final report

July 12, 2022

Traffic Impact Study

Southside Drive
6105 Southside Drive
Louisville, KY

Prepared for

Louisville Metro Planning Commission
Kentucky Transportation Cabinet

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INTRODUCTION

The detailed district development plan for 6105 Southside Drive (KY 1020) in Louisville, KY shows a mix of retail and contractor shops. **Figure 1** displays a map of the site. The development will have two access points, with one on Southside Drive opposite Alger Avenue and one on Steedly Drive. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study, the impact area was defined to be the intersections of Southside Drive with Rochester Drive, Alger Avenue, Steedly Drive, and Strawberry Lane, and the proposed entrance.

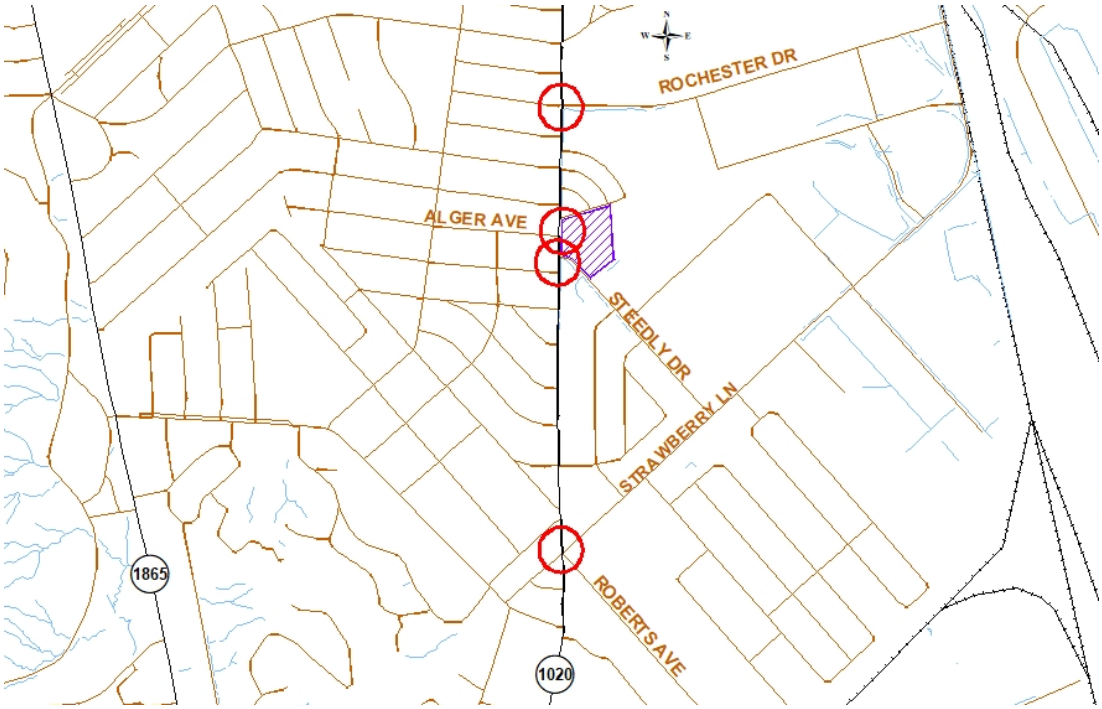

Figure 1. Site Map

EXISTING CONDITIONS

Southside Drive, KY 1020, is maintained by the Kentucky Transportation Cabinet (KYTC) with an estimated 2022 ADT of 14,200 vehicles per day north of Alger Avenue, as estimated from the turning movement count. The road is a two-lane highway with twelve-foot lanes, a 12-foot continuous left turn lane, with curb and gutter. The speed limit is 35 mph. There are sidewalks on the west side and on the east south of the site. The intersections with Rochester Drive and Strawberry Lane are controlled with a traffic signal. At the Rochester Drive intersection there are left turn lanes on approaches. At Strawberry Lane there are left turn lane on the 4 major approaches. Northbound Southside Drive has a right lane, and Roberts Avenue is a single lane approach.

Peak hour traffic counts for the intersections were obtained on Tuesday, April 26, 2022. The a.m. and peak hour occurred between 7:45 and 8:45 and the p.m. peak hour occurred between 4:00 and 5:00. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes.

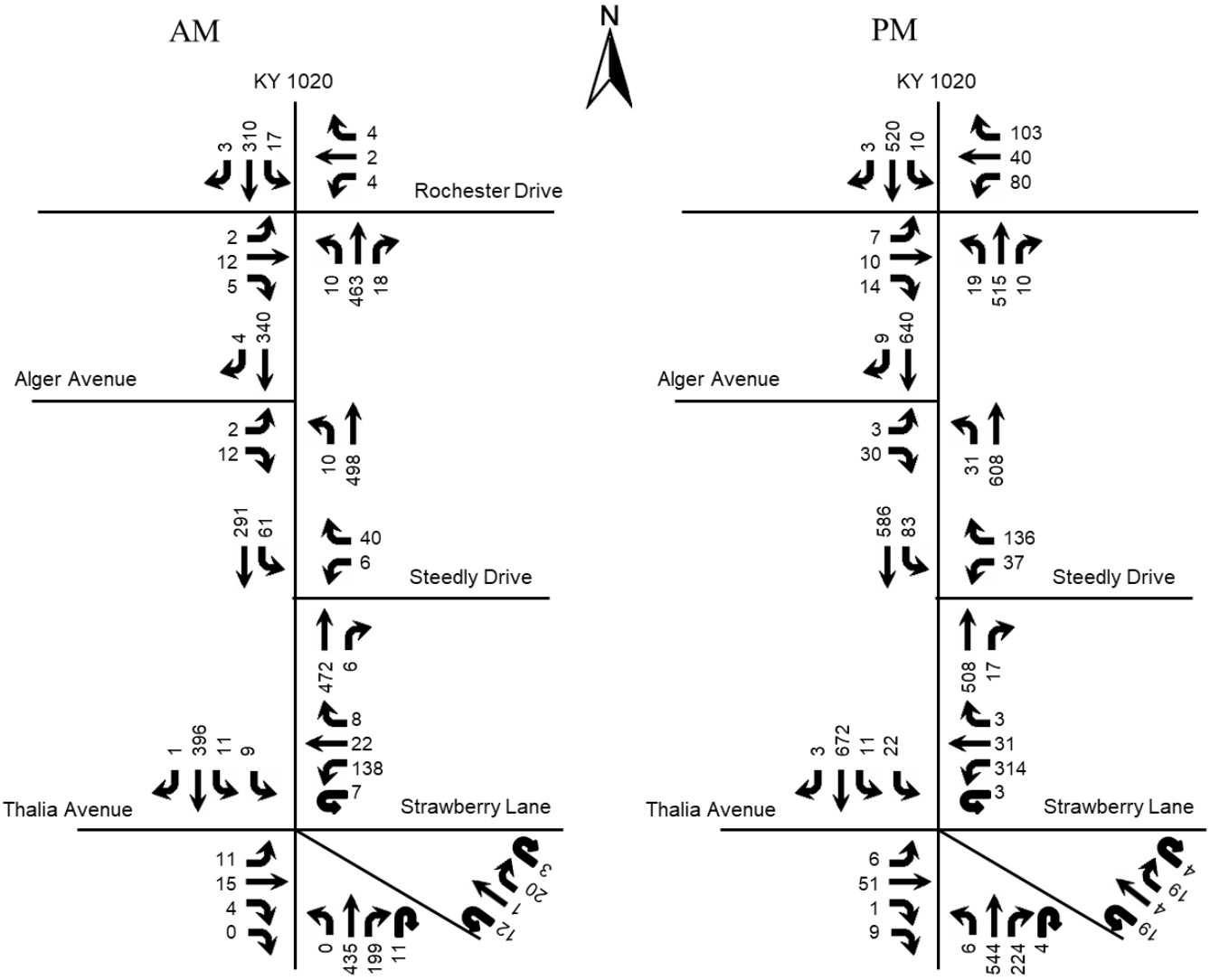

Figure 2. Existing (2022) Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2024. An annual growth rate of 0.5 percent was applied to the traffic volumes. This is based upon a review of historical traffic counts at station 641, which showed declining traffic volumes for the past fourteen years. **Figure 3** displays the 2024 No Build peak hour volumes.

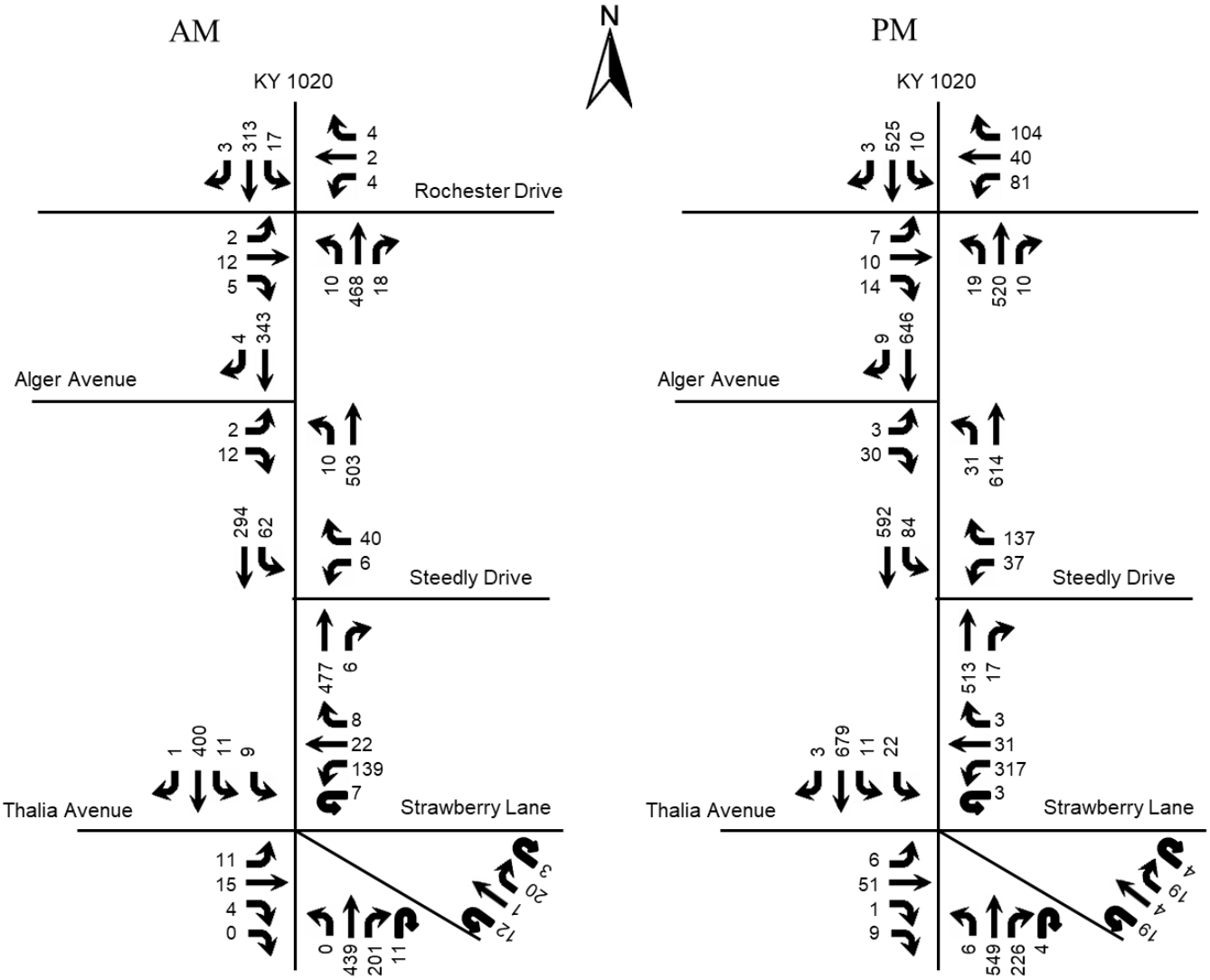

Figure 3. No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 11th Edition contains trip generation rates for a wide range of developments. The land uses were reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 4**. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	Trips	In	Out	Trips	In	Out
Contractor Shops (45,000 sf)	75	56	19	87	28	59
Retail less than 40,000 (22,500 sf)	53	32	21	138	69	69
TOTAL	128	88	40	225	97	128

