LSC TRANSPORTATION CONSULTANTS, INC.

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Denver, CO 80206
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June 9, 2020

Mr. Mike Cooper
Boulder Creek Neighborhoods
712 Main Street
Louisville, CO 80027

Re: Rogers Farm
Traffic Impact Analysis
Superior, CO
LSC #181240

Dear Mr. Cooper:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Rogers Farm residential development to address Town comments. As shown on Figure 1, the site is located west of McCaslin Boulevard and south of Williams Street in Superior, Colorado.

REPORT CONTENTS

The report contains the following: the existing roadway and traffic conditions in the vicinity of the site 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 short- and 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 61 dwelling units. Full movement access is proposed to Coal Creek Drive via Second Avenue and to McCaslin Boulevard. Figure 2 shows the proposed site plan. The site plan also shows 27 single-family detached home lots previously platted west of the site which are included in the future background traffic volumes.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **Second Avenue** is a north-south, two-lane roadway west of the site that connects a portion of original Superior north across Coal Creek to Coal Creek Drive. The intersections with Coal Creek Drive and W. William Street are all-way stop-sign controlled. The posted speed limit in the vicinity of the site is 25 mph.

- **Coal Creek Drive** is an east-west, two-lane, collector roadway north of the site. The intersection with Second Avenue is all-way stop-sign controlled. The posted speed limit in the vicinity of the site is 25 mph.

- **McCaslin Boulevard** is a north-south, four-lane arterial roadway east of the site that transitions to six lanes to the north of Marshall Road. It connects north to US 36 and south to SH 128, providing regional connectivity for the area. The proposed site access will become the western leg of the existing McCaslin Boulevard/ Main Street roundabout and provide secondary access for the portion of original Superior south of Coal Creek.

Existing Traffic Conditions

Figure 3 shows the existing lane geometries, traffic controls, posted speed limits, 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 Counter Measures in August, 2019.

2022 and 2040 Background Traffic

Figure 4 shows the estimated 2022 background traffic volumes and Figure 5 shows the estimated 2040 background traffic volumes.

The 2022 background traffic volumes assume the internal roadways are connected to allow a reassignment of existing trips (120 daily trips are assumed to shift from Second Street to Douglas Street), half buildout of the Superior Town Center, the Superior Town Center is not yet connected on the southeast to either Coal Creek Drive or 88th Street, and through traffic on McCaslin Boulevard grows at an annual rate of one percent and the 27 single-family detached home lots are developed west of the site (80 percent are assumed to use Douglas Street and 20 percent are assumed to use Second Street). The projections are consistent with the recently completed *Morgan Ranch - DTS TIA* by LSC.

The 2040 background traffic volumes assume the internal roadways are connected to allow a reassignment of existing trips, full buildout of the Superior Town Center, the Superior Town Center is connected on the southeast to either Coal Creek Drive or 88th Street, and through traffic on McCaslin Boulevard grows at an annual rate of one percent and the 27 single-family detached home lots are developed west of the site.

2022 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 unsignalized intersections.

The intersections in Figures 4 and 5 were analyzed as appropriate to determine the 2022 and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Second Avenue/Coal Creek Drive:** All movements at this all-way stop-sign controlled intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to do so through 2040.

- **Second Avenue/W. William Street:** All movements at this all-way stop-sign controlled intersection currently operate at LOS "A" during both morning and afternoon peak-hours and are expected to do so through 2040.

- **McCaslin Boulevard/Main Street:** This roundabout controlled intersection is expected to operate at LOS "A" during both morning and afternoon peak-hours through 2022. By 2040, it is expected to operate at LOS "A" during the morning peak-hour and LOS "C" during the afternoon peak-hour.

TRIP GENERATION

Table 2 shows the estimated average weekday, morning peak-hour, and afternoon peak-hour trip generation for the proposed site based on the rates from *Trip Generation*, 10th Edition, 2017 by the Institute of Transportation Engineers (ITE) for the proposed land use.

The proposed cottages are assumed to generate trips similar to a single-family detached home to maintain a conservative analysis so are projected to generate about 576 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 11 vehicles would enter and about 34 vehicles would exit the site. During the afternoon peak-hour, which generally occurs for one hour between 4:00 and 6:00 p.m., about 38 vehicles would enter and about 22 vehicles would exit.

TRIP DISTRIBUTION

Figure 6 shows the estimated directional distribution. The estimates were based on the location of the site with respect to the regional population, employment, and activity centers; and the site's proposed land use.

TRIP ASSIGNMENT

Figure 7 shows the estimated site-generated traffic volumes based on the directional distribution percentages (from Figure 6) and the trip generation estimate (from Table 2).

2022 AND 2040 TOTAL TRAFFIC

Figure 8 shows the 2022 total traffic which is the sum of the 2022 background traffic volumes (from Figure 4) and the site-generated traffic volumes (from Figure 7). Figure 8 also shows the recommended 2022 lane geometry and traffic control.

Figure 9 shows the 2040 total traffic which is the sum of the 2040 background traffic volumes (from Figure 5) and the site-generated traffic volumes (from Figure 7). Figure 9 also shows the recommended 2040 lane geometry and traffic control.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8 and 9 were analyzed to determine the 2022 and 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- **Second Avenue/Coal Creek Drive:** All movements at this all-way stop-sign controlled intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2040.

- **Second Avenue/W. William Street:** All movements at this all-way stop-sign controlled intersection are expected to operate at LOS "A" during both morning and afternoon peak-hours through 2040.

- **McCaslin Boulevard/Main Street:** This roundabout controlled intersection is expected to operate at LOS "A" during both morning and afternoon peak-hours through 2022. By 2040, it is expected to operate at LOS "A" during the morning peak-hour and LOS "C" during the afternoon peak-hour.

