LSC TRANSPORTATION CONSULTANTS, INC.

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May 24, 2022

Mr. Jake Rohe
PMB, LLC
3394 Carmel Mountain Road
San Diego, CA 92121

Re: STC Life Science
Traffic Impact Analysis
Superior, CO
LSC #220390

Dear Mr. Rohe:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed STC Life Science development to address Town comments. As shown on Figure 1, the site is located east of McCaslin Boulevard within the Downtown Superior (DTS) development in Superior, Colorado.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site from 2019 including the lane geometries, traffic controls, posted speed limits, etc.; the existing weekday peak-hour traffic volumes; the existing daily traffic volumes in the area; the typical weekday site-generated traffic volume projections for the site; the assignment of the projected traffic volumes to the area roadways; the projected long-term background and resulting total traffic volumes on the area roadways; the site's projected traffic impacts; and any recommended roadway improvements to mitigate the site's traffic impacts.

LAND USE AND ACCESS

The site is proposed to include about 11,843 square feet of retail space and about 359,887 square feet of research and development space. Access will be available to McCaslin Boulevard via the Downtown Superior (DTS) road network and a connection will be made to the southeast to 88th Street. Figure 2 shows the proposed site plan.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

The major roadways in the site's vicinity are shown on Figure 1 and are described below.

- **88th Street** is a north-south, two-lane arterial roadway east of the site. It connects north across US 36 to Louisville and south to Rock Creek Parkway and has a posted speed limit of 35 mph. The Town of Superior Board previously approved a connection from DTS to 88th Street via Promenade Boulevard in lieu of connecting from DTS south to Coal Creek Drive. It is planned to be widened to a three-lane section with bike lanes in the future.

- **McCaslin Boulevard** is a north-south, four-lane arterial roadway west of the site and expands to six lanes approaching Marshall Road. It connects north to US 36 and south to SH 128, providing regional connectivity for the area. The intersection with Marshall Road is signalized, the intersection with Main Street is two-lane roundabout-controlled, and the intersection with Discovery Parkway is unsignalized and three-quarter movement. The posted speed limit in the vicinity of Main Street is 30 mph.

- **Marshall Road** is an east-west, two-lane roadway north of the site. The intersection with McCaslin Boulevard is signalized. Marshall Road is connected south across Coal Creek Drive to the balance of Downtown Superior.

- **Main Street** is an east-west, two-lane roadway passing through the site. The intersection with McCaslin Boulevard is two-lane roundabout controlled. The posted speed limit east of McCaslin Boulevard is 25 mph.

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, and traffic volumes in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and average daily traffic volumes are from the attached traffic counts conducted by Idax in April, 2019 and by Counter Measures in August, 2019.

2040 Background Traffic

Figure 4 shows the estimated 2040 background traffic volumes based on an annual rate of about two percent for McCaslin Boulevard and one percent for 88th Street and Marshall Road. It also assumes buildout of the balance of Downtown Superior and of the Rogers Farm property west of McCaslin Boulevard.

EXISTING AND 2040 BACKGROUND LEVELS OF SERVICE

Level of service (LOS) is a quantitative measure of the level of congestion or delay at an intersection. Level of service is indicated on a scale from "A" to "F." LOS A is indicative of little congestion or delay and LOS F is indicative of a high level of congestion or delay. Attached are specific level of service definitions for signalized and unsignalized intersections.

The intersections in the study area were analyzed to determine the existing and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **McCaslin Boulevard/Marshall Road:** This signalized intersection currently operates at an overall LOS "C" during both morning and afternoon peak-hours. In 2040, the morning

peak-hour is expected to operate at LOS "C" and the afternoon peak-hour is expected to operate at LOS "D" based on the existing lane geometry and traffic control.

2. **Marshall Road/Site Access:** This unsignalized intersection was analyzed only in the total traffic scenario.

3. **McCaslin Boulevard/Main Street:** This roundabout controlled intersection currently operates at an overall LOS "A" during both morning and afternoon peak-hours. In 2040, the morning peak-hour is expected to operate at LOS "A" and the afternoon peak-hour is expected to operate at LOS "B".

4. **Main Street/Site Access:** This roundabout-controlled intersection was analyzed only in the total traffic scenario.

5. **Main Street/Marshall Road:** All movements at this unsignalized intersection are expected to operate at LOS "C" or better through 2040.

6. **88th Street/Promenade:** This traffic signal controlled intersection is expected to operate at an overall LOS "A" during both morning and afternoon peak-hours through 2040.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed land uses within the STC Life Science site based on the rates from *Trip Generation*, 11th Edition, 2021 by the Institute of Transportation Engineers (ITE).

The proposed STC Life Science site is projected to generate about 3,937 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, which generally occurs for one hour between 6:30 and 8:30 a.m., about 273 vehicles would enter and about 64 vehicles would exit the Downtown Superior area. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 81 vehicles would enter and about 286 vehicles would exit the Downtown Superior area. These estimates assume reductions for alternative travel modes and internal trips. The assumptions are lower than assumed in the Master TIA to maintain a conservative analysis.

Table 3 shows the updated trip generation potential for the overall DTS site based on the rates from *Trip Generation*, 11th Edition, 2021 by ITE.

ALTERNATIVE TRAVEL MODES

Table 1 assumes lower alternative travel mode and internal trip reductions than assumed in the prior studies to maintain a conservative analysis. Table 1 assumes 5% for alternative travel modes and 10% for internal trips compared to the 10% and 15% reductions assumed previously in the Master TIA.

TRIP DISTRIBUTION

Figure 5 shows the estimated directional distribution for the site. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the proposed land uses.

TRIP ASSIGNMENT

Figure 6 shows the assignment of the STC Life Science site-generated trips based on the directional distribution percentages (from Figure 5) and the STC Life Science trip generation estimate (from Table 1).

2040 TOTAL TRAFFIC

Figure 7 shows the 2040 total traffic which is the sum of the 2040 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 6). Figure 7 also shows the recommended 2040 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figure 7 were analyzed to determine the 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

1. **McCaslin Boulevard/Marshall Road:** This signalized intersection is expected to operate at an overall LOS "C" during both morning and afternoon peak-hours by 2040. These results assume the addition of a dedicated eastbound through lane as shown in Figures 4 and 7. The Town has plans to eventually construct this lane when warranted.

2. **Marshall Road/Site Access:** All movements at this stop-sign controlled intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040.

3. **McCaslin Boulevard/Main Street:** This roundabout controlled intersection is expected to operate at an overall LOS "B" or better during both morning and afternoon peak-hours through 2040.

4. **Main Street/Site Access:** This roundabout controlled intersection is expected to operate at an overall LOS "A" during both morning and afternoon peak-hours through 2040.

5. **Main Street/Marshall Road:** All movements at this stop-sign controlled intersection are expected to operate at LOS "D" or better through 2040.

6. **88th Street/Promenade:** This traffic signal controlled intersection is expected to operate at an overall LOS "A" during the morning peak-hour and LOS "B" during the afternoon peak-hour through 2040.

95TH PERCENTILE QUEUE LENGTHS

Table 4 shows the projected 2040 95th percentile queue lengths for the intersections analyzed.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The proposed STC Life Science is projected to generate about 3,937 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 273 vehicles would enter and about 64 vehicles would exit. During the afternoon peak-hour, about 81 vehicles would enter and about 286 vehicles would exit the Downtown Superior area. These estimates assume reductions for alternative travel modes and internal trips.

Projected Levels of Service

2. All movements at the intersections analyzed are expected to operate at acceptable levels of service during both morning and afternoon peak-hours through 2040 with the planned or recommended improvements.

Conclusions

3. The impact of the STC Life Science site can be accommodated by the existing and proposed roadway network with the following recommended improvements.

Recommendations

4. A future connection should be made from DTS southeast to 88th Street via Promenade Boulevard prior to buildout of the overall DTS. The intersection of Promenade with 88th Street is planned to have traffic signal control when warranted.

5. The Town should provide a dedicated eastbound through lane on Marshall Road approaching McCaslin Boulevard when conditions warrant.

* * * * *

We trust our findings will assist you in gaining approval of the proposed STC Life Science site. Please contact me if you have any questions or need further assistance.

Respectfully submitted,

LSC TRANSPORTATION CONSULTANTS, INC.

By: _____
Christopher S. McGranahan, P.E., PTOE
Principal

CSM/wc

5-24-22

Enclosure: Tables 1 - 4
Figures 1 - 7
Appendix Table 1
Traffic Counts
Level of Service Definitions
Capacity Analysis Reports

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Table 1
Intersection Levels of Service Analysis
STC Life Science
Superior, CO
LSC #220390; May, 2022

Intersection No. & Location	Traffic Control	Existing Traffic Level of Service AM	Existing Traffic Level of Service PM	2040 Background Traffic Level of Service AM	2040 Background Traffic Level of Service PM	2040 Total Traffic Level of Service AM	2040 Total Traffic Level of Service PM
1) McCaslin Blvd./Marshall Road	Signalized						
EB Left		D	D	D	E	D	D
EB Through		E	D	D	E	D	D
EB Right		A	A	A	C	A	C
WB Left		E	E	E	E	C	C
WB Through		D	D	D	D	D	D
WB Right		A	A	B	B	B	C
NB Left		D	D	D	E	D	E
NB Through		B	C	C	C	B	C
NB Right		A	A	A	A	A	A
SB Left		E	E	D	D	D	D
SB Through		B	C	C	D	B	C
SB Right		A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		24.7	30.3	27.5	38.7	26.5	34.3
Entire Intersection LOS		C	C	C	D	C	C
2) Marshall Road/Site Access	TWSC						
NB Approach		--	--	--	--	A	A
EB Approach		--	--	--	--	A	B
Critical Movement Delay		--	--	--	--	9.5	10.0
3) McCaslin Blvd./Main Street	Roundabout						
EB Approach		A	A	A	C	A	C
WB Approach		A	A	A	A	A	A
NB Approach		A	A	B	A	C	B
SB Approach		A	A	A	C	A	C
Entire Intersection Delay (sec /veh)		6.1	6.6	8.9	12.3	12.1	14.3
Entire Intersection LOS		A	A	A	B	B	B
4) Main Street/Site Access	Roundabout						
EB Approach		--	--	--	--	A	A
WB Approach		--	--	--	--	A	A
NB Approach		--	--	--	--	A	A
SB Approach		--	--	--	--	A	A
Entire Intersection Delay (sec /veh)		--	--	--	--	6.2	7.1
Entire Intersection LOS		--	--	--	--	A	A
5) Main Street/Marshall Road	TWSC						
NB Approach		--	--	B	C	C	C
EB Approach		--	--	A	A	A	A
WB Approach		--	--	A	A	A	A
SB Approach		--	--	C	C	C	D
Critical Movement Delay		--	--	15.6	21.6	18.4	31.1
6) 88th Street/Promenade	Signalized						
EB Left		--	--	C	C	C	C
EB Right		--	--	A	B	A	A
NB Left		--	--	A	A	A	A
NB Through		--	--	A	A	A	A
SB Through/Right		--	--	A	B	A	B
Entire Intersection Delay (sec /veh)		--	--	7.1	9.0	7.3	10.1
Entire Intersection LOS		--	--	A	A	A	B

Table 2
ESTIMATED TRAFFIC GENERATION
STC Life Science
Superior, CO
LSC #220390; May, 2022

		Trip Generation Rates [1]					Vehicle-Trips Generated					Alternative	Internal	Net External Trips				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour		Mode Trip	Trip	Average	AM Peak-Hour		PM Peak-Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out	Reduction [5]	Reduction [5]	Weekday	In	Out	In	Out
Block 2																		
Retail [2]	11.843 KSF [3]	54.45	1.416	0.944	3.295	3.295	645	17	11	39	39	5%	10%	548	15	9	33	33
Research & Development [4]	275.198 KSF [3]	11.08	0.845	0.185	0.157	0.823	3,049	232	51	43	227	5%	10%	2,592	197	43	37	193
				Sub-Total Block 2 =			*3,694*	*249*	*62*	*82*	*266*			*3,140*	*212*	*52*	*70*	*226*
Block 8																		
Research & Development [4]	84.689 KSF [3]	11.08	0.845	0.185	0.157	0.823	938	72	16	13	70	5%	10%	797	61	11	11	60
				STC Life Science Total =			**4,632**	**321**	**78**	**95**	**336**			**3,937**	**273**	**64**	**81**	**286**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
(2) ITE Land Use No. 822 - Strip Retail Plaza (<40k)
(3) KSF = 1,000 square feet
(4) ITE Land Use No. 760 - Research & Development Center
(5) Based on the *Superior Town Center Transportation Analysis* by Fehr & Peers, August, 2012 with minor edits based on coordination with Town of Superior. The study assumed 10% alternative travel modes and 15% internal trips - these percentages were reduced to maintain a conservative analysis.

Table 3
ESTIMATED TRAFFIC GENERATION
Downtown Superior (DTS) - Entire Site
Superior, CO
LSC #220390; May, 2022

Trip Generating Category	Quantity	Trip Generation Rates [1] Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Vehicle-Trips Generated Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Alternative Mode Trip Reduction [13]	Internal Trip Reduction [13]	Net External Trips Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out
Block 1 (DTS)																		
Coffee Shop w/ Drive-Through [2]	2.20 KSF [3]	--	--	--	--	--	1,800	113	109	48	48	15%	15%	1,260	79	77	34	34
High-Turnover Restaurant [2]	1.80 KSF [3]	--	--	--	--	--	228	11	9	11	7	15%	15%	160	7	7	7	5
Specialty Retail [2]	3.50 KSF [3]	--	--	--	--	--	156	0	0	4	6	15%	15%	110	0	0	2	4
Hotel [4]	242 Rooms	7.99	0.258	0.248	0.301	0.289	1,934	62	60	73	70	10%	20%	1,354	44	42	51	49
				Sub-Total Block 1 =			*4,118*	*186*	*178*	*136*	*131*			*2,884*	*130*	*126*	*94*	*92*
Blocks 2, 5, & 8																		
(see Table 1 for Details)				*STC Life Science Total =*			*4,632*	*321*	*78*	*95*	*336*			*3,937*	*273*	*63*	*81*	*286*
Block 3																		
Intentionally Left Blank																		
Blocks 4, 6, 7, 9, 10, 11 (Morgan Ranch DTS)																		
(see Appendix Table 1 for Details)				*Morgan Ranch DTS Total =*			*8,865*	*287*	*319*	*463*	*338*			*6,501*	*210*	*232*	*338*	*249*
				Total =			**0**	**1**	**0**	**0**	**0**							
Block 12																		
Medical Office Building [5]	62 KSF [3]	36.00	2.449	0.651	1.179	2.751	2,232	152	40	73	171	15%	15%	1,562	106	27	51	119
Sport Stable [6]	142 KSF [3]	13.3	0.063	0.107	0.732	0.599	1,889	9	15	104	85	10%	10%	1,511	7	12	83	68
				Sub-Total Block 12 =			*4,121*	*160*	*56*	*177*	*255*			*3,073*	*113*	*39*	*134*	*187*
Block 13																		
Single-Family Homes [7]	14 DU [8]	9.43	0.182	0.518	0.592	0.348	132	3	7	8	5	10%	20%	91	3	6	7	2
Townhomes [9]	78 DU [8]	6.74	0.096	0.304	0.321	0.189	526	7	24	25	15	10%	20%	368	4	17	18	10
				Sub-Total Block 13 =			*658*	*10*	*32*	*34*	*20*			*459*	*7*	*23*	*25*	*12*
Block 14																		
Townhomes [9]	26 DU [8]	6.74	0.096	0.304	0.321	0.189	175	2	8	8	5	10%	20%	123	2	6	6	2
Block 15																		
Townhomes [9]	28 DU [8]	6.74	0.096	0.304	0.321	0.189	189	3	9	9	5	10%	20%	131	2	6	6	4
Blocks 16, 17, 18, 19, 20, & 24 (Toll Brothers)																		
Single-Family Homes [7]	101 DU [8]	9.43	0.182	0.518	0.592	0.348	952	18	52	60	35	10%	20%	667	13	37	42	25
Townhomes [9]	189 DU [8]	6.74	0.096	0.304	0.321	0.189	1,274	18	57	61	35	10%	20%	892	13	40	43	23
				Sub-Total Blocks 16, 17, 18, 19, 20, 24 =			*2,225*	*37*	*110*	*121*	*70*			*1,559*	*26*	*77*	*85*	*48*
Blocks 21 - 23																		
Intentionally Left Blank																		
Block 25																		
Single-Family Homes [7]	18 DU [8]	9.43	0.182	0.518	0.592	0.348	170	3	9	11	6	10%	20%	119	2	7	7	4
Townhomes [9]	82 DU [8]	6.74	0.096	0.304	0.321	0.189	553	8	25	26	15	10%	20%	387	6	17	18	11
				Sub-Total Block 25 =			*722*	*11*	*34*	*37*	*22*			*506*	*8*	*24*	*25*	*15*
Block 26																		
Single-Family Homes [7]	54 DU [8]	9.43	0.182	0.518	0.592	0.348	509	10	28	32	19	10%	20%	356	7	20	22	13
Townhomes [9]	19 DU [8]	6.74	0.096	0.304	0.321	0.189	128	2	6	6	4	10%	20%	90	2	4	4	3
				Sub-Total Block 25 =			*637*	*12*	*34*	*38*	*22*			*446*	*9*	*24*	*26*	*16*
				Total =			**26,342**	**1,029**	**858**	**1,118**	**1,204**			**19,619**	**780**	**620**	**820**	**911**
ADDITIONAL LAND USES IN STUDY AREA																		
Tract A1 (Tesla)																		
EV Service & Sales Center [10]	22 KSF [3]	-	-	-	-	-	250	42	10	10	42	10%	20%	175	30	7	7	30
Discovery Office/Residential Area																		
Discovery Ridge Residential (Duplex) [11]	20 DU [8]	7.20	0.149	0.331	0.325	0.245	189	4	11	12	7	10%	20%	132	3	8	8	5
Discovery Office Park [12]	65 KSF [3]	10.84	1.338	0.182	0.245	1.195	633	65	11	12	63	15%	5%	506	52	9	10	50
					Discovery Total =		*822*	*69*	*22*	*24*	*70*			*638*	*55*	*17*	*18*	*55*
					Total Additional Land Uses =		**1,072**	**111**	**32**	**34**	**112**			**813**	**85**	**24**	**25**	**85**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
(2) Based on the Superior Retail Analysis by SWTE, January, 2016
(3) KSF = 1,000 square feet
(4) ITE Land Use No. 310 - Hotel
(5) ITE Land Use #720 - Medical-Dental Office Building
(6) ITE Land Use #465 - Ice Skating Rink - daily rate based on ten times the afternoon peak hour rate
(7) ITE Land Use No. 210 - Single-Family Detached Housing
(8) DU = Dwelling Units
(9) ITE Land Use No. 220 - Multifamily Housing (Low-Rise)
(10) Based on the Superior EV Center Analysis by LSC Transportation Consultants, March, 2018
(11) ITE Land Use No. 215 - Single-Family Attached Housing
(12) ITE Land Use #710 - General Office Building
(13) Based on the *Superior Town Center Transportation Analysis* by Fehr & Peers, August, 2012 with minor edits based on coordination with the Town of Superior.