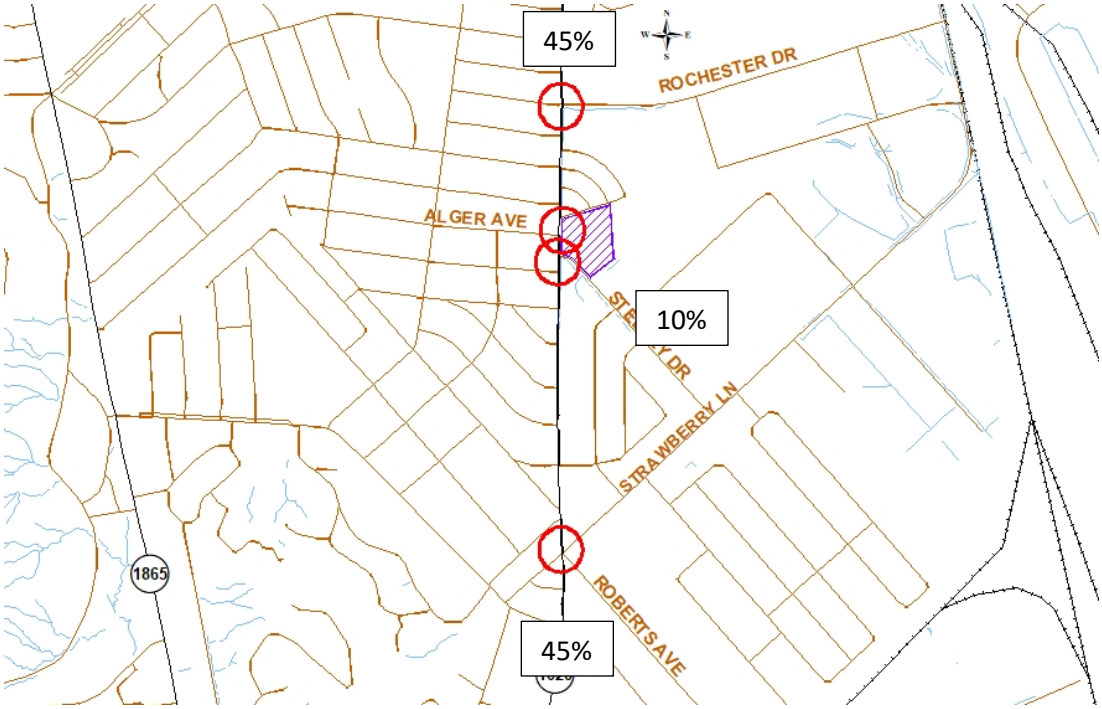

Figure 4. Trip Distribution Percentages

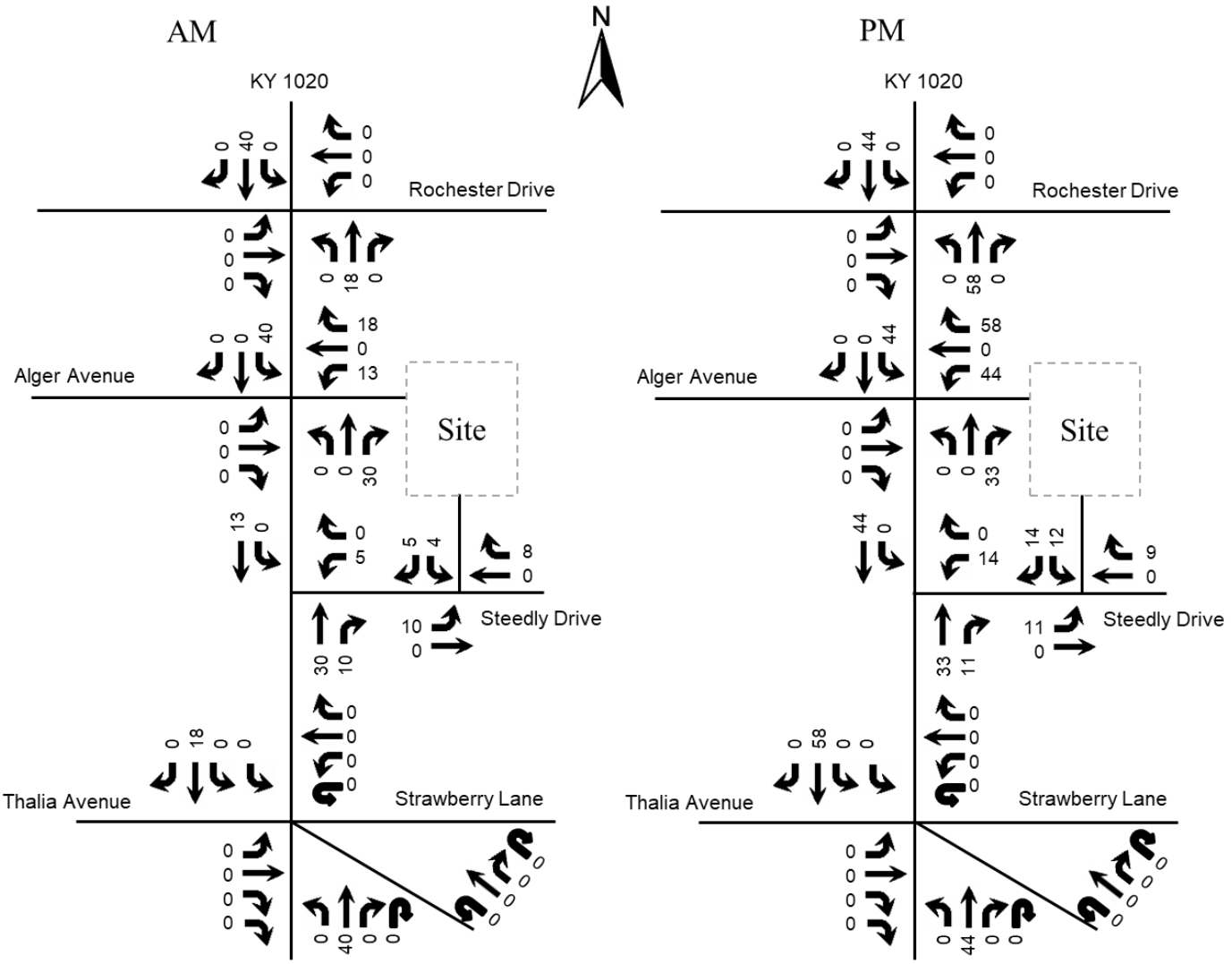

Figure 5. Peak Hour Trips Generated by Site

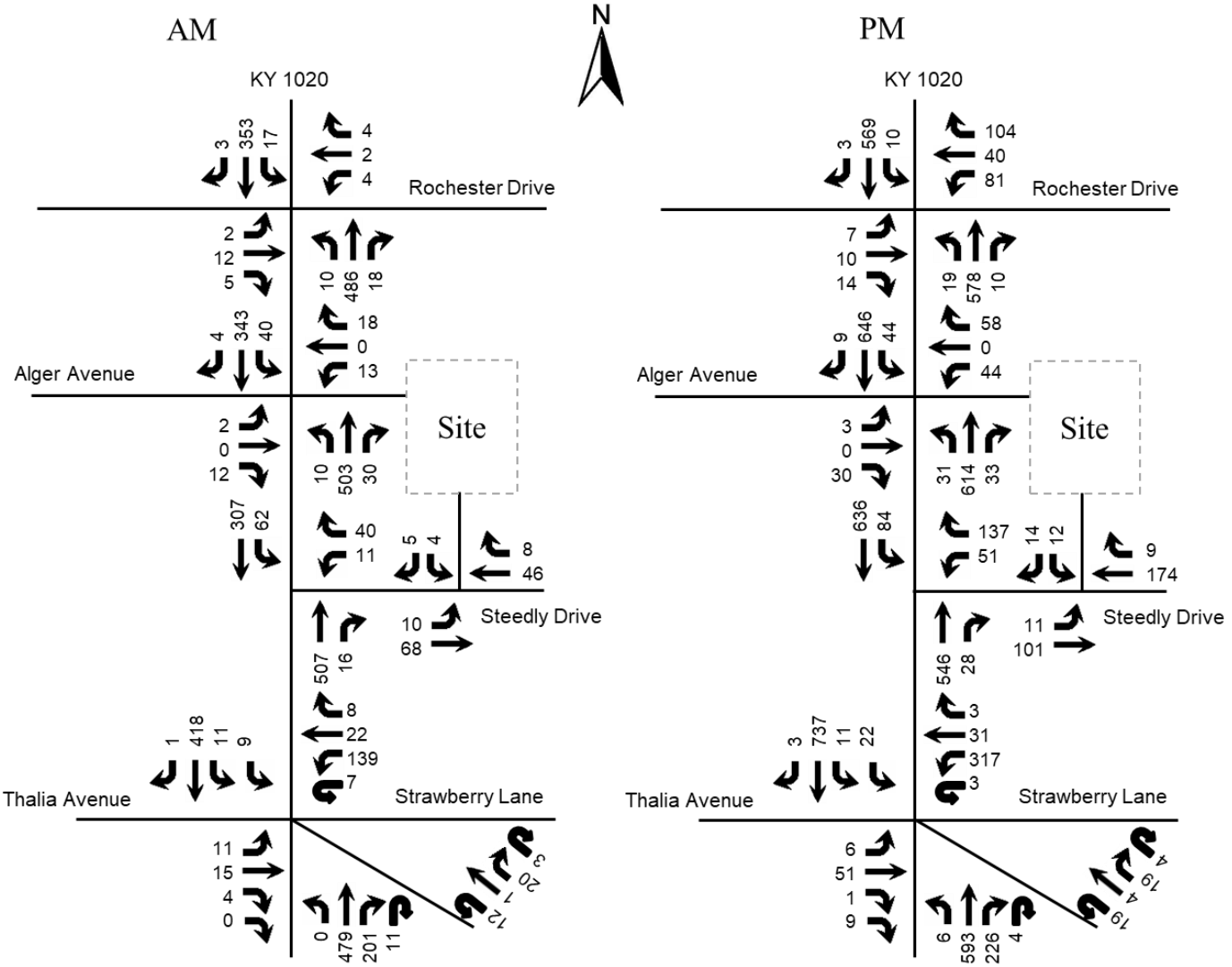

Figure 6. 2022 Build Peak Hour Volumes

ANALYSIS

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a "Level of Service". Level of Service is a ranking scale from A through F, "A" is the best operating condition and "F" is the worst. Level of Service results depend upon the facility that is analyzed. In this case, the Level of Service is based upon the total delay experienced at an intersection.

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using the Synchro (version 11.1.2.9) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2022 Existing	2024 No Build	2024 Build	2022 Existing	2024 No Build	2024 Build
Southside Drive at Rochester Drive	**A 3.5**	**A 3.5**	**A 3.5**	**A 8.9**	**A 9.1**	**A 9.2**
Rochester Drive Eastbound	C 25.5	C 25.5	C 25.5	C 22.7	C 22.9	C 22.9
Rochester Drive Westbound	C 24.8	C 24.8	C 24.8	C 25.7	C 25.7	C 25.7
Southside Drive Northbound	A 3.0	A 3.0	A 3.1	A 5.3	A 5.3	A 5.8
Southside Drive Southbound	A 2.4	A 2.4	A 2.5	A 5.2	A 5.2	A 5.6
Southside Drive at Alger Avenue						
Alger Avenue Eastbound	B 11.0	B 11.0	B 12.6	B 14.8	B 14.9	C 15.8
Entrance Westbound	NA	NA	C 18.3	NA	NA	D 26.4
Southside Drive Northbound	A 8.3	A 8.3	A 8.3	A 9.4	A 9.4	A 9.4
Southside Drive Southbound	NA	NA	A 8.8	NA	NA	A 9.2
Southside Drive at Steedly Drive						
Steedly Drive Westbound	B 12.5	B 12.6	B 13.4	C 19.4	C 19.6	C 24.0
Southside Drive Southbound	A 8.8	A 8.9	A 9.0	A 9.0	A 9.0	A 9.2
Southside Drive at Strawberry Lane	**B 15.3**	**B 15.3**	**B 15.3**	**C 34.2**	**C 35.0**	**D 39.1**
Southside Drive Northbound	A 9.4	A 9.4	A 9.8	C 22.4	C 23.0	C 24.2
Southside Drive Southbound	A 9.4	A 9.4	A 9.6	D 39.1	D 41.0	D 50.9
Roberts Avenue Northwest	D 43.9	D 43.9	D 43.9	E 56.5	E 56.8	E 56.8
Thalia Avenue Eastbound	C 32.7	C 32.7	C 32.7	C 29.3	C 29.1	C 29.1
Strawberry Lane Westbound	D 42.0	D 42.2	D 42.2	D 48.5	D 48.1	D 48.1

	A.M.			P.M.		
Approach	2022 Existing	2024 No Build	2024 Build	2022 Existing	2024 No Build	2024 Build
Steedly Drive at Entrance						
Steedly Drive Eastbound (left)			A 7.3			A 7.6
Entrance Southbound			A 8.9			B 10.0

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated July, 2020. The Kentucky Transportation Cabinet policy requires analysis of ten years beyond completion. All volumes were calculated using an annual growth rate of 0.5 percent applied to the 2024 No Build volumes. The 2034 No Build volumes are shown in **Figure 7**. The site volumes were added for the 2034 Build volumes in **Figure 8.** The resulting delays and Level of Service are summarized in **Table 3.** Using the volumes in Figure 8, the volumes do not meet the turn lane warrants at the entrances.

