c), s	0.0	9.2	3.1	0.0	4.8	0.0				4.5	0.0	5.7
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2778	862	0	2778					767	0	341
V/C Ratio(X)	0.00	0.52	0.22	0.00	0.31					0.47	0.00	0.57
Avail Cap(c_a), veh/h	0	3947	1225	0	3947					3361	0	1495
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	7.4	6.0	0.0	6.4	0.0				17.5	0.0	18.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.0				0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.9	0.6	0.0	1.0	0.0				1.6	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.6	6.2	0.0	6.5	0.0				17.7	0.0	18.5
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1636			867						557	
Approach Delay, s/veh		7.5			6.5						18.0	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		34.3				34.3		16.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		6.8				11.2		7.7				
Green Ext Time (p_c), s		8.7				16.6		1.0				

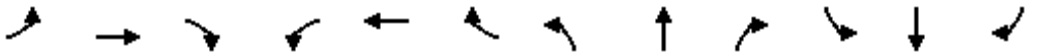
Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1098	458	1035	333	28	29	337
v/c Ratio	0.41	0.48	0.39	0.34	0.07	0.07	0.50
Control Delay	7.7	4.9	7.5	1.8	19.8	19.8	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	4.9	7.5	1.8	19.8	19.8	20.2
Queue Length 50th (ft)	61	28	57	0	7	7	44
Queue Length 95th (ft)	98	79	92	27	29	30	101
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4020	1305	4020	1321	1566	1566	2599
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.35	0.26	0.25	0.02	0.02	0.13

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↕	↱↱			
Traffic Volume (veh/h)	0	1054	440	0	994	320	51	0	300	0	0	0
Future Volume (veh/h)	0	1054	440	0	994	320	51	0	300	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1098	0	0	1035	333	57	0	337			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.89	0.89	0.89			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2466		0	2466	765	866	0	771			
Arrive On Green	0.00	0.48	0.00	0.00	0.48	0.48	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1098	0	0	1035	333	57	0	337			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.4	0.0	0.0	5.9	6.2	0.6	0.0	4.0			
Cycle Q Clear(g_c), s	0.0	6.4	0.0	0.0	5.9	6.2	0.6	0.0	4.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2466		0	2466	765	866	0	771			
V/C Ratio(X)	0.00	0.45		0.00	0.42	0.44	0.07	0.00	0.44			
Avail Cap(c_a), veh/h	0	4605		0	4605	1430	4141	0	3685			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.6	0.0	0.0	7.5	7.6	13.1	0.0	14.4			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.6	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.3	0.0	0.0	1.2	1.2	0.2	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.8	0.0	0.0	7.7	8.2	13.1	0.0	14.5			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1098			1368			394				
Approach Delay, s/veh		7.8			7.8			14.3				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		28.2		16.7		28.2			
Change Period (Y+Rc), s		6.5		5.8		6.5			
Max Green Setting (Gmax), s		40.5		52.2		40.5			
Max Q Clear Time (g_c+I1), s		8.2		6.0		8.4			
Green Ext Time (p_c), s		13.5		0.9		11.6			

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

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt00_2028_Wknd_Mid_DL (Site Folder: INT-3_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	13	1.0	13	1.0	1001	0.013	100	3.7	LOS A	0.1	1.3	Full	520	0.0	0.0
Approach	13	1.0	13	1.0		0.013		3.7	LOS A	0.1	1.3				
East: WB - Classical Way															
Lane 1[d]	390	1.0	390	1.0	1366	0.286	100	4.1	LOS A	1.7	41.9	Full	700	0.0	0.0
Approach	390	1.0	390	1.0		0.286		4.1	LOS A	1.7	41.9				
North: SB - B Street															
Lane 1[d]	301	1.0	301	1.0	1337	0.225	100	4.3	LOS A	1.2	30.2	Full	1000	0.0	0.0
Approach	301	1.0	301	1.0		0.225		4.3	LOS A	1.2	30.2				
All Vehicles	704	1.0	704	1.0		0.286		4.2	LOS A	1.7	41.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-4_Driveway at Classical_Alt00_2028_Wknd_Mid_DL (Site Folder: INT-4_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Parking Lot															
Lane 1[d]	46	1.0	46	1.0	842	0.054	100	4.8	LOS A	0.2	5.4	Full	200	0.0	0.0
Approach	46	1.0	46	1.0		0.054		4.8	LOS A	0.2	5.4				
East: WB - Classical Way															
Lane 1[d]	757	1.0	757	1.0	1363	0.555	100	5.8	LOS A	5.2	130.2	Full	500	0.0	0.0
Approach	757	1.0	757	1.0		0.555		5.8	LOS A	5.2	130.2				
North: SB - Zoo Entrance															
Lane 1[d]	176	1.0	176	1.0	681	0.259	100	8.4	LOS A	1.1	27.8	Full	500	0.0	0.0
Approach	176	1.0	176	1.0		0.259		8.4	LOS A	1.1	27.8				
West: EB - Classical Way															
Lane 1[d]	292	1.0	292	1.0	826	0.354	100	8.4	LOS A	1.7	43.6	Full	700	0.0	0.0
Approach	292	1.0	292	1.0		0.354		8.4	LOS A	1.7	43.6				
All Vehicles	1271	1.0	1271	1.0		0.555		6.7	LOS A	5.2	130.2				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

LANE SUMMARY

Site: 101 [INT-2_Lotz at Clasical_Alt00_2028_Wknd_Mid_DL (Site Folder: INT-2_2028-2038_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

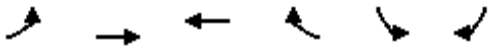
New Site
Site Category: (None)
Roundabout

Lane Use and Performance

	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - Lotz Pkwy															
Lane 1[d]	734	1.0	734	1.0	1133	0.648	100	11.7	LOS B	6.5	162.8	Full	525	0.0	0.0
Approach	734	1.0	734	1.0		0.648		11.7	LOS B	6.5	162.8				
East: WB - Classical Way															
Lane 1[d]	87	1.0	87	1.0	612	0.142	100	7.6	LOS A	0.5	13.3	Full	775	0.0	0.0
Approach	87	1.0	87	1.0		0.142		7.6	LOS A	0.5	13.3				
North: SB - Lotz Pkwy															
Lane 1[d]	327	1.0	327	1.0	732	0.447	100	11.0	LOS B	2.5	63.7	Full	575	0.0	0.0
Approach	327	1.0	327	1.0		0.447		11.0	LOS B	2.5	63.7				
West: EB - Classical Way															
Lane 1[d]	508	1.0	508	1.0	1098	0.462	100	8.3	LOS A	2.9	72.7	Full	500	0.0	0.0
Approach	508	1.0	508	1.0		0.462		8.3	LOS A	2.9	72.7				
All Vehicles	1655	1.0	1655	1.0		0.648		10.3	LOS B	6.5	162.8				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

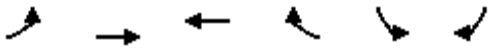
d Dominant lane on roundabout approach



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	188	538	500	559	446	145
v/c Ratio	0.89	0.59	0.83	0.69	0.84	0.22
Control Delay	79.8	18.5	39.7	7.6	38.3	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.8	18.5	39.7	7.6	38.3	3.8
Queue Length 50th (ft)	99	178	228	0	211	0
Queue Length 95th (ft)	#222	296	#468	95	289	27
Internal Link Dist (ft)		320	1370		505	
Turn Bay Length (ft)	300			300		180
Base Capacity (vph)	211	1002	689	841	778	911
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	0.89	0.54	0.73	0.66	0.57	0.16

Intersection Summary

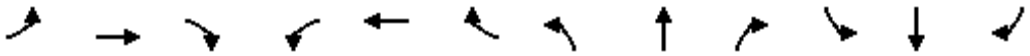
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	150	430	470	525	370	120
Future Volume (veh/h)	150	430	470	525	370	120
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1841	1796	1811	1530	1530	1856
Adj Flow Rate, veh/h	188	538	500	559	446	145
Peak Hour Factor	0.80	0.80	0.94	0.94	0.83	0.83
Percent Heavy Veh, %	4	7	6	25	25	3
Cap, veh/h	207	985	677	484	495	534
Arrive On Green	0.12	0.55	0.37	0.37	0.34	0.34
Sat Flow, veh/h	1753	1796	1811	1296	1457	1572
Grp Volume(v), veh/h	188	538	500	559	446	145
Grp Sat Flow(s),veh/h/ln	1753	1796	1811	1296	1457	1572
Q Serve(g_s), s	8.5	15.5	19.2	30.0	23.4	5.4
Cycle Q Clear(g_c), s	8.5	15.5	19.2	30.0	23.4	5.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	207	985	677	484	495	534
V/C Ratio(X)	0.91	0.55	0.74	1.15	0.90	0.27
Avail Cap(c_a), veh/h	207	985	677	484	762	823
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.9	11.7	21.7	25.1	25.2	19.3
Incr Delay (d2), s/veh	37.7	0.6	4.3	90.6	9.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	4.8	7.7	29.7	8.9	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	72.7	12.3	26.0	115.7	34.8	19.5
LnGrp LOS	E	B	C	F	C	B
Approach Vol, veh/h		726	1059		591	
Approach Delay, s/veh		28.0	73.4		31.0	
Approach LOS		C	E		C	

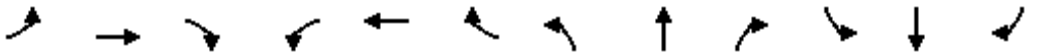
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			48.5		31.8	14.0	34.5
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			44.0		42.0	9.5	30.0
Max Q Clear Time (g_c+I1), s			17.5		25.4	10.5	32.0
Green Ext Time (p_c), s			3.0		1.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.0
HCM 6th LOS	D



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	1012	35	247	1119	52	87	109	304	55	43	26
v/c Ratio	0.03	0.71	0.07	0.51	0.46	0.06	0.30	0.17	0.57	0.10	0.09	0.08
Control Delay	33.2	26.9	0.2	34.5	15.2	0.1	34.2	30.0	9.5	30.7	31.1	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	26.9	0.2	34.5	15.2	0.1	34.2	30.0	9.5	30.7	31.1	0.5
Queue Length 50th (ft)	3	150	0	53	111	0	35	24	1	11	9	0
Queue Length 95th (ft)	15	205	0	103	236	0	90	51	72	31	25	0
Internal Link Dist (ft)		997			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	237	2382	811	602	2697	902	289	2211	1102	561	2211	1038
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.42	0.04	0.41	0.41	0.06	0.30	0.05	0.28	0.10	0.02	0.03

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	860	30	230	1041	48	80	100	280	51	40	24
Future Volume (veh/h)	6	860	30	230	1041	48	80	100	280	51	40	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	1012	35	247	1119	52	87	109	0	55	43	26
Peak Hour Factor	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1386	430	353	1824	566	240	540		369	441	197
Arrive On Green	0.02	0.27	0.27	0.10	0.36	0.36	0.13	0.15	0.00	0.11	0.12	0.12
Sat Flow, veh/h	1781	5106	1585	3456	5106	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	7	1012	35	247	1119	52	87	109	0	55	43	26
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1728	1702	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	0.3	11.6	1.1	4.5	11.6	1.4	2.9	1.7	0.0	0.9	0.7	0.9
Cycle Q Clear(g_c), s	0.3	11.6	1.1	4.5	11.6	1.4	2.9	1.7	0.0	0.9	0.7	0.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	29	1386	430	353	1824	566	240	540		369	441	197
V/C Ratio(X)	0.24	0.73	0.08	0.70	0.61	0.09	0.36	0.20		0.15	0.10	0.13
Avail Cap(c_a), veh/h	249	2495	774	633	2717	843	304	2315		590	2315	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	21.3	17.5	28.0	17.1	13.8	25.4	23.9	0.0	26.1	25.0	25.1
Incr Delay (d2), s/veh	1.5	0.3	0.0	1.0	0.1	0.0	0.3	0.1	0.0	0.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.8	0.4	1.6	3.6	0.5	1.2	0.7	0.0	0.4	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	21.6	17.5	28.9	17.2	13.8	25.7	24.0	0.0	26.2	25.1	25.3
LnGrp LOS	C	C	B	C	B	B	C	C		C	C	C
Approach Vol, veh/h		1054			1418			196			124	
Approach Delay, s/veh		21.6			19.1			24.8			25.6	
Approach LOS		C			B			C			C	

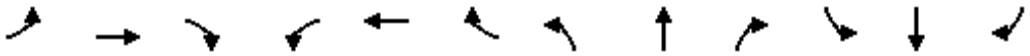
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	29.2	13.8	14.2	12.8	23.7	12.0	16.0
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	34.3	11.0	42.0	11.8	31.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	2.3	13.6	4.9	2.9	6.5	13.6	2.9	3.7
Green Ext Time (p_c), s	0.0	4.6	0.0	0.2	0.2	3.9	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

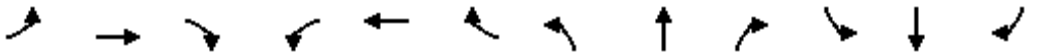
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	1396	74	118	1251	120	182	104	247	128	22	17
v/c Ratio	0.04	0.72	0.13	0.26	0.52	0.09	0.46	0.20	0.60	0.20	0.04	0.05
Control Delay	36.0	28.4	1.7	36.4	17.5	3.6	39.3	33.8	15.3	35.2	33.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.0	28.4	1.7	36.4	17.5	3.6	39.3	33.8	15.3	35.2	33.0	0.2
Queue Length 50th (ft)	4	188	0	29	147	0	93	25	20	21	5	0
Queue Length 95th (ft)	13	205	4	60	277	19	#180	45	60	43	17	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	407	3032	812	449	2529	1446	393	2070	1011	652	2062	973
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.46	0.09	0.26	0.49	0.08	0.46	0.05	0.24	0.20	0.01	0.02

Intersection Summary

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)	14	1131	60	110	1163	112	140	80	190	119	20	16
Future Volume (veh/h)	14	1131	60	110	1163	112	140	80	190	119	20	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	17	1396	74	118	1251	0	182	104	247	128	22	17
Peak Hour Factor	0.81	0.81	0.81	0.93	0.93	0.93	0.77	0.77	0.77	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	1887	465	416	1915		225	655	292	614	639	285
Arrive On Green	0.04	0.29	0.29	0.12	0.37	0.00	0.13	0.18	0.18	0.12	0.18	0.18
Sat Flow, veh/h	3456	6434	1585	3456	5106	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	17	1396	74	118	1251	0	182	104	247	128	22	17
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1702	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	0.4	16.8	3.0	2.7	17.4	0.0	8.5	2.1	12.9	2.0	0.4	0.8
Cycle Q Clear(g_c), s	0.4	16.8	3.0	2.7	17.4	0.0	8.5	2.1	12.9	2.0	0.4	0.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	1887	465	416	1915		225	655	292	614	639	285
V/C Ratio(X)	0.13	0.74	0.16	0.28	0.65		0.81	0.16	0.85	0.21	0.03	0.06
Avail Cap(c_a), veh/h	403	2985	735	443	2428		233	2038	909	644	2030	905
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.8	27.4	22.5	34.4	22.2	0.0	36.5	29.4	33.8	33.9	29.0	29.2
Incr Delay (d2), s/veh	0.2	0.2	0.1	0.1	0.2	0.0	16.8	0.0	2.6	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	5.9	1.0	1.1	6.2	0.0	4.7	0.9	4.9	0.8	0.2	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	27.6	22.5	34.5	22.4	0.0	53.3	29.4	36.4	34.0	29.0	29.2
LnGrp LOS	D	C	C	C	C		D	C	D	C	C	C
Approach Vol, veh/h		1487			1369			533			167	
Approach Delay, s/veh		27.5			23.4			40.8			32.8	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	38.4	16.3	21.6	16.5	31.4	16.7	21.2
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	40.8	11.0	49.2	11.0	39.8	11.2	49.0
Max Q Clear Time (g_c+I1), s	2.4	19.4	4.0	14.9	4.7	18.8	10.5	2.8
Green Ext Time (p_c), s	0.0	5.4	0.1	0.9	0.1	6.4	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

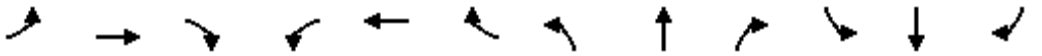
Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	1416	202	908	237	225	288	285
v/c Ratio	0.54	0.22	0.34	0.25	0.48	0.66	0.63
Control Delay	11.3	2.3	9.6	2.3	23.9	25.2	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	2.3	9.6	2.3	23.9	25.2	24.0
Queue Length 50th (ft)	113	0	64	0	77	89	84
Queue Length 95th (ft)	202	29	120	33	149	184	172
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)				590			540
Base Capacity (vph)	3332	1107	3332	1118	1321	1155	1192
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.18	0.27	0.21	0.17	0.25	0.24

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	1260	180	0	881	230	0	0	0	230	0	504
Future Volume (veh/h)	0	1260	180	0	881	230	0	0	0	230	0	504
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	1416	202	0	908	0				167	0	637
Peak Hour Factor	0.89	0.89	0.89	0.97	0.97	0.97				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2641	820	0	2641					456	0	811
Arrive On Green	0.00	0.52	0.52	0.00	0.52	0.00				0.26	0.00	0.26
Sat Flow, veh/h	0	5274	1585	0	5274	1585				1781	0	3170
Grp Volume(v), veh/h	0	1416	202	0	908	0				167	0	637
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585				1781	0	1585
Q Serve(g_s), s	0.0	10.0	3.8	0.0	5.7	0.0				4.2	0.0	10.1
Cycle Q Clear(g_c), s	0.0	10.0	3.8	0.0	5.7	0.0				4.2	0.0	10.1
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2641	820	0	2641					456	0	811
V/C Ratio(X)	0.00	0.54	0.25	0.00	0.34					0.37	0.00	0.78
Avail Cap(c_a), veh/h	0	3718	1154	0	3718					1583	0	2817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	8.7	7.2	0.0	7.7	0.0				16.6	0.0	18.8
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.1	0.0				0.2	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.3	0.9	0.0	1.3	0.0				1.5	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	9.0	7.5	0.0	7.8	0.0				16.7	0.0	19.4
LnGrp LOS	A	A	A	A	A					B	A	B
Approach Vol, veh/h		1618			908						804	
Approach Delay, s/veh		8.8			7.8						18.9	
Approach LOS		A			A						B	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		34.6				34.6		19.7				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		39.5				39.5		48.2				
Max Q Clear Time (g_c+I1), s		7.7				12.0		12.1				
Green Ext Time (p_c), s		9.2				16.0		1.7				

Intersection Summary												
HCM 6th Ctrl Delay			11.0									
HCM 6th LOS			B									

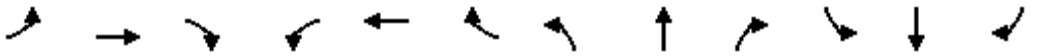
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	1074	436	1098	348	53	54	319
v/c Ratio	0.40	0.46	0.41	0.35	0.14	0.14	0.47
Control Delay	7.7	4.7	7.8	1.9	19.7	19.8	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.7	4.7	7.8	1.9	19.7	19.8	19.0
Queue Length 50th (ft)	60	26	61	0	12	13	39
Queue Length 95th (ft)	97	73	99	28	46	47	96
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	4075	1317	4075	1337	1581	1581	2625
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.33	0.27	0.26	0.03	0.03	0.12

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↱		↑↑↑	↱	↰	↰	↱↱			
Traffic Volume (veh/h)	0	1053	427	0	1010	320	101	0	300	0	0	0
Future Volume (veh/h)	0	1053	427	0	1010	320	101	0	300	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	1074	0	0	1098	348	107	0	319			
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.94	0.94	0.94			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	2538		0	2538	788	844	0	751			
Arrive On Green	0.00	0.50	0.00	0.00	0.50	0.50	0.24	0.00	0.24			
Sat Flow, veh/h	0	5274	1585	0	5274	1585	3563	0	3170			
Grp Volume(v), veh/h	0	1074	0	0	1098	348	107	0	319			
Grp Sat Flow(s),veh/h/ln	0	1702	1585	0	1702	1585	1781	0	1585			
Q Serve(g_s), s	0.0	6.2	0.0	0.0	6.4	6.5	1.1	0.0	3.9			
Cycle Q Clear(g_c), s	0.0	6.2	0.0	0.0	6.4	6.5	1.1	0.0	3.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2538		0	2538	788	844	0	751			
V/C Ratio(X)	0.00	0.42		0.00	0.43	0.44	0.13	0.00	0.42			
Avail Cap(c_a), veh/h	0	4473		0	4473	1389	4023	0	3579			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	7.4	0.0	0.0	7.5	7.5	13.9	0.0	15.0			
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.6	0.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.2	0.0	0.0	1.3	1.3	0.4	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	7.6	0.0	0.0	7.6	8.0	13.9	0.0	15.1			
LnGrp LOS	A	A		A	A	A	B	A	B			
Approach Vol, veh/h		1074			1446			426				
Approach Delay, s/veh		7.6			7.7			14.8				
Approach LOS		A			A			B				

Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		29.5		16.8		29.5			
Change Period (Y+Rc), s		6.5		5.8		6.5			
Max Green Setting (Gmax), s		40.5		52.2		40.5			
Max Q Clear Time (g_c+I1), s		8.5		5.9		8.2			
Green Ext Time (p_c), s		14.4		0.9		11.3			

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

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix E

Analysis Worksheets for
Cumulative (2050) Conditions

Intersection	
Intersection Delay, s/veh	35.3
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	720	30	10	600	70	10	10	20	100	10	60
Future Vol, veh/h	60	720	30	10	600	70	10	10	20	100	10	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	100	0	5	0	0	5	6
Mvmt Flow	65	783	33	11	652	76	11	11	22	109	11	65
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	43	31.9	12.4	17.3
HCM LOS	E	D	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	25%	100%	0%	0%	100%	0%	0%	59%
Vol Thru, %	25%	0%	100%	89%	0%	100%	74%	6%
Vol Right, %	50%	0%	0%	11%	0%	0%	26%	35%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	60	480	270	10	400	270	170
LT Vol	10	60	0	0	10	0	0	100
Through Vol	10	0	480	240	0	400	200	10
RT Vol	20	0	0	30	0	0	70	60
Lane Flow Rate	43	65	522	293	11	435	293	185
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.105	0.132	0.986	0.548	0.022	0.832	0.688	0.429
Departure Headway (Hd)	8.67	7.311	6.8	6.72	7.396	6.885	8.438	8.367
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	413	491	532	537	484	526	428	431
Service Time	6.424	5.048	4.536	4.457	5.136	4.624	6.178	6.114
HCM Lane V/C Ratio	0.104	0.132	0.981	0.546	0.023	0.827	0.685	0.429
HCM Control Delay	12.4	11.2	61.5	17.3	10.3	35.2	27.9	17.3
HCM Lane LOS	B	B	F	C	B	E	D	C
HCM 95th-tile Q	0.3	0.5	13.5	3.3	0.1	8.4	5.1	2.1

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	207	98	630	76	141	391	924	65	65	761	272
v/c Ratio	0.85	0.21	0.84	0.70	0.49	0.90	0.58	0.08	0.53	0.86	0.51
Control Delay	67.7	26.4	20.4	74.3	30.9	59.1	21.3	0.2	56.6	42.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	26.4	20.4	74.3	30.9	59.1	21.3	0.2	56.6	42.8	10.0
Queue Length 50th (ft)	113	42	95	42	54	211	208	0	35	212	15
Queue Length 95th (ft)	#246	82	#298	#118	109	#396	287	0	#90	#328	86
Internal Link Dist (ft)		1428			228		505			161	
Turn Bay Length (ft)	100			100				100	100		100
Base Capacity (vph)	246	536	797	109	393	440	1589	813	125	902	537
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.18	0.79	0.70	0.36	0.89	0.58	0.08	0.52	0.84	0.51

