Forest Lawn Drive Protected Bike Lanes
Travel Delay Analysis

Prepared by

City of Los Angeles Department of Transportation

Active Transportation Division

LADOT

Table of Contents

1. Introduction

This report summarizes the results of a travel delay analysis for the proposed lane reconfiguration that would upgrade the existing striped bike lanes to protected bike lanes along Forest Lawn Drive between Memorial Drive and Zoo Drive in the City of Los Angeles. The corridor currently has two vehicle travel lanes in each direction. The proposed project would reconfigure the corridor to one vehicle travel lane in each direction, eastbound between approximately Greenwood Way (the gated driveway between Memorial Drive and Mount Sinai Drive) and just west of Zoo Drive, westbound between Zoo Drive and approximately just east of Memorial Drive (**Figure 1**). This report identifies expected change in vehicle travel time, and includes details on methodology used for the analysis. A total of three (3) intersections along Forest Lawn Drive are evaluated in this analysis.

2. Project Description

The proposed project consists of the implementation of Class IV (protected) bike lanes along Forest Lawn Drive between Memorial Drive and Zoo Drive. The Class IV protected bike lanes would replace the existing Class II striped bike lanes along the corridor, and connect to the planned protected bike lanes on Zoo Drive into Griffith Park and the planned park at the Los Angeles Department of Water and Power (LADWP) Tom LaBonge Headworks Site.

The existing mid-block lane configurations are illustrated in the cross sections in **Figure 2**. Within the project area, Forest Lawn Drive currently has two travel lanes in each direction separated by a narrow painted median. The proposed project would reconfigure the street to one vehicle travel lane in each direction, add a center turn lane for most of the corridor, including at the entrance of the Lod Cook Center for Junior Achievement of Southern California (JASoCal), and upgrade the existing Class II striped bike lanes to Class IV protected bike lanes. The proposed typical mid-block lane configurations are illustrated in **Figure 3.**

Figure 1: Project Limits

Current Conditions

Proposed Conditions

Two through lanes in each direction

One through lane in each direction

Two eastbound lanes and one westbound lane

Figure 2: Current Conditions

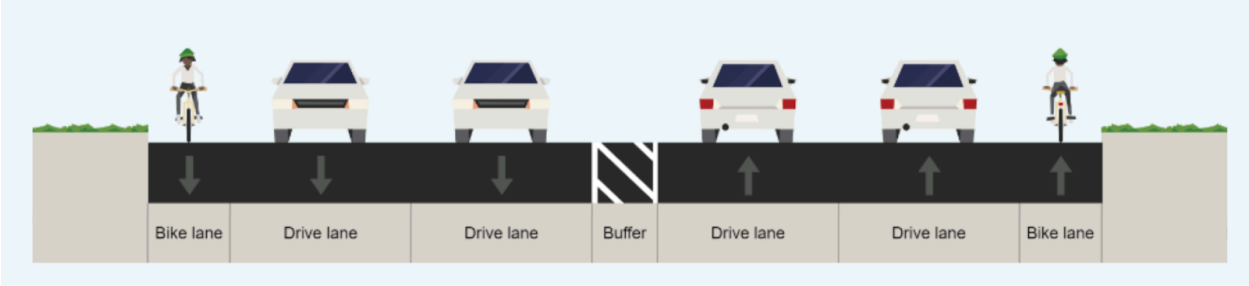
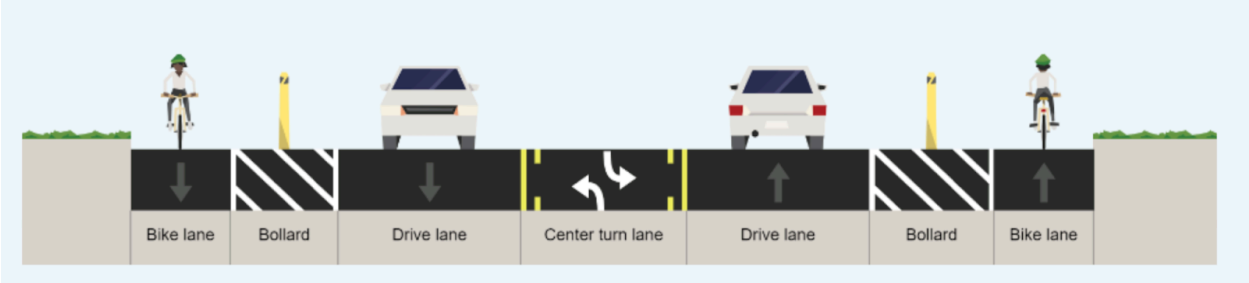


Figure 3: Proposed Design



3. Study Area

The three signalized intersections along the Forest Lawn Drive corridor project's extent were included in the analysis. These intersections include:

1. Forest Lawn Drive & Memorial Drive
2. Forest Lawn Drive & Mount Sinai Drive
3. Forest Lawn Drive & Zoo Drive

The following four scenarios were analyzed:

- Existing Conditions: Weekday AM (7-10 AM) and PM (3-6 PM) peak periods
- Existing Conditions: Weekend peak period (Sunday 11:30 AM-12:30 PM)
- Existing with Project Conditions: Weekday AM (7-10 AM) and PM (3-6 PM) peak periods
- Existing with Project Conditions: Weekend peak period (Sunday 11:30 AM-12:30 PM)

To account for the unique land uses along the Project corridor and related travel patterns that may not correspond to the typical weekday morning and evening peak travel times, weekend scenarios were considered as part of the study, when Griffith Park and Forest Lawn and Mount Sinai cemeteries typically experience more visitors. Existing weekday and weekend data was collected in 2023.

Figure 4 shows the study intersections in relation to the surrounding street system.

Figure 4: Study Intersections

4. Analysis Methodology

Changes to travel time for the corridor were estimated from Existing to Existing Plus Project Conditions using the auto delay results from the intersection analysis. Change in auto delay between scenarios at each analyzed signalized intersection along the corridor was summed in each direction to understand the net travel time change estimated as a result of the project.

Level of service (LOS) and auto delay were calculated using Synchro 11 and Highway Capacity Manual (HCM) methodologies. Lane configurations and turning movement volumes for both scenarios are included as an attachment to this memo. **Table 1** translates LOS results from letter grades to how drivers experience traffic conditions. In urban areas, LOS results of up to E are considered acceptable.

In this report, analysis of traffic operations was conducted with Synchro software, utilizing the Highway Capacity Manual (HCM) delay methodology, which is described in the Highway Capacity Manual, Special Report 209 (Transportation Research Board, Washington, D.C., 2010). Under the HCM methodology, LOS at signalized intersections is based on the average delay experienced by vehicles traveling through an intersection. The analysis incorporates the effects of the lane geometry and signal phasing (e.g., protected or permitted left turns) at the intersection. In addition, the Los Angeles Department of Transportation (LADOT) signal timing plans were used to more accurately represent current traffic operations. **Table 1** presents a brief description of each level of service letter grade, as well as the range of delays associated with each grade for signalized intersections.

Table 1: Level of Service Definitions for Signalized Intersections

LEVEL OF SERVICE	AVG STOPPED DELAY PER VEHICLE (Seconds)	DEFINITION
A	≤ 10	No vehicle waits longer than one red light and no approach phase is fully used.
B	> 10 and ≤ 20	An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	> 20 and ≤ 35	Occasionally, drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	> 35 and ≤ 55	Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	> 55 and ≤ 80	Represents the most vehicles that intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80	Backups from nearby intersections or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, Interim Materials on Highway Capacity, Transportation Research Circular No. 212, January 1980; and Transportation Research Board, Highway Capacity Manual 2016.