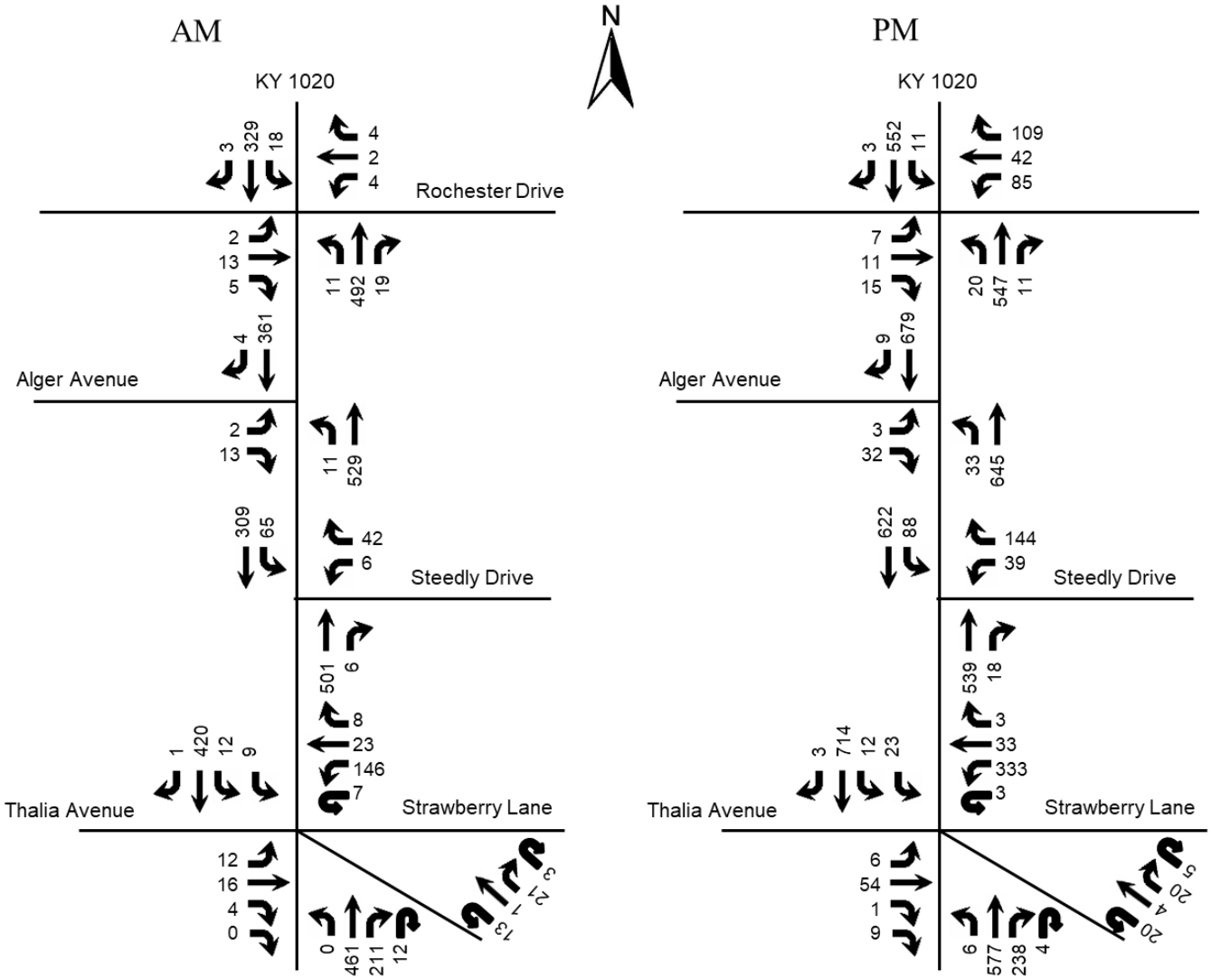

Figure 7. 2034 No Build Peak Hour Volumes

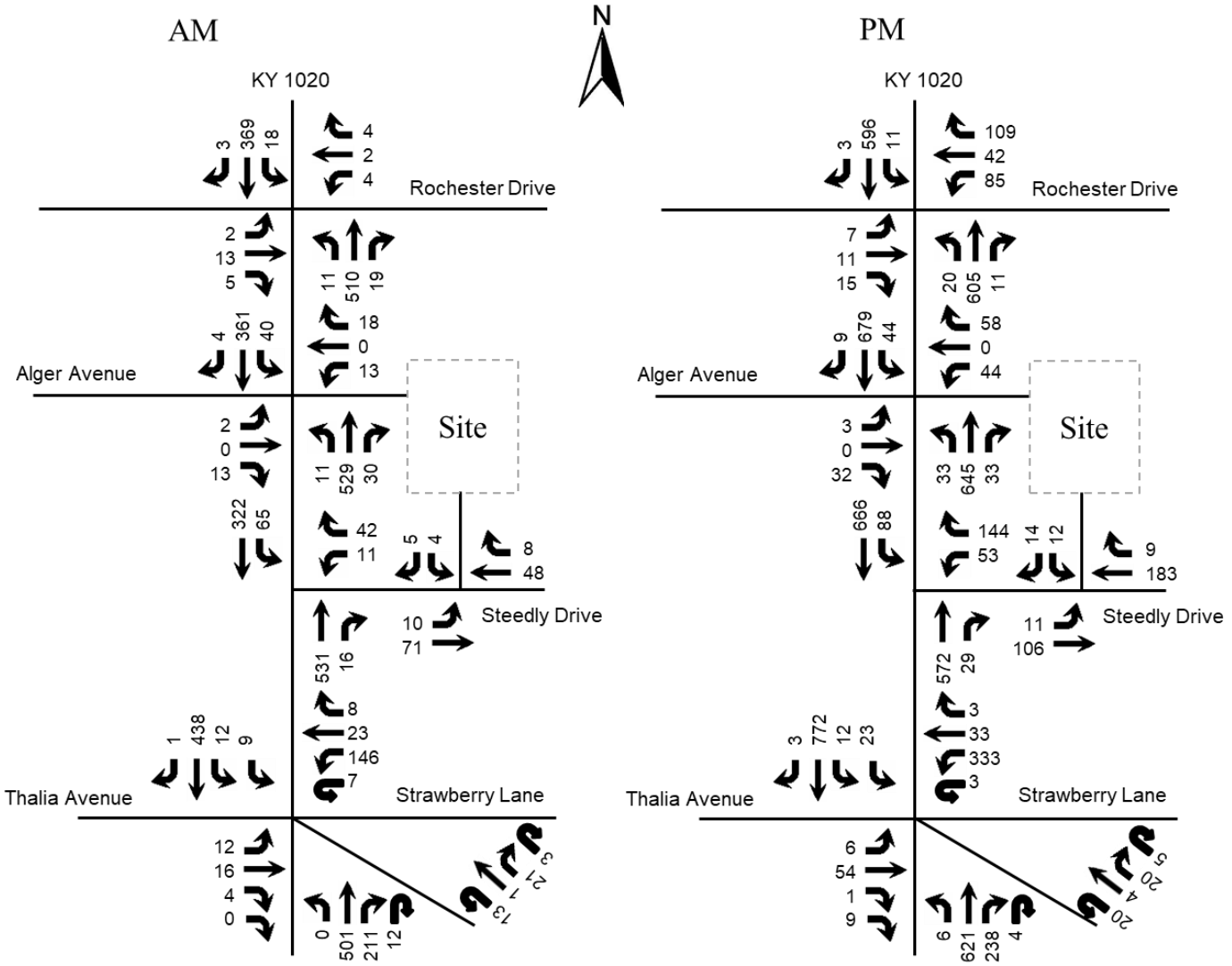

Figure 8. 2034 Build Peak Hour Volumes

Table 3. Peak Hour Level of Service

	A.M.			P.M.		
Approach	2022 Existing	2034 No Build	2034 Build	2022 Existing	2034 No Build	2034 Build
Southside Drive at Rochester Drive	**A 3.5**	**A 3.8**	**A 3.6**	**A 8.9**	**A 9.4**	**A 9.5**
Rochester Drive Eastbound	C 25.5	C 25.5	C 25.5	C 22.7	C 22.8	C 22.8
Rochester Drive Westbound	C 24.8	C 24.8	C 24.8	C 25.7	C 25.6	C 25.6
Southside Drive Northbound	A 3.0	A 3.6	A 3.2	A 5.3	A 5.7	A 6.2
Southside Drive Southbound	A 2.4	A 2.5	A 2.6	A 5.2	A 5.6	A 6.0
Southside Drive at Alger Avenue						
Alger Avenue Eastbound	B 11.0	B 11.1	B 12.8	B 14.8	C 15.4	C 16.4
Entrance Westbound	NA	NA	C 19.4	NA	NA	D 28.8
Southside Drive Northbound	A 8.3	A 8.4	A 8.4	A 9.4	A 9.6	A 9.6
Southside Drive Southbound	NA	NA	A 8.9	NA	NA	A 9.4
Southside Drive at Steedly Drive						
Steedly Drive Westbound	B 12.5	B 12.9	B 13.7	C 19.4	C 21.6	D 27.0
Southside Drive Southbound	A 8.8	A 9.0	A 9.1	A 9.0	A 9.2	A 9.4
Southside Drive at Strawberry Lane	**B 15.3**	**B 15.8**	**B 15.8**	**C 34.2**	**D 38.6**	**D 44.8**
Southside Drive Northbound	A 9.4	A 9.9	B 10.3	C 22.4	C 24.3	C 25.7
Southside Drive Southbound	A 9.4	A 9.9	B 10.1	D 39.1	D 47.9	E 63.0
Roberts Avenue Northwest	D 43.9	D 44.2	D 44.2	E 56.5	E 57.2	E 57.2
Thalia Avenue Eastbound	C 32.7	C 32.5	C 32.5	C 29.3	C 29.0	C 29.0
Strawberry Lane Westbound	D 42.0	D 42.8	D 42.8	D 48.5	D 51.0	D 51.0

	A.M.			P.M.		
Approach	2022 Existing	2034 No Build	2034 Build	2022 Existing	2034 No Build	2034 Build
Steedly Drive at Entrance						
Steedly Drive Eastbound (left)			A 7.4			A 7.7
Entrance Southbound			A 9.0			B 10.1

Key: Level of Service, Delay in seconds per vehicle

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2024 and 2034, there will be an impact to the existing highway network, with Levels of Service remaining within acceptable limits. The delays experienced in the area will increase within acceptable limits.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Louisville, KY

Site 1 of 4
KY-1020 Southside Dr (South)
KY-1020 Southside Dr (North)
Rochester Dr (West)
Rochester Dr (East)

Date
Tuesday, April 26, 2022

Lat/Long
38.169544°, -85.764728°

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Rochester Dr (West)					Rochester Dr (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0700 - 0715	4	96	5	0	105	9	68	0	0	77	2	6	0	0	8	0	0	0	0	0	190
0715 - 0730	0	123	4	0	127	4	70	1	0	75	1	2	1	0	4	1	0	1	0	2	208
0730 - 0745	1	100	0	0	101	4	84	2	0	90	2	3	0	0	5	2	1	4	0	7	203
0745 - 0800	1	115	7	0	123	2	90	0	0	92	0	1	0	0	1	1	0	0	0	1	217
Hourly Total	6	434	16	0	**456**	19	312	3	0	**334**	5	12	1	0	**18**	4	1	5	0	**10**	**818**
0800 - 0815	2	96	4	0	102	6	79	0	0	85	1	2	0	0	3	0	1	2	0	3	193
0815 - 0830	4	131	4	0	139	3	65	1	0	69	0	5	1	0	6	2	0	1	0	3	217
0830 - 0845	3	121	3	0	127	6	76	2	0	84	1	4	4	0	9	1	1	1	0	3	223
0845 - 0900	5	96	3	0	104	6	71	2	0	79	1	3	0	0	4	0	1	0	0	1	188
Hourly Total	14	444	14	0	**472**	21	291	5	0	**317**	3	14	5	0	**22**	3	3	4	0	**10**	**821**
Grand Total	20	878	30	0	**928**	40	603	8	0	**651**	8	26	6	0	**40**	7	4	9	0	**20**	**1639**
Approach %	2.16	94.61	3.23	0.00	-	6.14	92.63	1.23	0.00	-	20.00	65.00	15.00	0.00	-	35.00	20.00	45.00	0.00	-	
Intersection %	1.22	53.57	1.83	0.00	56.62	2.44	36.79	0.49	0.00	39.72	0.49	1.59	0.37	0.00	2.44	0.43	0.24	0.55	0.00	1.22	
PHF	0.63	0.88	0.64	0.00	**0.88**	0.71	0.86	0.38	0.00	**0.90**	0.50	0.60	0.31	0.00	**0.53**	0.50	0.50	0.50	0.00	**0.83**	**0.95**

1600 - 1800 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Rochester Dr (West)					Rochester Dr (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1600 - 1615	4	113	1	0	118	2	118	0	0	120	0	1	6	0	7	41	16	50	0	107	352
1615 - 1630	5	141	2	0	148	1	117	0	0	118	2	5	2	0	9	10	6	17	0	33	308
1630 - 1645	5	125	3	0	133	2	138	1	0	141	2	4	5	0	11	25	10	26	0	61	346
1645 - 1700	5	136	4	0	145	5	147	2	0	154	3	0	1	0	4	4	8	10	0	22	325
Hourly Total	19	515	10	0	**544**	10	520	3	0	**533**	7	10	14	0	**31**	80	40	103	0	**223**	**1331**
1700 - 1715	10	141	3	0	154	2	112	2	0	116	1	0	5	0	6	7	7	16	0	30	306
1715 - 1730	5	132	3	0	140	3	145	1	0	149	0	2	4	0	6	4	1	11	0	16	311
1730 - 1745	9	134	8	0	151	6	129	3	0	138	0	1	2	0	3	1	5	9	0	15	307
1745 - 1800	6	110	25	0	141	22	106	3	0	131	1	11	1	0	13	5	2	7	0	14	299
Hourly Total	30	517	39	0	**586**	33	492	9	0	**534**	2	14	12	0	**28**	17	15	43	0	**75**	**1223**
Grand Total	49	1032	49	0	**1130**	43	1012	12	0	**1067**	9	24	26	0	**59**	97	55	146	0	**298**	**2554**
Approach %	4.34	91.33	4.34	0.00	-	4.03	94.85	1.12	0.00	-	15.25	40.68	44.07	0.00	-	32.55	18.46	48.99	0.00	-	
Intersection %	1.92	40.41	1.92	0.00	44.24	1.68	39.62	0.47	0.00	41.78	0.35	0.94	1.02	0.00	2.31	3.80	2.15	5.72	0.00	11.67	
PHF	0.95	0.91	0.63	0.00	**0.92**	0.50	0.88	0.38	0.00	**0.87**	0.58	0.50	0.58	0.00	**0.70**	0.49	0.63	0.52	0.00	**0.52**	**0.95**

Classified Turn Movement Count || All vehicles

Louisville, KY

Marr Traffic DATA COLLECTION
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Site 2 of 4
KY-1020 Southside Dr (South)
KY-1020 Southside Dr (North)
Alger Ave
Driveway

Date
Tuesday, April 26, 2022

Lat/Long
38.166205°, -85.764798°

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Alger Ave					Driveway					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
0700 - 0715	4	108	0	0	112	0	75	0	0	75	0	0	1	0	1	0	0	0	0	0	188
0715 - 0730	4	119	0	0	123	0	74	1	0	75	1	0	2	0	3	0	0	0	0	0	201
0730 - 0745	2	111	0	0	113	0	95	2	0	97	0	0	4	0	4	0	0	0	0	0	214
0745 - 0800	2	122	0	0	124	0	99	1	0	100	0	0	2	0	2	0	0	0	0	0	226
Hourly Total	12	460	0	0	**472**	0	343	4	0	**347**	1	0	9	0	**10**	0	0	0	0	**0**	**829**
0800 - 0815	4	106	0	0	110	0	87	1	0	88	1	0	2	0	3	0	0	0	0	0	201
0815 - 0830	3	138	0	0	141	0	67	2	0	69	0	0	5	0	5	1	0	0	0	1	216
0830 - 0845	1	132	1	0	134	0	87	0	0	87	1	0	3	0	4	0	0	0	0	0	225
0845 - 0900	3	107	0	0	110	0	80	0	0	80	1	0	5	0	6	0	0	0	0	0	196
Hourly Total	11	483	1	0	**495**	0	321	3	0	**324**	3	0	15	0	**18**	1	0	0	0	**1**	**838**
Grand Total	23	943	1	0	**967**	0	664	7	0	**671**	4	0	24	0	**28**	1	0	0	0	**1**	**1667**
Approach %	2.38	97.52	0.10	0.00	-	0.00	98.96	1.04	0.00	-	14.29	0.00	85.71	0.00	-	100.00	0.00	0.00	0.00	-	
Intersection %	1.38	56.57	0.06	0.00	58.01	0.00	39.83	0.42	0.00	40.25	0.24	0.00	1.44	0.00	1.68	0.06	0.00	0.00	0.00	0.06	
PHF	0.63	0.90	0.25	0.00	**0.90**	0.00	0.86	0.50	0.00	**0.86**	0.50	0.00	0.60	0.00	**0.70**	0.25	0.00	0.00	0.00	**0.25**	**0.96**

1600 - 1800 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Alger Ave					Driveway					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	2.1	2.2	2.3	2.4	Total	2.5	2.6	2.7	2.8	Total	2.9	2.10	2.11	2.12	Total	2.13	2.14	2.15	2.16	Total	Total
1600 - 1615	10	141	0	0	151	0	175	4	0	179	0	0	8	0	8	1	0	0	0	1	339
1615 - 1630	7	159	1	0	167	0	133	1	0	134	3	0	4	0	7	0	0	0	0	0	308
1630 - 1645	7	165	0	0	172	0	173	1	0	174	0	0	10	0	10	0	0	0	0	0	356
1645 - 1700	7	143	0	0	150	0	159	3	0	162	0	0	8	0	8	0	0	0	0	0	320
Hourly Total	31	608	1	0	**640**	0	640	9	0	**649**	3	0	30	0	**33**	1	0	0	0	**1**	**1323**
1700 - 1715	7	163	0	0	170	0	144	2	0	146	1	0	7	0	8	0	0	0	0	0	324
1715 - 1730	7	145	0	0	152	0	155	4	0	159	1	0	1	0	2	0	0	0	0	0	313
1730 - 1745	9	161	0	0	170	0	143	1	0	144	1	0	3	0	4	0	0	2	0	2	320
1745 - 1800	2	141	0	0	143	0	114	1	0	115	0	0	2	0	2	0	0	1	0	1	261
Hourly Total	25	610	0	0	**635**	0	556	8	0	**564**	3	0	13	0	**16**	0	0	3	0	**3**	**1218**
Grand Total	56	1218	1	0	**1275**	0	1196	17	0	**1213**	6	0	43	0	**49**	1	0	3	0	**4**	**2541**
Approach %	4.39	95.53	0.08	0.00	-	0.00	98.60	1.40	0.00	-	12.24	0.00	87.76	0.00	-	25.00	0.00	75.00	0.00	-	
Intersection %	2.20	47.93	0.04	0.00	50.18	0.00	47.07	0.67	0.00	47.74	0.24	0.00	1.69	0.00	1.93	0.04	0.00	0.12	0.00	0.16	
PHF	0.78	0.92	0.25	0.00	**0.93**	0.00	0.91	0.56	0.00	**0.91**	0.25	0.00	0.75	0.00	**0.83**	0.25	0.00	0.00	0.00	**0.25**	**0.93**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
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Louisville, KY

Site 3 of 4
KY-1020 Southside Dr (South)
KY-1020 Southside Dr (North)
Driveway
Steedly Dr

Date
Tuesday, April 26, 2022

Weather
Fair
53°F

Lat/Long
38.165638°, -85.764775°

0700 - 0900 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Driveway					Steedly Dr					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
0700 - 0715	0	97	0	0	97	6	69	0	0	75	0	0	0	0	0	0	0	17	0	17	189
0715 - 0730	0	108	3	0	111	10	66	0	0	76	0	0	0	0	0	1	0	17	0	18	205
0730 - 0745	0	102	1	0	103	15	85	0	0	100	0	0	0	0	0	1	0	10	0	11	214
0745 - 0800	0	114	2	0	116	17	84	0	0	101	0	0	0	0	0	1	0	10	0	11	228
Hourly Total	0	421	6	0	**427**	48	304	0	0	**352**	0	0	0	0	**0**	3	0	54	0	**57**	**836**
0800 - 0815	0	101	2	0	103	20	68	0	0	88	0	0	0	0	0	1	0	11	0	12	203
0815 - 0830	0	130	2	0	132	11	61	0	0	72	0	0	0	0	0	2	0	12	0	14	218
0830 - 0845	0	127	0	0	127	13	78	0	0	91	0	0	0	0	0	2	0	7	0	9	227
0845 - 0900	0	101	1	0	102	16	69	0	0	85	0	0	0	0	0	1	0	9	0	10	197
Hourly Total	0	459	5	0	**464**	60	276	0	0	**336**	0	0	0	0	**0**	6	0	39	0	**45**	**845**
Grand Total	0	880	11	0	**891**	108	580	0	0	**688**	0	0	0	0	**0**	9	0	93	0	**102**	**1681**
Approach %	0.00	98.77	1.23	0.00	-	15.70	84.30	0.00	0.00	-	0.00	0.00	0.00	0.00	-	8.82	0.00	91.18	0.00	-	
Intersection %	0.00	52.35	0.65	0.00	53.00	6.42	34.50	0.00	0.00	40.93	0.00	0.00	0.00	0.00	0.00	0.54	0.00	5.53	0.00	6.07	
PHF	0.00	0.91	0.75	0.00	**0.91**	0.76	0.87	0.00	0.00	**0.87**	0.00	0.00	0.00	0.00	**0.00**	0.75	0.00	0.83	0.00	**0.82**	**0.96**