Intersection Summary

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

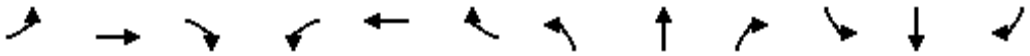
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	90	580	70	80	50	360	850	60	60	700	250
Future Volume (veh/h)	190	90	580	70	80	50	360	850	60	60	700	250
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	207	98	0	76	87	54	391	924	65	65	761	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	246	368		98	120	74	438	1609	718	86	916	
Arrive On Green	0.15	0.21	0.00	0.05	0.11	0.11	0.24	0.45	0.45	0.05	0.25	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1063	659	1810	3610	1610	1725	3610	1459
Grp Volume(v), veh/h	207	98	0	76	0	141	391	924	65	65	761	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1722	1810	1805	1610	1725	1805	1459
Q Serve(g_s), s	8.8	3.4	0.0	3.0	0.0	5.8	15.3	14.0	1.7	2.7	14.6	0.0
Cycle Q Clear(g_c), s	8.8	3.4	0.0	3.0	0.0	5.8	15.3	14.0	1.7	2.7	14.6	0.0
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	246	368		98	0	194	438	1609	718	86	916	
V/C Ratio(X)	0.84	0.27		0.78	0.00	0.73	0.89	0.57	0.09	0.75	0.83	
Avail Cap(c_a), veh/h	286	622		126	0	422	505	1736	774	146	1033	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.5	24.5	0.0	34.3	0.0	31.5	26.9	15.2	11.8	34.4	25.9	0.0
Incr Delay (d2), s/veh	17.6	0.4	0.0	20.1	0.0	5.1	16.5	0.4	0.1	12.4	5.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	1.4	0.0	1.9	0.0	2.6	8.3	5.3	0.6	1.4	6.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	24.9	0.0	54.4	0.0	36.5	43.5	15.6	11.8	46.8	31.2	0.0
LnGrp LOS	D	C		D	A	D	D	B	B	D	C	
Approach Vol, veh/h		305			217			1380			826	
Approach Delay, s/veh		40.6			42.8			23.3			32.4	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	37.2	8.5	19.5	22.3	23.1	15.2	12.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	6.2	35.3	5.1	25.4	20.5	21.0	12.5	18.0
Max Q Clear Time (g_c+I1), s	4.7	16.0	5.0	5.4	17.3	16.6	10.8	7.8
Green Ext Time (p_c), s	0.0	6.8	0.0	0.4	0.4	2.0	0.1	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.5
HCM 6th LOS	C

Notes

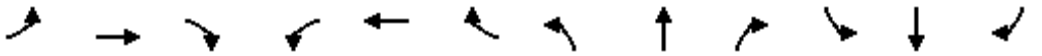
Unsignalized Delay for [EBR, SBR] is excluded from calculations of the approach delay and intersection delay.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	391	1391	87	272	1326	359	109	630	402	565	554	359
v/c Ratio	0.93	0.89	0.15	0.86	0.94	0.64	0.51	0.74	0.77	0.93	0.40	0.47
Control Delay	90.5	54.2	3.9	88.7	62.2	17.7	73.8	54.8	36.4	76.7	31.2	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	90.5	54.2	3.9	88.7	62.2	17.7	73.8	54.8	36.4	76.7	31.2	11.7
Queue Length 50th (ft)	185	444	0	128	435	68	50	281	192	263	190	71
Queue Length 95th (ft)	#312	#590	26	#227	#591	200	88	348	320	#414	240	157
Internal Link Dist (ft)		320			2447			339			505	
Turn Bay Length (ft)	300		100	200			100		200	200		180
Base Capacity (vph)	420	1559	583	315	1413	563	230	1097	619	609	1630	853
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	98
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.89	0.15	0.86	0.94	0.64	0.47	0.57	0.65	0.93	0.34	0.48

Intersection Summary

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



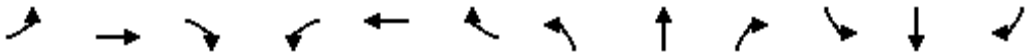
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	360	1280	80	250	1220	330	100	580	370	520	510	330
Future Volume (veh/h)	360	1280	80	250	1220	330	100	580	370	520	510	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1796	1870	1870	1811	1530	1870	1870	1870	1530	1870	1856
Adj Flow Rate, veh/h	391	1391	87	272	1326	0	109	630	0	565	554	359
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	7	2	2	6	25	2	2	2	25	2	3
Cap, veh/h	440	1638	530	323	1474		160	770		613	1377	609
Arrive On Green	0.13	0.33	0.33	0.09	0.30	0.00	0.05	0.22	0.00	0.22	0.39	0.39
Sat Flow, veh/h	3401	4904	1585	3456	4944	1296	3456	3554	1585	2826	3554	1572
Grp Volume(v), veh/h	391	1391	87	272	1326	0	109	630	0	565	554	359
Grp Sat Flow(s),veh/h/ln	1700	1635	1585	1728	1648	1296	1728	1777	1585	1413	1777	1572
Q Serve(g_s), s	14.7	34.2	5.0	10.1	33.4	0.0	4.0	21.9	0.0	25.4	14.7	23.5
Cycle Q Clear(g_c), s	14.7	34.2	5.0	10.1	33.4	0.0	4.0	21.9	0.0	25.4	14.7	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	440	1638	530	323	1474		160	770		613	1377	609
V/C Ratio(X)	0.89	0.85	0.16	0.84	0.90		0.68	0.82		0.92	0.40	0.59
Avail Cap(c_a), veh/h	459	1704	551	344	1543		250	1191		664	1769	783
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.6	40.2	30.4	57.9	43.7	0.0	61.0	48.4	0.0	49.7	28.8	31.5
Incr Delay (d2), s/veh	18.3	4.1	0.1	16.3	7.3	0.0	5.1	2.7	0.0	17.7	0.2	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	13.6	1.9	5.0	13.9	0.0	1.9	10.0	0.0	10.5	6.3	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.8	44.3	30.6	74.1	51.0	0.0	66.0	51.0	0.0	67.4	29.0	32.5
LnGrp LOS	E	D	C	E	D		E	D		E	C	C
Approach Vol, veh/h		1869			1598			739			1478	
Approach Delay, s/veh		49.8			55.0			53.2			44.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.6	32.6	16.6	47.9	10.5	54.8	21.3	43.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	30.5	43.5	12.9	45.1	9.4	64.6	17.5	40.5
Max Q Clear Time (g_c+I1), s	27.4	23.9	12.1	36.2	6.0	25.5	16.7	35.4
Green Ext Time (p_c), s	0.8	4.2	0.1	5.5	0.1	5.8	0.1	3.3

Intersection Summary	
HCM 6th Ctrl Delay	50.3
HCM 6th LOS	D

Notes

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

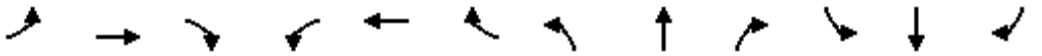


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	36	2043	261	1043	1830	143	120	163	630	143	293	39
v/c Ratio	0.32	1.09	0.46	1.35	0.60	0.18	0.88	0.19	0.96	0.54	0.35	0.08
Control Delay	74.9	96.3	20.7	209.7	30.3	8.7	115.1	42.9	48.0	73.0	45.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	96.3	20.7	209.7	30.3	8.7	115.1	42.9	48.0	73.0	45.5	0.3
Queue Length 50th (ft)	34	~667	85	~696	402	21	117	63	282	70	118	0
Queue Length 95th (ft)	74	#754	176	#845	454	65	#248	95	#525	109	162	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	112	1876	570	770	3062	811	137	1048	728	266	1048	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	1.09	0.46	1.35	0.60	0.18	0.88	0.16	0.87	0.54	0.28	0.07

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1880	240	960	1684	132	110	150	580	132	270	36
Future Volume (veh/h)	33	1880	240	960	1684	132	110	150	580	132	270	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	2043	261	1043	1830	143	120	163	0	143	293	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	2195	541	915	3561	877	160	377		314	380	170
Arrive On Green	0.05	0.34	0.34	0.26	0.55	0.55	0.09	0.11	0.00	0.09	0.11	0.11
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	36	2043	261	1043	1830	143	120	163	0	143	293	39
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.3	36.8	15.6	31.8	21.3	5.3	7.9	5.2	0.0	4.7	9.6	2.7
Cycle Q Clear(g_c), s	2.3	36.8	15.6	31.8	21.3	5.3	7.9	5.2	0.0	4.7	9.6	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	2195	541	915	3561	877	160	377		314	380	170
V/C Ratio(X)	0.39	0.93	0.48	1.14	0.51	0.16	0.75	0.43		0.46	0.77	0.23
Avail Cap(c_a), veh/h	133	2223	548	915	3561	877	163	1242		316	1242	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	38.2	31.2	44.2	16.7	13.2	53.3	50.3	0.0	51.8	52.2	49.1
Incr Delay (d2), s/veh	1.0	7.6	0.2	76.3	0.1	0.0	15.2	0.3	0.0	0.4	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	14.6	6.0	22.5	7.0	1.9	4.2	2.3	0.0	2.0	4.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	45.8	31.5	120.5	16.8	13.2	68.6	50.6	0.0	52.2	53.5	49.4
LnGrp LOS	E	D	C	F	B	B	E	D		D	D	D
Approach Vol, veh/h		2340			3016			283			475	
Approach Delay, s/veh		44.3			52.5			58.2			52.7	
Approach LOS		D			D			E			D	

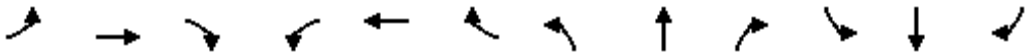
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	72.7	15.9	19.0	38.0	47.2	16.0	18.9
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	64.3	11.0	42.0	31.8	41.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	4.3	23.3	9.9	11.6	33.8	38.8	6.7	7.2
Green Ext Time (p_c), s	0.0	10.8	0.0	1.2	0.0	2.2	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	84	2578	239	913	2730	335	261	141	239	335	98	26
v/c Ratio	0.27	1.01	0.34	1.86	0.88	0.23	1.34	0.31	0.68	0.61	0.22	0.09
Control Delay	50.1	53.2	11.7	421.8	31.5	7.8	220.5	45.6	25.8	52.0	43.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	53.2	11.7	421.8	31.5	7.8	220.5	45.6	25.8	52.0	43.8	0.5
Queue Length 50th (ft)	28	504	45	~493	501	28	~233	47	47	80	33	0
Queue Length 95th (ft)	57	#709	118	#685	#705	67	#436	81	134	118	58	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	311	2558	712	492	3088	1449	195	1487	762	674	1573	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.01	0.34	1.86	0.88	0.23	1.34	0.09	0.31	0.50	0.06	0.03

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	2372	220	840	2512	308	240	130	220	308	90	24
Future Volume (veh/h)	77	2372	220	840	2512	308	240	130	220	308	90	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	2578	239	913	2730	0	261	141	239	335	98	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	2469	608	476	2833		190	616	275	482	579	258
Arrive On Green	0.08	0.38	0.38	0.14	0.44	0.00	0.11	0.17	0.17	0.10	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	84	2578	239	913	2730	0	261	141	239	335	98	26
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	2.6	44.0	12.5	15.8	47.3	0.0	12.2	3.9	16.8	7.4	2.7	1.6
Cycle Q Clear(g_c), s	2.6	44.0	12.5	15.8	47.3	0.0	12.2	3.9	16.8	7.4	2.7	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	2469	608	476	2833		190	616	275	482	579	258
V/C Ratio(X)	0.30	1.04	0.39	1.92	0.96		1.38	0.23	0.87	0.70	0.17	0.10
Avail Cap(c_a), veh/h	301	2469	608	476	2833		190	1435	640	653	1519	677
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	35.3	25.6	49.4	31.2	0.0	51.2	40.8	46.1	50.2	41.3	40.9
Incr Delay (d2), s/veh	0.2	31.0	0.2	420.6	9.8	0.0	199.3	0.1	3.3	0.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	21.2	4.5	34.4	18.6	0.0	16.0	1.7	6.7	3.1	1.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	66.3	25.8	470.1	41.0	0.0	250.5	40.9	49.5	51.1	41.4	40.9
LnGrp LOS	D	F	C	F	D		F	D	D	D	D	D
Approach Vol, veh/h		2901			3643			641			459	
Approach Delay, s/veh		62.5			148.6			129.4			48.4	
Approach LOS		E			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	56.7	16.8	25.7	22.0	50.2	18.0	24.5
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	49.8	14.9	46.3	15.8	44.0	12.2	49.0
Max Q Clear Time (g_c+I1), s	4.6	49.3	9.4	18.8	17.8	46.0	14.2	4.7
Green Ext Time (p_c), s	0.0	0.5	0.3	1.0	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	108.3
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

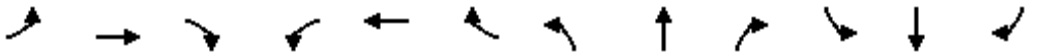
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2848	304	3043	630	626	599	580
v/c Ratio	0.95	0.36	1.02	0.59	0.89	0.92	0.89
Control Delay	37.0	8.1	50.6	4.0	45.3	48.4	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	8.1	50.6	4.0	45.3	48.4	44.9
Queue Length 50th (ft)	562	43	~683	0	408	396	361
Queue Length 95th (ft)	#671	104	#752	62	#632	#642	#587
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	2989	843	2989	1074	757	700	697
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.36	1.02	0.59	0.83	0.86	0.83

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱		↑↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	2620	280	0	2800	580	0	0	0	800	0	860
Future Volume (veh/h)	0	2620	280	0	2800	580	0	0	0	800	0	860
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2848	304	0	3043	0				1171	0	612
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3024	745	0	3024					1474	0	656
Arrive On Green	0.00	0.47	0.47	0.00	0.47	0.00				0.41	0.00	0.41
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	2848	304	0	3043	0				1171	0	612
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	44.5	13.3	0.0	49.7	0.0				30.4	0.0	39.0
Cycle Q Clear(g_c), s	0.0	44.5	13.3	0.0	49.7	0.0				30.4	0.0	39.0
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3024	745	0	3024					1474	0	656
V/C Ratio(X)	0.00	0.94	0.41	0.00	1.01					0.79	0.00	0.93
Avail Cap(c_a), veh/h	0	3024	745	0	3024					1617	0	720
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	26.6	18.4	0.0	28.0	0.0				27.1	0.0	29.6
Incr Delay (d2), s/veh	0.0	7.0	0.5	0.0	17.9	0.0				2.3	0.0	17.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	16.5	4.5	0.0	20.6	0.0				12.8	0.0	17.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	33.6	18.9	0.0	45.9	0.0				29.3	0.0	47.2
LnGrp LOS	A	C	B	A	F					C	A	D
Approach Vol, veh/h		3152			3043						1783	
Approach Delay, s/veh		32.2			45.9						35.5	
Approach LOS		C			D						D	

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	56.2				56.2		49.5					
Change Period (Y+Rc), s	6.5				6.5		5.8					
Max Green Setting (Gmax), s	49.7				49.7		48.0					
Max Q Clear Time (g_c+I1), s	51.7				46.5		41.0					
Green Ext Time (p_c), s	0.0				3.2		2.7					

Intersection Summary												
HCM 6th Ctrl Delay			38.2									
HCM 6th LOS			D									

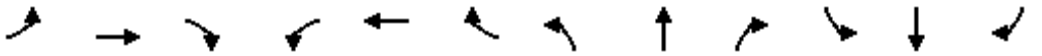
Notes

User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3185	533	3478	859	103	104	663
v/c Ratio	0.80	0.52	0.88	0.69	0.22	0.23	0.85
Control Delay	19.8	12.1	22.8	6.2	32.7	32.7	48.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	12.1	22.8	6.2	32.7	32.7	48.3
Queue Length 50th (ft)	476	150	573	47	62	62	252
Queue Length 95th (ft)	679	303	812	210	108	109	328
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3962	1028	3962	1244	764	764	1282
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.52	0.88	0.69	0.13	0.14	0.52

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2930	490	0	3200	790	190	0	610	0	0	0
Future Volume (veh/h)	0	2930	490	0	3200	790	190	0	610	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3185	0	0	3478	859	207	0	663			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	4175		0	4175	1029	848	0	755			
Arrive On Green	0.00	0.65	0.00	0.00	0.65	0.65	0.24	0.00	0.24			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3185	0	0	3478	859	207	0	663			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	37.4	0.0	0.0	44.9	45.2	5.1	0.0	21.9			
Cycle Q Clear(g_c), s	0.0	37.4	0.0	0.0	44.9	45.2	5.1	0.0	21.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4175		0	4175	1029	848	0	755			
V/C Ratio(X)	0.00	0.76		0.00	0.83	0.84	0.24	0.00	0.88			
Avail Cap(c_a), veh/h	0	4180		0	4180	1030	1702	0	1515			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	14.6	14.6	33.5	0.0	39.9			
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	1.6	6.3	0.1	0.0	1.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	11.0	0.0	0.0	13.4	14.6	2.2	0.0	8.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.2	0.0	0.0	16.2	20.9	33.6	0.0	41.3			
LnGrp LOS	A	B		A	B	C	C	A	D			
Approach Vol, veh/h		3185			4337			870				
Approach Delay, s/veh		14.2			17.1			39.5				
Approach LOS		B			B			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	77.1	31.7	77.1
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	70.7	52.0	70.7
Max Q Clear Time (g_c+I1), s	47.2	23.9	39.4
Green Ext Time (p_c), s	23.4	2.0	30.4

Intersection Summary	
HCM 6th Ctrl Delay	18.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	32.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	640	20	10	720	80	10	10	20	60	10	50
Future Vol, veh/h	60	640	20	10	720	80	10	10	20	60	10	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	100	0	5	0	0	5	6
Mvmt Flow	65	696	22	11	783	87	11	11	22	65	11	54
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	28	40.1	12.1	14.4
HCM LOS	D	E	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	25%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	25%	0%	100%	91%	0%	100%	75%	8%
Vol Right, %	50%	0%	0%	9%	0%	0%	25%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	60	427	233	10	480	320	120
LT Vol	10	60	0	0	10	0	0	60
Through Vol	10	0	427	213	0	480	240	10
RT Vol	20	0	0	20	0	0	80	50
Lane Flow Rate	43	65	464	254	11	522	348	130
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.101	0.13	0.859	0.466	0.021	0.918	0.771	0.298
Departure Headway (Hd)	8.395	7.178	6.669	6.608	6.96	6.452	7.984	8.235
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	502	547	548	517	563	456	437
Service Time	6.129	4.885	4.377	4.316	4.66	4.152	5.703	5.964
HCM Lane V/C Ratio	0.1	0.129	0.848	0.464	0.021	0.927	0.763	0.297
HCM Control Delay	12.1	11	37.5	15	9.8	45.5	32.9	14.4
HCM Lane LOS	B	B	E	B	A	E	D	B
HCM 95th-tile Q	0.3	0.4	9.3	2.5	0.1	11.3	6.7	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	283	87	457	109	152	522	848	98	65	826	283
v/c Ratio	0.97	0.23	0.65	0.69	0.69	0.97	0.48	0.11	0.50	0.91	0.57
Control Delay	93.2	39.8	8.4	75.2	58.8	73.4	22.2	1.5	65.4	58.2	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.2	39.8	8.4	75.2	58.8	73.4	22.2	1.5	65.4	58.2	19.7
Queue Length 50th (ft)	213	55	0	80	96	387	229	0	47	318	65
Queue Length 95th (ft)	#404	101	90	#166	168	#638	306	14	96	#458	164
Internal Link Dist (ft)		1428			228		505			161	
Turn Bay Length (ft)	100			100				100	100		100
Base Capacity (vph)	293	428	736	165	285	538	1772	862	151	904	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.20	0.62	0.66	0.53	0.97	0.48	0.11	0.43	0.91	0.57

Intersection Summary

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

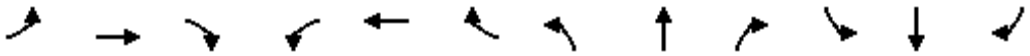
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	80	420	100	90	50	480	780	90	60	760	260
Future Volume (veh/h)	260	80	420	100	90	50	480	780	90	60	760	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	283	87	0	109	98	54	522	848	98	65	826	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	306	384		135	119	66	546	1817	811	83	901	
Arrive On Green	0.18	0.21	0.00	0.07	0.11	0.11	0.30	0.50	0.50	0.05	0.25	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1115	615	1810	3610	1610	1725	3610	1459
Grp Volume(v), veh/h	283	87	0	109	0	152	522	848	98	65	826	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1730	1810	1805	1610	1725	1805	1459
Q Serve(g_s), s	18.7	4.5	0.0	6.7	0.0	9.7	31.9	17.2	3.6	4.2	25.1	0.0
Cycle Q Clear(g_c), s	18.7	4.5	0.0	6.7	0.0	9.7	31.9	17.2	3.6	4.2	25.1	0.0
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	384		135	0	185	546	1817	811	83	901	
V/C Ratio(X)	0.93	0.23		0.80	0.00	0.82	0.96	0.47	0.12	0.78	0.92	
Avail Cap(c_a), veh/h	306	444		170	0	276	554	1817	811	158	928	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.4	36.6	0.0	51.4	0.0	49.3	38.6	18.2	14.8	53.1	41.2	0.0
Incr Delay (d2), s/veh	32.6	0.3	0.0	19.6	0.0	11.5	27.2	0.2	0.1	14.7	13.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	2.0	0.0	3.8	0.0	4.8	18.1	7.1	1.4	2.2	12.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.0	36.9	0.0	70.9	0.0	60.7	65.9	18.4	14.9	67.8	54.6	0.0
LnGrp LOS	E	D		E	A	E	E	B	B	E	D	
Approach Vol, veh/h		370			261			1468			891	
Approach Delay, s/veh		68.3			65.0			35.0			55.6	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	61.3	12.9	28.6	38.5	32.6	25.0	16.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.3	53.2	10.6	27.9	34.5	29.0	20.5	18.0
Max Q Clear Time (g_c+I1), s	6.2	19.2	8.7	6.5	33.9	27.1	20.7	11.7
Green Ext Time (p_c), s	0.0	7.5	0.0	0.4	0.1	1.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	457	1337	109	359	1435	489	130	522	250	413	609	370
v/c Ratio	0.88	0.78	0.17	0.83	0.90	0.78	0.51	0.72	0.48	0.88	0.58	0.56
Control Delay	69.9	40.0	5.2	70.0	49.1	24.4	63.0	51.4	8.5	71.5	39.0	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	40.0	5.2	70.0	49.1	24.4	63.0	51.4	8.5	71.5	39.0	12.8
Queue Length 50th (ft)	184	342	0	144	395	139	51	205	4	166	218	57
Queue Length 95th (ft)	#304	447	37	#243	#546	#337	90	265	71	#282	276	152
Internal Link Dist (ft)		320			2447			339			505	
Turn Bay Length (ft)	300		100	200			100		200	200		180
Base Capacity (vph)	522	1716	636	435	1591	624	278	1217	704	469	1521	831
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.78	0.17	0.83	0.90	0.78	0.47	0.43	0.36	0.88	0.40	0.45

