West Mesa Ridge Traffic Impact Study

October 15, 2024

Prepared for:
Jeebs & Zuzu, LLC

Prepared by:
Stantec

Project/File:
1720001002

Stantec

Revision	Description	Author	Date	Qual. Check	Date	Ind. Review	Date
A	Original	VE	10/1/24 10/14/24	BH	10/3/24	AE	10/5/24

The conclusions in the Report titled West Mesa Ridge Traffic Impact Analysis are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from City of Jal (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided by the Client to applicable authorities having jurisdiction and to other third parties in connection with the project, Stantec disclaims any legal duty based upon warranty, reliance or any other theory to any third party, and will not be liable to such third party for any damages or losses of any kind that may result.

Prepared by

Signature

Victoria Edington

Printed Name

Reviewed by

Signature

Brent Hypnarowski

Printed Name

Approved by

Signature

Aaron Egbert

Printed Name

Table of Contents

List of Tables

List of Figures

List of Appendices

Executive Summary

To be completed after scoping meeting with City of Albuquerque and NMDOT.

1 Introduction

1.1 Study Purpose

Stantec has been tasked with preparing a traffic impact study (TIS) for the proposed West Mesa Ridge Apartments & Childcare project (the WMR project) in the City of Albuquerque, New Mexico (NM). This TIS report is being prepared in support of the WMR project site plan submittal.

1.2 Study Procedures

Trip generation for this TIS has been prepared based on the *ITE Trip Generation Manual, 11th Edition*. The growth rate used for the future volume forecasts was selected based on the *Connection 2040 Metropolitan Transportation Plan*. Traffic counts were collected by All Traffic Data, Inc., in August 2024, and signal timing data was procured from the City of Albuquerque Traffic Operations team.

Synchro 11 traffic analysis software was utilized to complete the operational assessment outlined in this report. The results presented herein are based on the *Highway Capacity Manual* methodologies built into Synchro. Per Section 7-5(E) of the *City of Albuquerque Development Process Manual*, Level of Service (LOS) E will be considered the acceptable LOS in these results.

2 Existing Traffic Conditions

The first step of the TIS process is to complete an assessment of the existing conditions within the study area. This includes a review of roadway geometry, traffic control, speeds, and traffic volumes, among other elements.

2.1 General Area Characteristics

This project is located on the west side of Albuquerque, along Coors Boulevard (NM Highway 45) between Interstate 40 and US Route 66, as shown outlined in orange in the vicinity map in **Figure 1**. The roadways immediately surrounding the project site include Coors Boulevard, 64th Street, Glenrio Road, and Fortuna Road.

The block in question is zoned as Mixed-Use, with part identified as Low Intensity and part as Moderate Intensity. The surrounding lots are zoned as Mixed-Use, Light Manufacturing, Business Park, City-Owned or Managed Public Parks, and Residential Single-Family. The residential zone immediately to the west of the WMR project site is home to West Mesa High School.

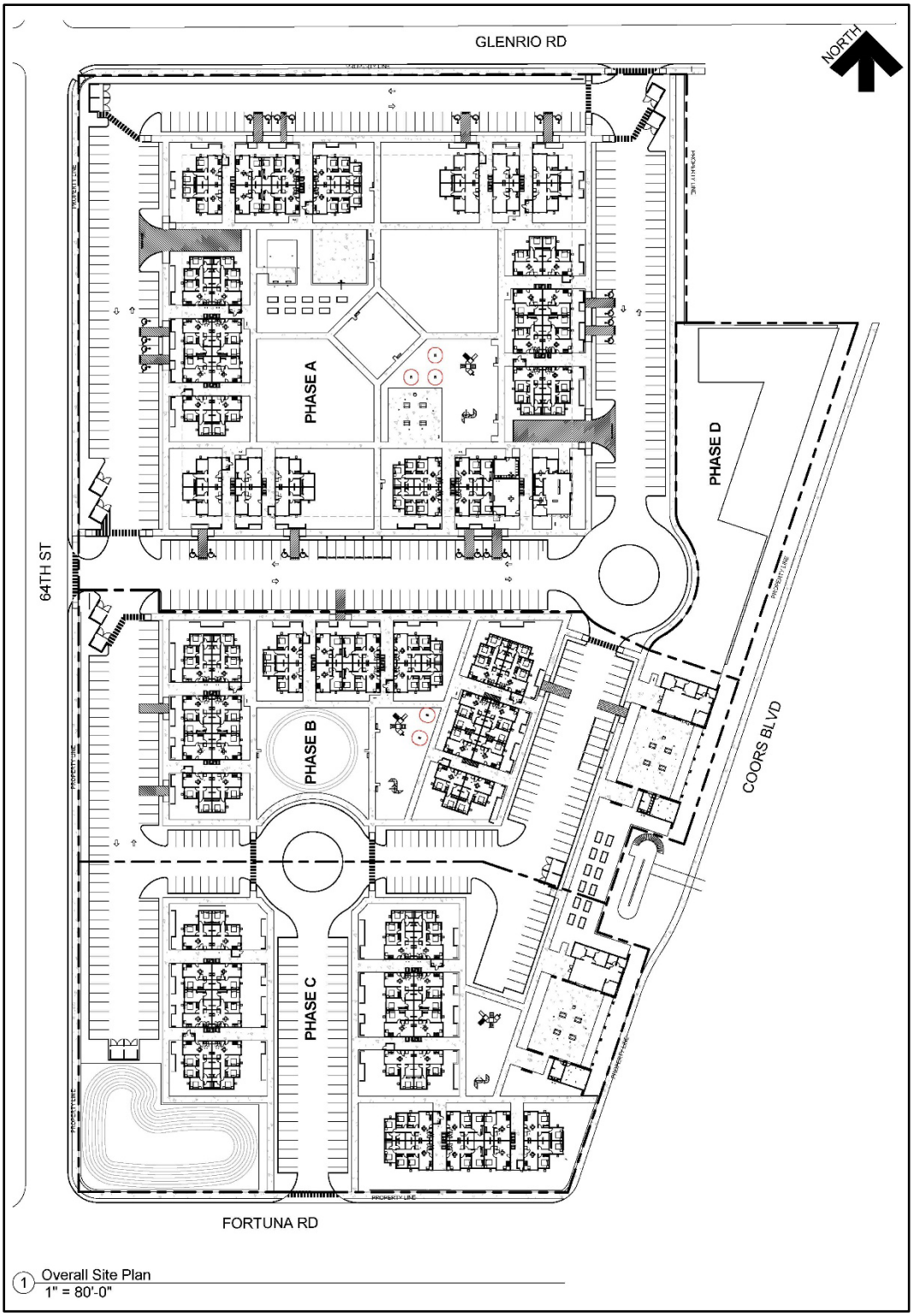
Figure 1. West Mesa Ridge Vicinity Map

The current site plan for the WMR development is shown in **Figure 2**. The northeast corner of the block will remain as-is, featuring several small retail businesses. The existing used car lot on the southern half of the block will be replaced by the WMR development.

The current site plan includes a total of 272 dwelling units and approximately 13,000 square feet for a childcare facility. The development is currently divided into four phases, with Phases A, B, and C being residential apartments and Phase D being the childcare facility. However, for the sake of this analysis, it is understood that the entire site will be developed on a relatively short timeline with no distinction between phases when it comes to traffic impacts.

There are three proposed driveways for accessing the site: one on Glenrio Road (referred to in this report as Driveway A), one on 64th Street (referred to as Driveway B), and one on Fortuna Road (referred to as Driveway C). No direct access to the site is proposed off of Coors Boulevard. The existing pedestrian bridge across Coors Boulevard just north of Fortuna Road will be maintained.

Figure 2. West Mesa Ridge Site Plan



2.2 Study Area Street Network

The study area for this analysis includes four existing intersections, as follows:

1. Coors Boulevard & Glenrio Road
2. Coors Boulevard & Fortuna Road
3. 64th Street & Fortuna Road
4. 64th Street & Glenrio Road

The locations of these intersections within the study area are marked with white pins in **Figure 3**.

Figure 3. West Mesa Ridge Study Area

The first intersection, Coors Boulevard & Glenrio Road, is currently two-way stop-controlled (TWSC), with free-flowing traffic on Coors Boulevard; raised medians and signage prohibit movements other than right turns from Glenrio Road on both sides of the intersection. The intersection of 64th Street & Fortuna Road is also TWSC, with free-flowing traffic on Fortuna Road. 64th Street & Glenrio is all-way stop controlled (AWSC). Coors Boulevard & Fortuna Road is the only signalized intersection included in this study area; signal timing data for this intersection was procured from the City of Albuquerque Traffic Operations team.

The roadways included in this influence area are detailed below.

Coors Boulevard (NM 45) is a state-owned roadway and is classified as a *Principal Arterial – Other* by the New Mexico Department of Transportation (NMDOT). In this area between Interstate 40 and US Route 66, this six-lane roadway provides access to residential neighborhoods, businesses, and industrial areas. This segment of NM 45 is relatively flat, and its cross-section is approximately 95 feet from curb to curb, including raised medians. It also features sidewalks with buffers on both sides of the roadway. The posted speed limit in the vicinity of the WMR project site is 45 miles per hour (mph). A 25-mph school zone adjacent to the intersection with Fortuna Road is activated using flashing beacons during certain times of day.

64th Street is classified as a *Local Road* by NMDOT. This section of north-south roadway begins just south of Interstate 40 and terminates at Fortuna Road. It is paved but unstriped along its entire length. Between Fortuna Road and Glenrio Road, the pavement width is approximately 40 feet from curb to curb, allowing room for on-street parking on both sides, as well as sidewalks adjacent to each curb. North of Glenrio Road, the roadway is still paved, but it narrows to approximately 24 feet with gravel shoulders on either side. There is no posted speed limit, so the standard speed limit of 25 mph per the *City of Albuquerque Code of Ordinances* applies here.

Glenrio Road is classified as a *Local Road* by NMDOT both east and west of Coors Boulevard and provides access to residential properties, businesses, and West Mesa High School. However, there is no connectivity for through traffic on Glenrio Road provided across Coors Boulevard. This two-lane roadway is paved but only features lane striping in certain sections. East of Coors Boulevard, the cross-section is approximately 32 feet from curb to curb, with space for on-street parking, speed humps to slow traffic, and sidewalks on either side. Between Coors Boulevard and 64th Street, the paved roadway is 24 feet wide with gravel shoulders on either side. West of 64th Street, the cross-section maintains a gravel shoulder on the south side, but adds a paved parking lane, curb, and sidewalk on the north side. Posted speed limits of 25 mph are visible in street-level imagery on both sides of Coors Boulevard.

Fortuna Road is classified by NMDOT as a *Major Collector* west of Coors Boulevard and as a *Local Road* east of Coors Boulevard. It provides access to residential properties, businesses, and West Mesa High School. The cross-section of Fortuna Road east of Coors Boulevard is similar to Glenrio Road: approximately 32 feet from curb to curb with space for on-street parking, speed humps to slow traffic, and sidewalks on either side. West of Coors Boulevard, the pavement width is approximately 40 feet from curb to curb, including one vehicle lane in each direction and paved shoulders that are nominally striped as bike lanes on each side; see **Section 2.5**, below, for additional discussion of these bike lanes. There are also sidewalks on both sides of the roadway. The posted speed limit is 25 mph.

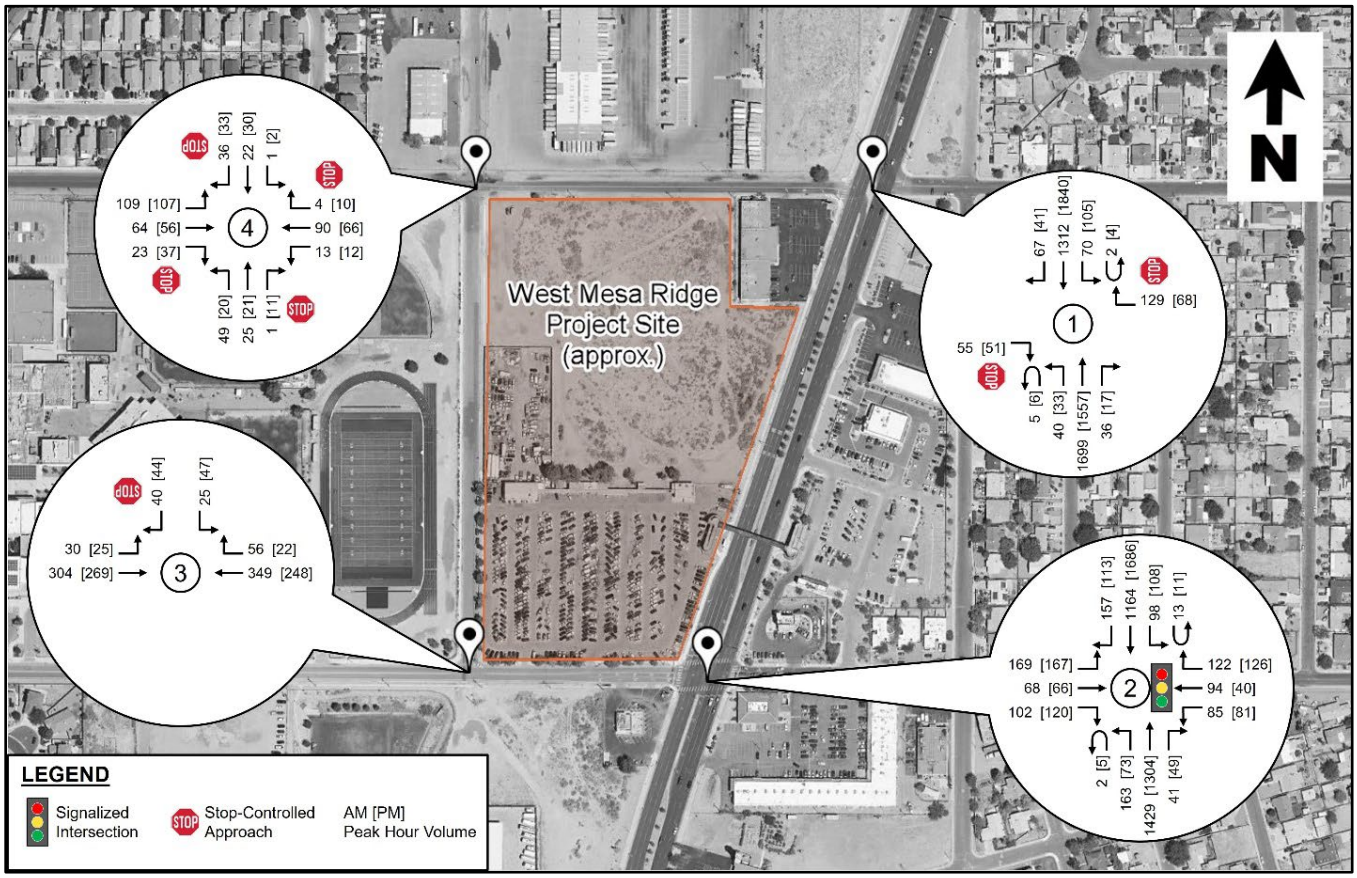
2.3 Existing Traffic Volumes

Turning movement counts (TMCs) within the study area were collected by All Traffic Data Services on Tuesday, August 13, 2024. For this analysis, peak hour TMCs were deemed sufficient, so a total of four hours was counted – two during the morning (AM) period and two during the evening (PM) period.

TMCs show the number of vehicles making each movement (left turn, straight through, or right turn) on each approach of an intersection. These counts are collected in 15-minute intervals and summed to identify AM and PM peak hour volumes at the intersection. Passenger vehicles and heavy vehicles are identified separately within the counts to allow for heavy vehicle percentages to be recorded. The collection of TMCs also includes bicycle and pedestrian data.

The existing AM and PM peak hour volumes counted at the four study intersections are illustrated in **Figure 4**. Traffic count data provided by All Traffic Data Services is included in full in **Appendix A**.

Figure 4. Existing Traffic Volumes – AM [PM]



2.4 Existing Traffic Operations

In order to assess the potential impacts of the WMR development, models of the study area were built using Synchro 11 analysis software. Roadway geometry, traffic volumes, and traffic control parameters were coded into the Synchro models to represent the appropriate scenario and time of day (TOD). Reports were generated using Highway Capacity Manual (HCM) methodologies for each intersection. Average vehicle delay and Level of Service (LOS) were used when determining how a given intersection may be expected to perform.

Table 1 displays the relationship between average vehicle delay and LOS for both signalized and unsignalized movements or lane groups. As mentioned above, LOS E or better is considered acceptable while LOS F is considered unacceptable.

It must be noted that, at unsignalized intersections with free-flowing movements (i.e., TWSC), it is not valid to report LOS for movements or lane groups that are free-flowing. This condition also applies to the intersection overall. In the results tables that follow throughout this report, such free-flowing lane groups are denoted with "–".

Table 1. Level of Service Criteria – Highway Capacity Manual

	Avg. Vehicle Delay (sec/veh)	
LOS	**Signalized Movement**	**Unsignalized Movement**
A	0 – 10	0 – 10
B	10 – 20	10 – 15
C	20 – 35	15 – 25
D	35 – 55	25 – 35
E	55 – 80	35 – 50
F	80+	50+

The Existing Conditions model represents conditions at the time of data collection in 2024. It is assumed that these conditions include existing traffic accessing the used car lot on the southern half of the site, which is due to be replaced by the WMR development. Results from this scenario are used as a baseline for comparison for the future scenarios.

Table 2, on the following pages, presents a summary of the traffic volumes, delay, and LOS results for the AM and PM peak hours. Volumes are presented for each individual movement; delay and LOS are reported per lane group and per approach (where applicable). Reports generated from Synchro containing more detailed results are provided in **Appendix B**.

Table 2. Existing Conditions Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
1: Coors Blvd & Glenrio Rd	TWSC	EB	R	55	13.5	B	51	16.5	C
		WB	R	129	10.2	B	68	9.2	A
		NB	U	5	13.9	B	6	18.2	C
			L	40			33		
			T	1,699	–	–	1,557	–	–
			R	36			17		
		SB	U	2	15.1	C	4	14.9	B
			L	70			105		
			T	1,312	–	–	1,840	–	–
			R	67			41		
	Intersection Total			**3,415**	**1.2**	**–**	**3,722**	**1.2**	**–**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	169	124.8	F	167	238.7	F
			T	68	33.1	C	66	40.8	D
			R	102	26.2	C	120	37.6	D
		EB Approach		339	76.8	E	353	133.3	F
		WB	L	85	47.2	D	81	60.8	E
			T	94	54.0	D	40	54.6	D
			R	122			126		
		WB Approach		301	52.1	D	247	56.6	E
		NB	U	2	14.5	B	5	13.1	B
			L	163			73		
			T	1,429	20.5	C	1,304	17.1	B
			R	41			49		
		NB Approach		1,635	19.9	B	1,431	16.9	B
		SB	U	13	16.6	B	11	11.1	B
			L	98			108		
			T	1,164	20.4	C	1,686	17.1	B
			R	157	16.1	B	113	11.4	B
		SB Approach		1,432	19.6	B	1,918	16.4	B
	Intersection Total			**3,707**	**29.8**	**C**	**3,949**	**36.9**	**D**

Table 2. Existing Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
3: 64th St & Fortuna Rd	TWSC	EB	L	30	1.3	A	25	1.1	A
			T	304			269		
		WB	T	349	–	–	248	–	–
			R	56			22		
		SB	L	25	19.2	C	47	20.4	C
			R	40			44		
	Intersection Total			**804**	**2.2**	**–**	**655**	**3.4**	**–**
4: 64th St & Glenrio Rd	AWSC	EB	L	109	11.2	B	107	12.2	B
			T	64			56		
			R	23			37		
		WB	L	13	9.3	A	12	8.8	A
			T	90			66		
			R	4			10		
		NB	L	49	9.2	A	20	9.2	A
			T	25			21		
			R	1			11		
		SB	L	1	8.7	A	2	8.7	A
			T	22			30		
			R	36			33		
	Intersection Total			**437**	**10.1**	**B**	**405**	**10.7**	**B**

As evidenced with these results, most of the study intersections currently operate with little to moderate delays. The only exception is the signalized intersection of Coors Boulevard & Fortuna Road. The Eastbound approach at that intersection operates at LOS E in the AM peak hour and LOS F in the PM peak hour. Despite operating with protected-permissive phasing, the Eastbound left-turn movement is over-capacity, with a volume-to-capacity ratio (V/C ratio) of 1.10 during AM and 1.37 during PM. Any movement with a V/C ratio above 1.0 is automatically classified as LOS F per the HCM.

2.5 Existing Transit, Bicycle, and Pedestrian Facilities

Of all the roadways contained in this study area, only Coors Boulevard carries public transit. Route 155 travels both northbound and southbound along Coors Boulevard seven days per week, with a frequency of approximately 30 minutes on weekdays and 40-45 minutes on weekends. Each direction has a bus stop just north of Fortuna Road, roughly even with the pedestrian bridge across Coors Boulevard. There are also two bus stops located near Glenrio Road, located on the far side of the intersection in each direction. All four of these stops are accessible via sidewalks and feature shelters with benches.

Partial bicycle facilities exist within the study area. Fortuna Road east of Coors Boulevard is identified by the City of Albuquerque online and signed as a Bike Route, including sharrows on the pavement in a few spots. Glenrio Road west of 64th Street is similarly identified, signed, and striped as a Bike Route. Via 68th Street and Hanover Road, this Bike Route ultimately connects to a bridge over Interstate 40 and the I-40 Trail West. The segment of 64th Street between Fortuna Road and Glenrio Road is identified online and via signage as a Bike Route, but there is no striping such as sharrows to indicate so.

Fortuna Street west of Coors Boulevard is identified online as a Bike Lane. As mentioned above in **Section 2.2**, these bike lanes are striped on both sides of the roadway and are each approximately 6 feet wide. Bike lane symbols are only featured on the pavement at certain cross streets, and signage is similarly sporadic. From Coors Boulevard to 64th Street, there are signs on both sides of the roadway indicating “NO PARKING ANY TIME”. However, in the segment adjacent to West Mesa High School, some of these signs instead indicate “NO PARKING FIRE LANE”, “NO PARKING 7AM-3PM MON-FRI”, or “NO PARKING SCHOOL BUS LOADING ZONE”. Street-level imagery shows evidence of the bike lane occasionally being used as a parking lane or loading zone.

Sidewalks are present on three out of four sides of the proposed WMR development site. The only side that does not is the segment of Glenrio Road between Coors Boulevard and 64th Street, which does not have sidewalks on either side of the roadway. A pedestrian bridge crosses Coors Boulevard north of Fortuna Road, with access provided via stairs or wheelchair ramp. This ped bridge is identified on the WMR Site Plan to remain after construction of the development.

Crosswalks are marked on all four legs of the intersection at Coors Boulevard & Fortuna Road, and the signal timing includes pedestrian phases. At Coors Boulevard & Glenrio Road, crosswalks are striped across the east-west legs, but no crossing is identified across Coors Boulevard due to the raised median. There are no other crosswalks striped within the study area.

Pedestrian and bicycle counts were collected at the same time as the vehicle TMCs on August 13, 2024. **Table 3** on the next page summarizes these counts for the AM and PM peak hours. The most significant volumes observed in either peak hour were pedestrians crossing the north leg at both Coors Boulevard & Fortuna Road and 64th Street & Fortuna Road, likely students traveling to/from West Mesa High School. Pedestrians or bicycles utilizing the bridge over Coors Boulevard were not counted.

Table 3. Existing Bicycle and Pedestrian Counts

		AM Peak		PM Peak	
Intersection	**Leg ***	**Bikes**	**Peds**	**Bikes**	**Peds**
1: Coors Blvd & Glenrio Rd	N	0	2	0	1
	S	0	2	0	0
	E	0	4	1	5
	W	0	2	0	4
2: Coors Blvd & Fortuna Rd	N	0	20	1	25
	S	1	4	0	3
	E	0	0	2	2
	W	0	5	2	7
3: 64th St & Fortuna Rd	N	1	29	2	55
	S	0	5	0	5
	E	0	0	0	4
	W	0	1	0	2
4: 64th St & Glenrio Rd	N	0	1	0	0
	S	0	0	0	1
	E	0	0	0	0
	W	0	0	0	10

** Note: "Leg" represents which leg of the intersection the bike/ped was observed to be crossing and includes both directions of travel across that leg. N = North leg, S = South leg, etc.*

3 Future Traffic Conditions

This section summarizes the expected future conditions of the study area, in the absence of the proposed development. This scenario, referred to in this report as "Future Background", serves as an intermediate comparison point between existing and built conditions.

3.1 Project Implementation Year

As mentioned above in **Section 2.1**, the WMR site is currently divided into four phases, with Phases A, B, and C being residential apartments and Phase D being the childcare facility. However, based on information provided to the team, it is understood that the entire site will be developed on a relatively short timeline with no distinction between phases when it comes to traffic impacts. Opening Year for this site is assumed to be 2025. Long-term impacts are also of interest, so the Horizon Year was selected to be 2045. Future operations in both 2025 and 2045 have been assessed as part of this analysis.

3.2 Traffic Growth and Other Developments

The growth rate used for the future volume forecasts was selected based on information in the *Connection 2040 Metropolitan Transportation Plan*. A moderate 1% annual growth rate was selected to project the existing traffic volumes forward to 2025 and 2045.

There are no known additional developments anticipated to occur near the WMR site in the coming years.

The used car lot on the southern half of the site is expected be replaced by this development. It was assumed that, if the WMR site were not to be built, the used car lot and its associated traffic would remain. These trips are presumably already accounted for in the existing traffic counts, so no adjustment needs to be made for the future background traffic estimates.

The projected Background AM and PM peak hour volumes for the four study intersections are illustrated in **Figure 5** for Year 2025 and in **Figure 6** for Year 2045.