1600 - 1800 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	KY-1020 Southside Dr (South)					KY-1020 Southside Dr (North)					Driveway					Steedly Dr					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	3.1	3.2	3.3	3.4	Total	3.5	3.6	3.7	3.8	Total	3.9	3.10	3.11	3.12	Total	3.13	3.14	3.15	3.16	Total	Total
1600 - 1615	0	117	5	0	122	20	164	0	0	184	0	0	0	0	0	10	0	33	0	43	349
1615 - 1630	1	141	3	0	145	15	121	0	0	136	0	0	0	0	0	14	0	27	0	41	322
1630 - 1645	0	123	4	0	127	22	159	1	0	182	0	0	0	0	0	5	0	53	0	58	367
1645 - 1700	0	127	5	0	132	26	142	0	0	168	0	0	0	0	0	8	0	23	0	31	331
Hourly Total	1	508	17	0	**526**	83	586	1	0	**670**	0	0	0	0	**0**	37	0	136	0	**173**	**1369**
1700 - 1715	0	143	4	0	147	18	133	0	0	151	0	0	0	0	0	14	0	29	0	43	341
1715 - 1730	0	127	4	0	131	11	144	0	0	155	0	0	0	0	0	6	0	26	0	32	318
1730 - 1745	0	137	0	0	137	20	126	0	0	146	0	0	0	0	0	5	0	34	0	39	322
1745 - 1800	0	132	2	0	134	16	101	0	0	117	0	0	0	0	0	1	0	11	0	12	263
Hourly Total	0	539	10	0	**549**	65	504	0	0	**569**	0	0	0	0	**0**	26	0	100	0	**126**	**1244**
Grand Total	1	1047	27	0	**1075**	148	1090	1	0	**1239**	0	0	0	0	**0**	63	0	236	0	**299**	**2613**
Approach %	0.09	97.40	2.51	0.00	-	11.95	87.97	0.08	0.00	-	0.00	0.00	0.00	0.00	-	21.07	0.00	78.93	0.00	-	
Intersection %	0.04	40.07	1.03	0.00	41.14	5.66	41.71	0.04	0.00	47.42	0.00	0.00	0.00	0.00	0.00	2.41	0.00	9.03	0.00	11.44	
PHF	0.25	0.90	0.85	0.00	**0.91**	0.80	0.89	0.25	0.00	**0.91**	0.00	0.00	0.00	0.00	**0.00**	0.66	0.00	0.64	0.00	**0.75**	**0.93**

Classified Turn Movement Count || All vehicles

Louisville, KY

Marr Traffic DATA COLLECTION
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Site 4 of 4
KY-1020 Southside Dr (South)
KY-1020 Southside Dr (North)
Thalia Ave
Strawberry Ln
Robert Ave

Date
Tuesday, April 26, 2022

Lat/Long
33.746994°, -84.396903°

Weather
Fair
53°F

0700 - 0900 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound						Southbound						Eastbound						Westbound						Northwestbound						
	KY-1020 Southside Dr (South)						KY-1020 Southside Dr (North)						Thalia Ave						Strawberry Ln						Robert Ave						
	Left	Thru	Right	Right	U-Turn	App	Left	Left	Thru	Right	U-Turn	App	Left	Thru	Right	Right	U-Turn	App	Left	Left	Thru	Right	U-Turn	App	Left	Left	Right	Right	U-Turn	App	Int
TIME	4.1	4.2	4.3	4.4	4.5	Total	4.6	4.7	4.8	4.9	4.10	Total	4.11	4.12	4.13	4.14	4.15	Total	4.16	4.17	4.18	4.19	4.20	Total	4.21	4.22	4.23	4.24	4.25	Total	Total
0700 - 0715	2	71	48	1	0	122	0	1	92	0	0	93	3	4	0	0	0	7	1	31	4	0	0	36	0	0	2	0	0	2	260
0715 - 0730	1	109	72	2	0	184	0	3	85	0	0	88	4	4	1	0	0	9	1	35	5	3	0	44	0	1	7	1	0	9	334
0730 - 0745	0	112	53	3	0	168	2	3	97	1	0	103	3	5	2	0	0	10	4	31	11	3	0	49	2	0	1	0	0	3	333
0745 - 0800	0	109	70	4	0	183	1	5	126	1	0	133	2	1	2	0	0	5	2	25	7	2	0	36	1	0	3	1	0	5	362
Hourly Total	3	401	243	10	0	**657**	3	12	400	2	0	**417**	12	14	5	0	0	**31**	8	122	27	8	0	**165**	3	1	13	2	0	**19**	**1289**
0800 - 0815	0	94	45	2	0	141	4	4	77	0	0	85	1	5	2	0	0	8	2	36	7	3	0	48	3	1	6	1	0	11	293
0815 - 0830	0	123	53	4	0	180	2	1	96	0	0	99	4	4	0	0	0	8	3	33	6	1	0	43	2	0	3	0	0	5	335
0830 - 0845	0	109	31	1	0	141	2	1	97	0	0	100	4	5	0	0	0	9	0	44	2	2	0	48	6	0	8	1	0	15	313
0845 - 0900	0	112	40	2	0	154	1	3	92	0	0	96	0	4	1	1	0	6	0	25	3	2	0	30	4	0	5	0	0	9	295
Hourly Total	0	438	169	9	0	**616**	9	9	362	0	0	**380**	9	18	3	1	0	**31**	5	138	18	8	0	**169**	15	1	22	2	0	**40**	**1236**
Grand Total	3	839	412	19	0	**1273**	12	21	762	2	0	**797**	21	32	8	1	0	**62**	13	260	45	16	0	**334**	18	2	35	4	0	**59**	**2525**
Approach %	0.24	65.91	32.36	1.49	0.00	-	1.51	2.63	95.61	0.25	0.00	-	33.87	51.61	12.90	1.61	0.00	-	3.89	77.84	13.47	4.79	0.00	-	30.51	3.39	59.32	6.78	0.00	-	
Intersection %	0.12	33.23	16.32	0.75	0.00	50.42	0.48	0.83	30.18	0.08	0.00	31.56	0.83	1.27	0.32	0.04	0.00	2.46	0.51	10.30	1.78	0.63	0.00	13.23	0.71	0.08	1.39	0.16	0.00	2.34	

1600 - 1800 (Weekday 2h Session) (04-26-2022)
All vehicles

	Northbound						Southbound						Eastbound						Westbound						Northwestbound						
	KY-1020 Southside Dr (South)						KY-1020 Southside Dr (North)						Thalia Ave						Strawberry Ln						Robert Ave						
	Left	Thru	Right	Right	U-Turn	App	Left	Left	Thru	Right	U-Turn	App	Left	Thru	Right	Right	U-Turn	App	Left	Left	Thru	Right	U-Turn	App	Left	Left	Right	Right	U-Turn	App	Int
TIME	4.1	4.2	4.3	4.4	4.5	Total	4.6	4.7	4.8	4.9	4.10	Total	4.11	4.12	4.13	4.14	4.15	Total	4.16	4.17	4.18	4.19	4.20	Total	4.21	4.22	4.23	4.24	4.25	Total	Total
1600 - 1615	1	137	38	1	0	177	5	2	168	0	0	175	3	17	0	4	0	24	0	80	8	1	0	89	6	2	1	0	0	9	474
1615 - 1630	3	149	63	0	0	215	9	1	153	1	0	164	1	8	1	2	0	12	1	83	8	1	0	93	5	1	1	1	0	8	492
1630 - 1645	1	127	54	2	0	184	4	6	179	1	0	190	0	9	0	2	0	11	1	81	7	1	0	90	5	0	6	1	0	12	487
1645 - 1700	1	131	69	1	0	202	4	2	172	1	0	179	2	17	0	1	0	20	1	70	8	0	0	79	3	1	11	3	0	18	498
Hourly Total	6	544	224	4	0	**778**	22	11	672	3	0	**708**	6	51	1	9	0	**67**	3	314	31	3	0	**351**	19	4	19	5	0	**47**	**1951**
1700 - 1715	1	133	47	1	0	182	3	2	160	2	0	167	6	8	1	0	0	15	0	79	11	0	0	90	9	1	8	8	0	26	480
1715 - 1730	5	144	65	1	0	215	8	1	160	0	0	169	3	5	1	3	0	12	0	73	7	3	0	83	4	1	5	1	0	11	490
1730 - 1745	3	150	67	0	0	220	6	0	168	1	0	175	2	10	0	3	0	15	0	81	8	1	0	90	2	0	3	1	0	6	506
1745 - 1800	1	127	44	1	0	173	4	5	115	1	0	125	3	4	0	5	0	12	0	43	9	3	0	55	1	0	2	4	0	7	372
Hourly Total	10	554	223	3	0	**790**	21	8	603	4	0	**636**	14	27	2	11	0	**54**	0	276	35	7	0	**318**	16	2	18	14	0	**50**	**1848**
Grand Total	16	1098	447	7	0	**1568**	43	19	1275	7	0	**1344**	20	78	3	20	0	**121**	3	590	66	10	0	**669**	35	6	37	19	0	**97**	**3799**
Approach %	1.02	70.03	28.51	0.45	0.00	-	3.20	1.41	94.87	0.52	0.00	-	16.53	64.46	2.48	16.53	0.00	-	0.45	88.19	9.87	1.49	0.00	-	36.08	6.19	38.14	19.59	0.00	-	
Intersection %	0.42	28.90	11.77	0.18	0.00	41.27	1.13	0.50	33.56	0.18	0.00	35.38	0.53	2.05	0.08	0.53	0.00	3.19	0.08	15.53	1.74	0.26	0.00	17.61	0.92	0.16	0.97	0.50	0.00	2.55	

HCS Reports

AM 2022
1: Thalia Ave/Strawberry Ln & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	0	435	199	11	9	11	396	1	12	1	20	3
Future Volume (vph)	0	435	199	11	9	11	396	1	12	1	20	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	0.85			1.00	1.00			0.91		
Flt Protected		1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1863	1583			1770	1862			1672		
Flt Permitted		1.00	1.00			0.43	1.00			0.87		
Satd. Flow (perm)		1863	1583			798	1862			1484		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	473	216	12	10	12	430	1	13	1	22	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	38	0	0
Lane Group Flow (vph)	0	473	228	0	0	22	431	0	0	1	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)		58.3	58.3			58.3	58.3			3.2		
Effective Green, g (s)		58.3	58.3			58.3	58.3			3.2		
Actuated g/C Ratio		0.62	0.62			0.62	0.62			0.03		
Clearance Time (s)		5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		1161	987			497	1161			50		
v/s Ratio Prot		c0.25					0.23					
v/s Ratio Perm			0.14			0.03				c0.00		
v/c Ratio		0.41	0.23			0.04	0.37			0.03		
Uniform Delay, d1		8.9	7.7			6.8	8.6			43.6		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		1.1	0.5			0.2	0.9			0.2		
Delay (s)		9.9	8.3			7.0	9.5			43.9		
Level of Service		A	A			A	A			D		
Approach Delay (s)		9.4					9.4			43.9		
Approach LOS		A					A			D		

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	21.7
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Scenario 1 AM 2022 3:25 pm 07/12/2022 Baseline
Diane B. Zimmerman

Synchro 11 Report
Page 1

AM 2022
1: Thalia Ave/Strawberry Ln & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	11	15	4	7	138	22	8
Future Volume (vph)	11	15	4	7	138	22	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6	5.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	
Frt	1.00	0.97			1.00	0.96	
Flt Protected	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	1807			1770	1787	
Flt Permitted	0.74	1.00			0.74	1.00	
Satd. Flow (perm)	1370	1807			1386	1787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	16	4	8	150	24	9
RTOR Reduction (vph)	0	0	0	0	0	7	0
Lane Group Flow (vph)	12	20	0	0	158	26	0
Turn Type	Perm	NA		Perm	Perm	NA	
Protected Phases		8				8	
Permitted Phases	8			8	8		
Actuated Green, G (s)	15.8	15.8			15.8	15.8	
Effective Green, g (s)	15.8	15.8			15.8	15.8	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	
Clearance Time (s)	5.6	5.6			5.6	5.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	231	305			234	301	
v/s Ratio Prot		0.01				0.01	
v/s Ratio Perm	0.01				c0.11		
v/c Ratio	0.05	0.07			0.68	0.08	
Uniform Delay, d1	32.6	32.6			36.4	32.8	
Progression Factor	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1			7.5	0.1	
Delay (s)	32.7	32.7			43.9	32.9	
Level of Service	C	C			D	C	
Approach Delay (s)		32.7				42.0	
Approach LOS		C				D	

Intersection Summary

Scenario 1 AM 2022 3:25 pm 07/12/2022 Baseline
Diane B. Zimmerman

Synchro 11 Report
Page 2

AM 2022
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	5	4	2	4	10	463	18	17	310	3
Future Volume (veh/h)	2	12	5	4	2	4	10	463	18	17	310	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	13	5	4	2	4	11	503	20	18	337	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	34	13	152	19	54	865	1348	54	716	1396	12
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.75	0.75	0.75	0.75	0.75	0.75
Sat Flow, veh/h	157	1021	393	1098	549	1585	1040	1787	71	879	1851	16
Grp Volume(v), veh/h	20	0	0	6	0	4	11	0	523	18	0	340
Grp Sat Flow(s),veh/h/ln	1570	0	0	1647	0	1585	1040	0	1858	879	0	1867
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	5.0	0.4	0.0	2.9
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.2	0.0	0.1	3.0	0.0	5.0	5.4	0.0	2.9
Prop In Lane	0.10		0.25	0.67		1.00	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	129	0	0	170	0	54	865	0	1401	716	0	1409
V/C Ratio(X)	0.16	0.00	0.00	0.04	0.00	0.07	0.01	0.00	0.37	0.03	0.00	0.24
Avail Cap(c_a), veh/h	1740	0	0	1585	0	1525	865	0	1401	716	0	1409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	24.5	0.0	24.5	2.4	0.0	2.2	3.1	0.0	1.9
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.8	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.8	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	0.0	24.6	0.0	25.1	2.4	0.0	3.0	3.2	0.0	2.3
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		20			10			534			358	
Approach Delay, s/veh		25.5			24.8			3.0			2.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		7.4		45.0		7.4				
Change Period (Y+Rc), s		* 5.5		5.6		* 5.5		5.6				
Max Green Setting (Gmax), s		* 40		50.4		* 40		50.4				
Max Q Clear Time (g_c+I1), s		7.0		2.8		7.4		2.2				
Green Ext Time (p_c), s		3.8		0.1		2.3		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			3.5									
HCM 6th LOS			A									

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

AM 2022
2: Steedly Dr & Southside Dr 07/12/2022

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	40	472	6	61	291
Future Vol, veh/h	6	40	472	6	61	291
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	10	2
Mvmt Flow	7	43	513	7	66	316

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	965	517	0	0	520	0
Stage 1	517	-	-	-	-	-
Stage 2	448	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.2	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.29	-
Pot Cap-1 Maneuver	283	558	-	-	1007	-
Stage 1	598	-	-	-	-	-
Stage 2	644	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	264	558	-	-	1007	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	601	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	529	1007	-
HCM Lane V/C Ratio	-	-	0.095	0.066	-
HCM Control Delay (s)	-	-	12.5	8.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

AM 2022
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	12	10	498	340	4
Future Vol, veh/h	2	12	10	498	340	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	20	2	2	2
Mvmt Flow	2	13	11	541	370	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	935	372	374	0	-	0
Stage 1	372	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.38	-	-	-
Pot Cap-1 Maneuver	295	674	1092	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	570	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	292	674	1092	-	-	-
Mov Cap-2 Maneuver	416	-	-	-	-	-
Stage 1	690	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1092	-	619	-	-
HCM Lane V/C Ratio	0.01	-	0.025	-	-
HCM Control Delay (s)	8.3	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