Intersection Summary

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

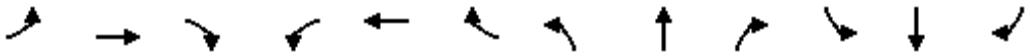
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	420	1230	100	330	1320	450	120	480	230	380	560	340
Future Volume (veh/h)	420	1230	100	330	1320	450	120	480	230	380	560	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1796	1870	1870	1811	1530	1870	1870	1870	1530	1870	1856
Adj Flow Rate, veh/h	457	1337	109	359	1435	0	130	522	0	413	609	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	7	2	2	6	25	2	2	2	25	2	3
Cap, veh/h	520	1782	576	422	1644		189	675		465	1065	471
Arrive On Green	0.15	0.36	0.36	0.12	0.33	0.00	0.05	0.19	0.00	0.16	0.30	0.30
Sat Flow, veh/h	3401	4904	1585	3456	4944	1296	3456	3554	1585	2826	3554	1572
Grp Volume(v), veh/h	457	1337	109	359	1435	0	130	522	0	413	609	370
Grp Sat Flow(s),veh/h/ln	1700	1635	1585	1728	1648	1296	1728	1777	1585	1413	1777	1572
Q Serve(g_s), s	14.8	26.8	5.3	11.4	30.7	0.0	4.2	15.7	0.0	16.1	16.3	24.2
Cycle Q Clear(g_c), s	14.8	26.8	5.3	11.4	30.7	0.0	4.2	15.7	0.0	16.1	16.3	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	520	1782	576	422	1644		189	675		465	1065	471
V/C Ratio(X)	0.88	0.75	0.19	0.85	0.87		0.69	0.77		0.89	0.57	0.79
Avail Cap(c_a), veh/h	578	1897	613	479	1759		307	1337		518	1672	740
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	31.3	24.5	48.4	35.3	0.0	52.2	43.3	0.0	45.9	33.3	36.1
Incr Delay (d2), s/veh	13.5	1.6	0.2	12.5	4.9	0.0	4.4	1.9	0.0	15.9	0.5	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	10.0	1.9	5.4	12.1	0.0	1.9	7.0	0.0	6.6	7.1	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	32.9	24.6	60.8	40.2	0.0	56.5	45.2	0.0	61.9	33.8	39.0
LnGrp LOS	E	C	C	E	D		E	D		E	C	D
Approach Vol, veh/h		1903			1794			652			1392	
Approach Delay, s/veh		39.0			44.3			47.5			43.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	25.8	18.2	45.4	10.7	38.2	21.7	41.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.6	42.3	15.6	43.5	10.0	52.9	19.1	40.0
Max Q Clear Time (g_c+I1), s	18.1	17.7	13.4	28.8	6.2	26.2	16.8	32.7
Green Ext Time (p_c), s	0.4	3.7	0.3	7.5	0.1	6.0	0.4	4.7

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

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

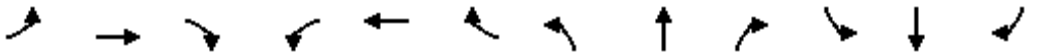


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	20	1902	87	707	2080	143	239	315	859	157	120	72
v/c Ratio	0.19	1.09	0.15	1.36	0.80	0.20	1.00	0.26	1.18	0.63	0.12	0.12
Control Delay	71.5	102.4	0.6	219.0	43.4	5.3	121.7	36.0	125.7	79.1	40.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	102.4	0.6	219.0	43.4	5.3	121.7	36.0	125.7	79.1	40.3	0.4
Queue Length 50th (ft)	19	~609	0	~466	556	0	237	116	~822	78	46	0
Queue Length 95th (ft)	48	#683	0	#593	606	47	#422	157	#1083	118	73	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	106	1738	566	521	2588	724	239	1222	726	251	1002	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.09	0.15	1.36	0.80	0.20	1.00	0.26	1.18	0.63	0.12	0.12

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1750	80	650	1914	132	220	290	790	144	110	66
Future Volume (veh/h)	18	1750	80	650	1914	132	220	290	790	144	110	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	1902	87	707	2080	143	239	315	0	157	120	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	2218	546	729	3333	821	269	442		348	263	117
Arrive On Green	0.04	0.34	0.34	0.21	0.52	0.52	0.15	0.12	0.00	0.10	0.07	0.07
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	1902	87	707	2080	143	239	315	0	157	120	72
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.2	29.7	4.1	21.9	24.9	5.2	14.2	9.2	0.0	4.6	3.5	4.8
Cycle Q Clear(g_c), s	1.2	29.7	4.1	21.9	24.9	5.2	14.2	9.2	0.0	4.6	3.5	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	2218	546	729	3333	821	269	442		348	263	117
V/C Ratio(X)	0.30	0.86	0.16	0.97	0.62	0.17	0.89	0.71		0.45	0.46	0.61
Avail Cap(c_a), veh/h	148	2422	597	729	3333	821	334	1702		352	1397	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	33.0	24.6	42.3	18.6	13.8	45.0	45.5	0.0	45.8	48.0	48.6
Incr Delay (d2), s/veh	0.9	2.8	0.1	25.9	0.3	0.0	18.4	0.8	0.0	0.3	0.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.0	1.6	11.4	8.1	1.8	7.6	4.1	0.0	2.0	1.5	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	35.8	24.6	68.3	18.8	13.8	63.3	46.3	0.0	46.1	48.4	50.5
LnGrp LOS	D	D	C	E	B	B	E	D		D	D	D
Approach Vol, veh/h		2009			2930			554			349	
Approach Delay, s/veh		35.5			30.5			53.6			47.8	
Approach LOS		D			C			D			D	

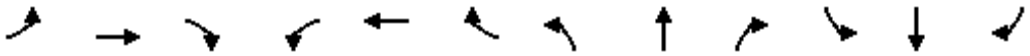
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	62.2	21.5	14.2	29.0	43.5	16.0	19.6
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	54.5	20.3	42.5	22.8	40.7	11.0	51.8
Max Q Clear Time (g_c+I1), s	3.2	26.9	16.2	6.8	23.9	31.7	6.6	11.2
Green Ext Time (p_c), s	0.0	11.9	0.1	0.6	0.0	5.5	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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

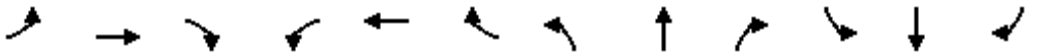


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	2743	174	326	2459	335	424	250	587	365	65	48
v/c Ratio	0.18	1.30	0.29	1.17	1.05	0.29	1.42	0.22	0.94	0.85	0.07	0.09
Control Delay	64.4	175.1	15.4	162.6	76.9	13.0	247.3	33.1	55.3	80.9	33.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	175.1	15.4	162.6	76.9	13.0	247.3	33.1	55.3	80.9	33.8	0.4
Queue Length 50th (ft)	20	~945	41	~186	~777	42	~609	84	389	118	21	0
Queue Length 95th (ft)	43	#1062	106	#299	#892	89	#852	118	#610	#184	40	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	252	2114	596	278	2334	1154	299	1389	721	437	1277	644
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.30	0.29	1.17	1.05	0.29	1.42	0.18	0.81	0.84	0.05	0.07

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2524	160	300	2262	308	390	230	540	336	60	44
Future Volume (veh/h)	42	2524	160	300	2262	308	390	230	540	336	60	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	2743	174	326	2459	0	424	250	587	365	65	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	1988	490	262	2102		199	1306	583	412	1201	536
Arrive On Green	0.06	0.31	0.31	0.08	0.33	0.00	0.11	0.37	0.37	0.08	0.34	0.34
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	46	2743	174	326	2459	0	424	250	587	365	65	48
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	1.8	44.8	12.4	11.0	47.4	0.0	16.2	6.9	53.3	10.4	1.8	3.0
Cycle Q Clear(g_c), s	1.8	44.8	12.4	11.0	47.4	0.0	16.2	6.9	53.3	10.4	1.8	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	1988	490	262	2102		199	1306	583	412	1201	536
V/C Ratio(X)	0.23	1.38	0.36	1.24	1.17		2.13	0.19	1.01	0.89	0.05	0.09
Avail Cap(c_a), veh/h	238	1988	490	262	2102		199	1306	583	412	1201	536
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	50.1	38.9	67.0	48.8	0.0	64.4	31.2	45.9	65.9	32.4	32.8
Incr Delay (d2), s/veh	0.2	174.2	0.2	137.5	82.0	0.0	525.2	0.0	39.1	19.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	41.3	4.8	9.7	30.2	0.0	36.4	3.1	26.5	5.1	0.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.4	224.3	39.1	204.5	130.8	0.0	589.6	31.2	85.0	85.2	32.4	32.8
LnGrp LOS	E	F	D	F	F		F	C	F	F	C	C
Approach Vol, veh/h		2963			2785			1261			478	
Approach Delay, s/veh		210.9			139.4			244.0			72.8	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	53.6	17.7	59.1	17.2	51.0	22.0	54.8
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	45.8	11.9	53.3	11.0	44.8	16.2	49.0
Max Q Clear Time (g_c+I1), s	3.8	49.4	12.4	55.3	13.0	46.8	18.2	5.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	181.1
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	3261	435	2457	707	473	455	431
v/c Ratio	0.93	0.44	0.70	0.60	0.83	0.85	0.81
Control Delay	29.9	8.4	20.7	3.6	46.7	46.2	43.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	8.4	20.7	3.6	46.7	46.2	43.3
Queue Length 50th (ft)	592	66	354	0	317	301	267
Queue Length 95th (ft)	#845	168	484	60	452	445	398
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	3519	980	3519	1188	742	692	681
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.44	0.70	0.60	0.64	0.66	0.63

Intersection Summary

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)	0	3000	400	0	2260	650	0	0	0	640	0	610
Future Volume (veh/h)	0	3000	400	0	2260	650	0	0	0	640	0	610
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	3261	435	0	2457	0				902	0	442
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3673	905	0	3673					1109	0	494
Arrive On Green	0.00	0.57	0.57	0.00	0.57	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	3261	435	0	2457	0				902	0	442
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	46.1	17.0	0.0	27.7	0.0				24.4	0.0	27.8
Cycle Q Clear(g_c), s	0.0	46.1	17.0	0.0	27.7	0.0				24.4	0.0	27.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3673	905	0	3673					1109	0	494
V/C Ratio(X)	0.00	0.89	0.48	0.00	0.67					0.81	0.00	0.90
Avail Cap(c_a), veh/h	0	3678	906	0	3678					1637	0	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.5	13.3	0.0	15.6	0.0				33.2	0.0	34.3
Incr Delay (d2), s/veh	0.0	3.1	0.6	0.0	0.5	0.0				1.2	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.1	5.3	0.0	8.8	0.0				10.4	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.6	13.8	0.0	16.1	0.0				34.4	0.0	41.8
LnGrp LOS	A	C	B	A	B					C	A	D
Approach Vol, veh/h		3696			2457						1344	
Approach Delay, s/veh		21.6			16.1						36.8	
Approach LOS		C			B						D	

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	66.1				66.1		38.3					
Change Period (Y+Rc), s	6.5				6.5		5.8					
Max Green Setting (Gmax), s	59.7				59.7		48.0					
Max Q Clear Time (g_c+I1), s	29.7				48.1		29.8					
Green Ext Time (p_c), s	26.2				11.6		2.7					

Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			C									

Notes

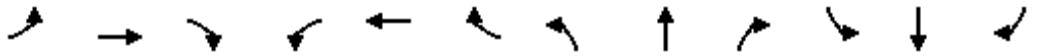
User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3217	728	3043	1000	65	65	924
v/c Ratio	0.95	0.79	0.90	0.79	0.11	0.11	0.89
Control Delay	34.5	25.5	30.0	7.6	23.8	23.8	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.5	25.5	30.0	7.6	23.8	23.8	44.9
Queue Length 50th (ft)	638	335	572	27	33	33	352
Queue Length 95th (ft)	#875	#629	#792	197	64	64	446
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3387	919	3387	1272	761	761	1279
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.79	0.90	0.79	0.09	0.09	0.72

Intersection Summary

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)	0	2960	670	0	2800	920	120	0	850	0	0	0
Future Volume (veh/h)	0	2960	670	0	2800	920	120	0	850	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3217	0	0	3043	1000	130	0	924			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3631		0	3631	895	1145	0	1018			
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.56	0.32	0.00	0.32			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3217	0	0	3043	1000	130	0	924			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	46.9	0.0	0.0	42.0	60.7	2.8	0.0	30.0			
Cycle Q Clear(g_c), s	0.0	46.9	0.0	0.0	42.0	60.7	2.8	0.0	30.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3631		0	3631	895	1145	0	1018			
V/C Ratio(X)	0.00	0.89		0.00	0.84	1.12	0.11	0.00	0.91			
Avail Cap(c_a), veh/h	0	3631		0	3631	895	1722	0	1533			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	20.4	0.0	0.0	19.4	23.4	25.7	0.0	35.0			
Incr Delay (d2), s/veh	0.0	3.1	0.0	0.0	1.9	67.9	0.0	0.0	4.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	15.6	0.0	0.0	13.8	35.8	1.2	0.0	11.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.5	0.0	0.0	21.3	91.4	25.7	0.0	39.2			
LnGrp LOS	A	C		A	C	F	C	A	D			
Approach Vol, veh/h		3217			4043			1054				
Approach Delay, s/veh		23.5			38.6			37.5				
Approach LOS		C			D			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	67.2	40.4	67.2
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	60.7	52.0	60.7
Max Q Clear Time (g_c+I1), s	62.7	32.0	48.9
Green Ext Time (p_c), s	0.0	2.5	11.7

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Intersection	
Intersection Delay, s/veh	32.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	60	640	20	10	720	80	10	10	20	60	10	50
Future Vol, veh/h	60	640	20	10	720	80	10	10	20	60	10	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	100	0	5	0	0	5	6
Mvmt Flow	65	696	22	11	783	87	11	11	22	65	11	54
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	28	40.1	12.1	14.4
HCM LOS	D	E	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	25%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	25%	0%	100%	91%	0%	100%	75%	8%
Vol Right, %	50%	0%	0%	9%	0%	0%	25%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	60	427	233	10	480	320	120
LT Vol	10	60	0	0	10	0	0	60
Through Vol	10	0	427	213	0	480	240	10
RT Vol	20	0	0	20	0	0	80	50
Lane Flow Rate	43	65	464	254	11	522	348	130
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.101	0.13	0.859	0.466	0.021	0.918	0.771	0.298
Departure Headway (Hd)	8.395	7.178	6.669	6.608	6.96	6.452	7.984	8.235
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	502	547	548	517	563	456	437
Service Time	6.129	4.885	4.377	4.316	4.66	4.152	5.703	5.964
HCM Lane V/C Ratio	0.1	0.129	0.848	0.464	0.021	0.927	0.763	0.297
HCM Control Delay	12.1	11	37.5	15	9.8	45.5	32.9	14.4
HCM Lane LOS	B	B	E	B	A	E	D	B
HCM 95th-tile Q	0.3	0.4	9.3	2.5	0.1	11.3	6.7	1.2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	283	87	457	109	152	522	848	98	65	826	283
v/c Ratio	0.97	0.23	0.65	0.69	0.69	0.97	0.48	0.11	0.50	0.91	0.57
Control Delay	93.2	39.8	8.4	75.2	58.8	73.4	22.2	1.5	65.4	58.2	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.2	39.8	8.4	75.2	58.8	73.4	22.2	1.5	65.4	58.2	19.7
Queue Length 50th (ft)	213	55	0	80	96	387	229	0	47	318	65
Queue Length 95th (ft)	#404	101	90	#166	168	#638	306	14	96	#458	164
Internal Link Dist (ft)		1428			228		505			161	
Turn Bay Length (ft)	100			100				100	100		100
Base Capacity (vph)	293	428	736	165	285	538	1772	862	151	904	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.20	0.62	0.66	0.53	0.97	0.48	0.11	0.43	0.91	0.57

Intersection Summary

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

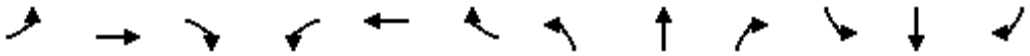
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	80	420	100	90	50	480	780	90	60	760	260
Future Volume (veh/h)	260	80	420	100	90	50	480	780	90	60	760	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1767	1796	1900	1900	1841	1841	1900	1900	1900	1811	1900	1722
Adj Flow Rate, veh/h	283	87	0	109	98	54	522	848	98	65	826	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	9	7	0	0	4	4	0	0	0	6	0	12
Cap, veh/h	306	384		135	119	66	546	1817	811	83	901	
Arrive On Green	0.18	0.21	0.00	0.07	0.11	0.11	0.30	0.50	0.50	0.05	0.25	0.00
Sat Flow, veh/h	1682	1796	1610	1810	1115	615	1810	3610	1610	1725	3610	1459
Grp Volume(v), veh/h	283	87	0	109	0	152	522	848	98	65	826	0
Grp Sat Flow(s),veh/h/ln	1682	1796	1610	1810	0	1730	1810	1805	1610	1725	1805	1459
Q Serve(g_s), s	18.7	4.5	0.0	6.7	0.0	9.7	31.9	17.2	3.6	4.2	25.1	0.0
Cycle Q Clear(g_c), s	18.7	4.5	0.0	6.7	0.0	9.7	31.9	17.2	3.6	4.2	25.1	0.0
Prop In Lane	1.00		1.00	1.00		0.36	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	306	384		135	0	185	546	1817	811	83	901	
V/C Ratio(X)	0.93	0.23		0.80	0.00	0.82	0.96	0.47	0.12	0.78	0.92	
Avail Cap(c_a), veh/h	306	444		170	0	276	554	1817	811	158	928	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	45.4	36.6	0.0	51.4	0.0	49.3	38.6	18.2	14.8	53.1	41.2	0.0
Incr Delay (d2), s/veh	32.6	0.3	0.0	19.6	0.0	11.5	27.2	0.2	0.1	14.7	13.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	2.0	0.0	3.8	0.0	4.8	18.1	7.1	1.4	2.2	12.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.0	36.9	0.0	70.9	0.0	60.7	65.9	18.4	14.9	67.8	54.6	0.0
LnGrp LOS	E	D		E	A	E	E	B	B	E	D	
Approach Vol, veh/h		370			261			1468			891	
Approach Delay, s/veh		68.3			65.0			35.0			55.6	
Approach LOS		E			E			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	61.3	12.9	28.6	38.5	32.6	25.0	16.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.3	53.2	10.6	27.9	34.5	29.0	20.5	18.0
Max Q Clear Time (g_c+I1), s	6.2	19.2	8.7	6.5	33.9	27.1	20.7	11.7
Green Ext Time (p_c), s	0.0	7.5	0.0	0.4	0.1	1.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	47.9
HCM 6th LOS	D

Notes

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	457	1337	109	359	1435	489	130	522	250	413	609	370
v/c Ratio	0.88	0.78	0.17	0.83	0.90	0.78	0.51	0.72	0.48	0.88	0.58	0.56
Control Delay	69.9	40.0	5.2	70.0	49.1	24.4	63.0	51.4	8.5	71.5	39.0	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.9	40.0	5.2	70.0	49.1	24.4	63.0	51.4	8.5	71.5	39.0	12.8
Queue Length 50th (ft)	184	342	0	144	395	139	51	205	4	166	218	57
Queue Length 95th (ft)	#304	447	37	#243	#546	#337	90	265	71	#282	276	152
Internal Link Dist (ft)		320			2447			339			505	
Turn Bay Length (ft)	300		100	200			100		200	200		180
Base Capacity (vph)	522	1716	636	435	1591	624	278	1217	704	469	1521	831
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.78	0.17	0.83	0.90	0.78	0.47	0.43	0.36	0.88	0.40	0.45

Intersection Summary

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

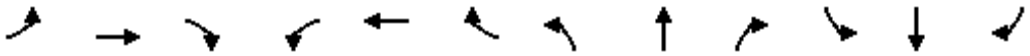
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	420	1230	100	330	1320	450	120	480	230	380	560	340
Future Volume (veh/h)	420	1230	100	330	1320	450	120	480	230	380	560	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1796	1870	1870	1811	1530	1870	1870	1870	1530	1870	1856
Adj Flow Rate, veh/h	457	1337	109	359	1435	0	130	522	0	413	609	370
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	7	2	2	6	25	2	2	2	25	2	3
Cap, veh/h	520	1782	576	422	1644		189	675		465	1065	471
Arrive On Green	0.15	0.36	0.36	0.12	0.33	0.00	0.05	0.19	0.00	0.16	0.30	0.30
Sat Flow, veh/h	3401	4904	1585	3456	4944	1296	3456	3554	1585	2826	3554	1572
Grp Volume(v), veh/h	457	1337	109	359	1435	0	130	522	0	413	609	370
Grp Sat Flow(s),veh/h/ln	1700	1635	1585	1728	1648	1296	1728	1777	1585	1413	1777	1572
Q Serve(g_s), s	14.8	26.8	5.3	11.4	30.7	0.0	4.2	15.7	0.0	16.1	16.3	24.2
Cycle Q Clear(g_c), s	14.8	26.8	5.3	11.4	30.7	0.0	4.2	15.7	0.0	16.1	16.3	24.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	520	1782	576	422	1644		189	675		465	1065	471
V/C Ratio(X)	0.88	0.75	0.19	0.85	0.87		0.69	0.77		0.89	0.57	0.79
Avail Cap(c_a), veh/h	578	1897	613	479	1759		307	1337		518	1672	740
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	31.3	24.5	48.4	35.3	0.0	52.2	43.3	0.0	45.9	33.3	36.1
Incr Delay (d2), s/veh	13.5	1.6	0.2	12.5	4.9	0.0	4.4	1.9	0.0	15.9	0.5	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	10.0	1.9	5.4	12.1	0.0	1.9	7.0	0.0	6.6	7.1	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.1	32.9	24.6	60.8	40.2	0.0	56.5	45.2	0.0	61.9	33.8	39.0
LnGrp LOS	E	C	C	E	D		E	D		E	C	D
Approach Vol, veh/h		1903			1794			652			1392	
Approach Delay, s/veh		39.0			44.3			47.5			43.5	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	25.8	18.2	45.4	10.7	38.2	21.7	41.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	20.6	42.3	15.6	43.5	10.0	52.9	19.1	40.0
Max Q Clear Time (g_c+I1), s	18.1	17.7	13.4	28.8	6.2	26.2	16.8	32.7
Green Ext Time (p_c), s	0.4	3.7	0.3	7.5	0.1	6.0	0.4	4.7

Intersection Summary	
HCM 6th Ctrl Delay	42.7
HCM 6th LOS	D

Notes

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

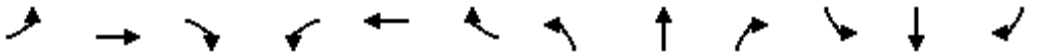


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	20	1902	87	707	2080	143	239	315	859	157	120	72
v/c Ratio	0.19	1.09	0.15	1.36	0.80	0.20	1.00	0.26	1.18	0.63	0.12	0.12
Control Delay	71.5	102.4	0.6	219.0	43.4	5.3	121.7	36.0	125.7	79.1	40.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	102.4	0.6	219.0	43.4	5.3	121.7	36.0	125.7	79.1	40.3	0.4
Queue Length 50th (ft)	19	~609	0	~466	556	0	237	116	~822	78	46	0
Queue Length 95th (ft)	48	#683	0	#593	606	47	#422	157	#1083	118	73	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	106	1738	566	521	2588	724	239	1222	726	251	1002	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.09	0.15	1.36	0.80	0.20	1.00	0.26	1.18	0.63	0.12	0.12