Figure 5. Year 2025 Background Traffic Volumes – AM [PM]

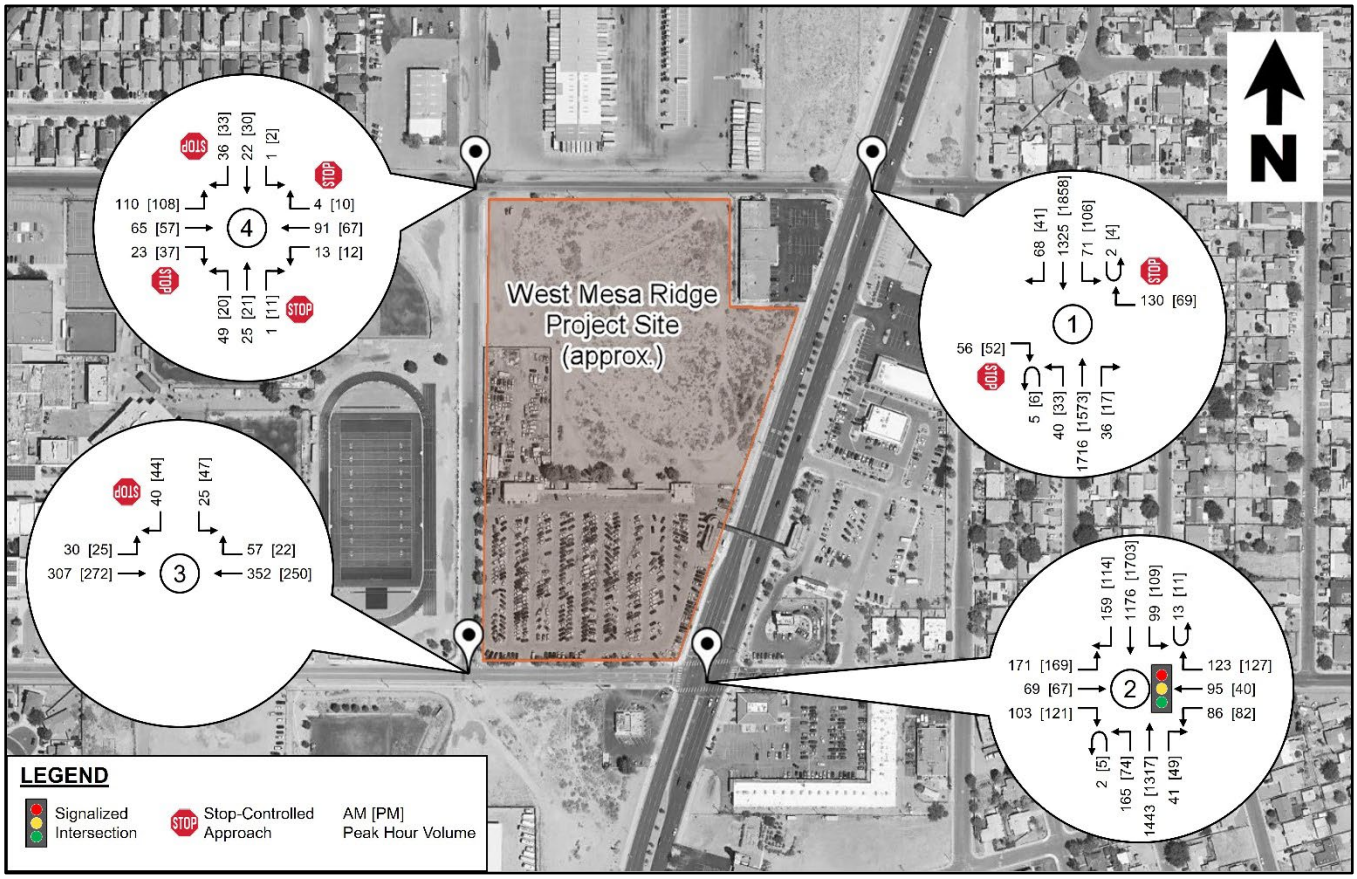
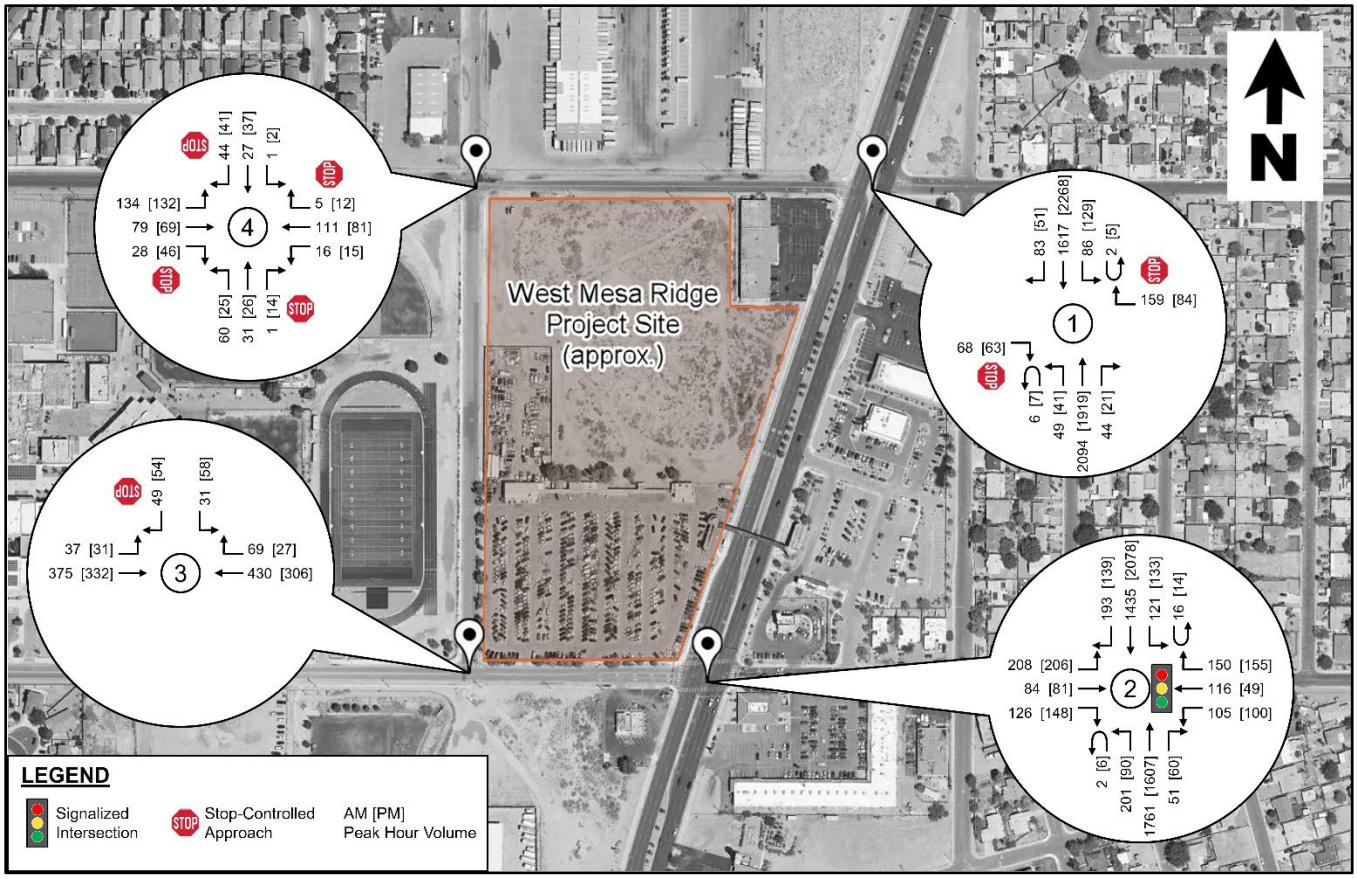


Figure 6. Year 2045 Background Traffic Volumes – AM [PM]



3.3 Programmed Transportation Improvements

No known transportation system improvements affecting the study area are planned to occur prior to either of the future analysis years. Roadway geometry and signal timing parameters were maintained the same as Existing in the 2025 Background and 2045 Background Synchro models.

3.4 Future Background Traffic Operations

The Future Background models represent conditions in the future analysis years without the WMR site. **Table 4**, on the following pages, presents a summary of the traffic volumes, delay, and LOS results for the AM and PM peak hours in Year 2025. **Table 5** presents the same results for AM and PM in Year 2045. Volumes are presented for each individual movement; delay and LOS are reported per lane group and per approach (where applicable). Reports generated from Synchro containing more detailed results are provided in **Appendix B**.

Table 4. Year 2025 Future Background Conditions Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
1: Coors Blvd & Glenrio Rd	TWSC	EB	R	56	13.6	B	52	16.7	C
		WB	R	130	10.2	B	69	9.2	A
		NB	U	5	14.0	B	6	18.5	C
			L	40			33		
			T	1,716	–	–	1,573	–	–
			R	36			17		
		SB	U	2	15.3	C	4	15.1	C
			L	71			106		
			T	1,325	–	–	1,858	–	–
			R	68			41		
	Intersection Total			**3,449**	**1.2**	**–**	**3,759**	**1.2**	**–**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	171	130.1	F	169	245.5	F
			T	69	33.0	C	67	40.8	D
			R	103	26.1	C	121	37.5	D
		EB Approach		343	79.3	E	357	136.6	F
		WB	L	86	47.3	D	82	61.2	E
			T	95	54.3	D	40	54.4	D
			R	123			127		
		WB Approach		304	52.3	D	249	56.7	E
		NB	U	2	14.9	B	5	13.5	B
			L	165			74		
			T	1,443	20.7	C	1,317	17.3	B
			R	41			49		
		NB Approach		1,651	20.1	C	1,445	17.1	B
		SB	U	13	17.4	B	11	11.3	B
			L	99			109		
			T	1,176	20.6	C	1,703	17.3	B
			R	159	16.2	B	114	11.5	B
		SB Approach		1,447	19.9	B	1,937	16.6	B
	Intersection Total			**3,745**	**30.4**	**C**	**3,988**	**37.6**	**D**

Table 4. Year 2025 Future Background Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
3: 64th St & Fortuna Rd	TWSC	EB	L	30	1.3	A	25	1.1	A
			T	307			272		
		WB	T	352	–	–	250	–	–
			R	57			22		
		SB	L	25	19.4	C	47	20.7	C
			R	40			44		
	Intersection Total			**811**	**2.2**	**–**	**660**	**3.4**	**–**
4: 64th St & Glenrio Rd	AWSC	EB	L	110	11.3	B	108	12.3	B
			T	65			57		
			R	23			37		
		WB	L	13	9.3	A	12	8.8	A
			T	91			67		
			R	4			10		
		NB	L	49	9.2	A	20	9.2	A
			T	25			21		
			R	1			11		
		SB	L	1	8.7	A	2	8.7	A
			T	22			30		
			R	36			33		
	Intersection Total			**440**	**10.1**	**B**	**408**	**10.8**	**B**

These results are very similar to the existing traffic operations presented in **Section 2.4**, which is reasonable considering the volumes are projected only one year into the future and there are no changes to roadway geometry or traffic control. The signalized intersection of Coors Boulevard & Fortuna Road still shows poor operation on the Eastbound approach. The Eastbound left-turn movement is still over-capacity, with a V/C ratio of 1.11 during AM and 1.39 during PM.

Table 5. Year 2045 Future Background Conditions Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
1: Coors Blvd & Glenrio Rd	TWSC	EB	R	68	16.2	C	63	22.6	C
		WB	R	159	11.8	B	84	9.9	A
		NB	U	6	17.9	C	7	27.3	D
			L	49			41		
			T	2,094	–	–	1,919	–	–
			R	44			21		
		SB	U	2	19.7	C	5	20.1	C
			L	86			129		
			T	1,617	–	–	2,268	–	–
			R	83			51		
	Intersection Total			**4,208**	**1.5**	**–**	**4,588**	**1.6**	**–**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	208	216.3	F	206	396.7	F
			T	84	30.5	C	81	39.4	D
			R	126	22.7	C	148	36.2	D
		EB Approach		418	120.7	F	435	207.5	F
		WB	L	105	44.3	D	100	61.1	E
			T	116	53.0	D	49	54.7	D
			R	150			155		
		WB Approach		371	50.6	D	304	56.8	E
		NB	U	2	54.4	D	6	27.2	C
			L	201			90		
			T	1,761	28.7	C	1,607	22.5	C
			R	51			60		
		NB Approach		2,015	31.3	C	1,763	22.7	C
		SB	U	16	39.5	D	14	35.9	D
			L	121			133		
			T	1,435	27.8	C	2,078	23.2	C
			R	193	20.3	C	139	13.3	B
		SB Approach		1,765	27.8	C	2,364	23.4	C
	Intersection Total			**4,569**	**43.3**	**D**	**4,866**	**53.4**	**D**

Table 5. Year 2045 Future Background Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
3: 64th St & Fortuna Rd	TWSC	EB	L	37	1.7	A	31	1.4	A
			T	375			332		
		WB	T	430	–	–	306	–	–
			R	69			27		
		SB	L	31	32.3	D	58	37.7	E
			R	49			54		
	Intersection Total			**991**	**3.5**	**–**	**808**	**6.0**	**–**
4: 64th St & Glenrio Rd	AWSC	EB	L	134	14.0	B	132	16.6	C
			T	79			69		
			R	28			46		
		WB	L	16	10.4	B	15	9.6	A
			T	111			81		
			R	5			12		
		NB	L	60	10.0	B	25	10.2	B
			T	31			26		
			R	1			14		
		SB	L	1	9.5	A	2	9.5	A
			T	27			37		
			R	44			41		
	Intersection Total			**537**	**11.9**	**B**	**500**	**13.6**	**B**

With the increase in background traffic by 2045, delay at all of the study intersections can be expected to increase, especially with no adjustments to roadway geometry or traffic control. However, all critical movements / approaches continue to operate at LOS E or better, with the exception again of the Eastbound approach at Coors Boulevard & Fortuna Road. The increased traffic at that intersection, and in particular the Eastbound left-turn movement, experiences LOS F in both AM and PM in 2045. The V/C ratio for that movement is 1.34 in the AM peak and 1.75 in the PM peak.

4 Proposed Development

4.1 Site Development Characteristics

The current site plan for the WMR development includes a total of 272 dwelling units and approximately 13,000 square feet for a childcare facility. The development is currently divided into four phases (A through D); however, the entire site will be developed on a relatively short timeline with no distinction between phases when it comes to traffic impacts. **Table 6** summarizes the specific land use and size of each phase, expressed in the same units indicated in the *ITE Trip Generation Manual, 11th Edition*.

Table 6. West Mesa Ridge Land Uses

Phase	Description	Dwelling Units	GFA *	Floors	ITE Trip Generation Manual Land Use
A	Residential Apartments	128	N/A	3	220: Multifamily Housing (Low-Rise)
B		72	N/A	3	
C		72	N/A	3	
D	Childcare Facility	N/A	13,000	N/A	565: Day Care Center

** Note: GFA refers to Gross Floor Area and is typically expressed in units of square feet.*

There are three proposed driveways for accessing the site: one on Glenrio Road (referred to in this report as Driveway A), one on 64th Street (referred to as Driveway B), and one on Fortuna Road (referred to as Driveway C). No direct access to the site is proposed off of Coors Boulevard. Existing driveways on Fortuna Road and on 64th Street providing access to the used car lot will be removed.

4.2 Trip Generation

The number of trips entering/exiting the development site was developed using average trip generation rates from the *ITE Trip Generation Manual, 11th Edition*, for the two land uses discussed above. The number of trips generated by the site during the peak hours are shown in **Table 7**.

Table 7. West Mesa Ridge Trip Generation

			AM Peak			PM Peak		
Land Use	**Dwelling Units**	**GFA**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
220: Multifamily Housing (Low-Rise)	272	–	108	26	82	138	85	53
565: Day Care Center	–	13,000	144	36	108	144	88	56

Because the used car lot is an existing land use on the site, and because trips associated with it were counted when the existing traffic data was collected, it is necessary to remove those trips from the future traffic volumes. This was done by identifying the appropriate land use, calculating trip generation for that site, estimating trip distribution and traffic assignment patterns, and then *subtracting* those trips rather than adding them to the projected future volumes. **Table 8** summarizes the land use and trip generation values for the used car lot, which was estimated based on aerial imagery to have a Gross Floor Area (GFA) of approximately 7,000 square feet.

Table 8. Used Car Lot Trip Generation

		AM Peak			PM Peak		
Land Use	**GFA**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
841: Automobile Sales (Used)	7,000	14	11	3	26	12	14

The two land uses included in the WMR development, residential and childcare, are not anticipated to generate pass-by trips.

While there may be some internal capture, with residents of the WMR site potentially utilizing the childcare facility, such dual usage is unlikely to drastically affect the total number of trips. It was determined that the more conservative approach of not applying a reduction for internal capture would be used in this TIS.

Similarly, while some residents of this site may utilize the adjacent transit on Coors Boulevard, Route 155, it is not expected that use of that route will significantly reduce vehicle trips to or from the site. No trip reduction due to transit was considered in this analysis.

4.3 Trip Distribution

Taking into consideration the three different land uses on this site (existing used car lot, future apartments, and future childcare facility), it was determined that each land use would be associated with a slightly different trip distribution pattern. Both the external trip distribution outside of the study area and the internal split between the various access driveways were established separately for each land use. The diagrams on the following pages illustrate the percentages that were used in each case.

Figure 7 shows the distribution assumptions for the trips associated with the future residential apartments. 65% of the total trips were assumed to travel to and from the site on Coors Boulevard, with an additional 5% to the east on Fortuna Road and the remaining 30% to the west. No trips were distributed to the east on Glenrio Road, as access to this site from that point will be limited by the movement restrictions at Coors Boulevard.

Inbound trips were assumed to be fairly evenly split between the three driveways, as they all provide easy access to parking for the residential units. Outbound trips, however, were assumed to favor Driveways B and C slightly more over Driveway A, again due to the left-turn and through movement restrictions at the intersection of Coors Boulevard & Glenrio Road.

Figure 7. West Mesa Ridge Trip Distribution – Residential

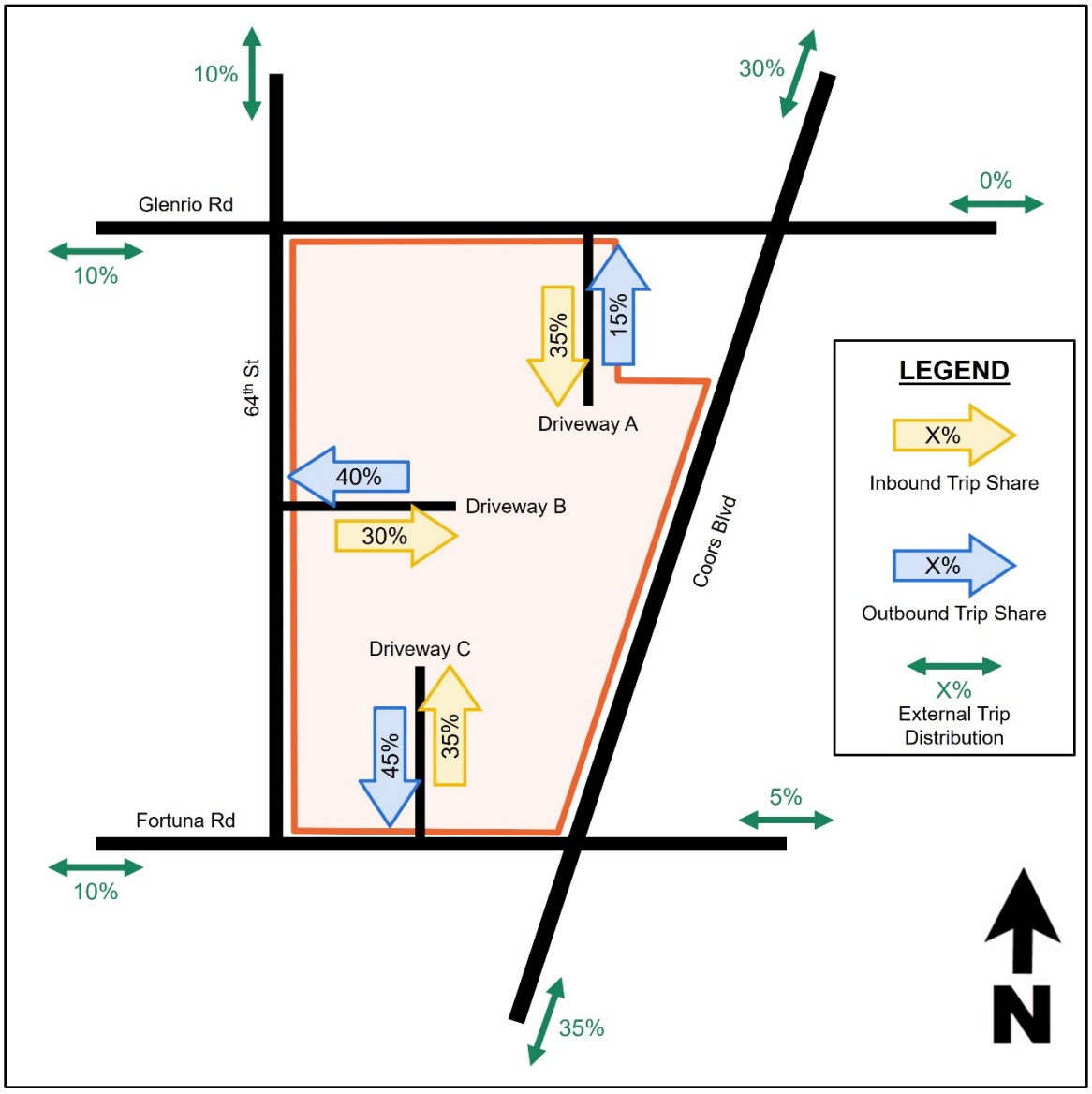
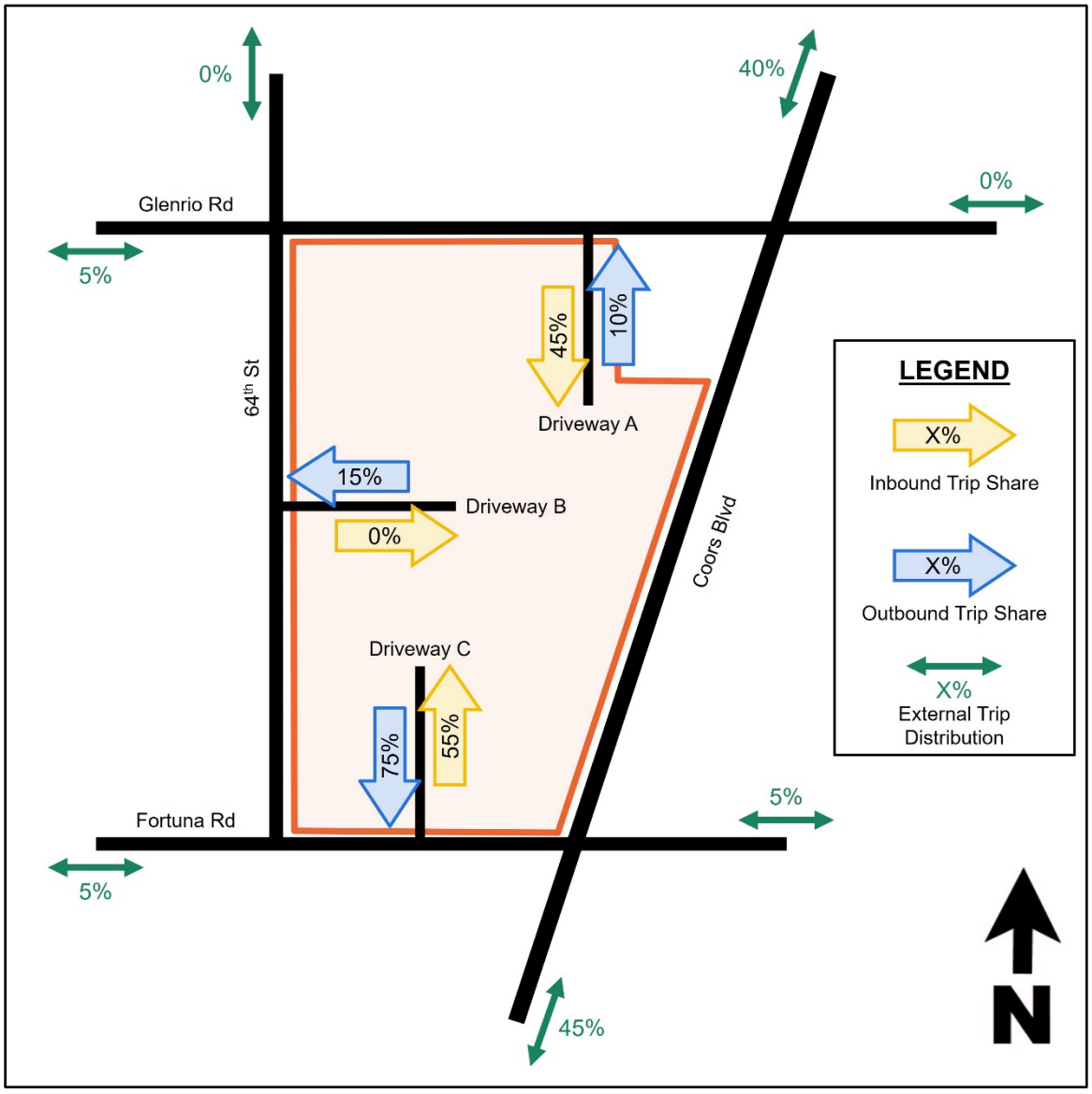


Figure 8 shows the distribution assumptions for the trips associated with the future childcare facility. The percent of trips assumed to utilize Coors Boulevard – 85% – is higher than the residential distribution, and the distribution to the west is reduced to 10% to compensate. Again, no trips were distributed to the east on Glenrio Road, as access to this site from that point will be limited.