AM 2024 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	0	439	201	11	9	11	400	1	12	1	20	3
Future Volume (vph)	0	439	201	11	9	11	400	1	12	1	20	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	0.85			1.00	1.00			0.91		
Flt Protected		1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1863	1583			1770	1862			1672		
Flt Permitted		1.00	1.00			0.43	1.00			0.87		
Satd. Flow (perm)		1863	1583			793	1862			1484		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	477	218	12	10	12	435	1	13	1	22	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	38	0	0
Lane Group Flow (vph)	0	477	230	0	0	22	436	0	0	1	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)		58.3	58.3			58.3	58.3			3.2		
Effective Green, g (s)		58.3	58.3			58.3	58.3			3.2		
Actuated g/C Ratio		0.62	0.62			0.62	0.62			0.03		
Clearance Time (s)		5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		1161	987			494	1161			50		
v/s Ratio Prot		c0.26					0.23					
v/s Ratio Perm			0.15			0.03				c0.00		
v/c Ratio		0.41	0.23			0.04	0.38			0.03		
Uniform Delay, d1		8.9	7.8			6.8	8.7			43.6		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		1.1	0.6			0.2	0.9			0.2		
Delay (s)		10.0	8.3			7.0	9.6			43.9		
Level of Service		A	A			A	A			D		
Approach Delay (s)		9.4					9.5			43.9		
Approach LOS		A					A			D		

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	21.7
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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AM 2024 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	11	15	4	7	139	22	8
Future Volume (vph)	11	15	4	7	139	22	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6	5.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	
Frt	1.00	0.97			1.00	0.96	
Flt Protected	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	1807			1770	1787	
Flt Permitted	0.74	1.00			0.74	1.00	
Satd. Flow (perm)	1370	1807			1386	1787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	16	4	8	151	24	9
RTOR Reduction (vph)	0	0	0	0	0	7	0
Lane Group Flow (vph)	12	20	0	0	159	26	0
Turn Type	Perm	NA		Perm	Perm	NA	
Protected Phases		8				8	
Permitted Phases	8			8	8		
Actuated Green, G (s)	15.8	15.8			15.8	15.8	
Effective Green, g (s)	15.8	15.8			15.8	15.8	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	
Clearance Time (s)	5.6	5.6			5.6	5.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	231	305			234	301	
v/s Ratio Prot		0.01				0.01	
v/s Ratio Perm	0.01				c0.11		
v/c Ratio	0.05	0.07			0.68	0.08	
Uniform Delay, d1	32.6	32.6			36.5	32.8	
Progression Factor	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1			7.6	0.1	
Delay (s)	32.7	32.7			44.1	32.9	
Level of Service	C	C			D	C	
Approach Delay (s)		32.7				42.2	
Approach LOS		C				D	

Intersection Summary

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AM 2024 No Build
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	5	4	2	4	10	468	18	17	313	3
Future Volume (veh/h)	2	12	5	4	2	4	10	468	18	17	313	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	13	5	4	2	4	11	509	20	18	340	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	34	13	152	19	54	863	1348	53	711	1396	12
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.75	0.75	0.75	0.75	0.75	0.75
Sat Flow, veh/h	157	1021	393	1098	549	1585	1038	1787	70	874	1851	16
Grp Volume(v), veh/h	20	0	0	6	0	4	11	0	529	18	0	343
Grp Sat Flow(s),veh/h/ln	1570	0	0	1647	0	1585	1038	0	1858	874	0	1867
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	5.1	0.4	0.0	2.9
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.2	0.0	0.1	3.1	0.0	5.1	5.5	0.0	2.9
Prop In Lane	0.10		0.25	0.67		1.00	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	129	0	0	170	0	54	863	0	1401	711	0	1409
V/C Ratio(X)	0.16	0.00	0.00	0.04	0.00	0.07	0.01	0.00	0.38	0.03	0.00	0.24
Avail Cap(c_a), veh/h	1740	0	0	1585	0	1525	863	0	1401	711	0	1409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	24.5	0.0	24.5	2.4	0.0	2.2	3.2	0.0	1.9
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.8	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.8	0.1	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	0.0	24.6	0.0	25.1	2.4	0.0	3.0	3.2	0.0	2.3
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		20			10			540			361	
Approach Delay, s/veh		25.5			24.8			3.0			2.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		7.4		45.0		7.4				
Change Period (Y+Rc), s		* 5.5		5.6		* 5.5		5.6				
Max Green Setting (Gmax), s		* 40		50.4		* 40		50.4				
Max Q Clear Time (g_c+I1), s		7.1		2.8		7.5		2.2				
Green Ext Time (p_c), s		3.9		0.1		2.3		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	3.5
HCM 6th LOS	A

Notes

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

AM 2024 No Build
2: Southside Dr & Steedly Dr 07/12/2022

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	40	477	6	62	294
Future Vol, veh/h	6	40	477	6	62	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	10	2
Mvmt Flow	7	43	518	7	67	320

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	976	522	0	0	525	0
Stage 1	522	-	-	-	-	-
Stage 2	454	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.2	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.29	-
Pot Cap-1 Maneuver	279	555	-	-	1002	-
Stage 1	595	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	260	555	-	-	1002	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	595	-	-	-	-	-
Stage 2	597	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	526	1002	-
HCM Lane V/C Ratio	-	-	0.095	0.067	-
HCM Control Delay (s)	-	-	12.6	8.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Scenario 3 AM 2024 No Build 5:49 pm 07/12/2022 Synchro 11 Report
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AM 2024 No Build
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	12	10	503	343	4
Future Vol, veh/h	2	12	10	503	343	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	20	2	2	2
Mvmt Flow	2	13	11	547	373	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	944	375	377	0	-	0
Stage 1	375	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.38	-	-	-
Pot Cap-1 Maneuver	291	671	1089	-	-	-
Stage 1	695	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	288	671	1089	-	-	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	566	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1089	-	616	-	-
HCM Lane V/C Ratio	0.01	-	0.025	-	-
HCM Control Delay (s)	8.3	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

AM 2024 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	0	479	201	11	9	11	418	1	12	1	20	3
Future Volume (vph)	0	479	201	11	9	11	418	1	12	1	20	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	0.85			1.00	1.00			0.91		
Flt Protected		1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1863	1583			1770	1862			1672		
Flt Permitted		1.00	1.00			0.40	1.00			0.87		
Satd. Flow (perm)		1863	1583			737	1862			1484		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	521	218	12	10	12	454	1	13	1	22	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	38	0	0
Lane Group Flow (vph)	0	521	230	0	0	22	455	0	0	1	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)		58.3	58.3			58.3	58.3			3.2		
Effective Green, g (s)		58.3	58.3			58.3	58.3			3.2		
Actuated g/C Ratio		0.62	0.62			0.62	0.62			0.03		
Clearance Time (s)		5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		1161	987			459	1161			50		
v/s Ratio Prot		c0.28					0.24					
v/s Ratio Perm			0.15			0.03				c0.00		
v/c Ratio		0.45	0.23			0.05	0.39			0.03		
Uniform Delay, d1		9.2	7.8			6.8	8.8			43.6		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		1.3	0.6			0.2	1.0			0.2		
Delay (s)		10.5	8.3			7.0	9.8			43.9		
Level of Service		B	A			A	A			D		
Approach Delay (s)		9.8					9.6			43.9		
Approach LOS		A					A			D		

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	21.7
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Scenario 7 AM 2024 Build 12:07 pm 07/13/2022 Synchro 11 Report
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AM 2024 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NEL	NET	NER	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	11	15	4	7	139	22	8
Future Volume (vph)	11	15	4	7	139	22	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6	5.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	
Frt	1.00	0.97			1.00	0.96	
Flt Protected	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	1807			1770	1787	
Flt Permitted	0.74	1.00			0.74	1.00	
Satd. Flow (perm)	1370	1807			1386	1787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	16	4	8	151	24	9
RTOR Reduction (vph)	0	0	0	0	0	7	0
Lane Group Flow (vph)	12	20	0	0	159	26	0
Turn Type	Perm	NA		Perm	Perm	NA	
Protected Phases		8				8	
Permitted Phases	8			8	8		
Actuated Green, G (s)	15.8	15.8			15.8	15.8	
Effective Green, g (s)	15.8	15.8			15.8	15.8	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	
Clearance Time (s)	5.6	5.6			5.6	5.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	231	305			234	301	
v/s Ratio Prot		0.01				0.01	
v/s Ratio Perm	0.01				c0.11		
v/c Ratio	0.05	0.07			0.68	0.08	
Uniform Delay, d1	32.6	32.6			36.5	32.8	
Progression Factor	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1			7.6	0.1	
Delay (s)	32.7	32.7			44.1	32.9	
Level of Service	C	C			D	C	
Approach Delay (s)		32.7				42.2	
Approach LOS		C				D	

Intersection Summary

AM 2024 Build
9: Southside Dr & Rochester Dr 07/13/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	12	5	4	2	4	10	486	18	17	353	3
Future Volume (veh/h)	2	12	5	4	2	4	10	486	18	17	353	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	13	5	4	2	4	11	528	20	18	384	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	34	13	152	19	54	825	1350	51	697	1398	11
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.75	0.75	0.75	0.75	0.75	0.75
Sat Flow, veh/h	157	1021	393	1098	549	1585	997	1790	68	859	1853	14
Grp Volume(v), veh/h	20	0	0	6	0	4	11	0	548	18	0	387
Grp Sat Flow(s),veh/h/ln	1570	0	0	1647	0	1585	997	0	1858	859	0	1868
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	5.4	0.4	0.0	3.4
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.2	0.0	0.1	3.5	0.0	5.4	5.8	0.0	3.4
Prop In Lane	0.10		0.25	0.67		1.00	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	129	0	0	170	0	54	825	0	1402	697	0	1409
V/C Ratio(X)	0.16	0.00	0.00	0.04	0.00	0.07	0.01	0.00	0.39	0.03	0.00	0.27
Avail Cap(c_a), veh/h	1740	0	0	1585	0	1525	825	0	1402	697	0	1409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	24.5	0.0	24.5	2.5	0.0	2.2	3.2	0.0	2.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.8	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.9	0.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	0.0	24.6	0.0	25.1	2.6	0.0	3.1	3.3	0.0	2.5
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		20			10			559			405	
Approach Delay, s/veh		25.5			24.8			3.1			2.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		7.4		45.0		7.4				
Change Period (Y+Rc), s		* 5.5		5.6		* 5.5		5.6				
Max Green Setting (Gmax), s		* 40		50.4		* 40		50.4				
Max Q Clear Time (g_c+I1), s		7.4		2.8		7.8		2.2				
Green Ext Time (p_c), s		4.1		0.1		2.7		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	3.5
HCM 6th LOS	A

Notes

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

AM 2024 Build
2: Southside Dr & Steedly Dr 07/13/2022

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	40	507	16	62	307
Future Vol, veh/h	11	40	507	16	62	307
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	10	2
Mvmt Flow	12	43	551	17	67	334

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1028	560	0	0	568	0
Stage 1	560	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.2	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.29	-
Pot Cap-1 Maneuver	259	528	-	-	966	-
Stage 1	572	-	-	-	-	-
Stage 2	630	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	241	528	-	-	966	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	587	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.4	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	485	966	-
HCM Lane V/C Ratio	-	-	0.114	0.07	-
HCM Control Delay (s)	-	-	13.4	9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

AM 2024 Build
8: Southside Dr & Alger Ave 07/13/2022

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	12	13	0	18	10	503	30	40	343	4
Future Vol, veh/h	2	0	12	13	0	18	10	503	30	40	343	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	20	2	2	2	2	2
Mvmt Flow	2	0	13	14	0	20	11	547	33	43	373	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1057	1063	375	1054	1049	564	377	0	0	580	0	0
Stage 1	461	461	-	586	586	-	-	-	-	-	-	-
Stage 2	596	602	-	468	463	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.3	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.38	-	-	2.218	-	-
Pot Cap-1 Maneuver	203	223	671	204	227	525	1089	-	-	994	-	-
Stage 1	581	565	-	496	497	-	-	-	-	-	-	-
Stage 2	490	489	-	575	564	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	188	211	671	192	215	525	1089	-	-	994	-	-
Mov Cap-2 Maneuver	188	211	-	192	215	-	-	-	-	-	-	-
Stage 1	575	541	-	491	492	-	-	-	-	-	-	-
Stage 2	467	484	-	539	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	18.3	0.2	0.9
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1089	-	-	491	304	994	-	-
HCM Lane V/C Ratio	0.01	-	-	0.031	0.111	0.044	-	-
HCM Control Delay (s)	8.3	-	-	12.6	18.3	8.8	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-

AM 2024 Build
15: Steedly Dr 07/13/2022

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	68	46	8	4	5
Future Vol, veh/h	10	68	46	8	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	74	50	9	4	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	59	0	-	0	151	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	96	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1545	-	-	-	841	1012
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1545	-	-	-	835	1012
Mov Cap-2 Maneuver	-	-	-	-	835	-
Stage 1	-	-	-	-	961	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	925
HCM Lane V/C Ratio	0.007	-	-	-	0.011
HCM Control Delay (s)	7.3	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

AM 2034 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	0	461	211	12	9	12	420	1	13	1	21	3
Future Volume (vph)	0	461	211	12	9	12	420	1	13	1	21	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	0.85			1.00	1.00			0.91		
Flt Protected		1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1863	1583			1770	1862			1673		
Flt Permitted		1.00	1.00			0.41	1.00			0.87		
Satd. Flow (perm)		1863	1583			759	1862			1481		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	501	229	13	10	13	457	1	14	1	23	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	40	0	0
Lane Group Flow (vph)	0	501	242	0	0	23	458	0	0	1	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)		58.3	58.3			58.3	58.3			3.2		
Effective Green, g (s)		58.3	58.3			58.3	58.3			3.2		
Actuated g/C Ratio		0.62	0.62			0.62	0.62			0.03		
Clearance Time (s)		5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		1154	980			470	1153			50		
v/s Ratio Prot		c0.27					0.25					
v/s Ratio Perm			0.15			0.03				c0.00		
v/c Ratio		0.43	0.25			0.05	0.40			0.03		
Uniform Delay, d1		9.3	8.0			7.0	9.0			43.9		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		1.2	0.6			0.2	1.0			0.2		
Delay (s)		10.5	8.6			7.2	10.1			44.2		
Level of Service		B	A			A	B			D		
Approach Delay (s)		9.9					9.9			44.2		
Approach LOS		A					A			D		

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	21.7
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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AM 2034 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	12	16	4	7	146	23	8
Future Volume (vph)	12	16	4	7	146	23	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6	5.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	
Frt	1.00	0.97			1.00	0.96	
Flt Protected	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	1810			1770	1789	
Flt Permitted	0.73	1.00			0.74	1.00	
Satd. Flow (perm)	1369	1810			1385	1789	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	17	4	8	159	25	9
RTOR Reduction (vph)	0	0	0	0	0	7	0
Lane Group Flow (vph)	13	21	0	0	167	27	0
Turn Type	Perm	NA		Perm	Perm	NA	
Protected Phases		8				8	
Permitted Phases	8			8	8		
Actuated Green, G (s)	16.4	16.4			16.4	16.4	
Effective Green, g (s)	16.4	16.4			16.4	16.4	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	
Clearance Time (s)	5.6	5.6			5.6	5.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	238	315			241	311	
v/s Ratio Prot		0.01				0.01	
v/s Ratio Perm	0.01				c0.12		
v/c Ratio	0.05	0.07			0.69	0.09	
Uniform Delay, d1	32.4	32.5			36.5	32.6	
Progression Factor	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1			8.3	0.1	
Delay (s)	32.5	32.5			44.8	32.7	
Level of Service	C	C			D	C	
Approach Delay (s)		32.5				42.8	
Approach LOS		C				D	