Table 4
95th Percentile Queue Lengths
STC Life Science
Superior, CO
LSC #220390; May, 2022

Intersection No. & Location	Existing Lane Lengths (feet)	Proposed Lane Lengths [1] (feet)	95th Percentile Queue Lengths 2040 Total AM Peak (feet)	95th Percentile Queue Lengths 2040 Total PM Peak (feet)
1) McCaslin Blvd./Marshall Road				
EB Left	400		154	336
EB Through	--		51	80
EB Right	320	250	0	241
WB Left	165		56	92
WB Through	--		54	79
WB Right	165		65	109
NB Left	185		168	137
NB Through	--		311	269
NB Right	120		23	0
SB Left	235		123	139
SB Through	--		224	585
SB Right	200		0	0
2) Marshall Road/Site Access				
NB Approach	--	--	<25	<25
EB Approach	--	--	<25	<25
3) McCaslin Blvd./Main Street				
EB Approach	--	--	50	75
WB Approach	--	--	25	50
NB Approach	--	--	<25	25
SB Approach	--	--	<25	25
4) Main Street/Site Access				
EB Approach	--	--	<25	<25
WB Approach	--	--	25	65
NB Approach	--	--	225	265
SB Approach	--	--	50	485
5) Main Street/Marshall Road				
NB Approach	--	--	<25	<25
EB Approach	--	--	<25	<25
WB Approach	--	--	<25	<25
SB Approach	--	--	<25	80
6) 88th Street/Promenade				
EB Left	--	--	59	56
EB Right	--	--	22	27
NB Left	--	--	16	14
NB Through	--	--	116	86
SB Through/Right	--	--	105	384

(1) The existing right-turn lane is expected to be repurposed as a through lane so the 250 feet dimension refers to the new right-turn lane that will be needed when this occurs.

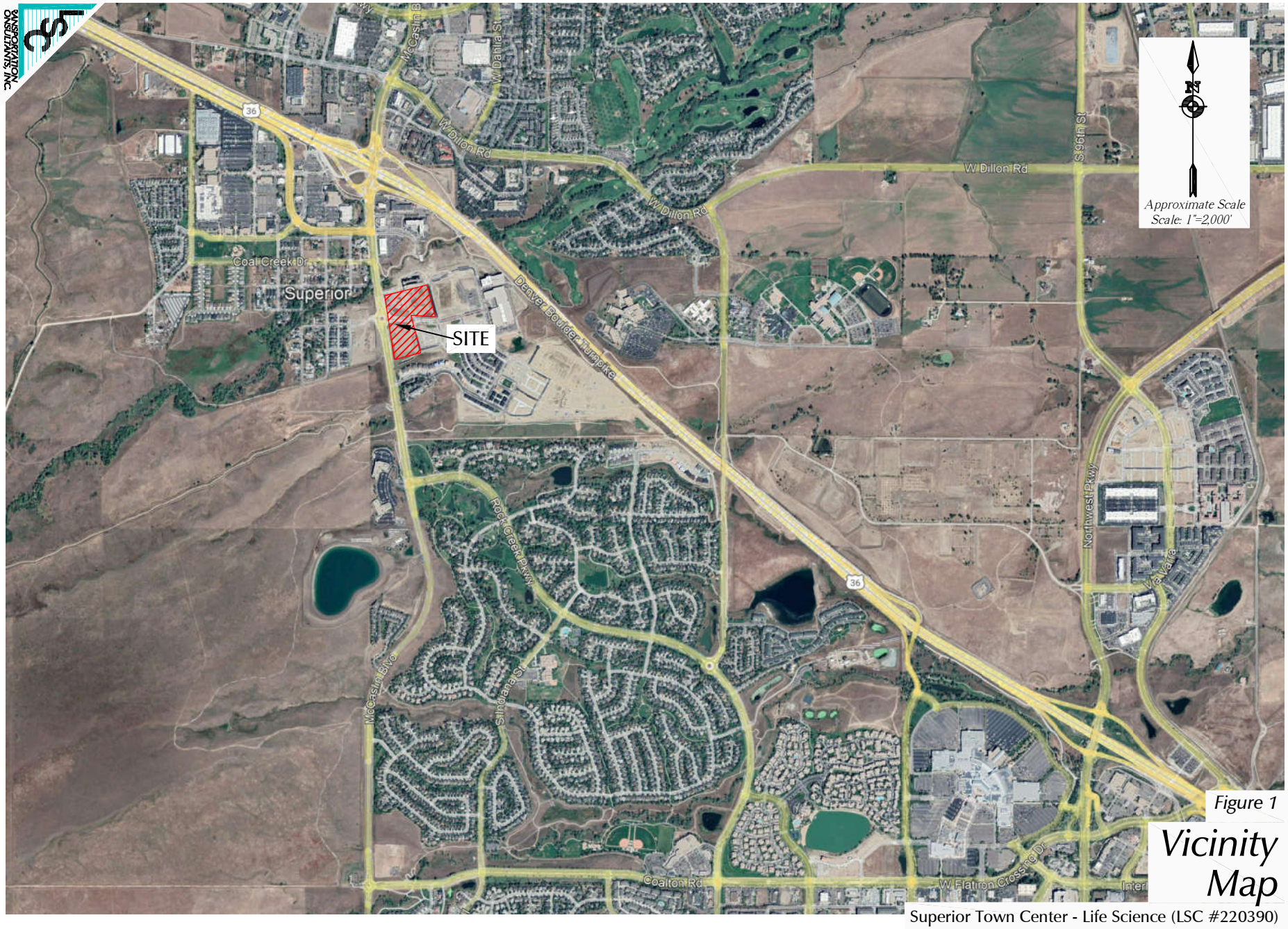
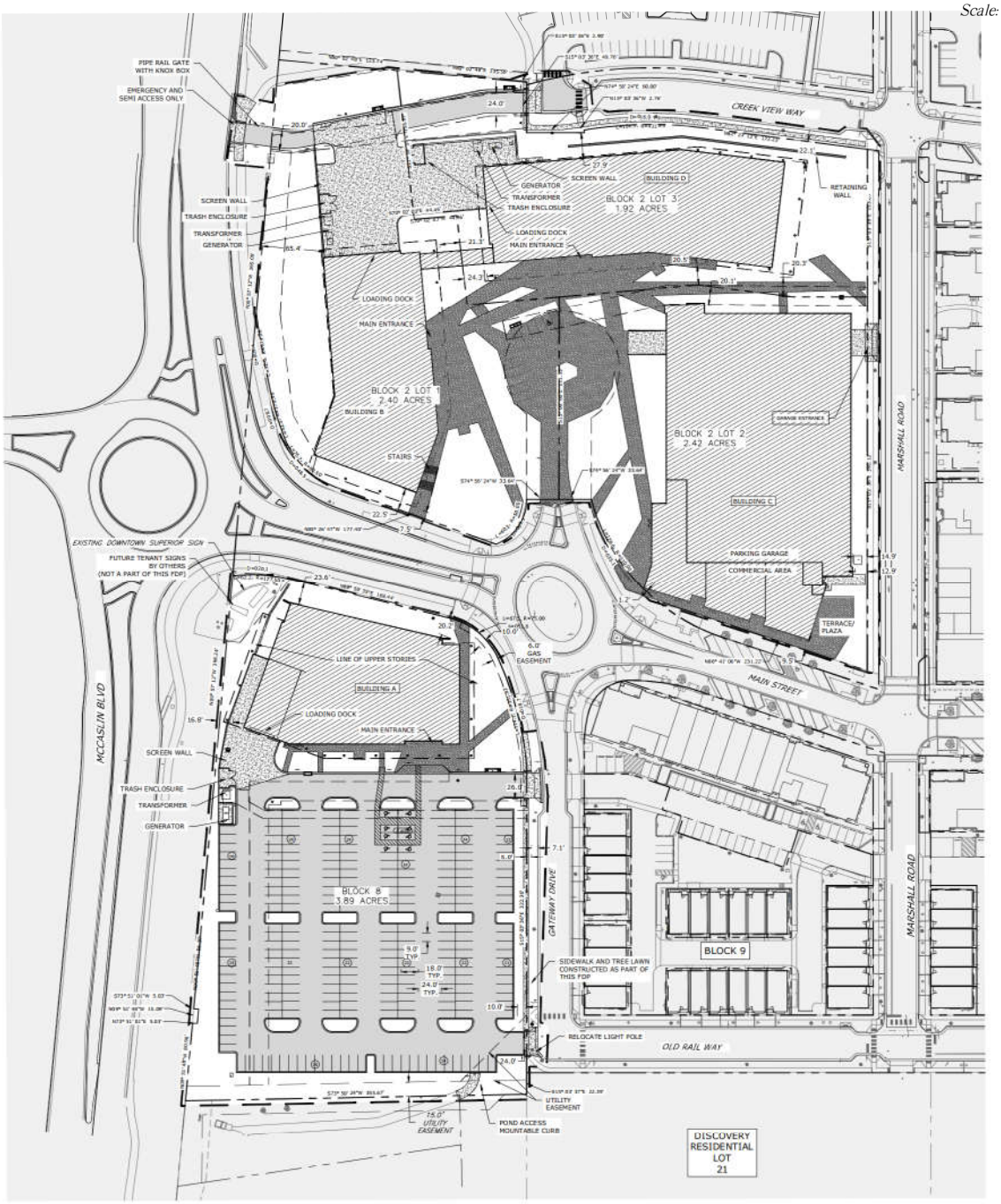


Figure 1

Vicinity Map

Superior Town Center - Life Science (LSC #220390)



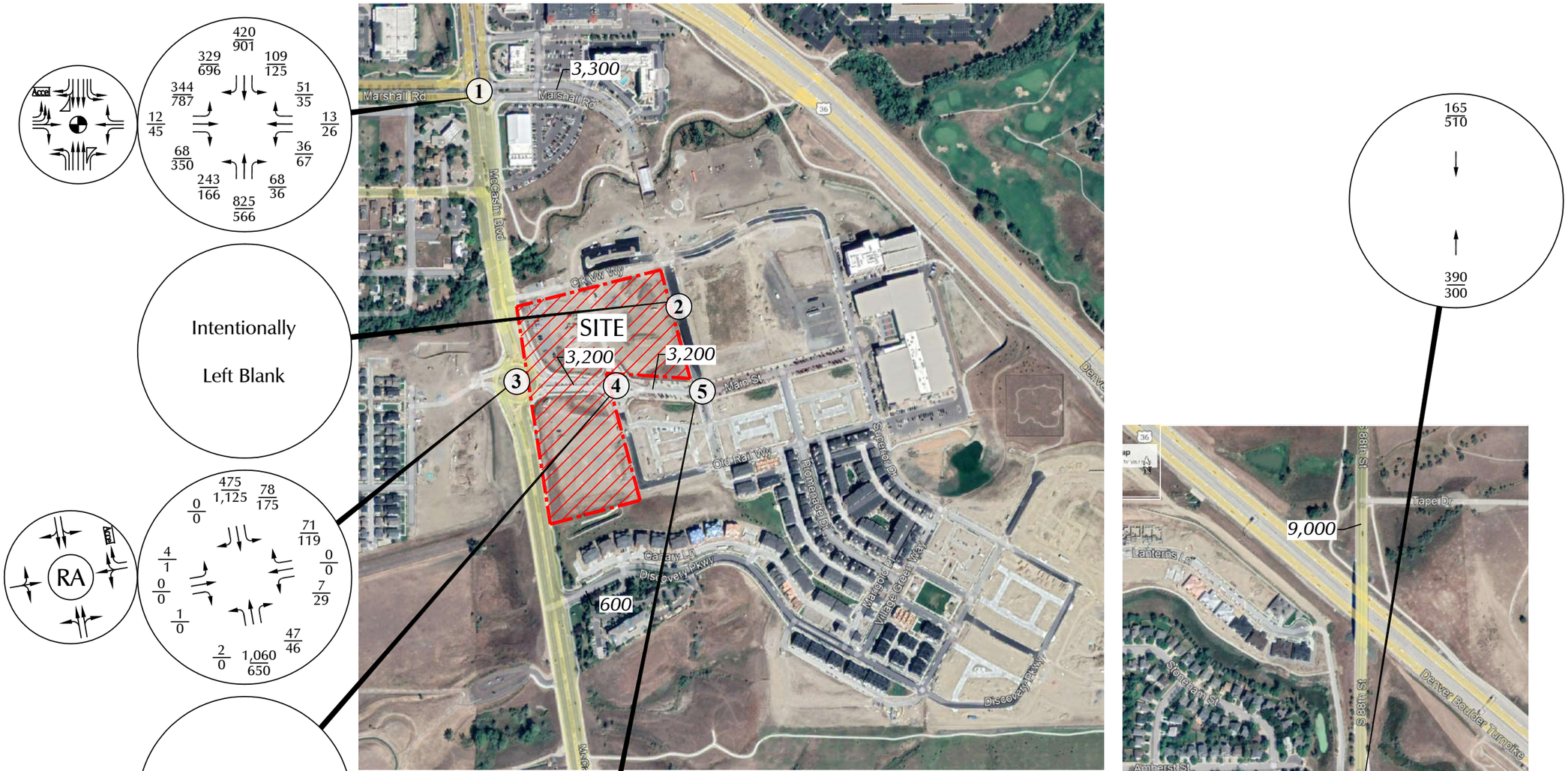
Approximate Scale
Scale: NTS

Figure 2

Site Plan

Superior Town Center - Life Science (LSC #220390)

LSC TRANSPORTATION



Note: Traffic counts on 88th Street were conducted during the summer school recess so the existing through volumes on 88th Street were adjusted five percent higher.

LEGEND:

= Stop Sign

= Traffic Signal

RA = Modern Roundabout

26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

TRANSPORTATION CONSULTANTS, INC.

Figure 3

Existing 2019 Traffic, Lane Geometry and Traffic Control

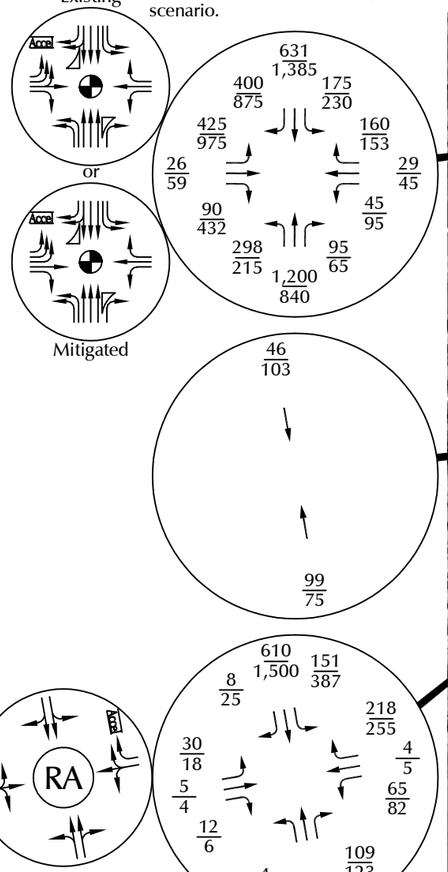
Superior Town Center - Life Science (LSC #220390)

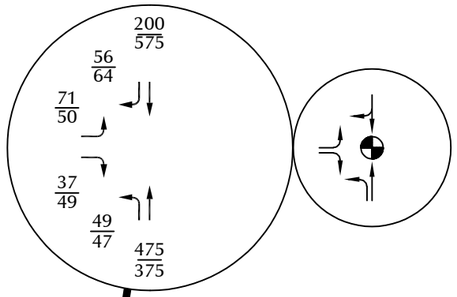
Note: The level of service results in Table 1 are based on existing scenario.