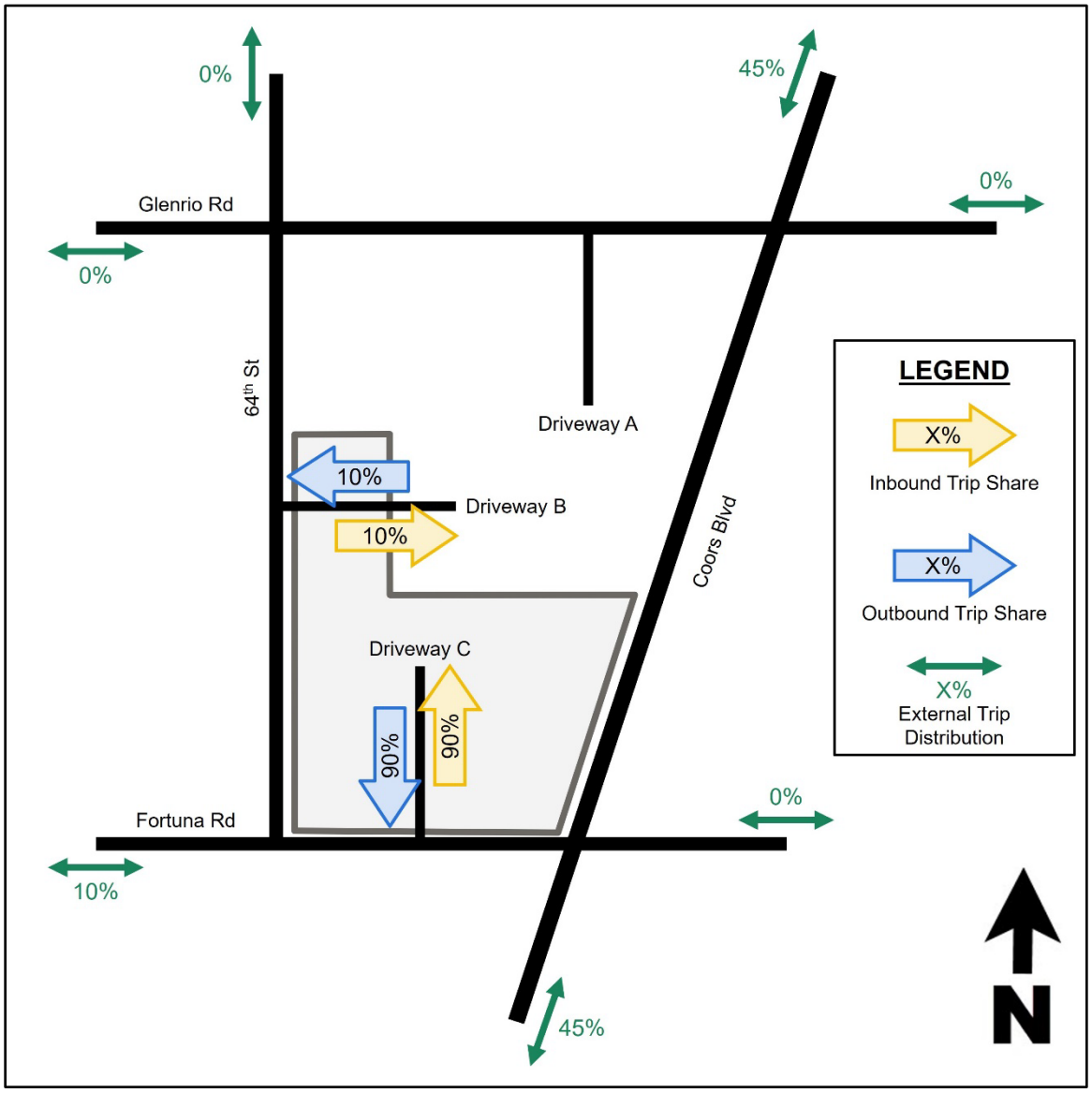
Trips inbound to the childcare facility were assumed to use just Driveway A and Driveway C, as they provide the most direct access to the parking spaces for the facility, and most drivers would have to bypass one of them to get to Driveway B. Some of the outbound trips, however, were moved from Driveway A to Driveways B and C because of the left-turn restriction at the intersection of Coors Boulevard & Glenrio Road.

Figure 8. West Mesa Ridge Trip Distribution – Childcare



As shown in **Figure 9**, the trip distribution for the used car lot that is to be removed from this site was different from the two previously discussed, not least because the used car lot is only accessible from Fortuna Road and 64th Street. It does not border Glenrio Road, and so little traffic was distributed to the north except along Coors Boulevard. Driveways B and C stand in for the existing driveways, while Driveway A is unaffected.

Figure 9. Used Car Lot Trip Distribution



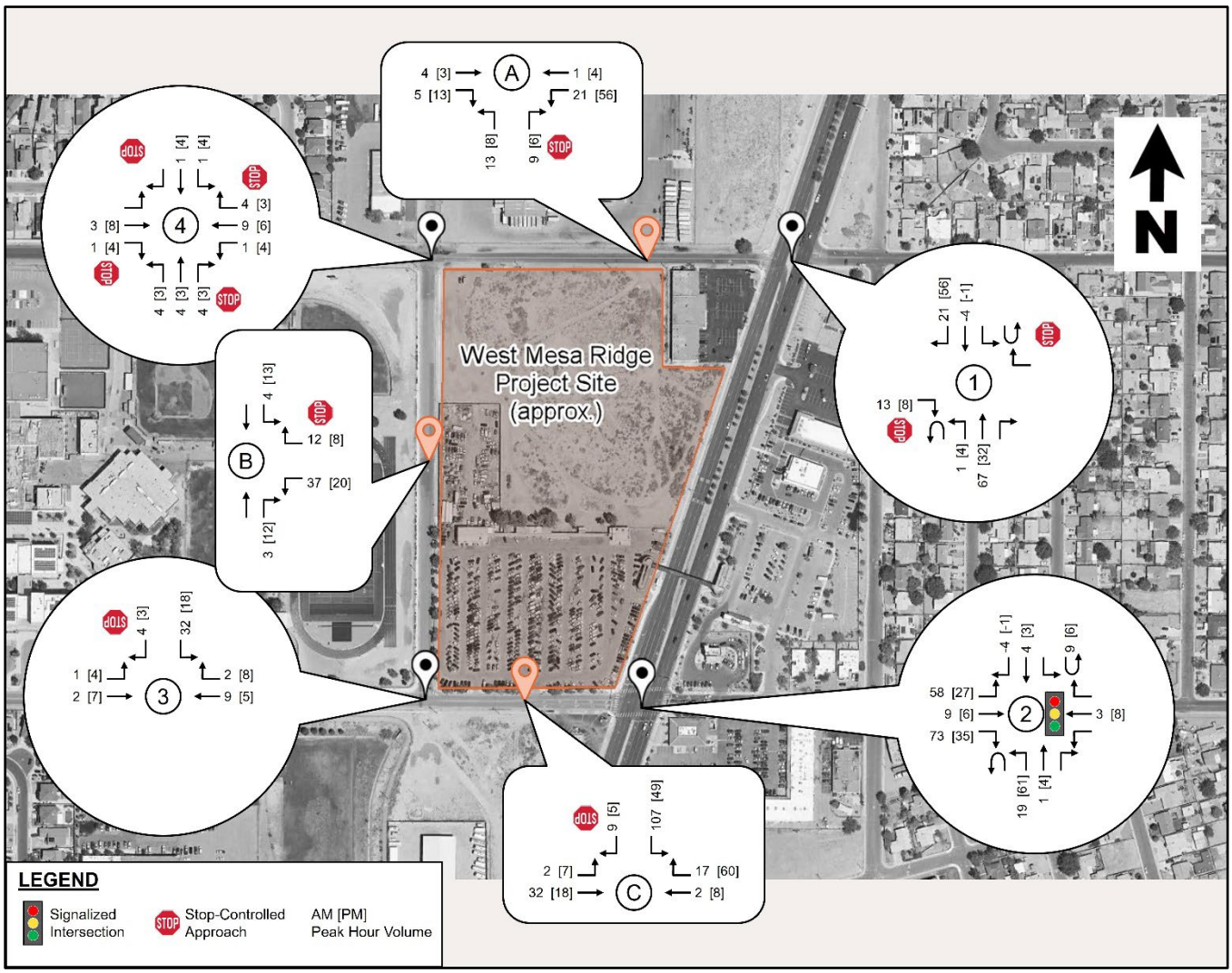
4.4 Traffic Assignment

The trip generation and trip distribution were used in conjunction to assign the site traffic to each intersection in the study area, including the access driveways. The total amount of site traffic is shown in **Figure 10**, below. These numbers represent the sum of trips associated with each of the three land uses. Movements without numbers next to them are unaffected by the site.

As mentioned previously, the trips associated with the used car lot needed to be *subtracted* from the total, so negative values were used in that case. This results in a few movements where, based on the differing trip distribution per land use, the number of trips being subtracted for the removal of the used car lot was greater than the number of trips being added by the apartments and childcare facility. The net value in these cases was negative.

As this analysis assumes that the WMR site will be fully built out by Opening Year 2025, no change to the site traffic is anticipated for the Horizon Year 2045. The same values were used for both analysis years.

Figure 10. West Mesa Ridge Site Traffic



The Build AM and PM peak hour volumes, representing the sum of the background traffic (**Section 3.2**) plus the site traffic, are illustrated in **Figure 11** for Year 2025 and in **Figure 12** for Year 2045.

Figure 11. Year 2025 Build Traffic Volumes – AM [PM]

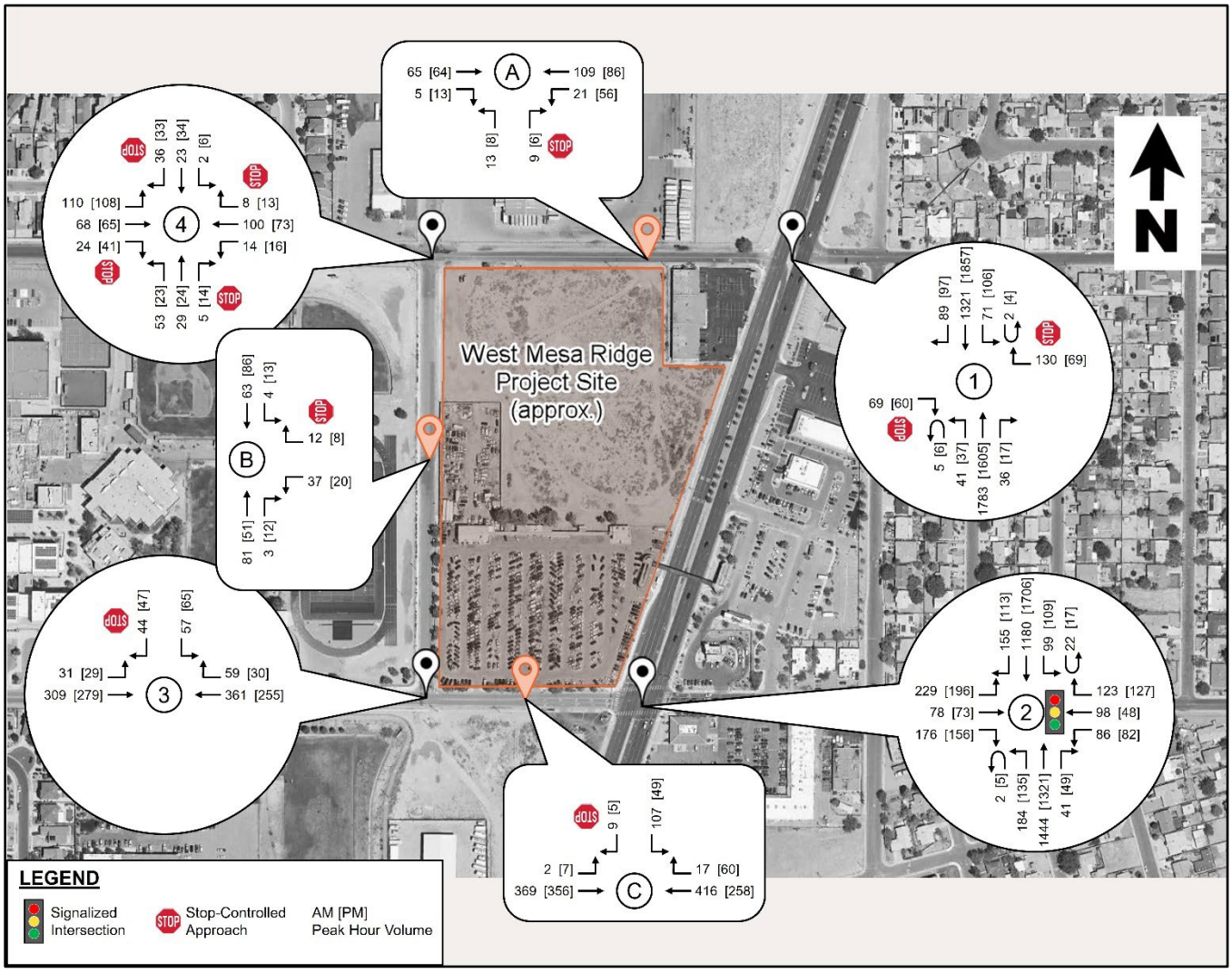
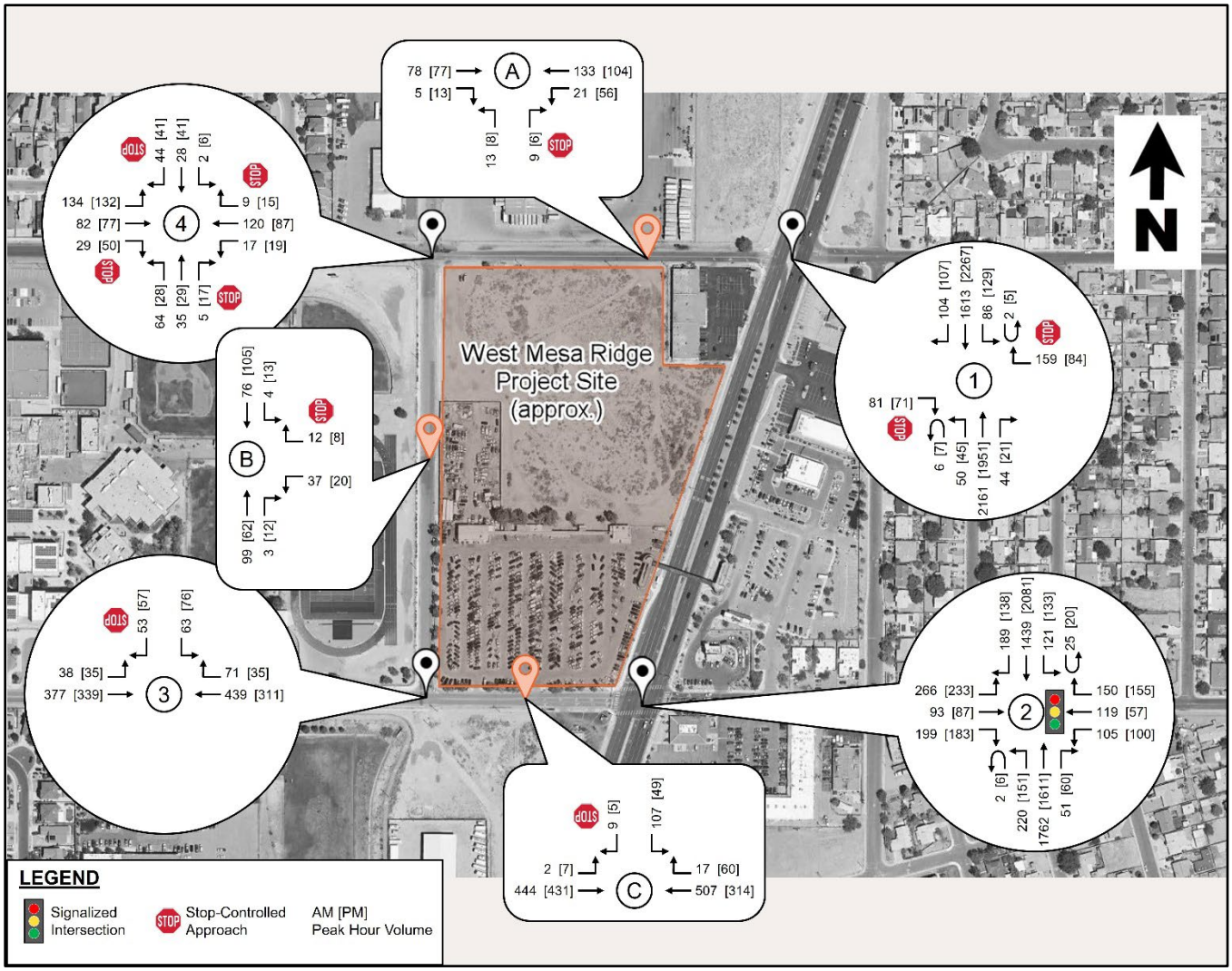


Figure 12. Year 2045 Build Traffic Volumes – AM [PM]



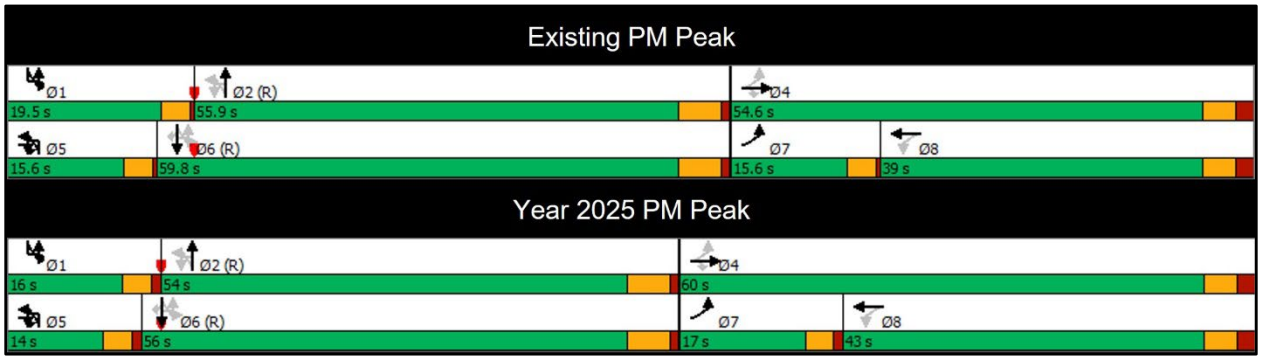
5 Future Build Traffic Operations

As discussed in **Section 2.4**, models of the study area were built using Synchro 11 analysis software. The Existing traffic operations results are presented in **Section 2.4**, while the Future Background traffic operations results are presented in **Section 3.4**.

The Future Build models represent conditions in the future analysis years with full build-out of the WMR site. The Future Background Synchro models were used as the starting point for this analysis; the access driveways were added to the model and the traffic volumes were updated to match those presented in **Section 4.4**.

The signal timing at Coors Boulevard & Fortuna Road was adjusted for the Future Build volumes (both Year 2025 and Year 2045) using Synchro's timing optimization feature. While the cycle length was maintained at 120 seconds for AM and 130 seconds for PM, the optimization resulted in slightly different splits for each of the phases. The largest difference was in Phase 8, the westbound through phase. In the Existing timing, that phase is not long enough to accommodate the pedestrian phase for the north crosswalk, likely resulting in the signal falling out of coordination any time that pedestrian phase is called. As that crosswalk was counted to carry many pedestrians during both the AM and PM peak hours, the optimized timing identified by Synchro lengthened Phase 8 to always accommodate the pedestrian phase. To illustrate this point, the Existing and Year 2025 Future PM signal timing diagrams are shown together for comparison in **Figure 13**.

Figure 13. Coors Boulevard & Fortuna Road Synchro PM Signal Timing



For this first look at the Future Build traffic operations, no other changes were made to roadway geometry or traffic control.

Table 9, on the following pages, presents a summary of the traffic volumes, delay, and LOS results for the AM and PM peak hours in Year 2025. **Table 10** presents the same results for AM and PM in Year 2045. Volumes are presented for each individual movement; delay and LOS are reported per lane group and per approach (where applicable). Reports generated from Synchro containing more detailed results are provided in **Appendix B**.

Table 9. Year 2025 Future Build Conditions Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
1: Coors Blvd & Glenrio Rd	TWSC	EB	R	69	14.2	B	60	18.2	C
		WB	R	130	10.3	B	69	9.3	A
		NB	U	5	14.3	B	6	19.5	C
			L	41			37		
			T	1,783	–	–	1,605	–	–
			R	36			17		
		SB	U	2	16.0	C	4	15.4	C
			L	71			106		
			T	1,321	–	–	1,857	–	–
			R	89			97		
	Intersection Total			**3,547**	**1.3**	**–**	**3,858**	**1.3**	**–**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	229	180.0	F	196	316.3	F
			T	78	30.4	C	73	39.8	D
			R	176	25.4	C	156	37.6	D
		EB Approach		483	99.6	F	425	166.5	F
		WB	L	86	47.0	D	82	60.9	E
			T	98	53.8	D	48	55.8	E
			R	123			127		
		WB Approach		307	51.9	D	257	57.5	E
		NB	U	2	22.1	C	5	37.8	D
			L	184			135		
			T	1,444	24.0	C	1,321	18.5	B
			R	41			49		
		NB Approach		1,671	23.8	C	1,510	20.3	C
		SB	U	22	25.6	C	17	13.3	B
			L	99			109		
			T	1,180	24.2	C	1,706	20.2	C
			R	155	18.8	B	113	13.3	B
		SB Approach		1,456	23.7	C	1,945	19.4	B
	Intersection Total			**3,917**	**39.2**	**D**	**4,137**	**47.6**	**D**

Table 9. Year 2025 Future Build Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
3: 64th St & Fortuna Rd	TWSC	EB	L	31	1.4	A	29	1.3	A
			T	309			279		
		WB	T	361	–	–	255	–	–
			R	59			30		
		SB	L	57	32.2	D	65	27.8	D
			R	44			47		
	Intersection Total			**861**	**4.5**	**–**	**705**	**5.1**	**–**
4: 64th St & Glenrio Rd	AWSC	EB	L	110	11.7	B	108	13.4	B
			T	68			65		
			R	24			41		
		WB	L	14	9.7	A	16	9.2	A
			T	100			73		
			R	8			13		
		NB	L	53	9.4	A	23	9.6	A
			T	29			24		
			R	5			14		
		SB	L	2	8.9	A	6	9.1	A
			T	23			34		
			R	36			33		
	Intersection Total			**472**	**10.5**	**B**	**450**	**11.5**	**B**
5: Glenrio Rd & Driveway A	TWSC	EB	T	65	–	–	64	–	–
			R	5			13		
		WB	L	21	1.3	A	56	3.2	A
			T	109			86		
		NB	L	13	9.6	A	8	9.8	A
			R	9			6		
	Intersection Total			**222**	**1.7**	**–**	**233**	**2.5**	**–**

Table 9. Year 2025 Future Build Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
6: 64th St & Driveway B	TWSC	WB	L	37	9.6	A	20	9.5	A
			R	12			8		
		NB	T	81	–	–	51	–	–
			R	3			12		
		SB	L	4	0.5	A	13	1.0	A
			T	63			86		
	Intersection Total			**200**	**2.5**	**–**	**190**	**1.9**	**–**
7: Fortuna Rd & Driveway C	TWSC	EB	L	2	0.1	A	7	0.2	A
			T	369			356		
		WB	T	416	–	–	258	–	–
			R	17			60		
		SB	L	107	26.3	D	49	16.3	C
			R	9			5		
	Intersection Total			**920**	**3.4**	**–**	**735**	**1.3**	**–**

The addition of the site traffic in 2025 has a slight impact on traffic operations at the study intersections as compared to the Year 2025 Future Background results. The two intersections located on Glenrio Road see little difference in either peak hour. The access points at Driveway A and Driveway B, on the north and west sides of the site, also operate with minimal delay.

The poor operations at Coors Boulevard & Fortuna Road are worsened by the additional site traffic, particularly on the eastbound approach. The eastbound left-turn movement, which as mentioned previously is over-capacity even under existing conditions, now sees a V/C ratio of 1.26 during AM and 1.56 during PM. The northbound and southbound left-turn movements also see an increase in delay, due to a combination of added site traffic and reduced splits in the optimized signal timing plans.

Operations at 64th Street & Fortuna Road, while still at an acceptable LOS, do see an increase in delay on the southbound approach. A similar pattern is observed in the results at Driveway C on the south side of the site. Delays on both of these southbound stop-controlled approaches are influenced by the high east-west volumes on Fortuna Road, as well as queueing for the signal at Coors Boulevard & Fortuna Road.

Table 10. Year 2045 Future Build Conditions Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
1: Coors Blvd & Glenrio Rd	TWSC	EB	R	81	17.2	C	71	25.6	D
		WB	R	159	11.9	B	84	9.9	A
		NB	U	6	18.4	C	7	29.4	D
			L	50			45		
			T	2,161	–	–	1,951	–	–
			R	44			21		
		SB	U	2	21.6	C	5	21.0	C
			L	86			129		
			T	1,613	–	–	2,267	–	–
			R	104			107		
	Intersection Total			**4,306**	**1.6**	**–**	**4,687**	**1.8**	**–**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	266	291.7	F	233	467.1	F
			T	93	28.6	C	87	38.4	D
			R	199	23.5	C	183	39.1	D
		EB Approach		558	152.1	F	503	237.2	F
		WB	L	105	44.1	D	100	61.0	E
			T	119	52.7	D	57	58.2	E
			R	150			155		
		WB Approach		374	50.3	D	312	59.1	E
		NB	U	2	93.7	F	6	116.0	F
			L	220			151		
			T	1,762	29.9	C	1,611	22.8	C
			R	51			60		
		NB Approach		2,035	36.9	D	1,828	30.8	C
		SB	U	25	92.0	F	20	52.8	D
			L	121			133		
			T	1,439	30.2	C	2,081	25.3	C
			R	189	21.7	C	138	14.3	B
		SB Approach		1,774	34.4	C	2,372	26.4	C
	Intersection Total			**4,741**	**56.4**	**E**	**5,015**	**65.9**	**E**

Table 10. Year 2045 Future Build Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
3: 64th St & Fortuna Rd	TWSC	EB	L	38	1.8	A	35	1.6	A
			T	377			339		
		WB	T	439	–	–	311	–	–
			R	71			35		
		SB	L	63	82.5	F	76	68.8	F
			R	53			57		
	Intersection Total			**1,041**	**10.3**	**–**	**853**	**11.5**	**–**
4: 64th St & Glenrio Rd	AWSC	EB	L	134	14.8	B	132	19.2	C
			T	82			77		
			R	29			50		
		WB	L	17	11.0	B	19	10.1	B
			T	120			87		
			R	9			15		
		NB	L	64	10.3	B	28	10.8	B
			T	35			29		
			R	5			17		
		SB	L	2	9.8	A	6	10.0	A
			T	28			41		
			R	44			41		
	Intersection Total			**569**	**12.5**	**B**	**542**	**15.2**	**C**
5: Glenrio Rd & Driveway A	TWSC	EB	T	78	–	–	77	–	–
			R	5			13		
		WB	L	21	1.1	A	56	2.9	A
			T	133			104		
		NB	L	13	9.8	A	8	10.0	B
			R	9			6		
	Intersection Total			**259**	**1.5**	**–**	**264**	**2.3**	**–**

Table 10. Year 2045 Future Build Conditions Results Summary (continued)

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
6: 64th St & Driveway B	TWSC	WB	L	37	9.8	A	20	9.7	A
			R	12			8		
		NB	T	99	–	–	62	–	–
			R	3			12		
		SB	L	4	0.4	A	13	0.9	A
			T	76			105		
	Intersection Total			**231**	**2.2**	**–**	**220**	**1.7**	**–**
7: Fortuna Rd & Driveway C	TWSC	EB	L	2	0.1	A	7	0.2	A
			T	444			431		
		WB	T	507	–	–	314	–	–
			R	17			60		
		SB	L	107	42.3	E	49	19.6	C
			R	9			5		
	Intersection Total			**1,086**	**4.6**	**–**	**866**	**1.3**	**–**

By Year 2045, the combination of background traffic growth and additional site traffic has a clear impact on traffic operations at the study intersections as compared to the Year 2045 Future Background results. Again, the two intersections located on Glenrio Road see little difference in either peak hour with the addition of the site traffic. The access points at Driveway A and Driveway B, on the north and west sides of the side, also operate with minimal delay.