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1750	80	650	1914	132	220	290	790	144	110	66
Future Volume (veh/h)	18	1750	80	650	1914	132	220	290	790	144	110	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	1902	87	707	2080	143	239	315	0	157	120	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	2218	546	729	3333	821	269	442		348	263	117
Arrive On Green	0.04	0.34	0.34	0.21	0.52	0.52	0.15	0.12	0.00	0.10	0.07	0.07
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	1902	87	707	2080	143	239	315	0	157	120	72
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.2	29.7	4.1	21.9	24.9	5.2	14.2	9.2	0.0	4.6	3.5	4.8
Cycle Q Clear(g_c), s	1.2	29.7	4.1	21.9	24.9	5.2	14.2	9.2	0.0	4.6	3.5	4.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	2218	546	729	3333	821	269	442		348	263	117
V/C Ratio(X)	0.30	0.86	0.16	0.97	0.62	0.17	0.89	0.71		0.45	0.46	0.61
Avail Cap(c_a), veh/h	148	2422	597	729	3333	821	334	1702		352	1397	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	33.0	24.6	42.3	18.6	13.8	45.0	45.5	0.0	45.8	48.0	48.6
Incr Delay (d2), s/veh	0.9	2.8	0.1	25.9	0.3	0.0	18.4	0.8	0.0	0.3	0.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	11.0	1.6	11.4	8.1	1.8	7.6	4.1	0.0	2.0	1.5	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	35.8	24.6	68.3	18.8	13.8	63.3	46.3	0.0	46.1	48.4	50.5
LnGrp LOS	D	D	C	E	B	B	E	D		D	D	D
Approach Vol, veh/h		2009			2930			554			349	
Approach Delay, s/veh		35.5			30.5			53.6			47.8	
Approach LOS		D			C			D			D	

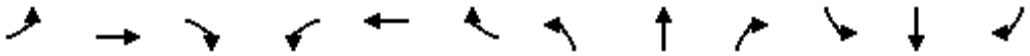
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	62.2	21.5	14.2	29.0	43.5	16.0	19.6
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	54.5	20.3	42.5	22.8	40.7	11.0	51.8
Max Q Clear Time (g_c+I1), s	3.2	26.9	16.2	6.8	23.9	31.7	6.6	11.2
Green Ext Time (p_c), s	0.0	11.9	0.1	0.6	0.0	5.5	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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

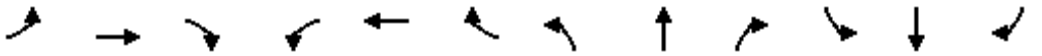


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	2743	174	326	2459	335	424	250	587	365	65	48
v/c Ratio	0.18	1.30	0.29	1.17	1.05	0.29	1.42	0.22	0.94	0.85	0.07	0.09
Control Delay	64.4	175.1	15.4	162.6	76.9	13.0	247.3	33.1	55.3	80.9	33.8	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.4	175.1	15.4	162.6	76.9	13.0	247.3	33.1	55.3	80.9	33.8	0.4
Queue Length 50th (ft)	20	~945	41	~186	~777	42	~609	84	389	118	21	0
Queue Length 95th (ft)	43	#1062	106	#299	#892	89	#852	118	#610	#184	40	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	252	2114	596	278	2334	1154	299	1389	721	437	1277	644
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.30	0.29	1.17	1.05	0.29	1.42	0.18	0.81	0.84	0.05	0.07

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2524	160	300	2262	308	390	230	540	336	60	44
Future Volume (veh/h)	42	2524	160	300	2262	308	390	230	540	336	60	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	2743	174	326	2459	0	424	250	587	365	65	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	1988	490	262	2102		199	1306	583	412	1201	536
Arrive On Green	0.06	0.31	0.31	0.08	0.33	0.00	0.11	0.37	0.37	0.08	0.34	0.34
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	46	2743	174	326	2459	0	424	250	587	365	65	48
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	1.8	44.8	12.4	11.0	47.4	0.0	16.2	6.9	53.3	10.4	1.8	3.0
Cycle Q Clear(g_c), s	1.8	44.8	12.4	11.0	47.4	0.0	16.2	6.9	53.3	10.4	1.8	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	1988	490	262	2102		199	1306	583	412	1201	536
V/C Ratio(X)	0.23	1.38	0.36	1.24	1.17		2.13	0.19	1.01	0.89	0.05	0.09
Avail Cap(c_a), veh/h	238	1988	490	262	2102		199	1306	583	412	1201	536
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	50.1	38.9	67.0	48.8	0.0	64.4	31.2	45.9	65.9	32.4	32.8
Incr Delay (d2), s/veh	0.2	174.2	0.2	137.5	82.0	0.0	525.2	0.0	39.1	19.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	41.3	4.8	9.7	30.2	0.0	36.4	3.1	26.5	5.1	0.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.4	224.3	39.1	204.5	130.8	0.0	589.6	31.2	85.0	85.2	32.4	32.8
LnGrp LOS	E	F	D	F	F		F	C	F	F	C	C
Approach Vol, veh/h		2963			2785			1261			478	
Approach Delay, s/veh		210.9			139.4			244.0			72.8	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	53.6	17.7	59.1	17.2	51.0	22.0	54.8
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	45.8	11.9	53.3	11.0	44.8	16.2	49.0
Max Q Clear Time (g_c+I1), s	3.8	49.4	12.4	55.3	13.0	46.8	18.2	5.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	181.1
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	3261	435	2457	707	473	455	431
v/c Ratio	0.93	0.44	0.70	0.60	0.83	0.85	0.81
Control Delay	29.9	8.4	20.7	3.6	46.7	46.2	43.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	8.4	20.7	3.6	46.7	46.2	43.3
Queue Length 50th (ft)	592	66	354	0	317	301	267
Queue Length 95th (ft)	#845	168	484	60	452	445	398
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	3519	980	3519	1188	742	692	681
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.44	0.70	0.60	0.64	0.66	0.63

Intersection Summary

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)	0	3000	400	0	2260	650	0	0	0	640	0	610
Future Volume (veh/h)	0	3000	400	0	2260	650	0	0	0	640	0	610
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	3261	435	0	2457	0				902	0	442
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3673	905	0	3673					1109	0	494
Arrive On Green	0.00	0.57	0.57	0.00	0.57	0.00				0.31	0.00	0.31
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	3261	435	0	2457	0				902	0	442
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	46.1	17.0	0.0	27.7	0.0				24.4	0.0	27.8
Cycle Q Clear(g_c), s	0.0	46.1	17.0	0.0	27.7	0.0				24.4	0.0	27.8
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3673	905	0	3673					1109	0	494
V/C Ratio(X)	0.00	0.89	0.48	0.00	0.67					0.81	0.00	0.90
Avail Cap(c_a), veh/h	0	3678	906	0	3678					1637	0	728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	19.5	13.3	0.0	15.6	0.0				33.2	0.0	34.3
Incr Delay (d2), s/veh	0.0	3.1	0.6	0.0	0.5	0.0				1.2	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	15.1	5.3	0.0	8.8	0.0				10.4	0.0	11.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	22.6	13.8	0.0	16.1	0.0				34.4	0.0	41.8
LnGrp LOS	A	C	B	A	B					C	A	D
Approach Vol, veh/h		3696			2457						1344	
Approach Delay, s/veh		21.6			16.1						36.8	
Approach LOS		C			B						D	

Timer - Assigned Phs	2				6		8					
Phs Duration (G+Y+Rc), s	66.1				66.1		38.3					
Change Period (Y+Rc), s	6.5				6.5		5.8					
Max Green Setting (Gmax), s	59.7				59.7		48.0					
Max Q Clear Time (g_c+I1), s	29.7				48.1		29.8					
Green Ext Time (p_c), s	26.2				11.6		2.7					

Intersection Summary												
HCM 6th Ctrl Delay			22.5									
HCM 6th LOS			C									

Notes

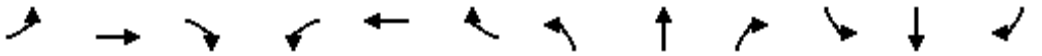
User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3217	728	3043	1000	65	65	924
v/c Ratio	0.95	0.79	0.90	0.79	0.11	0.11	0.89
Control Delay	34.5	25.5	30.0	7.6	23.8	23.8	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.5	25.5	30.0	7.6	23.8	23.8	44.9
Queue Length 50th (ft)	638	335	572	27	33	33	352
Queue Length 95th (ft)	#875	#629	#792	197	64	64	446
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3387	919	3387	1272	761	761	1279
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.79	0.90	0.79	0.09	0.09	0.72

Intersection Summary

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)	0	2960	670	0	2800	920	120	0	850	0	0	0
Future Volume (veh/h)	0	2960	670	0	2800	920	120	0	850	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3217	0	0	3043	1000	130	0	924			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3631		0	3631	895	1145	0	1018			
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.56	0.32	0.00	0.32			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3217	0	0	3043	1000	130	0	924			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	46.9	0.0	0.0	42.0	60.7	2.8	0.0	30.0			
Cycle Q Clear(g_c), s	0.0	46.9	0.0	0.0	42.0	60.7	2.8	0.0	30.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3631		0	3631	895	1145	0	1018			
V/C Ratio(X)	0.00	0.89		0.00	0.84	1.12	0.11	0.00	0.91			
Avail Cap(c_a), veh/h	0	3631		0	3631	895	1722	0	1533			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	20.4	0.0	0.0	19.4	23.4	25.7	0.0	35.0			
Incr Delay (d2), s/veh	0.0	3.1	0.0	0.0	1.9	67.9	0.0	0.0	4.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	15.6	0.0	0.0	13.8	35.8	1.2	0.0	11.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.5	0.0	0.0	21.3	91.4	25.7	0.0	39.2			
LnGrp LOS	A	C		A	C	F	C	A	D			
Approach Vol, veh/h		3217			4043			1054				
Approach Delay, s/veh		23.5			38.6			37.5				
Approach LOS		C			D			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	67.2	40.4	67.2
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	60.7	52.0	60.7
Max Q Clear Time (g_c+I1), s	62.7	32.0	48.9
Green Ext Time (p_c), s	0.0	2.5	11.7

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Appendix F

Analysis Worksheets for
Cumulative (2050) plus Project Conditions

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt02_2038_AM_DL (Site Folder: INT-3_2038-2050_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 12 years

Lane Use and Performance

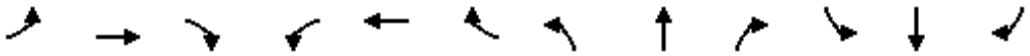
	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	43	1.0	43	1.0	607	0.072	100	6.7	LOS A	0.2	6.0	Full	520	0.0	0.0
Approach	43	1.0	43	1.0		0.072		6.7	LOS A	0.2	6.0				
East: WB - Classical Way															
Lane 1	370	1.0	370	1.0	1296	0.286	100	5.2	LOS A	1.5	36.9	Full	700	0.0	0.0
Lane 2[d]	370	1.0	370	1.0	1296	0.286	100	5.2	LOS A	1.5	36.9	Full	700	0.0	0.0
Approach	740	1.0	740	1.0		0.286		5.2	LOS A	1.5	36.9				
North: SB - B Street															
Lane 1[d]	185	1.0	185	1.0	780	0.237	100	7.2	LOS A	0.9	22.9	Full	1000	0.0	0.0
Approach	185	1.0	185	1.0		0.237		7.2	LOS A	0.9	22.9				
West: EB - Classical Way															
Lane 1	441	1.0	441	1.0	1245	0.354	100	6.1	LOS A	1.9	48.9	Full	1600	0.0	0.0
Lane 2[d]	441	1.0	441	1.0	1245	0.354	100	6.1	LOS A	1.9	48.9	Full	1600	0.0	0.0
Approach	883	1.0	883	1.0		0.354		6.1	LOS A	1.9	48.9				
All Vehicles	1851	1.0	1851	1.0		0.354		5.9	LOS A	1.9	48.9				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

AM Results

Intersection	Approach	Turning Movement	HIDE COLUMNS	HIDE COLUMNS	Volume (Vehicles)	Delay (veh/sec)	Approach Volume	Approach Delay (sec/veh)	Approach LOS	Average Queue Length	Maximum Queue Length
		TURNING MOVEMENT	QLEN	QLENMAX	VEHS(ALL)	VEHDELAY(ALL)					
Kammerer Rd & Lotz Pkwy	NB	NBL	60.0	192.2	217.0	66.6	1,041	32.7	C	69	259
		NBT	69.1	258.6	451.0	41.0					
		NBR	-	-	373.0	2.9					
	SB	SBL	78.3	379.3	487.0	40.6	1,280	29.5	C	78	379
		SBT	51.0	284.6	510.0	28.3					
		SBR	16.8	200.3	283.0	12.4					
	EB	EBL	95.3	312.0	369.0	65.9	1,729	36.9	D	96	415
		EBT	95.6	415.2	1,280.0	30.7					
		EBR	-	-	80.0	2.0					
	WB	WBL	47.2	174.0	236.0	50.0	1,819	66.5	E	1,343	1,678
		WBT	1,333.0	1,676.2	1,165.0	39.1					
		WBR	1,343.3	1,677.5	418.0	152.4					
		WBU									
						Overall Intersection	5,869	43.7	D		
Lotz Pkwy & Classical Way	NB	NBL	1.2	84.6	168.0	3.5	1,243	9.8	A	56	481
		NBL2	23.2	376.2	46.0	8.8					
		NBT	23.2	376.2	424.0	8.3					
		NBT2	56.3	480.7	550.0	12.9					
		NBR	56.3	480.7	55.0	11.5					
	SB	SBL	8.6	231.1	57.0	5.7	1,014	6.4	A	13	272
		SBT	11.0	272.1	674.0	6.9					
		SBR	13.5	250.0	283.0	5.4					
	EB	EBL	16.2	221.5	188.0	14.1	844	11.4	B	27	289
		EBT	16.2	221.5	69.0	12.9					
		EBR	26.8	289.2	587.0	10.3					
	WB	WBL	19.9	166.2	23.0	31.7	116	30.4	D	20	166
		WBT	19.9	166.2	68.0	30.3					
		WBR	19.9	166.2	25.0	29.2					
						Overall Intersection	3,217	9.9	A		
Main Entrance & Classical Way	NB	NBL	-	-	-	-	0	0.0	A	0	0
		NBT	-	-	-	-					
		NBR	-	-	-	-					
	SB	SBL	0.0	18.0	4.0	29.2	4	29.2	C	0	18
		SBT	0.0	11.3	-	-					
		SBR	0.0	18.0	-	-					
	EB	EBL	0.0	29.7	1.0	0.4	840	0.6	A	0	30
		EBT	0.0	29.7	839.0	0.6					
		EBR	-	-	-	-					
	WB	WBL	0.0	19.3	-	-	564	0.7	A	0	24
		WBT	0.0	24.1	550.0	0.7					
		WBR	-	4.8	14.0	0.5					
						Overall Intersection	1,408	0.7	A		

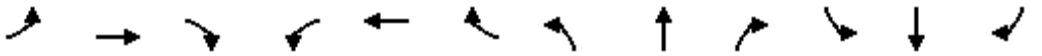


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	36	2050	261	1043	2070	143	120	163	630	143	293	39
v/c Ratio	0.32	1.09	0.46	1.35	0.68	0.18	0.88	0.19	0.96	0.54	0.35	0.08
Control Delay	74.9	97.6	20.7	209.7	32.3	8.7	115.1	42.9	48.0	73.0	45.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.9	97.6	20.7	209.7	32.3	8.7	115.1	42.9	48.0	73.0	45.5	0.3
Queue Length 50th (ft)	34	~671	85	~696	481	21	117	63	282	70	118	0
Queue Length 95th (ft)	74	#759	176	#845	536	65	#248	95	#525	109	162	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	112	1876	570	770	3062	811	137	1048	728	266	1048	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	1.09	0.46	1.35	0.68	0.18	0.88	0.16	0.87	0.54	0.28	0.07

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	1886	240	960	1904	132	110	150	580	132	270	36
Future Volume (veh/h)	33	1886	240	960	1904	132	110	150	580	132	270	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	36	2050	261	1043	2070	143	120	163	0	143	293	39
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	2197	541	914	3562	878	160	377		314	380	170
Arrive On Green	0.05	0.34	0.34	0.26	0.55	0.55	0.09	0.11	0.00	0.09	0.11	0.11
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	36	2050	261	1043	2070	143	120	163	0	143	293	39
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.3	37.0	15.6	31.8	25.4	5.3	7.9	5.2	0.0	4.7	9.6	2.7
Cycle Q Clear(g_c), s	2.3	37.0	15.6	31.8	25.4	5.3	7.9	5.2	0.0	4.7	9.6	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	93	2197	541	914	3562	878	160	377		314	380	170
V/C Ratio(X)	0.39	0.93	0.48	1.14	0.58	0.16	0.75	0.43		0.46	0.77	0.23
Avail Cap(c_a), veh/h	133	2222	547	914	3562	878	163	1242		316	1242	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.1	38.3	31.2	44.2	17.7	13.2	53.4	50.3	0.0	51.8	52.2	49.1
Incr Delay (d2), s/veh	1.0	7.8	0.2	76.5	0.2	0.0	15.3	0.3	0.0	0.4	1.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	14.7	6.0	22.5	8.3	1.9	4.2	2.3	0.0	2.0	4.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	46.1	31.5	120.7	17.8	13.2	68.6	50.6	0.0	52.2	53.5	49.4
LnGrp LOS	E	D	C	F	B	B	E	D		D	D	D
Approach Vol, veh/h		2347			3256			283			475	
Approach Delay, s/veh		44.6			50.6			58.3			52.8	
Approach LOS		D			D			E			D	

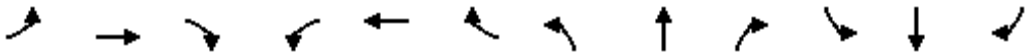
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.5	72.7	15.9	19.1	38.0	47.2	16.0	18.9
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	64.3	11.0	42.0	31.8	41.5	11.0	42.0
Max Q Clear Time (g_c+I1), s	4.3	27.4	9.9	11.6	33.8	39.0	6.7	7.2
Green Ext Time (p_c), s	0.0	13.0	0.0	1.2	0.0	2.0	0.1	0.7

Intersection Summary	
HCM 6th Ctrl Delay	48.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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

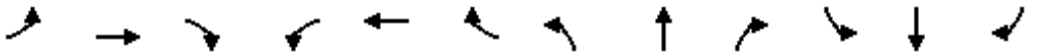


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	84	2585	239	913	2970	335	261	141	239	335	98	26
v/c Ratio	0.27	1.01	0.34	1.86	0.96	0.23	1.34	0.31	0.68	0.61	0.22	0.09
Control Delay	50.1	53.8	11.7	421.8	38.6	8.6	220.5	45.6	25.8	52.0	43.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	53.8	11.7	421.8	38.6	8.6	220.5	45.6	25.8	52.0	43.8	0.5
Queue Length 50th (ft)	28	507	45	~493	~589	31	~233	47	47	80	33	0
Queue Length 95th (ft)	57	#712	118	#685	#813	71	#436	81	134	118	58	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	311	2558	712	492	3088	1440	195	1487	762	674	1573	767
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.01	0.34	1.86	0.96	0.23	1.34	0.09	0.31	0.50	0.06	0.03

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	2378	220	840	2732	308	240	130	220	308	90	24
Future Volume (veh/h)	77	2378	220	840	2732	308	240	130	220	308	90	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	84	2585	239	913	2970	0	261	141	239	335	98	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	281	2469	608	476	2833		190	616	275	482	579	258
Arrive On Green	0.08	0.38	0.38	0.14	0.44	0.00	0.11	0.17	0.17	0.10	0.16	0.16
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	84	2585	239	913	2970	0	261	141	239	335	98	26
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	2.6	44.0	12.5	15.8	50.5	0.0	12.2	3.9	16.8	7.4	2.7	1.6
Cycle Q Clear(g_c), s	2.6	44.0	12.5	15.8	50.5	0.0	12.2	3.9	16.8	7.4	2.7	1.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	281	2469	608	476	2833		190	616	275	482	579	258
V/C Ratio(X)	0.30	1.05	0.39	1.92	1.05		1.38	0.23	0.87	0.70	0.17	0.10
Avail Cap(c_a), veh/h	301	2469	608	476	2833		190	1435	640	653	1519	677
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	35.3	25.6	49.4	32.1	0.0	51.2	40.8	46.1	50.2	41.3	40.9
Incr Delay (d2), s/veh	0.2	31.9	0.2	420.6	31.4	0.0	199.3	0.1	3.3	0.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	21.3	4.5	34.4	23.9	0.0	16.0	1.7	6.7	3.1	1.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	67.3	25.8	470.1	63.4	0.0	250.5	40.9	49.5	51.1	41.4	40.9
LnGrp LOS	D	F	C	F	F		F	D	D	D	D	D
Approach Vol, veh/h		2908			3883			641			459	
Approach Delay, s/veh		63.4			159.1			129.4			48.4	
Approach LOS		E			F			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	56.7	16.8	25.7	22.0	50.2	18.0	24.5
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	49.8	14.9	46.3	15.8	44.0	12.2	49.0
Max Q Clear Time (g_c+I1), s	4.6	52.5	9.4	18.8	17.8	46.0	14.2	4.7
Green Ext Time (p_c), s	0.0	0.0	0.3	1.0	0.0	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	115.0
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

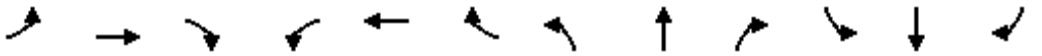
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	2854	304	3075	630	696	665	652
v/c Ratio	0.93	0.36	1.01	0.58	0.99	1.03	1.00
Control Delay	36.5	8.3	49.0	3.8	65.7	77.9	69.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	8.3	49.0	3.8	65.7	77.9	69.8
Queue Length 50th (ft)	589	49	~684	0	552	~592	~509
Queue Length 95th (ft)	646	110	#790	61	#828	#848	#783
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	3059	854	3059	1085	706	643	650
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.36	1.01	0.58	0.99	1.03	1.00

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱		↑↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	2626	280	0	2829	580	0	0	0	800	0	1052
Future Volume (veh/h)	0	2626	280	0	2829	580	0	0	0	800	0	1052
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	2854	304	0	3075	0				1268	0	716
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3072	757	0	3072					1496	0	666
Arrive On Green	0.00	0.48	0.48	0.00	0.48	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	2854	304	0	3075	0				1268	0	716
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	50.0	14.9	0.0	57.3	0.0				38.5	0.0	50.4
Cycle Q Clear(g_c), s	0.0	50.0	14.9	0.0	57.3	0.0				38.5	0.0	50.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3072	757	0	3072					1496	0	666
V/C Ratio(X)	0.00	0.93	0.40	0.00	1.00					0.85	0.00	1.08
Avail Cap(c_a), veh/h	0	3072	757	0	3072					1496	0	666
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	29.4	20.3	0.0	31.4	0.0				31.3	0.0	34.8
Incr Delay (d2), s/veh	0.0	5.8	0.5	0.0	16.4	0.0				4.5	0.0	57.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	18.7	5.2	0.0	23.5	0.0				16.9	0.0	29.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	35.3	20.8	0.0	47.8	0.0				35.8	0.0	91.8
LnGrp LOS	A	D	C	A	F					D	A	F
Approach Vol, veh/h		3158			3075						1984	
Approach Delay, s/veh		33.9			47.8						56.0	
Approach LOS		C			D						E	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		63.8				63.8		56.2				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		57.3				57.3		50.4				
Max Q Clear Time (g_c+I1), s		59.3				52.0		52.4				
Green Ext Time (p_c), s		0.0				5.3		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		44.4
HCM 6th LOS		D

Notes

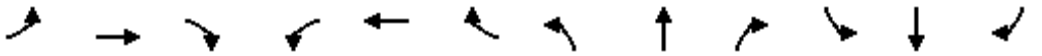
User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3185	539	3493	859	111	112	663
v/c Ratio	0.81	0.52	0.88	0.69	0.24	0.24	0.84
Control Delay	19.9	12.3	23.2	6.3	32.9	33.0	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	12.3	23.2	6.3	32.9	33.0	48.0
Queue Length 50th (ft)	489	157	594	50	67	67	252
Queue Length 95th (ft)	679	308	#823	213	116	116	328
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3955	1027	3955	1242	763	763	1280
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.52	0.88	0.69	0.15	0.15	0.52