Existing

or

Mitigated





Note: Assumes two percent annual growth for McCaslin Boulevard at Marshall Road and one percent annual growth for 88th Street and Marshall Road. Also assumes buildout of the Rogers Farm property west of McCaslin Boulevard.

LEGEND:

- = Stop Sign
- = Traffic Signal
- RA = Modern Roundabout
- 26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

N

Approximate Scale
Scale: 1"= 500'

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 4

Year 2040 Background Traffic, Lane Geometry and Traffic Control

Superior Town Center - Life Science (LSC #220390)

Approximate Scale
Scale: 1"= 1,200'

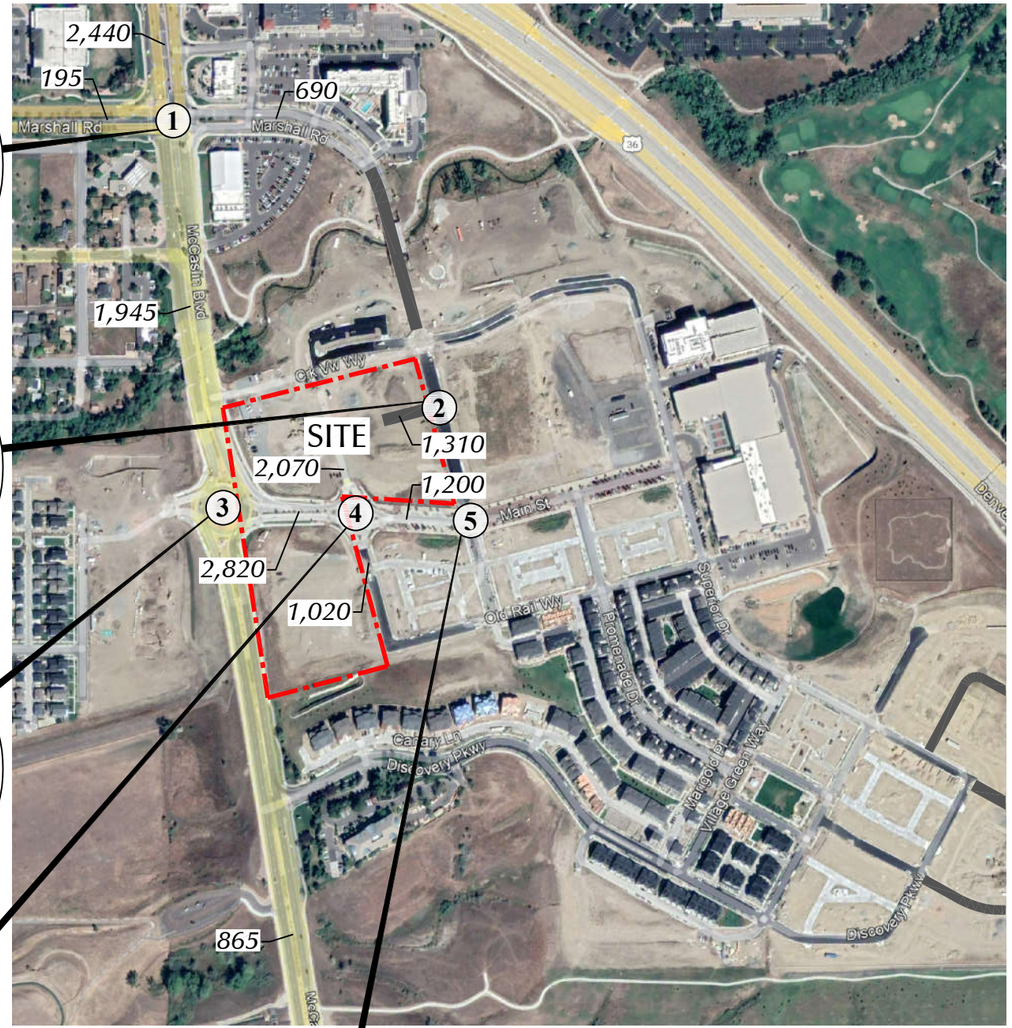
LEGEND:

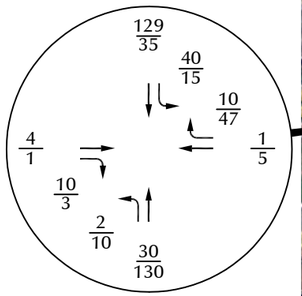
5% = Percent Directional Distribution

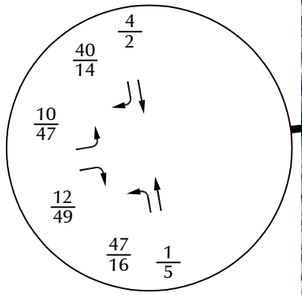
Figure 5

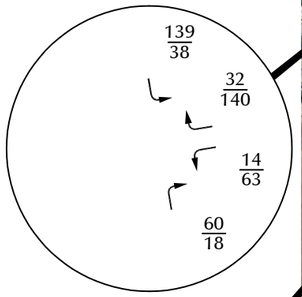
Directional Distribution of Site-Generated Traffic

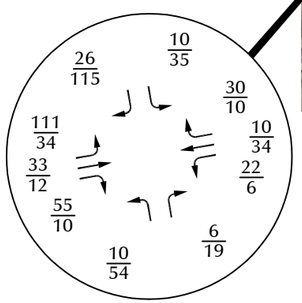
Superior Town Center - Life Science (LSC #220390)

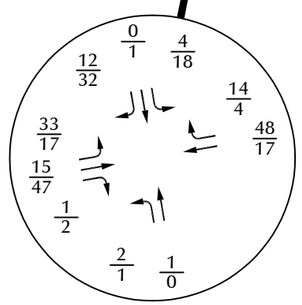


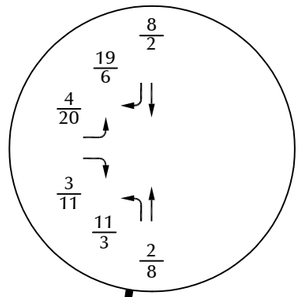












Note: These volumes show the sum of the external and internal trips.

Approximate Scale
Scale: 1"= 500'

LEGEND:
26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic
1,000 = Average Daily Traffic

TRANSPORTATION CONSULTANTS, INC.

Figure 6

Assignment of Site-Generated Traffic

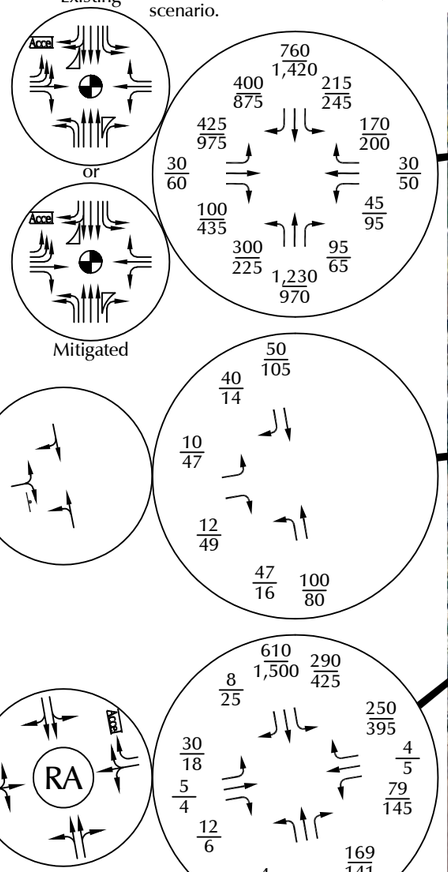
Superior Town Center - Life Science (LSC #220390)

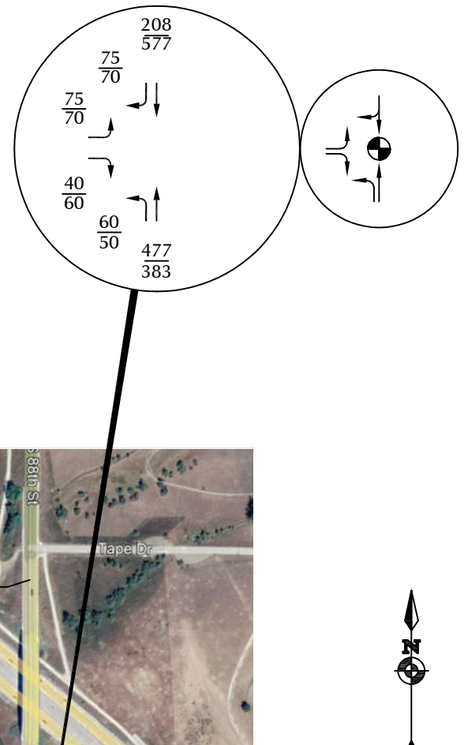
Note: The level of service results in Table 1 are based on the mitigated scenario.

Existing

or

Mitigated





Note: These traffic volumes are the sum of the traffic volumes in Figures 4 and 6.

Approximate Scale
Scale: 1"= 500'

LEGEND:

= Stop Sign

= Traffic Signal

RA = Modern Roundabout

26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

LSC TRANSPORTATION CONSULTANTS, INC.

Figure 7

Year 2040 Total Traffic, Lane Geometry and Traffic Control

Superior Town Center - Life Science (LSC #220390)

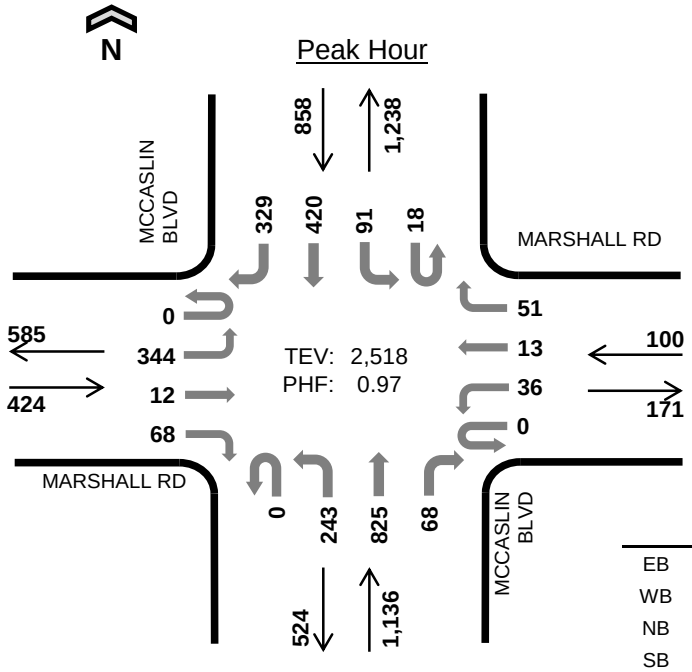
Appendix Table 1
ESTIMATED TRAFFIC GENERATION
Morgan Ranch DTS
Superior, CO
LSC #220390; May, 2022

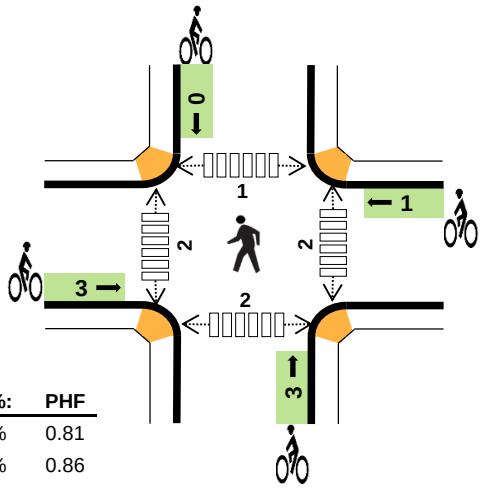
Trip Generating Category	Quantity	Trip Generation Rates [1] Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Vehicle-Trips Generated Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out	Alternative Mode Trip Reduction [8]	Internal Trip Reduction [8]	Net External Trips Average Weekday	AM Peak-Hour In	AM Peak-Hour Out	PM Peak-Hour In	PM Peak-Hour Out
Block 4																		
Restaurant [2]	5.204 KSF [3]	107.20	5.264	4.307	5.521	3.349	558	27	22	29	17	10%	15%	418	21	17	22	13
Block 6																		
Apartments [4]	184 DU [5]	6.74	0.096	0.304	0.321	0.189	1,240	18	56	59	35	15%	15%	868	11	39	41	24
Restaurant [2]	3.446 KSF [3]	107.20	5.264	4.307	5.521	3.349	369	18	15	19	12	10%	15%	277	14	10	14	9
Retail [6]	5.168 KSF [3]	54.45	1.416	0.944	3.295	3.295	281	7	5	17	17	10%	15%	211	5	4	13	13
Civic Space [7]	7.564 KSF [3]	10.84	1.338	0.182	0.245	1.195	82	10	1	2	9	10%	15%	62	8	1	1	7
				Sub-Total Block 6 =			*1,972*	*53*	*77*	*97*	*73*			*1,418*	*38*	*54*	*69*	*53*
Block 7																		
Apartments [4]	88 DU [5]	6.74	0.096	0.304	0.321	0.189	593	8	27	28	17	15%	15%	415	5	19	20	12
Restaurant [2]	7.934 KSF [3]	107.20	5.264	4.307	5.521	3.349	851	42	34	44	27	10%	15%	638	30	25	33	20
Retail [6]	8.188 KSF [3]	54.45	1.416	0.944	3.295	3.295	446	12	8	27	27	10%	15%	334	9	6	20	20
				Sub-Total Block 7 =			*1,890*	*62*	*69*	*99*	*71*			*1,387*	*44*	*50*	*73*	*52*
Block 9																		
Apartments [4]	36 DU [5]	6.74	0.096	0.304	0.321	0.189	243	3	11	12	7	15%	15%	171	2	8	8	5
Townhomes [4]	27 DU [5]	6.74	0.096	0.304	0.321	0.189	182	3	8	9	5	15%	15%	127	2	6	6	4
Restaurant [2]	5.675 KSF [3]	107.20	5.264	4.307	5.521	3.349	608	30	24	31	19	10%	15%	457	22	18	23	14
Retail [6]	8.513 KSF [3]	54.45	1.416	0.944	3.295	3.295	464	12	8	28	28	10%	15%	348	9	6	21	21
				Sub-Total Block 9 =			*1,497*	*48*	*51*	*80*	*59*			*1,103*	*35*	*38*	*58*	*44*
Block 10																		
Apartments [4]	38 DU [5]	6.74	0.096	0.304	0.321	0.189	256	4	12	12	7	15%	15%	179	3	8	9	5
Townhomes [4]	19 DU [5]	6.74	0.096	0.304	0.321	0.189	128	2	6	6	4	15%	15%	90	1	4	4	3
Restaurant [2]	5.978 KSF [3]	107.20	5.264	4.307	5.521	3.349	641	31	26	33	20	10%	15%	481	24	19	25	15
Retail [6]	8.966 KSF [3]	54.45	1.416	0.944	3.295	3.295	488	13	8	30	30	10%	15%	366	10	6	22	22
				Sub-Total Block 10 =			*1,513*	*50*	*52*	*81*	*61*			*1,116*	*38*	*37*	*60*	*45*
Block 11																		
Apartments [4]	36 DU [5]	6.74	0.096	0.304	0.321	0.189	243	3	11	12	7	15%	15%	171	2	8	8	5
Townhomes [4]	18 DU [5]	6.74	0.096	0.304	0.321	0.189	121	2	5	6	3	15%	15%	85	1	4	4	2
Restaurant [2]	5.668 KSF [3]	107.20	5.264	4.307	5.521	3.349	608	30	24	31	19	10%	15%	456	22	18	23	14
Retail [6]	8.503 KSF [3]	54.45	1.416	0.944	3.295	3.295	463	12	8	28	28	10%	15%	347	9	6	21	21
				Sub-Total Block 11 =			*1,435*	*47*	*48*	*77*	*57*			*1,059*	*34*	*36*	*56*	*42*
				Morgan Ranch DTS Total =			**8,865**	**287**	**319**	**463**	**338**			**6,501**	**210**	**232**	**338**	**249**

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
(2) ITE Land Use No. 932 - High-Turnover (Sit-Down) Restaurant
(3) KSF = 1,000 square feet
(4) ITE Land Use No. 220 - Multifamily Housing (Low-Rise)
(5) DU = Dwelling Units
(6) ITE Land Use No. 822 - Strip Retail Plaza (< 40k)
(7) ITE Land Use No. 710 - General Office Building - The rates for Government Office Building are based on very limited data so the rates used are afternoon peak-hour rates with the directional in/out reversed.
(8) Based on the *Superior Town Center Transportation Analysis* by Fehr & Peers, August, 2012 with minor edits based on coordination with Town of Superior.