ROUNDABOUT QUEUE ANALYSIS

The 95th percentile queue lengths for the roundabout are shown in the HCS capacity analysis reports in the appendix. The 2040 morning peak-hour lengths are 8 vehicles northbound and 2 vehicles southbound. The 2040 afternoon peak-hour lengths are 4 vehicles northbound and 18 vehicles southbound. Roundabout queues tend to be slowly moving or rolling queues so a relatively large 40 feet is assumed per vehicle. The 18 southbound queued vehicles would be about 720 feet long so would not back up to Marshall Road which is about 1,150 feet north of the roundabout.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The proposed land use is projected to generate about 576 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 11 vehicles would enter and about 34 vehicles would exit the

site. During the afternoon peak-hour, about 38 vehicles would enter and about 22 vehicles would exit.

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.

Conclusions

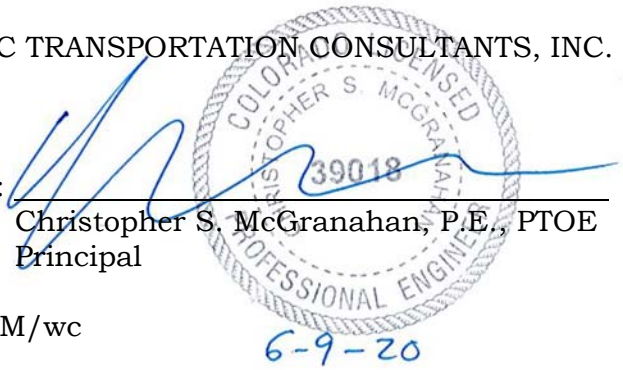
3. The impact of the Rogers Farm development can be accommodated by the existing and proposed roadway network.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Rogers Farm residential development. 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

Enclosure: Tables 1 and 2
Figures 1 - 9
Traffic Counts
Level of Service Definitions
Capacity Analysis Reports

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Table 1
Intersection Levels of Service Analysis
Rogers Farm
Superior, CO
LSC #181240; June, 2020

		Existing Traffic		2022 Background		2022 Total		2040 Background		2040 Total	
Intersection Location	Traffic Control	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM	Level of Service AM	Level of Service PM
Second Avenue/Coal Creek Drive	AWSC										
NB Approach		A	A	A	A	A	A	A	A	A	A
EB Approach		A	A	A	A	A	A	A	A	A	A
WB Approach		A	A	A	A	A	A	A	A	A	A
SB Approach		A	A	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		7.2	7.4	7.3	7.5	7.3	7.5	7.4	7.6	7.4	7.6
Entire Intersection LOS		A	A	A	A	A	A	A	A	A	A
Second Avenue/W. William Street	AWSC										
NB Approach		A	A	A	A	A	A	A	A	A	A
EB Approach		A	A	A	A	A	A	A	A	A	A
WB Approach		A	A	A	A	A	A	A	A	A	A
SB Approach		A	A	A	A	A	A	A	A	A	A
Entire Intersection Delay (sec /veh)		7.0	6.9	7.0	7.0	7.1	7.1	7.1	7.0	7.1	7.1
Entire Intersection LOS		A	A	A	A	A	A	A	A	A	A
McCaslin Boulevard/Main Street	Roundabout										
EB Approach		--	--	A	B	A	B	A	C	A	C
WB Approach		--	--	A	A	A	A	A	A	A	A
NB Approach		--	--	A	A	A	A	B	B	C	B
SB Approach		--	--	A	B	A	B	A	D	A	D
Entire Intersection Delay (sec /veh)		--	--	7.1	9.2	7.3	9.7	10.1	22.4	10.6	23.6
Entire Intersection LOS		--	--	A	A	A	A	B	C	B	C

Table 2
ESTIMATED TRAFFIC GENERATION
Rogers Farm
Superior, CO
LSC #181240; June, 2020

		Trip Generation Rates [1]					Vehicle-Trips Generated				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour	
Trip Generating Category	Quantity	Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
CURRENTLY PROPOSED LAND USE											
Cottages [2]	61 DU [3]	9.44	0.185	0.555	0.624	0.366	576	11	34	38	22
ADJACENT LAND USE INCLUDED IN BACKGROUND TRAFFIC											
Single-Family Detached [2]	27 DU	9.44	0.185	0.555	0.624	0.366	255	5	15	17	10

Notes:
(1) Source: *Trip Generation*, Institute of Transportation Engineers, 10th Edition, 2017.
(2) ITE Land Use No. 210 - Single-Family Detached Housing
(3) DU = Dwelling Units

Figure 1

Vicinity Map

Rogers Farm (LSC #181240)