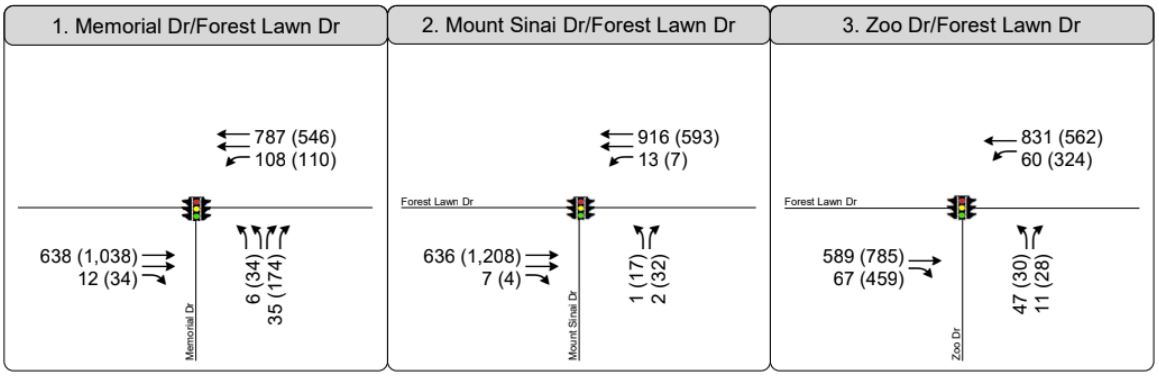
5. Intersection Level of Service and Delay

Existing turning movement volumes were collected in February 2023 for the AM and PM peak periods on a typical weekday while school was in session. The weekday AM peak period is defined as 7AM – 10AM and the PM peak period is defined as 3PM – 6PM. Additional counts were collected in September - November 2023 on typical weekends (Saturday - Sunday) to inform weekend traffic conditions related to land uses adjacent to the project corridor. The weekend peak period for the study corridor was determined as 11AM - 1PM. Detailed traffic count data is provided in **Appendix A**.

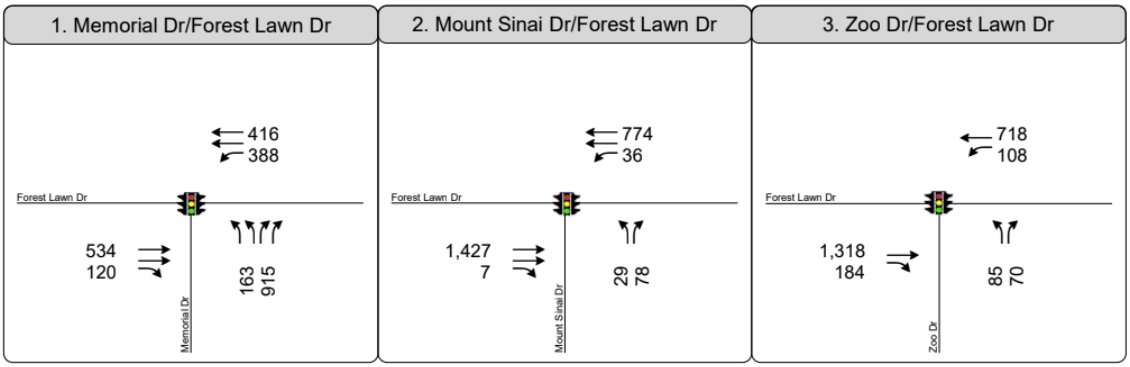
The Existing Conditions weekday and weekend peak hour traffic volumes and lane configurations are shown in **Figure 5. Tables 2 and 3** summarizes the level of service and delay results for weekday and weekend scenarios respectively, based on these existing traffic volumes and the existing lane configurations. Level of service and delay are provided for the intersection as a whole. Note that the average delay is derived from Synchro software analysis, and not from field observations. The delay represents average vehicle delay for all directions of movement through each intersection. Detailed LOS calculations are provided in **Appendix B**.

Figure 5: Existing Lane Configurations and Volumes

Weekday



Weekend



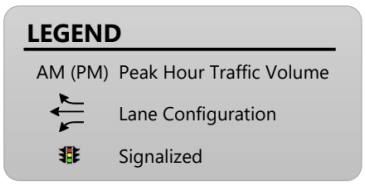


Table 2: Intersection Analysis: Existing Weekday Conditions

		Existing (2023) Conditions			
	Study Intersection	Intersection LOS (AM/PM)	Approach	AM Delay (sec)	PM Delay (sec)
1	Memorial Dr & Forest Lawn Dr	A/A	EB	11	12
			WB	4	6
			NB	23	27
2	Mount Sinai Dr & Forest Lawn Dr	A/A	EB	7	7
			WB	3	3
			NB	35	24
3	Zoo Dr & Forest Lawn Dr	A/A	EB	4	2
			WB	6	15
			NB	22	59

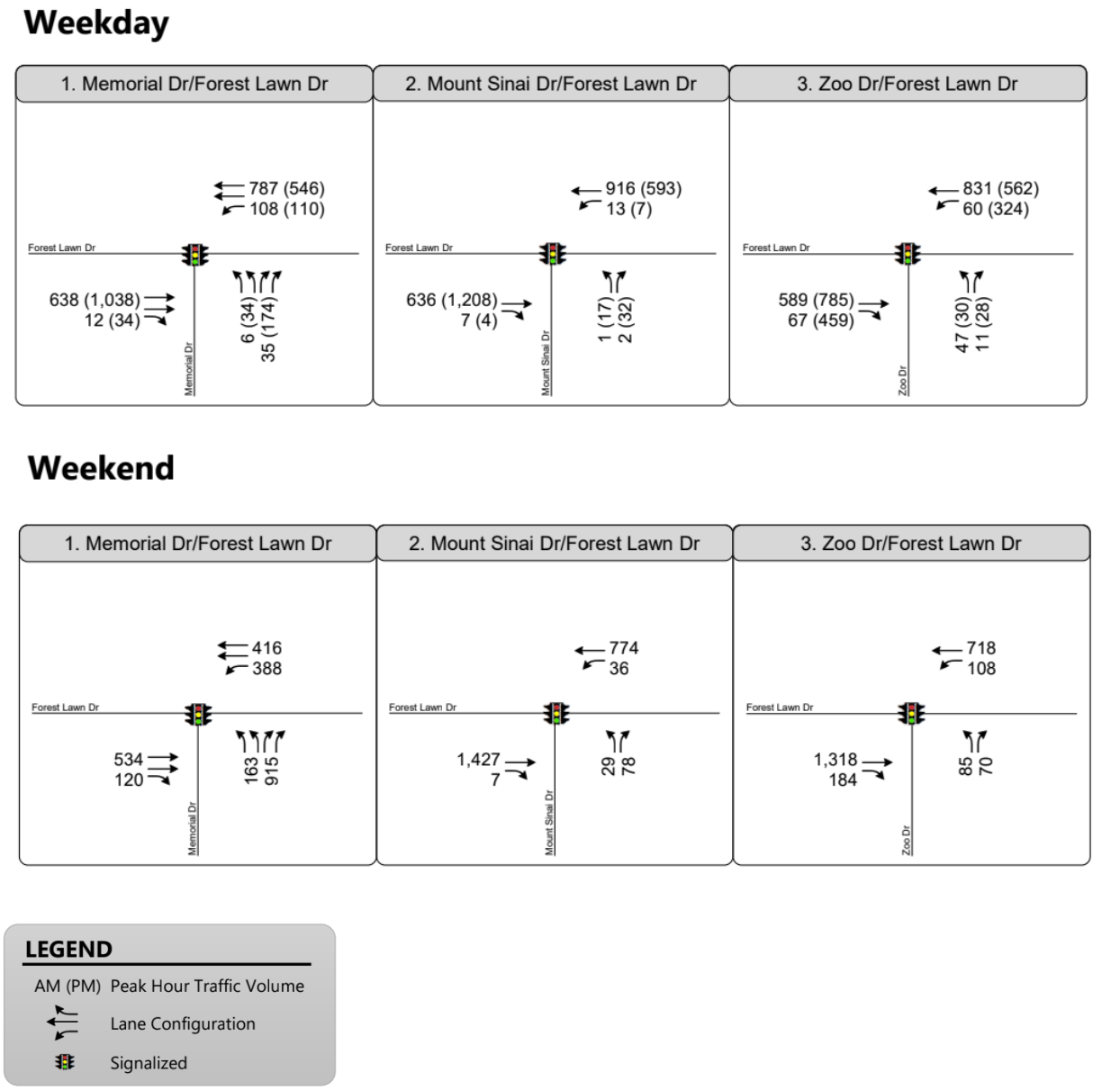
Table 3: Intersection Analysis: Existing Weekend Conditions