MCCASLIN BLVD
MARSHALL RD

Date: Wed, Apr 24, 2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	4.2%	0.81
WB	6.0%	0.86
NB	1.9%	0.91
SB	4.2%	0.93
TOTAL	3.3%	0.97

Two-Hour Count Summaries

Interval Start	MARSHALL RD Eastbound				MARSHALL RD Westbound				MCCASLIN BLVD Northbound				MCCASLIN BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	59	5	12	0	4	1	2	0	38	120	15	6	17	68	30	377	0
7:15 AM	0	64	5	11	0	7	4	9	0	53	147	15	9	23	77	66	490	0
7:30 AM	**0**	**78**	**2**	**8**	**0**	**8**	**4**	**17**	**0**	**90**	**205**	**17**	**2**	**21**	**81**	**83**	**616**	0
7:45 AM	**0**	**84**	**2**	**12**	**0**	**5**	**5**	**9**	**0**	**64**	**222**	**15**	**0**	**28**	**111**	**89**	**646**	2,129
8:00 AM	**0**	**86**	**3**	**18**	**0**	**12**	**3**	**12**	**0**	**54**	**209**	**20**	**5**	**24**	**126**	**75**	**647**	2,399
8:15 AM	**0**	**96**	**5**	**30**	**0**	**11**	**1**	**13**	**0**	**35**	**189**	**16**	**11**	**18**	**102**	**82**	**609**	**2,518**
8:30 AM	0	101	6	13	0	10	2	11	0	37	214	19	5	17	91	89	615	2,517
8:45 AM	0	114	6	19	0	13	3	8	0	36	165	8	5	34	97	76	584	2,455
Count Total	0	682	34	123	0	70	23	81	0	407	1,471	125	43	182	753	590	4,584	0
Peak Hour	**0**	**344**	**12**	**68**	**0**	**36**	**13**	**51**	**0**	**243**	**825**	**68**	**18**	**91**	**420**	**329**	**2,518**	**0**

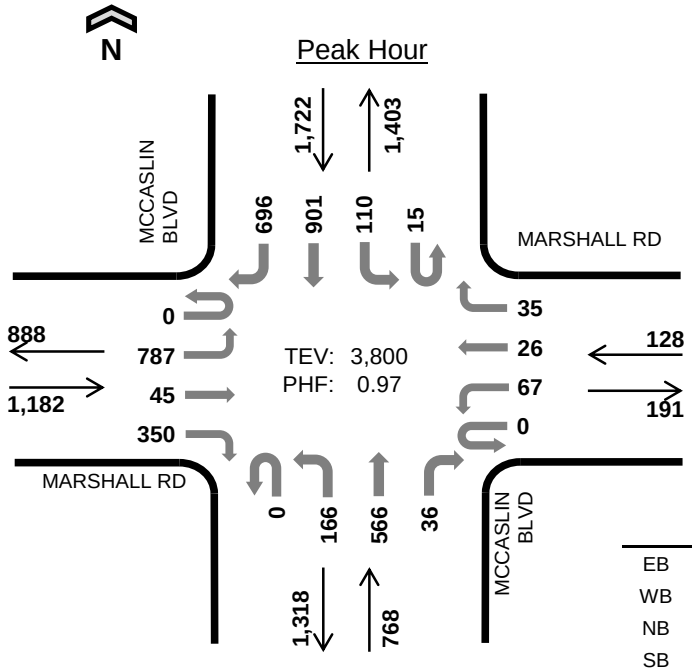
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

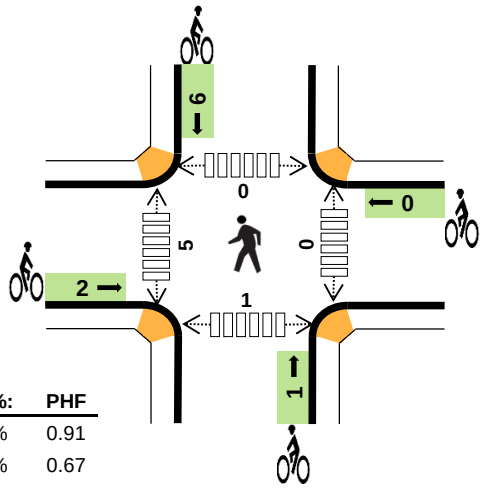
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	0	2	5	*9*	0	0	0	0	*0*	1	0	1	0	*2*
7:15 AM	4	0	1	8	*13*	0	0	1	0	*1*	0	2	0	0	*2*
7:30 AM	**2**	**1**	**8**	**7**	***18***	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**1**	**1**	**3**	**8**	***13***	**0**	**0**	**1**	**0**	***1***	**1**	**2**	**1**	**0**	*4*
8:00 AM	**3**	**1**	**8**	**10**	***22***	**2**	**0**	**0**	**0**	***2***	**1**	**0**	**0**	**1**	*2*
8:15 AM	**12**	**3**	**3**	**11**	***29***	**0**	**1**	**1**	**0**	***2***	**0**	**0**	**0**	**1**	***1***
8:30 AM	5	1	6	4	*16*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	4	2	9	7	*22*	1	0	1	0	*2*	0	0	0	0	*0*
Count Total	33	9	40	60	*142*	4	1	5	0	*10*	3	4	2	2	*11*
Peak Hour	**18**	**6**	**22**	**36**	***82***	**3**	**1**	**3**	**0**	***7***	**2**	**2**	**1**	**2**	***7***

Mark Skaggs: (425) 250-0777 mark.skaggs@idaxdata.com

MCCASLIN BLVD
MARSHALL RD

Date: Wed, Apr 24, 2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	0.6%	0.91
WB	0.8%	0.67
NB	1.3%	0.96
SB	0.7%	0.88
TOTAL	0.8%	0.97

Two-Hour Count Summaries

Interval Start	MARSHALL RD Eastbound				MARSHALL RD Westbound				MCCASLIN BLVD Northbound				MCCASLIN BLVD Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	188	10	61	0	15	4	9	0	40	124	9	3	22	142	180	807	0
4:15 PM	0	160	9	86	0	16	10	14	0	37	109	10	6	25	191	186	859	0
4:30 PM	**0**	**204**	**8**	**78**	**0**	**15**	**5**	**9**	**0**	**38**	**150**	**6**	**2**	**28**	**181**	**173**	**897**	0
4:45 PM	**0**	**187**	**6**	**89**	**0**	**11**	**2**	**13**	**0**	**39**	**147**	**7**	**6**	**33**	**236**	**166**	**942**	3,505
5:00 PM	**0**	**212**	**24**	**89**	**0**	**25**	**12**	**11**	**0**	**47**	**141**	**11**	**3**	**25**	**210**	**170**	**980**	3,678
5:15 PM	**0**	**184**	**7**	**94**	**0**	**16**	**7**	**2**	**0**	**42**	**128**	**12**	**4**	**24**	**274**	**187**	**981**	**3,800**
5:30 PM	0	169	16	106	0	18	5	4	0	38	139	9	5	25	181	151	866	3,769
5:45 PM	0	157	2	91	0	16	5	3	0	33	114	14	3	19	238	189	884	3,711
Count Total	0	1,461	82	694	0	132	50	65	0	314	1,052	78	32	201	1,653	1,402	7,216	0
Peak Hour	**0**	**787**	**45**	**350**	**0**	**67**	**26**	**35**	**0**	**166**	**566**	**36**	**15**	**110**	**901**	**696**	**3,800**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	3	4	2	*9*	0	1	0	0	*1*	0	1	0	1	*2*
4:15 PM	2	1	4	1	*8*	0	1	0	2	*3*	0	4	0	0	*4*
4:30 PM	**1**	**0**	**2**	**3**	***6***	**0**	**0**	**0**	**3**	***3***	**0**	**4**	**0**	**0**	*4*
4:45 PM	**3**	**1**	**2**	**4**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
5:00 PM	**0**	**0**	**3**	**2**	***5***	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**0**	**1**	*1*
5:15 PM	**3**	**0**	**3**	**3**	***9***	**1**	**0**	**1**	**2**	***4***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	0	1	2	*4*	0	0	0	3	*3*	1	0	0	0	*1*
5:45 PM	1	0	1	2	*4*	1	0	0	0	*1*	2	0	2	0	*4*
Count Total	11	5	20	19	*55*	3	2	1	11	*17*	3	10	2	2	*17*
Peak Hour	**7**	**1**	**10**	**12**	***30***	**2**	**0**	**1**	**6**	***9***	**0**	**5**	**0**	**1**	***6***

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: DISCOVERY PKWY
CITY: SUPERIOR
COUNTY: BOULDER

File Name : MCCADISC
Site Code : 00000015
Start Date : 8/13/2019
Page No : 1

Groups Printed- VEHICLES

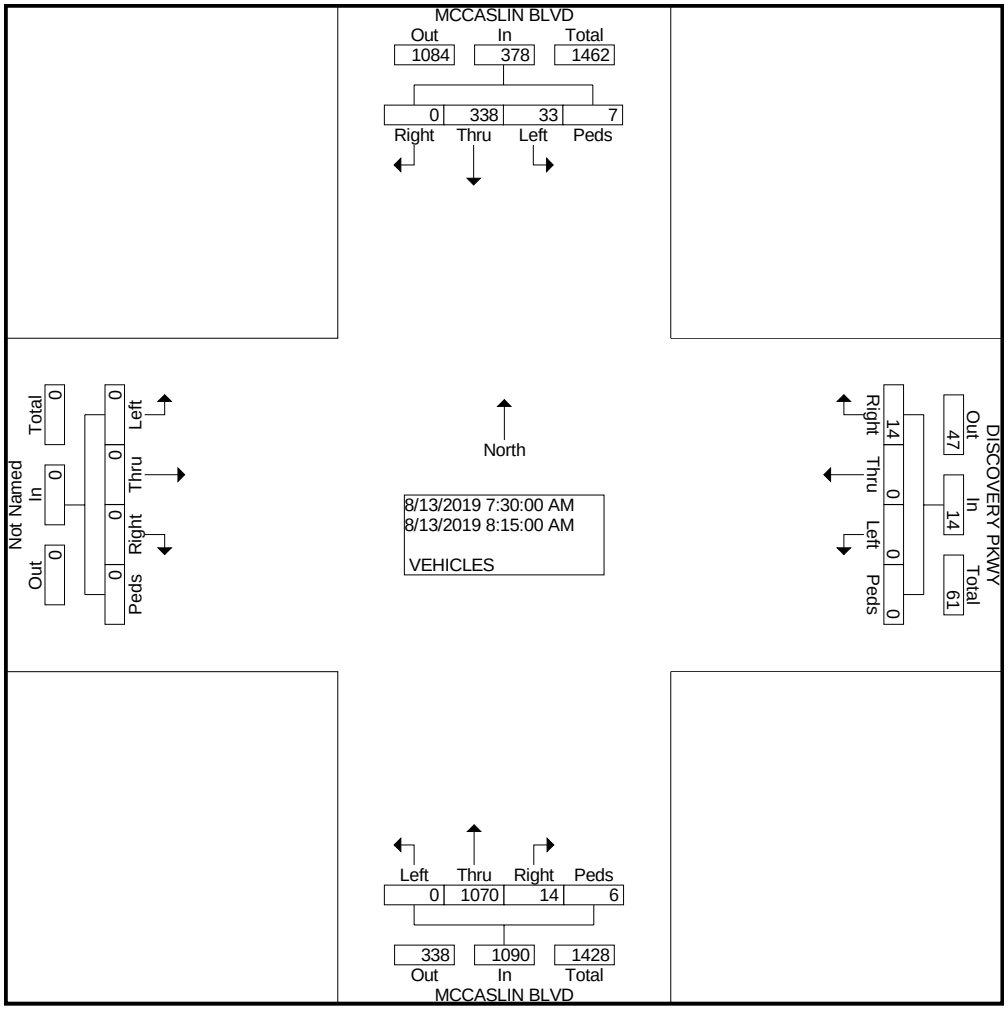
	MCCASLIN BLVD Southbound				DISCOVERY PKWY Westbound				MCCASLIN BLVD Northbound				Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	5	41	0	1	0	0	1	0	0	103	2	3	0	0	0	0	156
06:45 AM	4	43	0	1	0	0	0	0	0	149	2	3	0	0	0	0	202
Total	9	84	0	2	0	0	1	0	0	252	4	6	0	0	0	0	358
07:00 AM	9	62	0	0	0	0	0	0	0	194	1	3	0	0	0	0	269
07:15 AM	17	68	0	0	0	0	3	0	0	220	0	3	0	0	0	0	311
07:30 AM	8	70	0	1	0	0	2	0	0	291	3	1	0	0	0	0	376
07:45 AM	6	92	0	2	0	0	5	0	0	272	5	4	0	0	0	0	386
Total	40	292	0	3	0	0	10	0	0	977	9	11	0	0	0	0	1342
08:00 AM	7	90	0	1	0	0	0	0	0	268	3	0	0	0	0	0	369
08:15 AM	12	86	0	3	0	0	7	0	0	239	3	1	0	0	0	0	351
Total	19	176	0	4	0	0	7	0	0	507	6	1	0	0	0	0	720
04:00 PM	5	243	0	1	0	0	13	0	0	152	1	1	0	0	0	0	416
04:15 PM	2	261	0	0	1	0	7	0	0	153	5	0	0	0	0	0	429
04:30 PM	6	258	0	1	0	0	10	0	0	168	3	1	0	0	0	0	447
04:45 PM	2	331	0	3	0	0	7	0	0	168	3	3	0	0	0	0	517
Total	15	1093	0	5	1	0	37	0	0	641	12	5	0	0	0	0	1809
05:00 PM	2	321	0	0	0	0	14	0	0	157	5	0	0	0	0	0	499
05:15 PM	0	367	0	0	0	0	13	0	0	185	2	4	0	0	0	0	571
05:30 PM	2	336	0	1	0	0	7	0	0	148	1	0	0	0	0	0	495
05:45 PM	2	317	0	2	0	0	0	0	0	136	3	1	0	0	0	0	461
Total	6	1341	0	3	0	0	34	0	0	626	11	5	0	0	0	0	2026
Grand Total	89	2986	0	17	1	0	89	0	0	3003	42	28	0	0	0	0	6255
Apprch %	2.9	96.6	0.0	0.5	1.1	0.0	98.9	0.0	0.0	97.7	1.4	0.9	0.0	0.0	0.0	0.0	
Total %	1.4	47.7	0.0	0.3	0.0	0.0	1.4	0.0	0.0	48.0	0.7	0.4	0.0	0.0	0.0	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: DISCOVERY PKWY
CITY: SUPERIOR
COUNTY: BOULDER

File Name : MCCADISC
Site Code : 00000015
Start Date : 8/13/2019
Page No : 2

	MCCASLIN BLVD Southbound					DISCOVERY PKWY Westbound					MCCASLIN BLVD Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	33	338	0	7	378	0	0	14	0	14	0	1070	14	6	1090	0	0	0	0	0	1482
Percent	8.7	89.4	0.0	1.9		0.0	0.0	100.0	0.0		0.0	98.2	1.3	0.6		0.0	0.0	0.0	0.0		
07:45 Volume	6	92	0	2	100	0	0	5	0	5	0	272	5	4	281	0	0	0	0	0	386
Peak Factor																					0.960
High Int.	08:15 AM					08:15 AM					07:30 AM										
Volume	12	86	0	3	101	0	0	7	0	7	0	291	3	1	295						
Peak Factor					0.936					0.500					0.924						

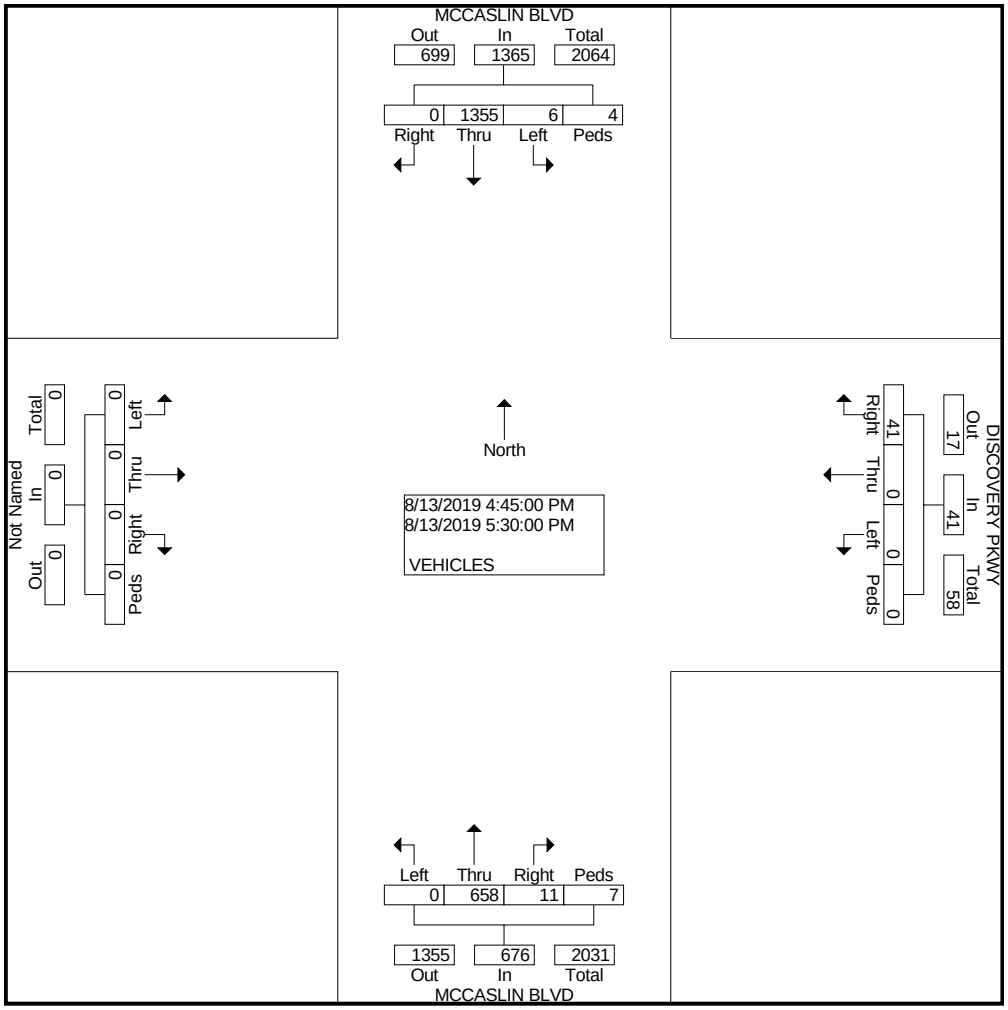


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: DISCOVERY PKWY
CITY: SUPERIOR
COUNTY: BOULDER

File Name : MCCADISC
Site Code : 00000015
Start Date : 8/13/2019

	MCCASLIN BLVD Southbound					DISCOVERY PKWY Westbound					MCCASLIN BLVD Northbound					Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	6	1355	0	4	1365	0	0	41	0	41	0	658	11	7	676	0	0	0	0	0	2082
Percent	0.4	99.3	0.0	0.3		0.0	0.0	100.0	0.0		0.0	97.3	1.6	1.0		0.0	0.0	0.0	0.0		
05:15 Volume	0	367	0	0	367	0	0	13	0	13	0	185	2	4	191	0	0	0	0	0	571
Peak Factor																					0.912
High Int.	05:15 PM					05:00 PM					05:15 PM										
Volume	0	367	0	0	367	0	0	14	0	14	0	185	2	4	191						
Peak Factor					0.930					0.732					0.885						