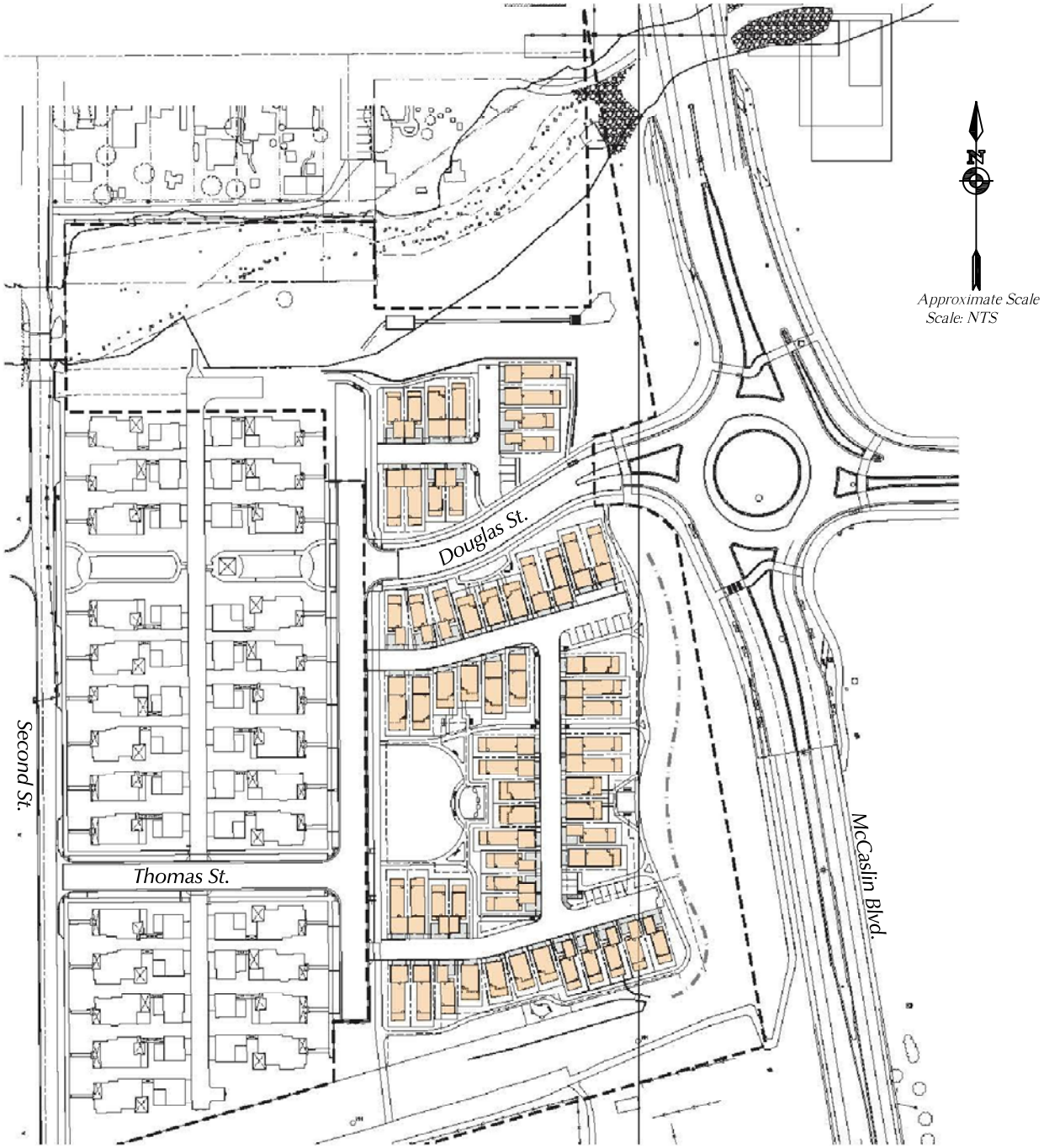
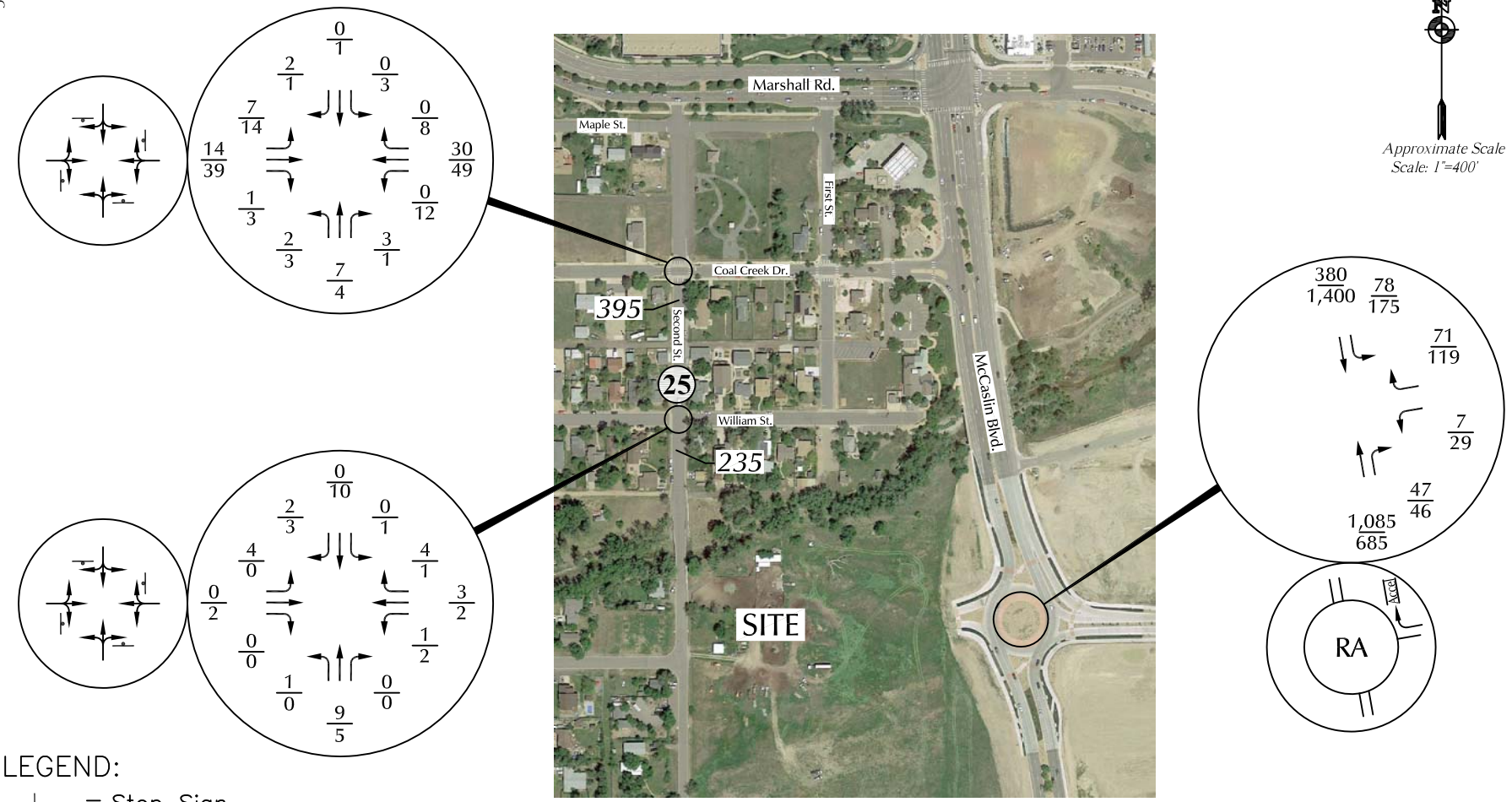