		Existing (2023) Conditions		
	Study Intersection	Intersection LOS	Approach	Delay (sec)
1	Memorial Dr & Forest Lawn Dr	D	EB	40
			WB	32
			NB	37
2	Mount Sinai Dr & Forest Lawn Dr	A	EB	10
			WB	2
			NB	55
3	Zoo Dr & Forest Lawn Dr	B	EB	15
			WB	12
			NB	58

The Existing with Project Conditions utilize the same traffic volumes as used in Existing Conditions. As described previously, the project consists of upgrading the existing striped bike lanes to protected bike lanes along Forest Lawn Drive, between Memorial Drive and Zoo Drive. As illustrated in **Figure 2** and **Figure 3**, the project would reconfigure Forest Lawn Drive, approximately between Memorial Drive and Zoo Drive from two vehicle travel lanes in each direction, to one vehicle travel lane plus the protected bike lane in each direction, with an added center turn lane for most of the corridor. **Figure 6** shows the Existing Plus Project Conditions intersection configurations. As shown in **Figure 1**, in the eastbound directions, the travel lane merge occurs well past the Memorial Drive intersection, and the right-turn pocket is retained at the Zoo Drive intersection in the proposed condition. In the westbound direction,

there is currently only one westbound through lane at the Zoo Drive intersection, and two westbound through lanes and a westbound left-turn pocket are retained at the Memorial Drive intersection.

Figure 6: Existing Plus Project Lane Configurations and Volumes



Therefore, the lane configurations at both Memorial Drive/Forest Lawn Drive and Zoo Drive/Forest Drive intersection remain the same in both the Existing and the Existing with Project conditions. At the Mount Sinai Drive/Forest Lawn intersection, the eastbound and westbound through lanes are reduced from two in the Existing Conditions, to one in the Existing with Project Conditions.

Based on the Existing Plus Project Conditions intersection configurations, the levels of service at the analyzed intersections were calculated for weekday and weekend scenarios. Level of service and delay are provided for the intersection as a whole. These results are estimates for peak traffic volumes, when the corridor is most heavily used by vehicles and therefore most congested. **Tables 4 and 5** summarizes the Existing Plus Project level of service, delay results, and the net change in delay compared to the Existing Conditions for weekday and weekend scenarios respectively.

Table 4: Intersection Analysis: Existing Plus Project Weekday Conditions

		Existing (2023) With Project Conditions				Net Change in Delay (sec)	
	Study Intersection	Intersection LOS (AM/PM)	Approach	AM Delay (sec)	PM Delay (sec)	AM	PM
1	Memorial Dr & Forest Lawn Dr	A/A	EB	11	12	-	-
			WB	4	6	-	-
			NB	23	27	-	-
2	Mount Sinai Dr & Forest Lawn Dr	A/B	EB	8	20	1	13
			WB	5	3	2	-
			NB	41	40	6	16
3	Zoo Dr & Forest Lawn Dr	A/A	EB	4	2	-	-
			WB	6	15	-	-
			NB	22	59	-	-

Table 5: Intersection Analysis: Existing Plus Project Weekend Conditions

		Existing (2023) Conditions			Net Change in Approach Delay (sec)
	Study Intersection	Intersection LOS	Approach	Delay (sec)	
1	Memorial Dr & Forest Lawn Dr	D	EB	40	-
			WB	32	-
			NB	37	-
2	Mount Sinai Dr & Forest Lawn Dr	E	EB	106	96
			WB	4	2
			NB	109	54
3	Zoo Dr & Forest Lawn Dr	B	EB	15	-
			WB	12	-
			NB	58	-

6. Change in Corridor Travel Time

Table 6 summarizes the changes in travel time (as calculated using Synchro software), comparing the Existing Conditions to the Existing Plus Project conditions, associated with each analysis scenario for the corridor as a whole. The project is not anticipated to create a significant change in auto travel time because it does not reduce intersection capacity except at Mount Sinai Drive, and preserves turn pockets where they are existing.

Based on the *LADOT Lane Reconfiguration Guidelines*, projects where expected additional delay after lane reduction is less than 2 minutes per mile of corridor may proceed. If expected additional delay is between 2 and 5 minutes per mile, the project should proceed with caution. If expected additional delay is greater than 5 minutes per mile, the project should move forward only if there is a substantiated overriding need for safety enhancements, or if the improvement was identified in an adopted plan. These results indicate that this project may proceed because expected additional delay after lane reduction is less than 2 minutes per mile of corridor.

Table 6: Change in Corridor Travel Time

Net Change with Project per Mile			
Direction	Weekday AM	Weekday PM	Weekend
EB	0:01	0:13	1:36
WB	0:02	0:00	0:02

Notes:

- The corridor is 1 mile in length
- Data is reflected in minutes:seconds
- Data reflects average peak period travel times
- Weekday AM peak period: 7:00AM - 10:00AM, Weekday PM peak period: 3:00PM - 6:00PM, Weekend peak period: Sunday 11:30AM - 12:30PM

7. Summary and Conclusions

The proposed project consists of upgrading the existing striped bike lanes to protected bike lanes along Forest Lawn Drive, between Memorial Drive and Zoo Drive in the City of Los Angeles. The project would reconfigure Forest Lawn Drive, approximately between Memorial Drive and Zoo Drive from two vehicle travel lanes in each direction, to one vehicle travel lane plus the protected bike lane in each direction, with an added center turn lane for most of the corridor. Based on the travel delay analysis as described in this report, the highest change in travel time through the corridor is estimated to be 1 minute 36 seconds in the eastbound direction during the weekend peak hour. Based on the LADOT Lane Reconfiguration Guidelines, these results indicate that this project may proceed as the expected additional delay after lane reduction is less than 2 minutes per mile of corridor.

Appendix A - Existing Counts

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:
North/South Memorial Drive

East/West Forest Lawn Drive

Day: Thursday **Date:** February 16, 2023 **Weather:** SUNNY

Hours: 7-10 AM & 3-6 PM **Staff:** DL

School Day: YES **District:** Hollywood **I/S CODE** 2222

	N/B	S/B	E/B	W/B
TRUCKS	8	0	75	72
BIKES	0	0	14	23
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	18	9.30	0	7.00	179	7.45	294	7.15
PM PK 15 MIN	101	3.30	0	3.00	352	5.15	194	3.30
AM PK HOUR	53	9.00	0	7.00	676	7.45	1003	7.00
PM PK HOUR	265	3.30	0	3.00	1286	5.00	656	3.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	3	0	5	8
8-9	6	0	35	41
9-10	15	0	38	53
3-4	34	0	174	208
4-5	42	0	147	189
5-6	20	0	111	131
TOTAL	120	0	510	630

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
3-4	0	0	0	0
4-5	0	0	0	0
5-6	0	0	0	0
TOTAL	0	0	0	0