The impacts at Coors Boulevard & Fortuna Road are primarily to the northbound and southbound left turns, which are affected both by added site traffic and reduced splits in the optimized signal timing plans. The northbound left-turn movement, in particular, now sees the V/C ratio increased to 1.00 in the AM peak and 1.04 in the PM peak. The southbound left turn is close to maxing out as well, with a V/C ratio of 0.98 in AM and 0.83 in PM. The eastbound left-turn movement still exhibits an incredible amount of delay and is well over capacity, with a V/C ratio of 1.53 during AM and 1.91 during PM.

At 64th Street & Fortuna Road, the delay on the southbound approach equates to LOS F during both peak hours in the Year 2045 Build model. High delays, while still an acceptable LOS, are also observed for the southbound approach at Driveway C on the south side of the site. Delays on both of these southbound stop-controlled approaches are influenced by the high east-west volumes on Fortuna Road, as well as queueing for the signal at Coors Boulevard & Fortuna Road.

6 Site Access Requirements

At this stage, there are no evident concerns regarding design or operational standards within the proposed WMR site. There appears to be sufficient circulation provided throughout the site, including marked crossings for pedestrians at strategic locations. All three of the access driveways operate adequately in both Year 2025 and Year 2045 without turn pockets into the site and with just a single lane exiting the site. Wayfinding signage should be used within the site to clearly identify a direct route for pedestrians to access the west end of the pedestrian bridge if they desire to cross Coors Boulevard.

7 Recommendations and Mitigation Measures

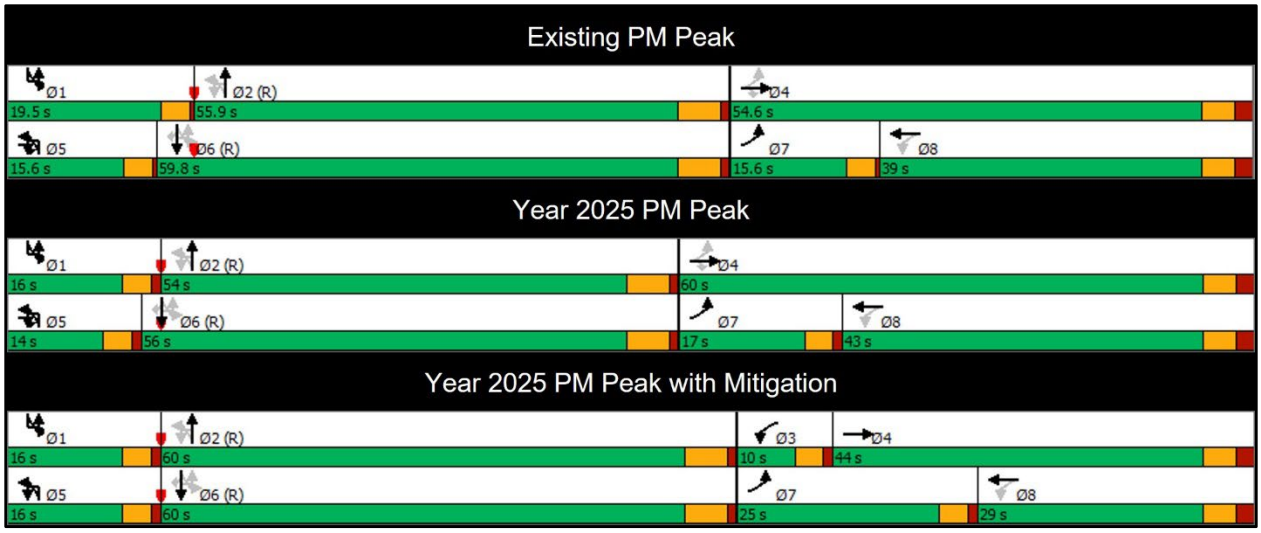
As shown in the preceding sections of this TIS report, the signalized intersection at Coors Boulevard & Fortuna Road currently sees high delays and poor LOS on certain approaches, and this situation only worsens with time and background traffic growth. While the addition of the site traffic associated with the WMR development also contributes to this delay, the mitigation measures proposed to improve this intersection are not directly related to the development and could be implemented separately.

The following changes are proposed to address the existing and future operational concerns at the Coors Boulevard & Fortuna Road intersection. While these suggestions consider constraints such as right-of-way availability and corridor progression along Coors Boulevard, the scope of this TIS does not include preparation of a full concept plan.

- Add a second lane for the eastbound left turn.
    - » In conjunction with this, convert the eastbound left turn operation to protected-only, rather than protected-permissive.
- Convert the westbound left turn operation to protected-permissive, rather than permissive-only.
- Remove the eastbound right turn overlap phase and signal head. It is inadvisable to operate a right turn overlap phase at this location because of potential conflicts with eastbound through and northbound U-turning vehicles.
- Re-optimize the signal timing to account for the changes to the left turn movements.
    - » The optimal timing at this location does not allow for the pedestrian phases across Coors Boulevard to always be accommodated. As stated previously, this means that the signal may fall out of coordination any time those pedestrian phases are called.
- Encourage pedestrians to utilize the pedestrian bridge over Coors Boulevard, rather than the crosswalks at this intersection.
    - » Additional measures such as wayfinding signage, pedestrian lighting, and street trees/ landscaping may be helpful to make walking along Coors Boulevard more desirable.
    - » If feasible, consider installing elevators at both ends of the pedestrian bridge.
    - » While removal of the north pedestrian crosswalk is not currently included in these recommendations, it should be considered in the future if conflicts between pedestrians and turning vehicles continue to be a concern.

Figure 14 illustrates the re-optimized signal timing as utilized in the Year 2025 Future PM with Mitigation model, alongside the Existing and original Year 2025 Future PM timing diagrams for comparison.

Figure 14. Coors Boulevard & Fortuna Road Synchro PM Signal Timing with Mitigation



The only other location in this study area with an approach that operates at LOS F in any scenario is the intersection of 64th Street & Fortuna Road in Year 2045. Implementation of all-way stop control was considered at this location, but the volumes on the southbound approach do not meet the warrant criteria laid out in Section 2B.07 of the *Manual on Uniform Traffic Control Design (MUTCD), 2009 Edition*.

Without visible lane striping on 64th Street, it was initially presumed that the southbound approach at this intersection operates as a single shared lane for both the left and right turns. However, the roadway width is sufficient to accommodate separate left and right turn lanes, if lane striping were added to delineate them. While this change is only necessary to address deficiencies by Year 2045, it is also recommended that 64th Street be striped with lane markings by the time the WMR development opens in Year 2025.

None of the unsignalized intersections within the study area, including the site access points at Driveways A, B, and C, have high enough traffic volumes to meet signal warrants per Chapter 4C of the MUTCD.

The above recommendations were implemented into Future Build Synchro models to assess the impacts of these proposed mitigation measures. The changes were all applied to both the Year 2025 and Year 2045 AM and PM models, but it is acknowledged that some of these changes may not strictly be necessary from an operational standpoint in Year 2025.

Table 11, on the following page, presents a summary of the traffic volumes, delay, and LOS results for the AM and PM peak hours in Year 2025. **Table 12** presents the same results for AM and PM in Year 2045. Volumes are presented for each individual movement; delay and LOS are reported per lane group and per approach (where applicable). Only the two intersections directly impacted by the suggested mitigation measures are included in these tables. While the adjacent intersections might also see some impacts to their operations through these changes, they are not significant. Reports generated from Synchro containing detailed results at all of the study intersections are provided in **Appendix B**.

Table 11. Year 2025 Future Build with Mitigation Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	229	59.5	E	196	62.2	E
			T	78	54.3	D	73	63.3	E
			R	176			156		
		EB Approach		483	56.8	E	425	62.8	E
		WB	L	86	52.0	D	82	52.6	D
			T	98	58.3	E	48	49.4	D
			R	123			127		
		WB Approach		307	56.6	E	257	50.4	D
		NB	U	2	23.0	C	5	47.3	D
			L	184			135		
			T	1,444	25.9	C	1,321	27.0	C
			R	41			49		
		NB Approach		1,671	25.6	C	1,510	28.9	C
		SB	U	22	26.1	C	17	23.6	C
			L	99			109		
			T	1,180	26.0	C	1,706	31.1	C
			R	155	19.8	B	113	19.4	B
		SB Approach		1,456	25.3	C	1,945	29.9	C
	Intersection Total			**3,917**	**33.3**	**C**	**4,137**	**36.5**	**D**
3: 64th St & Fortuna Rd	TWSC	EB	L	31	1.4	A	29	1.3	A
			T	309			279		
		WB	T	361	–	–	255	–	–
			R	59			30		
		SB	L	57	25.2	D	65	22.3	C
			R	44			47		
	Intersection Total			**861**	**3.7**	**–**	**705**	**4.2**	**–**

In Year 2025, the recommended mitigation measures at the intersection of Coors Boulevard & Fortuna Road are shown to be effective at reducing the excessive delay on the eastbound approach. The V/C ratio of the eastbound left-turn movement is reduced to 0.81 in the AM peak and 0.80 in the PM peak with these changes. While certain movements and approaches do see an increase in delay, the average delay of the overall intersection actually decreases. The addition of the right turn pocket on 64th Street at Fortuna Road, while not as dramatic, also results in a decrease in delay on that approach.

Table 12. Year 2045 Future Build with Mitigation Results Summary

				AM Peak			PM Peak		
Intersection	**Control Type**	**Movement / Approach**		**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**	**Volume (veh/hr)**	**Delay (sec/veh)**	**LOS**
2: Coors Blvd & Fortuna Rd	Signal	EB	L	266	66.5	E	233	71.3	E
			T	93	65.1	E	87	77.1	E
			R	199			183		
		EB Approach		558	65.8	E	503	74.4	E
		WB	L	105	58.5	E	100	55.3	E
			T	119	65.1	E	57	47.8	D
			R	150			155		
		WB Approach		374	63.3	E	312	50.2	D
		NB	U	2	63.4	E	6	71.0	E
			L	220			151		
			T	1,762	34.8	C	1,611	38.0	D
			R	51			60		
		NB Approach		2,035	37.9	D	1,828	40.8	D
		SB	U	25	53.4	D	20	47.4	D
			L	121			133		
			T	1,439	34.2	C	2,081	55.8	E
			R	189	23.5	C	138	22.4	C
		SB Approach		1,774	34.6	C	2,372	53.3	D
	Intersection Total			**4,741**	**43.3**	**D**	**5,015**	**52.5**	**D**
3: 64th St & Fortuna Rd	TWSC	EB	L	38	1.8	A	35	1.6	A
			T	377			339		
		WB	T	439	–	–	311	–	–
			R	71			35		
		SB	L	63	49.0	E	76	42.9	E
			R	53			57		
	Intersection Total			**1,041**	**6.4**	**–**	**853**	**7.5**	**–**

The results in Year 2045 show a similar level of improvement with the recommended mitigation measures. The addition of the right turn pocket on 64th Street at Fortuna Road successfully mitigates the delay on that approach.

At Coors Boulevard & Fortuna Road, the excessive delays experienced by the left-turn movements can be alleviated to LOS E, and the overall intersection delay decreases from LOS E to LOS D in both peak

hours. The V/C ratio of the eastbound left-turn movement is reduced to 0.88 in the AM peak and 0.89 in the PM peak with these changes. However, it should be noted that, with these adjustments in place, multiple movements at this intersection now have a V/C ratio greater than 0.80 in one or both peak hours, including the northbound and southbound through movements. It is recommended that additional analysis of this region should be conducted to assess further potential improvements for the Coors Boulevard corridor by Year 2045.

8 Summary of Findings

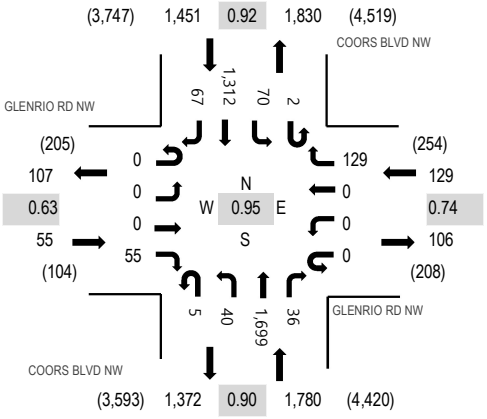
To be completed after scoping meeting with City of Albuquerque and NMDOT.

Appendix A Traffic Count Data

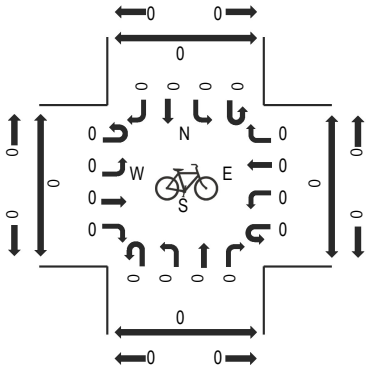
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 COORS BLVD NW & GLENRIO RD NW AM
Date: Tuesday, August 13, 2024
Peak Hour: 07:15 AM - 08:15 AM
Peak 15-Minutes: 07:30 AM - 07:45 AM

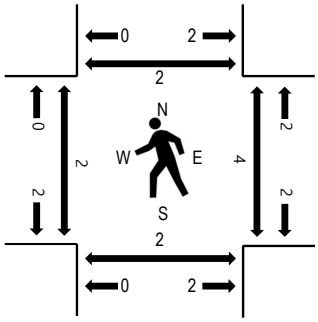
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

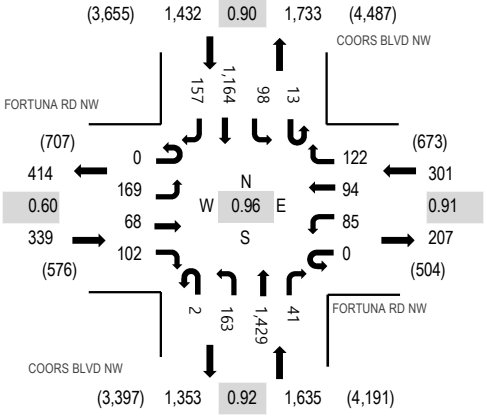
Traffic Counts - Motorized Vehicles

Interval Start Time	GLENRIO RD NW Eastbound				GLENRIO RD NW Westbound				COORS BLVD NW Northbound				COORS BLVD NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	5	0	0	0	23	0	1	441	4	1	13	296	8	792	3,389	0	0	0	0
7:15 AM	0	0	0	14	0	0	0	40	1	6	486	7	0	25	288	12	879	3,415	0	0	2	2
7:30 AM	0	0	0	6	0	0	0	44	2	4	453	13	1	26	338	10	897	3,313	0	2	0	0
7:45 AM	0	0	0	13	0	0	0	24	2	14	364	11	1	7	363	22	821	2,997	0	2	0	0
8:00 AM	0	0	0	22	0	0	0	21	0	16	396	5	0	12	323	23	818	2,718	2	0	0	0
8:15 AM	0	0	0	14	0	0	0	19	5	10	395	7	2	9	301	15	777	2,499	1	0	0	0
8:30 AM	0	0	0	4	0	0	0	19	2	1	278	3	0	6	257	11	581	2,345	1	2	0	0
8:45 AM	0	0	0	3	0	0	0	14	0	4	257	6	2	4	247	5	542	2,384	0	1	0	0
9:00 AM	0	0	0	2	0	0	0	10	1	3	297	1	1	10	265	9	599	2,418	1	1	0	0
9:15 AM	0	0	0	6	0	0	0	7	1	6	306	4	0	9	278	6	623		0	1	0	0
9:30 AM	0	0	0	9	0	0	0	15	4	4	295	6	0	12	269	6	620		0	0	0	0
9:45 AM	0	0	0	6	0	0	0	18	0	7	289	2	0	6	246	2	576		0	0	0	0
Count Total	0	0	0	104	0	0	0	254	18	76	4,257	69	8	139	3,471	129	8,525		5	9	2	2
Peak Hour	0	0	0	55	0	0	0	129	5	40	1,699	36	2	70	1,312	67	3,415		2	4	2	2

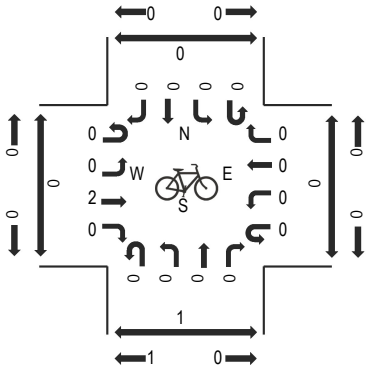
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 COORS BLVD NW & FORTUNA RD NW AM
Date: Tuesday, August 13, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:15 AM - 08:30 AM

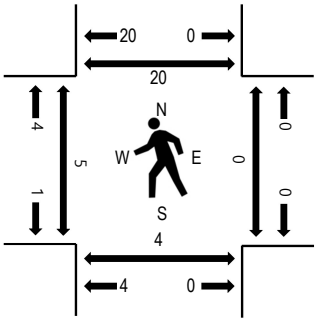
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

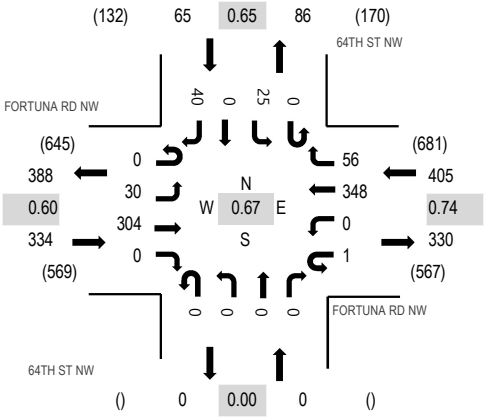
Traffic Counts - Motorized Vehicles

Interval Start Time	FORTUNA RD NW Eastbound				FORTUNA RD NW Westbound				COORS BLVD NW Northbound				COORS BLVD NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	13	5	6	0	10	8	26	0	8	301	5	3	19	200	13	617	3,167	2	1	0	0
7:15 AM	0	18	6	5	0	13	3	28	1	12	396	10	4	28	225	28	777	3,417	1	0	0	0
7:30 AM	0	20	8	4	0	7	9	39	1	14	415	14	5	15	260	23	834	3,603	0	0	0	2
7:45 AM	0	32	12	9	0	22	13	38	0	16	428	14	3	22	307	23	939	3,707	0	0	0	4
8:00 AM	0	33	7	21	0	28	14	32	0	43	322	7	2	26	299	33	867	3,444	0	0	4	10
8:15 AM	0	37	15	32	0	13	32	26	0	56	341	13	5	27	307	59	963	3,136	2	0	0	3
8:30 AM	0	67	34	40	0	22	35	26	2	48	338	7	3	23	251	42	938	2,821	3	0	0	3
8:45 AM	0	26	8	13	0	18	10	30	0	13	258	8	1	18	250	23	676	2,538	2	2	1	0
9:00 AM	0	8	3	11	0	14	10	19	1	14	208	14	2	18	221	16	559	2,484	0	1	0	0
9:15 AM	0	11	7	9	0	20	3	20	0	16	287	9	7	28	217	14	648		0	0	0	2
9:30 AM	0	15	4	9	0	11	4	27	0	9	270	9	5	28	249	15	655		0	1	0	1
9:45 AM	0	20	2	6	0	16	4	23	1	10	240	12	9	19	246	14	622		0	1	0	6
Count Total	0	300	111	165	0	194	145	334	6	259	3,804	122	49	271	3,032	303	9,095		10	6	5	31
Peak Hour	0	169	68	102	0	85	94	122	2	163	1,429	41	13	98	1,164	157	3,707		5	0	4	20

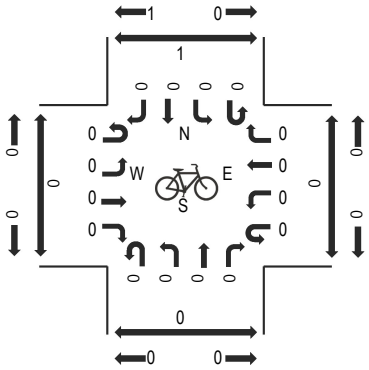
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 64TH ST NW & FORTUNA RD NW AM
Date: Tuesday, August 13, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:30 AM - 08:45 AM

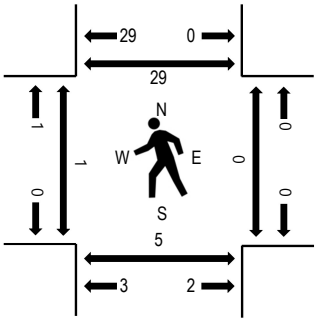
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

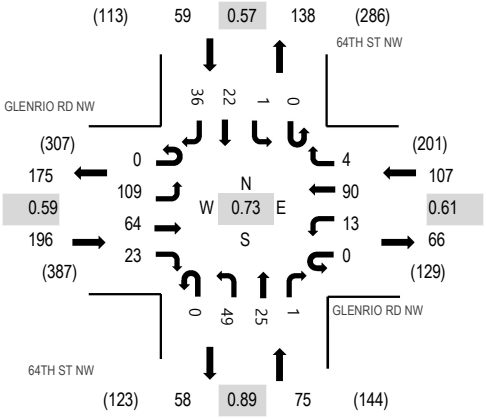
Traffic Counts - Motorized Vehicles

Interval Start Time	FORTUNA RD NW Eastbound				FORTUNA RD NW Westbound				64TH ST NW Northbound				64TH ST NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	3	14	0	0	0	18	5	0	0	0	0	0	4	0	2	46	330	0	0	1	0
7:15 AM	0	4	27	0	0	0	37	4	0	0	0	0	0	7	0	4	83	431	0	0	0	0
7:30 AM	0	3	29	0	0	0	36	6	0	0	0	0	0	5	0	5	84	586	0	0	0	1
7:45 AM	0	7	43	0	0	0	49	5	0	0	0	0	0	7	0	6	117	804	0	0	1	5
8:00 AM	0	5	53	0	0	0	64	15	0	0	0	0	0	6	0	4	147	796	0	0	0	6
8:15 AM	0	6	80	0	0	0	113	22	0	0	0	0	0	5	0	12	238	712	1	0	2	13
8:30 AM	0	12	128	0	1	0	122	14	0	0	0	0	0	7	0	18	302	542	0	0	2	5
8:45 AM	1	6	44	0	1	0	37	10	0	0	0	0	0	4	0	6	109	305	0	0	0	3
9:00 AM	0	1	19	0	0	0	32	6	0	0	0	0	0	2	0	3	63	256	0	0	0	0
9:15 AM	0	5	25	0	0	0	23	8	0	0	0	0	0	2	0	5	68		2	3	2	2
9:30 AM	0	3	26	0	0	0	18	6	0	0	0	0	1	5	0	6	65		0	0	1	7
9:45 AM	0	5	20	0	1	0	20	8	0	0	0	0	0	2	0	4	60		0	0	0	0
Count Total	1	60	508	0	3	0	569	109	0	0	0	0	1	56	0	75	1,382		3	3	9	42
Peak Hour	0	30	304	0	1	0	348	56	0	0	0	0	0	25	0	40	804		1	0	5	29

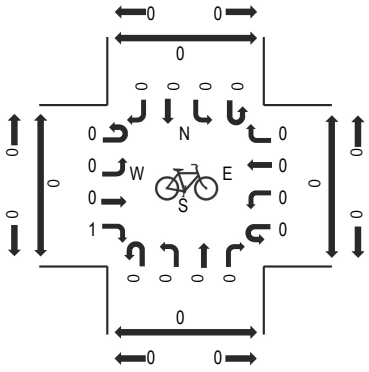
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 64TH ST NW & GLENRIO RD NW AM
Date: Tuesday, August 13, 2024
Peak Hour: 07:45 AM - 08:45 AM
Peak 15-Minutes: 08:00 AM - 08:15 AM

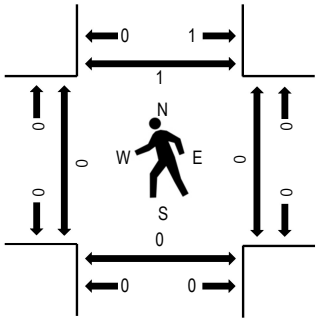
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

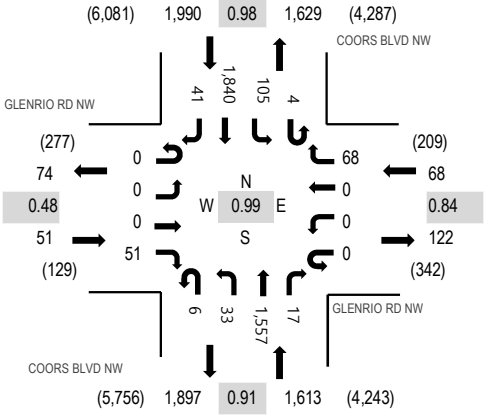
Traffic Counts - Motorized Vehicles

Interval Start Time	GLENRIO RD NW Eastbound				GLENRIO RD NW Westbound				64TH ST NW Northbound				64TH ST NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	26	5	8	0	0	13	1	0	6	1	0	0	0	3	4	67	278	0	0	0	0
7:15 AM	0	24	13	5	0	0	16	1	0	4	2	1	0	1	5	3	75	361	0	0	2	2
7:30 AM	0	14	7	6	0	3	9	0	0	4	6	4	0	0	1	4	58	435	0	0	0	0
7:45 AM	0	19	5	4	0	1	22	1	0	13	4	0	0	0	4	5	78	437	0	0	0	0
8:00 AM	0	28	24	7	0	6	37	1	0	12	8	1	0	0	8	18	150	396	0	0	0	1
8:15 AM	0	44	30	11	0	5	20	2	0	15	6	0	0	0	6	10	149	300	0	0	0	0
8:30 AM	0	18	5	1	0	1	11	0	0	9	7	0	0	1	4	3	60	203	0	0	0	0
8:45 AM	0	8	4	2	0	1	8	1	0	4	4	0	0	0	2	3	37	176	0	0	0	0
9:00 AM	0	14	1	4	0	3	12	0	0	5	6	1	0	0	2	6	54	171	0	0	0	0
9:15 AM	0	16	8	1	0	4	8	1	1	1	3	2	0	1	4	2	52		0	0	0	0
9:30 AM	0	7	6	1	0	1	3	0	0	5	2	1	0	0	2	5	33		0	0	0	0
9:45 AM	0	6	5	0	0	2	4	3	0	2	2	2	0	1	4	1	32		0	1	0	0
Count Total	0	224	113	50	0	27	163	11	1	80	51	12	0	4	45	64	845		0	1	2	3
Peak Hour	0	109	64	23	0	13	90	4	0	49	25	1	0	1	22	36	437		0	0	0	1

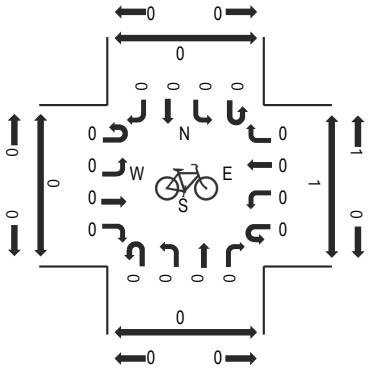
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 COORS BLVD NW & GLENRIO RD NW PM
Date: Tuesday, August 13, 2024
Peak Hour: 03:15 PM - 04:15 PM
Peak 15-Minutes: 03:15 PM - 03:30 PM