Figure 2

Site Plan

Rogers Farm (LSC #181240)

LSC TRANSPORTATION CONSULTANTS, INC.



Approximate Scale
Scale: 1"=400'

LEGEND:

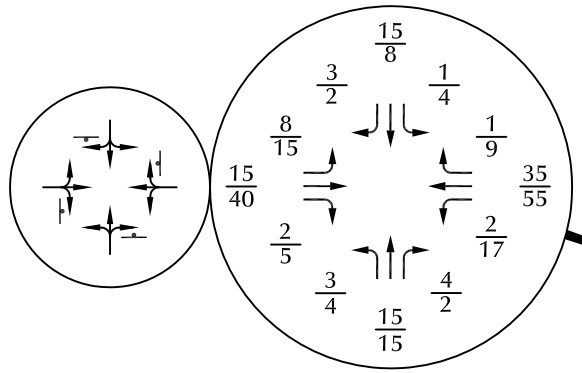
- ⊢ = Stop Sign
- RA = Modern Roundabout
- 25 = Speed Limit
- 26/35 = AM Peak Hour Traffic / PM Peak Hour Traffic
- 1,000 = Average Daily Traffic

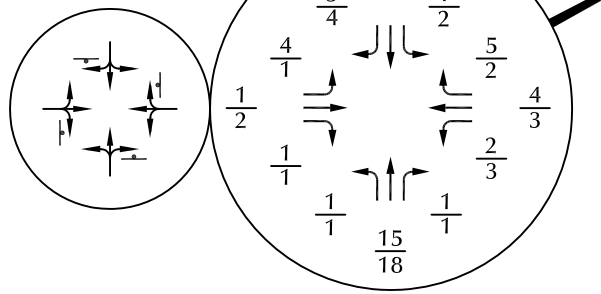
Figure 3

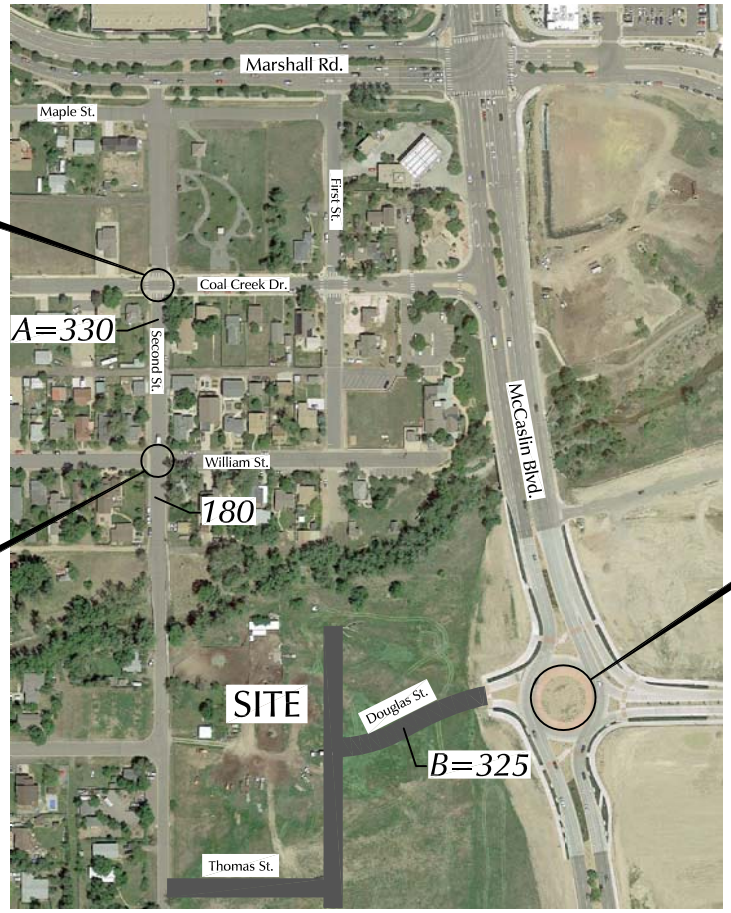
Existing Traffic, Lane Geometry and Traffic Control

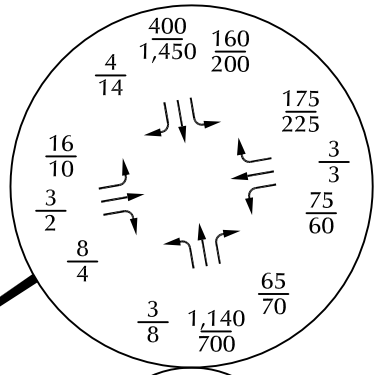
Rogers Farm (LSC #181240)

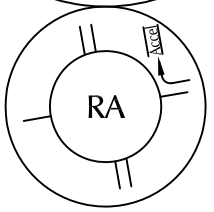
A = 395 existing trips minus 120 trips reassigned to Douglas Street plus 50 trips from 27 new single family homes adjacent to the site.
B = 120 redirected trips plus 205 trips from 27 new single family homes adjacent to the site.