TOTAL	**XING S/L**		**XING N/L**	
N-S	Ped	Sch	Ped	Sch
8	0	0	0	0
41	0	0	0	0
53	0	0	0	0
208	0	0	0	0
189	0	0	0	0
131	0	0	0	0
630	0	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	479	12	491
8-9	0	638	12	650
9-10	0	538	22	560
3-4	0	1038	34	1072
4-5	0	1065	35	1100
5-6	0	1270	16	1286
TOTAL	0	5028	131	5159

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	56	947	0	1003
8-9	108	787	0	895
9-10	139	813	0	952
3-4	110	546	0	656
4-5	55	519	0	574
5-6	26	521	0	547
TOTAL	494	4133	0	4627

TOTAL	**XING W/L**		**XING E/L**	
E-W	Ped	Sch	Ped	Sch
1494	0	0	0	0
1545	0	0	0	0
1512	0	0	0	0
1728	0	0	0	0
1674	0	0	0	0
1833	0	0	0	0
9786	0	0	0	0

(Rev Oct 06)

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:
North/South Mount Sinai Dr

East/West Forest Lawn Dr

Day: Thursday **Date:** February 16, 2023 **Weather:** SUNNY

Hours: 7-10 AM & 3-6 PM **Staff:** MF

School Day: YES **District:** HOLLYWOOD **I/S CODE** N/A

	N/B	S/B	E/B	W/B
TRUCKS	1	0	100	88
BIKES	0	0	10	24
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	3	7.00	0	7.00	177	7.45	277	7.15
PM PK 15 MIN	18	3.15	0	3.00	386	3.30	169	3.00
AM PK HOUR	8	7.00	0	7.00	667	7.45	1011	8.30
PM PK HOUR	49	3.00	0	3.00	1349	4.45	600	3.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	8	8
8-9	1	0	2	3
9-10	1	0	6	7
3-4	17	0	32	49
4-5	4	0	19	23
5-6	10	0	5	15
TOTAL	33	0	72	105

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
3-4	0	0	0	0
4-5	0	0	0	0
5-6	0	0	0	0
TOTAL	0	0	0	0

TOTAL	XING S/L		XING N/L	
N-S	Ped	Sch	Ped	Sch
8	2	0	0	0
3	0	0	0	0
7	1	0	0	0
49	0	0	0	0
23	0	0	0	0
15	0	0	0	0
105	3	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	471	4	475
8-9	0	636	7	643
9-10	0	553	7	560
3-4	0	1208	4	1212
4-5	0	1237	1	1238
5-6	0	1324	0	1324
TOTAL	0	5429	23	5452

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	23	984	0	1007
8-9	13	916	0	929
9-10	14	912	0	926
3-4	7	593	0	600
4-5	8	552	0	560
5-6	1	551	0	552
TOTAL	66	4508	0	4574

TOTAL	XING W/L		XING E/L	
E-W	Ped	Sch	Ped	Sch
1482	0	0	0	0
1572	0	0	0	0
1486	0	0	0	0
1812	0	0	0	0
1798	0	0	0	0
1876	0	0	0	0
10026	0	0	0	0

(Rev Oct 06)

City Of Los Angeles
Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET:
North/South Zoo Drive

East/West Forest Lawn Drive

Day: Thursday **Date:** February 16, 2023 **Weather:** SUNNY

Hours: 7-10 AM & 3-6 PM **Staff:** AMS

School Day: YES **District:** Hollywood **I/S CODE** 27740

	N/B	S/B	E/B	W/B
TRUCKS	8	0	58	43
BIKES	17	0	12	0
BUSES	0	0	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	24	9.45	0	7.00	173	7.45	276	7.15
PM PK 15 MIN	37	5.15	0	3.00	371	3.30	245	3.00
AM PK HOUR	81	9.00	0	7.00	667	7.45	1005	7.00
PM PK HOUR	103	4.45	0	3.00	1353	5.00	886	3.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	51	0	10	61
8-9	47	0	11	58
9-10	52	0	29	81
3-4	30	0	28	58
4-5	37	0	27	64
5-6	57	0	41	98
TOTAL	274	0	146	420

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
3-4	0	0	0	0
4-5	0	0	0	0
5-6	0	0	0	0
TOTAL	0	0	0	0

TOTAL	**XING S/L**		**XING N/L**	
N-S	Ped	Sch	Ped	Sch
61	1	0	0	0
58	3	0	0	0
81	5	0	0	0
58	1	0	0	0
64	1	0	0	0
98	0	0	0	0
420	11	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	438	44	482
8-9	0	589	67	656
9-10	0	503	78	581
3-4	0	785	459	1244
4-5	0	742	479	1221
5-6	0	729	624	1353
TOTAL	0	3786	1751	5537

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	43	962	0	1005
8-9	60	831	1	892
9-10	66	878	0	944
3-4	324	562	0	886
4-5	200	534	0	734
5-6	154	486	0	640
TOTAL	847	4253	1	5101

TOTAL	**XING W/L**		**XING E/L**	
E-W	Ped	Sch	Ped	Sch
1487	0	0	0	0
1548	0	0	1	0
1525	0	0	0	0
2130	1	0	2	0
1955	0	0	3	0
1993	0	0	0	0
10638	1	0	6	0

(Rev Oct 06)

National Data & Surveying Services Intersection Turning Movement Count

Location: Memorial Dr & Forest Lawn Dr
City: Los Angeles
Control: Signalized

Project ID: 23-020460-001
Date: 11/19/2023

Data - Totals

NS/EW Streets:	Memorial Dr				Memorial Dr				Forest Lawn Dr				Forest Lawn Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	0	2	0	0	0	0	0	0	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	10	0	60	0	0	0	0	0	0	132	128	0	179	101	0	0	610
11:15 AM	15	0	123	0	0	0	0	0	0	135	69	0	155	93	0	0	590
11:30 AM	46	0	148	0	0	0	0	0	0	138	38	0	115	114	0	0	599
11:45 AM	41	0	252	0	0	0	0	0	0	120	40	0	95	104	0	0	652
12:00 PM	30	0	285	0	0	0	0	0	0	141	24	0	110	105	0	0	695
12:15 PM	45	0	230	1	0	0	0	0	0	135	18	0	68	93	0	0	590
12:30 PM	30	0	135	0	0	0	0	0	0	139	22	0	70	104	0	0	500
12:45 PM	25	0	143	0	0	0	0	0	0	85	37	0	85	103	0	0	478
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	242	0	1376	1	0	0	0	0	0	1025	376	0	877	817	0	0	4714
APPROACH %'s :	14.95%	0.00%	84.99%	0.06%					0.00%	73.16%	26.84%	0.00%	51.77%	48.23%	0.00%	0.00%	
PEAK HR :	**11:30 AM - 12:30 PM**																TOTAL
PEAK HR VOL :	162	0	915	1	0	0	0	0	0	534	120	0	388	416	0	0	2536
PEAK HR FACTOR :	0.880	0.000	0.803	0.250	0.000	0.000	0.000	0.000	0.000	0.947	0.750	0.000	0.843	0.912	0.000	0.000	0.912
	0.856								0.929				0.878				