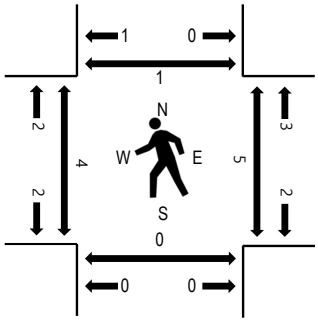
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

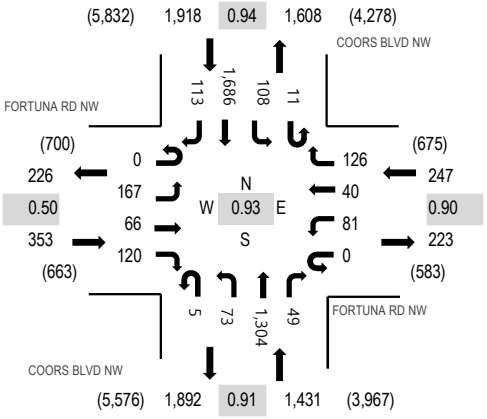
Traffic Counts - Motorized Vehicles

Interval Start Time	GLENRIO RD NW Eastbound				GLENRIO RD NW Westbound				COORS BLVD NW Northbound				COORS BLVD NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
3:00 PM	0	0	0	16	0	0	0	17	1	9	315	2	1	24	492	21	898	3,696	3	2	0	0
3:15 PM	0	0	0	31	0	0	0	15	3	14	379	6	1	32	451	8	940	3,722	1	0	0	0
3:30 PM	0	0	0	9	0	0	0	18	0	6	389	3	2	26	459	12	924	3,715	0	3	0	0
3:45 PM	0	0	0	4	0	0	0	16	1	9	431	4	1	21	438	9	934	3,675	3	2	0	0
4:00 PM	0	0	0	7	0	0	0	19	2	4	358	4	0	26	492	12	924	3,629	0	0	0	1
4:15 PM	0	0	0	7	0	0	0	21	1	8	369	7	1	21	481	17	933	3,559	0	0	1	0
4:30 PM	0	0	0	5	0	0	0	11	1	16	344	4	0	23	465	15	884	3,449	0	0	0	0
4:45 PM	0	0	0	5	0	0	0	17	2	5	325	9	0	23	486	16	888	3,410	0	0	0	0
5:00 PM	0	0	0	9	0	0	0	23	1	4	297	10	0	22	472	16	854	3,337	1	0	0	0
5:15 PM	0	0	0	14	0	0	0	20	0	6	300	7	0	19	447	10	823		1	3	0	1
5:30 PM	0	0	0	11	0	0	0	17	0	8	278	1	1	30	478	21	845		1	1	0	0
5:45 PM	0	0	0	11	1	0	0	14	1	8	287	4	0	13	453	23	815		1	2	0	0
Count Total	0	0	0	129	1	0	0	208	13	97	4,072	61	7	280	5,614	180	10,662		11	13	1	2
Peak Hour	0	0	0	51	0	0	0	68	6	33	1,557	17	4	105	1,840	41	3,722		4	5	0	1

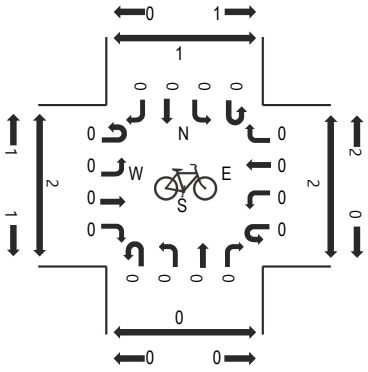
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 COORS BLVD NW & FORTUNA RD NW PM
Date: Tuesday, August 13, 2024
Peak Hour: 03:30 PM - 04:30 PM
Peak 15-Minutes: 03:30 PM - 03:45 PM

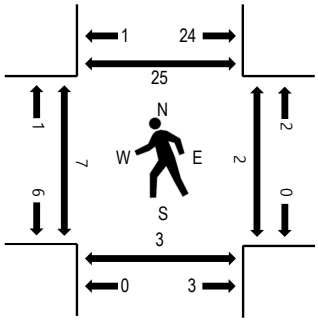
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

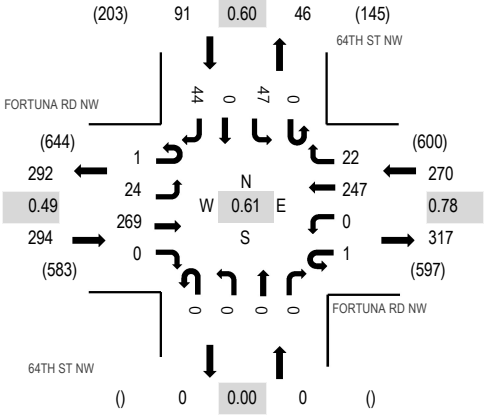
Traffic Counts - Motorized Vehicles

Interval Start Time	FORTUNA RD NW Eastbound				FORTUNA RD NW Westbound				COORS BLVD NW Northbound				COORS BLVD NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
3:00 PM	0	19	11	14	0	29	11	23	0	21	274	10	3	30	415	36	896	3,858	2	2	2	0
3:15 PM	0	22	10	14	0	10	16	26	1	36	276	12	1	35	415	45	919	3,931	0	0	3	0
3:30 PM	0	61	36	78	0	19	16	34	0	37	298	11	2	26	405	40	1,063	3,949	6	0	2	14
3:45 PM	0	38	13	25	0	29	9	26	2	15	288	18	2	31	453	31	980	3,845	0	2	1	7
4:00 PM	0	42	7	6	0	18	5	39	3	10	371	10	1	34	402	21	969	3,798	1	0	0	0
4:15 PM	0	26	10	11	0	15	10	27	0	11	347	10	6	17	426	21	937	3,722	0	0	0	4
4:30 PM	0	22	7	10	0	24	4	32	1	7	312	4	1	36	467	32	959	3,680	0	0	1	9
4:45 PM	0	10	6	13	0	27	8	29	1	10	320	10	2	28	443	26	933	3,564	0	0	0	0
5:00 PM	0	10	2	10	0	24	9	22	3	9	334	14	4	27	402	23	893	3,481	1	0	0	7
5:15 PM	0	12	4	9	0	16	6	18	0	8	278	13	5	19	477	30	895		1	1	3	3
5:30 PM	0	19	12	26	0	16	10	24	2	28	269	9	4	24	370	30	843		1	1	3	1
5:45 PM	0	37	1	10	0	14	12	18	1	21	243	9	1	27	420	36	850		1	0	1	0
Count Total	0	318	119	226	0	241	116	318	14	213	3,610	130	32	334	5,095	371	11,137		13	6	16	45
Peak Hour	0	167	66	120	0	81	40	126	5	73	1,304	49	11	108	1,686	113	3,949		7	2	3	25

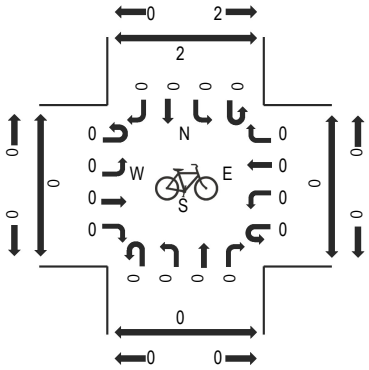
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 64TH ST NW & FORTUNA RD NW PM
Date: Tuesday, August 13, 2024
Peak Hour: 03:00 PM - 04:00 PM
Peak 15-Minutes: 03:30 PM - 03:45 PM

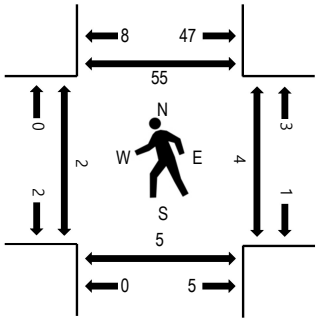
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

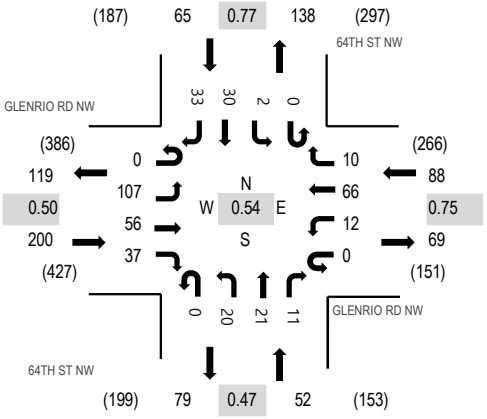
Traffic Counts - Motorized Vehicles

Interval Start Time	FORTUNA RD NW Eastbound				FORTUNA RD NW Westbound				64TH ST NW Northbound				64TH ST NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
3:00 PM	0	9	28	0	1	0	54	2	0	0	0	0	0	10	0	8	112	655	0	2	0	4
3:15 PM	1	3	30	0	0	0	78	8	0	0	0	0	0	5	0	11	136	637	0	0	0	3
3:30 PM	0	8	148	0	0	0	65	9	0	0	0	0	0	23	0	15	268	576	2	1	3	36
3:45 PM	0	4	63	0	0	0	50	3	0	0	0	0	0	9	0	10	139	394	0	1	2	12
4:00 PM	0	2	47	0	0	0	27	3	0	0	0	0	0	7	0	8	94	326	2	0	2	0
4:15 PM	0	5	30	0	0	0	23	9	0	0	0	0	0	4	0	4	75	301	0	0	0	4
4:30 PM	0	7	28	0	0	0	28	6	0	0	0	0	0	8	0	9	86	307	0	0	0	4
4:45 PM	0	4	13	0	1	0	35	3	0	0	0	0	0	8	0	7	71	348	0	0	0	0
5:00 PM	0	9	13	0	0	0	34	3	0	0	0	0	0	3	0	7	69	405	0	0	0	3
5:15 PM	0	7	20	0	0	0	34	4	0	0	0	0	0	4	0	12	81		0	0	5	8
5:30 PM	1	8	43	0	0	0	48	6	0	0	0	0	0	9	0	12	127		0	0	0	1
5:45 PM	1	11	40	0	0	0	54	12	0	0	0	0	0	2	0	8	128		0	0	0	2
Count Total	3	77	503	0	2	0	530	68	0	0	0	0	0	92	0	111	1,386		4	4	12	77
Peak Hour	1	24	269	0	1	0	247	22	0	0	0	0	0	47	0	44	655		2	4	5	55

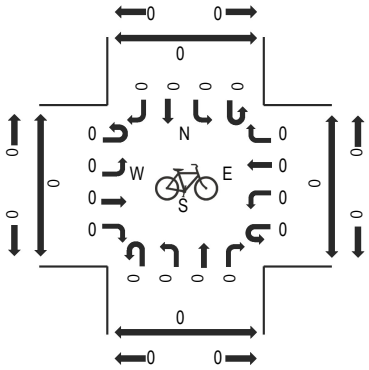
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 64TH ST NW & GLENRIO RD NW PM
Date: Tuesday, August 13, 2024
Peak Hour: 03:00 PM - 04:00 PM
Peak 15-Minutes: 03:15 PM - 03:30 PM

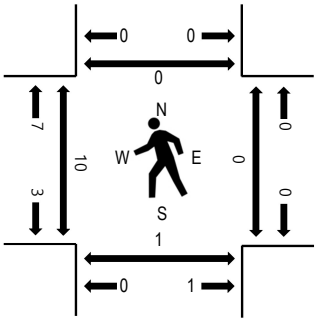
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	GLENRIO RD NW Eastbound				GLENRIO RD NW Westbound				64TH ST NW Northbound				64TH ST NW Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
3:00 PM	0	13	10	2	0	3	18	0	0	6	0	0	0	0	7	10	69	405	0	0	0	0
3:15 PM	0	51	27	23	0	4	20	8	0	9	13	10	0	1	11	9	186	396	5	0	0	0
3:30 PM	0	25	14	8	0	4	17	1	0	3	6	1	0	0	6	8	93	287	2	0	1	0
3:45 PM	0	18	5	4	0	1	11	1	0	2	2	0	0	1	6	6	57	263	3	0	0	0
4:00 PM	0	12	5	2	0	2	13	0	0	8	3	3	0	1	7	4	60	276	0	0	0	0
4:15 PM	0	11	6	6	0	0	19	2	0	6	4	1	0	0	10	12	77	283	0	0	0	1
4:30 PM	0	19	6	7	0	3	21	0	0	3	1	1	0	0	2	6	69	306	0	0	0	0
4:45 PM	0	14	5	6	0	1	14	1	1	4	6	2	0	0	6	10	70	318	0	0	0	0
5:00 PM	0	9	5	3	0	3	21	2	0	7	2	1	0	0	10	4	67	352	0	0	0	0
5:15 PM	0	20	16	7	0	1	20	3	2	6	4	1	0	1	10	9	100		0	0	1	0
5:30 PM	0	18	11	4	0	2	15	1	0	12	2	1	0	0	7	8	81		0	0	0	2
5:45 PM	0	17	11	7	0	3	27	4	1	10	4	5	0	0	7	8	104		0	0	0	2
Count Total	0	227	121	79	0	27	216	23	4	76	47	26	0	4	89	94	1,033		10	0	2	5
Peak Hour	0	107	56	37	0	12	66	10	0	20	21	11	0	2	30	33	405		10	0	1	0

Appendix B Synchro HCM Reports

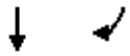
Appendix B HCM Synchro Reports

Existing Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	55	0	0	129	5	40	1699	36	2	70
Future Volume (Veh/h)	0	0	55	0	0	129	5	40	1699	36	2	70
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	87	0	0	174	0	44	1888	40	0	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.80	0.80		0.80	0.80	0.80	0.00				0.00	0.80
vC, conflicting volume	2506	3630	512	2710	3647	649	0	1499			0	1928
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2000	3410	512	2257	3431	0	0	1499			0	1276
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	83	100	100	80	0	90			0	82
cM capacity (veh/h)	18	4	512	12	4	870	0	448			0	431

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	87	174	44	755	755	418	76	570	570	358
Volume Left	0	0	44	0	0	0	76	0	0	0
Volume Right	87	174	0	0	0	40	0	0	0	73
cSH	512	870	448	1700	1700	1700	431	1700	1700	1700
Volume to Capacity	0.17	0.20	0.10	0.44	0.44	0.25	0.18	0.34	0.34	0.21
Queue Length 95th (ft)	15	19	8	0	0	0	16	0	0	0
Control Delay (s)	13.5	10.2	13.9	0.0	0.0	0.0	15.1	0.0	0.0	0.0
Lane LOS	B	B	B				C			
Approach Delay (s)	13.5	10.2	0.3				0.7			
Approach LOS	B	B								

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	55.6%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1312	67
Future Volume (Veh/h)	1312	67
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1426	73
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	169	68	102	85	94	122	2	163	1429	41	13	98
Future Volume (vph)	169	68	102	85	94	122	2	163	1429	41	13	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1787	1881	1599	1805	1739			1787	5114			1770
Flt Permitted	0.26	1.00	1.00	0.68	1.00			0.14	1.00			0.10
Satd. Flow (perm)	492	1881	1599	1300	1739			271	5114			185
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	282	113	170	93	103	134	2	177	1553	45	14	109
RTOR Reduction (vph)	0	0	14	0	45	0	0	0	2	0	0	0
Lane Group Flow (vph)	282	113	156	93	192	0	0	179	1596	0	0	123
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	34.0	34.0	44.8	19.6	19.6			74.0	63.2			69.0
Effective Green, g (s)	34.0	34.0	44.8	19.6	19.6			74.0	63.2			69.0
Actuated g/C Ratio	0.28	0.28	0.37	0.16	0.16			0.62	0.53			0.58
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	257	532	596	212	284			303	2693			216
v/s Ratio Prot	c0.10	0.06	0.02		0.11			c0.05	c0.31			0.04
v/s Ratio Perm	c0.21		0.07	0.07				0.31				0.29
v/c Ratio	1.10	0.21	0.26	0.44	0.68			0.59	0.59			0.57
Uniform Delay, d1	40.1	32.8	26.1	45.2	47.2			12.4	19.5			14.5
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	84.6	0.3	0.1	2.0	6.8			2.1	1.0			2.1
Delay (s)	124.8	33.1	26.2	47.2	54.0			14.5	20.5			16.6
Level of Service	F	C	C	D	D			B	C			B
Approach Delay (s)		76.8			52.1				19.9			
Approach LOS		E			D				B			

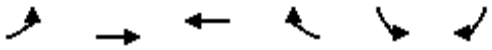
Intersection Summary			
HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1164	157
Future Volume (vph)	1164	157
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1293	174
RTOR Reduction (vph)	0	65
Lane Group Flow (vph)	1293	109
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	60.7	60.7
Effective Green, g (s)	60.7	60.7
Actuated g/C Ratio	0.51	0.51
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2572	800
v/s Ratio Prot	0.25	
v/s Ratio Perm		0.07
v/c Ratio	0.50	0.14
Uniform Delay, d1	19.6	15.7
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.4
Delay (s)	20.4	16.1
Level of Service	C	B
Approach Delay (s)	19.6	
Approach LOS	B	

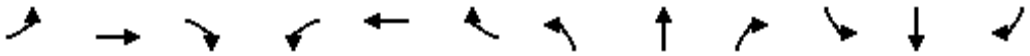
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	304	349	56	25	40
Future Volume (Veh/h)	30	304	349	56	25	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	50	507	472	76	38	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	548				1117	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	510				1102	470
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				82	89
cM capacity (veh/h)	1020				216	574

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	557	548	100
Volume Left	50	0	38
Volume Right	0	76	62
cSH	1020	1700	352
Volume to Capacity	0.05	0.32	0.28
Queue Length 95th (ft)	4	0	29
Control Delay (s)	1.3	0.0	19.2
Lane LOS	A		C
Approach Delay (s)	1.3	0.0	19.2
Approach LOS			C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	109	64	23	13	90	4	49	25	1	1	22	36
Future Volume (vph)	109	64	23	13	90	4	49	25	1	1	22	36
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	185	108	39	21	148	7	55	28	1	2	39	63

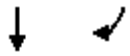
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	332	176	84	104
Volume Left (vph)	185	21	55	2
Volume Right (vph)	39	7	1	63
Hadj (s)	0.06	0.00	0.12	-0.36
Departure Headway (s)	4.7	4.8	5.4	4.9
Degree Utilization, x	0.43	0.24	0.13	0.14
Capacity (veh/h)	733	704	598	654
Control Delay (s)	11.2	9.3	9.2	8.7
Approach Delay (s)	11.2	9.3	9.2	8.7
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.1			
Level of Service	B			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	51	0	0	68	6	33	1557	17	4	105
Future Volume (Veh/h)	0	0	51	0	0	68	6	33	1557	17	4	105
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	106	0	0	81	0	36	1711	19	0	107
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.86	0.86		0.86	0.86	0.86	0.00				0.00	0.86
vC, conflicting volume	2836	3915	647	2738	3926	580	0	1920			0	1730
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2562	3818	647	2448	3832	0	0	1920			0	1273
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	75	100	100	91	0	88			0	77
cM capacity (veh/h)	8	2	418	8	2	936	0	308			0	469

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	106	81	36	684	684	361	107	751	751	418
Volume Left	0	0	36	0	0	0	107	0	0	0
Volume Right	106	81	0	0	0	19	0	0	0	42
cSH	418	936	308	1700	1700	1700	469	1700	1700	1700
Volume to Capacity	0.25	0.09	0.12	0.40	0.40	0.21	0.23	0.44	0.44	0.25
Queue Length 95th (ft)	25	7	10	0	0	0	22	0	0	0
Control Delay (s)	16.5	9.2	18.2	0.0	0.0	0.0	14.9	0.0	0.0	0.0
Lane LOS	C	A	C				B			
Approach Delay (s)	16.5	9.2	0.4				0.8			
Approach LOS	C	A								

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	53.1%	ICU Level of Service		A
Analysis Period (min)	15			



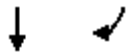
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1840	41
Future Volume (Veh/h)	1840	41
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	1878	42
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	167	66	120	81	40	126	5	73	1304	49	11	108
Future Volume (vph)	167	66	120	81	40	126	5	73	1304	49	11	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1805	1900	1615	1805	1683			1787	5108			1787
Flt Permitted	0.27	1.00	1.00	0.67	1.00			0.08	1.00			0.12
Satd. Flow (perm)	515	1900	1615	1278	1683			158	5108			225
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	334	132	240	90	44	140	5	80	1433	54	12	115
RTOR Reduction (vph)	0	0	35	0	105	0	0	0	2	0	0	0
Lane Group Flow (vph)	334	132	205	90	79	0	0	85	1485	0	0	127
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	31.2	31.2	37.9	15.6	15.6			81.5	74.8			87.1
Effective Green, g (s)	31.2	31.2	37.9	15.6	15.6			81.5	74.8			87.1
Actuated g/C Ratio	0.24	0.24	0.29	0.12	0.12			0.63	0.58			0.67
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	243	456	470	153	201			183	2939			264
v/s Ratio Prot	c0.13	0.07	0.02		0.05			0.02	0.29			c0.04
v/s Ratio Perm	c0.20		0.10	0.07				0.27				0.29
v/c Ratio	1.37	0.29	0.44	0.59	0.39			0.46	0.51			0.48
Uniform Delay, d1	46.4	40.3	37.4	54.2	52.8			12.5	16.5			10.6
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	192.3	0.5	0.2	6.7	1.7			0.7	0.6			0.5
Delay (s)	238.7	40.8	37.6	60.8	54.6			13.1	17.1			11.1
Level of Service	F	D	D	E	D			B	B			B
Approach Delay (s)		133.3			56.6				16.9			
Approach LOS		F			E				B			

Intersection Summary			
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

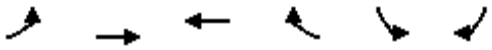
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1686	113
Future Volume (vph)	1686	113
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1794	120
RTOR Reduction (vph)	0	32
Lane Group Flow (vph)	1794	88
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	77.6	77.6
Effective Green, g (s)	77.6	77.6
Actuated g/C Ratio	0.60	0.60
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	3065	954
v/s Ratio Prot	c0.35	
v/s Ratio Perm		0.05
v/c Ratio	0.59	0.09
Uniform Delay, d1	16.2	11.2
Progression Factor	1.00	1.00
Incremental Delay, d2	0.8	0.2
Delay (s)	17.1	11.4
Level of Service	B	B
Approach Delay (s)	16.4	
Approach LOS	B	

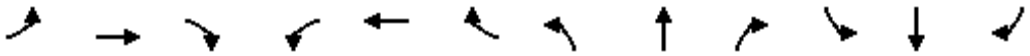
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	269	248	22	47	44
Future Volume (Veh/h)	25	269	248	22	47	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	51	549	318	28	78	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked						
vC, conflicting volume	346				983	332
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	346				983	332
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				71	90
cM capacity (veh/h)	1224				267	714

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	600	346	151
Volume Left	51	0	78
Volume Right	0	28	73
cSH	1224	1700	383
Volume to Capacity	0.04	0.20	0.39
Queue Length 95th (ft)	3	0	46
Control Delay (s)	1.1	0.0	20.4
Lane LOS	A		C
Approach Delay (s)	1.1	0.0	20.4
Approach LOS			C

Intersection Summary			
Average Delay		3.4	
Intersection Capacity Utilization		45.2%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	107	56	37	12	66	10	20	21	11	2	30	33
Future Volume (vph)	107	56	37	12	66	10	20	21	11	2	30	33
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	214	112	74	16	88	13	43	45	23	3	39	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	400	117	111	85
Volume Left (vph)	214	16	43	3
Volume Right (vph)	74	13	23	43
Hadj (s)	0.00	-0.04	-0.05	-0.30
Departure Headway (s)	4.6	4.9	5.2	5.0
Degree Utilization, x	0.51	0.16	0.16	0.12
Capacity (veh/h)	756	689	623	637
Control Delay (s)	12.2	8.8	9.2	8.7
Approach Delay (s)	12.2	8.8	9.2	8.7
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.7			
Level of Service	B			
Intersection Capacity Utilization	34.0%	ICU Level of Service	A	
Analysis Period (min)	15			

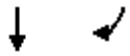
Appendix B HCM Synchro Reports

Year 2025 Future Background Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	56	0	0	130	5	40	1716	36	2	71
Future Volume (Veh/h)	0	0	56	0	0	130	5	40	1716	36	2	71
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	89	0	0	176	0	44	1907	40	0	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.79	0.79		0.79	0.79	0.79	0.00				0.00	0.79
vC, conflicting volume	2531	3666	517	2738	3683	656	0	1514			0	1947
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2019	3449	517	2280	3471	0	0	1514			0	1284
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	82	100	100	80	0	90			0	82
cM capacity (veh/h)	18	4	509	12	4	866	0	442			0	426

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	89	176	44	763	763	421	77	576	576	362
Volume Left	0	0	44	0	0	0	77	0	0	0
Volume Right	89	176	0	0	0	40	0	0	0	74
cSH	509	866	442	1700	1700	1700	426	1700	1700	1700
Volume to Capacity	0.18	0.20	0.10	0.45	0.45	0.25	0.18	0.34	0.34	0.21
Queue Length 95th (ft)	16	19	8	0	0	0	16	0	0	0
Control Delay (s)	13.6	10.2	14.0	0.0	0.0	0.0	15.3	0.0	0.0	0.0
Lane LOS	B	B	B				C			
Approach Delay (s)	13.6	10.2	0.3				0.7			
Approach LOS	B	B								

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	56.0%	ICU Level of Service		B
Analysis Period (min)	15			



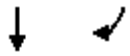
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1325	68
Future Volume (Veh/h)	1325	68
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1440	74
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	171	69	103	86	95	123	2	165	1443	41	13	99
Future Volume (vph)	171	69	103	86	95	123	2	165	1443	41	13	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1787	1881	1599	1805	1739			1787	5114			1770
Flt Permitted	0.26	1.00	1.00	0.68	1.00			0.14	1.00			0.10
Satd. Flow (perm)	487	1881	1599	1298	1739			264	5114			181
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	285	115	172	95	104	135	2	179	1568	45	14	110
RTOR Reduction (vph)	0	0	14	0	45	0	0	0	2	0	0	0
Lane Group Flow (vph)	285	115	158	95	194	0	0	181	1611	0	0	124
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	34.1	34.1	45.0	19.7	19.7			74.0	63.1			68.8
Effective Green, g (s)	34.1	34.1	45.0	19.7	19.7			74.0	63.1			68.8
Actuated g/C Ratio	0.28	0.28	0.38	0.16	0.16			0.62	0.53			0.57
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	256	534	599	213	285			301	2689			213
v/s Ratio Prot	c0.10	0.06	0.02		0.11			c0.05	0.32			0.04
v/s Ratio Perm	c0.21		0.07	0.07				c0.32				0.29
v/c Ratio	1.11	0.22	0.26	0.45	0.68			0.60	0.60			0.58
Uniform Delay, d1	40.0	32.7	26.0	45.2	47.2			12.6	19.7			14.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	90.1	0.3	0.1	2.0	7.1			2.3	1.0			2.6
Delay (s)	130.1	33.0	26.1	47.3	54.3			14.9	20.7			17.4
Level of Service	F	C	C	D	D			B	C			B
Approach Delay (s)		79.3			52.3				20.1			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	30.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