Approximate Scale
Scale: 1"=400'

LEGEND:

= Stop Sign

RA = Modern Roundabout

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

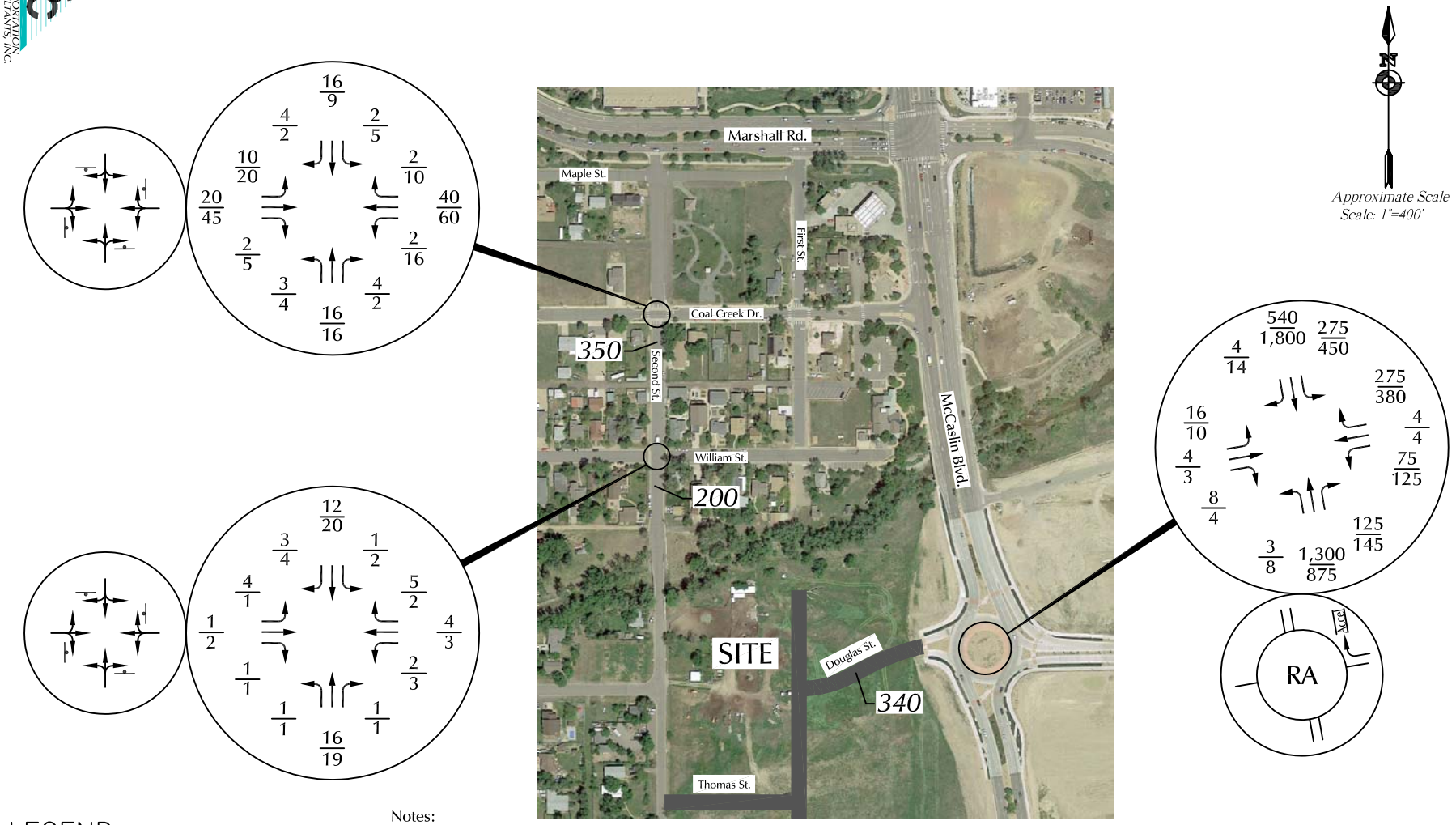
1,000 = Average Daily Traffic

Notes:
1. Assumes internal roadways are connected to show reassignment of trips between original Superior and the McCaslin/Main roundabout.
2. Assumes half build-out of the Superior Town Center (Downtown Superior) and Marshall Road is extended south across Coal Creek to connect to the southern portion of the Superior Town Center (Downtown Superior).
3. Assumes the Superior Town center (Downtown Superior) is not yet connected on the southeast corner to either Coal Creek Drive or 88th Street.
4. Assumes through traffic on McCaslin Boulevard grows at an annual rate of one percent.
5. Assumes the 27 single-family detached lots to the west are developed with 80 percent of trips using Douglas Street and 20 percent using Second Street.