National Data & Surveying Services Intersection Turning Movement Count

Location: Mt Sinai Dr & Forest Lawn Dr
City: Los Angeles
Control: Signalized

Project ID: 23-020460-003
Date: 11/19/2023

Data - Totals

NS/EW Streets:	Mt Sinai Dr				Mt Sinai Dr				Forest Lawn Dr				Forest Lawn Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	0	1	0	0	0	0	0	0	2	1	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	9	0	40	0	0	0	0	0	0	174	14	0	19	272	0	0	528
11:15 AM	13	0	43	1	0	0	0	0	0	240	10	0	12	182	0	0	501
11:30 AM	8	0	22	0	0	0	0	0	0	284	2	0	9	214	0	1	540
11:45 AM	8	0	10	0	0	0	0	0	0	365	1	0	6	203	0	1	594
12:00 PM	7	0	27	0	0	0	0	0	0	413	1	0	5	192	0	1	646
12:15 PM	6	0	19	0	0	0	0	0	0	365	3	0	9	165	0	4	571
12:30 PM	4	0	21	0	0	0	0	0	0	291	1	0	9	159	0	1	486
12:45 PM	2	0	8	0	0	0	0	0	0	239	1	0	9	192	0	0	451
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	57	0	190	1	0	0	0	0	0	2371	33	0	78	1579	0	8	4317
APPROACH %'s :	22.98%	0.00%	76.61%	0.40%					0.00%	98.63%	1.37%	0.00%	4.68%	94.83%	0.00%	0.48%	
PEAK HR :	**11:30 AM - 12:30 PM**																TOTAL
PEAK HR VOL :	29	0	78	0	0	0	0	0	0	1427	7	0	29	774	0	7	2351
PEAK HR FACTOR :	0.906	0.000	0.722	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.583	0.000	0.806	0.904	0.000	0.438	0.910
	0.787								0.866				0.904				

National Data & Surveying ServicesIntersection Turning Movement Count

Location: Zoo Dr & Forest Lawn Dr
City: Los Angeles
Control: Signalized

Project ID: 23-020460-002
Date: 11/19/2023

Data - Totals

NS/EW Streets:	Zoo Dr				Zoo Dr				Forest Lawn Dr				Forest Lawn Dr				
NOON	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	0	1	0	0	0	0	0	0	1	1	0	1	1	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
11:00 AM	9	0	11	0	0	0	0	0	0	191	20	0	30	284	0	1	546
11:15 AM	13	0	25	0	0	0	0	0	0	257	29	0	27	186	0	1	538
11:30 AM	31	0	21	0	0	0	0	0	0	273	29	0	27	183	0	0	564
11:45 AM	20	0	16	0	0	0	0	0	0	330	40	0	26	193	0	0	625
12:00 PM	19	0	18	0	0	0	0	0	0	372	53	0	16	184	0	0	662
12:15 PM	15	0	15	0	0	0	0	0	0	343	62	0	39	158	0	0	632
12:30 PM	16	0	16	0	0	0	0	0	0	273	34	0	31	154	0	1	525
12:45 PM	24	0	14	0	0	0	0	0	0	230	28	0	31	176	0	0	503
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	147	0	136	0	0	0	0	0	0	2269	295	0	227	1518	0	3	4595
APPROACH %'s :	51.94%	0.00%	48.06%	0.00%					0.00%	88.49%	11.51%	0.00%	12.99%	86.84%	0.00%	0.17%	
PEAK HR :	**11:30 AM - 12:30 PM**																TOTAL
PEAK HR VOL :	85	0	70	0	0	0	0	0	0	1318	184	0	108	718	0	0	2483
PEAK HR FACTOR :	0.685	0.000	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.886	0.742	0.000	0.692	0.930	0.000	0.000	0.938
	0.745								0.884				0.943				

Appendix B - Synchro Calculations

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	638	12	108	787	6	35
Future Volume (veh/h)	638	12	108	787	6	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	672	6	114	828	6	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	3	3
Cap, veh/h	1357	591	530	2461	44	36
Arrive On Green	0.38	0.38	0.12	0.69	0.01	0.00
Sat Flow, veh/h	3647	1549	1795	3676	3428	2768
Grp Volume(v), veh/h	672	6	114	828	6	0
Grp Sat Flow(s),veh/h/ln	1777	1549	1795	1791	1714	1384
Q Serve(g_s), s	6.2	0.1	0.0	4.1	0.1	0.0
Cycle Q Clear(g_c), s	6.2	0.1	0.0	4.1	0.1	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1357	591	530	2461	44	36
V/C Ratio(X)	0.50	0.01	0.22	0.34	0.14	0.00
Avail Cap(c_a), veh/h	4102	1788	2261	4134	4195	3386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.2	8.3	12.0	2.8	21.1	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.2	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.7	0.2	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	8.3	12.2	2.9	22.5	0.0
LnGrp LOS	B	A	B	A	C	A
Approach Vol, veh/h	678			942	6	
Approach Delay, s/veh	10.7			4.0	22.5	
Approach LOS	B			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.8		5.6	13.2	24.5
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		6.1		2.1	2.0	8.2
Green Ext Time (p_c), s		10.9		0.0	0.3	8.3

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	654	7	13	916	1	2
Future Volume (veh/h)	654	7	13	916	1	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1826	1826
Adj Flow Rate, veh/h	688	5	14	964	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	2	5	5
Cap, veh/h	1553	678	505	2321	5	5
Arrive On Green	0.44	0.44	0.04	0.65	0.00	0.00
Sat Flow, veh/h	3618	1538	1781	3647	1739	1547
Grp Volume(v), veh/h	688	5	14	964	1	0
Grp Sat Flow(s),veh/h/ln	1763	1538	1781	1777	1739	1547
Q Serve(g_s), s	4.6	0.1	0.1	4.4	0.0	0.0
Cycle Q Clear(g_c), s	4.6	0.1	0.1	4.4	0.0	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1553	678	505	2321	5	5
V/C Ratio(X)	0.44	0.01	0.03	0.42	0.20	0.00
Avail Cap(c_a), veh/h	6738	2940	2012	8254	2045	1820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.6	5.3	4.4	2.8	16.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.2	17.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.9	5.3	4.4	3.0	34.6	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	693			978	1	
Approach Delay, s/veh	6.8			3.0	34.6	
Approach LOS	A			A	C	

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		27.7			7.2	20.5	6.3
Change Period (Y+Rc), s		* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s		* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s		6.4			2.1	6.6	2.0
Green Ext Time (p_c), s		12.6			0.0	6.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	589	67	60	882	47	11
Future Volume (veh/h)	589	67	60	882	47	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	620	71	63	928	49	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1245	1129	545	1245	111	99
Arrive On Green	0.66	0.66	0.66	0.66	0.06	0.00
Sat Flow, veh/h	1885	1560	758	1885	1781	1585
Grp Volume(v), veh/h	620	71	63	928	49	0
Grp Sat Flow(s),veh/h/ln	1885	1560	758	1885	1781	1585
Q Serve(g_s), s	7.0	0.6	1.9	13.9	1.1	0.0
Cycle Q Clear(g_c), s	7.0	0.6	9.0	13.9	1.1	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1245	1129	545	1245	111	99
V/C Ratio(X)	0.50	0.06	0.12	0.75	0.44	0.00
Avail Cap(c_a), veh/h	4250	3617	1753	4250	1310	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.6	1.7	5.9	4.8	19.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.1	1.1	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	1.2	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.0	1.7	6.0	5.9	21.8	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	691			991	49	
Approach Delay, s/veh	3.8			5.9	21.8	
Approach LOS	A			A	C	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	34.6				34.6	7.5
Change Period (Y+Rc), s	6.8				6.8	4.9
Max Green Setting (Gmax), s	95.0				95.0	31.0
Max Q Clear Time (g_c+I1), s	15.9				9.0	3.1
Green Ext Time (p_c), s	11.9				5.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1038	34	110	546	34	174
Future Volume (veh/h)	1038	34	110	546	34	174
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	1093	31	116	575	36	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	1770	772	410	2561	242	196
Arrive On Green	0.49	0.49	0.10	0.72	0.07	0.07
Sat Flow, veh/h	3676	1562	1781	3647	3483	2812
Grp Volume(v), veh/h	1093	31	116	575	36	9
Grp Sat Flow(s),veh/h/ln	1791	1562	1781	1777	1742	1406
Q Serve(g_s), s	13.8	0.6	0.0	3.3	0.6	0.2
Cycle Q Clear(g_c), s	13.8	0.6	0.0	3.3	0.6	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1770	772	410	2561	242	196
V/C Ratio(X)	0.62	0.04	0.28	0.22	0.15	0.05
Avail Cap(c_a), veh/h	2889	1260	1587	2866	2977	2404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	8.1	17.7	2.9	27.1	26.9
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.2	1.2	0.5	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	8.1	18.1	3.0	27.4	27.0
LnGrp LOS	B	A	B	A	C	C
Approach Vol, veh/h	1124			691	45	
Approach Delay, s/veh	11.9			5.5	27.3	
Approach LOS	B			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.7		9.3	14.1	38.6
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		5.3		2.6	2.0	15.8
Green Ext Time (p_c), s		6.9		0.1	0.3	14.9