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: MAIN ST
CITY: SUPERIOR
COUNTY: BOUNDER

File Name : MACCMAIN8-15-19
Site Code : 00000011
Start Date : 8/13/2019
Page No : 1

Groups Printed- VEHICLES

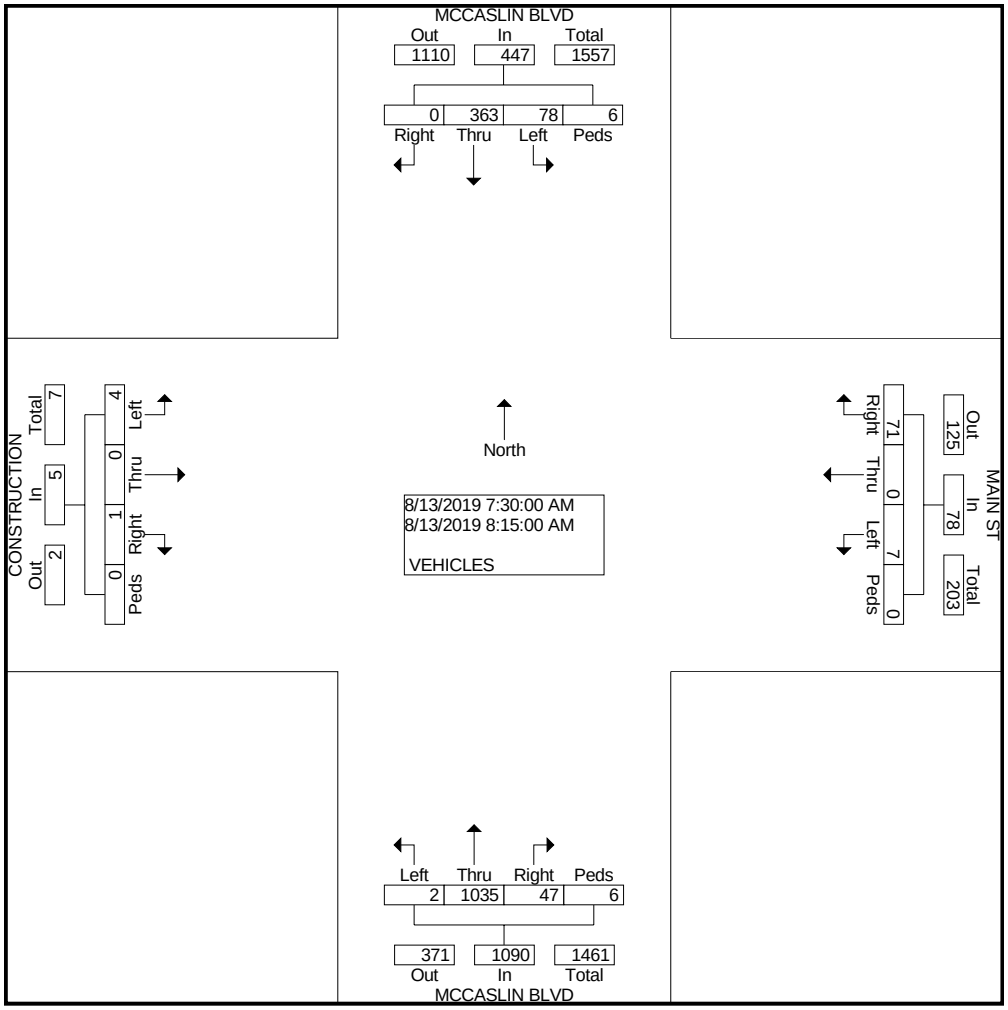
	MCCASLIN BLVD Southbound				MAIN ST Westbound				MCCASLIN BLVD Northbound				CONSTRUCTION Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	7	45	4	2	1	0	6	0	0	102	2	2	0	0	0	0	171
06:45 AM	23	44	7	0	3	0	8	0	1	139	9	1	0	0	0	0	235
Total	30	89	11	2	4	0	14	0	1	241	11	3	0	0	0	0	406
07:00 AM	14	67	3	0	4	0	17	0	9	177	2	3	0	0	0	0	296
07:15 AM	5	84	1	0	1	0	6	0	7	212	4	1	0	0	0	0	321
07:30 AM	15	75	0	0	3	0	19	0	0	281	12	0	0	0	0	0	405
07:45 AM	31	96	0	1	1	0	16	0	1	264	12	4	1	0	1	0	428
Total	65	322	4	1	9	0	58	0	17	934	30	8	1	0	1	0	1450
08:00 AM	24	96	0	3	1	0	19	0	1	254	13	0	2	0	0	0	413
08:15 AM	8	96	0	2	2	0	17	0	0	236	10	2	1	0	0	0	374
Total	32	192	0	5	3	0	36	0	1	490	23	2	3	0	0	0	787
04:00 PM	20	226	0	0	21	0	34	0	1	155	9	1	4	0	1	0	472
04:15 PM	27	257	0	1	6	0	15	0	0	149	11	2	8	0	0	0	476
04:30 PM	37	259	0	2	5	0	25	0	0	164	14	0	0	0	0	0	506
04:45 PM	62	321	0	4	12	0	26	0	0	168	7	2	0	0	0	0	602
Total	146	1063	0	7	44	0	100	0	1	636	41	5	12	0	1	0	2056
05:00 PM	25	316	0	0	7	0	42	0	0	166	5	3	0	0	0	0	564
05:15 PM	49	364	0	1	3	0	26	1	0	186	12	1	0	0	0	0	643
05:30 PM	39	331	0	3	7	0	25	0	0	133	22	2	1	0	0	1	564
05:45 PM	24	314	0	5	4	0	19	0	0	132	4	2	2	0	1	0	507
Total	137	1325	0	9	21	0	112	1	0	617	43	8	3	0	1	1	2278
Grand Total	410	2991	15	24	81	0	320	1	20	2918	148	26	19	0	3	1	6977
Apprch %	11.9	86.9	0.4	0.7	20.1	0.0	79.6	0.2	0.6	93.8	4.8	0.8	82.6	0.0	13.0	4.3	
Total %	5.9	42.9	0.2	0.3	1.2	0.0	4.6	0.0	0.3	41.8	2.1	0.4	0.3	0.0	0.0	0.0	

COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: MAIN ST
CITY: SUPERIOR
COUNTY: BOULDER

File Name : MACCMAIN8-15-19
Site Code : 00000011
Start Date : 8/13/2019
Page No : 2

	MCCASLIN BLVD Southbound					MAIN ST Westbound					MCCASLIN BLVD Northbound					CONSTRUCTION Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:30 AM to 08:15 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	78	363	0	6	447	7	0	71	0	78	2	1035	47	6	1090	4	0	1	0	5	1620
Percent	17.4	81.2	0.0	1.3		9.0	0.0	91.0	0.0		0.2	95.0	4.3	0.6		80.0	0.0	20.0	0.0		
07:45 Volume	31	96	0	1	128	1	0	16	0	17	1	264	12	4	281	1	0	1	0	2	428
Peak Factor																					0.946
High Int.	07:45 AM					07:30 AM					07:30 AM					07:45 AM					
Volume	31	96	0	1	128	3	0	19	0	22	0	281	12	0	293	1	0	1	0	2	
Peak Factor					0.873					0.886					0.930					0.625	

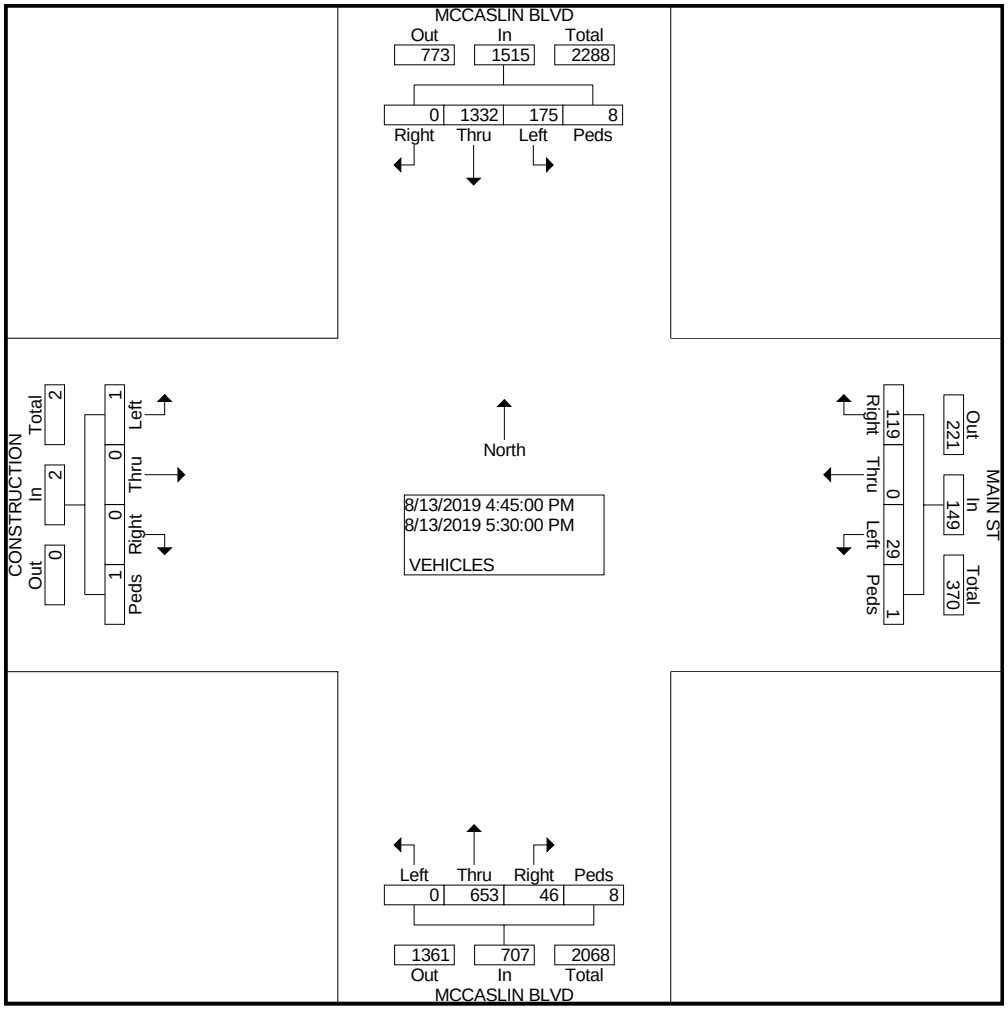


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: MCCASLIN BLVD
E/W STREET: MAIN ST
CITY: SUPERIOR
COUNTY: BOULDER

File Name : MACCMAIN8-15-19
Site Code : 00000011
Start Date : 8/13/2019

	MCCASLIN BLVD Southbound					MAIN ST Westbound					MCCASLIN BLVD Northbound					CONSTRUCTION Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:45 PM to 05:30 PM - Peak 1 of 1																					
Intersection	04:45 PM																				
Volume	175	1332	0	8	1515	29	0	119	1	149	0	653	46	8	707	1	0	0	1	2	2373
Percent	11.6	87.9	0.0	0.5		19.5	0.0	79.9	0.7		0.0	92.4	6.5	1.1		50.0	0.0	0.0	50.0		
05:15 Volume	49	364	0	1	414	3	0	26	1	30	0	186	12	1	199	0	0	0	0	0	643
Peak Factor																					0.923
High Int.	05:15 PM					05:00 PM					05:15 PM					05:30 PM					
Volume	49	364	0	1	414	7	0	42	0	49	0	186	12	1	199	1	0	0	1	2	
Peak Factor					0.915					0.760					0.888					0.250	



COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: 88TH ST. S/O US-36
City: SUPERIOR
County: BOULDER
Direction: NB-SB

Site Code: 191211
Station ID: 191211

Start	12-Aug-19		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	16	30	*	*	*	*	*	*	*	*	*	*	16	30
01:00	*	*	3	9	*	*	*	*	*	*	*	*	*	*	3	9
02:00	*	*	6	9	*	*	*	*	*	*	*	*	*	*	6	9
03:00	*	*	4	6	*	*	*	*	*	*	*	*	*	*	4	6
04:00	*	*	10	3	*	*	*	*	*	*	*	*	*	*	10	3
05:00	*	*	41	15	*	*	*	*	*	*	*	*	*	*	41	15
06:00	*	*	150	52	*	*	*	*	*	*	*	*	*	*	150	52
07:00	*	*	357	108	*	*	*	*	*	*	*	*	*	*	357	108
08:00	*	*	**390**	163	*	*	*	*	*	*	*	*	*	*	**390**	163
09:00	*	*	275	171	*	*	*	*	*	*	*	*	*	*	275	171
10:00	*	*	252	189	*	*	*	*	*	*	*	*	*	*	252	189
11:00	*	*	194	**209**	*	*	*	*	*	*	*	*	*	*	194	**209**
12:00 PM	*	*	269	277	*	*	*	*	*	*	*	*	*	*	269	277
01:00	*	*	271	261	*	*	*	*	*	*	*	*	*	*	271	261
02:00	*	*	240	290	*	*	*	*	*	*	*	*	*	*	240	290
03:00	*	*	**387**	407	*	*	*	*	*	*	*	*	*	*	**387**	407
04:00	*	*	299	**510**	*	*	*	*	*	*	*	*	*	*	299	**510**
05:00	*	*	273	510	*	*	*	*	*	*	*	*	*	*	273	510
06:00	*	*	287	384	*	*	*	*	*	*	*	*	*	*	287	384
07:00	*	*	165	277	*	*	*	*	*	*	*	*	*	*	165	277
08:00	*	*	110	202	*	*	*	*	*	*	*	*	*	*	110	202
09:00	*	*	78	157	*	*	*	*	*	*	*	*	*	*	78	157
10:00	*	*	33	63	*	*	*	*	*	*	*	*	*	*	33	63
11:00	*	*	27	44	*	*	*	*	*	*	*	*	*	*	27	44
Lane	0	0	4137	4346	0	0	0	0	0	0	0	0	0	0	4137	4346
Day	0		8483		0		0		0		0		0		8483	
AM Peak	-	-	08:00	11:00	-	-	-	-	-	-	-	-	-	-	08:00	11:00
Vol.	-	-	390	209	-	-	-	-	-	-	-	-	-	-	390	209
PM Peak	-	-	15:00	16:00	-	-	-	-	-	-	-	-	-	-	15:00	16:00
Vol.	-	-	387	510	-	-	-	-	-	-	-	-	-	-	387	510

Comb. Total	0	8483	0	0	0	0	0	8483

ADT ADT 8,483 AADT 8,483

COUNTER MEASURES INC.