Figure 4

Year 2022 Background Traffic, Lane Geometry and Traffic Control

Rogers Farm (LSC #181240)



Approximate Scale
Scale: 1"=400'

LEGEND:

= Stop Sign

RA = Modern Roundabout

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

1,000 = Average Daily Traffic

Notes:
1. Assumes internal roadways are connected to show reassignment of trips between original Superior and the McCaslin/Main roundabout.
2. Assumes full build-out of the Superior Town Center (Downtown Superior) and Marshall Road is extended south across Coal Creek to connect to the southern portion of the Superior Town Center (Downtown Superior).
3. Assumes the Superior Town center (Downtown Superior) is connected on the southeast corner to either Coal Creek Drive or 88th Street.
4. Assumes through traffic on McCaslin Boulevard grows at an annual rate of one percent.
5. Assumes the 27 single-family detached lots to the west are developed with 80 percent of trips using Douglas Street and 20 percent using Second Street.

Figure 5

Year 2040 Background Traffic, Lane Geometry and Traffic Control

Rogers Farm (LSC #181240)

Approximate Scale
Scale: 1"=400'

Note: About ten percent of the trips arriving from the north via McCaslin Boulevard are assumed to use Coal Creek Drive and Second Street to access the site rather than use the roundabout and Douglas Street.

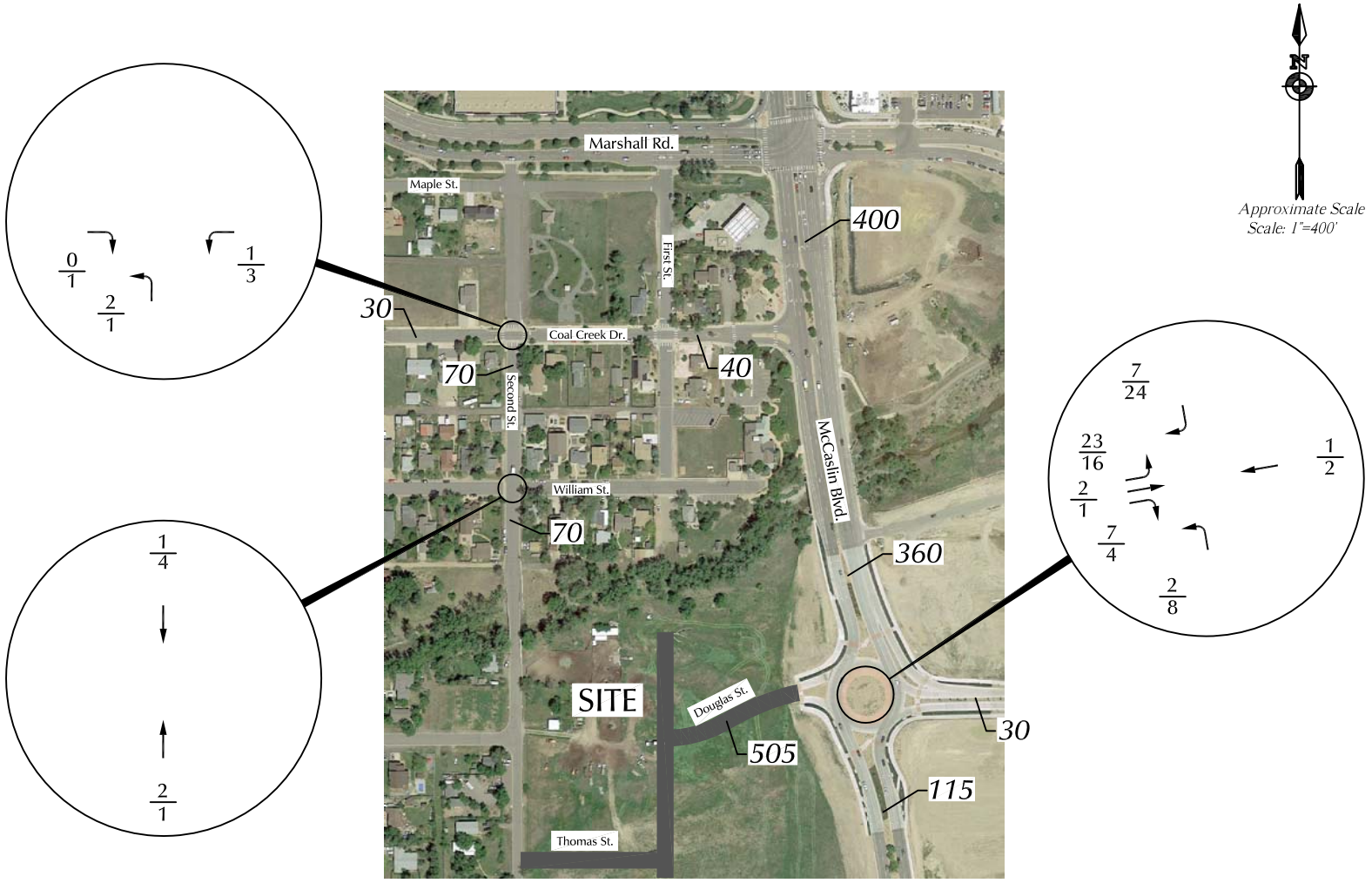
LEGEND:

65% = Percent Directional Distribution

Figure 6

Directional Distribution of Site-Generated Traffic

Rogers Farm (LSC #181240)



LEGEND:

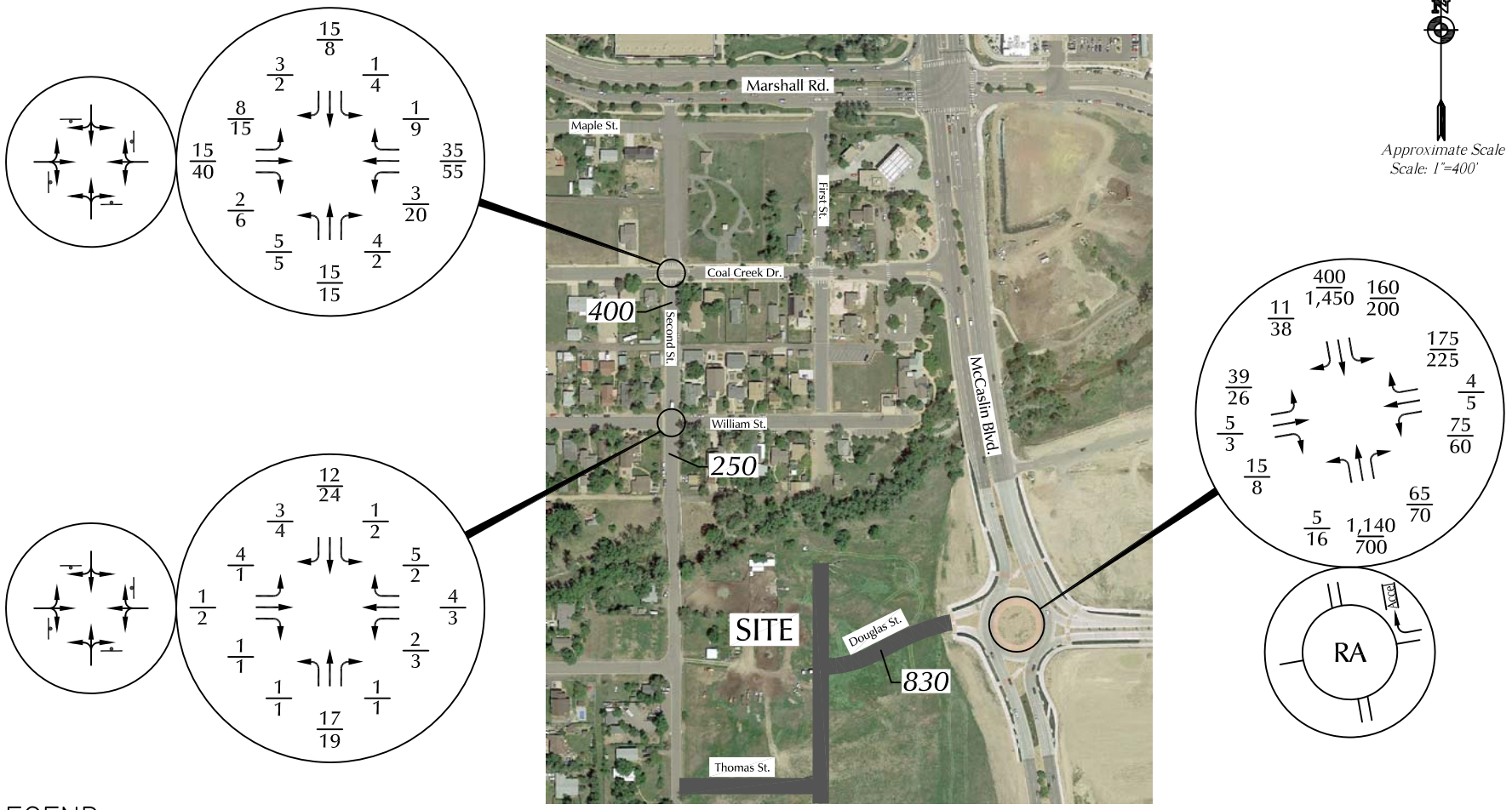
$\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic

1,000 = Average Daily Traffic

Figure 7

Assignment of Site-Generated Traffic

Rogers Farm (LSC #181240)



LEGEND:

= Stop Sign

RA = Modern Roundabout

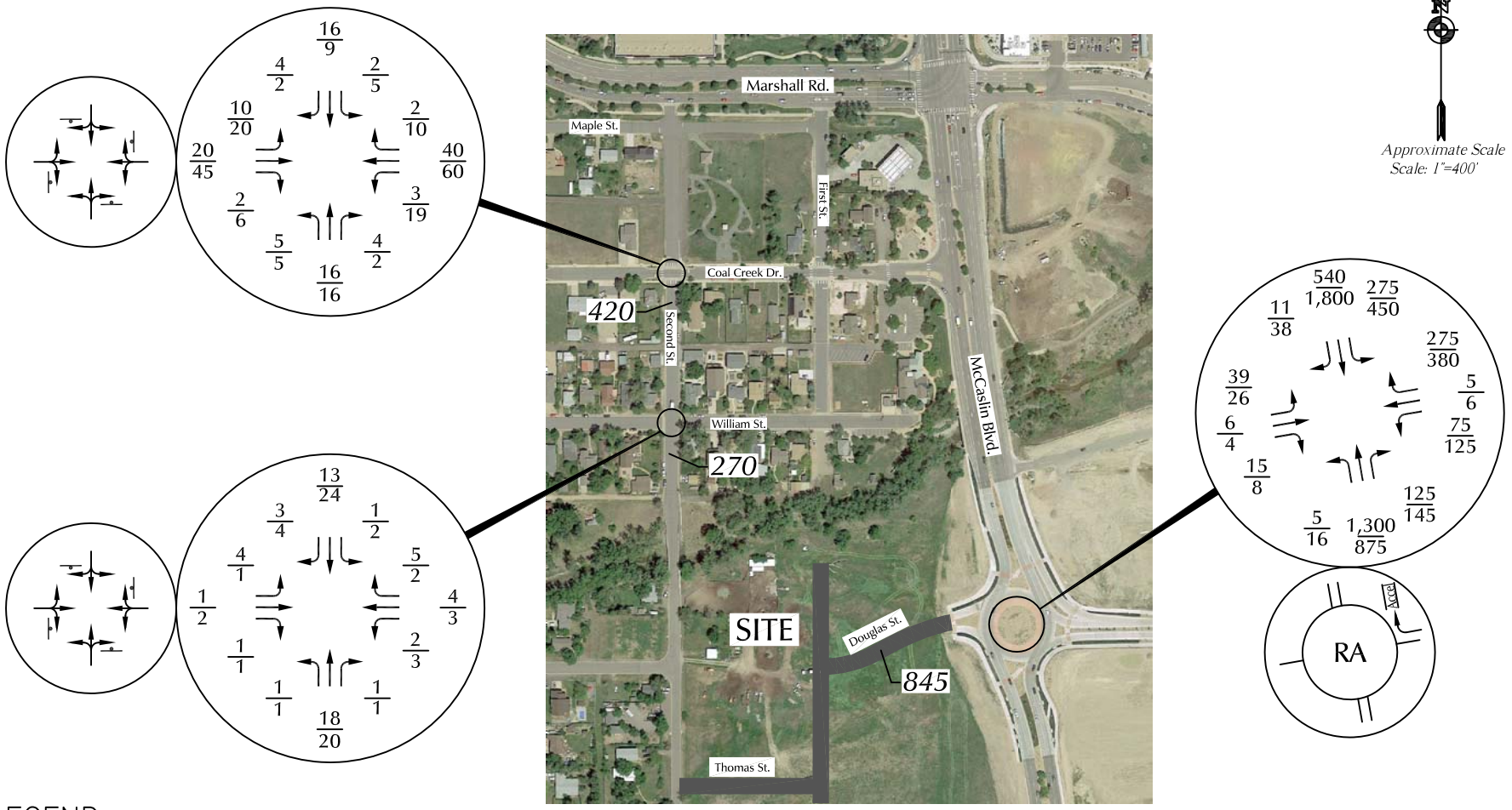
$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 8