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1212	4	7	593	17	32
Future Volume (veh/h)	1212	4	7	593	17	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	1276	3	7	624	18	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	2066	902	328	2550	80	71
Arrive On Green	0.58	0.58	0.02	0.72	0.04	0.00
Sat Flow, veh/h	3676	1564	1781	3647	1795	1598
Grp Volume(v), veh/h	1276	3	7	624	18	0
Grp Sat Flow(s),veh/h/ln	1791	1564	1781	1777	1795	1598
Q Serve(g_s), s	11.5	0.0	0.1	3.0	0.5	0.0
Cycle Q Clear(g_c), s	11.5	0.0	0.1	3.0	0.5	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2066	902	328	2550	80	71
V/C Ratio(X)	0.62	0.00	0.02	0.24	0.23	0.00
Avail Cap(c_a), veh/h	4739	2069	1382	5714	1462	1301
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.8	4.4	5.2	2.4	22.7	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	0.1	0.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.2	4.4	5.2	2.5	24.1	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	1279			631	18	
Approach Delay, s/veh	7.2			2.5	24.1	
Approach LOS	A			A	C	

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		40.8			6.9	33.8	8.4
Change Period (Y+Rc), s		* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s		* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s		5.0			2.1	13.5	2.5
Green Ext Time (p_c), s		6.8			0.0	14.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	785	459	324	570	30	28
Future Volume (veh/h)	785	459	324	570	30	28
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	826	483	341	600	32	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1620	1399	383	1620	62	55
Arrive On Green	0.86	0.86	0.86	0.86	0.03	0.03
Sat Flow, veh/h	1885	1563	424	1885	1781	1585
Grp Volume(v), veh/h	826	483	341	600	32	1
Grp Sat Flow(s),veh/h/ln	1885	1563	424	1885	1781	1585
Q Serve(g_s), s	12.1	5.2	82.9	7.2	2.0	0.1
Cycle Q Clear(g_c), s	12.1	5.2	95.0	7.2	2.0	0.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1620	1399	383	1620	62	55
V/C Ratio(X)	0.51	0.35	0.89	0.37	0.52	0.02
Avail Cap(c_a), veh/h	1620	1399	383	1620	500	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	1.9	0.9	16.6	1.6	52.4	51.5
Incr Delay (d2), s/veh	0.3	0.2	22.2	0.2	6.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	9.6	0.7	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.3	1.1	38.8	1.8	59.1	51.7
LnGrp LOS	A	A	D	A	E	D
Approach Vol, veh/h	1309			941	33	
Approach Delay, s/veh	1.8			15.2	58.8	
Approach LOS	A			B	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	101.8			101.8	8.7
Change Period (Y+Rc), s	6.8			6.8	4.9
Max Green Setting (Gmax), s	95.0			95.0	31.0
Max Q Clear Time (g_c+I1), s	97.0			14.1	4.0
Green Ext Time (p_c), s	0.0			12.9	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	534	120	388	416	163	915
Future Volume (veh/h)	534	120	388	416	163	915
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	580	122	422	452	177	957
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	1	1	3	3
Cap, veh/h	831	361	462	1787	1319	1064
Arrive On Green	0.23	0.23	0.19	0.50	0.38	0.38
Sat Flow, veh/h	3647	1546	1795	3676	3428	2768
Grp Volume(v), veh/h	580	122	422	452	177	957
Grp Sat Flow(s),veh/h/ln	1777	1546	1795	1791	1714	1384
Q Serve(g_s), s	16.7	7.3	18.4	8.1	3.7	36.3
Cycle Q Clear(g_c), s	16.7	7.3	18.4	8.1	3.7	36.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	831	361	462	1787	1319	1064
V/C Ratio(X)	0.70	0.34	0.91	0.25	0.13	0.90
Avail Cap(c_a), veh/h	1591	692	870	1787	1627	1313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	35.6	40.8	16.0	22.3	32.3
Incr Delay (d2), s/veh	1.8	0.9	7.5	0.1	0.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	2.8	11.7	3.1	1.5	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.0	36.5	48.3	16.2	22.4	39.8
LnGrp LOS	D	D	D	B	C	D
Approach Vol, veh/h	702			874	1134	
Approach Delay, s/veh	40.2			31.7	37.1	
Approach LOS	D			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		63.7		48.0	29.6	34.1
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		10.1		38.3	20.4	18.7
Green Ext Time (p_c), s		5.1		4.6	1.3	7.4

Intersection Summary		
HCM 6th Ctrl Delay		36.1
HCM 6th LOS		D

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1427	7	36	774	29	78
Future Volume (veh/h)	1427	7	36	774	29	78
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1826	1826
Adj Flow Rate, veh/h	1551	-31	39	841	32	-12
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	2	2	5	5
Cap, veh/h	2170	968	351	2775	81	72
Arrive On Green	0.62	0.00	0.08	0.78	0.05	0.00
Sat Flow, veh/h	3618	1572	1781	3647	1739	1547
Grp Volume(v), veh/h	1551	-31	39	841	32	-12
Grp Sat Flow(s),veh/h/ln	1763	1572	1781	1777	1739	1547
Q Serve(g_s), s	20.5	0.0	0.4	4.6	1.2	0.0
Cycle Q Clear(g_c), s	20.5	0.0	0.4	4.6	1.2	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2170	968	351	2775	81	72
V/C Ratio(X)	0.71	-0.03	0.11	0.30	0.40	-0.17
Avail Cap(c_a), veh/h	3384	1509	1003	4145	1027	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.9	0.0	6.9	2.1	31.4	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.1	0.1	3.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	0.1	0.3	0.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.5	0.0	7.0	2.2	34.5	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	1520			880	20	
Approach Delay, s/veh	9.7			2.4	55.2	
Approach LOS	A			A	E	