1889 YORK STREET
DENVER,COLORADO 80206
303-333-7409

Location: MAIN ST E/O MCCASLIN AVE
City: SUPERIOR
County: BOULDER
Direction: EASTBOUND-WESTBOUND

Site Code: 030818
Station ID: 030818

Start	05-Mar-18		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
Time	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	*	*	*	*	*	*	1	31	*	*	*	*	1	31
01:00	*	*	*	*	*	*	*	*	0	12	*	*	*	*	0	12
02:00	*	*	*	*	*	*	*	*	2	14	*	*	*	*	2	14
03:00	*	*	*	*	*	*	*	*	2	3	*	*	*	*	2	3
04:00	*	*	*	*	*	*	*	*	1	2	*	*	*	*	1	2
05:00	*	*	*	*	*	*	*	*	21	4	*	*	*	*	21	4
06:00	*	*	*	*	*	*	*	*	54	12	*	*	*	*	54	12
07:00	*	*	*	*	*	*	*	*	**114**	31	*	*	*	*	**114**	31
08:00	*	*	*	*	*	*	*	*	95	51	*	*	*	*	95	51
09:00	*	*	*	*	*	*	*	*	70	71	*	*	*	*	70	71
10:00	*	*	*	*	*	*	*	*	81	**98**	*	*	*	*	81	**98**
11:00	*	*	*	*	*	*	*	*	74	79	*	*	*	*	74	79
12:00 PM	*	*	*	*	*	*	*	*	130	91	*	*	*	*	130	91
01:00	*	*	*	*	*	*	*	*	85	106	*	*	*	*	85	106
02:00	*	*	*	*	*	*	*	*	96	100	*	*	*	*	96	100
03:00	*	*	*	*	*	*	*	*	120	101	*	*	*	*	120	101
04:00	*	*	*	*	*	*	*	*	**158**	132	*	*	*	*	**158**	132
05:00	*	*	*	*	*	*	*	*	116	150	*	*	*	*	116	150
06:00	*	*	*	*	*	*	*	*	104	117	*	*	*	*	104	117
07:00	*	*	*	*	*	*	*	*	102	**174**	*	*	*	*	102	**174**
08:00	*	*	*	*	*	*	*	*	50	116	*	*	*	*	50	116
09:00	*	*	*	*	*	*	*	*	27	76	*	*	*	*	27	76
10:00	*	*	*	*	*	*	*	*	12	63	*	*	*	*	12	63
11:00	*	*	*	*	*	*	*	*	8	22	*	*	*	*	8	22
Lane	0	0	0	0	0	0	0	0	1523	1656	0	0	0	0	1523	1656
Day	0		0		0		0		3179		0		0		3179	
AM Peak	-	-	-	-	-	-	-	-	07:00	10:00	-	-	-	-	07:00	10:00
Vol.	-	-	-	-	-	-	-	-	114	98	-	-	-	-	114	98
PM Peak	-	-	-	-	-	-	-	-	16:00	19:00	-	-	-	-	16:00	19:00
Vol.	-	-	-	-	-	-	-	-	158	174	-	-	-	-	158	174

Comb. Total	0	0	0	0	3179	0	0	3179

ADT ADT 3,583 AADT 3,583

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	Average Vehicle Delay sec/vehicle	Operational Characteristics
A	<10 seconds	Describes operations with low control delay, up to 10 sec/veh. This LOS occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.
B	10 to 20 seconds	Describes operations with control delay greater than 10 seconds and up to 20 sec/veh. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.
C	20 to 35 seconds	Describes operations with control delay greater than 20 and up to 35 sec/veh. These higher delays may result from only fair progression, longer cycle length, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.
D	35 to 55 seconds	Describes operations with control delay greater than 35 and up to 55 sec/veh. At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	55 to 80 seconds	Describes operations with control delay greater than 55 and up to 80 sec/veh. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.
F	>80 seconds	Describes operations with control delay in excess of 80 sec/veh. This level, considered unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2016, 6th Edition

UNSIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

Applicable to Two-Way Stop Control, All-Way Stop Control, and Roundabouts

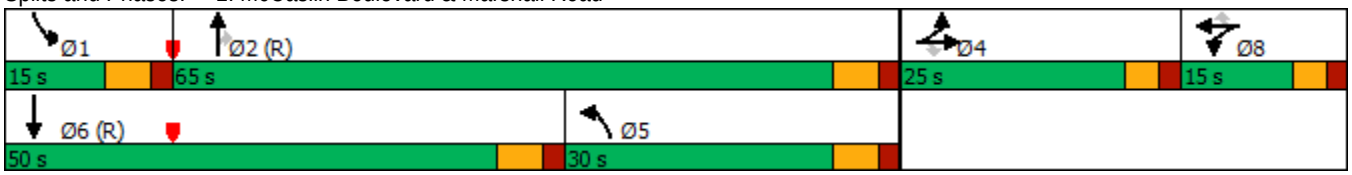
LOS	Average Vehicle Control Delay	Operational Characteristics
A	<10 seconds	Normally, vehicles on the stop-controlled approach only have to wait up to 10 seconds before being able to clear the intersection. Left-turning vehicles on the uncontrolled street do not have to wait to make their turn.
B	10 to 15 seconds	Vehicles on the stop-controlled approach will experience delays before being able to clear the intersection. The delay could be up to 15 seconds. Left-turning vehicles on the uncontrolled street may have to wait to make their turn.
C	15 to 25 seconds	Vehicles on the stop-controlled approach can expect delays in the range of 15 to 25 seconds before clearing the intersection. Motorists may begin to take chances due to the long delays, thereby posing a safety risk to through traffic. Left-turning vehicles on the uncontrolled street will now be required to wait to make their turn causing a queue to be created in the turn lane.
D	25 to 35 seconds	This is the point at which a traffic signal may be warranted for this intersection. The delays for the stop-controlled intersection are not considered to be excessive. The length of the queue may begin to block other public and private access points.
E	35 to 50 seconds	The delays for all critical traffic movements are considered to be unacceptable. The length of the queues for the stop-controlled approaches as well as the left-turn movements are extremely long. There is a high probability that this intersection will meet traffic signal warrants. The ability to install a traffic signal is affected by the location of other existing traffic signals. Consideration may be given to restricting the accesses by eliminating the left-turn movements from and to the stop-controlled approach.
F	>50 seconds	The delay for the critical traffic movements are probably in excess of 100 seconds. The length of the queues are extremely long. Motorists are selecting alternative routes due to the long delays. The only remedy for these long delays is installing a traffic signal or restricting the accesses. The potential for accidents at this intersection are extremely high due to motorist taking more risky chances. If the median permits, motorists begin making two-stage left-turns.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	12	68	36	13	51	243	825	68	109	420	329
Future Volume (vph)	344	12	68	36	13	51	243	825	68	109	420	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.959	0.850
Flt Protected	0.950	0.957		0.950			0.950			0.950		
Satd. Flow (prot)	3221	1622	1583	1770	1863	1583	3433	5085	1583	3433	4609	1362
Flt Permitted	0.950	0.957		0.950			0.950			0.950		
Satd. Flow (perm)	3221	1622	1583	1770	1863	1583	3433	5085	1583	3433	4609	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			118		91	227
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	362	13	72	38	14	54	256	868	72	115	442	346
Shared Lane Traffic (%)	31%											48%
Lane Group Flow (vph)	250	125	72	38	14	54	256	868	72	115	608	180
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	25.0	25.0	25.0	15.0	15.0	15.0	30.0	65.0	65.0	15.0	50.0	
Total Split (%)	20.8%	20.8%	20.8%	12.5%	12.5%	12.5%	25.0%	54.2%	54.2%	12.5%	41.7%	
Maximum Green (s)	20.0	20.0	20.0	10.0	10.0	10.0	24.0	59.0	59.0	9.0	44.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	
Act Effct Green (s)	16.1	16.1	16.1	8.9	8.9	8.9	25.0	69.3	69.3	9.8	54.1	120.0
Actuated g/C Ratio	0.13	0.13	0.13	0.07	0.07	0.07	0.21	0.58	0.58	0.08	0.45	1.00
v/c Ratio	0.58	0.58	0.19	0.29	0.10	0.19	0.36	0.30	0.07	0.41	0.29	0.13
Control Delay	53.7	58.7	1.2	57.6	52.4	1.5	42.3	14.6	0.7	56.8	19.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.7	58.7	1.2	57.6	52.4	1.5	42.3	14.6	0.7	56.8	19.2	0.2
LOS	D	E	A	E	D	A	D	B	A	E	B	A
Approach Delay		46.6			28.3			19.7			20.2	
Approach LOS		D			C			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 24.7		Intersection LOS: C	
Intersection Capacity Utilization 45.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CSM*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*4/29/22*	N/S Street Name	*McCaslin Bouldvard*
Time Period	*AM Peak*	Analysis Year	*Existing*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*4*	*0*	*1*	*0*	*7*	*0*	*71*	*0*	*2*	*1060*	*47*	*0*	*78*	*475*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*	*0.92*	*0.92*	*0.92*	*0.92*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*621*			*1181*			*90*			*10*		
Exiting Flow (V_{ex}), pc/h	*138*			*2*			*1179*			*536*		
Entry Flow (V_e), pc/h		*5*			*8*	*79*	*590*	*639*		*294*	*319*	
Entry Volume veh/h		*5*			*8*	*77*	*578*	*626*		*288*	*313*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*793*			*513*		*1344*	*1344*		*1429*	*1429*	
Capacity (c), veh/h		*777*			*503*		*1318*	*1318*		*1401*	*1401*	
v/c Ratio (X)		*0.01*			*0.02*		*0.44*	*0.48*		*0.21*	*0.22*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*4.7*			*7.3*	*0.0*	*7.0*	*7.6*		*4.3*	*4.4*	
Lane LOS		*A*			*A*		*A*	*A*		*A*	*A*	
Lane 95% Queue		*0.0*			*0.0*		*2.3*	*2.6*		*0.8*	*0.9*	
Approach Delay, s/veh	*4.69*			*0.69*			*7.31*			*4.35*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*6.07*											
Intersection LOS	*A*											

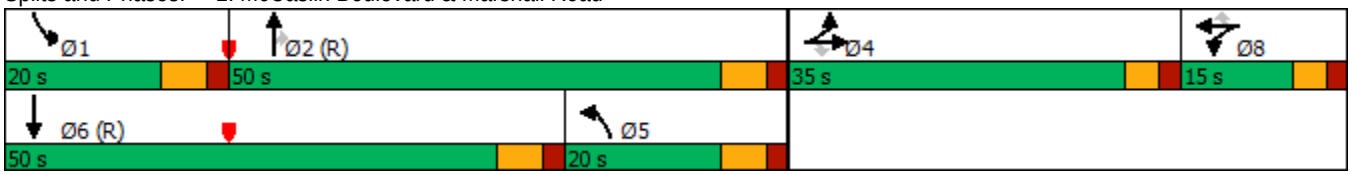
 HCS+™ 2010 6.1 Roundabouts Generated: 4/29/2022 9:34 AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	787	45	350	67	26	35	166	566	36	125	901	696
Future Volume (vph)	787	45	350	67	26	35	166	566	36	125	901	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.959	0.850
Flt Protected	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (prot)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4609	1362
Flt Permitted	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (perm)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4609	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			333			182			118		89	381
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	828	47	368	71	27	37	175	596	38	132	948	733
Shared Lane Traffic (%)	30%											48%
Lane Group Flow (vph)	580	295	368	71	27	37	175	596	38	132	1300	381
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	15.0	15.0	15.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	35.0	35.0	35.0	15.0	15.0	15.0	20.0	50.0	50.0	20.0	50.0	
Total Split (%)	29.2%	29.2%	29.2%	12.5%	12.5%	12.5%	16.7%	41.7%	41.7%	16.7%	41.7%	
Maximum Green (s)	30.0	30.0	30.0	10.0	10.0	10.0	14.0	44.0	44.0	14.0	44.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	
Act Effct Green (s)	29.3	29.3	29.3	10.0	10.0	10.0	15.0	54.0	54.0	11.0	50.0	120.0
Actuated g/C Ratio	0.24	0.24	0.24	0.08	0.08	0.08	0.12	0.45	0.45	0.09	0.42	1.00
v/c Ratio	0.74	0.74	0.58	0.48	0.18	0.12	0.41	0.26	0.05	0.42	0.66	0.28
Control Delay	47.9	54.0	9.7	63.6	53.3	0.9	51.6	22.5	0.1	55.2	29.2	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.9	54.0	9.7	63.6	53.3	0.9	51.6	22.5	0.1	55.2	29.2	0.5
LOS	D	D	A	E	D	A	D	C	A	E	C	A
Approach Delay		38.1			44.3			27.7			25.1	
Approach LOS		D			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.74			
Intersection Signal Delay: 30.3		Intersection LOS: C	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*4/29/22*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*Existing*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*1*	*0*	*0*	*0*	*29*	*0*	*119*	*0*	*0*	*650*	*46*	*0*	*175*	*1125*	*0*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Peak Hour Factor (PHF)	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*1427*			*699*			*189*			*31*		
Exiting Flow (V_{ex}), pc/h	*237*			*0*			*699*			*1239*		
Entry Flow (V_e), pc/h		*1*			*31*	*128*	*359*	*388*		*670*	*726*	
Entry Volume veh/h		*1*			*30*	*125*	*352*	*380*		*657*	*712*	

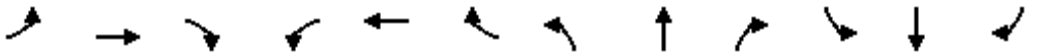
Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*424*			*747*		*1246*	*1246*		*1406*	*1406*	
Capacity (*c*), veh/h		*416*			*732*		*1222*	*1222*		*1378*	*1378*	
v/c Ratio (X)		*0.00*			*0.04*		*0.29*	*0.31*		*0.48*	*0.52*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*8.7*			*5.3*	*0.0*	*5.6*	*5.8*		*7.4*	*8.0*	
Lane LOS		*A*			*A*		*A*	*A*		*A*	*A*	
Lane 95% Queue		*0.0*			*0.1*		*1.2*	*1.3*		*2.7*	*3.1*	
Approach Delay, s/veh	*8.69*			*1.03*			*5.71*			*7.66*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*6.57*											
Intersection LOS	*A*											

 HCS+™ 2010 6.1 Roundabouts Generated: 4/29/2022 9:39 AM

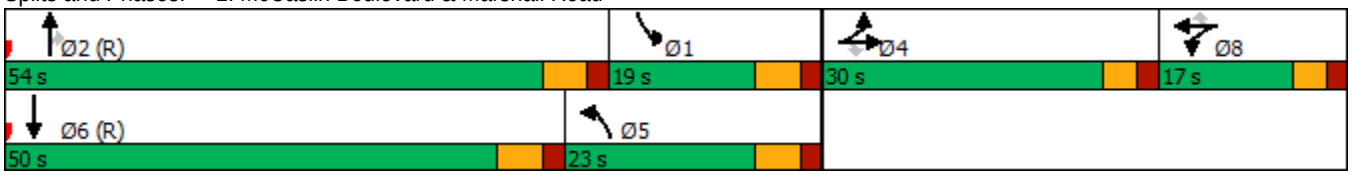


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	425	26	90	45	29	160	298	1200	95	175	631	400
Future Volume (vph)	425	26	90	45	29	160	298	1200	95	175	631	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.969	0.850
Flt Protected	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (prot)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4657	1362
Flt Permitted	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (perm)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4657	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			127			168			118		56	248
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	447	27	95	47	31	168	314	1263	100	184	664	421
Shared Lane Traffic (%)	29%											41%
Lane Group Flow (vph)	317	157	95	47	31	168	314	1263	100	184	837	248
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	30.0	30.0	30.0	17.0	17.0	17.0	23.0	54.0	54.0	19.0	50.0	
Total Split (%)	25.0%	25.0%	25.0%	14.2%	14.2%	14.2%	19.2%	45.0%	45.0%	15.8%	41.7%	
Maximum Green (s)	25.0	25.0	25.0	12.0	12.0	12.0	17.0	48.0	48.0	13.0	44.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	4.0	4.0	3.0	4.0	4.0	5.0	5.0	4.0	4.0	
Lead/Lag							Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0		0	
Act Effct Green (s)	20.4	20.4	19.4	9.6	10.6	9.6	17.4	60.6	60.6	13.4	57.6	120.0
Actuated g/C Ratio	0.17	0.17	0.16	0.08	0.09	0.08	0.14	0.50	0.50	0.11	0.48	1.00
v/c Ratio	0.58	0.57	0.26	0.33	0.19	0.60	0.63	0.49	0.12	0.48	0.37	0.18
Control Delay	49.6	53.2	4.6	57.6	52.2	16.8	54.1	21.8	2.9	54.0	20.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.6	53.2	4.6	57.6	52.2	16.8	54.1	21.8	2.9	54.0	20.2	0.3
LOS	D	D	A	E	D	B	D	C	A	D	C	A
Approach Delay		43.1			29.1			26.7			21.2	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.63			
Intersection Signal Delay: 27.5		Intersection LOS: C	
Intersection Capacity Utilization 54.0%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CSM*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*4/29/22*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2040 Background*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*30*	*5*	*12*	*0*	*65*	*4*	*218*	*0*	*4*	*1345*	*109*	*0*	*151*	*610*	*8*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*	*0.92*	*0.92*	*0.92*	*0.92*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*915*			*1528*			*206*			*80*		
Exiting Flow (V_{ex}), pc/h	*294*			*17*			*1524*			*761*		
Entry Flow (V_e), pc/h		*52*			*76*	*242*	*776*	*840*		*409*	*443*	
Entry Volume veh/h		*51*			*75*	*237*	*761*	*824*		*401*	*434*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*631*			*392*		*1230*	*1230*		*1355*	*1355*	
Capacity (c), veh/h		*619*			*384*		*1206*	*1206*		*1328*	*1328*	
v/c Ratio (X)		*0.08*			*0.19*		*0.63*	*0.68*		*0.30*	*0.33*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*6.7*			*12.6*	*0.0*	*11.1*	*12.6*		*5.4*	*5.7*	
Lane LOS		*A*			*B*		*B*	*B*		*A*	*A*	
Lane 95% Queue		*0.3*			*0.7*		*4.7*	*5.8*		*1.3*	*1.4*	
Approach Delay, s/veh	*6.75*			*3.03*			*11.86*			*5.53*		
Approach LOS, s/veh	*A*			*A*			*B*			*A*		
Intersection Delay, s/veh	*8.87*											
Intersection LOS	*A*											