Intersection Summary

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)	0	2930	496	0	3214	790	205	0	610	0	0	0
Future Volume (veh/h)	0	2930	496	0	3214	790	205	0	610	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3185	0	0	3493	859	223	0	663			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	4174		0	4174	1028	849	0	755			
Arrive On Green	0.00	0.65	0.00	0.00	0.65	0.65	0.24	0.00	0.24			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3185	0	0	3493	859	223	0	663			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	37.5	0.0	0.0	45.4	45.2	5.5	0.0	21.9			
Cycle Q Clear(g_c), s	0.0	37.5	0.0	0.0	45.4	45.2	5.5	0.0	21.9			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4174		0	4174	1028	849	0	755			
V/C Ratio(X)	0.00	0.76		0.00	0.84	0.84	0.26	0.00	0.88			
Avail Cap(c_a), veh/h	0	4179		0	4179	1029	1702	0	1514			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	13.3	0.0	0.0	14.7	14.7	33.7	0.0	39.9			
Incr Delay (d2), s/veh	0.0	0.9	0.0	0.0	1.7	6.3	0.1	0.0	1.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	11.1	0.0	0.0	13.6	14.6	2.4	0.0	8.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.2	0.0	0.0	16.4	21.0	33.8	0.0	41.3			
LnGrp LOS	A	B		A	B	C	C	A	D			
Approach Vol, veh/h		3185			4352			886				
Approach Delay, s/veh		14.2			17.3			39.4				
Approach LOS		B			B			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	77.1	31.7	77.1
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	70.7	52.0	70.7
Max Q Clear Time (g_c+I1), s	47.4	23.9	39.5
Green Ext Time (p_c), s	23.2	2.0	30.3

Intersection Summary	
HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt02_2038_PM_DL (Site Folder: INT-3_2038-2050_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 12 years

Lane Use and Performance

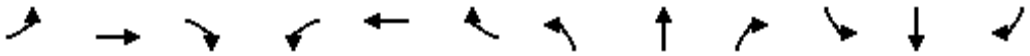
	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	43	1.0	43	1.0	674	0.065	100	6.0	LOS A	0.2	5.5	Full	520	0.0	0.0
Approach	43	1.0	43	1.0		0.065		6.0	LOS A	0.2	5.5				
East: WB - Classical Way															
Lane 1	447	1.0	447	1.0	1292	0.346	100	5.8	LOS A	1.9	48.3	Full	700	0.0	0.0
Lane 2[d]	447	1.0	447	1.0	1292	0.346	100	5.8	LOS A	1.9	48.3	Full	700	0.0	0.0
Approach	895	1.0	895	1.0		0.346		5.8	LOS A	1.9	48.3				
North: SB - B Street															
Lane 1[d]	136	1.0	136	1.0	694	0.196	100	7.4	LOS A	0.7	17.8	Full	1000	0.0	0.0
Approach	136	1.0	136	1.0		0.196		7.4	LOS A	0.7	17.8				
West: EB - Classical Way															
Lane 1	396	1.0	396	1.0	1292	0.306	100	5.4	LOS A	1.6	40.6	Full	1600	0.0	0.0
Lane 2[d]	396	1.0	396	1.0	1292	0.306	100	5.4	LOS A	1.6	40.6	Full	1600	0.0	0.0
Approach	791	1.0	791	1.0		0.306		5.4	LOS A	1.6	40.6				
All Vehicles	1865	1.0	1865	1.0		0.346		5.8	LOS A	1.9	48.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

PM Results

Intersection	Approach	Turning Movement	HIDE COLUMNS	HIDE COLUMNS	Volume (Vehicles)	Delay (veh/sec)	Approach Volume	Approach Delay (sec/veh)	Approach LOS	Average Queue Length	Maximum Queue Length
		TURNING MOVEMENT	QLEN	QLENMAX	VEHS(ALL)	VEHDELAY(ALL)					
Kammerer Rd & Lotz Pkwy	NB	NBL	28.5	127.3	117.0	49.8	830	36.8	D	94	344
		NBT	94.4	343.9	479.0	50.7					
		NBR	-	-	234.0	1.9					
	SB	SBL	105.4	512.1	602.0	41.9	1,418	31.5	C	105	512
		SBT	51.6	296.1	493.0	30.0					
		SBR	24.1	245.5	323.0	14.6					
	EB	EBL	195.1	588.9	428.0	101.1	1,741	47.6	D	195	589
		EBT	107.9	488.2	1,215.0	32.3					
		EBR	-	-	98.0	2.4					
	WB	WBL	62.1	208.4	334.0	45.9	2,081	54.7	D	959	1,652
		WBT	929.3	1,651.8	1,317.0	35.3					
		WBR	959.0	1,651.8	430.0	121.3					
		WBU									
						Overall Intersection	6,070	44.8	D		
Lotz Pkwy & Classical Way	NB	NBL	12.9	302.6	400.0	7.0	1,335	9.9	A	41	433
		NBL2	26.3	433.0	108.0	8.9					
		NBT	26.3	433.0	336.0	10.1					
		NBT2	40.5	366.1	411.0	12.7					
		NBR	40.5	366.1	80.0	11.4					
	SB	SBL	288.9	616.1	55.0	50.7	1,194	42.5	E	289	616
		SBT	277.1	616.1	876.0	44.7					
		SBR	265.3	611.1	263.0	33.4					
	EB	EBL	71.7	561.4	272.0	26.6	852	20.4	C	72	561
		EBT	71.7	561.4	79.0	25.8					
		EBR	39.7	385.5	501.0	16.1					
	WB	WBL	23.7	169.5	46.0	40.2	116	36.3	E	24	169
		WBT	23.7	169.5	47.0	35.6					
		WBR	23.7	169.5	23.0	30.0					
						Overall Intersection	3,497	24.5	C		
Main Entrance & Classical Way	NB	NBL	4.9	113.6	-	-	54	41.5	D	5	114
		NBT	4.9	113.6	-	-					
		NBR	4.9	113.6	54.0	41.5					
	SB	SBL	0.2	26.0	26.0	32.5	30	32.0	C	0	26
		SBT	0.2	24.6	-	-					
		SBR	0.2	26.0	4.0	28.7					
	EB	EBL	3.6	227.5	4.0	1.7	780	2.3	A	4	228
		EBT	1.8	227.5	776.0	2.3					
		EBR	0.0	14.4	-	-					
	WB	WBL	0.0	35.9	-	-	817	0.8	A	0	36
		WBT	0.0	36.1	772.0	0.8					
		WBR	0.0	16.7	45.0	0.6					
						Overall Intersection	1,681	3.4	A		

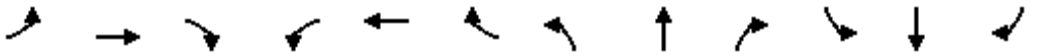


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	20	2160	87	707	2136	143	239	315	859	157	120	72
v/c Ratio	0.19	1.16	0.15	1.49	0.81	0.20	1.05	0.26	1.24	0.63	0.12	0.12
Control Delay	71.5	124.1	0.5	271.9	43.1	5.2	135.1	36.7	149.5	79.1	40.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	124.1	0.5	271.9	43.1	5.2	135.1	36.7	149.5	79.1	40.3	0.4
Queue Length 50th (ft)	19	~723	0	~490	572	0	~254	117	~877	78	46	0
Queue Length 95th (ft)	48	#795	0	#618	622	46	#434	158	#1138	118	73	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	106	1866	594	476	2630	733	227	1198	694	251	1002	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.16	0.15	1.49	0.81	0.20	1.05	0.26	1.24	0.63	0.12	0.12

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1987	80	650	1965	132	220	290	790	144	110	66
Future Volume (veh/h)	18	1987	80	650	1965	132	220	290	790	144	110	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	2160	87	707	2136	143	239	315	0	157	120	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	2426	598	647	3390	835	268	442		339	256	114
Arrive On Green	0.04	0.38	0.38	0.19	0.53	0.53	0.15	0.12	0.00	0.10	0.07	0.07
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	2160	87	707	2136	143	239	315	0	157	120	72
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.2	35.0	4.0	20.8	26.1	5.2	14.6	9.5	0.0	4.8	3.6	4.9
Cycle Q Clear(g_c), s	1.2	35.0	4.0	20.8	26.1	5.2	14.6	9.5	0.0	4.8	3.6	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	66	2426	598	647	3390	835	268	442		339	256	114
V/C Ratio(X)	0.30	0.89	0.15	1.09	0.63	0.17	0.89	0.71		0.46	0.47	0.63
Avail Cap(c_a), veh/h	144	2530	623	647	3390	835	309	1625		342	1359	606
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	32.5	22.8	45.2	18.6	13.7	46.3	46.8	0.0	47.3	49.5	50.1
Incr Delay (d2), s/veh	0.9	4.1	0.0	63.4	0.3	0.0	22.1	0.8	0.0	0.4	0.5	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	13.1	1.5	14.1	8.5	1.8	8.1	4.2	0.0	2.0	1.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	36.5	22.9	108.6	18.9	13.7	68.4	47.6	0.0	47.7	50.0	52.3
LnGrp LOS	D	D	C	F	B	B	E	D		D	D	D
Approach Vol, veh/h		2267			2986			554			349	
Approach Delay, s/veh		36.1			39.9			56.6			49.4	
Approach LOS		D			D			E			D	

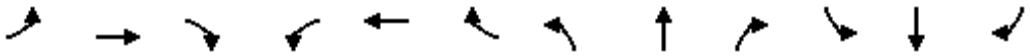
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	64.8	21.8	14.2	27.0	48.1	16.0	20.0
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	55.5	19.3	42.5	20.8	43.7	11.0	50.8
Max Q Clear Time (g_c+I1), s	3.2	28.1	16.6	6.9	22.8	37.0	6.8	11.5
Green Ext Time (p_c), s	0.0	12.3	0.1	0.6	0.0	4.9	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	40.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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

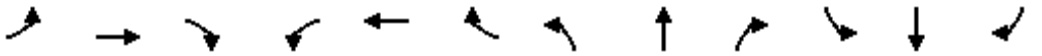


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	3001	174	326	2514	335	424	250	587	365	65	48
v/c Ratio	0.18	1.40	0.29	1.19	1.07	0.29	1.47	0.22	0.94	0.86	0.07	0.09
Control Delay	64.7	218.8	15.2	166.6	80.9	13.1	269.4	33.7	56.8	82.1	33.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	218.8	15.2	166.6	80.9	13.1	269.4	33.7	56.8	82.1	33.6	0.3
Queue Length 50th (ft)	21	~1099	41	~191	~814	44	~632	85	396	120	21	0
Queue Length 95th (ft)	43	#1191	105	#299	#910	89	#864	120	#621	#184	40	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	250	2142	603	275	2359	1162	288	1351	704	433	1265	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.40	0.29	1.19	1.07	0.29	1.47	0.19	0.83	0.84	0.05	0.08

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2761	160	300	2313	308	390	230	540	336	60	44
Future Volume (veh/h)	42	2761	160	300	2313	308	390	230	540	336	60	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	3001	174	326	2514	0	424	250	587	365	65	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	2032	501	262	2146		187	1282	572	412	1201	536
Arrive On Green	0.06	0.32	0.32	0.08	0.33	0.00	0.10	0.36	0.36	0.08	0.34	0.34
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	46	3001	174	326	2514	0	424	250	587	365	65	48
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	1.8	45.8	12.2	11.0	48.4	0.0	15.2	7.0	52.3	10.4	1.8	3.0
Cycle Q Clear(g_c), s	1.8	45.8	12.2	11.0	48.4	0.0	15.2	7.0	52.3	10.4	1.8	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	2032	501	262	2146		187	1282	572	412	1201	536
V/C Ratio(X)	0.23	1.48	0.35	1.24	1.17		2.27	0.20	1.03	0.89	0.05	0.09
Avail Cap(c_a), veh/h	238	2032	501	262	2146		187	1282	572	412	1201	536
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	49.6	38.1	67.0	48.3	0.0	64.9	31.9	46.3	65.9	32.4	32.8
Incr Delay (d2), s/veh	0.2	217.2	0.2	137.5	82.5	0.0	588.5	0.0	44.6	19.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	48.3	4.7	9.7	30.8	0.0	37.5	3.1	26.9	5.1	0.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.4	266.8	38.3	204.5	130.8	0.0	653.4	31.9	91.0	85.2	32.4	32.8
LnGrp LOS	E	F	D	F	F		F	C	F	F	C	C
Approach Vol, veh/h		3221			2840			1261			478	
Approach Delay, s/veh		251.6			139.3			268.4			72.8	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	54.6	17.7	58.1	17.2	52.0	21.0	54.8
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	46.8	11.9	52.3	11.0	45.8	15.2	49.0
Max Q Clear Time (g_c+I1), s	3.8	50.4	12.4	54.3	13.0	47.8	17.2	5.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	202.4
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

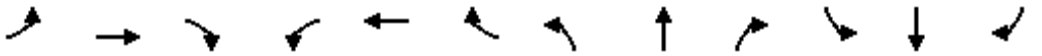
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	3495	458	2471	707	487	471	445
v/c Ratio	0.96	0.46	0.68	0.59	0.87	0.89	0.85
Control Delay	35.4	9.2	21.1	3.3	55.1	56.9	52.0
Queue Delay	3.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	9.2	21.1	3.3	55.1	56.9	52.0
Queue Length 50th (ft)	~821	97	426	0	381	369	326
Queue Length 95th (ft)	#961	185	483	56	532	#565	474
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	3626	1000	3626	1202	655	610	603
Starvation Cap Reductn	97	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.46	0.68	0.59	0.74	0.77	0.74

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱		↑↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	3215	421	0	2273	650	0	0	0	640	0	650
Future Volume (veh/h)	0	3215	421	0	2273	650	0	0	0	640	0	650
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	3495	458	0	2471	0				918	0	470
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3703	912	0	3703					1150	0	512
Arrive On Green	0.00	0.58	0.58	0.00	0.58	0.00				0.32	0.00	0.32
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	3495	458	0	2471	0				918	0	470
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	61.1	20.9	0.0	32.0	0.0				28.5	0.0	34.6
Cycle Q Clear(g_c), s	0.0	61.1	20.9	0.0	32.0	0.0				28.5	0.0	34.6
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3703	912	0	3703					1150	0	512
V/C Ratio(X)	0.00	0.94	0.50	0.00	0.67					0.80	0.00	0.92
Avail Cap(c_a), veh/h	0	3704	912	0	3704					1412	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	15.3	0.0	17.7	0.0				37.4	0.0	39.5
Incr Delay (d2), s/veh	0.0	6.1	0.6	0.0	0.5	0.0				2.2	0.0	15.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.6	6.9	0.0	10.7	0.0				12.5	0.0	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	30.0	16.0	0.0	18.2	0.0				39.5	0.0	54.5
LnGrp LOS	A	C	B	A	B					D	A	D
Approach Vol, veh/h		3953			2471						1388	
Approach Delay, s/veh		28.3			18.2						44.6	
Approach LOS		C			B						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		76.2				76.2		44.9				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		69.7				69.7		48.0				
Max Q Clear Time (g_c+I1), s		34.0				63.1		36.6				
Green Ext Time (p_c), s		30.6				6.6		2.5				

Intersection Summary		
HCM 6th Ctrl Delay		28.0
HCM 6th LOS		C

Notes

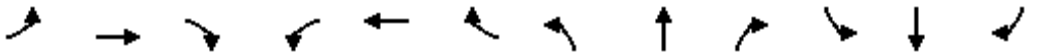
User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3235	946	3048	1000	69	70	924
v/c Ratio	0.92	0.97	0.87	0.78	0.12	0.12	0.92
Control Delay	32.5	46.1	29.2	7.1	27.9	27.9	53.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	46.1	29.2	7.1	27.9	27.9	53.0
Queue Length 50th (ft)	718	655	639	31	40	41	406
Queue Length 95th (ft)	824	#1028	736	182	76	76	508
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3522	971	3522	1285	679	679	1143
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.97	0.87	0.78	0.10	0.10	0.81

Intersection Summary

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)	0	2976	870	0	2804	920	128	0	850	0	0	0
Future Volume (veh/h)	0	2976	870	0	2804	920	128	0	850	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3235	0	0	3048	1000	139	0	924			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3741		0	3741	922	1131	0	1006			
Arrive On Green	0.00	0.58	0.00	0.00	0.58	0.58	0.32	0.00	0.32			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3235	0	0	3048	1000	139	0	924			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	51.5	0.0	0.0	45.8	70.7	3.4	0.0	34.1			
Cycle Q Clear(g_c), s	0.0	51.5	0.0	0.0	45.8	70.7	3.4	0.0	34.1			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3741		0	3741	922	1131	0	1006			
V/C Ratio(X)	0.00	0.86		0.00	0.81	1.08	0.12	0.00	0.92			
Avail Cap(c_a), veh/h	0	3741		0	3741	922	1524	0	1356			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	21.4	0.0	0.0	20.2	25.4	29.5	0.0	40.0			
Incr Delay (d2), s/veh	0.0	2.4	0.0	0.0	1.5	55.4	0.0	0.0	7.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	17.5	0.0	0.0	15.4	37.0	1.4	0.0	14.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	0.0	0.0	21.8	80.9	29.5	0.0	47.0			
LnGrp LOS	A	C		A	C	F	C	A	D			
Approach Vol, veh/h		3235			4048			1063				
Approach Delay, s/veh		23.8			36.4			44.7				
Approach LOS		C			D			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	77.2	44.4	77.2
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	70.7	52.0	70.7
Max Q Clear Time (g_c+I1), s	72.7	36.1	53.5
Green Ext Time (p_c), s	0.0	2.4	17.0

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

LANE SUMMARY

Site: 101 [INT-3_B Street at Classical_Alt02_2038_Wknd_Mid_DL (Site Folder: INT-3_2038-2050_Design Life Analysis)]

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 12 years

Lane Use and Performance

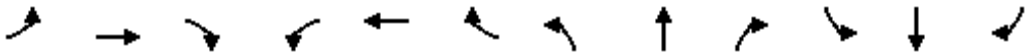
	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh	Dist] ft	Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
South: NB - B Street															
Lane 1[d]	43	1.0	43	1.0	663	0.066	100	6.1	LOS A	0.2	5.5	Full	520	0.0	0.0
Approach	43	1.0	43	1.0		0.066		6.1	LOS A	0.2	5.5				
East: WB - Classical Way															
Lane 1	479	1.0	479	1.0	1297	0.370	100	6.1	LOS A	2.1	53.4	Full	700	0.0	0.0
Lane 2[d]	479	1.0	479	1.0	1297	0.370	100	6.1	LOS A	2.1	53.4	Full	700	0.0	0.0
Approach	959	1.0	959	1.0		0.370		6.1	LOS A	2.1	53.4				
North: SB - B Street															
Lane 1[d]	201	1.0	201	1.0	671	0.299	100	9.1	LOS A	1.2	29.4	Full	1000	0.0	0.0
Approach	201	1.0	201	1.0		0.299		9.1	LOS A	1.2	29.4				
West: EB - Classical Way															
Lane 1	415	1.0	415	1.0	1204	0.345	100	6.2	LOS A	1.8	46.2	Full	1600	0.0	0.0
Lane 2[d]	415	1.0	415	1.0	1204	0.345	100	6.2	LOS A	1.8	46.2	Full	1600	0.0	0.0
Approach	830	1.0	830	1.0		0.345		6.2	LOS A	1.8	46.2				
All Vehicles	2034	1.0	2034	1.0		0.370		6.4	LOS A	2.1	53.4				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Stopline Delay: Geometric Delay is not included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: Siegloch M1 implied by US HCM 6 Roundabout Capacity Model.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

d Dominant lane on roundabout approach

Wknd Midday Results

Intersection	Approach	Turning Movement	HIDE COLUMNS	HIDE COLUMNS	Volume (Vehicles)	Delay (veh/sec)	Approach Volume	Approach Delay (sec/veh)	Approach LOS	Average Queue Length	Maximum Queue Length
		TURNING MOVEMENT	QLEN	QLENMAX	VEHS(ALL)	VEHDELAY(ALL)					
Kammerer Rd & Lotz Pkwy	NB	NBL	28.1	126.0	116.0	49.4	819	34.6	C	97	339
		NBT	97.0	338.7	471.0	47.0					
		NBR	-	-	232.0	2.1					
	SB	SBL	113.3	484.1	541.0	48.6	1,305	34.4	C	113	484
		SBT	54.8	375.0	497.0	30.6					
		SBR	15.7	210.7	267.0	12.5					
	EB	EBL	607.5	1,487.1	374.0	204.9	1,612	70.7	E	608	1,487
		EBT	225.1	1,113.5	1,145.0	32.4					
		EBR	-	-	93.0	3.4					
	WB	WBL	54.2	198.7	306.0	49.1	2,082	59.0	E	1,423	1,684
		WBT	1,414.6	1,683.0	1,287.0	37.3					
		WBR	1,423.2	1,683.6	489.0	122.6					
		WBU									
						Overall Intersection	5,818	53.3	D		
Lotz Pkwy & Classical Way	NB	NBL	32.3	317.8	494.0	7.1	1,329	8.0	A	36	391
		NBL2	16.7	390.6	109.0	6.3					
		NBT	16.7	390.6	290.0	8.0					
		NBT2	35.6	377.9	400.0	9.5					
		NBR	35.6	377.9	36.0	9.4					
	SB	SBL	250.9	609.7	25.0	36.7	963	56.4	F	352	615
		SBT	301.6	614.9	654.0	53.0					
		SBR	352.4	612.6	284.0	66.1					
	EB	EBL	20.5	275.0	305.0	12.6	970	12.0	B	37	385
		EBT	20.5	275.0	44.0	12.1					
		EBR	37.4	385.4	621.0	11.7					
	WB	WBL	63.0	278.3	27.0	74.2	111	73.4	F	63	278
		WBT	63.0	278.3	62.0	77.3					
		WBR	63.0	278.3	22.0	61.6					
						Overall Intersection	3,373	25.1	D		
Main Entrance & Classical Way	NB	NBL	5.0	134.0	6.0	52.7	54	41.9	D	5	134
		NBT	5.0	134.0	-	-					
		NBR	5.0	134.0	48.0	40.6					
	SB	SBL	3.1	63.3	171.0	61.0	185	60.2	E	3	63
		SBT	2.7	52.7	-	-					
		SBR	3.1	63.3	14.0	50.8					
	EB	EBL	39.9	432.5	-	-	755	9.2	A	40	433
		EBT	22.0	432.5	755.0	9.2					
		EBR	4.1	164.7	-	-					
	WB	WBL	15.1	136.9	186.0	2.4	945	1.3	A	15	143
		WBT	14.2	143.0	724.0	1.1					
		WBR	13.4	64.6	35.0	0.5					
						Overall Intersection	1,939	11.1	B		

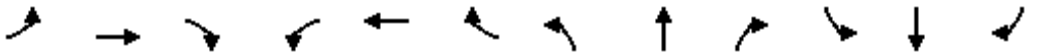


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	20	2122	87	707	2415	143	239	315	859	157	120	72
v/c Ratio	0.19	1.16	0.15	1.49	0.93	0.20	1.00	0.26	1.22	0.63	0.12	0.12
Control Delay	71.5	126.8	0.5	271.9	50.7	5.3	122.7	36.0	141.3	79.1	40.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	126.8	0.5	271.9	50.7	5.3	122.7	36.0	141.3	79.1	40.2	0.4
Queue Length 50th (ft)	19	~713	0	~490	~737	0	~238	116	~865	78	46	0
Queue Length 95th (ft)	48	#785	0	#618	#805	47	#424	157	#1126	118	73	0
Internal Link Dist (ft)		2447			1034			332			444	
Turn Bay Length (ft)	240		100	230		200	100		200	150		100
Base Capacity (vph)	106	1824	585	476	2588	724	238	1222	705	251	1005	584
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	1.16	0.15	1.49	0.93	0.20	1.00	0.26	1.22	0.63	0.12	0.12