Intersection Summary

Scenario 5 AM 2034 No Build 6:19 pm 07/12/2022 Synchro 11 Report
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AM 2034 No Build
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	13	5	4	2	4	11	592	19	18	329	3
Future Volume (veh/h)	2	13	5	4	2	4	11	592	19	18	329	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	14	5	4	2	4	12	643	21	20	358	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	37	13	153	19	55	846	1357	44	613	1396	12
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.75	0.75	0.75	0.75	0.75	0.75
Sat Flow, veh/h	150	1053	376	1098	549	1585	1021	1801	59	772	1852	16
Grp Volume(v), veh/h	21	0	0	6	0	4	12	0	664	20	0	361
Grp Sat Flow(s),veh/h/ln	1580	0	0	1647	0	1585	1021	0	1860	772	0	1868
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	7.2	0.5	0.0	3.1
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.2	0.0	0.1	3.3	0.0	7.2	7.7	0.0	3.1
Prop In Lane	0.10		0.24	0.67		1.00	1.00		0.03	1.00		0.01
Lane Grp Cap(c), veh/h	130	0	0	172	0	55	846	0	1401	613	0	1407
V/C Ratio(X)	0.16	0.00	0.00	0.03	0.00	0.07	0.01	0.00	0.47	0.03	0.00	0.26
Avail Cap(c_a), veh/h	1744	0	0	1583	0	1524	846	0	1401	613	0	1407
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	24.5	0.0	24.5	2.5	0.0	2.5	4.0	0.0	2.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.6	0.0	0.0	1.2	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.0	1.2	0.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	0.0	24.6	0.0	25.0	2.5	0.0	3.6	4.1	0.0	2.4
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		21			10			676			381	
Approach Delay, s/veh		25.5			24.8			3.6			2.5	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	7.4	45.0	7.4
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	9.2	2.8	9.7	2.2
Green Ext Time (p_c), s	5.3	0.1	2.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	3.8
HCM 6th LOS	A

Notes

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

AM 2034 No Build
2: Southside Dr & Steedly Dr 07/12/2022

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	42	501	6	65	309
Future Vol, veh/h	6	42	501	6	65	309
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	10	2
Mvmt Flow	7	46	545	7	71	336

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1027	549	0	0	552	0
Stage 1	549	-	-	-	-	-
Stage 2	478	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.2	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.29	-
Pot Cap-1 Maneuver	260	535	-	-	979	-
Stage 1	579	-	-	-	-	-
Stage 2	624	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	241	535	-	-	979	-
Mov Cap-2 Maneuver	374	-	-	-	-	-
Stage 1	579	-	-	-	-	-
Stage 2	578	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	508	979	-
HCM Lane V/C Ratio	-	-	0.103	0.072	-
HCM Control Delay (s)	-	-	12.9	9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

AM 2034 No Build
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	13	11	529	361	4
Future Vol, veh/h	2	13	11	529	361	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	20	2	2	2
Mvmt Flow	2	14	12	575	392	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	993	394	396	0	-	0
Stage 1	394	-	-	-	-	-
Stage 2	599	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.38	-	-	-
Pot Cap-1 Maneuver	272	655	1071	-	-	-
Stage 1	681	-	-	-	-	-
Stage 2	549	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	269	655	1071	-	-	-
Mov Cap-2 Maneuver	397	-	-	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	549	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1071	-	603	-	-
HCM Lane V/C Ratio	0.011	-	0.027	-	-
HCM Control Delay (s)	8.4	-	11.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

AM 2034 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	0	501	211	12	9	12	438	1	13	1	21	3
Future Volume (vph)	0	501	211	12	9	12	438	1	13	1	21	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor		1.00	1.00			1.00	1.00			1.00		
Frt		1.00	0.85			1.00	1.00			0.91		
Flt Protected		1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)		1863	1583			1770	1862			1673		
Flt Permitted		1.00	1.00			0.38	1.00			0.87		
Satd. Flow (perm)		1863	1583			703	1862			1481		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	545	229	13	10	13	476	1	14	1	23	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	40	0	0
Lane Group Flow (vph)	0	545	242	0	0	23	477	0	0	1	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)		58.3	58.3			58.3	58.3			3.2		
Effective Green, g (s)		58.3	58.3			58.3	58.3			3.2		
Actuated g/C Ratio		0.62	0.62			0.62	0.62			0.03		
Clearance Time (s)		5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)		3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)		1154	980			435	1153			50		
v/s Ratio Prot		c0.29					0.26					
v/s Ratio Perm			0.15			0.03				c0.00		
v/c Ratio		0.47	0.25			0.05	0.41			0.03		
Uniform Delay, d1		9.6	8.0			7.0	9.2			43.9		
Progression Factor		1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2		1.4	0.6			0.2	1.1			0.2		
Delay (s)		11.0	8.6			7.3	10.3			44.2		
Level of Service		B	A			A	B			D		
Approach Delay (s)		10.3					10.1			44.2		
Approach LOS		B					B			D		

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	94.1	Sum of lost time (s)	21.7
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

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AM 2034 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NEL	NET	NER	SWL2	SWL	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	12	16	4	7	146	23	8
Future Volume (vph)	12	16	4	7	146	23	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6			5.6	5.6	
Lane Util. Factor	1.00	1.00			1.00	1.00	
Frt	1.00	0.97			1.00	0.96	
Flt Protected	0.95	1.00			0.95	1.00	
Satd. Flow (prot)	1770	1810			1770	1789	
Flt Permitted	0.73	1.00			0.74	1.00	
Satd. Flow (perm)	1369	1810			1385	1789	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	13	17	4	8	159	25	9
RTOR Reduction (vph)	0	0	0	0	0	7	0
Lane Group Flow (vph)	13	21	0	0	167	27	0
Turn Type	Perm	NA		Perm	Perm	NA	
Protected Phases		8				8	
Permitted Phases	8			8	8		
Actuated Green, G (s)	16.4	16.4			16.4	16.4	
Effective Green, g (s)	16.4	16.4			16.4	16.4	
Actuated g/C Ratio	0.17	0.17			0.17	0.17	
Clearance Time (s)	5.6	5.6			5.6	5.6	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	238	315			241	311	
v/s Ratio Prot		0.01				0.01	
v/s Ratio Perm	0.01				c0.12		
v/c Ratio	0.05	0.07			0.69	0.09	
Uniform Delay, d1	32.4	32.5			36.5	32.6	
Progression Factor	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.1	0.1			8.3	0.1	
Delay (s)	32.5	32.5			44.8	32.7	
Level of Service	C	C			D	C	
Approach Delay (s)		32.5				42.8	
Approach LOS		C				D	

Intersection Summary

AM 2034 Build
9: Southside Dr & Rochester Dr 07/13/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	13	5	4	2	4	11	510	19	18	369	3
Future Volume (veh/h)	2	13	5	4	2	4	11	510	19	18	369	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2	14	5	4	2	4	12	554	21	20	401	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	80	37	13	153	19	55	810	1349	51	676	1397	10
Arrive On Green	0.03	0.03	0.03	0.03	0.03	0.03	0.75	0.75	0.75	0.75	0.75	0.75
Sat Flow, veh/h	150	1053	376	1098	549	1585	981	1790	68	838	1854	14
Grp Volume(v), veh/h	21	0	0	6	0	4	12	0	575	20	0	404
Grp Sat Flow(s),veh/h/ln	1580	0	0	1647	0	1585	981	0	1858	838	0	1868
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.1	0.2	0.0	5.8	0.5	0.0	3.6
Cycle Q Clear(g_c), s	0.8	0.0	0.0	0.2	0.0	0.1	3.8	0.0	5.8	6.2	0.0	3.6
Prop In Lane	0.10		0.24	0.67		1.00	1.00		0.04	1.00		0.01
Lane Grp Cap(c), veh/h	130	0	0	172	0	55	810	0	1400	676	0	1408
V/C Ratio(X)	0.16	0.00	0.00	0.03	0.00	0.07	0.01	0.00	0.41	0.03	0.00	0.29
Avail Cap(c_a), veh/h	1744	0	0	1583	0	1524	810	0	1400	676	0	1408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	24.5	0.0	24.5	2.6	0.0	2.3	3.4	0.0	2.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.9	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.9	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	0.0	0.0	24.6	0.0	25.0	2.7	0.0	3.2	3.5	0.0	2.5
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		21			10			587			424	
Approach Delay, s/veh		25.5			24.8			3.2			2.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	7.4	45.0	7.4
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	7.8	2.8	8.2	2.2
Green Ext Time (p_c), s	4.3	0.1	2.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	3.6
HCM 6th LOS	A

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

AM 2034 Build
2: Southside Dr & Steedly Dr 07/13/2022

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	42	531	16	65	322
Future Vol, veh/h	11	42	531	16	65	322
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	10	2
Mvmt Flow	12	46	577	17	71	350

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1078	586	0	0	594	0
Stage 1	586	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.2	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.29	-
Pot Cap-1 Maneuver	242	510	-	-	944	-
Stage 1	556	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	224	510	-	-	944	-
Mov Cap-2 Maneuver	359	-	-	-	-	-
Stage 1	556	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.7	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	469	944	-
HCM Lane V/C Ratio	-	-	0.123	0.075	-
HCM Control Delay (s)	-	-	13.7	9.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

AM 2034 Build
8: Southside Dr & Alger Ave/Entrance 07/13/2022

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	13	13	0	18	10	529	30	40	361	4
Future Vol, veh/h	2	0	13	13	0	18	10	529	30	40	361	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	20	2	2	2	2	2
Mvmt Flow	2	0	14	14	0	20	11	575	33	43	392	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1104	1110	394	1101	1096	592	396	0	0	608	0	0
Stage 1	480	480	-	614	614	-	-	-	-	-	-	-
Stage 2	624	630	-	487	482	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.3	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.38	-	-	2.218	-	-
Pot Cap-1 Maneuver	188	209	655	189	213	506	1071	-	-	970	-	-
Stage 1	567	554	-	479	483	-	-	-	-	-	-	-
Stage 2	473	475	-	562	553	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	173	198	655	177	201	506	1071	-	-	970	-	-
Mov Cap-2 Maneuver	173	198	-	177	201	-	-	-	-	-	-	-
Stage 1	561	530	-	474	478	-	-	-	-	-	-	-
Stage 2	450	470	-	525	529	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	19.4	0.1	0.9
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1071	-	-	478	284	970	-	-
HCM Lane V/C Ratio	0.01	-	-	0.034	0.119	0.045	-	-
HCM Control Delay (s)	8.4	-	-	12.8	19.4	8.9	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-

AM 2034 Build
15: Steedly Dr & Entrance 07/13/2022

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	71	48	8	4	5
Future Vol, veh/h	10	71	48	8	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	77	52	9	4	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	61	0	-	0	156	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	99	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1542	-	-	-	835	1009
Stage 1	-	-	-	-	966	-
Stage 2	-	-	-	-	925	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1542	-	-	-	829	1009
Mov Cap-2 Maneuver	-	-	-	-	829	-
Stage 1	-	-	-	-	959	-
Stage 2	-	-	-	-	925	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1542	-	-	-	920
HCM Lane V/C Ratio	0.007	-	-	-	0.011
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

PM 2022
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	6	544	224	4	22	11	672	3	19	4	19	5
Future Volume (vph)	6	544	224	4	22	11	672	3	19	4	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	1.00			0.93		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)	1770	1863	1583			1770	1862			1693		
Flt Permitted	0.95	1.00	1.00			0.31	1.00			0.83		
Satd. Flow (perm)	1770	1863	1583			573	1862			1433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	591	243	4	24	12	730	3	21	4	21	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	49	0	0
Lane Group Flow (vph)	7	591	247	0	0	36	733	0	0	2	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)	1.3	62.2	62.2			55.4	55.4			4.3		
Effective Green, g (s)	1.3	62.2	62.2			55.4	55.4			4.3		
Actuated g/C Ratio	0.01	0.52	0.52			0.46	0.46			0.04		
Clearance Time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	19	960	815			263	854			51		
v/s Ratio Prot	0.00	c0.32					c0.39					
v/s Ratio Perm			0.16			0.06				c0.00		
v/c Ratio	0.37	0.62	0.30			0.14	0.86			0.04		
Uniform Delay, d1	59.3	20.8	16.8			18.8	29.1			56.2		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	11.7	3.0	1.0			1.1	10.9			0.3		
Delay (s)	71.0	23.7	17.8			19.9	40.1			56.5		
Level of Service	E	C	B			B	D			E		
Approach Delay (s)		22.4					39.1			56.5		
Approach LOS		C					D			E		

Intersection Summary			
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	120.7	Sum of lost time (s)	21.7
Intersection Capacity Utilization	77.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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PM 2022
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	6	51	1	9	3	314	31	3
Future Volume (vph)	6	51	1	9	3	314	31	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6				5.6	5.6	
Lane Util. Factor	1.00	1.00				1.00	1.00	
Frt	1.00	0.97				1.00	0.99	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	1816				1770	1840	
Flt Permitted	0.73	1.00				0.71	1.00	
Satd. Flow (perm)	1365	1816				1330	1840	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	55	1	10	3	341	34	3
RTOR Reduction (vph)	0	4	0	0	0	0	2	0
Lane Group Flow (vph)	7	62	0	0	0	344	35	0
Turn Type	Perm	NA			Perm	Perm	NA	
Protected Phases		8					8	
Permitted Phases	8				8	8		
Actuated Green, G (s)	38.0	38.0				38.0	38.0	
Effective Green, g (s)	38.0	38.0				38.0	38.0	
Actuated g/C Ratio	0.31	0.31				0.31	0.31	
Clearance Time (s)	5.6	5.6				5.6	5.6	
Vehicle Extension (s)	3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	429	571				418	579	
v/s Ratio Prot		0.03					0.02	
v/s Ratio Perm	0.01					c0.26		
v/c Ratio	0.02	0.11				0.82	0.06	
Uniform Delay, d1	28.5	29.3				38.2	28.9	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	0.1				12.3	0.0	
Delay (s)	28.5	29.4				50.6	28.9	
Level of Service	C	C				D	C	
Approach Delay (s)		29.3					48.5	
Approach LOS		C					D	

Intersection Summary

Scenario 2 PM 2022 5:27 pm 07/12/2022 Synchro 11 Report
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PM 2022
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	4	80	40	103	19	515	10	10	520	3
Future Volume (veh/h)	7	10	4	80	40	103	19	515	10	10	520	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1885	1900	1900	1900	1856	1856	1900	1870	1870
Adj Flow Rate, veh/h	8	11	4	87	43	112	21	560	11	11	565	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	1	0	0	0	3	3	0	2	2
Cap, veh/h	112	111	29	236	74	193	597	1246	24	593	1277	7
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	230	925	243	1099	614	1610	857	1814	36	854	1859	10
Grp Volume(v), veh/h	23	0	0	130	0	112	21	0	571	11	0	568
Grp Sat Flow(s),veh/h/ln	1399	0	0	1714	0	1610	857	0	1849	854	0	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.8	0.6	0.0	8.0	0.3	0.0	7.9
Cycle Q Clear(g_c), s	3.9	0.0	0.0	3.8	0.0	3.8	8.5	0.0	8.0	8.4	0.0	7.9
Prop In Lane	0.35		0.17	0.67		1.00	1.00		0.02	1.00		0.01
Lane Grp Cap(c), veh/h	252	0	0	310	0	193	597	0	1270	593	0	1284
V/C Ratio(X)	0.09	0.00	0.00	0.42	0.00	0.58	0.04	0.00	0.45	0.02	0.00	0.44
Avail Cap(c_a), veh/h	1383	0	0	1483	0	1411	597	0	1270	593	0	1284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	0.0	24.0	0.0	23.9	6.0	0.0	4.1	6.0	0.0	4.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	2.7	0.1	0.0	1.2	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	1.6	0.0	1.5	0.1	0.0	2.1	0.1	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.7	0.0	0.0	24.9	0.0	26.7	6.1	0.0	5.2	6.0	0.0	5.2
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		23			242			592			579	
Approach Delay, s/veh		22.7			25.7			5.3			5.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	12.5	45.0	12.5
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	10.5	5.9	10.4	5.8
Green Ext Time (p_c), s	4.3	0.1	4.2	1.2

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

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

PM 2022
2: Southside Dr & Steedly Dr 07/12/2022

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	136	508	17	83	586
Future Vol, veh/h	37	136	508	17	83	586
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	4	2
Mvmt Flow	40	148	552	18	90	637