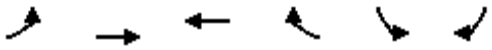
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1176	159
Future Volume (vph)	1176	159
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1307	177
RTOR Reduction (vph)	0	66
Lane Group Flow (vph)	1307	111
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	60.5	60.5
Effective Green, g (s)	60.5	60.5
Actuated g/C Ratio	0.50	0.50
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2563	798
v/s Ratio Prot	0.26	
v/s Ratio Perm		0.07
v/c Ratio	0.51	0.14
Uniform Delay, d1	19.9	15.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.7	0.4
Delay (s)	20.6	16.2
Level of Service	C	B
Approach Delay (s)	19.9	
Approach LOS	B	

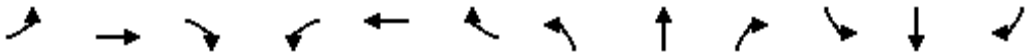
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	307	352	57	25	40
Future Volume (Veh/h)	30	307	352	57	25	40
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	50	512	476	77	38	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	553				1126	514
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	514				1111	474
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				82	89
cM capacity (veh/h)	1015				213	571

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	562	553	100
Volume Left	50	0	38
Volume Right	0	77	62
cSH	1015	1700	349
Volume to Capacity	0.05	0.33	0.29
Queue Length 95th (ft)	4	0	29
Control Delay (s)	1.3	0.0	19.4
Lane LOS	A		C
Approach Delay (s)	1.3	0.0	19.4
Approach LOS			C

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	110	65	23	13	91	4	49	25	1	1	22	36
Future Volume (vph)	110	65	23	13	91	4	49	25	1	1	22	36
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	186	110	39	21	149	7	55	28	1	2	39	63

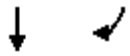
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	335	177	84	104
Volume Left (vph)	186	21	55	2
Volume Right (vph)	39	7	1	63
Hadj (s)	0.06	0.00	0.12	-0.36
Departure Headway (s)	4.7	4.8	5.4	4.9
Degree Utilization, x	0.44	0.24	0.13	0.14
Capacity (veh/h)	733	703	596	652
Control Delay (s)	11.3	9.3	9.2	8.7
Approach Delay (s)	11.3	9.3	9.2	8.7
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.1			
Level of Service	B			
Intersection Capacity Utilization	35.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	52	0	0	69	6	33	1573	17	4	106
Future Volume (Veh/h)	0	0	52	0	0	69	6	33	1573	17	4	106
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	108	0	0	82	0	36	1729	19	0	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.85	0.85		0.85	0.85	0.85	0.00				0.00	0.85
vC, conflicting volume	2863	3953	653	2766	3964	586	0	1938			0	1748
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2585	3860	653	2472	3874	0	0	1938			0	1281
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	74	100	100	91	0	88			0	77
cM capacity (veh/h)	8	2	415	7	2	933	0	303			0	464

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	108	82	36	692	692	365	108	758	758	421
Volume Left	0	0	36	0	0	0	108	0	0	0
Volume Right	108	82	0	0	0	19	0	0	0	42
cSH	415	933	303	1700	1700	1700	464	1700	1700	1700
Volume to Capacity	0.26	0.09	0.12	0.41	0.41	0.21	0.23	0.45	0.45	0.25
Queue Length 95th (ft)	26	7	10	0	0	0	22	0	0	0
Control Delay (s)	16.7	9.2	18.5	0.0	0.0	0.0	15.1	0.0	0.0	0.0
Lane LOS	C	A	C				C			
Approach Delay (s)	16.7	9.2	0.4				0.8			
Approach LOS	C	A								

Intersection Summary					
Average Delay	1.2				
Intersection Capacity Utilization	53.5%	ICU Level of Service		A	
Analysis Period (min)	15				



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1858	41
Future Volume (Veh/h)	1858	41
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	1896	42
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	169	67	121	82	40	127	5	74	1317	49	11	109
Future Volume (vph)	169	67	121	82	40	127	5	74	1317	49	11	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1805	1900	1615	1805	1683			1787	5108			1787
Flt Permitted	0.27	1.00	1.00	0.67	1.00			0.08	1.00			0.12
Satd. Flow (perm)	514	1900	1615	1275	1683			153	5108			219
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	338	134	242	91	44	141	5	81	1447	54	12	116
RTOR Reduction (vph)	0	0	35	0	106	0	0	0	2	0	0	0
Lane Group Flow (vph)	338	134	207	91	79	0	0	86	1499	0	0	128
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	31.3	31.3	38.1	15.7	15.7			81.4	74.6			87.0
Effective Green, g (s)	31.3	31.3	38.1	15.7	15.7			81.4	74.6			87.0
Actuated g/C Ratio	0.24	0.24	0.29	0.12	0.12			0.63	0.57			0.67
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	243	457	473	153	203			181	2931			262
v/s Ratio Prot	c0.13	0.07	0.02		0.05			0.02	0.29			c0.04
v/s Ratio Perm	c0.20		0.11	0.07				0.27				0.29
v/c Ratio	1.39	0.29	0.44	0.59	0.39			0.48	0.51			0.49
Uniform Delay, d1	46.3	40.3	37.3	54.1	52.7			12.7	16.7			10.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	199.2	0.5	0.2	7.1	1.7			0.7	0.6			0.5
Delay (s)	245.5	40.8	37.5	61.2	54.4			13.5	17.3			11.3
Level of Service	F	D	D	E	D			B	B			B
Approach Delay (s)		136.6			56.7				17.1			
Approach LOS		F			E				B			

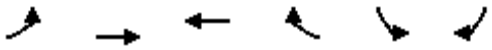
Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1703	114
Future Volume (vph)	1703	114
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1812	121
RTOR Reduction (vph)	0	32
Lane Group Flow (vph)	1812	89
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	77.4	77.4
Effective Green, g (s)	77.4	77.4
Actuated g/C Ratio	0.60	0.60
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	3057	952
v/s Ratio Prot	c0.35	
v/s Ratio Perm		0.06
v/c Ratio	0.59	0.09
Uniform Delay, d1	16.4	11.3
Progression Factor	1.00	1.00
Incremental Delay, d2	0.9	0.2
Delay (s)	17.3	11.5
Level of Service	B	B
Approach Delay (s)	16.6	
Approach LOS	B	

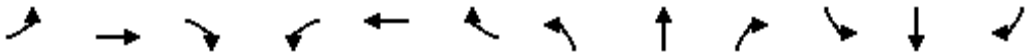
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	25	272	250	22	47	44
Future Volume (Veh/h)	25	272	250	22	47	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	51	555	321	28	78	73
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked						
vC, conflicting volume	349				992	335
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	349				992	335
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				70	90
cM capacity (veh/h)	1221				263	712

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	606	349	151
Volume Left	51	0	78
Volume Right	0	28	73
cSH	1221	1700	379
Volume to Capacity	0.04	0.21	0.40
Queue Length 95th (ft)	3	0	47
Control Delay (s)	1.1	0.0	20.7
Lane LOS	A		C
Approach Delay (s)	1.1	0.0	20.7
Approach LOS			C

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	108	57	37	12	67	10	20	21	11	2	30	33
Future Volume (vph)	108	57	37	12	67	10	20	21	11	2	30	33
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	216	114	74	16	89	13	43	45	23	3	39	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	404	118	111	85
Volume Left (vph)	216	16	43	3
Volume Right (vph)	74	13	23	43
Hadj (s)	0.00	-0.04	-0.05	-0.30
Departure Headway (s)	4.6	4.9	5.2	5.0
Degree Utilization, x	0.51	0.16	0.16	0.12
Capacity (veh/h)	755	688	621	634
Control Delay (s)	12.3	8.8	9.2	8.7
Approach Delay (s)	12.3	8.8	9.2	8.7
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.8			
Level of Service	B			
Intersection Capacity Utilization	34.1%	ICU Level of Service	A	
Analysis Period (min)	15			

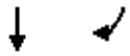
Appendix B HCM Synchro Reports

Year 2045 Future Background Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	68	0	0	159	6	49	2094	44	2	86
Future Volume (Veh/h)	0	0	68	0	0	159	6	49	2094	44	2	86
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	108	0	0	215	0	54	2327	49	0	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.68	0.68		0.68	0.68	0.68	0.00				0.00	0.68
vC, conflicting volume	3088	4473	631	3340	4494	800	0	1848			0	2376
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2418	4460	631	2789	4490	0	0	1848			0	1369
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	75	100	100	71	0	84			0	72
cM capacity (veh/h)	6	1	429	3	1	740	0	333			0	338

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	108	215	54	931	931	514	93	703	703	442
Volume Left	0	0	54	0	0	0	93	0	0	0
Volume Right	108	215	0	0	0	49	0	0	0	90
cSH	429	740	333	1700	1700	1700	338	1700	1700	1700
Volume to Capacity	0.25	0.29	0.16	0.55	0.55	0.30	0.28	0.41	0.41	0.26
Queue Length 95th (ft)	25	30	14	0	0	0	28	0	0	0
Control Delay (s)	16.2	11.8	17.9	0.0	0.0	0.0	19.7	0.0	0.0	0.0
Lane LOS	C	B	C				C			
Approach Delay (s)	16.2	11.8	0.4				0.9			
Approach LOS	C	B								

Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	66.2%	ICU Level of Service		C
Analysis Period (min)	15			



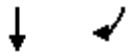
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1617	83
Future Volume (Veh/h)	1617	83
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1758	90
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	208	84	126	105	116	150	2	201	1761	51	16	121
Future Volume (vph)	208	84	126	105	116	150	2	201	1761	51	16	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1787	1881	1599	1805	1739			1787	5114			1770
Flt Permitted	0.23	1.00	1.00	0.67	1.00			0.07	1.00			0.07
Satd. Flow (perm)	424	1881	1599	1269	1739			136	5114			137
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	347	140	210	115	127	165	2	218	1914	55	18	134
RTOR Reduction (vph)	0	0	13	0	43	0	0	0	2	0	0	0
Lane Group Flow (vph)	347	140	197	115	249	0	0	220	1967	0	0	152
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	38.1	38.1	51.0	23.7	23.7			70.9	58.1			63.8
Effective Green, g (s)	38.1	38.1	51.0	23.7	23.7			70.9	58.1			63.8
Actuated g/C Ratio	0.32	0.32	0.42	0.20	0.20			0.59	0.48			0.53
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	258	597	679	250	343			257	2476			199
v/s Ratio Prot	c0.12	0.07	0.03		0.14			c0.09	0.38			0.06
v/s Ratio Perm	c0.30		0.09	0.09				c0.41				0.35
v/c Ratio	1.34	0.23	0.29	0.46	0.72			0.86	0.79			0.76
Uniform Delay, d1	37.5	30.2	22.6	42.5	45.1			31.9	25.9			25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	178.8	0.3	0.1	1.8	7.9			22.6	2.7			14.4
Delay (s)	216.3	30.5	22.7	44.3	53.0			54.4	28.7			39.5
Level of Service	F	C	C	D	D			D	C			D
Approach Delay (s)		120.7			50.6				31.3			
Approach LOS		F			D				C			

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

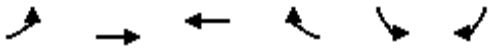
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1435	193
Future Volume (vph)	1435	193
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1594	214
RTOR Reduction (vph)	0	72
Lane Group Flow (vph)	1594	142
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	54.5	54.5
Effective Green, g (s)	54.5	54.5
Actuated g/C Ratio	0.45	0.45
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2309	718
v/s Ratio Prot	0.31	
v/s Ratio Perm		0.09
v/c Ratio	0.69	0.20
Uniform Delay, d1	26.0	19.6
Progression Factor	1.00	1.00
Incremental Delay, d2	1.7	0.6
Delay (s)	27.8	20.3
Level of Service	C	C
Approach Delay (s)	27.8	
Approach LOS	C	

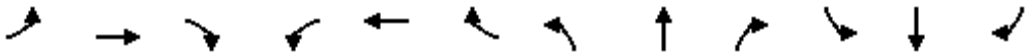
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	37	375	430	69	31	49
Future Volume (Veh/h)	37	375	430	69	31	49
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	62	625	581	93	48	75
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	674				1376	628
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	618				1368	568
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				66	85
cM capacity (veh/h)	906				143	493

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	687	674	123
Volume Left	62	0	48
Volume Right	0	93	75
cSH	906	1700	252
Volume to Capacity	0.07	0.40	0.49
Queue Length 95th (ft)	6	0	62
Control Delay (s)	1.7	0.0	32.3
Lane LOS	A		D
Approach Delay (s)	1.7	0.0	32.3
Approach LOS			D

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	134	79	28	16	111	5	60	31	1	1	27	44
Future Volume (vph)	134	79	28	16	111	5	60	31	1	1	27	44
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	227	134	47	26	182	8	67	35	1	2	47	77

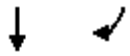
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	408	216	103	126
Volume Left (vph)	227	26	67	2
Volume Right (vph)	47	8	1	77
Hadj (s)	0.06	0.00	0.12	-0.36
Departure Headway (s)	4.9	5.1	5.8	5.3
Degree Utilization, x	0.56	0.31	0.17	0.19
Capacity (veh/h)	701	658	538	594
Control Delay (s)	14.0	10.4	10.0	9.5
Approach Delay (s)	14.0	10.4	10.0	9.5
Approach LOS	B	B	B	A

Intersection Summary				
Delay	11.9			
Level of Service	B			
Intersection Capacity Utilization	38.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	63	0	0	84	7	41	1919	21	5	129
Future Volume (Veh/h)	0	0	63	0	0	84	7	41	1919	21	5	129
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	131	0	0	100	0	45	2109	23	0	132
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77	0.00				0.00	0.77
vC, conflicting volume	3497	4826	797	3377	4840	714	0	2366			0	2132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3195	4924	797	3039	4943	0	0	2366			0	1420
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	61	100	100	88	0	78			0	64
cM capacity (veh/h)	2	0	334	2	0	839	0	206			0	369

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	131	100	45	844	844	445	132	926	926	515
Volume Left	0	0	45	0	0	0	132	0	0	0
Volume Right	131	100	0	0	0	23	0	0	0	52
cSH	334	839	206	1700	1700	1700	369	1700	1700	1700
Volume to Capacity	0.39	0.12	0.22	0.50	0.50	0.26	0.36	0.54	0.54	0.30
Queue Length 95th (ft)	45	10	20	0	0	0	40	0	0	0
Control Delay (s)	22.6	9.9	27.3	0.0	0.0	0.0	20.1	0.0	0.0	0.0
Lane LOS	C	A	D				C			
Approach Delay (s)	22.6	9.9	0.6				1.1			
Approach LOS	C	A								

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	62.2%	ICU Level of Service		B
Analysis Period (min)	15			



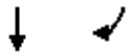
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2268	51
Future Volume (Veh/h)	2268	51
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	2314	52
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	206	81	148	100	49	155	6	90	1607	60	14	133
Future Volume (vph)	206	81	148	100	49	155	6	90	1607	60	14	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1805	1900	1615	1805	1683			1787	5108			1787
Flt Permitted	0.22	1.00	1.00	0.65	1.00			0.06	1.00			0.06
Satd. Flow (perm)	413	1900	1615	1243	1683			107	5108			118
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	412	162	296	111	54	172	7	99	1766	66	15	141
RTOR Reduction (vph)	0	0	34	0	102	0	0	0	2	0	0	0
Lane Group Flow (vph)	412	162	262	111	124	0	0	106	1830	0	0	156
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	33.8	33.8	41.6	18.2	18.2			78.3	70.5			85.1
Effective Green, g (s)	33.8	33.8	41.6	18.2	18.2			78.3	70.5			85.1
Actuated g/C Ratio	0.26	0.26	0.32	0.14	0.14			0.60	0.54			0.65
Clearance Time (s)	3.5	5.5	3.5	5.5	5.5			3.5	5.5			3.5
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	236	494	516	174	235			165	2770			221
v/s Ratio Prot	c0.16	0.09	0.03		0.07			0.04	0.36			c0.06
v/s Ratio Perm	c0.29		0.13	0.09				0.35				0.40
v/c Ratio	1.75	0.33	0.51	0.64	0.53			0.64	0.66			0.71
Uniform Delay, d1	44.1	38.9	35.9	52.8	51.9			20.9	21.2			27.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	352.6	0.5	0.3	8.4	2.8			6.3	1.3			8.1
Delay (s)	396.7	39.4	36.2	61.1	54.7			27.2	22.5			35.9
Level of Service	F	D	D	E	D			C	C			D
Approach Delay (s)		207.5			56.8				22.7			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		

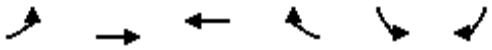
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2078	139
Future Volume (vph)	2078	139
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	2211	148
RTOR Reduction (vph)	0	35
Lane Group Flow (vph)	2211	113
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	73.9	73.9
Effective Green, g (s)	73.9	73.9
Actuated g/C Ratio	0.57	0.57
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2919	908
v/s Ratio Prot	c0.43	
v/s Ratio Perm		0.07
v/c Ratio	0.76	0.12
Uniform Delay, d1	21.3	13.0
Progression Factor	1.00	1.00
Incremental Delay, d2	1.9	0.3
Delay (s)	23.2	13.3
Level of Service	C	B
Approach Delay (s)	23.4	
Approach LOS	C	

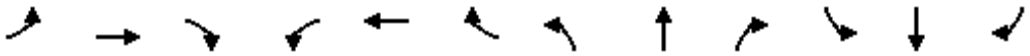
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	332	306	27	58	54
Future Volume (Veh/h)	31	332	306	27	58	54
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	63	678	392	35	97	90
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	1.00				1.00	1.00
vC, conflicting volume	427				1214	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424				1213	407
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				49	86
cM capacity (veh/h)	1143				191	647

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	741	427	187
Volume Left	63	0	97
Volume Right	0	35	90
cSH	1143	1700	289
Volume to Capacity	0.06	0.25	0.65
Queue Length 95th (ft)	4	0	104
Control Delay (s)	1.4	0.0	37.7
Lane LOS	A		E
Approach Delay (s)	1.4	0.0	37.7
Approach LOS			E

Intersection Summary			
Average Delay	6.0		
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	132	69	46	15	81	12	25	26	14	2	37	41
Future Volume (vph)	132	69	46	15	81	12	25	26	14	2	37	41
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	264	138	92	20	108	16	53	55	30	3	48	53

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	494	144	138	104
Volume Left (vph)	264	20	53	3
Volume Right (vph)	92	16	30	53
Hadj (s)	0.00	-0.04	-0.05	-0.30
Departure Headway (s)	4.8	5.2	5.6	5.5
Degree Utilization, x	0.66	0.21	0.22	0.16
Capacity (veh/h)	725	634	564	573
Control Delay (s)	16.6	9.6	10.2	9.5
Approach Delay (s)	16.6	9.6	10.2	9.5
Approach LOS	C	A	B	A

Intersection Summary				
Delay	13.6			
Level of Service	B			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			

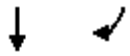
Appendix B HCM Synchro Reports

Year 2025 Future Build Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	69	0	0	130	5	41	1783	36	2	71
Future Volume (Veh/h)	0	0	69	0	0	130	5	41	1783	36	2	71
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	110	0	0	176	0	46	1981	40	0	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.78	0.78		0.78	0.78	0.78	0.00				0.00	0.78
vC, conflicting volume	2567	3752	527	2836	3780	680	0	1533			0	2021
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2022	3541	527	2367	3577	0	0	1533			0	1323
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	78	100	100	79	0	89			0	81
cM capacity (veh/h)	17	3	501	9	3	851	0	435			0	404

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	110	176	46	792	792	436	77	574	574	384
Volume Left	0	0	46	0	0	0	77	0	0	0
Volume Right	110	176	0	0	0	40	0	0	0	97
cSH	501	851	435	1700	1700	1700	404	1700	1700	1700
Volume to Capacity	0.22	0.21	0.11	0.47	0.47	0.26	0.19	0.34	0.34	0.23
Queue Length 95th (ft)	21	19	9	0	0	0	17	0	0	0
Control Delay (s)	14.2	10.3	14.3	0.0	0.0	0.0	16.0	0.0	0.0	0.0
Lane LOS	B	B	B				C			
Approach Delay (s)	14.2	10.3	0.3				0.8			
Approach LOS	B	B								

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	57.3%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1321	89
Future Volume (Veh/h)	1321	89
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1436	97
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	229	78	176	86	98	123	2	184	1444	41	22	99
Future Volume (vph)	229	78	176	86	98	123	2	184	1444	41	22	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1787	1881	1599	1805	1742			1787	5114			1770
Flt Permitted	0.25	1.00	1.00	0.67	1.00			0.13	1.00			0.09
Satd. Flow (perm)	471	1881	1599	1280	1742			239	5114			165
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	382	130	293	95	108	135	2	200	1570	45	24	110
RTOR Reduction (vph)	0	0	14	0	46	0	0	0	2	0	0	0
Lane Group Flow (vph)	382	130	279	95	197	0	0	202	1613	0	0	134
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	38.0	38.0	49.3	20.0	20.0			70.2	58.9			63.8
Effective Green, g (s)	38.0	38.0	49.3	20.0	20.0			70.2	58.9			63.8
Actuated g/C Ratio	0.32	0.32	0.41	0.17	0.17			0.59	0.49			0.53
Clearance Time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	302	595	656	213	290			285	2510			196
v/s Ratio Prot	c0.15	0.07	0.04		0.11			c0.07	0.32			0.05
v/s Ratio Perm	c0.25		0.13	0.07				c0.35				0.32
v/c Ratio	1.26	0.22	0.43	0.45	0.68			0.71	0.64			0.68
Uniform Delay, d1	37.1	30.1	25.2	45.0	47.0			15.7	22.7			18.0
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	142.9	0.3	0.2	2.0	6.8			6.4	1.3			7.6
Delay (s)	180.0	30.4	25.4	47.0	53.8			22.1	24.0			25.6
Level of Service	F	C	C	D	D			C	C			C
Approach Delay (s)		99.6			51.9				23.8			
Approach LOS		F			D				C			

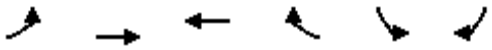
Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1180	155
Future Volume (vph)	1180	155
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1311	172
RTOR Reduction (vph)	0	71
Lane Group Flow (vph)	1311	101
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	55.7	55.7
Effective Green, g (s)	55.7	55.7
Actuated g/C Ratio	0.46	0.46
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2360	734
v/s Ratio Prot	0.26	
v/s Ratio Perm		0.06
v/c Ratio	0.56	0.14
Uniform Delay, d1	23.2	18.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.9	0.4
Delay (s)	24.2	18.8
Level of Service	C	B
Approach Delay (s)	23.7	
Approach LOS	C	

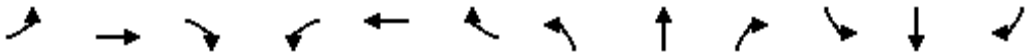
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	309	361	59	57	44
Future Volume (Veh/h)	31	309	361	59	57	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	52	515	488	80	88	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	568				1147	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	518				1128	476
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				57	88
cM capacity (veh/h)	999				205	563

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	567	568	156
Volume Left	52	0	88
Volume Right	0	80	68
cSH	999	1700	284
Volume to Capacity	0.05	0.33	0.55
Queue Length 95th (ft)	4	0	77
Control Delay (s)	1.4	0.0	32.2
Lane LOS	A		D
Approach Delay (s)	1.4	0.0	32.2
Approach LOS			D

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	110	68	24	14	100	8	53	29	5	2	23	36
Future Volume (vph)	110	68	24	14	100	8	53	29	5	2	23	36
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	186	115	41	23	164	13	60	33	6	4	40	63

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	342	200	99	107
Volume Left (vph)	186	23	60	4
Volume Right (vph)	41	13	6	63
Hadj (s)	0.05	-0.02	0.08	-0.35
Departure Headway (s)	4.8	4.9	5.5	5.0
Degree Utilization, x	0.45	0.27	0.15	0.15
Capacity (veh/h)	718	693	578	631
Control Delay (s)	11.7	9.7	9.4	8.9
Approach Delay (s)	11.7	9.7	9.4	8.9
Approach LOS	B	A	A	A

Intersection Summary				
Delay	10.5			
Level of Service	B			
Intersection Capacity Utilization	35.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	65	5	21	109	13	9
Future Volume (Veh/h)	65	5	21	109	13	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	76	6	25	128	15	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			82		257	79
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			82		257	79
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	99
cM capacity (veh/h)			1522		722	984

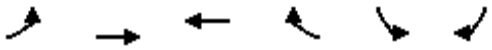
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	82	153	26
Volume Left	0	25	15
Volume Right	6	0	11
cSH	1700	1522	814
Volume to Capacity	0.05	0.02	0.03
Queue Length 95th (ft)	0	1	2
Control Delay (s)	0.0	1.3	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	1.3	9.6
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		23.6%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	12	81	3	4	63
Future Volume (Veh/h)	37	12	81	3	4	63
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	44	14	95	4	5	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	181	97			99	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181	97			99	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	808	962			1500	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	99	79
Volume Left	44	0	5
Volume Right	14	4	0
cSH	841	1700	1500
Volume to Capacity	0.07	0.06	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.6	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	369	416	17	107	9
Future Volume (Veh/h)	2	369	416	17	107	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	434	489	20	126	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	509				937	499
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				901	434
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				57	98
cM capacity (veh/h)	1053				291	586

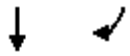
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	436	509	137
Volume Left	2	0	126
Volume Right	0	20	11
cSH	1053	1700	303
Volume to Capacity	0.00	0.30	0.45
Queue Length 95th (ft)	0	0	56
Control Delay (s)	0.1	0.0	26.3
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	26.3
Approach LOS			D

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	60	0	0	69	6	37	1605	17	4	106
Future Volume (Veh/h)	0	0	60	0	0	69	6	37	1605	17	4	106
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	125	0	0	82	0	41	1764	19	0	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.85	0.85		0.85	0.85	0.85	0.00				0.00	0.85
vC, conflicting volume	2912	4026	681	2828	4066	598	0	1994			0	1783
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2634	3942	681	2535	3989	0	0	1994			0	1306
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	69	100	100	91	0	86			0	76
cM capacity (veh/h)	7	2	398	6	2	928	0	288			0	452