 HCS+™ 2010 6.1 Roundabouts Generated: 4/29/2022 9:50 AM

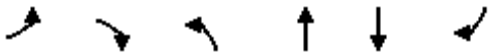
Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	225	5	3	255	60	7	5	5	40	1	5
Future Vol, veh/h	35	225	5	3	255	60	7	5	5	40	1	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	2	2	2	2	2	2
Mvmt Flow	38	245	5	3	277	65	8	5	5	43	1	5

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	342	0	0	250	0	0	643	672	248	645	642	310
Stage 1	-	-	-	-	-	-	324	324	-	316	316	-
Stage 2	-	-	-	-	-	-	319	348	-	329	326	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1217	-	-	1316	-	-	386	377	791	385	392	730
Stage 1	-	-	-	-	-	-	688	650	-	695	655	-
Stage 2	-	-	-	-	-	-	693	634	-	684	648	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1217	-	-	1316	-	-	371	362	791	367	377	730
Mov Cap-2 Maneuver	-	-	-	-	-	-	371	362	-	367	377	-
Stage 1	-	-	-	-	-	-	663	627	-	670	653	-
Stage 2	-	-	-	-	-	-	685	632	-	649	625	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.1	0.1	13.6	15.6
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	436	1217	-	-	1316	-	-	388
HCM Lane V/C Ratio	0.042	0.031	-	-	0.002	-	-	0.129
HCM Control Delay (s)	13.6	8.1	0	-	7.7	0	-	15.6
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.4

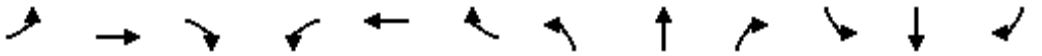


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	71	37	44	475	200	56	
Future Volume (vph)	71	37	44	475	200	56	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.970		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	1863	1807	0	
Flt Permitted	0.950		0.523				
Satd. Flow (perm)	1770	1583	974	1863	1807	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		40			29		
Link Speed (mph)	25			35	35		
Link Distance (ft)	1088			864	736		
Travel Time (s)	29.7			16.8	14.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	77	40	48	516	217	61	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	77	40	48	516	278	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	pm+pt	Perm	pm+pt	NA	NA		
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Minimum Split (s)	9.5	9.5	9.5	22.5	22.5		22.5
Total Split (s)	18.0	18.0	12.0	42.0	30.0		18.0
Total Split (%)	30.0%	30.0%	20.0%	70.0%	50.0%		30%
Maximum Green (s)	13.5	13.5	7.5	37.5	25.5		13.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)				7.0	7.0		7.0
Flash Dont Walk (s)				11.0	11.0		11.0
Pedestrian Calls (#/hr)				0	0		0
Act Effct Green (s)	8.0	8.0	45.0	45.9	39.4		
Actuated g/C Ratio	0.13	0.13	0.75	0.76	0.66		
v/c Ratio	0.33	0.16	0.06	0.36	0.23		
Control Delay	26.6	9.9	3.2	4.3	7.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	26.6	9.9	3.2	4.3	7.1		
LOS	C	A	A	A	A		
Approach Delay	20.9			4.2	7.1		
Approach LOS	C			A	A		

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 7.1		Intersection LOS: A	
Intersection Capacity Utilization 36.7%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: 88th Street & Promenade

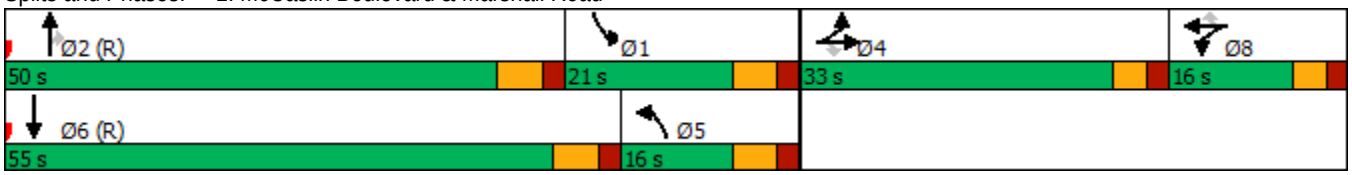


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	975	59	432	95	45	153	215	840	65	230	1385	875
Future Volume (vph)	975	59	432	95	45	153	215	840	65	230	1385	875
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	2		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.969	0.850
Flt Protected	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (prot)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4657	1362
Flt Permitted	0.950	0.960		0.950			0.950			0.950		
Satd. Flow (perm)	3221	1627	1583	1770	1863	1583	3433	5085	1583	3433	4657	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			225			159			118		59	488
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1026	62	455	100	47	161	226	884	68	242	1458	921
Shared Lane Traffic (%)	29%											41%
Lane Group Flow (vph)	728	360	455	100	47	161	226	884	68	242	1836	543
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4	4	8	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	33.0	33.0	33.0	16.0	16.0	16.0	16.0	50.0	50.0	21.0	55.0	
Total Split (%)	27.5%	27.5%	27.5%	13.3%	13.3%	13.3%	13.3%	41.7%	41.7%	17.5%	45.8%	
Maximum Green (s)	28.0	28.0	28.0	11.0	11.0	11.0	10.0	44.0	44.0	15.0	49.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-1.0	-1.0	-1.0	-2.0	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	
Total Lost Time (s)	3.0	4.0	4.0	4.0	3.0	4.0	4.0	5.0	5.0	4.0	4.0	
Lead/Lag							Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0					7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0					11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0					0	0		0	
Act Effct Green (s)	30.1	29.1	29.1	11.1	12.1	11.1	11.9	45.9	45.9	16.9	51.9	120.0
Actuated g/C Ratio	0.25	0.24	0.24	0.09	0.10	0.09	0.10	0.38	0.38	0.14	0.43	1.00
v/c Ratio	0.90	0.91	0.82	0.61	0.25	0.56	0.66	0.45	0.10	0.50	0.90	0.40
Control Delay	59.1	73.0	34.8	68.5	52.8	15.8	62.3	28.8	0.8	51.6	37.7	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	73.0	34.8	68.5	52.8	15.8	62.3	28.8	0.8	51.6	37.7	0.9
LOS	E	E	C	E	D	B	E	C	A	D	D	A
Approach Delay		55.2			38.5			33.6			31.4	
Approach LOS		E			D			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 105			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.91			
Intersection Signal Delay: 38.7		Intersection LOS: D	
Intersection Capacity Utilization 75.3%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CSM*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*4/29/22*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2040 Background*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*18*	*4*	*6*	*0*	*82*	*5*	*255*	*0*	*12*	*850*	*123*	*0*	*387*	*1500*	*25*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Peak Hour Factor (PHF)	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*2115*			*945*			*439*			*106*		
Exiting Flow (V_{ex}), pc/h	*552*			*45*			*932*			*1705*		
Entry Flow (V_e), pc/h		*29*			*93*	*274*	*508*	*550*		*1027*	*1027*	
Entry Volume veh/h		*28*			*91*	*269*	*498*	*539*		*1007*	*1007*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*248*			*617*		*1030*	*1030*		*1328*	*1328*	
Capacity (*c*), veh/h		*243*			*605*		*1010*	*1010*		*1302*	*1302*	
v/c Ratio (X)		*0.12*			*0.15*		*0.49*	*0.53*		*0.77*	*0.77*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*17.4*			*7.8*	*0.0*	*9.4*	*10.2*		*15.3*	*15.3*	
Lane LOS		*C*			*A*		*A*	*B*		*C*	*C*	
Lane 95% Queue		*0.4*			*0.5*		*2.8*	*3.3*		*8.3*	*8.3*	
Approach Delay, s/veh	*17.35*			*1.96*			*9.86*			*15.32*		
Approach LOS, s/veh	*C*			*A*			*A*			*C*		
Intersection Delay, s/veh	*12.29*											
Intersection LOS	*B*											

 HCS+™ 2010 6.1 Roundabouts Generated: 4/29/2022 9:56 AM

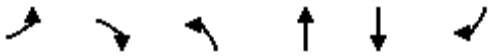
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	485	15	5	290	60	7	5	3	55	8	40
Future Vol, veh/h	10	485	15	5	290	60	7	5	3	55	8	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	2	2	2	2	2	2
Mvmt Flow	11	527	16	5	315	65	8	5	3	60	9	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	380	0	0	543	0	0	941	947	535	919	923	348
Stage 1	-	-	-	-	-	-	557	557	-	358	358	-
Stage 2	-	-	-	-	-	-	384	390	-	561	565	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1178	-	-	1026	-	-	243	261	545	252	270	695
Stage 1	-	-	-	-	-	-	515	512	-	660	628	-
Stage 2	-	-	-	-	-	-	639	608	-	512	508	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1178	-	-	1026	-	-	219	256	545	243	265	695
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	256	-	243	265	-
Stage 1	-	-	-	-	-	-	508	505	-	651	624	-
Stage 2	-	-	-	-	-	-	587	604	-	497	501	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0.1	19.6	21.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	263	1178	-	-	1026	-	-	328
HCM Lane V/C Ratio	0.062	0.009	-	-	0.005	-	-	0.341
HCM Control Delay (s)	19.6	8.1	0	-	8.5	0	-	21.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	1.5



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	50	49	47	375	575	64	
Future Volume (vph)	50	49	47	375	575	64	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.986		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	1863	1837	0	
Flt Permitted	0.950		0.256				
Satd. Flow (perm)	1770	1583	477	1863	1837	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		53			12		
Link Speed (mph)	25			35	35		
Link Distance (ft)	1088			864	736		
Travel Time (s)	29.7			16.8	14.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	54	53	51	408	625	70	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	54	53	51	408	695	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	pm+pt	Perm	pm+pt	NA	NA		
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Minimum Split (s)	9.5	9.5	9.5	22.5	22.5		22.5
Total Split (s)	18.0	18.0	12.0	42.0	30.0		18.0
Total Split (%)	30.0%	30.0%	20.0%	70.0%	50.0%		30%
Maximum Green (s)	13.5	13.5	7.5	37.5	25.5		13.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)				7.0	7.0		7.0
Flash Dont Walk (s)				11.0	11.0		11.0
Pedestrian Calls (#/hr)				0	0		0
Act Effct Green (s)	7.3	7.3	45.7	46.6	40.1		
Actuated g/C Ratio	0.12	0.12	0.76	0.78	0.67		
v/c Ratio	0.25	0.22	0.10	0.28	0.57		
Control Delay	26.1	10.1	3.1	3.5	11.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	26.1	10.1	3.1	3.5	11.3		
LOS	C	B	A	A	B		
Approach Delay	18.2			3.5	11.3		
Approach LOS	B			A	B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.57			
Intersection Signal Delay: 9.0		Intersection LOS: A	
Intersection Capacity Utilization 50.7%		ICU Level of Service A	
Analysis Period (min) 15			

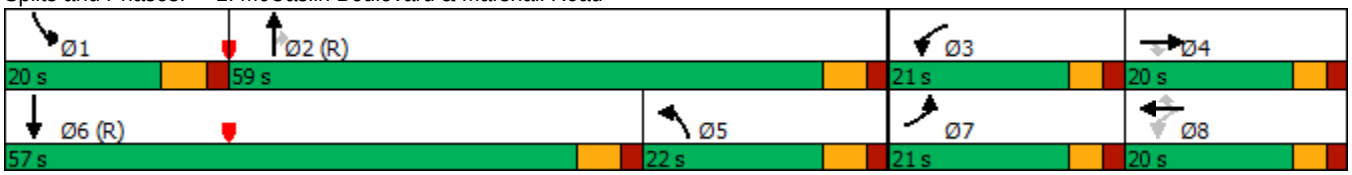
Splits and Phases: 6: 88th Street & Promenade

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	425	30	100	45	30	170	300	1230	95	215	760	400
Future Volume (vph)	425	30	100	45	30	170	300	1230	95	215	760	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	3		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.977	0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	4990	1863	1583	1770	1863	1583	3433	5085	1583	3433	4695	1362
Flt Permitted	0.950			0.736			0.950			0.950		
Satd. Flow (perm)	4990	1863	1583	1371	1863	1583	3433	5085	1583	3433	4695	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			118		35	274
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	447	32	105	47	32	179	316	1295	100	226	800	421
Shared Lane Traffic (%)												35%
Lane Group Flow (vph)	447	32	105	47	32	179	316	1295	100	226	947	274
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	21.0	20.0	20.0	21.0	20.0	20.0	22.0	59.0	59.0	20.0	57.0	
Total Split (%)	17.5%	16.7%	16.7%	17.5%	16.7%	16.7%	18.3%	49.2%	49.2%	16.7%	47.5%	
Maximum Green (s)	16.0	15.0	15.0	16.0	15.0	15.0	16.0	53.0	53.0	14.0	51.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	
Total Lost Time (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0	0		0	0		0	
Act Effct Green (s)	16.0	18.4	18.4	20.1	9.2	9.2	18.0	62.8	62.8	15.0	59.8	120.0
Actuated g/C Ratio	0.13	0.15	0.15	0.17	0.08	0.08	0.15	0.52	0.52	0.12	0.50	1.00
v/c Ratio	0.67	0.11	0.26	0.18	0.23	0.62	0.61	0.49	0.11	0.53	0.40	0.20
Control Delay	54.9	45.5	1.6	35.0	54.5	16.7	53.5	19.9	2.5	53.5	19.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	45.5	1.6	35.0	54.5	16.7	53.5	19.9	2.5	53.5	19.2	0.3
LOS	D	D	A	C	D	B	D	B	A	D	B	A
Approach Delay		44.8			24.7			25.1			21.0	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 26.5		Intersection LOS: C	
Intersection Capacity Utilization 55.5%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	12	47	100	50	40
Future Vol, veh/h	10	12	47	100	50	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	13	51	109	54	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	287	76	97	0	-	0
Stage 1	76	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	703	985	1496	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	678	985	1496	-	-	-
Mov Cap-2 Maneuver	678	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	824	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	2.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1496	-	817	-	-
HCM Lane V/C Ratio	0.034	-	0.029	-	-
HCM Control Delay (s)	7.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CSM*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*5/19/22*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2040 Total*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*30*	*5*	*12*	*0*	*79*	*4*	*250*	*0*	*4*	*1345*	*169*	*0*	*290*	*610*	*8*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
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*	*0.92*	*0.92*	*0.92*	*0.92*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*1086*			*1528*			*361*			*96*		
Exiting Flow (V_{ex}), pc/h	*515*			*17*			*1524*			*777*		
Entry Flow (V_e), pc/h		*52*			*92*	*277*	*807*	*875*		*483*	*524*	
Entry Volume veh/h		*51*			*90*	*272*	*791*	*858*		*474*	*514*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*552*			*392*		*1093*	*1093*		*1338*	*1338*	
Capacity (c), veh/h		*541*			*384*		*1072*	*1072*		*1312*	*1312*	
v/c Ratio (X)		*0.09*			*0.23*		*0.74*	*0.80*		*0.36*	*0.39*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*7.8*			*13.4*	*0.0*	*15.9*	*19.2*		*6.1*	*6.5*	
Lane LOS		*A*			*B*		*C*	*C*		*A*	*A*	
Lane 95% Queue		*0.3*			*0.9*		*7.0*	*9.0*		*1.7*	*1.9*	
Approach Delay, s/veh	*7.82*			*3.33*			*17.62*			*6.28*		
Approach LOS, s/veh	*A*			*A*			*C*			*A*		
Intersection Delay, s/veh	*12.08*											
Intersection LOS	*B*											

 HCS+™ 2010 6.1 Roundabouts Generated: 5/19/2022 11:25 AM

Intersection	
Intersection Delay, s/veh	6.2
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	504	358	50	39
Demand Flow Rate, veh/h	513	366	51	40
Vehicles Circulating, veh/h	41	162	458	371
Vehicles Exiting, veh/h	370	347	96	157
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	6.5	6.1	4.8	4.3
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	513	366	51	40
Cap Entry Lane, veh/h	1323	1170	865	945
Entry HV Adj Factor	0.982	0.978	0.980	0.975
Flow Entry, veh/h	504	358	50	39
Cap Entry, veh/h	1299	1144	848	922
V/C Ratio	0.388	0.313	0.059	0.042
Control Delay, s/veh	6.5	6.1	4.8	4.3
LOS	A	A	A	A
95th %tile Queue, veh	2	1	0	0

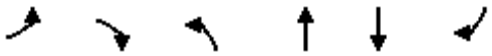
Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	68	240	6	3	303	74	9	6	5	44	1	17
Future Vol, veh/h	68	240	6	3	303	74	9	6	5	44	1	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	2	2	2	2	2	2
Mvmt Flow	74	261	7	3	329	80	10	7	5	48	1	18