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1378	561	0	0	570	0
Stage 1	561	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.14	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.236	-
Pot Cap-1 Maneuver	157	521	-	-	993	-
Stage 1	565	-	-	-	-	-
Stage 2	429	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	143	521	-	-	993	-
Mov Cap-2 Maneuver	273	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	390	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.4	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	436	993	-
HCM Lane V/C Ratio	-	-	0.431	0.091	-
HCM Control Delay (s)	-	-	19.4	9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.1	0.3	-

PM 2022
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	30	31	608	640	9
Future Vol, veh/h	3	30	31	608	640	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	2	2	2
Mvmt Flow	3	33	34	661	696	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1430	701	706	0	-	0
Stage 1	701	-	-	-	-	-
Stage 2	729	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	142	425	856	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	463	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	136	425	856	-	-	-
Mov Cap-2 Maneuver	272	-	-	-	-	-
Stage 1	459	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.8	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	856	-	404	-	-
HCM Lane V/C Ratio	0.039	-	0.089	-	-
HCM Control Delay (s)	9.4	-	14.8	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

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PM 2024 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	6	549	226	4	22	11	679	3	19	4	19	5
Future Volume (vph)	6	549	226	4	22	11	679	3	19	4	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	1.00			0.93		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)	1770	1863	1583			1770	1862			1693		
Flt Permitted	0.95	1.00	1.00			0.30	1.00			0.83		
Satd. Flow (perm)	1770	1863	1583			558	1862			1433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	597	246	4	24	12	738	3	21	4	21	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	49	0	0
Lane Group Flow (vph)	7	597	250	0	0	36	741	0	0	2	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)	1.3	62.1	62.1			55.3	55.3			4.3		
Effective Green, g (s)	1.3	62.1	62.1			55.3	55.3			4.3		
Actuated g/C Ratio	0.01	0.51	0.51			0.46	0.46			0.04		
Clearance Time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	18	953	810			254	848			50		
v/s Ratio Prot	0.00	c0.32					c0.40					
v/s Ratio Perm			0.16			0.06				c0.00		
v/c Ratio	0.39	0.63	0.31			0.14	0.87			0.04		
Uniform Delay, d1	59.6	21.3	17.2			19.2	29.8			56.5		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	13.4	3.1	1.0			1.2	12.1			0.3		
Delay (s)	73.0	24.4	18.1			20.4	42.0			56.8		
Level of Service	E	C	B			C	D			E		
Approach Delay (s)		23.0					41.0			56.8		
Approach LOS		C					D			E		

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	121.3	Sum of lost time (s)	21.7
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

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PM 2024 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	6	51	1	9	3	317	31	3
Future Volume (vph)	6	51	1	9	3	317	31	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6				5.6	5.6	
Lane Util. Factor	1.00	1.00				1.00	1.00	
Frt	1.00	0.97				1.00	0.99	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	1816				1770	1840	
Flt Permitted	0.73	1.00				0.71	1.00	
Satd. Flow (perm)	1365	1816				1330	1840	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	55	1	10	3	345	34	3
RTOR Reduction (vph)	0	4	0	0	0	0	2	0
Lane Group Flow (vph)	7	62	0	0	0	348	35	0
Turn Type	Perm	NA			Perm	Perm	NA	
Protected Phases		8					8	
Permitted Phases	8				8	8		
Actuated Green, G (s)	38.7	38.7				38.7	38.7	
Effective Green, g (s)	38.7	38.7				38.7	38.7	
Actuated g/C Ratio	0.32	0.32				0.32	0.32	
Clearance Time (s)	5.6	5.6				5.6	5.6	
Vehicle Extension (s)	3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	435	579				424	587	
v/s Ratio Prot		0.03					0.02	
v/s Ratio Perm	0.01					c0.26		
v/c Ratio	0.02	0.11				0.82	0.06	
Uniform Delay, d1	28.3	29.1				38.1	28.7	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	0.1				12.0	0.0	
Delay (s)	28.3	29.2				50.1	28.7	
Level of Service	C	C				D	C	
Approach Delay (s)		29.1					48.1	
Approach LOS		C					D	

Intersection Summary

PM 2024 No Build
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	14	81	40	104	19	520	10	10	525	3
Future Volume (veh/h)	7	10	14	81	40	104	19	520	10	10	525	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1885	1900	1900	1900	1856	1856	1900	1870	1870
Adj Flow Rate, veh/h	8	11	15	88	43	113	21	565	11	11	571	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	1	0	0	0	3	3	0	2	2
Cap, veh/h	96	83	81	238	73	195	591	1245	24	588	1276	7
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	157	688	667	1100	608	1610	852	1814	35	850	1859	10
Grp Volume(v), veh/h	34	0	0	131	0	113	21	0	576	11	0	574
Grp Sat Flow(s),veh/h/ln	1512	0	0	1708	0	1610	852	0	1849	850	0	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.8	0.7	0.0	8.2	0.3	0.0	8.0
Cycle Q Clear(g_c), s	3.9	0.0	0.0	3.9	0.0	3.8	8.7	0.0	8.2	8.5	0.0	8.0
Prop In Lane	0.24		0.44	0.67		1.00	1.00		0.02	1.00		0.01
Lane Grp Cap(c), veh/h	260	0	0	311	0	195	591	0	1269	588	0	1282
V/C Ratio(X)	0.13	0.00	0.00	0.42	0.00	0.58	0.04	0.00	0.45	0.02	0.00	0.45
Avail Cap(c_a), veh/h	1397	0	0	1471	0	1410	591	0	1269	588	0	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	0.0	23.9	0.0	23.9	6.1	0.0	4.1	6.1	0.0	4.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	2.7	0.1	0.0	1.2	0.1	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.5	0.1	0.0	2.2	0.1	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	0.0	0.0	24.8	0.0	26.6	6.2	0.0	5.3	6.1	0.0	5.2
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		34			244			597			585	
Approach Delay, s/veh		22.9			25.7			5.3			5.2	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	12.6	45.0	12.6
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	10.7	5.9	10.5	5.9
Green Ext Time (p_c), s	4.4	0.2	4.3	1.2

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

Notes

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

PM 2024 No Build
2: Southside Dr & Steedly Dr 07/12/2022

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	137	513	17	84	592
Future Vol, veh/h	37	137	513	17	84	592
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	4	2
Mvmt Flow	40	149	558	18	91	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1392	567	0	0	576	0
Stage 1	567	-	-	-	-	-
Stage 2	825	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.14	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.236	-
Pot Cap-1 Maneuver	154	517	-	-	987	-
Stage 1	562	-	-	-	-	-
Stage 2	425	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	140	517	-	-	987	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	386	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	433	987	-
HCM Lane V/C Ratio	-	-	0.437	0.093	-
HCM Control Delay (s)	-	-	19.6	9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.2	0.3	-

PM 2024 No Build
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	30	31	614	646	9
Future Vol, veh/h	3	30	31	614	646	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	2	2	2
Mvmt Flow	3	33	34	667	702	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1442	707	712	0	-	0
Stage 1	707	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	140	422	852	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	134	422	852	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	460	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.9	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	852	-	401	-	-
HCM Lane V/C Ratio	0.04	-	0.089	-	-
HCM Control Delay (s)	9.4	-	14.9	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

PM 2024 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	6	593	226	4	22	11	737	3	19	4	19	5
Future Volume (vph)	6	593	226	4	22	11	737	3	19	4	19	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	1.00			0.93		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)	1770	1863	1583			1770	1862			1693		
Flt Permitted	0.95	1.00	1.00			0.26	1.00			0.83		
Satd. Flow (perm)	1770	1863	1583			481	1862			1433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	645	246	4	24	12	801	3	21	4	21	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	49	0	0
Lane Group Flow (vph)	7	645	250	0	0	36	804	0	0	2	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)	1.3	62.1	62.1			55.3	55.3			4.3		
Effective Green, g (s)	1.3	62.1	62.1			55.3	55.3			4.3		
Actuated g/C Ratio	0.01	0.51	0.51			0.46	0.46			0.04		
Clearance Time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	18	953	810			219	848			50		
v/s Ratio Prot	0.00	c0.35					c0.43					
v/s Ratio Perm			0.16			0.07				c0.00		
v/c Ratio	0.39	0.68	0.31			0.16	0.95			0.04		
Uniform Delay, d1	59.6	22.1	17.2			19.4	31.6			56.5		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	13.4	3.9	1.0			1.6	20.6			0.3		
Delay (s)	73.0	26.0	18.1			21.0	52.2			56.8		
Level of Service	E	C	B			C	D			E		
Approach Delay (s)		24.2					50.9			56.8		
Approach LOS		C					D			E		

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	121.3	Sum of lost time (s)	21.7
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Scenario 9 PM 2024 Build 12:26 pm 07/13/2022 Synchro 11 Report
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PM 2024 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	6	51	1	9	3	317	31	3
Future Volume (vph)	6	51	1	9	3	317	31	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6				5.6	5.6	
Lane Util. Factor	1.00	1.00				1.00	1.00	
Frt	1.00	0.97				1.00	0.99	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	1816				1770	1840	
Flt Permitted	0.73	1.00				0.71	1.00	
Satd. Flow (perm)	1365	1816				1330	1840	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	55	1	10	3	345	34	3
RTOR Reduction (vph)	0	4	0	0	0	0	2	0
Lane Group Flow (vph)	7	62	0	0	0	348	35	0
Turn Type	Perm	NA			Perm	Perm	NA	
Protected Phases		8					8	
Permitted Phases	8				8	8		
Actuated Green, G (s)	38.7	38.7				38.7	38.7	
Effective Green, g (s)	38.7	38.7				38.7	38.7	
Actuated g/C Ratio	0.32	0.32				0.32	0.32	
Clearance Time (s)	5.6	5.6				5.6	5.6	
Vehicle Extension (s)	3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	435	579				424	587	
v/s Ratio Prot		0.03					0.02	
v/s Ratio Perm	0.01					c0.26		
v/c Ratio	0.02	0.11				0.82	0.06	
Uniform Delay, d1	28.3	29.1				38.1	28.7	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	0.1				12.0	0.0	
Delay (s)	28.3	29.2				50.1	28.7	
Level of Service	C	C				D	C	
Approach Delay (s)		29.1					48.1	
Approach LOS		C					D	

Intersection Summary

PM 2024 Build
9: Southside Dr & Rochester Dr 07/13/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	10	14	81	40	104	19	578	10	10	569	3
Future Volume (veh/h)	7	10	14	81	40	104	19	578	10	10	569	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1885	1900	1900	1900	1856	1856	1900	1870	1870
Adj Flow Rate, veh/h	8	11	15	88	43	113	21	628	11	11	618	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	1	0	0	0	3	3	0	2	2
Cap, veh/h	96	83	81	238	73	195	557	1247	22	543	1276	6
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.69	0.69	0.69	0.69	0.69	0.69
Sat Flow, veh/h	157	688	667	1100	608	1610	816	1818	32	802	1860	9
Grp Volume(v), veh/h	34	0	0	131	0	113	21	0	639	11	0	621
Grp Sat Flow(s),veh/h/ln	1512	0	0	1708	0	1610	816	0	1850	802	0	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.8	0.7	0.0	9.5	0.4	0.0	9.0
Cycle Q Clear(g_c), s	3.9	0.0	0.0	3.9	0.0	3.8	9.7	0.0	9.5	9.9	0.0	9.0
Prop In Lane	0.24		0.44	0.67		1.00	1.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	260	0	0	311	0	195	557	0	1269	543	0	1282
V/C Ratio(X)	0.13	0.00	0.00	0.42	0.00	0.58	0.04	0.00	0.50	0.02	0.00	0.48
Avail Cap(c_a), veh/h	1397	0	0	1471	0	1410	557	0	1269	543	0	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	0.0	23.9	0.0	23.9	6.5	0.0	4.3	6.7	0.0	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	2.7	0.1	0.0	1.4	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.5	0.1	0.0	2.6	0.1	0.0	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.9	0.0	0.0	24.8	0.0	26.6	6.7	0.0	5.8	6.8	0.0	5.6
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		34			244			660			632	
Approach Delay, s/veh		22.9			25.7			5.8			5.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	12.6	45.0	12.6
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	11.7	5.9	11.9	5.9
Green Ext Time (p_c), s	5.0	0.2	4.7	1.2

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

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

PM 2024 Build
2: Southside Dr & Steedly Dr 07/13/2022

Intersection	
Int Delay, s/veh	3.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	137	546	28	84	636
Future Vol, veh/h	51	137	546	28	84	636
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	4	2
Mvmt Flow	55	149	593	30	91	691

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1481	608	0	0	623	0
Stage 1	608	-	-	-	-	-
Stage 2	873	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.14	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.236	-
Pot Cap-1 Maneuver	136	490	-	-	948	-
Stage 1	538	-	-	-	-	-
Stage 2	404	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	123	490	-	-	948	-
Mov Cap-2 Maneuver	252	-	-	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	390	948	-
HCM Lane V/C Ratio	-	-	0.524	0.096	-
HCM Control Delay (s)	-	-	24	9.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.9	0.3	-

PM 2024 Build
8: Southside Dr & Alger Ave/Entrance 07/13/2022

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	30	44	0	58	31	614	33	44	646	9
Future Vol, veh/h	3	0	30	44	0	58	31	614	33	44	646	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	2	10	2	2	2	10	2	2	2	2	2
Mvmt Flow	3	0	33	48	0	63	34	667	36	48	702	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1588	1574	707	1573	1561	685	712	0	0	703	0	0
Stage 1	803	803	-	753	753	-	-	-	-	-	-	-
Stage 2	785	771	-	820	808	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.52	6.3	7.12	6.52	6.22	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.018	3.39	3.518	4.018	3.318	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	83	110	422	89	112	448	852	-	-	895	-	-
Stage 1	366	396	-	402	417	-	-	-	-	-	-	-
Stage 2	374	410	-	369	394	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	66	100	422	76	102	448	852	-	-	895	-	-
Mov Cap-2 Maneuver	166	210	-	184	214	-	-	-	-	-	-	-
Stage 1	351	375	-	386	400	-	-	-	-	-	-	-
Stage 2	309	394	-	322	373	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.8	26.4	0.4	0.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	852	-	-	370	277	895	-	-
HCM Lane V/C Ratio	0.04	-	-	0.097	0.4	0.053	-	-
HCM Control Delay (s)	9.4	-	-	15.8	26.4	9.2	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.8	0.2	-	-

PM 2024 Build
15: Steedly Dr & Entrance 07/13/2022

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	101	174	9	12	14
Future Vol, veh/h	11	101	174	9	12	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	110	189	10	13	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	199	0	-	0	328	194
Stage 1	-	-	-	-	194	-
Stage 2	-	-	-	-	134	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1373	-	-	-	666	847
Stage 1	-	-	-	-	839	-
Stage 2	-	-	-	-	892	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1373	-	-	-	660	847
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	831	-
Stage 2	-	-	-	-	892	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1373	-	-	-	749
HCM Lane V/C Ratio	0.009	-	-	-	0.038
HCM Control Delay (s)	7.6	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

PM 2034 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	6	577	238	4	23	12	714	3	20	4	20	5
Future Volume (vph)	6	577	238	4	23	12	714	3	20	4	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	1.00			0.93		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)	1770	1863	1583			1770	1862			1693		
Flt Permitted	0.95	1.00	1.00			0.27	1.00			0.83		
Satd. Flow (perm)	1770	1863	1583			502	1862			1431		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	627	259	4	25	13	776	3	22	4	22	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	51	0	0
Lane Group Flow (vph)	7	627	263	0	0	38	779	0	0	2	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)	1.3	62.0	62.0			55.2	55.2			4.4		
Effective Green, g (s)	1.3	62.0	62.0			55.2	55.2			4.4		
Actuated g/C Ratio	0.01	0.51	0.51			0.45	0.45			0.04		
Clearance Time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	18	945	803			226	841			51		
v/s Ratio Prot	0.00	c0.34					c0.42					
v/s Ratio Perm			0.17			0.08				c0.00		
v/c Ratio	0.39	0.66	0.33			0.17	0.93			0.04		
Uniform Delay, d1	60.1	22.4	17.8			19.9	31.6			56.9		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	13.4	3.7	1.1			1.6	17.6			0.3		
Delay (s)	73.4	26.0	18.9			21.5	49.2			57.2		
Level of Service	E	C	B			C	D			E		
Approach Delay (s)		24.3					47.9			57.2		
Approach LOS		C					D			E		