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	125	82	41	706	706	372	108	758	758	478
Volume Left	0	0	41	0	0	0	108	0	0	0
Volume Right	125	82	0	0	0	19	0	0	0	99
cSH	398	928	288	1700	1700	1700	452	1700	1700	1700
Volume to Capacity	0.31	0.09	0.14	0.42	0.42	0.22	0.24	0.45	0.45	0.28
Queue Length 95th (ft)	33	7	12	0	0	0	23	0	0	0
Control Delay (s)	18.2	9.3	19.5	0.0	0.0	0.0	15.4	0.0	0.0	0.0
Lane LOS	C	A	C				C			
Approach Delay (s)	18.2	9.3	0.4				0.8			
Approach LOS	C	A								

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	55.1%	ICU Level of Service		B
Analysis Period (min)	15			



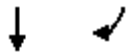
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1857	97
Future Volume (Veh/h)	1857	97
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	1895	99
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	196	73	156	82	48	127	5	135	1321	49	17	109
Future Volume (vph)	196	73	156	82	48	127	5	135	1321	49	17	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1805	1900	1615	1805	1693			1787	5108			1787
Flt Permitted	0.24	1.00	1.00	0.66	1.00			0.07	1.00			0.12
Satd. Flow (perm)	462	1900	1615	1262	1693			136	5108			220
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	392	146	312	91	53	141	5	148	1452	54	18	116
RTOR Reduction (vph)	0	0	14	0	91	0	0	0	2	0	0	0
Lane Group Flow (vph)	392	146	298	91	103	0	0	153	1504	0	0	134
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	32.9	32.9	41.8	15.9	15.9			81.7	72.8			82.5
Effective Green, g (s)	32.9	32.9	41.8	15.9	15.9			81.7	72.8			82.5
Actuated g/C Ratio	0.25	0.25	0.32	0.12	0.12			0.63	0.56			0.63
Clearance Time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	251	480	519	154	207			198	2860			251
v/s Ratio Prot	c0.16	0.08	0.04		0.06			c0.05	0.29			0.04
v/s Ratio Perm	c0.24		0.15	0.07				c0.43				0.30
v/c Ratio	1.56	0.30	0.57	0.59	0.50			0.77	0.53			0.53
Uniform Delay, d1	44.9	39.3	36.7	54.0	53.3			22.2	17.8			12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	271.4	0.5	1.0	6.9	2.5			15.6	0.7			1.1
Delay (s)	316.3	39.8	37.6	60.9	55.8			37.8	18.5			13.3
Level of Service	F	D	D	E	E			D	B			B
Approach Delay (s)		166.5			57.5				20.3			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		

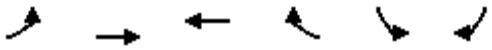
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1706	113
Future Volume (vph)	1706	113
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1815	120
RTOR Reduction (vph)	0	38
Lane Group Flow (vph)	1815	82
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	73.2	73.2
Effective Green, g (s)	73.2	73.2
Actuated g/C Ratio	0.56	0.56
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2891	900
v/s Ratio Prot	0.35	
v/s Ratio Perm		0.05
v/c Ratio	0.63	0.09
Uniform Delay, d1	19.2	13.1
Progression Factor	1.00	1.00
Incremental Delay, d2	1.0	0.2
Delay (s)	20.2	13.3
Level of Service	C	B
Approach Delay (s)	19.4	
Approach LOS	B	

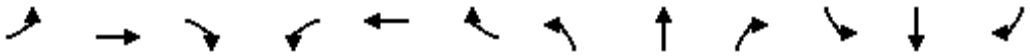
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	279	255	30	65	47
Future Volume (Veh/h)	29	279	255	30	65	47
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	59	569	327	38	108	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.99				0.99	0.99
vC, conflicting volume	365				1033	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	359				1031	340
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				56	89
cM capacity (veh/h)	1204				247	703

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	628	365	186
Volume Left	59	0	108
Volume Right	0	38	78
cSH	1204	1700	339
Volume to Capacity	0.05	0.21	0.55
Queue Length 95th (ft)	4	0	78
Control Delay (s)	1.3	0.0	27.8
Lane LOS	A		D
Approach Delay (s)	1.3	0.0	27.8
Approach LOS			D

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	108	65	41	16	73	13	23	24	14	6	34	33
Future Volume (vph)	108	65	41	16	73	13	23	24	14	6	34	33
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	216	130	82	21	97	17	49	51	30	8	44	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	428	135	130	95
Volume Left (vph)	216	21	49	8
Volume Right (vph)	82	17	30	43
Hadj (s)	-0.01	-0.04	-0.06	-0.25
Departure Headway (s)	4.7	5.0	5.4	5.2
Degree Utilization, x	0.56	0.19	0.19	0.14
Capacity (veh/h)	736	662	594	605
Control Delay (s)	13.4	9.2	9.6	9.1
Approach Delay (s)	13.4	9.2	9.6	9.1
Approach LOS	B	A	A	A

Intersection Summary				
Delay	11.5			
Level of Service	B			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	64	13	56	86	8	6
Future Volume (Veh/h)	64	13	56	86	8	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	75	15	66	101	9	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			90		316	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			90		316	82
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		99	99
cM capacity (veh/h)			1512		650	980

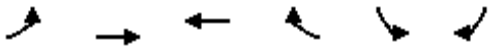
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	90	167	16
Volume Left	0	66	9
Volume Right	15	0	7
cSH	1700	1512	762
Volume to Capacity	0.05	0.04	0.02
Queue Length 95th (ft)	0	3	2
Control Delay (s)	0.0	3.2	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	3.2	9.8
Approach LOS			A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	8	51	12	13	86
Future Volume (Veh/h)	20	8	51	12	13	86
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	24	9	60	14	15	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	198	67			74	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	67			74	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	785	999			1532	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	74	116
Volume Left	24	0	15
Volume Right	9	14	0
cSH	834	1700	1532
Volume to Capacity	0.04	0.04	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.5	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	356	258	60	49	5
Future Volume (Veh/h)	7	356	258	60	49	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	8	419	304	71	58	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	375				774	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	335				749	298
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				84	99
cM capacity (veh/h)	1188				366	718

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	427	375	64
Volume Left	8	0	58
Volume Right	0	71	6
cSH	1188	1700	383
Volume to Capacity	0.01	0.22	0.17
Queue Length 95th (ft)	1	0	15
Control Delay (s)	0.2	0.0	16.3
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	16.3
Approach LOS			C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

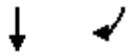
Appendix B HCM Synchro Reports

Year 2045 Future Build Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	81	0	0	159	6	50	2161	44	2	86
Future Volume (Veh/h)	0	0	81	0	0	159	6	50	2161	44	2	86
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	129	0	0	215	0	56	2401	49	0	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.68	0.68		0.68	0.68	0.68	0.00				0.00	0.68
vC, conflicting volume	3123	4558	641	3437	4590	825	0	1866			0	2450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2461	4585	641	2926	4633	0	0	1866			0	1464
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	69	100	100	71	0	83			0	70
cM capacity (veh/h)	5	0	422	2	0	737	0	323			0	309

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	129	215	56	960	960	529	93	701	701	464
Volume Left	0	0	56	0	0	0	93	0	0	0
Volume Right	129	215	0	0	0	49	0	0	0	113
cSH	422	737	323	1700	1700	1700	309	1700	1700	1700
Volume to Capacity	0.31	0.29	0.17	0.56	0.56	0.31	0.30	0.41	0.41	0.27
Queue Length 95th (ft)	32	30	15	0	0	0	31	0	0	0
Control Delay (s)	17.2	11.9	18.4	0.0	0.0	0.0	21.6	0.0	0.0	0.0
Lane LOS	C	B	C				C			
Approach Delay (s)	17.2	11.9	0.4				1.0			
Approach LOS	C	B								

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	67.5%	ICU Level of Service	C	
Analysis Period (min)	15			



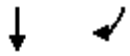
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1613	104
Future Volume (Veh/h)	1613	104
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1753	113
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	266	93	199	105	119	150	2	220	1762	51	25	121
Future Volume (vph)	266	93	199	105	119	150	2	220	1762	51	25	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1787	1881	1599	1805	1741			1787	5114			1770
Flt Permitted	0.22	1.00	1.00	0.66	1.00			0.07	1.00			0.08
Satd. Flow (perm)	413	1881	1599	1251	1741			134	5114			143
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	443	155	332	115	131	165	2	239	1915	55	28	134
RTOR Reduction (vph)	0	0	13	0	44	0	0	0	2	0	0	0
Lane Group Flow (vph)	443	155	319	115	252	0	0	241	1968	0	0	162
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	41.0	41.0	53.0	24.0	24.0			68.0	57.0			59.0
Effective Green, g (s)	41.0	41.0	53.0	24.0	24.0			68.0	57.0			59.0
Actuated g/C Ratio	0.34	0.34	0.44	0.20	0.20			0.57	0.48			0.49
Clearance Time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	289	642	706	250	348			241	2429			165
v/s Ratio Prot	c0.17	0.08	0.05		0.14			c0.10	0.38			0.06
v/s Ratio Perm	c0.36		0.15	0.09				c0.46				0.42
v/c Ratio	1.53	0.24	0.45	0.46	0.72			1.00	0.81			0.98
Uniform Delay, d1	35.1	28.3	23.4	42.3	44.9			35.7	26.9			27.8
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	256.5	0.3	0.2	1.8	7.8			58.0	3.1			64.2
Delay (s)	291.7	28.6	23.5	44.1	52.7			93.7	29.9			92.0
Level of Service	F	C	C	D	D			F	C			F
Approach Delay (s)		152.1			50.3				36.9			
Approach LOS		F			D				D			

Intersection Summary			
HCM 2000 Control Delay	56.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

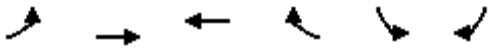
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1439	189
Future Volume (vph)	1439	189
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1599	210
RTOR Reduction (vph)	0	75
Lane Group Flow (vph)	1599	135
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	52.0	52.0
Effective Green, g (s)	52.0	52.0
Actuated g/C Ratio	0.43	0.43
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2203	685
v/s Ratio Prot	0.31	
v/s Ratio Perm		0.09
v/c Ratio	0.73	0.20
Uniform Delay, d1	28.1	21.1
Progression Factor	1.00	1.00
Incremental Delay, d2	2.1	0.6
Delay (s)	30.2	21.7
Level of Service	C	C
Approach Delay (s)	34.4	
Approach LOS	C	

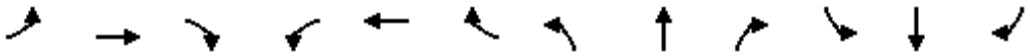
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	377	439	71	63	53
Future Volume (Veh/h)	38	377	439	71	63	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	63	628	593	96	97	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.93				0.93	0.93
vC, conflicting volume	689				1395	641
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	627				1387	575
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				29	83
cM capacity (veh/h)	891				137	484

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	691	689	179
Volume Left	63	0	97
Volume Right	0	96	82
cSH	891	1700	204
Volume to Capacity	0.07	0.41	0.88
Queue Length 95th (ft)	6	0	169
Control Delay (s)	1.8	0.0	82.5
Lane LOS	A		F
Approach Delay (s)	1.8	0.0	82.5
Approach LOS			F

Intersection Summary			
Average Delay	10.3		
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	134	82	29	17	120	9	64	35	5	2	28	44
Future Volume (vph)	134	82	29	17	120	9	64	35	5	2	28	44
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	227	139	49	28	197	15	72	39	6	4	49	77

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	415	240	117	130
Volume Left (vph)	227	28	72	4
Volume Right (vph)	49	15	6	77
Hadj (s)	0.06	-0.01	0.09	-0.35
Departure Headway (s)	5.0	5.2	5.9	5.5
Degree Utilization, x	0.58	0.35	0.19	0.20
Capacity (veh/h)	686	647	528	573
Control Delay (s)	14.8	11.0	10.3	9.8
Approach Delay (s)	14.8	11.0	10.3	9.8
Approach LOS	B	B	B	A

Intersection Summary				
Delay	12.5			
Level of Service	B			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	78	5	21	133	13	9
Future Volume (Veh/h)	78	5	21	133	13	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	92	6	25	156	15	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			98		301	95
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			98		301	95
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	99
cM capacity (veh/h)			1501		681	964

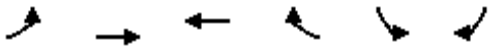
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	98	181	26
Volume Left	0	25	15
Volume Right	6	0	11
cSH	1700	1501	778
Volume to Capacity	0.06	0.02	0.03
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	1.1	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	1.1	9.8
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	12	99	3	4	76
Future Volume (Veh/h)	37	12	99	3	4	76
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	44	14	116	4	5	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	217	118			120	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	217	118			120	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	99			100	
cM capacity (veh/h)	771	937			1474	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	120	94
Volume Left	44	0	5
Volume Right	14	4	0
cSH	805	1700	1474
Volume to Capacity	0.07	0.07	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.8	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	444	507	17	107	9
Future Volume (Veh/h)	2	444	507	17	107	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	522	596	20	126	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	616				1132	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				1101	530
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				42	98
cM capacity (veh/h)	952				217	508

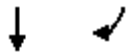
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	524	616	137
Volume Left	2	0	126
Volume Right	0	20	11
cSH	952	1700	227
Volume to Capacity	0.00	0.36	0.60
Queue Length 95th (ft)	0	0	87
Control Delay (s)	0.1	0.0	42.3
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	42.3
Approach LOS			E

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	71	0	0	84	7	45	1951	21	5	129
Future Volume (Veh/h)	0	0	71	0	0	84	7	45	1951	21	5	129
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	148	0	0	100	0	49	2144	23	0	132
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77	0.00				0.00	0.77
vC, conflicting volume	3544	4896	826	3436	4940	726	0	2422			0	2167
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3256	5016	826	3116	5072	0	0	2422			0	1464
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	54	100	100	88	0	75			0	63
cM capacity (veh/h)	2	0	320	1	0	838	0	196			0	355

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	148	100	49	858	858	452	132	925	925	572
Volume Left	0	0	49	0	0	0	132	0	0	0
Volume Right	148	100	0	0	0	23	0	0	0	109
cSH	320	838	196	1700	1700	1700	355	1700	1700	1700
Volume to Capacity	0.46	0.12	0.25	0.50	0.50	0.27	0.37	0.54	0.54	0.34
Queue Length 95th (ft)	58	10	24	0	0	0	42	0	0	0
Control Delay (s)	25.6	9.9	29.4	0.0	0.0	0.0	21.0	0.0	0.0	0.0
Lane LOS	D	A	D				C			
Approach Delay (s)	25.6	9.9	0.7				1.1			
Approach LOS	D	A								

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	63.9%	ICU Level of Service		B
Analysis Period (min)	15			



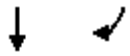
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2267	107
Future Volume (Veh/h)	2267	107
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	2313	109
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	233	87	183	100	57	155	6	151	1611	60	20	133
Future Volume (vph)	233	87	183	100	57	155	6	151	1611	60	20	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00			1.00	0.91			1.00
Frt	1.00	1.00	0.85	1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	1805	1900	1615	1805	1691			1787	5108			1787
Flt Permitted	0.20	1.00	1.00	0.65	1.00			0.06	1.00			0.06
Satd. Flow (perm)	371	1900	1615	1230	1691			107	5108			119
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	466	174	366	111	63	172	7	166	1770	66	21	141
RTOR Reduction (vph)	0	0	14	0	86	0	0	0	2	0	0	0
Lane Group Flow (vph)	466	174	352	111	149	0	0	173	1834	0	0	162
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	pm+pt	NA	pm+ov	Perm	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4	5!		8		5!	5	2		1	1
Permitted Phases	4		4	8			2!	2			6	6
Actuated Green, G (s)	35.4	35.4	43.4	18.4	18.4			78.1	70.1			81.1
Effective Green, g (s)	35.4	35.4	43.4	18.4	18.4			78.1	70.1			81.1
Actuated g/C Ratio	0.27	0.27	0.33	0.14	0.14			0.60	0.54			0.62
Clearance Time (s)	4.0	5.5	4.0	5.5	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0	2.0	4.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	244	517	539	174	239			167	2754			196
v/s Ratio Prot	c0.19	0.09	0.04		0.09			c0.06	0.36			0.06
v/s Ratio Perm	c0.33		0.18	0.09				c0.55				0.46
v/c Ratio	1.91	0.34	0.65	0.64	0.62			1.04	0.67			0.83
Uniform Delay, d1	42.7	37.9	36.9	52.7	52.5			36.5	21.5			29.9
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	424.4	0.5	2.2	8.4	5.7			79.4	1.3			22.9
Delay (s)	467.1	38.4	39.1	61.0	58.2			116.0	22.8			52.8
Level of Service	F	D	D	E	E			F	C			D
Approach Delay (s)		237.2			59.1				30.8			
Approach LOS		F			E				C			

Intersection Summary			
HCM 2000 Control Delay	65.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

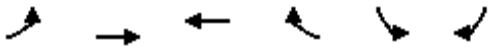
! Phase conflict between lane groups.

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2081	138
Future Volume (vph)	2081	138
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	2214	147
RTOR Reduction (vph)	0	40
Lane Group Flow (vph)	2214	107
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	71.6	71.6
Effective Green, g (s)	71.6	71.6
Actuated g/C Ratio	0.55	0.55
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2828	880
v/s Ratio Prot	0.43	
v/s Ratio Perm		0.07
v/c Ratio	0.78	0.12
Uniform Delay, d1	23.1	14.1
Progression Factor	1.00	1.00
Incremental Delay, d2	2.2	0.3
Delay (s)	25.3	14.3
Level of Service	C	B
Approach Delay (s)	26.4	
Approach LOS	C	

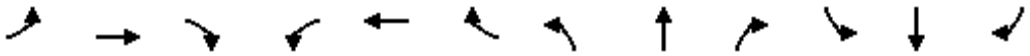
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	339	311	35	76	57
Future Volume (Veh/h)	35	339	311	35	76	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	71	692	399	45	127	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	444				1256	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424				1251	401
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				28	85
cM capacity (veh/h)	1125				177	641

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	763	444	222
Volume Left	71	0	127
Volume Right	0	45	95
cSH	1125	1700	256
Volume to Capacity	0.06	0.26	0.87
Queue Length 95th (ft)	5	0	181
Control Delay (s)	1.6	0.0	68.8
Lane LOS	A		F
Approach Delay (s)	1.6	0.0	68.8
Approach LOS			F

Intersection Summary			
Average Delay	11.5		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	132	77	50	19	87	15	28	29	17	6	41	41
Future Volume (vph)	132	77	50	19	87	15	28	29	17	6	41	41
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	264	154	100	25	116	20	60	62	36	8	53	53

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	518	161	158	114
Volume Left (vph)	264	25	60	8
Volume Right (vph)	100	20	36	53
Hadj (s)	-0.01	-0.04	-0.06	-0.26
Departure Headway (s)	5.0	5.4	5.8	5.7
Degree Utilization, x	0.71	0.24	0.26	0.18
Capacity (veh/h)	518	606	545	545
Control Delay (s)	19.2	10.1	10.8	10.0
Approach Delay (s)	19.2	10.1	10.8	10.0
Approach LOS	C	B	B	A

Intersection Summary				
Delay	15.2			
Level of Service	C			
Intersection Capacity Utilization	38.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	77	13	56	104	8	6
Future Volume (Veh/h)	77	13	56	104	8	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	91	15	66	122	9	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			106		352	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			106		352	98
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		99	99
cM capacity (veh/h)			1491		619	960

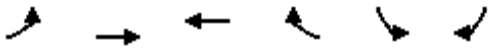
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	106	188	16
Volume Left	0	66	9
Volume Right	15	0	7
cSH	1700	1491	733
Volume to Capacity	0.06	0.04	0.02
Queue Length 95th (ft)	0	3	2
Control Delay (s)	0.0	2.9	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	2.9	10.0
Approach LOS			B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	8	62	12	13	105
Future Volume (Veh/h)	20	8	62	12	13	105
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	24	9	73	14	15	124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	234	80			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	80			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	749	983			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	87	139
Volume Left	24	0	15
Volume Right	9	14	0
cSH	801	1700	1515
Volume to Capacity	0.04	0.05	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.7	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	431	314	60	49	5
Future Volume (Veh/h)	7	431	314	60	49	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	8	507	369	71	58	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	440				928	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	392				902	355
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				80	99
cM capacity (veh/h)	1121				294	661

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	515	440	64
Volume Left	8	0	58
Volume Right	0	71	6
cSH	1121	1700	310
Volume to Capacity	0.01	0.26	0.21
Queue Length 95th (ft)	1	0	19
Control Delay (s)	0.2	0.0	19.6
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	19.6
Approach LOS			C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

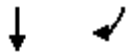
Appendix B HCM Synchro Reports

Year 2025 Future Build with Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	69	0	0	130	5	41	1783	36	2	71
Future Volume (Veh/h)	0	0	69	0	0	130	5	41	1783	36	2	71
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	110	0	0	176	0	46	1981	40	0	77
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77	0.00				0.00	0.77
vC, conflicting volume	2567	3752	527	2836	3780	680	0	1533			0	2021
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1994	3530	527	2343	3567	0	0	1533			0	1287
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	78	100	100	79	0	89			0	81
cM capacity (veh/h)	18	3	501	9	3	842	0	435			0	413

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	110	176	46	792	792	436	77	574	574	384
Volume Left	0	0	46	0	0	0	77	0	0	0
Volume Right	110	176	0	0	0	40	0	0	0	97
cSH	501	842	435	1700	1700	1700	413	1700	1700	1700
Volume to Capacity	0.22	0.21	0.11	0.47	0.47	0.26	0.19	0.34	0.34	0.23
Queue Length 95th (ft)	21	20	9	0	0	0	17	0	0	0
Control Delay (s)	14.2	10.4	14.3	0.0	0.0	0.0	15.7	0.0	0.0	0.0
Lane LOS	B	B	B				C			
Approach Delay (s)	14.2	10.4	0.3				0.8			
Approach LOS	B	B								

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	57.3%	ICU Level of Service		B
Analysis Period (min)	15			

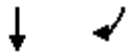


Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1321	89
Future Volume (Veh/h)	1321	89
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1436	97
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		

Direction, Lane #

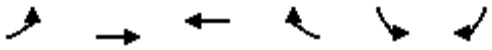
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	229	78	176	86	98	123	2	184	1444	41	22	99
Future Volume (vph)	229	78	176	86	98	123	2	184	1444	41	22	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Lane Util. Factor	0.97	1.00		1.00	1.00			1.00	0.91			1.00
Frt	1.00	0.90		1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3467	1686		1805	1742			1787	5114			1770
Flt Permitted	0.95	1.00		0.23	1.00			0.12	1.00			0.08
Satd. Flow (perm)	3467	1686		436	1742			228	5114			156
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	382	130	293	95	108	135	2	200	1570	45	24	110
RTOR Reduction (vph)	0	72	0	0	40	0	0	0	2	0	0	0
Lane Group Flow (vph)	382	351	0	95	203	0	0	202	1613	0	0	134
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	Prot	NA		pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases				8			2	2			6	6
Actuated Green, G (s)	16.4	30.5		24.1	19.1			68.8	56.7			62.2
Effective Green, g (s)	16.4	30.5		24.1	19.1			68.8	56.7			62.2
Actuated g/C Ratio	0.14	0.25		0.20	0.16			0.57	0.47			0.52
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0		3.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	473	428		144	277			287	2416			199
v/s Ratio Prot	c0.11	c0.21		0.03	0.12			c0.07	0.32			0.05
v/s Ratio Perm				0.10				c0.33				0.30
v/c Ratio	0.81	0.82		0.66	0.73			0.70	0.67			0.67
Uniform Delay, d1	50.3	42.2		41.6	48.0			16.7	24.4			19.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	9.2	12.2		10.4	10.3			6.3	1.5			6.9
Delay (s)	59.5	54.3		52.0	58.3			23.0	25.9			26.1
Level of Service	E	D		D	E			C	C			C
Approach Delay (s)		56.8			56.6				25.6			
Approach LOS		E			E				C			

Intersection Summary			
HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1180	155
Future Volume (vph)	1180	155
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1311	172
RTOR Reduction (vph)	0	93
Lane Group Flow (vph)	1311	79
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	53.4	53.4
Effective Green, g (s)	53.4	53.4
Actuated g/C Ratio	0.44	0.44
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2262	704
v/s Ratio Prot	0.26	
v/s Ratio Perm		0.05
v/c Ratio	0.58	0.11
Uniform Delay, d1	24.9	19.4
Progression Factor	1.00	1.00
Incremental Delay, d2	1.1	0.3
Delay (s)	26.0	19.8
Level of Service	C	B
Approach Delay (s)	25.3	
Approach LOS	C	

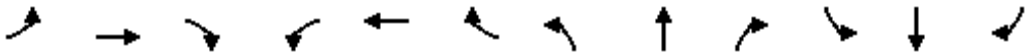
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	31	309	361	59	57	44
Future Volume (Veh/h)	31	309	361	59	57	44
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	52	515	488	80	88	68
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.95				0.95	0.95
vC, conflicting volume	568				1147	528
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	515				1127	473
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				57	88
cM capacity (veh/h)	999				205	563

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	567	568	156
Volume Left	52	0	88
Volume Right	0	80	68
cSH	999	1700	363
Volume to Capacity	0.05	0.33	0.43
Queue Length 95th (ft)	4	0	52
Control Delay (s)	1.4	0.0	25.2
Lane LOS	A		D
Approach Delay (s)	1.4	0.0	25.2
Approach LOS			D

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	110	68	24	14	100	8	53	29	5	2	23	36
Future Volume (vph)	110	68	24	14	100	8	53	29	5	2	23	36
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	186	115	41	23	164	13	60	33	6	4	40	63

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	342	200	99	107
Volume Left (vph)	186	23	60	4
Volume Right (vph)	41	13	6	63
Hadj (s)	0.05	-0.02	0.08	-0.35
Departure Headway (s)	4.8	4.9	5.5	5.0
Degree Utilization, x	0.45	0.27	0.15	0.15
Capacity (veh/h)	718	693	578	631
Control Delay (s)	11.7	9.7	9.4	8.9
Approach Delay (s)	11.7	9.7	9.4	8.9
Approach LOS	B	A	A	A

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	65	5	21	109	13	9
Future Volume (Veh/h)	65	5	21	109	13	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	76	6	25	128	15	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			82		257	79
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			82		257	79
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	99
cM capacity (veh/h)			1522		722	984