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		58.4			11.2	47.2	9.3
Change Period (Y+Rc), s		* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s		* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s		6.6			2.4	22.5	3.2
Green Ext Time (p_c), s		10.3			0.1	19.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	7.4
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1318	184	108	718	85	70
Future Volume (veh/h)	1318	184	108	718	85	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	1433	200	117	780	92	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1559	1405	149	1559	127	113
Arrive On Green	0.83	0.83	0.83	0.83	0.07	0.07
Sat Flow, veh/h	1885	1561	310	1885	1781	1585
Grp Volume(v), veh/h	1433	200	117	780	92	64
Grp Sat Flow(s),veh/h/ln	1885	1561	310	1885	1781	1585
Q Serve(g_s), s	63.0	1.7	32.0	14.0	5.8	4.5
Cycle Q Clear(g_c), s	63.0	1.7	95.0	14.0	5.8	4.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1559	1405	149	1559	127	113
V/C Ratio(X)	0.92	0.14	0.79	0.50	0.72	0.57
Avail Cap(c_a), veh/h	1559	1405	149	1559	481	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.2	0.7	45.6	2.9	52.2	51.6
Incr Delay (d2), s/veh	9.2	0.1	24.1	0.3	7.6	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	0.5	4.3	2.7	2.9	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.4	0.7	69.7	3.2	59.9	56.0
LnGrp LOS	B	A	E	A	E	E
Approach Vol, veh/h	1633			897	156	
Approach Delay, s/veh	14.5			11.9	58.3	
Approach LOS	B			B	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	101.8			101.8	13.1
Change Period (Y+Rc), s	6.8			6.8	4.9
Max Green Setting (Gmax), s	95.0			95.0	31.0
Max Q Clear Time (g_c+I1), s	97.0			65.0	7.8
Green Ext Time (p_c), s	0.0			22.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	16.2
HCM 6th LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	638	12	108	787	6	35
Future Volume (veh/h)	638	12	108	787	6	35
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	672	6	114	828	6	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	1	1	3	3
Cap, veh/h	1357	591	530	2461	44	36
Arrive On Green	0.38	0.38	0.12	0.69	0.01	0.00
Sat Flow, veh/h	3647	1549	1795	3676	3428	2768
Grp Volume(v), veh/h	672	6	114	828	6	0
Grp Sat Flow(s),veh/h/ln	1777	1549	1795	1791	1714	1384
Q Serve(g_s), s	6.2	0.1	0.0	4.1	0.1	0.0
Cycle Q Clear(g_c), s	6.2	0.1	0.0	4.1	0.1	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1357	591	530	2461	44	36
V/C Ratio(X)	0.50	0.01	0.22	0.34	0.14	0.00
Avail Cap(c_a), veh/h	4102	1788	2261	4134	4195	3386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.2	8.3	12.0	2.8	21.1	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.2	0.1	1.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	0.7	0.2	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	8.3	12.2	2.9	22.5	0.0
LnGrp LOS	B	A	B	A	C	A
Approach Vol, veh/h	678			942	6	
Approach Delay, s/veh	10.7			4.0	22.5	
Approach LOS	B			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		37.8		5.6	13.2	24.5
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		6.1		2.1	2.0	8.2
Green Ext Time (p_c), s		10.9		0.0	0.3	8.3

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	654	7	13	916	1	2
Future Volume (veh/h)	654	7	13	916	1	2
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1826	1826
Adj Flow Rate, veh/h	688	6	14	964	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	2	2	5	5
Cap, veh/h	1000	829	436	1343	5	4
Arrive On Green	0.54	0.54	0.04	0.72	0.00	0.00
Sat Flow, veh/h	1856	1539	1781	1870	1739	1547
Grp Volume(v), veh/h	688	6	14	964	1	0
Grp Sat Flow(s),veh/h/ln	1856	1539	1781	1870	1739	1547
Q Serve(g_s), s	11.4	0.1	0.1	12.6	0.0	0.0
Cycle Q Clear(g_c), s	11.4	0.1	0.1	12.6	0.0	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1000	829	436	1343	5	4
V/C Ratio(X)	0.69	0.01	0.03	0.72	0.21	0.00
Avail Cap(c_a), veh/h	2880	2388	1648	3528	1661	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.1	4.5	5.2	3.4	20.8	0.0
Incr Delay (d2), s/veh	1.0	0.0	0.0	1.1	20.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.1	4.5	5.2	4.5	41.0	0.0
LnGrp LOS	A	A	A	A	D	A
Approach Vol, veh/h	694			978	1	
Approach Delay, s/veh	8.1			4.5	41.0	
Approach LOS	A			A	D	

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		35.6			7.5	28.1	6.3
Change Period (Y+Rc), s		* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s		* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s		14.6			2.1	13.4	2.0
Green Ext Time (p_c), s		15.5			0.0	6.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	589	67	60	882	47	11
Future Volume (veh/h)	589	67	60	882	47	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	620	71	63	928	49	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1245	1129	545	1245	111	99
Arrive On Green	0.66	0.66	0.66	0.66	0.06	0.00
Sat Flow, veh/h	1885	1560	758	1885	1781	1585
Grp Volume(v), veh/h	620	71	63	928	49	0
Grp Sat Flow(s),veh/h/ln	1885	1560	758	1885	1781	1585
Q Serve(g_s), s	7.0	0.6	1.9	13.9	1.1	0.0
Cycle Q Clear(g_c), s	7.0	0.6	9.0	13.9	1.1	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1245	1129	545	1245	111	99
V/C Ratio(X)	0.50	0.06	0.12	0.75	0.44	0.00
Avail Cap(c_a), veh/h	4250	3617	1753	4250	1310	1166
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.6	1.7	5.9	4.8	19.1	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.1	1.1	2.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.2	1.2	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.0	1.7	6.0	5.9	21.8	0.0
LnGrp LOS	A	A	A	A	C	A
Approach Vol, veh/h	691			991	49	
Approach Delay, s/veh	3.8			5.9	21.8	
Approach LOS	A			A	C	

Timer - Assigned Phs	2				6	8
Phs Duration (G+Y+Rc), s	34.6				34.6	7.5
Change Period (Y+Rc), s	6.8				6.8	4.9
Max Green Setting (Gmax), s	95.0				95.0	31.0
Max Q Clear Time (g_c+I1), s	15.9				9.0	3.1
Green Ext Time (p_c), s	11.9				5.8	0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1038	34	110	546	34	174
Future Volume (veh/h)	1038	34	110	546	34	174
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	1093	31	116	575	36	9
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	1770	772	410	2561	242	196
Arrive On Green	0.49	0.49	0.10	0.72	0.07	0.07
Sat Flow, veh/h	3676	1562	1781	3647	3483	2812
Grp Volume(v), veh/h	1093	31	116	575	36	9
Grp Sat Flow(s),veh/h/ln	1791	1562	1781	1777	1742	1406
Q Serve(g_s), s	13.8	0.6	0.0	3.3	0.6	0.2
Cycle Q Clear(g_c), s	13.8	0.6	0.0	3.3	0.6	0.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1770	772	410	2561	242	196
V/C Ratio(X)	0.62	0.04	0.28	0.22	0.15	0.05
Avail Cap(c_a), veh/h	2889	1260	1587	2866	2977	2404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.4	8.1	17.7	2.9	27.1	26.9
Incr Delay (d2), s/veh	0.6	0.0	0.4	0.1	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.2	1.2	0.5	0.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.0	8.1	18.1	3.0	27.4	27.0
LnGrp LOS	B	A	B	A	C	C
Approach Vol, veh/h	1124			691	45	
Approach Delay, s/veh	11.9			5.5	27.3	
Approach LOS	B			A	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		52.7		9.3	14.1	38.6
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		5.3		2.6	2.0	15.8
Green Ext Time (p_c), s		6.9		0.1	0.3	14.9

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1212	4	7	593	17	32
Future Volume (veh/h)	1212	4	7	593	17	32
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1870	1870	1885	1885
Adj Flow Rate, veh/h	1276	4	7	624	18	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	2	2	1	1
Cap, veh/h	1371	1137	186	1529	74	65
Arrive On Green	0.73	0.73	0.02	0.82	0.04	0.00
Sat Flow, veh/h	1885	1564	1781	1870	1795	1598
Grp Volume(v), veh/h	1276	4	7	624	18	0
Grp Sat Flow(s),veh/h/ln	1885	1564	1781	1870	1795	1598
Q Serve(g_s), s	47.3	0.1	0.1	7.6	0.8	0.0
Cycle Q Clear(g_c), s	47.3	0.1	0.1	7.6	0.8	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1371	1137	186	1529	74	65
V/C Ratio(X)	0.93	0.00	0.04	0.41	0.24	0.00
Avail Cap(c_a), veh/h	1482	1229	800	1787	868	773
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	9.5	3.1	17.1	2.1	38.4	0.0
Incr Delay (d2), s/veh	10.5	0.0	0.1	0.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	0.0	0.1	0.7	0.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	20.0	3.1	17.2	2.3	40.1	0.0
LnGrp LOS	C	A	B	A	D	A
Approach Vol, veh/h	1280			631	18	
Approach Delay, s/veh	20.0			2.5	40.1	
Approach LOS	B			A	D	