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	1952	80	650	2222	132	220	290	790	144	110	66
Future Volume (veh/h)	18	1952	80	650	2222	132	220	290	790	144	110	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	20	2122	87	707	2415	143	239	315	0	157	120	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	2391	589	654	3367	830	269	442		343	259	115
Arrive On Green	0.04	0.37	0.37	0.19	0.52	0.52	0.15	0.12	0.00	0.10	0.07	0.07
Sat Flow, veh/h	1781	6434	1585	3456	6434	1585	1781	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	20	2122	87	707	2415	143	239	315	0	157	120	72
Grp Sat Flow(s),veh/h/ln	1781	1609	1585	1728	1609	1585	1781	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.2	34.0	4.0	20.8	31.5	5.2	14.5	9.4	0.0	4.7	3.6	4.9
Cycle Q Clear(g_c), s	1.2	34.0	4.0	20.8	31.5	5.2	14.5	9.4	0.0	4.7	3.6	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	67	2391	589	654	3367	830	269	442		343	259	115
V/C Ratio(X)	0.30	0.89	0.15	1.08	0.72	0.17	0.89	0.71		0.46	0.46	0.62
Avail Cap(c_a), veh/h	146	2499	616	654	3367	830	327	1675		346	1377	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	32.4	23.0	44.6	20.0	13.7	45.8	46.2	0.0	46.7	48.9	49.5
Incr Delay (d2), s/veh	0.9	4.0	0.0	59.2	0.6	0.0	19.5	0.8	0.0	0.4	0.5	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	12.7	1.5	13.7	10.3	1.8	7.8	4.2	0.0	2.0	1.6	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	36.4	23.0	103.8	20.6	13.8	65.2	47.0	0.0	47.1	49.4	51.6
LnGrp LOS	D	D	C	F	C	B	E	D		D	D	D
Approach Vol, veh/h		2229			3265			554			349	
Approach Delay, s/veh		36.0			38.3			54.9			48.8	
Approach LOS		D			D			D			D	

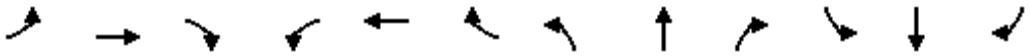
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	63.7	21.7	14.2	27.0	47.0	16.0	19.9
Change Period (Y+Rc), s	6.2	6.2	5.1	6.2	6.2	6.2	5.1	6.2
Max Green Setting (Gmax), s	9.0	54.5	20.2	42.6	20.8	42.7	11.0	51.8
Max Q Clear Time (g_c+I1), s	3.2	33.5	16.5	6.9	22.8	36.0	6.7	11.4
Green Ext Time (p_c), s	0.0	12.7	0.1	0.6	0.0	4.8	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	46	2963	174	326	2793	335	424	250	587	365	65	48
v/c Ratio	0.18	1.38	0.29	1.19	1.18	0.29	1.47	0.22	0.94	0.86	0.07	0.09
Control Delay	64.7	211.3	15.2	166.6	126.1	15.0	269.4	33.7	56.8	82.1	33.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.7	211.3	15.2	166.6	126.1	15.0	269.4	33.7	56.8	82.1	33.6	0.3
Queue Length 50th (ft)	21	~1077	41	~191	~970	52	~632	85	396	120	21	0
Queue Length 95th (ft)	43	#1170	105	#299	#1064	99	#864	120	#621	#184	40	0
Internal Link Dist (ft)		692			730			314			237	
Turn Bay Length (ft)	420		270	185		295	150		120	205		200
Base Capacity (vph)	250	2142	603	275	2359	1148	288	1351	704	433	1265	639
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	1.38	0.29	1.19	1.18	0.29	1.47	0.19	0.83	0.84	0.05	0.08

Intersection Summary

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

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	42	2726	160	300	2570	308	390	230	540	336	60	44
Future Volume (veh/h)	42	2726	160	300	2570	308	390	230	540	336	60	44
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	2963	174	326	2793	0	424	250	587	365	65	48
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	201	2032	501	262	2146		187	1282	572	412	1201	536
Arrive On Green	0.06	0.32	0.32	0.08	0.33	0.00	0.10	0.36	0.36	0.08	0.34	0.34
Sat Flow, veh/h	3456	6434	1585	3456	6434	2790	1781	3554	1585	5023	3554	1585
Grp Volume(v), veh/h	46	2963	174	326	2793	0	424	250	587	365	65	48
Grp Sat Flow(s),veh/h/ln	1728	1609	1585	1728	1609	1395	1781	1777	1585	1674	1777	1585
Q Serve(g_s), s	1.8	45.8	12.2	11.0	48.4	0.0	15.2	7.0	52.3	10.4	1.8	3.0
Cycle Q Clear(g_c), s	1.8	45.8	12.2	11.0	48.4	0.0	15.2	7.0	52.3	10.4	1.8	3.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	201	2032	501	262	2146		187	1282	572	412	1201	536
V/C Ratio(X)	0.23	1.46	0.35	1.24	1.30		2.27	0.20	1.03	0.89	0.05	0.09
Avail Cap(c_a), veh/h	238	2032	501	262	2146		187	1282	572	412	1201	536
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	65.2	49.6	38.1	67.0	48.3	0.0	64.9	31.9	46.3	65.9	32.4	32.8
Incr Delay (d2), s/veh	0.2	208.9	0.2	137.5	139.1	0.0	588.5	0.0	44.6	19.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	47.1	4.7	9.7	39.3	0.0	37.5	3.1	26.9	5.1	0.8	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.4	258.5	38.3	204.5	187.5	0.0	653.4	31.9	91.0	85.2	32.4	32.8
LnGrp LOS	E	F	D	F	F		F	C	F	F	C	C
Approach Vol, veh/h		3183			3119			1261			478	
Approach Delay, s/veh		243.6			189.2			268.4			72.8	
Approach LOS		F			F			F			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.6	54.6	17.7	58.1	17.2	52.0	21.0	54.8
Change Period (Y+Rc), s	6.2	6.2	5.8	5.8	6.2	6.2	5.8	5.8
Max Green Setting (Gmax), s	10.0	46.8	11.9	52.3	11.0	45.8	15.2	49.0
Max Q Clear Time (g_c+I1), s	3.8	50.4	12.4	54.3	13.0	47.8	17.2	5.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	216.3
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

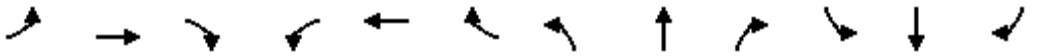
Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBT	EBR	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	3449	466	2528	707	564	539	519
v/c Ratio	1.00	0.48	0.73	0.60	0.92	0.97	0.92
Control Delay	44.0	9.8	24.2	3.5	61.5	68.9	59.8
Queue Delay	8.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.2	9.8	24.2	3.5	61.5	68.9	59.8
Queue Length 50th (ft)	~826	101	457	0	471	462	413
Queue Length 95th (ft)	#938	186	500	56	#705	#720	#643
Internal Link Dist (ft)	730		844			724	
Turn Bay Length (ft)		200		590			540
Base Capacity (vph)	3464	970	3464	1180	625	571	578
Starvation Cap Reductn	97	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.48	0.73	0.60	0.90	0.94	0.90

Intersection Summary

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

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱		↑↑↑↑	↱				↰	✣	↱
Traffic Volume (veh/h)	0	3173	429	0	2326	650	0	0	0	640	0	852
Future Volume (veh/h)	0	3173	429	0	2326	650	0	0	0	640	0	852
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	0	3449	466	0	2528	0				1020	0	579
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3450	850	0	3450					1315	0	585
Arrive On Green	0.00	0.54	0.54	0.00	0.54	0.00				0.37	0.00	0.37
Sat Flow, veh/h	0	6696	1585	0	6696	1585				3563	0	1585
Grp Volume(v), veh/h	0	3449	466	0	2528	0				1020	0	579
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585				1781	0	1585
Q Serve(g_s), s	0.0	69.7	25.1	0.0	39.0	0.0				32.9	0.0	47.2
Cycle Q Clear(g_c), s	0.0	69.7	25.1	0.0	39.0	0.0				32.9	0.0	47.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3450	850	0	3450					1315	0	585
V/C Ratio(X)	0.00	1.00	0.55	0.00	0.73					0.78	0.00	0.99
Avail Cap(c_a), veh/h	0	3450	850	0	3450					1315	0	585
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	30.1	19.8	0.0	23.0	0.0				36.2	0.0	40.7
Incr Delay (d2), s/veh	0.0	15.3	1.0	0.0	0.9	0.0				2.7	0.0	34.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	27.8	8.8	0.0	13.7	0.0				14.5	0.0	23.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	45.4	20.8	0.0	23.9	0.0				38.9	0.0	75.1
LnGrp LOS	A	D	C	A	C					D	A	E
Approach Vol, veh/h		3915			2528						1599	
Approach Delay, s/veh		42.5			23.9						52.0	
Approach LOS		D			C						D	

Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		76.2				76.2		53.8				
Change Period (Y+Rc), s		6.5				6.5		5.8				
Max Green Setting (Gmax), s		69.7				69.7		48.0				
Max Q Clear Time (g_c+I1), s		41.0				71.7		49.2				
Green Ext Time (p_c), s		25.6				0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	38.5
HCM 6th LOS	D

Notes

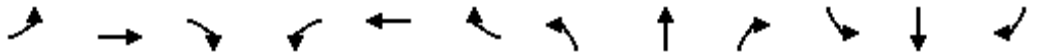
User approved volume balancing among the lanes for turning movement.

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

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR
Lane Group Flow (vph)	3233	901	3067	1000	89	89	924
v/c Ratio	0.96	0.96	0.91	0.79	0.14	0.14	0.89
Control Delay	35.4	43.3	30.7	7.9	24.4	24.4	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	43.3	30.7	7.9	24.4	24.4	44.6
Queue Length 50th (ft)	657	532	592	31	46	46	352
Queue Length 95th (ft)	#882	#933	#803	210	84	84	446
Internal Link Dist (ft)	844		408			614	
Turn Bay Length (ft)		75		340	180		170
Base Capacity (vph)	3382	937	3382	1267	760	760	1277
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.96	0.91	0.79	0.12	0.12	0.72

Intersection Summary

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)	0	2974	829	0	2822	920	164	0	850	0	0	0
Future Volume (veh/h)	0	2974	829	0	2822	920	164	0	850	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	1870	1870	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	0	3233	0	0	3067	1000	178	0	924			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	0	2	2	2	2	2			
Cap, veh/h	0	3628		0	3628	894	1147	0	1020			
Arrive On Green	0.00	0.56	0.00	0.00	0.56	0.56	0.32	0.00	0.32			
Sat Flow, veh/h	0	6696	1585	0	6696	1585	3563	0	3170			
Grp Volume(v), veh/h	0	3233	0	0	3067	1000	178	0	924			
Grp Sat Flow(s),veh/h/ln	0	1609	1585	0	1609	1585	1781	0	1585			
Q Serve(g_s), s	0.0	47.4	0.0	0.0	42.8	60.7	3.8	0.0	30.0			
Cycle Q Clear(g_c), s	0.0	47.4	0.0	0.0	42.8	60.7	3.8	0.0	30.0			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3628		0	3628	894	1147	0	1020			
V/C Ratio(X)	0.00	0.89		0.00	0.85	1.12	0.16	0.00	0.91			
Avail Cap(c_a), veh/h	0	3628		0	3628	894	1721	0	1531			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	20.6	0.0	0.0	19.6	23.5	26.1	0.0	34.9			
Incr Delay (d2), s/veh	0.0	3.2	0.0	0.0	2.1	68.3	0.0	0.0	4.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	15.9	0.0	0.0	14.1	35.9	1.6	0.0	11.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.8	0.0	0.0	21.6	91.8	26.1	0.0	39.1			
LnGrp LOS	A	C		A	C	F	C	A	D			
Approach Vol, veh/h		3233			4067			1102				
Approach Delay, s/veh		23.8			38.9			37.0				
Approach LOS		C			D			D				

Timer - Assigned Phs	2	4	6
Phs Duration (G+Y+Rc), s	67.2	40.5	67.2
Change Period (Y+Rc), s	6.5	5.8	6.5
Max Green Setting (Gmax), s	60.7	52.0	60.7
Max Q Clear Time (g_c+I1), s	62.7	32.0	49.4
Green Ext Time (p_c), s	0.0	2.6	11.2

Intersection Summary	
HCM 6th Ctrl Delay	32.8
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Kimley»Horn

Memorandum

To: Kari Zajac
Ascent Environmental

From: Chris Gregerson, P.E., T.E., PTOE, PTP
Tyler Mickelson, EIT

Re: ***New Zoo in Elk Grove – DRAFT VMT Analysis***
Elk Grove, California

Date: September 6, 2023

This memorandum documents a Senate Bill 743 (SB 743) analysis completed for the proposed New Zoo in Elk Grove Project ("Project" or "proposed Project") located in Elk Grove, California. The Project is proposing to relocate the existing Sacramento Zoo located in William Land Park to the City of Elk Grove.

With the passage of SB 743, Vehicle Miles Traveled (VMT) has become an indicator for determining if a new development will result in a "significant transportation impact" under the California Environmental Quality Act (CEQA). This memorandum summarizes the SB 743 VMT analysis and resultant findings for the Proposed Project.

Context of Analysis

SB 743 is an effort by the California legislature to improve California's sustainability and reduce greenhouse gas emissions through denser infill development, a reduction in single occupancy vehicles, improved mass transit, and other actions. VMT is widely accepted as a reliable proxy for evaluating Greenhouse Gas (GHG) and other transportation related impacts that the State is actively trying to address.

In January 2019, the California Natural Resources Agency finalized updates to the CEQA Guidelines including the incorporation of SB 743 modifications. The Guidelines' changes were approved by the Office of Administrative Law and are now in effect. Specific to SB 743, Section 15064.3(c) states, "The provisions apply statewide as of July 1, 2020."

To aid lead agencies with SB 743 implementation, the Governor's Office of Planning and Research (OPR) produced a VMT Guidelines[1] document that included detailed guidance about the variety of implementation questions they face with respect to shifting to a VMT metric.

The City of Elk Grove adopted their own updated Transportation Analysis Guidelines[2] in 2019, with a 2023 update pending City Council action in September 2023, which incorporate the change in transportation impact analysis resulting from SB 743. In addition, the Elk Grove General Plan[3] includes VMT policy that establishes significance thresholds for the CEQA analysis of future Projects. Per Section 2 of the City's Guidelines, the Project requires a traffic analysis because of its unique land uses and operating characteristics, as well as the VMT screening criteria showing that the Project does not screen out from

[1] *Technical Advisory on Evaluating Transportation Impacts in CEQA.* Governor's Office of Planning and Research, State of California. December 2018.
[2] *Transportation Analysis Guidelines.* City of Elk Grove. Adopted February 2019, Updated December 2019, and further Updated September 2023 Pending City Council Action.
[3] *City of Elk Grove General Plan*. City of Elk Grove. Adopted October 20, 2022.

VMT analysis. Therefore, a VMT analysis for the Project must be performed to determine it impacts against established City thresholds.

Methodology and Assumptions

The City's General Plan was reviewed to determine which land use designation would apply to the proposed Project for the purpose of determining its VMT threshold. The proposed Project has been identified as most similar to a regional commercial development that draws trips from a wide geographic area. While the Project site is designed for Parks and Recreation in the City's General Plan, this land use was not used in the analysis due to the annual attendance volume of 1.295 million far exceeds a regional park. According to Table 6-1 from the City's General Plan, the VMT threshold for regional commercial uses is 29.4 daily VMT per service population.

The City's VMT thresholds were developed using the City's version of SACOG's SACSIM19 model (Elk Grove model). Previous study[4] of the proposed Project concludes that the Elk Grove model does not include an analogous land use category that can reasonably represent the proposed Project's trip generation and trip distribution characteristics. Therefore, this study determined an acceptable off-model methodology for estimating Project VMT and its threshold of significance.

This study analyzes the Project using a net change significance criterion which compares the regional VMT production under existing conditions (with the Zoo located in Sacramento) to proposed Project conditions (with the Zoo relocated to Elk Grove). A significant impact would occur if there is a net increase in regional VMT under Project conditions when compared to the existing baseline.

As the VMT calculated for the Project using an off-model approach differs from the methodology used to develop the City's thresholds, a direct comparison cannot be made between the calculated VMT per service population for the proposed Project to the established City thresholds for the purpose identifying a significant VMT impact. However, for information purposes only, City thresholds are reported to show generally where the Project falls in comparison to these thresholds.

The proposed net change methodology and significance criterion are consistent with methods described in Table 10 and Table 11 of the City's guidelines in that this analysis:

- Forecasts VMT based on all the trips that have one end in the Project location;
- Calculates trips based on the product of number of trips and their respective trip length;
- Includes all Project trip types both external and internal to the City;
- Provides a full accounting of trip length;
- Reports total daily VMT for the purpose of assessing the Project against a total limit; and
- Analyzes the short-term VMT impacts expected when the Project opens.

The quantitative analysis performed for determining the existing and proposed Project VMT is based on data provided to Kimley-Horn by the Sacramento Zoological Society and the City, which is included in Attachment A. Average daily trip length, number of trips, and VMT for the existing zoo were calculated by:

- Selecting a representative sample of existing zoo patrons and employees,
- Mapping anonymized home ZIP code data for the representative sample of patrons and employees in TransCAD software,
- Converting all ZIP code polygons into centroid points assuming an equal distribution of zoo visitors from throughout the ZIP code and to provide a point for TransCAD to route trips from/to,

[4] *Zoo Traffic Analysis Support – Data Collection Memorandum.* Fehr and Peers. December 9, 2021.

- Determining the driving distance between the home ZIP code centroid and existing zoo for each patron and employee within the representative sample using TransCAD shortest path algorithms,
- Calculating the weighted average trip length of the representative sample,
- Identifying the average daily visits to the existing zoo from the annual patron and attendance data, and
- Multiplying twice the average trip length by the average daily visits from each ZIP code for total daily VMT.

Average daily trip length, number of trips, and VMT for the proposed Project were calculated by:

- Developing a distribution of the share of existing representative sample of the annual zoo visitors and the distance from their home ZIP code to the existing zoo, calculated in 5-mile increments,
- Redistributing existing zoo visitors to new home ZIP codes based on the 5-mile increment distribution and new proposed Project location in Elk Grove,
- Determining the driving distance between new home ZIP code and proposed Project for each patron and employee within the redistributed representative sample using TransCAD shortest path algorithms and directly proportioning patrons assigned to each ZIP code within each 5-mile bin based on the inverse distance of the patrons'/employees' new ZIP code to the proposed Project location,
- Scaling the total number of the estimated visits from the redistributed representative population to represent the average daily visits to the relocated zoo holding the total number of annual visits constant between existing and proposed Project conditions,
- Calculating the weighted average trip length of the visiting patrons and employees, and
- Multiplying twice the average trip length by the average daily visits to determine total daily VMT.

The difference in total daily VMT between existing conditions and proposed Project conditions was used to assess any impacts caused by the proposed Project.

VMT Analysis and Results

Average daily visitor and employee VMT were calculated for the existing Sacramento Zoo and are presented in **Table 1**. As shown in **Table 1**, the estimated total daily visitor VMT is 10,686 and the estimate total daily employee VMT is 3,485. This results in a total daily existing Sacramento Zoo VMT of 14,171. Trip tables and other VMT calculation data for existing conditions are included in **Attachment B**.

Average daily visitor and employee VMT were calculated for the proposed Project opening year conditions and are presented in **Table 2**. As shown in **Table 2**, the estimated total daily visitor VMT is 11,713 and the estimate total daily employee VMT is 3,627. This results in a total daily proposed Project opening year VMT of 15,339. Trip tables and other VMT calculation data for proposed Project conditions are included in **Attachment B**.

Table 3 summarizes the net change in VMT between Existing Conditions and Existing plus Proposed Project Conditions holding annual attendance constant. The estimated total daily visitor VMT is anticipated to increase by 1,027 VMT and the estimated total daily employee VMT is anticipated to increase by 142 VMT. This results in a total increase in VMT of 1,168 daily VMT, or an 8.2-percent increase compared to Existing Conditions.

Table 1 – Existing Sacramento Zoo VMT

VMT Inputs and Calculation	Existing Conditions
Total Annual Attendance (2019)	508,429
Average Daily Attendance	1,393
Average Vehicle Occupancy	3.0
Average Daily Visitor Vehicle Trips	926
Average Visitor Trip Length (mi)	11.5
Daily Visitor VMT	**10,686**
Total Employees	148
Average Daily Employee Vehicle Trips	296
Average Employee Commute Length (mi)	11.8
Daily Employee VMT	**3,485**
Total Daily VMT	**14,171**
Service Population	**1,541**
Daily VMT per Service Population	**9.2**

Table 2 – Proposed Elk Grove Zoo Project VMT (Opening Year)

VMT Inputs and Calculation	Proposed Project OY
Projected Annual Attendance (Opening Year)	508,429
Projected Average Daily Attendance (Opening Year)	1,393
Average Vehicle Occupancy	3.0
Average Daily Visitor Vehicle Trips	926
Average Visitor Trip Length (mi)	12.7
Daily Visitor VMT	**11,713**
Total Employees	148
Average Daily Employee Vehicle Trips	296
Average Employee Commute Length (mi)	12.3
Daily Employee VMT	**3,627**
Total Daily VMT	**15,339**
Service Population	**1,541**
Daily VMT per Service Population	**10.0**

Table 3 – Change between Existing and Proposed Project VMT (Opening Year)

VMT Inputs and Calculation	Δ (Proposed Project - Existing)
Change in Average Visitor Trip Length (mi)	1.1
Change in Daily Visitor VMT	**1,027**
Change in Average Employee Commute Length (mi)	0.5
Change in Daily Employee VMT	**142**
Change in Total Daily VMT	**1,168**
Percent Change in Total daily VMT	**8.2%**
Change in Daily VMT per Service Population	**0.8**

Buildout Conditions

For opening year, the analysis only considers the relocation of the zoo rather than any expansion meaning that the same number of employees and visitors continue in the new location. However, based on a feasibility study completed for the Project[5], the zoo plans to eventually increase employment from the existing 148 employees to a total of 300 employees and anticipates annual attendance to increase to 1.295 million at full buildout as its stabilized annual attendance. Thus, an additional analysis was completed that considered the full buildout of the Project. For this analysis scenario, average vehicle occupancy, visitor trip length, employee mode split, and employee commute length were assumed to remain the same as opening year conditions. This is a conservative assumption for analysis purposes because as Elk Grove develops it is likely the average trip length of visitors and employees will shorten due to planned development near the Project, as well as the availability of transit, bike and pedestrian facilities planned near the Project will allow for a greater non-auto mode share that will result in fewer auto trips.

Under the full buildout condition, average daily visitor and employee VMT were calculated for the proposed Project and the results are presented in Table 4. As shown in Table 4, the estimated total daily visitor VMT at buildout is 29,833 VMT and the estimated total daily employee VMT is 7,351 VMT. This results in a total daily proposed Project buildout VMT of 37,185 VMT or 9.7 daily VMT per service population. This represents an increase of 23,014 daily VMT compared to Existing Conditions.

The City's General Plan VMT thresholds are currently proposed to be updated pending adoption by the City Council in September 2023. Based on these new thresholds, the total proposed VMT limit for the City of Elk Grove will be 8,039,802 daily VMT. The Proposed Zoo at buildout is anticipated to produce 37,185 daily VMT, or 0.5-percent of the allowed daily VMT for the City. In addition, the Proposed Zoo at buildout would produce 9.7 daily VMT per service population compared to the City's updated threshold for regional commercial development of 29.4 daily VMT per service population.