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	21.7
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Scenario 6 PM 2034 No Build 6:24 pm 07/12/2022 Synchro 11 Report
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PM 2034 No Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/12/2022

Movement	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	6	54	1	9	3	333	33	3
Future Volume (vph)	6	54	1	9	3	333	33	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6				5.6	5.6	
Lane Util. Factor	1.00	1.00				1.00	1.00	
Frt	1.00	0.98				1.00	0.99	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	1819				1770	1841	
Flt Permitted	0.73	1.00				0.71	1.00	
Satd. Flow (perm)	1363	1819				1325	1841	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	59	1	10	3	362	36	3
RTOR Reduction (vph)	0	3	0	0	0	0	2	0
Lane Group Flow (vph)	7	67	0	0	0	365	37	0
Turn Type	Perm	NA			Perm	Perm	NA	
Protected Phases		8					8	
Permitted Phases	8				8	8		
Actuated Green, G (s)	39.6	39.6				39.6	39.6	
Effective Green, g (s)	39.6	39.6				39.6	39.6	
Actuated g/C Ratio	0.32	0.32				0.32	0.32	
Clearance Time (s)	5.6	5.6				5.6	5.6	
Vehicle Extension (s)	3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	441	589				429	596	
v/s Ratio Prot		0.04					0.02	
v/s Ratio Perm	0.01					c0.28		
v/c Ratio	0.02	0.11				0.85	0.06	
Uniform Delay, d1	28.1	29.0				38.5	28.5	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	0.1				14.9	0.0	
Delay (s)	28.1	29.1				53.4	28.5	
Level of Service	C	C				D	C	
Approach Delay (s)		29.0					51.0	
Approach LOS		C					D	

Intersection Summary

PM 2034 No Build
9: Southside Dr & Rochester Dr 07/12/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	11	15	85	42	109	20	547	11	11	552	3
Future Volume (veh/h)	7	11	15	85	42	109	20	547	11	11	552	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1885	1900	1900	1900	1856	1856	1900	1870	1870
Adj Flow Rate, veh/h	8	12	16	92	46	118	22	595	12	12	600	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	1	0	0	0	3	3	0	2	2
Cap, veh/h	94	88	85	241	78	203	564	1236	25	560	1268	6
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	146	699	676	1086	614	1610	829	1812	37	826	1859	9
Grp Volume(v), veh/h	36	0	0	138	0	118	22	0	607	12	0	603
Grp Sat Flow(s),veh/h/ln	1520	0	0	1700	0	1610	829	0	1849	826	0	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.0	0.7	0.0	9.0	0.4	0.0	8.8
Cycle Q Clear(g_c), s	4.2	0.0	0.0	4.1	0.0	4.0	9.5	0.0	9.0	9.4	0.0	8.8
Prop In Lane	0.22		0.44	0.67		1.00	1.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	268	0	0	318	0	203	564	0	1261	560	0	1275
V/C Ratio(X)	0.13	0.00	0.00	0.43	0.00	0.58	0.04	0.00	0.48	0.02	0.00	0.47
Avail Cap(c_a), veh/h	1393	0	0	1462	0	1401	564	0	1261	560	0	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	0.0	23.9	0.0	23.9	6.6	0.0	4.4	6.6	0.0	4.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	2.6	0.1	0.0	1.3	0.1	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.6	0.1	0.0	2.5	0.1	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	0.0	0.0	24.8	0.0	26.5	6.7	0.0	5.7	6.7	0.0	5.6
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		36			256			629			615	
Approach Delay, s/veh		22.8			25.6			5.7			5.6	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	45.0	12.9	45.0	12.9
Change Period (Y+Rc), s	* 5.5	5.6	* 5.5	5.6
Max Green Setting (Gmax), s	* 40	50.4	* 40	50.4
Max Q Clear Time (g_c+I1), s	11.5	6.2	11.4	6.1
Green Ext Time (p_c), s	4.7	0.2	4.5	1.2

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

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

PM 2034 No Build
2: Southside Dr & Steedly Dr 07/12/2022

Intersection	
Int Delay, s/veh	3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	39	144	539	18	88	622
Future Vol, veh/h	39	144	539	18	88	622
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	4	2
Mvmt Flow	42	157	586	20	96	676

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1464	596	0	0	606	0
Stage 1	596	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.14	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.236	-
Pot Cap-1 Maneuver	139	498	-	-	962	-
Stage 1	545	-	-	-	-	-
Stage 2	406	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	125	498	-	-	962	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	545	-	-	-	-	-
Stage 2	365	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.6	0	1.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	413	962	-
HCM Lane V/C Ratio	-	-	0.482	0.099	-
HCM Control Delay (s)	-	-	21.6	9.2	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	2.5	0.3	-

PM 2034 No Build
8: Southside Dr & Alger Ave 07/12/2022

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	32	33	645	679	9
Future Vol, veh/h	3	32	33	645	679	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	75	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	10	10	10	2	2	2
Mvmt Flow	3	35	36	701	738	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1516	743	748	0	-	0
Stage 1	743	-	-	-	-	-
Stage 2	773	-	-	-	-	-
Critical Hdwy	6.5	6.3	4.2	-	-	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.59	3.39	2.29	-	-	-
Pot Cap-1 Maneuver	126	402	825	-	-	-
Stage 1	456	-	-	-	-	-
Stage 2	442	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	120	402	825	-	-	-
Mov Cap-2 Maneuver	255	-	-	-	-	-
Stage 1	436	-	-	-	-	-
Stage 2	442	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	825	-	383	-	-
HCM Lane V/C Ratio	0.043	-	0.099	-	-
HCM Control Delay (s)	9.6	-	15.4	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

PM 2034 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR	NWL2	NWL	NWR	NWR2
Lane Configurations												
Traffic Volume (vph)	6	621	238	4	23	12	772	3	20	4	20	5
Future Volume (vph)	6	621	238	4	23	12	772	3	20	4	20	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Lane Util. Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Frt	1.00	1.00	0.85			1.00	1.00			0.93		
Flt Protected	0.95	1.00	1.00			0.95	1.00			0.98		
Satd. Flow (prot)	1770	1863	1583			1770	1862			1693		
Flt Permitted	0.95	1.00	1.00			0.23	1.00			0.83		
Satd. Flow (perm)	1770	1863	1583			425	1862			1431		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	675	259	4	25	13	839	3	22	4	22	5
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	51	0	0
Lane Group Flow (vph)	7	675	263	0	0	38	842	0	0	2	0	0
Turn Type	Prot	NA	Perm		Prot	Perm	NA		Perm	Prot		
Protected Phases	5	2			1		6			7		
Permitted Phases			2			6			7			
Actuated Green, G (s)	1.3	62.0	62.0			55.2	55.2			4.4		
Effective Green, g (s)	1.3	62.0	62.0			55.2	55.2			4.4		
Actuated g/C Ratio	0.01	0.51	0.51			0.45	0.45			0.04		
Clearance Time (s)	5.5	5.0	5.0			5.0	5.0			5.6		
Vehicle Extension (s)	3.0	3.0	3.0			3.0	3.0			3.0		
Lane Grp Cap (vph)	18	945	803			191	841			51		
v/s Ratio Prot	0.00	c0.36					c0.45					
v/s Ratio Perm			0.17			0.09				c0.00		
v/c Ratio	0.39	0.71	0.33			0.20	1.00			0.04		
Uniform Delay, d1	60.1	23.3	17.8			20.2	33.5			56.9		
Progression Factor	1.00	1.00	1.00			1.00	1.00			1.00		
Incremental Delay, d2	13.4	4.6	1.1			2.3	31.3			0.3		
Delay (s)	73.4	27.9	18.9			22.5	64.8			57.2		
Level of Service	E	C	B			C	E			E		
Approach Delay (s)		25.7					63.0			57.2		
Approach LOS		C					E			E		

Intersection Summary			
HCM 2000 Control Delay	44.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	21.7
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

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PM 2034 Build
1: Thalia Ave/Strawberry Ln & Southside Dr & Roberts Ave 07/13/2022

Movement	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	6	54	1	9	3	333	33	3
Future Volume (vph)	6	54	1	9	3	333	33	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.6	5.6				5.6	5.6	
Lane Util. Factor	1.00	1.00				1.00	1.00	
Frt	1.00	0.98				1.00	0.99	
Flt Protected	0.95	1.00				0.95	1.00	
Satd. Flow (prot)	1770	1819				1770	1841	
Flt Permitted	0.73	1.00				0.71	1.00	
Satd. Flow (perm)	1363	1819				1325	1841	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	59	1	10	3	362	36	3
RTOR Reduction (vph)	0	3	0	0	0	0	2	0
Lane Group Flow (vph)	7	67	0	0	0	365	37	0
Turn Type	Perm	NA			Perm	Perm	NA	
Protected Phases		8					8	
Permitted Phases	8				8	8		
Actuated Green, G (s)	39.6	39.6				39.6	39.6	
Effective Green, g (s)	39.6	39.6				39.6	39.6	
Actuated g/C Ratio	0.32	0.32				0.32	0.32	
Clearance Time (s)	5.6	5.6				5.6	5.6	
Vehicle Extension (s)	3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	441	589				429	596	
v/s Ratio Prot		0.04					0.02	
v/s Ratio Perm	0.01					c0.28		
v/c Ratio	0.02	0.11				0.85	0.06	
Uniform Delay, d1	28.1	29.0				38.5	28.5	
Progression Factor	1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.0	0.1				14.9	0.0	
Delay (s)	28.1	29.1				53.4	28.5	
Level of Service	C	C				D	C	
Approach Delay (s)		29.0					51.0	
Approach LOS		C					D	

Intersection Summary

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PM 2034 Build
9: Southside Dr & Rochester Dr 07/13/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	11	15	85	42	109	20	605	11	11	596	3
Future Volume (veh/h)	7	11	15	85	42	109	20	605	11	11	596	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1885	1900	1900	1900	1856	1856	1900	1870	1870
Adj Flow Rate, veh/h	8	12	16	92	46	118	22	658	12	12	648	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	6	6	6	1	0	0	0	3	3	0	2	2
Cap, veh/h	94	88	85	241	78	203	531	1239	23	515	1269	6
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.68	0.68	0.68	0.68	0.68	0.68
Sat Flow, veh/h	146	699	676	1086	614	1610	793	1816	33	779	1860	9
Grp Volume(v), veh/h	36	0	0	138	0	118	22	0	670	12	0	651
Grp Sat Flow(s),veh/h/ln	1520	0	0	1700	0	1610	793	0	1850	779	0	1869
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	4.0	0.8	0.0	10.5	0.5	0.0	9.8
Cycle Q Clear(g_c), s	4.2	0.0	0.0	4.1	0.0	4.0	10.6	0.0	10.5	10.9	0.0	9.8
Prop In Lane	0.22		0.44	0.67		1.00	1.00		0.02	1.00		0.00
Lane Grp Cap(c), veh/h	268	0	0	318	0	203	531	0	1262	515	0	1275
V/C Ratio(X)	0.13	0.00	0.00	0.43	0.00	0.58	0.04	0.00	0.53	0.02	0.00	0.51
Avail Cap(c_a), veh/h	1393	0	0	1462	0	1401	531	0	1262	515	0	1275
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	0.0	0.0	23.9	0.0	23.9	7.1	0.0	4.6	7.3	0.0	4.5
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.9	0.0	2.6	0.1	0.0	1.6	0.1	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	1.7	0.0	1.6	0.1	0.0	2.9	0.1	0.0	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	0.0	0.0	24.8	0.0	26.5	7.2	0.0	6.2	7.4	0.0	6.0
LnGrp LOS	C	A	A	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		36			256			692			663	
Approach Delay, s/veh		22.8			25.6			6.2			6.0	
Approach LOS		C			C			A			A	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		12.9		45.0		12.9				
Change Period (Y+Rc), s		* 5.5		5.6		* 5.5		5.6				
Max Green Setting (Gmax), s		* 40		50.4		* 40		50.4				
Max Q Clear Time (g_c+I1), s		12.6		6.2		12.9		6.1				
Green Ext Time (p_c), s		5.3		0.2		5.0		1.2				

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

Notes

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

PM 2034 Build
2: Southside Dr & Steedly Dr 07/13/2022

Intersection	
Int Delay, s/veh	4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	144	572	29	88	666
Future Vol, veh/h	53	144	572	29	88	666
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	75	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	2	2	4	2
Mvmt Flow	58	157	622	32	96	724

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1554	638	0	0	654	0
Stage 1	638	-	-	-	-	-
Stage 2	916	-	-	-	-	-
Critical Hdwy	6.45	6.25	-	-	4.14	-
Critical Hdwy Stg 1	5.45	-	-	-	-	-
Critical Hdwy Stg 2	5.45	-	-	-	-	-
Follow-up Hdwy	3.545	3.345	-	-	2.236	-
Pot Cap-1 Maneuver	123	471	-	-	923	-
Stage 1	521	-	-	-	-	-
Stage 2	385	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	110	471	-	-	923	-
Mov Cap-2 Maneuver	237	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	345	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27	0	1.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	372	923	-
HCM Lane V/C Ratio	-	-	0.576	0.104	-
HCM Control Delay (s)	-	-	27	9.4	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	3.5	0.3	-

PM 2034 Build
8: Southside Dr & Alger Ave/Entrance 07/13/2022

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	0	32	44	0	58	33	645	33	44	679	9
Future Vol, veh/h	3	0	32	44	0	58	33	645	33	44	679	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	10	2	10	2	2	2	10	2	2	2	2	2
Mvmt Flow	3	0	35	48	0	63	36	701	36	48	738	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1662	1648	743	1648	1635	719	748	0	0	737	0	0
Stage 1	839	839	-	791	791	-	-	-	-	-	-	-
Stage 2	823	809	-	857	844	-	-	-	-	-	-	-
Critical Hdwy	7.2	6.52	6.3	7.12	6.52	6.22	4.2	-	-	4.12	-	-
Critical Hdwy Stg 1	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.2	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.59	4.018	3.39	3.518	4.018	3.318	2.29	-	-	2.218	-	-
Pot Cap-1 Maneuver	74	99	402	79	101	428	825	-	-	869	-	-
Stage 1	349	381	-	383	401	-	-	-	-	-	-	-
Stage 2	356	394	-	352	379	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	58	89	402	67	91	428	825	-	-	869	-	-
Mov Cap-2 Maneuver	154	197	-	171	201	-	-	-	-	-	-	-
Stage 1	334	360	-	366	383	-	-	-	-	-	-	-
Stage 2	290	377	-	304	358	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	28.8	0.4	0.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	825	-	-	353	260	869	-	-
HCM Lane V/C Ratio	0.043	-	-	0.108	0.426	0.055	-	-
HCM Control Delay (s)	9.6	-	-	16.4	28.8	9.4	-	-
HCM Lane LOS	A	-	-	C	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	2	0.2	-	-

PM 2034 Build
15: Steedly Dr & Entrance 07/13/2022

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	106	183	9	12	14
Future Vol, veh/h	11	106	183	9	12	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	115	199	10	13	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	209	0	-	0	343	204
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	139	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1362	-	-	-	653	837
Stage 1	-	-	-	-	830	-
Stage 2	-	-	-	-	888	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1362	-	-	-	647	837
Mov Cap-2 Maneuver	-	-	-	-	647	-
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	888	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1362	-	-	-	737
HCM Lane V/C Ratio	0.009	-	-	-	0.038
HCM Control Delay (s)	7.7	0	-	-	10.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1