Timer - Assigned Phs		2			5	6	8
Phs Duration (G+Y+Rc), s		73.1			7.5	65.6	9.6
Change Period (Y+Rc), s		* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s		* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s		9.6			2.1	49.3	2.8
Green Ext Time (p_c), s		7.0			0.0	10.9	0.0

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	785	459	324	570	30	28
Future Volume (veh/h)	785	459	324	570	30	28
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	826	483	341	600	32	1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1620	1399	383	1620	62	55
Arrive On Green	0.86	0.86	0.86	0.86	0.03	0.03
Sat Flow, veh/h	1885	1563	424	1885	1781	1585
Grp Volume(v), veh/h	826	483	341	600	32	1
Grp Sat Flow(s),veh/h/ln	1885	1563	424	1885	1781	1585
Q Serve(g_s), s	12.1	5.2	82.9	7.2	2.0	0.1
Cycle Q Clear(g_c), s	12.1	5.2	95.0	7.2	2.0	0.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1620	1399	383	1620	62	55
V/C Ratio(X)	0.51	0.35	0.89	0.37	0.52	0.02
Avail Cap(c_a), veh/h	1620	1399	383	1620	500	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	1.9	0.9	16.6	1.6	52.4	51.5
Incr Delay (d2), s/veh	0.3	0.2	22.2	0.2	6.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.6	9.6	0.7	1.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.3	1.1	38.8	1.8	59.1	51.7
LnGrp LOS	A	A	D	A	E	D
Approach Vol, veh/h	1309			941	33	
Approach Delay, s/veh	1.8			15.2	58.8	
Approach LOS	A			B	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	101.8			101.8	8.7
Change Period (Y+Rc), s	6.8			6.8	4.9
Max Green Setting (Gmax), s	95.0			95.0	31.0
Max Q Clear Time (g_c+I1), s	97.0			14.1	4.0
Green Ext Time (p_c), s	0.0			12.9	0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	534	120	388	416	163	915
Future Volume (veh/h)	534	120	388	416	163	915
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1885	1885	1856	1856
Adj Flow Rate, veh/h	580	122	422	452	177	957
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	1	1	3	3
Cap, veh/h	831	361	462	1787	1319	1064
Arrive On Green	0.23	0.23	0.19	0.50	0.38	0.38
Sat Flow, veh/h	3647	1546	1795	3676	3428	2768
Grp Volume(v), veh/h	580	122	422	452	177	957
Grp Sat Flow(s),veh/h/ln	1777	1546	1795	1791	1714	1384
Q Serve(g_s), s	16.7	7.3	18.4	8.1	3.7	36.3
Cycle Q Clear(g_c), s	16.7	7.3	18.4	8.1	3.7	36.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	831	361	462	1787	1319	1064
V/C Ratio(X)	0.70	0.34	0.91	0.25	0.13	0.90
Avail Cap(c_a), veh/h	1591	692	870	1787	1627	1313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	35.6	40.8	16.0	22.3	32.3
Incr Delay (d2), s/veh	1.8	0.9	7.5	0.1	0.0	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	2.8	11.7	3.1	1.5	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.0	36.5	48.3	16.2	22.4	39.8
LnGrp LOS	D	D	D	B	C	D
Approach Vol, veh/h	702			874	1134	
Approach Delay, s/veh	40.2			31.7	37.1	
Approach LOS	D			C	D	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		63.7		48.0	29.6	34.1
Change Period (Y+Rc), s		8.0		* 5	8.0	8.0
Max Green Setting (Gmax), s		50.0		* 53	47.0	50.0
Max Q Clear Time (g_c+I1), s		10.1		38.3	20.4	18.7
Green Ext Time (p_c), s		5.1		4.6	1.3	7.4

Intersection Summary		
HCM 6th Ctrl Delay		36.1
HCM 6th LOS		D

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1427	7	36	774	29	78
Future Volume (veh/h)	1427	7	36	774	29	78
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1870	1870	1826	1826
Adj Flow Rate, veh/h	1551	-6	39	841	32	-17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	2	2	5	5
Cap, veh/h	1308	1109	200	1568	60	54
Arrive On Green	0.70	0.00	0.07	0.84	0.03	0.00
Sat Flow, veh/h	1856	1572	1781	1870	1739	1547
Grp Volume(v), veh/h	1551	-6	39	841	32	-17
Grp Sat Flow(s),veh/h/ln	1856	1572	1781	1870	1739	1547
Q Serve(g_s), s	65.0	0.0	0.4	12.2	1.7	0.0
Cycle Q Clear(g_c), s	65.0	0.0	0.4	12.2	1.7	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1308	1109	200	1568	60	54
V/C Ratio(X)	1.19	-0.01	0.19	0.54	0.53	-0.32
Avail Cap(c_a), veh/h	1308	1109	658	1602	754	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.6	0.0	26.3	2.2	43.8	0.0
Incr Delay (d2), s/veh	91.6	0.0	0.5	0.5	7.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	51.1	0.0	0.6	1.1	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	105.2	0.0	26.8	2.7	50.9	0.0
LnGrp LOS	F	A	C	A	D	A
Approach Vol, veh/h	1545			880	15	
Approach Delay, s/veh	105.6			3.7	108.5	
Approach LOS	F			A	F	

Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	82.8			12.3	70.5	9.4
Change Period (Y+Rc), s	* 5.5			6.0	* 5.5	6.2
Max Green Setting (Gmax), s	* 79			30.0	* 65	40.0
Max Q Clear Time (g_c+I1), s	14.2			2.4	67.0	3.7
Green Ext Time (p_c), s	11.7			0.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	68.9
HCM 6th LOS	E

Notes

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1318	184	108	718	85	70
Future Volume (veh/h)	1318	184	108	718	85	70
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1870	1870
Adj Flow Rate, veh/h	1433	200	117	780	92	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	2	2
Cap, veh/h	1559	1405	149	1559	127	113
Arrive On Green	0.83	0.83	0.83	0.83	0.07	0.07
Sat Flow, veh/h	1885	1561	310	1885	1781	1585
Grp Volume(v), veh/h	1433	200	117	780	92	64
Grp Sat Flow(s),veh/h/ln	1885	1561	310	1885	1781	1585
Q Serve(g_s), s	63.0	1.7	32.0	14.0	5.8	4.5
Cycle Q Clear(g_c), s	63.0	1.7	95.0	14.0	5.8	4.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1559	1405	149	1559	127	113
V/C Ratio(X)	0.92	0.14	0.79	0.50	0.72	0.57
Avail Cap(c_a), veh/h	1559	1405	149	1559	481	428
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	7.2	0.7	45.6	2.9	52.2	51.6
Incr Delay (d2), s/veh	9.2	0.1	24.1	0.3	7.6	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	0.5	4.3	2.7	2.9	1.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	16.4	0.7	69.7	3.2	59.9	56.0
LnGrp LOS	B	A	E	A	E	E
Approach Vol, veh/h	1633			897	156	
Approach Delay, s/veh	14.5			11.9	58.3	
Approach LOS	B			B	E	

Timer - Assigned Phs	2			6	8
Phs Duration (G+Y+Rc), s	101.8			101.8	13.1
Change Period (Y+Rc), s	6.8			6.8	4.9
Max Green Setting (Gmax), s	95.0			95.0	31.0
Max Q Clear Time (g_c+I1), s	97.0			65.0	7.8
Green Ext Time (p_c), s	0.0			22.0	0.4

Intersection Summary		
HCM 6th Ctrl Delay	16.2	
HCM 6th LOS	B	