[5] *Feasibility Study for a New Zoo in Elk Grove – Final Report*. Relevant Strategies and Solutions. February 28, 2022.

Table 4 –Proposed Elk Grove Zoo VMT (Project Buildout)

VMT Inputs and Calculation	Proposed Project BO
Total Annual Attendance	1,295,000
Average Daily Attendance	3,548
Average Vehicle Occupancy	3.0
Average Daily Visitor Vehicle Trips	2,357
Average Visitor Trip Length (mi)	12.7
Daily Visitor VMT	**29,833**
Total Employees	300
Average Daily Employee Vehicle Trips	600
Average Employee Commute Length (mi)	12.3
Daily Employee VMT	**7,351**
Total Daily VMT	**37,185**
Service Population	**3,848**
Daily VMT per Service Population	**9.7**

VMT Mitigation

As noted above, once the Project is relocated there will be an observed increase in regional VMT both when considering the relocation of the zoo and when considering full buildout of the proposed Project as it is expected that the average trip length of patrons and employees will increase compared to Existing Conditions. Therefore, the proposed Project must mitigate this increase in VMT to at or below existing conditions to reduce the identified significant impact to a less than significant level.

To reduce the identified VMT impact, the Project should work with the City of Elk Grove to implement one or more of the following options that individually or combined will reduce the VMT produced by the proposed Project by at least 7.6-percent under opening year (relocation) conditions and 61.9-percent under full buildout conditions to achieve a daily VMT equal to, or below, Existing Conditions. In addition, the Project should work with the City of Elk Grove to ensure that the following mitigation measures are consistent with VMT Reduction Measures B and C in Table 12 of the City's guidelines:

- Increase vehicle occupancy of attending patrons: Designated carpool parking would encourage carpooling and reduce the number of vehicles traveling to and from the proposed project. Based on member household visit data and member attendance data provided by the Project applicant, the estimated average vehicle occupancy of the existing zoo visitors is 3.0 persons per vehicle. An increase in average vehicle occupancy from 3.0 to 3.35 would reduce the average daily visitor vehicles trips to 832. This would result in a proposed Project average daily VMT generation of 14,151 and bring the proposed Project below the 14,171 daily VMT produced under Existing Conditions. This would mitigate the proposed Project's VMT impact to a less than significant level under opening year (relocation) conditions but would not reduce the proposed Project VMT impacts under full buildout conditions.
- Provide local transit stop: Currently Sacramento Regional Transit District (SacRT) bus Route E110 travels along Lotz Parkway, adjacent to the proposed Project site but does not contain a transit stop in the vicinity of the proposed Project. If a bus stop was provided, in combination with incentives to travel to the proposed Project by transit such as reduced cost to visit using transit, the number of vehicle trips to and from the proposed Project could be reduced. A 10-percent

non-auto mode split would result in a 7.6-percent reduction in proposed Project VMT. This reduction in Project VMT would reduce the identified significant impact to less than significant under opening year (relocation) conditions but would not reduce the proposed Project VMT impacts under full buildout conditions. While it is unlikely the Project could increase its non-auto mode split that drastically, California Air Pollution Control Officers Association (CAPCOA) GHG emission reduction guidelines measure T-9 suggests that the Project has the potential to reduce VMT by up to 5.5-percent as long as the Project is proximate to a high-quality transit stop and reduces transit fare.

Trip tables and VMT calculation data for mitigated conditions are included in **Attachment B**. Note that until mitigation measures are identified and implemented in coordination with the City of Elk Grove and a Mitigation and Monitoring Reporting Plan (MMRP) is produced, the proposed Project's identified significant impact will remain **significant and unavoidable**.

Horizon Year Qualitative Discussion

Per City of Elk Grove guidelines, development projects that are consistent with the General Plan are expected to rely on the General Plan cumulative traffic analysis and EIR conclusions. The Project is not included as a use in the General Plan or its DEIR and therefore must demonstrate that the Project VMT generation under Cumulative conditions meets goals and policy defined by the City. However, as mentioned above, analysis of the proposed Project under a horizon year general plan buildout scenario is only possible using the City's travel demand model. However, this methodology was identified as too limited in its ability to represent the unique trip-making characteristics of the Project to provide a robust analysis of the impact of the proposed Project. Therefore, this qualitative discussion serves to provide insight into the impact of the proposed Project under Horizon Year conditions using the analysis under baseline conditions as a reference point.

Review of Chapter 4 of the City's General plan defines major growth areas. Specifically, the West Study Area, South Study Area, and East Study Area as shown in *Figure 4-3 Study Area Boundaries* of the General Plan, are all closer to the proposed Project location than existing residential and employment uses. It is important to note that the southern part of the City of Elk Grove, particularly in the immediate vicinity of the proposed Project, is mostly vacant, but beginning to develop. It is expected that in the future, the number of zoo patrons living close to the proposed Project will increase as the West Study Area, South Study Area and East Study Area are built out. The increase in homes, retail, and employment in the immediate vicinity of the proposed Project will result in shorter average trip lengths for visitors when compared to Opening Year.

Under Existing Conditions, the Project is in a fully developed area of Sacramento and there is a total of nine ZIP Codes with a centroid within 5 miles of the Sacramento Zoo. When the zoo relocates, there will initially only be one ZIP Code within 5 miles of the proposed Project location (its own ZIP Code). This dynamic is a simple metric that shows that the City of Elk Grove is still developing in the vicinity of the proposed Project and that the zoo is relocating to a part of the City that has the highest development potential. Therefore, it is expected that the VMT impact of the Project will be most acute under opening year conditions where if mitigated, will only become less of an impact under horizon year general plan buildout on a per visitor basis. However, due to the increase in annual attendance once the Project is built out the daily VMT will still be much greater when compared to Existing conditions. Therefore, consistent with the VMT analysis of the proposed Project under Existing Conditions, until mitigation measures are identified and implemented in coordination with the City of Elk Grove and a Mitigation and Monitoring Reporting Plan (MMRP) is produced, the Project's identified significant impact will remain **significant and unavoidable** under Horizon Year conditions.

Findings

Based on the results of this analysis, the following findings are made:

- Under Existing conditions, the estimated total daily visitor VMT is 10,686 VMT and the estimated total daily employee VMT is 3,485 VMT. This results in a total daily VMT of 14,171 VMT under Existing conditions.
- Under proposed Project opening year conditions, when only the relocation of the zoo is considered, the estimated total daily visitor VMT is 11,713 VMT and the estimate total daily employee VMT is 3,627 VMT. This results in a total daily proposed Project VMT of 15,399 VMT under proposed Project opening year conditions.
- Under proposed Project buildout conditions, the estimated total daily visitor VMT is 29,833 VMT and the estimated total daily employee VMT is 7,351 VMT. This results in a total daily proposed Project buildout VMT of 37,185 VMT.
- The estimated total daily visitor VMT is anticipated to increase by 1,027 and the estimated total daily employee VMT is anticipated to increase by 142 under opening year (relocation) conditions. This results in a total increase in proposed Project VMT of 1,168 daily VMT, or an 8.2-percent increase in daily VMT under opening year (relocation) conditions. **This is a significant impact**.
- The estimated total daily visitor VMT at buildout is 29,833 VMT and the estimated total daily employee VMT is 7,351 VMT. This results in a total daily proposed Project buildout VMT of 37,185 VMT. **This is a significant impact** that would require a 61.9-pecernt decrease in proposed Project buildout VMT to mitigate.
- The proposed Project should work with the City of Elk Grove to employ mitigation strategies such as carpooling incentives and/or transit connectivity to decrease VMT generation of the proposed Project. If these methods are able to reduce the proposed Project's VMT by 8.2-percent or more, then it is expected the proposed Project would result in a less than significant impact for VMT under opening year (relocation) conditions. However, until mitigation measures are identified and implemented in coordination with the City of Elk Grove and a Mitigation and Monitoring Reporting Plan (MMRP) is produced, **the Project's identified significant impact will remain significant and unavoidable**.
- There are no identified mitigation strategies that will reduce the proposed Project's daily VMT by 61.9-percent as identified under buildout conditions. Therefore, under buildout conditions, **the Project's identified significant impact will remain significant and unavoidable**.
- The City's General Plan VMT thresholds are currently proposed to be updated pending adoption by the City Council in September 2023. Based on these new thresholds, the total proposed VMT limit for the City of Elk Grove will be 8,039,802 daily VMT. The Proposed Zoo at buildout is anticipated to produce 37,185 daily VMT, or 0.5-percent of the allowed daily VMT for the City. In addition, the Proposed Zoo at buildout would produce 9.7 daily VMT per service population compared to the City's updated threshold for regional commercial development of 29.4 daily VMT per service population.
- As long-term development in Elk Grove continues, it is expected that the average trip distance produced by visitors to the proposed Project during opening year would decrease as general plan buildout predicts the highest growth in the city to occur proximate to the proposed Project site. However, as the Project will build out and increase annual attendance to approximately 1.295 million annual visitors at stabilized attendance levels until mitigation measures are identified and implemented in coordination with the City of Elk Grove and a Mitigation and Monitoring Reporting Plan (MMRP) is produced, the Project's identified significant impact will remain **significant and unavoidable** under Horizon Year conditions.

Attachments

Attachment A – Annualized Ticket Sale Data and Anonymized ZIP Code Data for Zoo Visitors
Attachment B – VMT and VMT Mitigation Calculations, Tables, and Charts

Attachment A

Annualized Ticket Sale Data and Anonymized ZIP Code Data for Zoo Visitors

Attachment A1
2019 Attendance

Date	Total Attendance	Member Attendance	Comments
1/1/2019	1,609	505	New Year's Day
1/2/2019	1,476	503	
1/3/2019	1,338	393	
1/4/2019	1,376	522	
1/5/2019	129	32	
1/6/2019	51	25	
1/7/2019	332	167	
1/8/2019	136	60	
1/9/2019	202	90	
1/10/2019	315	152	
1/11/2019	424	169	
1/12/2019	1,978	766	
1/13/2019	1,793	698	
1/14/2019	355	126	
1/15/2019	21	8	
1/16/2019	121	23	
1/17/2019	126	49	
1/18/2019	351	104	
1/19/2019	2,089	691	
1/20/2019	436	148	
1/21/2019	2,695	1,100	MLKJ Day
1/22/2019	476	203	
1/23/2019	525	232	
1/24/2019	631	264	
1/25/2019	707	268	
1/26/2019	2,601	804	
1/27/2019	2,014	505	
1/28/2019	672	242	
1/29/2019	608	293	
1/30/2019	485	200	
1/31/2019	689	238	
2/1/2019	496	221	
2/2/2019	404	131	
2/3/2019	170	53	
2/4/2019	127	60	
2/5/2019	256	107	
2/6/2019	484	171	
2/7/2019	430	145	
2/8/2019	348	131	
2/9/2019	370	185	
2/10/2019	1,480	606	
2/11/2019	1,045	413	
2/12/2019	266	117	
2/13/2019	15	11	
2/14/2019	97	29	
2/15/2019	262	117	President's Day
2/16/2019	1,358	572	
2/17/2019	1,617	487	
2/18/2019	3,458	1,421	
2/19/2019	1,017	282	
2/20/2019	833	210	Half Price Day
2/21/2019	725	250	

Total Attendance (2019)	508,429
Member Attendance (2019)	127,954
% Members	25%

2/22/2019	1,247	407	
2/23/2019	3,375	685	
2/24/2019	1,966	682	
2/25/2019	169	76	
2/26/2019	15	4	
2/27/2019	64	22	
2/28/2019	353	135	
3/1/2019	993	269	
3/2/2019	197	63	
3/3/2019	654	272	
3/4/2019	682	328	
3/5/2019	353	39	
3/6/2019	234	37	
3/7/2019	518	168	
3/8/2019	1,004	345	
3/9/2019	743	239	
3/10/2019	2,544	773	
3/11/2019	889	265	
3/12/2019	776	218	
3/13/2019	666	180	
3/14/2019	904	279	
3/15/2019	1,861	380	
3/16/2019	4,194	934	
3/17/2019	3,621	900	
3/18/2019	1,580	365	
3/19/2019	1,287	292	
3/20/2019	318	73	
3/21/2019	1,398	390	
3/22/2019	915	167	
3/23/2019	2,841	605	
3/24/2019	3,620	1,018	
3/25/2019	509	126	
3/26/2019	1,348	206	
3/27/2019	304	69	
3/28/2019	958	165	
3/29/2019	2,622	503	
3/30/2019	4,388	1,218	
3/31/2019	4,143	892	
4/1/2019	1,449	348	
4/2/2019	625	67	
4/3/2019	1,446	257	
4/4/2019	1,052	186	
4/5/2019	832	73	
4/6/2019	2,177	486	
4/7/2019	3,477	819	
4/8/2019	1,159	333	
4/9/2019	1,409	267	
4/10/2019	1,003	243	
4/11/2019	2,150	290	
4/12/2019	1,962	305	
4/13/2019	3,396	705	
4/14/2019	5,341	590	ZooZoom
4/15/2019	727	201	
4/16/2019	2,254	545	
4/17/2019	3,405	799	
4/18/2019	3,162	789	
4/19/2019	3,030	706	
4/20/2019	4,297	1,153	EGGStravaganZOO

4/21/2019	1,828	248	Easter
4/22/2019	1,974	464	
4/23/2019	1,845	385	
4/24/2019	1,675	295	
4/25/2019	1,557	305	
4/26/2019	2,487	366	
4/27/2019	4,610	1,521	Star Wars Day
4/28/2019	3,077	624	
4/29/2019	1,137	381	
4/30/2019	1,728	218	
5/1/2019	1,721	235	
5/2/2019	1,917	321	
5/3/2019	2,810	294	
5/4/2019	2,898	470	
5/5/2019	2,852	667	
5/6/2019	1,058	265	
5/7/2019	2,239	191	
5/8/2019	1,695	245	
5/9/2019	2,056	248	
5/10/2019	2,608	251	
5/11/2019	2,626	512	
5/12/2019	3,305	618	Mother's Day
5/13/2019	1,052	244	
5/14/2019	1,813	220	
5/15/2019	850	50	
5/16/2019	990	63	
5/17/2019	2,792	268	
5/18/2019	760	296	Wine and Brew
5/19/2019	435	145	
5/20/2019	1,176	249	
5/21/2019	1,105	82	
5/22/2019	1,085	240	
5/23/2019	2,036	338	
5/24/2019	2,912	394	
5/25/2019	3,324	698	
5/26/2019	1,604	424	
5/27/2019	3,708	1,033	
5/28/2019	1,207	242	
5/29/2019	1,529	278	
5/30/2019	2,080	305	
5/31/2019	2,224	315	
6/1/2019	2,217	492	
6/2/2019	2,299	557	
6/3/2019	1,196	315	
6/4/2019	1,053	227	
6/5/2019	1,096	149	
6/6/2019	999	319	
6/7/2019	3,356	495	Dreamnight
6/8/2019	2,192	439	
6/9/2019	1,842	537	
6/10/2019	599	129	
6/11/2019	486	170	
6/12/2019	1,242	182	
6/13/2019	1,000	294	
6/14/2019	1,454	416	
6/15/2019	2,288	501	
6/16/2019	2,266	471	Father's Day
6/17/2019	1,019	281	

6/18/2019	789	233	
6/19/2019	913	262	
6/20/2019	1,477	366	Member Evening
6/21/2019	1,664	416	
6/22/2019	2,369	532	
6/23/2019	1,784	384	
6/24/2019	978	300	
6/25/2019	984	347	
6/26/2019	1,880	562	
6/27/2019	1,660	472	
6/28/2019	1,711	452	
6/29/2019	2,653	539	
6/30/2019	2,238	264	
7/1/2019	1,297	405	
7/2/2019	1,350	394	
7/3/2019	1,299	319	
7/4/2019	2,574	223	Independence Day
7/5/2019	2,998	349	
7/6/2019	2,303	437	
7/7/2019	2,135	563	
7/8/2019	1,631	511	
7/9/2019	1,433	468	
7/10/2019	1,150	391	
7/11/2019	1,226	354	
7/12/2019	1,195	325	
7/13/2019	1,648	323	
7/14/2019	1,641	395	
7/15/2019	988	268	
7/16/2019	975	258	
7/17/2019	1,275	310	
7/18/2019	1,169	292	
7/19/2019	1,793	383	
7/20/2019	2,002	415	
7/21/2019	1,964	449	
7/22/2019	873	285	
7/23/2019	940	235	
7/24/2019	734	207	
7/25/2019	1,180	191	Member Evening
7/26/2019	1,070	236	
7/27/2019	1,277	243	
7/28/2019	879	208	
7/29/2019	943	336	
7/30/2019	1,352	399	
7/31/2019	1,012	353	
8/1/2019	1,092	310	
8/2/2019	1,293	404	
8/3/2019	1,620	333	
8/4/2019	1,881	405	
8/5/2019	927	238	
8/6/2019	1,079	279	
8/7/2019	1,527	342	
8/8/2019	1,414	433	Member Evening
8/9/2019	1,532	458	
8/10/2019	2,304	391	
8/11/2019	2,263	486	
8/12/2019	985	327	
8/13/2019	660	209	
8/14/2019	437	140	

8/15/2019	388	98	
8/16/2019	532	147	
8/17/2019	1,472	452	Ice Cream Safari
8/18/2019	2,351	716	
8/19/2019	954	372	
8/20/2019	664	253	
8/21/2019	622	225	
8/22/2019	1,123	199	
8/23/2019	769	262	
8/24/2019	1,752	381	
8/25/2019	1,452	382	
8/26/2019	410	153	
8/27/2019	390	129	
8/28/2019	555	200	
8/29/2019	633	219	
8/30/2019	822	310	
8/31/2019	2,344	599	
9/1/2019	2,297	417	
9/2/2019	2,249	576	
9/3/2019	474	162	
9/4/2019	438	149	
9/5/2019	420	181	
9/6/2019	723	232	
9/7/2019	2,501	725	
9/8/2019	2,070	626	
9/9/2019	1,082	256	
9/10/2019	613	210	
9/11/2019	537	216	
9/12/2019	640	181	
9/13/2019	871	266	
9/14/2019	1,332	360	Wild Affair
9/15/2019	2,344	616	
9/16/2019	363	112	
9/17/2019	605	225	
9/18/2019	517	120	
9/19/2019	779	242	
9/20/2019	1,166	300	
9/21/2019	3,575	853	Deaf Awareness Day
9/22/2019	2,732	928	
9/23/2019	811	310	
9/24/2019	623	294	
9/25/2019	710	228	
9/26/2019	760	219	
9/27/2019	1,246	517	Dinos after Dark
9/28/2019	2,602	707	Dinos after Dark
9/29/2019	2,569	825	
9/30/2019	835	273	
10/1/2019	525	227	
10/2/2019	950	256	
10/3/2019	813	239	
10/4/2019	1,269	386	
10/5/2019	2,585	695	
10/6/2019	2,074	580	
10/7/2019	1,127	363	
10/8/2019	757	280	
10/9/2019	789	225	
10/10/2019	1,009	245	
10/11/2019	1,275	369	

10/12/2019	2,337	621	
10/13/2019	2,212	694	
10/14/2019	1,199	410	
10/15/2019	807	322	
10/16/2019	1,001	321	
10/17/2019	957	273	
10/18/2019	1,157	361	
10/19/2019	2,566	769	
10/20/2019	2,238	822	
10/21/2019	738	262	
10/22/2019	871	234	
10/23/2019	671	260	
10/24/2019	1,009	233	
10/25/2019	893	271	
10/26/2019	3,806	0	Boo at the Zoo
10/27/2019	2,936	0	Boo at the Zoo
10/28/2019	853	223	
10/29/2019	949	201	
10/30/2019	645	197	
10/31/2019	681	179	
11/1/2019	1,179	319	
11/2/2019	2,509	732	
11/3/2019	2,452	779	
11/4/2019	734	270	
11/5/2019	903	275	
11/6/2019	874	199	
11/7/2019	841	252	
11/8/2019	1,418	391	
11/9/2019	3,037	741	
11/10/2019	3,225	939	
11/11/2019	3,806	1,342	
11/12/2019	833	302	
11/13/2019	850	299	
11/14/2019	563	216	
11/15/2019	942	320	
11/16/2019	2,849	767	
11/17/2019	2,668	854	
11/18/2019	732	263	
11/19/2019	548	221	
11/20/2019	497	134	
11/21/2019	622	219	
11/22/2019	962	292	
11/23/2019	2,334	635	
11/24/2019	2,074	610	
11/25/2019	1,724	542	
11/26/2019	657	264	
11/27/2019	470	220	
11/28/2019	0	0	Thanksgiving, Zoo Closed
11/29/2019	1,804	483	
11/30/2019	563	198	
12/1/2019	66	19	
12/2/2019	64	21	
12/3/2019	432	127	
12/4/2019	16	5	
12/5/2019	277	142	
12/6/2019	404	176	
12/7/2019	330	158	
12/8/2019	467	233	

12/9/2019	353	134	
12/10/2019	544	179	
12/11/2019	393	99	
12/12/2019	202	96	
12/13/2019	164	49	
12/14/2019	1,854	946	
12/15/2019	1,120	475	
12/16/2019	413	164	
12/17/2019	482	172	
12/18/2019	96	31	
12/19/2019	352	115	
12/20/2019	533	225	
12/21/2019	948	372	
12/22/2019	116	30	
12/23/2019	1,123	385	
12/24/2019	12,019	0	Christmas Eve, Free Day
12/25/2019	0	0	Christmas, Zoo Closed
12/26/2019	1,517	509	
12/27/2019	2,198	786	
12/28/2019	2,852	863	
12/29/2019	832	362	
12/30/2019	2,517	765	
12/31/2019	1,625	656	New Year's Eve

Attachment A2
Member Zip Codes

Zip code	# member households	Zip code	# member households	Zip code	# member households	Zip code	# member households
95818	685	95827	89	95959	17	95631	8
95831	607	95677	87	95212	16	95663	8
95822	596	95688	80	95928	16	95692	8
95691	410	95746	80	89521	15	95903	8
95758	404	95632	73	95355	15	95948	8
95819	401	95682	72	95626	15	96002	8
95608	377	95841	72	95672	15	89509	7
95624	344	95838	68	94558	14	94591	7
95757	322	95620	66	95336	14	95366	7
95864	318	95842	66	95337	14	95609	7
95747	314	95667	62	95658	14	95684	7
95826	289	95961	60	96003	14	95690	7
95835	280	95814	54	95204	13	94510	6
95616	264	95824	52	95612	13	94550	6
95820	241	95660	50	95619	13	94571	6
95618	237	95811	50	95655	13	95203	6
95816	229	95603	46	95726	13	95210	6
95670	226	95815	46	95945	13	95258	6
95628	220	94533	45	94513	12	95361	6
95630	219	95605	45	94535	12	95391	6
95834	197	95693	45	95966	12	95633	6
95821	191	95993	44	96080	12	95638	6
95833	180	95242	43	94561	11	95703	6
95648	166	94534	42	95206	11	95932	6
95817	160	95240	38	95252	11	89436	5
95762	151	95673	36	95376	11	94505	5
95678	148	95219	33	95926	11	94589	5
95695	148	95650	32	95685	10	95205	5
95621	143	95683	32	95709	10	95615	5
95765	143	95207	29	95722	10	95617	5
95823	142	95991	29	96161	10	95623	5
95829	140	95209	27	89523	9	95666	5
95828	139	95602	24	95220	9	95669	5
95776	134	95694	22	95356	9	95830	5
95825	126	95973	22	95642	9	95860	5
95661	123	95901	21	95713	9	95865	5
95742	119	95330	20	96001	9	89431	4
95687	111	95832	20	96150	9	89434	4
95610	109	94585	19	89506	8	89511	4
95843	109	95640	19	95215	8	89701	4
95662	105	95949	18	95614	8	94503	4