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	409	0	0	268	0	0	798	828	265	794	791	369
Stage 1	-	-	-	-	-	-	413	413	-	375	375	-
Stage 2	-	-	-	-	-	-	385	415	-	419	416	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1150	-	-	1296	-	-	304	306	774	306	322	677
Stage 1	-	-	-	-	-	-	616	594	-	646	617	-
Stage 2	-	-	-	-	-	-	638	592	-	612	592	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1150	-	-	1296	-	-	277	282	774	281	297	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	282	-	281	297	-
Stage 1	-	-	-	-	-	-	569	549	-	597	615	-
Stage 2	-	-	-	-	-	-	618	590	-	555	547	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.8	0.1	16.6	18.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	332	1150	-	-	1296	-	-	335
HCM Lane V/C Ratio	0.065	0.064	-	-	0.003	-	-	0.201
HCM Control Delay (s)	16.6	8.3	0	-	7.8	0	-	18.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0.2	-	-	0	-	-	0.7

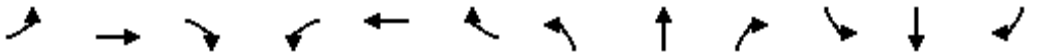


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	75	40	60	477	208	75	
Future Volume (vph)	75	40	60	477	208	75	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.964		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	1863	1796	0	
Flt Permitted	0.950		0.500				
Satd. Flow (perm)	1770	1583	931	1863	1796	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		43			38		
Link Speed (mph)	25			35	35		
Link Distance (ft)	1088			864	736		
Travel Time (s)	29.7			16.8	14.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	82	43	65	518	226	82	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	82	43	65	518	308	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	pm+pt	Perm	pm+pt	NA	NA		
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Minimum Split (s)	9.5	9.5	9.5	22.5	22.5		22.5
Total Split (s)	18.0	18.0	12.0	42.0	30.0		18.0
Total Split (%)	30.0%	30.0%	20.0%	70.0%	50.0%		30%
Maximum Green (s)	13.5	13.5	7.5	37.5	25.5		13.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)				7.0	7.0		7.0
Flash Dont Walk (s)				11.0	11.0		11.0
Pedestrian Calls (#/hr)				0	0		0
Act Effct Green (s)	8.2	8.2	44.8	45.7	39.1		
Actuated g/C Ratio	0.14	0.14	0.75	0.76	0.65		
v/c Ratio	0.34	0.17	0.08	0.36	0.26		
Control Delay	26.7	9.7	3.3	4.4	7.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	26.7	9.7	3.3	4.4	7.4		
LOS	C	A	A	A	A		
Approach Delay	20.8			4.3	7.4		
Approach LOS	C			A	A		

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 55			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.36			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 36.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: 88th Street & Promenade

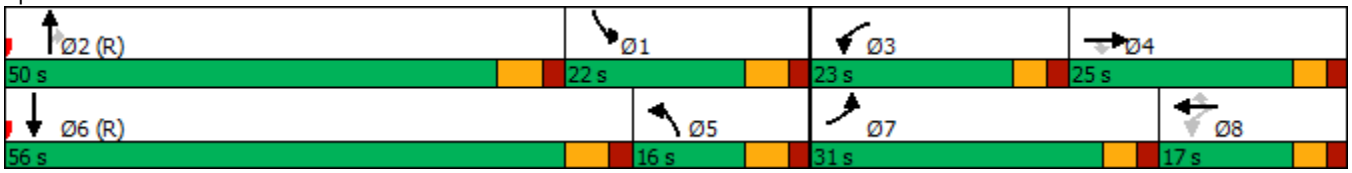


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	975	60	435	95	50	200	225	970	65	245	1420	875
Future Volume (vph)	975	60	435	95	50	200	225	970	65	245	1420	875
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		260	120		120	180		150	220		225
Storage Lanes	3		1	1		1	2		1	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.94	1.00	1.00	1.00	1.00	1.00	0.97	0.91	1.00	0.97	0.86	0.86
Frt			0.850			0.850			0.850		0.970	0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	4990	1863	1583	1770	1863	1583	3433	5085	1583	3433	4662	1362
Flt Permitted	0.950			0.716			0.950			0.950		
Satd. Flow (perm)	4990	1863	1583	1334	1863	1583	3433	5085	1583	3433	4662	1362
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			317			173			164		58	468
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1258			1440			1860			627	
Travel Time (s)		28.6			32.7			36.2			12.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1026	63	458	100	53	211	237	1021	68	258	1495	921
Shared Lane Traffic (%)												41%
Lane Group Flow (vph)	1026	63	458	100	53	211	237	1021	68	258	1873	543
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	20	100	20	20	100	20	20	100	20	20	100	20
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Position(ft)	0	0	0	0	0	0	0	0	0	0	0	0
Detector 1 Size(ft)	20	6	20	20	6	20	20	6	20	20	6	20
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4	8		8			2			Free

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	23.0	23.0	23.0	23.0	23.0	23.0	11.0	24.0	24.0	11.0	24.0	
Total Split (s)	31.0	25.0	25.0	23.0	17.0	17.0	16.0	50.0	50.0	22.0	56.0	
Total Split (%)	25.8%	20.8%	20.8%	19.2%	14.2%	14.2%	13.3%	41.7%	41.7%	18.3%	46.7%	
Maximum Green (s)	26.0	20.0	20.0	18.0	12.0	12.0	10.0	44.0	44.0	16.0	50.0	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	-1.0	-1.0	-1.0	-2.0	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	
Total Lost Time (s)	3.0	4.0	4.0	4.0	3.0	4.0	4.0	5.0	5.0	4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lead	Lead	Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0		11.0	11.0		11.0	
Pedestrian Calls (#/hr)	0	0	0		0	0		0	0		0	
Act Effct Green (s)	27.9	25.9	25.9	21.3	11.2	10.2	12.0	47.9	47.9	18.0	54.9	120.0
Actuated g/C Ratio	0.23	0.22	0.22	0.18	0.09	0.08	0.10	0.40	0.40	0.15	0.46	1.00
v/c Ratio	0.88	0.16	0.78	0.36	0.31	0.72	0.69	0.50	0.09	0.50	0.87	0.40
Control Delay	54.7	39.3	23.4	32.2	54.4	27.1	63.6	28.6	0.2	50.7	34.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	39.3	23.4	32.2	54.4	27.1	63.6	28.6	0.2	50.7	34.0	0.9
LOS	D	D	C	C	D	C	E	C	A	D	C	A
Approach Delay		44.8			32.5			33.4			28.9	
Approach LOS		D			C			C			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 99 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green			
Natural Cycle: 95			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 34.3		Intersection LOS: C	
Intersection Capacity Utilization 76.1%		ICU Level of Service D	
Analysis Period (min) 15			

Splits and Phases: 1: McCaslin Boulevard & Marshall Road



Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	49	16	80	105	14
Future Vol, veh/h	47	49	16	80	105	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	53	17	87	114	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	243	122	129	0	-	0
Stage 1	122	-	-	-	-	-
Stage 2	121	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	745	929	1457	-	-	-
Stage 1	903	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	736	929	1457	-	-	-
Mov Cap-2 Maneuver	736	-	-	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	1.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1457	-	823	-	-
HCM Lane V/C Ratio	0.012	-	0.127	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*CSM*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*5/19/22*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2040 Total*
		Project ID	*LSC #220390*

Project Description:

Volume Adjustment and Site Characteristics

	EB				WB				NB				SB			
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U
Number of Lanes(N)	*0*	*1*	*0*		*0*	*1*	*0*		*0*	*2*	*0*		*0*	*2*	*0*	
Volume (V), veh/h	*18*	*4*	*6*	*0*	*145*	*5*	*395*	*0*	*12*	*850*	*141*	*0*	*425*	*1500*	*25*	*0*
Heavy Veh. Adj. (f_{HV}), %	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Peak Hour Factor (PHF)	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*	*0.95*
No. of Pedestrians Crossing Entry	*0*				0				0				0			

Critical and Follow-Up Headway Adjustment

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	*4.2929*	*4.2000*	*5.1929*	*4.2929*	*4.2000*	*4.2000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.8000*	*3.1858*	*3.1858*	*2.8000*	*2.8000*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*3.1858*

Flow Computations

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Circulating Flow (V_c), pc/h	*2223*			*945*			*479*			*174*		
Exiting Flow (V_{ex}), pc/h	*611*			*45*			*932*			*1773*		
Entry Flow (V_e), pc/h		*29*			*161*	*424*	*517*	*560*		*1047*	*1047*	
Entry Volume veh/h		*28*			*158*	*416*	*507*	*549*		*1026*	*1026*	

Capacity and v/c Ratios

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Capacity (c_{PCE}), pc/h		*228*			*617*		*999*	*999*		*1261*	*1261*	
Capacity (*c*), veh/h		*224*			*605*		*979*	*979*		*1236*	*1236*	
v/c Ratio (X)		*0.13*			*0.26*		*0.52*	*0.56*		*0.83*	*0.83*	

Delay and Level of Service

	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		*19.0*			*9.3*	*0.0*	*10.1*	*11.1*		*19.4*	*19.4*	
Lane LOS		*C*			*A*		*B*	*B*		*C*	*C*	
Lane 95% Queue		*0.4*			*1.0*		*3.1*	*3.6*		*10.5*	*10.5*	
Approach Delay, s/veh	*19.03*			*2.57*			*10.63*			*19.35*		
Approach LOS, s/veh	*C*			*A*			*B*			*C*		
Intersection Delay, s/veh	*14.27*											
Intersection LOS	*B*											

 HCS+™ 2010 6.1 Roundabouts Generated: 5/19/2022 11:27 AM

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	621	420	107	163
Demand Flow Rate, veh/h	634	428	109	167
Vehicles Circulating, veh/h	56	114	645	493
Vehicles Exiting, veh/h	603	640	45	49
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	7.9	6.3	6.8	6.5
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	634	428	109	167
Cap Entry Lane, veh/h	1303	1228	715	835
Entry HV Adj Factor	0.979	0.982	0.982	0.976
Flow Entry, veh/h	621	420	107	163
Cap Entry, veh/h	1276	1206	702	815
V/C Ratio	0.486	0.348	0.153	0.200
Control Delay, s/veh	7.9	6.3	6.8	6.5
LOS	A	A	A	A
95th %tile Queue, veh	3	2	1	1

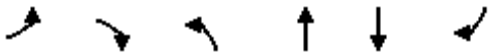
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	532	17	5	307	64	8	5	3	73	9	72
Future Vol, veh/h	27	532	17	5	307	64	8	5	3	73	9	72
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
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	2	2	2	2	2	2
Mvmt Flow	29	578	18	5	334	70	9	5	3	79	10	78

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	404	0	0	596	0	0	1068	1059	587	1028	1033	369
Stage 1	-	-	-	-	-	-	645	645	-	379	379	-
Stage 2	-	-	-	-	-	-	423	414	-	649	654	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
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	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1155	-	-	980	-	-	199	224	510	212	232	677
Stage 1	-	-	-	-	-	-	461	467	-	643	615	-
Stage 2	-	-	-	-	-	-	609	593	-	458	463	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1155	-	-	980	-	-	164	214	510	199	222	677
Mov Cap-2 Maneuver	-	-	-	-	-	-	164	214	-	199	222	-
Stage 1	-	-	-	-	-	-	443	449	-	619	611	-
Stage 2	-	-	-	-	-	-	526	589	-	432	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.1	24.2	31.1
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	1155	-	-	980	-	-	300
HCM Lane V/C Ratio	0.085	0.025	-	-	0.006	-	-	0.558
HCM Control Delay (s)	24.2	8.2	0	-	8.7	0	-	31.1
HCM Lane LOS	C	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	3.2

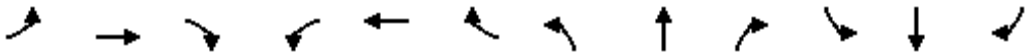


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Lane Configurations							
Traffic Volume (vph)	70	60	50	383	577	70	
Future Volume (vph)	70	60	50	383	577	70	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850			0.985		
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1770	1863	1835	0	
Flt Permitted	0.950		0.244				
Satd. Flow (perm)	1770	1583	455	1863	1835	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		65			13		
Link Speed (mph)	25			35	35		
Link Distance (ft)	1088			864	736		
Travel Time (s)	29.7			16.8	14.3		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	76	65	54	416	627	76	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	76	65	54	416	703	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	1	1	2	2		
Detector Template	Left	Right	Left	Thru	Thru		
Leading Detector (ft)	20	20	20	100	100		
Trailing Detector (ft)	0	0	0	0	0		
Detector 1 Position(ft)	0	0	0	0	0		
Detector 1 Size(ft)	20	20	20	6	6		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		
Detector 2 Position(ft)				94	94		
Detector 2 Size(ft)				6	6		
Detector 2 Type				Cl+Ex	Cl+Ex		
Detector 2 Channel							
Detector 2 Extend (s)				0.0	0.0		
Turn Type	pm+pt	Perm	pm+pt	NA	NA		
Protected Phases	7		5	2	6		4
Permitted Phases	4	7	2				
Detector Phase	7	7	5	2	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		5.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø4
Minimum Split (s)	9.5	9.5	9.5	22.5	22.5		22.5
Total Split (s)	18.0	18.0	12.0	42.0	30.0		18.0
Total Split (%)	30.0%	30.0%	20.0%	70.0%	50.0%		30%
Maximum Green (s)	13.5	13.5	7.5	37.5	25.5		13.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag			Lead		Lag		
Lead-Lag Optimize?			Yes		Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0
Recall Mode	None	None	None	C-Max	C-Max		None
Walk Time (s)				7.0	7.0		7.0
Flash Dont Walk (s)				11.0	11.0		11.0
Pedestrian Calls (#/hr)				0	0		0
Act Effct Green (s)	8.0	8.0	45.0	45.9	39.3		
Actuated g/C Ratio	0.13	0.13	0.75	0.76	0.66		
v/c Ratio	0.32	0.24	0.11	0.29	0.58		
Control Delay	26.5	9.3	3.5	3.9	12.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	26.5	9.3	3.5	3.9	12.6		
LOS	C	A	A	A	B		
Approach Delay	18.6			3.8	12.6		
Approach LOS	B			A	B		

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 60			
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.58			
Intersection Signal Delay: 10.1		Intersection LOS: B	
Intersection Capacity Utilization 53.2%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 6: 88th Street & Promenade

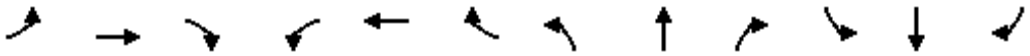


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	447	32	105	47	32	179	316	1295	100	226	947	274
v/c Ratio	0.67	0.11	0.26	0.18	0.23	0.62	0.61	0.49	0.11	0.53	0.40	0.20
Control Delay	54.9	45.5	1.6	35.0	54.5	16.7	53.5	19.9	2.5	53.5	19.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.9	45.5	1.6	35.0	54.5	16.7	53.5	19.9	2.5	53.5	19.2	0.3
Queue Length 50th (ft)	117	22	0	28	24	0	119	228	0	85	166	0
Queue Length 95th (ft)	154	51	0	56	54	65	168	311	23	123	224	0
Internal Link Dist (ft)		1178			1360			1780			547	
Turn Bay Length (ft)	390		260	120		120	180		150	220		225
Base Capacity (vph)	706	288	399	381	248	368	514	2662	884	471	2357	1362
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.11	0.26	0.12	0.13	0.49	0.61	0.49	0.11	0.48	0.40	0.20

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	82	43	65	518	308
v/c Ratio	0.34	0.17	0.08	0.36	0.26
Control Delay	26.7	9.7	3.3	4.4	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.7	9.7	3.3	4.4	7.4
Queue Length 50th (ft)	27	0	5	55	48
Queue Length 95th (ft)	59	22	16	116	105
Internal Link Dist (ft)	1008			784	656
Turn Bay Length (ft)					
Base Capacity (vph)	398	389	800	1420	1183
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.11	0.08	0.36	0.26

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1026	63	458	100	53	211	237	1021	68	258	1873	543
v/c Ratio	0.88	0.16	0.78	0.36	0.31	0.72	0.69	0.50	0.09	0.50	0.87	0.40
Control Delay	54.7	39.3	23.4	32.2	54.4	27.1	63.6	28.6	0.2	50.7	34.0	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.7	39.3	23.4	32.2	54.4	27.1	63.6	28.6	0.2	50.7	34.0	0.9
Queue Length 50th (ft)	273	40	103	54	39	28	92	213	0	95	478	0
Queue Length 95th (ft)	#336	80	241	92	79	109	137	269	0	139	585	0
Internal Link Dist (ft)		1178			1360			1780			547	
Turn Bay Length (ft)	390		260	120		120	180		150	220		225
Base Capacity (vph)	1164	402	590	393	217	325	343	2030	730	514	2165	1362
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.16	0.78	0.25	0.24	0.65	0.69	0.50	0.09	0.50	0.87	0.40

Intersection Summary

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

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	76	65	54	416	703
v/c Ratio	0.32	0.24	0.11	0.29	0.58
Control Delay	26.5	9.3	3.5	3.9	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	9.3	3.5	3.9	12.6
Queue Length 50th (ft)	25	0	4	41	166
Queue Length 95th (ft)	56	27	14	86	#384
Internal Link Dist (ft)	1008			784	656
Turn Bay Length (ft)					
Base Capacity (vph)	398	406	505	1424	1206
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.16	0.11	0.29	0.58

Intersection Summary

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