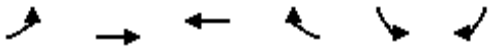
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	82	153	26
Volume Left	0	25	15
Volume Right	6	0	11
cSH	1700	1522	814
Volume to Capacity	0.05	0.02	0.03
Queue Length 95th (ft)	0	1	2
Control Delay (s)	0.0	1.3	9.6
Lane LOS		A	A
Approach Delay (s)	0.0	1.3	9.6
Approach LOS			A

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		23.6%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	12	81	3	4	63
Future Volume (Veh/h)	37	12	81	3	4	63
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	44	14	95	4	5	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	181	97			99	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	181	97			99	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	99			100	
cM capacity (veh/h)	808	962			1500	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	99	79
Volume Left	44	0	5
Volume Right	14	4	0
cSH	841	1700	1500
Volume to Capacity	0.07	0.06	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.6	0.0	0.5
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	0.5
Approach LOS	A		

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	16.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	369	416	17	107	9
Future Volume (Veh/h)	2	369	416	17	107	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	434	489	20	126	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	509				937	499
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	442				899	432
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				57	98
cM capacity (veh/h)	1052				291	587

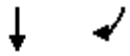
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	436	509	137
Volume Left	2	0	126
Volume Right	0	20	11
cSH	1052	1700	303
Volume to Capacity	0.00	0.30	0.45
Queue Length 95th (ft)	0	0	56
Control Delay (s)	0.1	0.0	26.3
Lane LOS	A		D
Approach Delay (s)	0.1	0.0	26.3
Approach LOS			D

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	60	0	0	69	6	37	1605	17	4	106
Future Volume (Veh/h)	0	0	60	0	0	69	6	37	1605	17	4	106
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	125	0	0	82	0	41	1764	19	0	108
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.81	0.81		0.81	0.81	0.81	0.00				0.00	0.81
vC, conflicting volume	2912	4026	681	2828	4066	598	0	1994			0	1783
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2544	3915	681	2441	3965	0	0	1994			0	1153
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	69	100	100	91	0	86			0	78
cM capacity (veh/h)	8	2	398	7	2	886	0	288			0	493

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	125	82	41	706	706	372	108	758	758	478
Volume Left	0	0	41	0	0	0	108	0	0	0
Volume Right	125	82	0	0	0	19	0	0	0	99
cSH	398	886	288	1700	1700	1700	493	1700	1700	1700
Volume to Capacity	0.31	0.09	0.14	0.42	0.42	0.22	0.22	0.45	0.45	0.28
Queue Length 95th (ft)	33	8	12	0	0	0	21	0	0	0
Control Delay (s)	18.2	9.5	19.5	0.0	0.0	0.0	14.3	0.0	0.0	0.0
Lane LOS	C	A	C				B			
Approach Delay (s)	18.2	9.5	0.4				0.7			
Approach LOS	C	A								

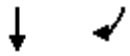
Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	55.1%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1857	97
Future Volume (Veh/h)	1857	97
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	1895	99
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

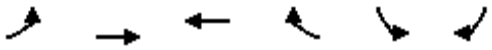
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	196	73	156	82	48	127	5	135	1321	49	17	109
Future Volume (vph)	196	73	156	82	48	127	5	135	1321	49	17	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Lane Util. Factor	0.97	1.00		1.00	1.00			1.00	0.91			1.00
Frt	1.00	0.90		1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3502	1706		1805	1693			1787	5108			1787
Flt Permitted	0.95	1.00		0.18	1.00			0.07	1.00			0.10
Satd. Flow (perm)	3502	1706		342	1693			123	5108			182
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	392	146	312	91	53	141	5	148	1452	54	18	116
RTOR Reduction (vph)	0	62	0	0	75	0	0	0	3	0	0	0
Lane Group Flow (vph)	392	396	0	91	119	0	0	153	1503	0	0	134
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases				8			2	2			6	6
Actuated Green, G (s)	18.3	34.5		28.2	22.2			71.2	61.2			69.8
Effective Green, g (s)	18.3	34.5		28.2	22.2			71.2	61.2			69.8
Actuated g/C Ratio	0.14	0.27		0.22	0.17			0.55	0.47			0.54
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0		3.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	492	452		141	289			195	2404			212
v/s Ratio Prot	c0.11	c0.23		0.03	0.07			c0.06	0.29			0.05
v/s Ratio Perm				0.11				c0.37				0.29
v/c Ratio	0.80	0.88		0.65	0.41			0.78	0.63			0.63
Uniform Delay, d1	54.1	45.7		42.9	48.1			30.2	25.8			19.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	8.2	17.6		9.7	1.3			17.1	1.2			4.5
Delay (s)	62.2	63.3		52.6	49.4			47.3	27.0			23.6
Level of Service	E	E		D	D			D	C			C
Approach Delay (s)		62.8			50.4				28.9			
Approach LOS		E			D				C			

Intersection Summary			
HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1706	113
Future Volume (vph)	1706	113
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	1815	120
RTOR Reduction (vph)	0	64
Lane Group Flow (vph)	1815	56
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	60.5	60.5
Effective Green, g (s)	60.5	60.5
Actuated g/C Ratio	0.47	0.47
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2390	744
v/s Ratio Prot	0.35	
v/s Ratio Perm		0.03
v/c Ratio	0.76	0.08
Uniform Delay, d1	28.7	19.3
Progression Factor	1.00	1.00
Incremental Delay, d2	2.3	0.2
Delay (s)	31.1	19.4
Level of Service	C	B
Approach Delay (s)	29.9	
Approach LOS	C	

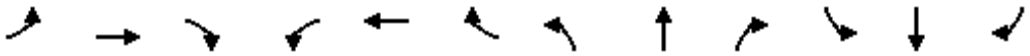
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	279	255	30	65	47
Future Volume (Veh/h)	29	279	255	30	65	47
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	59	569	327	38	108	78
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.98				0.98	0.98
vC, conflicting volume	365				1033	346
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	346				1025	327
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				56	89
cM capacity (veh/h)	1204				246	707

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	628	365	186
Volume Left	59	0	108
Volume Right	0	38	78
cSH	1204	1700	423
Volume to Capacity	0.05	0.21	0.44
Queue Length 95th (ft)	4	0	55
Control Delay (s)	1.3	0.0	22.3
Lane LOS	A		C
Approach Delay (s)	1.3	0.0	22.3
Approach LOS			C

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	108	65	41	16	73	13	23	24	14	6	34	33
Future Volume (vph)	108	65	41	16	73	13	23	24	14	6	34	33
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	216	130	82	21	97	17	49	51	30	8	44	43

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	428	135	130	95
Volume Left (vph)	216	21	49	8
Volume Right (vph)	82	17	30	43
Hadj (s)	-0.01	-0.04	-0.06	-0.25
Departure Headway (s)	4.7	5.0	5.4	5.2
Degree Utilization, x	0.56	0.19	0.19	0.14
Capacity (veh/h)	736	662	594	605
Control Delay (s)	13.4	9.2	9.6	9.1
Approach Delay (s)	13.4	9.2	9.6	9.1
Approach LOS	B	A	A	A

Intersection Summary				
Delay	11.5			
Level of Service	B			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	64	13	56	86	8	6
Future Volume (Veh/h)	64	13	56	86	8	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	75	15	66	101	9	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			90		316	82
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			90		316	82
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		99	99
cM capacity (veh/h)			1512		650	980

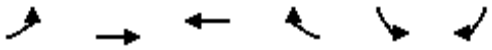
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	90	167	16
Volume Left	0	66	9
Volume Right	15	0	7
cSH	1700	1512	762
Volume to Capacity	0.05	0.04	0.02
Queue Length 95th (ft)	0	3	2
Control Delay (s)	0.0	3.2	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	3.2	9.8
Approach LOS			A

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	24.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	8	51	12	13	86
Future Volume (Veh/h)	20	8	51	12	13	86
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	24	9	60	14	15	101
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	198	67			74	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	198	67			74	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	785	999			1532	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	74	116
Volume Left	24	0	15
Volume Right	9	14	0
cSH	834	1700	1532
Volume to Capacity	0.04	0.04	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.5	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	9.5	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	21.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	356	258	60	49	5
Future Volume (Veh/h)	7	356	258	60	49	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	8	419	304	71	58	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.96				0.96	0.96
vC, conflicting volume	375				774	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	324				742	287
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				84	99
cM capacity (veh/h)	1188				366	722

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	427	375	64
Volume Left	8	0	58
Volume Right	0	71	6
cSH	1188	1700	383
Volume to Capacity	0.01	0.22	0.17
Queue Length 95th (ft)	1	0	15
Control Delay (s)	0.2	0.0	16.3
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	16.3
Approach LOS			C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	34.3%	ICU Level of Service	A
Analysis Period (min)	15		

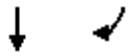
Appendix B HCM Synchro Reports

Year 2045 Future Build with Mitigation

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	81	0	0	159	6	50	2161	44	2	86
Future Volume (Veh/h)	0	0	81	0	0	159	6	50	2161	44	2	86
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.63	0.63	0.63	0.74	0.74	0.74	0.90	0.90	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	0	0	129	0	0	215	0	56	2401	49	0	93
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.66	0.66		0.66	0.66	0.66	0.00				0.00	0.66
vC, conflicting volume	3123	4558	641	3437	4590	825	0	1866			0	2450
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	2402	4588	641	2880	4636	0	0	1866			0	1377
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	69	100	100	70	0	83			0	71
cM capacity (veh/h)	6	0	422	2	0	716	0	323			0	324

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	129	215	56	960	960	529	93	701	701	464
Volume Left	0	0	56	0	0	0	93	0	0	0
Volume Right	129	215	0	0	0	49	0	0	0	113
cSH	422	716	323	1700	1700	1700	324	1700	1700	1700
Volume to Capacity	0.31	0.30	0.17	0.56	0.56	0.31	0.29	0.41	0.41	0.27
Queue Length 95th (ft)	32	32	15	0	0	0	29	0	0	0
Control Delay (s)	17.2	12.2	18.4	0.0	0.0	0.0	20.5	0.0	0.0	0.0
Lane LOS	C	B	C				C			
Approach Delay (s)	17.2	12.2	0.4				1.0			
Approach LOS	C	B								

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	67.5%	ICU Level of Service		C
Analysis Period (min)	15			



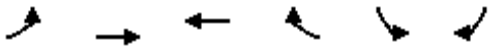
Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	1613	104
Future Volume (Veh/h)	1613	104
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.92	0.92
Hourly flow rate (vph)	1753	113
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	266	93	199	105	119	150	2	220	1762	51	25	121
Future Volume (vph)	266	93	199	105	119	150	2	220	1762	51	25	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Lane Util. Factor	0.97	1.00		1.00	1.00			1.00	0.91			1.00
Frt	1.00	0.90		1.00	0.92			1.00	1.00			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3467	1689		1805	1741			1787	5114			1770
Flt Permitted	0.95	1.00		0.19	1.00			0.08	1.00			0.08
Satd. Flow (perm)	3467	1689		355	1741			144	5114			154
Peak-hour factor, PHF	0.60	0.60	0.60	0.91	0.91	0.91	0.92	0.92	0.92	0.92	0.90	0.90
Adj. Flow (vph)	443	155	332	115	131	165	2	239	1915	55	28	134
RTOR Reduction (vph)	0	65	0	0	39	0	0	0	2	0	0	0
Lane Group Flow (vph)	443	422	0	115	257	0	0	241	1968	0	0	162
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	2%	2%
Turn Type	Prot	NA		pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases				8			2	2			6	6
Actuated Green, G (s)	17.4	32.8		27.4	21.4			66.2	53.4			57.2
Effective Green, g (s)	17.4	32.8		27.4	21.4			66.2	53.4			57.2
Actuated g/C Ratio	0.14	0.27		0.23	0.18			0.55	0.44			0.48
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0		3.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	502	461		153	310			268	2275			191
v/s Ratio Prot	c0.13	c0.25		0.04	0.15			c0.10	0.38			0.06
v/s Ratio Perm				0.13				c0.39				0.34
v/c Ratio	0.88	0.91		0.75	0.83			0.90	0.86			0.85
Uniform Delay, d1	50.3	42.2		39.9	47.5			34.1	30.0			26.5
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	16.2	22.9		18.6	17.6			29.2	4.7			26.9
Delay (s)	66.5	65.1		58.5	65.1			63.4	34.8			53.4
Level of Service	E	E		E	E			E	C			D
Approach Delay (s)		65.8			63.3				37.9			
Approach LOS		E			E				D			

Intersection Summary			
HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	1439	189
Future Volume (vph)	1439	189
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5085	1583
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5085	1583
Peak-hour factor, PHF	0.90	0.90
Adj. Flow (vph)	1599	210
RTOR Reduction (vph)	0	100
Lane Group Flow (vph)	1599	110
Heavy Vehicles (%)	2%	2%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	48.4	48.4
Effective Green, g (s)	48.4	48.4
Actuated g/C Ratio	0.40	0.40
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2050	638
v/s Ratio Prot	0.31	
v/s Ratio Perm		0.07
v/c Ratio	0.78	0.17
Uniform Delay, d1	31.2	23.0
Progression Factor	1.00	1.00
Incremental Delay, d2	3.0	0.6
Delay (s)	34.2	23.5
Level of Service	C	C
Approach Delay (s)	34.6	
Approach LOS	C	

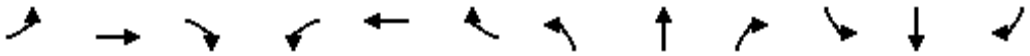
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	38	377	439	71	63	53
Future Volume (Veh/h)	38	377	439	71	63	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.60	0.60	0.74	0.74	0.65	0.65
Hourly flow rate (vph)	63	628	593	96	97	82
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	689				1395	641
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	622				1386	570
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				29	83
cM capacity (veh/h)	890				137	485

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	691	689	179
Volume Left	63	0	97
Volume Right	0	96	82
cSH	890	1700	252
Volume to Capacity	0.07	0.41	0.71
Queue Length 95th (ft)	6	0	120
Control Delay (s)	1.8	0.0	49.0
Lane LOS	A		E
Approach Delay (s)	1.8	0.0	49.0
Approach LOS			E

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	134	82	29	17	120	9	64	35	5	2	28	44
Future Volume (vph)	134	82	29	17	120	9	64	35	5	2	28	44
Peak Hour Factor	0.59	0.59	0.59	0.61	0.61	0.61	0.89	0.89	0.89	0.57	0.57	0.57
Hourly flow rate (vph)	227	139	49	28	197	15	72	39	6	4	49	77

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	415	240	117	130
Volume Left (vph)	227	28	72	4
Volume Right (vph)	49	15	6	77
Hadj (s)	0.06	-0.01	0.09	-0.35
Departure Headway (s)	5.0	5.2	5.9	5.5
Degree Utilization, x	0.58	0.35	0.19	0.20
Capacity (veh/h)	686	647	528	573
Control Delay (s)	14.8	11.0	10.3	9.8
Approach Delay (s)	14.8	11.0	10.3	9.8
Approach LOS	B	B	B	A

Intersection Summary				
Delay	12.5			
Level of Service	B			
Intersection Capacity Utilization	43.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	78	5	21	133	13	9
Future Volume (Veh/h)	78	5	21	133	13	9
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	92	6	25	156	15	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			98		301	95
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			98		301	95
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		98	99
cM capacity (veh/h)			1501		681	964

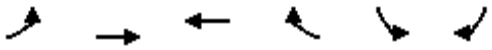
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	98	181	26
Volume Left	0	25	15
Volume Right	6	0	11
cSH	1700	1501	778
Volume to Capacity	0.06	0.02	0.03
Queue Length 95th (ft)	0	1	3
Control Delay (s)	0.0	1.1	9.8
Lane LOS		A	A
Approach Delay (s)	0.0	1.1	9.8
Approach LOS			A

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	24.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	37	12	99	3	4	76
Future Volume (Veh/h)	37	12	99	3	4	76
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	44	14	116	4	5	89
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	217	118			120	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	217	118			120	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	99			100	
cM capacity (veh/h)	771	937			1474	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	58	120	94
Volume Left	44	0	5
Volume Right	14	4	0
cSH	805	1700	1474
Volume to Capacity	0.07	0.07	0.00
Queue Length 95th (ft)	6	0	0
Control Delay (s)	9.8	0.0	0.4
Lane LOS	A		A
Approach Delay (s)	9.8	0.0	0.4
Approach LOS	A		

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	17.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	444	507	17	107	9
Future Volume (Veh/h)	2	444	507	17	107	9
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	2	522	596	20	126	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.92				0.92	0.92
vC, conflicting volume	616				1132	606
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535				1098	525
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				42	98
cM capacity (veh/h)	951				216	508

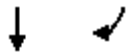
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	524	616	137
Volume Left	2	0	126
Volume Right	0	20	11
cSH	951	1700	227
Volume to Capacity	0.00	0.36	0.60
Queue Length 95th (ft)	0	0	87
Control Delay (s)	0.1	0.0	42.5
Lane LOS	A		E
Approach Delay (s)	0.1	0.0	42.5
Approach LOS			E

Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (veh/h)	0	0	71	0	0	84	7	45	1951	21	5	129
Future Volume (Veh/h)	0	0	71	0	0	84	7	45	1951	21	5	129
Sign Control		Stop			Stop				Free			
Grade		0%			0%				0%			
Peak Hour Factor	0.48	0.48	0.48	0.84	0.84	0.84	0.91	0.91	0.91	0.91	0.98	0.98
Hourly flow rate (vph)	0	0	148	0	0	100	0	49	2144	23	0	132
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type									None			
Median storage veh)												
Upstream signal (ft)									1159			
pX, platoon unblocked	0.70	0.70		0.70	0.70	0.70	0.00				0.00	0.70
vC, conflicting volume	3544	4896	826	3436	4940	726	0	2422			0	2167
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	3141	5064	826	2988	5125	0	0	2422			0	1183
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	0.0	4.1			0.0	4.1
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	0.0	2.2			0.0	2.2
p0 queue free %	100	100	54	100	100	87	0	75			0	68
cM capacity (veh/h)	2	0	320	1	0	767	0	196			0	416

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3	SB 4
Volume Total	148	100	49	858	858	452	132	925	925	572
Volume Left	0	0	49	0	0	0	132	0	0	0
Volume Right	148	100	0	0	0	23	0	0	0	109
cSH	320	767	196	1700	1700	1700	416	1700	1700	1700
Volume to Capacity	0.46	0.13	0.25	0.50	0.50	0.27	0.32	0.54	0.54	0.34
Queue Length 95th (ft)	58	11	24	0	0	0	34	0	0	0
Control Delay (s)	25.6	10.4	29.4	0.0	0.0	0.0	17.6	0.0	0.0	0.0
Lane LOS	D	B	D				C			
Approach Delay (s)	25.6	10.4	0.7				0.9			
Approach LOS	D	B								

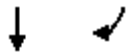
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	63.9%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	2267	107
Future Volume (Veh/h)	2267	107
Sign Control	Free	
Grade	0%	
Peak Hour Factor	0.98	0.98
Hourly flow rate (vph)	2313	109
Pedestrians		
Lane Width (ft)		
Walking Speed (ft/s)		
Percent Blockage		
Right turn flare (veh)		
Median type	None	
Median storage veh)		
Upstream signal (ft)		
pX, platoon unblocked		
vC, conflicting volume		
vC1, stage 1 conf vol		
vC2, stage 2 conf vol		
vCu, unblocked vol		
tC, single (s)		
tC, 2 stage (s)		
tF (s)		
p0 queue free %		
cM capacity (veh/h)		
Direction, Lane #		

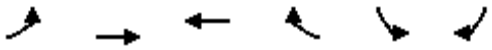
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations												
Traffic Volume (vph)	233	87	183	100	57	155	6	151	1611	60	20	133
Future Volume (vph)	233	87	183	100	57	155	6	151	1611	60	20	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Lane Util. Factor	0.97	1.00		1.00	1.00			1.00	0.91			1.00
Frt	1.00	0.90		1.00	0.89			1.00	0.99			1.00
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00			0.95
Satd. Flow (prot)	3502	1707		1805	1691			1787	5108			1787
Flt Permitted	0.95	1.00		0.16	1.00			0.07	1.00			0.07
Satd. Flow (perm)	3502	1707		297	1691			137	5108			134
Peak-hour factor, PHF	0.50	0.50	0.50	0.90	0.90	0.90	0.91	0.91	0.91	0.91	0.94	0.94
Adj. Flow (vph)	466	174	366	111	63	172	7	166	1770	66	21	141
RTOR Reduction (vph)	0	59	0	0	75	0	0	0	3	0	0	0
Lane Group Flow (vph)	466	481	0	111	160	0	0	173	1833	0	0	162
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		pm+pt	NA		pm+pt	pm+pt	NA		pm+pt	pm+pt
Protected Phases	7	4		3	8		5	5	2		1	1
Permitted Phases				8			2	2			6	6
Actuated Green, G (s)	19.4	38.0		32.6	25.6			65.0	55.1			67.0
Effective Green, g (s)	19.4	38.0		32.6	25.6			65.0	55.1			67.0
Actuated g/C Ratio	0.15	0.29		0.25	0.20			0.50	0.42			0.52
Clearance Time (s)	4.0	5.5		4.0	5.5			4.0	5.5			4.0
Vehicle Extension (s)	2.0	4.0		3.0	4.0			2.0	3.0			2.0
Lane Grp Cap (vph)	522	498		155	332			194	2165			207
v/s Ratio Prot	c0.13	c0.28		0.04	0.09			c0.07	0.36			0.07
v/s Ratio Perm				0.14				0.38				0.34
v/c Ratio	0.89	0.97		0.72	0.48			0.89	0.85			0.78
Uniform Delay, d1	54.3	45.4		40.8	46.3			35.5	33.7			31.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00			1.00
Incremental Delay, d2	17.0	31.7		14.6	1.5			35.5	4.3			16.1
Delay (s)	71.3	77.1		55.3	47.8			71.0	38.0			47.4
Level of Service	E	E		E	D			E	D			D
Approach Delay (s)		74.4			50.2				40.8			
Approach LOS		E			D				D			

Intersection Summary			
HCM 2000 Control Delay	52.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	SBT	SBR
Lane Configurations		
Traffic Volume (vph)	2081	138
Future Volume (vph)	2081	138
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	5.5	5.5
Lane Util. Factor	0.91	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	5136	1599
Flt Permitted	1.00	1.00
Satd. Flow (perm)	5136	1599
Peak-hour factor, PHF	0.94	0.94
Adj. Flow (vph)	2214	147
RTOR Reduction (vph)	0	69
Lane Group Flow (vph)	2214	78
Heavy Vehicles (%)	1%	1%
Turn Type	NA	Perm
Protected Phases	6	
Permitted Phases		6
Actuated Green, G (s)	56.1	56.1
Effective Green, g (s)	56.1	56.1
Actuated g/C Ratio	0.43	0.43
Clearance Time (s)	5.5	5.5
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	2216	690
v/s Ratio Prot	c0.43	
v/s Ratio Perm		0.05
v/c Ratio	1.00	0.11
Uniform Delay, d1	36.9	22.1
Progression Factor	1.00	1.00
Incremental Delay, d2	18.9	0.3
Delay (s)	55.8	22.4
Level of Service	E	C
Approach Delay (s)	53.3	
Approach LOS	D	

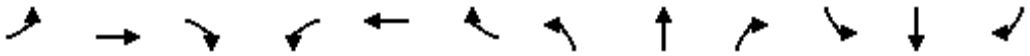
Intersection Summary



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	35	339	311	35	76	57
Future Volume (Veh/h)	35	339	311	35	76	57
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.49	0.49	0.78	0.78	0.60	0.60
Hourly flow rate (vph)	71	692	399	45	127	95
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			530			
pX, platoon unblocked	0.97				0.97	0.97
vC, conflicting volume	444				1256	422
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	407				1247	384
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				27	85
cM capacity (veh/h)	1123				175	646

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	763	444	222
Volume Left	71	0	127
Volume Right	0	45	95
cSH	1123	1700	306
Volume to Capacity	0.06	0.26	0.73
Queue Length 95th (ft)	5	0	132
Control Delay (s)	1.6	0.0	42.9
Lane LOS	A		E
Approach Delay (s)	1.6	0.0	42.9
Approach LOS			E

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	132	77	50	19	87	15	28	29	17	6	41	41
Future Volume (vph)	132	77	50	19	87	15	28	29	17	6	41	41
Peak Hour Factor	0.50	0.50	0.50	0.75	0.75	0.75	0.47	0.47	0.47	0.77	0.77	0.77
Hourly flow rate (vph)	264	154	100	25	116	20	60	62	36	8	53	53

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	518	161	158	114
Volume Left (vph)	264	25	60	8
Volume Right (vph)	100	20	36	53
Hadj (s)	-0.01	-0.04	-0.06	-0.26
Departure Headway (s)	5.0	5.4	5.8	5.7
Degree Utilization, x	0.71	0.24	0.26	0.18
Capacity (veh/h)	518	606	545	545
Control Delay (s)	19.2	10.1	10.8	10.0
Approach Delay (s)	19.2	10.1	10.8	10.0
Approach LOS	C	B	B	A

Intersection Summary				
Delay	15.2			
Level of Service	C			
Intersection Capacity Utilization	38.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	77	13	56	104	8	6
Future Volume (Veh/h)	77	13	56	104	8	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	91	15	66	122	9	7
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			106		352	98
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			106		352	98
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		99	99
cM capacity (veh/h)			1491		619	960

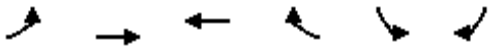
Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	106	188	16
Volume Left	0	66	9
Volume Right	15	0	7
cSH	1700	1491	733
Volume to Capacity	0.06	0.04	0.02
Queue Length 95th (ft)	0	3	2
Control Delay (s)	0.0	2.9	10.0
Lane LOS		A	B
Approach Delay (s)	0.0	2.9	10.0
Approach LOS			B

Intersection Summary			
Average Delay	2.3		
Intersection Capacity Utilization	25.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	8	62	12	13	105
Future Volume (Veh/h)	20	8	62	12	13	105
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	24	9	73	14	15	124
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	234	80			87	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	234	80			87	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	99			99	
cM capacity (veh/h)	749	983			1515	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	87	139
Volume Left	24	0	15
Volume Right	9	14	0
cSH	801	1700	1515
Volume to Capacity	0.04	0.05	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	9.7	0.0	0.9
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	0.9
Approach LOS	A		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	22.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	431	314	60	49	5
Future Volume (Veh/h)	7	431	314	60	49	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	8	507	369	71	58	6
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			305			
pX, platoon unblocked	0.94				0.94	0.94
vC, conflicting volume	440				928	404
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377				893	339
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				80	99
cM capacity (veh/h)	1120				293	666

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	515	440	64
Volume Left	8	0	58
Volume Right	0	71	6
cSH	1120	1700	310
Volume to Capacity	0.01	0.26	0.21
Queue Length 95th (ft)	1	0	19
Control Delay (s)	0.2	0.0	19.6
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	19.6
Approach LOS			C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		