Zip code	# member households	Zip code	# member households	Zip code	# member households	Zip code	# member households
94531	4	95759	3	95741	2	89448	1
94559	4	95853	3	95756	2	89449	1
95304	4	95912	3	95775	2	89450	1
95350	4	95937	3	95798	2	89503	1
95354	4	95946	3	95812	2	89508	1
95611	4	96158	3	95837	2	89512	1
95627	4	35205	2	95866	2	89702	1
95634	4	89406	2	95922	2	89703	1
95645	4	89447	2	95924	2	90004	1
95659	4	89502	2	95954	2	90020	1
95953	4	89519	2	95962	2	90211	1
95957	4	93545	2	95988	2	90277	1
95965	4	93950	2	96007	2	90504	1
95975	4	94002	2	96148	2	90505	1
95977	4	94015	2	97502	2	90601	1
95987	4	94018	2	99354	2	90740	1
96019	4	94061	2	10003	1	91350	1
96022	4	94514	2	11215	1	91376	1
89441	3	94538	2	17545	1	91403	1
93711	3	94552	2	18040	1	91701	1
94115	3	94568	2	19968	1	91911	1
94520	3	94590	2	33578	1	92027	1
94523	3	94949	2	34135	1	92028	1
94526	3	94952	2	43213	1	92084	1
94547	3	95008	2	48422	1	92116	1
94551	3	95125	2	49420	1	92128	1
94553	3	95231	2	54701	1	92223	1
94563	3	95236	2	75218	1	92262	1
94565	3	95255	2	81301	1	92307	1
95128	3	95321	2	83634	1	92342	1
95223	3	95358	2	84111	1	92371	1
95227	3	95367	2	84770	1	92393	1
95326	3	95370	2	85045	1	92394	1
95327	3	95377	2	85652	1	92407	1
95351	3	95403	2	85701	1	92563	1
95368	3	95407	2	85815	1	92604	1
95409	3	95613	2	85834	1	92606	1
95451	3	95625	2	88330	1	92627	1
95476	3	95653	2	88508	1	92663	1
95604	3	95674	2	89074	1	92867	1
95635	3	95681	2	89103	1	93010	1
95651	3	95686	2	89408	1	93023	1
95652	3	95696	2	89410	1	93210	1
95698	3	95697	2	89423	1	93267	1
95701	3	95712	2	89433	1	93306	1

Zip code	# member households	Zip code	# member households	Zip code	# member households	Zip code	# member households
93307	1	94595	1	95334	1	95862	1
93312	1	94596	1	95340	1	95891	1
93313	1	94598	1	95357	1	95914	1
93448	1	94602	1	95363	1	95917	1
93449	1	94609	1	95372	1	95918	1
93514	1	94612	1	95378	1	95919	1
93551	1	94618	1	95382	1	95927	1
93704	1	94703	1	95383	1	95929	1
93933	1	94803	1	95386	1	95935	1
93940	1	94806	1	95397	1	95942	1
94010	1	94826	1	95402	1	95951	1
94014	1	94903	1	95405	1	95952	1
94024	1	94928	1	95422	1	95960	1
94030	1	94951	1	95464	1	95963	1
94040	1	94954	1	95467	1	95967	1
94041	1	95020	1	95482	1	95969	1
94063	1	95030	1	95492	1	95971	1
94065	1	95032	1	95501	1	95974	1
94066	1	95037	1	95513	1	95982	1
94070	1	95050	1	95533	1	96020	1
94086	1	95060	1	95560	1	96021	1
94107	1	95065	1	95591	1	96028	1
94110	1	95110	1	95607	1	96034	1
94118	1	95112	1	95622	1	96035	1
94122	1	95118	1	95629	1	96055	1
94131	1	95123	1	95636	1	96059	1
94301	1	95124	1	95639	1	96067	1
94303	1	95127	1	95646	1	96073	1
94306	1	95131	1	95664	1	96107	1
94402	1	95132	1	95665	1	96141	1
945-0	1	95134	1	95668	1	96145	1
94501	1	95148	1	95675	1	96160	1
94506	1	95202	1	95680	1	96162	1
94509	1	95213	1	95689	1	96548	1
94517	1	95221	1	95720	1	96577	1
94518	1	95228	1	95724	1	96582	1
94530	1	95237	1	95736	1	96624	1
94544	1	95241	1	95737	1	96734	1
94549	1	95245	1	95752	1	96775	1
94556	1	95249	1	9583-	1	96776	1
94566	1	95301	1	95836	1	96838	1
94567	1	95307	1	95839	1	96961	1
94572	1	95310	1	95844	1	97034	1
94583	1	95316	1	95847	1	97405	1
94587	1	95320	1	95852	1	97420	1

Zip code	# member households
97501	1
97503	1
97520	1
97701	1
98632	1

Attachment A3

Employee Home Zip Codes

(Total 148 employees includes Sac Zoo- 92, City of Sac 3; SSA- 51; UCD- 2)

Zip	Frequency
95822	19
95820	10
95833	10
95823	9
95831	9
95758	7
95624	5
95824	5
95818	4
95826	4
95828	4
95630	3
95632	3
95691	3
95811	3
95834	3
95608	2
95616	2
95670	2
95678	2
95776	2
95815	2
95817	2
95832	2
95835	2
95842	2
95864	2
94510	1
94587	1
94602	1
94831	1
95209	1
95212	1
95219	1
95351	1
95605	1
95621	1
95648	1
95660	1
95661	1
95673	1

95682	1
95687	1
95689	1
95757	1
95816	1
95819	1
95821	1
95825	1
95827	1
95838	1
95993	1
Grand Total	148

Attachment B

VMT and VMT Mitigation Calculations, Tables, and Charts

Attachment B1

Existing Conditions Visitor VMT of Representative Population

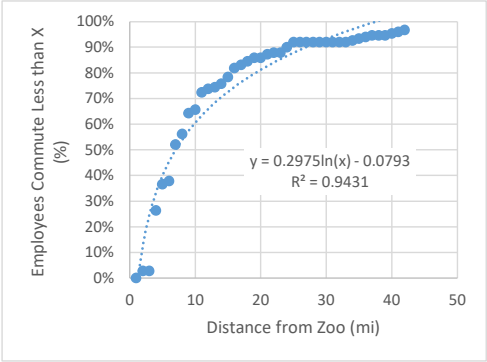
Visitor ZIP Code	Number of Visitor Households	Average Annual Visits per Household	Total Annual HH Visits to Zoo	Average Annual Vehicle Trips	Distance to Existing Sacramento Zoo (mi)	Annual Vehicle Trips x Trip Length (Annual VMT)	Annual VMT / 365 (Daily VMT)	Total Zoo Daily VMT
95818	685	3.93	2,692	5,384	1.2	6,609	18.1	84.4
95814	54	2.75	149	297	3.2	955	2.6	12.2
95817	160	4.37	699	1,398	3.3	4,633	12.7	59.1
95822	596	4.14	2,467	4,935	3.5	17,301	47.4	220.8
95820	241	4.05	976	1,952	3.8	7,416	20.3	94.7
95816	229	3.93	900	1,800	3.8	6,888	18.9	87.9
95811	50	4.32	216	432	3.8	1,659	4.5	21.2
95831	607	3.89	2,361	4,722	4.1	19,439	53.3	248.1
95824	52	4.61	240	479	4.5	2,171	5.9	27.7
95819	401	3.46	1,387	2,775	5.2	14,452	39.6	184.5
95815	46	3.65	168	336	6.2	2,076	5.7	26.5
95833	180	3.51	632	1,264	6.2	7,854	21.5	100.2
95823	142	3.26	463	926	6.5	6,049	16.6	77.2
95826	289	3.42	988	1,977	7.7	15,197	41.6	194.0
95828	139	3.63	505	1,009	8.1	8,144	22.3	104.0
95825	126	3.29	415	829	8.2	6,771	18.6	86.4
95834	197	3.80	749	1,497	8.3	12,360	33.9	157.8
95691	410	3.53	1,447	2,895	8.5	24,634	67.5	314.4
95838	68	3.17	216	431	9.0	3,871	10.6	49.4
95864	318	3.00	954	1,908	9.1	17,353	47.5	221.5
95821	191	3.08	588	1,177	10.2	12,000	32.9	153.2
95758	404	3.40	1,374	2,747	10.3	28,348	77.7	361.8
95835	280	3.19	893	1,786	11.0	19,566	53.6	249.7
95827	89	2.19	195	390	11.3	4,386	12.0	56.0
95829	140	2.99	419	837	11.9	9,978	27.3	127.4
95660	50	2.98	149	298	12.7	3,794	10.4	48.4
95841	72	2.57	185	370	12.9	4,769	13.1	60.9
95608	377	2.80	1,056	2,111	13.4	28,308	77.6	361.3
95842	66	3.56	235	470	14.1	6,610	18.1	84.4
95670	226	2.53	572	1,144	14.2	16,207	44.4	206.9
95618	237	3.44	815	1,631	14.6	23,795	65.2	303.7
95624	344	3.27	1,125	2,250	15.2	34,135	93.5	435.7
95843	109	2.98	325	650	15.6	10,112	27.7	129.1
95757	322	3.54	1,140	2,280	16.3	37,073	101.6	473.2
95621	143	2.56	366	732	16.3	11,949	32.7	152.5
95776	134	3.13	419	839	17.8	14,935	40.9	190.6
95628	220	2.32	510	1,021	17.9	18,253	50.0	233.0
95616	264	2.68	708	1,415	18.0	25,517	69.9	325.7
95610	109	2.40	262	523	18.1	9,476	26.0	121.0
95742	119	2.97	353	707	20.2	14,258	39.1	182.0
95678	148	2.90	429	858	20.8	17,865	48.9	228.0
95747	314	2.87	901	1,802	20.9	37,589	103.0	479.8
95662	105	2.35	247	494	20.9	10,326	28.3	131.8
95661	123	2.38	293	585	21.1	12,370	33.9	157.9
95630	219	2.52	552	1,104	23.1	25,488	69.8	325.3
95677	87	3.30	287	574	23.7	13,620	37.3	173.8
95632	73	3.45	252	504	24.7	12,424	34.0	158.6
95746	80	2.60	208	416	25.0	10,400	28.5	132.7
95765	143	2.62	375	749	25.5	19,139	52.4	244.3
95620	66	2.58	170	341	26.8	9,131	25.0	116.5
95695	148	2.24	332	663	26.8	17,783	48.7	227.0
95762	151	2.76	417	834	29.8	24,859	68.1	317.3
95648	166	2.21	367	734	33.3	24,423	66.9	311.7
95687	111	2.96	329	657	34.2	22,489	61.6	287.0
95688	80	2.16	173	346	35.0	12,089	33.1	154.3
95682	72	2.22	160	320	35.6	11,388	31.2	145.4
95603	46	1.80	83	166	37.1	6,136	16.8	78.3
95961	60	2.20	132	264	37.7	9,948	27.3	127.0
94533	45	2.04	92	184	40.8	7,486	20.5	95.6
95667	62	2.37	147	294	44.1	12,971	35.5	165.6

Total Number of Visitor Households	11,185
Total Annual HH Visits	36,255
Average Annual Visits Per HH	3.24
Sample Average Annual Vehicle Trips	72,510
Sample Annual VMT	837,222
Sample Daily VMT	2,293.8
Sample % Share of Total Zoo VMT	21%
Total Zoo Daily Visitor VMT	10,686
Average Trip Length	11.5

Attachment B2
Existing Conditions Employee VMT

Employee ZIP Code	Number of Employees	Distance to Existing Sacramento Zoo (mi)	Average Daily Employee Generated VMT
95818	4	1.2	9.8
95817	2	3.3	13.3
95822	19	3.5	133.2
95820	10	3.8	76.0
95816	1	3.8	7.7
95811	3	3.8	23.0
95831	10	4.1	82.3
95824	5	4.5	45.3
95819	1	5.2	10.4
95605	1	5.2	10.4
95815	2	6.2	24.7
95833	10	6.2	124.3
95823	9	6.5	117.6
95832	2	7.0	28.1
95826	4	7.7	61.5
95828	4	8.1	64.6
95825	1	8.2	16.3
95834	3	8.3	49.5
95691	3	8.5	51.1
95838	1	9.0	18.0
95864	2	9.1	36.4
95821	1	10.2	20.4
95758	7	10.3	144.5
95835	2	11.0	43.8
95827	1	11.3	22.5
95673	1	11.7	23.5
95660	1	12.7	25.5
95608	2	13.4	53.6
95842	2	14.1	56.3
95670	2	14.2	56.7
95624	5	15.2	151.7
95757	1	16.3	32.5
95621	1	16.3	32.6
95776	2	17.8	71.2
95616	2	18.0	72.1
95678	2	20.8	83.2
95661	1	21.1	42.3
95630	3	23.1	138.5
95632	3	24.7	148.0
95648	1	33.3	66.6
95687	1	34.2	68.4
95682	1	35.6	71.2
95209	1	36.8	73.7
95219	1	40.0	80.0
95212	1	40.2	80.5
95993	1	41.4	82.8
95689	1	54.5	109.1
94510	1	60.2	120.4
95351	1	73.1	146.2
94602	1	84.6	169.1
94587	1	97.3	194.6

Total Employees	148
Total Daily VMT	3484.9
Average Trip Length	11.8



Driving Distance to Work (mi)	EMP	%
1	0	0%
2	4	3%
3	4	3%
4	39	26%
5	54	36%
6	56	38%
7	77	52%
8	83	56%
9	95	64%
10	97	66%
11	107	72%
12	109	74%
13	110	74%
14	112	76%
15	116	78%
16	121	82%
17	123	83%
18	125	84%
19	127	86%
20	127	86%
21	129	87%
22	130	88%
23	130	88%
24	133	90%
25	136	92%
26	136	92%
27	136	92%
28	136	92%
29	136	92%
30	136	92%
31	136	92%
32	136	92%
33	136	92%
34	137	93%
35	138	93%
36	139	94%
37	140	95%
38	140	95%
39	140	95%
40	141	95%
41	142	96%
42	143	97%

Attachment B3

Project Conditions Visitor VMT of Representative Population

Visitor ZIP Code	Distance to Proposed Elk Grove Zoo (mi)	Inverse Distance	Distance Weight	Number of Visitor HH (From Sample)	Average Annual Visits Per HH (From Regression)	Total Annual Household Visits to Zoo	Average Annual Vehicle Trips	Annual Vehicle Trips x Trip Length (Annual VMT)	Annual VMT / 365 (Daily VMT)	Total Zoo Daily VMT
95757	5.0	0.202	1.000	2,674	3.72	9,949	19,898	98,528	269.9	1,257.6
95758	7.0	0.143	0.369	854	3.51	2,996	5,992	41,772	114.4	533.2
95624	9.6	0.104	0.397	920	3.28	3,017	6,035	57,871	158.6	738.7
95823	9.6	0.104	0.234	543	3.28	1,779	3,558	34,228	93.8	436.9
95828	10.8	0.093	0.223	475	3.19	1,516	3,031	32,740	89.7	417.9
95632	11.2	0.089	0.095	203	3.16	643	1,286	14,378	39.4	183.5
95829	11.5	0.087	0.071	151	3.14	475	949	10,950	30.0	139.8
95824	12.7	0.079	0.162	345	3.07	1,059	2,118	26,929	73.8	343.7
95820	13.6	0.073	0.314	669	3.01	2,015	4,030	55,003	150.7	702.1
95822	14.0	0.071	0.087	186	2.99	557	1,113	15,582	42.7	198.9
95817	14.9	0.067	0.048	103	2.95	302	604	9,032	24.7	115.3
95831	15.1	0.066	0.129	212	2.94	624	1,248	18,822	51.6	240.2
95826	15.1	0.066	0.075	123	2.94	362	724	10,932	29.9	139.5
95819	16.3	0.061	0.059	96	2.88	278	556	9,061	24.8	115.6
95818	16.5	0.060	0.143	235	2.87	675	1,349	22,328	61.2	285.0
95827	16.6	0.060	0.065	107	2.87	309	617	10,244	28.1	130.7
95816	16.8	0.060	0.116	191	2.86	547	1,094	18,354	50.3	234.3
95825	17.6	0.057	0.091	150	2.83	426	853	14,989	41.1	191.3
95864	17.8	0.056	0.076	125	2.82	354	709	12,626	34.6	161.2
95814	18.2	0.055	0.067	110	2.81	309	619	11,253	30.8	143.6
95811	18.8	0.053	0.084	138	2.79	384	767	14,440	39.6	184.3
95815	19.7	0.051	0.095	156	2.76	432	863	17,041	46.7	217.5
95821	20.5	0.049	0.099	118	2.74	322	644	13,184	36.1	168.3
95742	21.2	0.047	0.047	56	2.72	152	304	6,433	17.6	82.1
95833	21.3	0.047	0.141	167	2.72	454	909	19,327	53.0	246.7
95670	21.3	0.047	0.062	73	2.72	199	399	8,486	23.3	108.3
95608	21.9	0.046	0.066	78	2.70	212	423	9,276	25.4	118.4
95838	22.8	0.044	0.050	59	2.68	159	319	7,252	19.9	92.6
95834	23.3	0.043	0.077	92	2.67	245	491	11,431	31.3	145.9
95691	23.7	0.042	0.057	68	2.66	180	360	8,535	23.4	108.9
95841	23.7	0.042	0.219	260	2.66	690	1,381	32,790	89.8	418.5
95660	24.2	0.041	0.182	217	2.65	574	1,148	27,760	76.1	354.3
95842	25.5	0.039	0.240	141	2.62	370	740	18,860	51.7	240.7
95628	25.5	0.039	0.078	46	2.62	121	242	6,176	16.9	78.8
95835	26.0	0.038	0.147	87	2.61	226	453	11,768	32.2	150.2
95843	27.0	0.037	0.082	48	2.59	124	249	6,710	18.4	85.6
95621	27.2	0.037	0.122	72	2.59	186	373	10,136	27.8	129.4
95610	27.7	0.036	0.052	31	2.58	80	159	4,403	12.1	56.2
95630	29.1	0.034	0.094	55	2.55	140	281	8,177	22.4	104.4
95662	29.4	0.034	0.096	56	2.55	144	287	8,451	23.2	107.9
95618	29.8	0.034	0.088	52	2.54	132	263	7,847	21.5	100.2
95661	31.8	0.031	0.176	49	2.50	122	244	7,749	21.2	98.9
95678	31.9	0.031	0.084	23	2.50	58	117	3,716	10.2	47.4
95747	32.3	0.031	0.058	16	2.49	40	80	2,590	7.1	33.1
95776	33.0	0.030	0.083	23	2.47	57	113	3,741	10.3	47.8
95616	33.2	0.030	0.261	72	2.46	178	357	11,864	32.5	151.4
95682	34.0	0.029	0.086	24	2.45	58	116	3,958	10.8	50.5
95762	34.1	0.029	0.123	34	2.44	83	167	5,677	15.6	72.5
95677	34.7	0.029	0.128	36	2.43	86	173	5,990	16.4	76.5
95746	35.3	0.028	0.378	97	2.41	235	470	16,578	45.4	211.6
95765	36.9	0.027	0.622	161	2.36	379	758	27,988	76.7	357.2
95620	42.0	0.024	0.058	6	2.14	13	26	1,110	3.0	14.2
95695	42.0	0.024	0.053	6	2.14	12	24	1,018	2.8	13.0
95648	44.7	0.022	0.154	16	1.97	32	65	2,893	7.9	36.9
95603	48.0	0.021	0.220	24	1.70	40	80	3,838	10.5	49.0
95667	48.4	0.021	0.115	12	1.67	21	41	1,993	5.5	25.4
95687	49.4	0.020	0.148	16	1.56	25	50	2,450	6.7	31.3
95688	50.2	0.020	0.058	6	1.48	9	18	925	2.5	11.8
95961	52.7	0.019	0.142	15	1.18	18	36	1,879	5.1	24.0
94533	53.5	0.019	0.052	6	1.08	6	12	645	1.8	8.2

Total Number of Visitor Households	11,185
Total Annual HH Visits	35,190
Average Annual Visits Per HH	3.15
Sample Average Annual Vehicle Trips	70,381
Sample Annual VMT	890,708
Sample Daily VMT	2,440.3
Sample % Share of Total Zoo VMT	21%
Total Zoo Daily Visitor VMT	11,713.0
Average Trip Length	12.7
Average Daily Visitor Vehicle Trips	926

Attachment B4

Project Conditions Employee VMT of Representative Population

Employee ZIP Code	Number of Employees	Distance to Proposed Elk Grove Zoo (mi)	Percent EMP Within	Number EMP Within	Number EMP	Total Check	Average Daily Employee Generated VMT
95757	1	5.0	40%	59	59	59	581.3
95758	7	7.0	50%	74	15	74	210.0
95624	5	9.6	59%	88	14	88	269.2
95823	9	9.6	59%	88	0	88	2.8
95828	4	10.8	63%	93	5	93	110.0
95632	3	11.2	64%	95	2	95	34.3
95824	5	12.7	68%	100	6	100	143.9
95820	10	13.6	70%	103	3	103	85.1
95832	2	13.7	70%	103	0	103	2.3
95822	19	14.0	71%	104	1	104	28.7
95817	2	14.9	73%	107	3	107	86.5
95831	10	15.1	73%	108	0	108	11.7
95826	4	15.1	73%	108	0	108	0.9
95819	1	16.3	75%	111	3	111	110.6
95818	4	16.5	76%	112	1	112	22.2
95827	1	16.6	76%	112	0	112	3.8
95816	1	16.8	76%	112	0	112	16.6
95825	1	17.6	77%	114	2	114	72.3
95864	2	17.8	78%	115	1	115	20.5
95811	3	18.8	79%	117	2	117	91.5
95815	2	19.7	81%	120	2	120	82.7
95605	1	20.4	82%	121	2	121	62.3
95821	1	20.5	82%	121	0	121	4.4
95833	10	21.3	83%	123	2	123	70.4
95670	2	21.3	83%	123	0	123	2.0
95608	2	21.9	84%	124	1	124	55.2
95838	1	22.8	85%	126	2	126	75.7
95834	3	23.3	86%	127	1	127	48.4
95691	3	23.7	86%	128	1	128	38.0
95660	1	24.2	87%	129	1	129	41.3
95842	2	25.5	88%	131	2	131	118.1
95673	1	25.5	88%	131	0	131	0.6
95835	2	26.0	89%	132	1	132	43.7
95212	1	26.8	90%	133	1	133	68.0
95621	1	27.2	90%	134	1	134	37.4
95209	1	27.6	91%	134	1	134	41.6
95630	3	29.1	92%	137	2	137	131.6
95219	1	30.9	94%	139	3	139	158.8
95661	1	31.8	95%	141	1	141	83.7
95678	2	31.9	95%	141	0	141	8.3
95776	2	33.0	96%	142	2	142	101.5
95616	2	33.2	96%	143	0	143	20.1
95682	1	34.0	97%	144	1	144	70.7
95648	1	44.7	105%	156	4	148	357.8
95687	1	49.4	108%	160	0	148	0.0
95689	1	53.0	110%	163	0	148	0.0
95993	1	56.4	112%	166	0	148	0.0
95351	1	59.6	114%	168	0	148	0.0
94510	1	69.5	118%	175	0	148	0.0
94602	1	77.7	122%	180	0	148	0.0
94587	1	90.3	126%	187	0	148	0.0

Total Employees	148
Total Daily VMT	3626.7
Average Trip Length	12.3