Year 2022 Total Traffic, Lane Geometry and Traffic Control

Rogers Farm (LSC #181240)



LEGEND:

= Stop Sign

RA = Modern Roundabout

$\frac{26}{35}$ = $\frac{\text{AM Peak Hour Traffic}}{\text{PM Peak Hour Traffic}}$

1,000 = Average Daily Traffic

Figure 9

Year 2040 Total Traffic, Lane Geometry and Traffic Control

Rogers Farm (LSC #181240)

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
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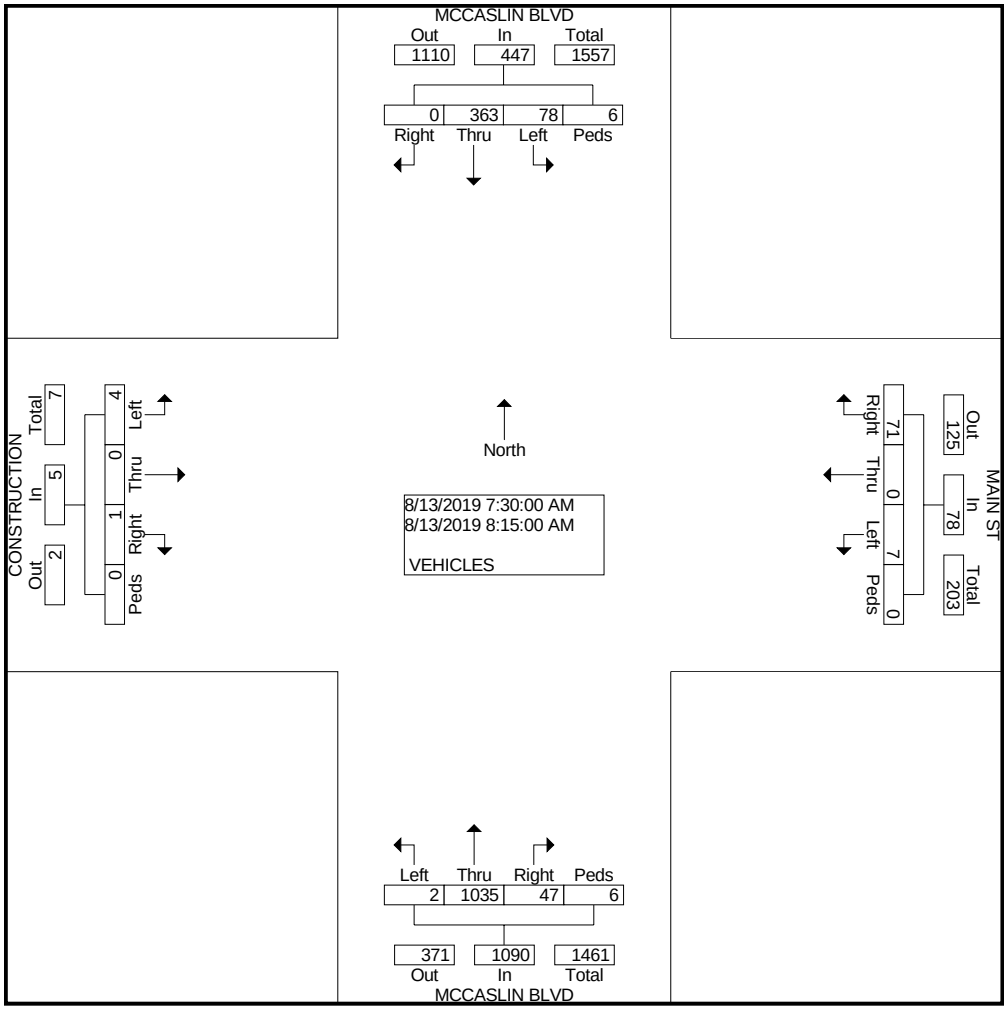
303-333-7409

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	



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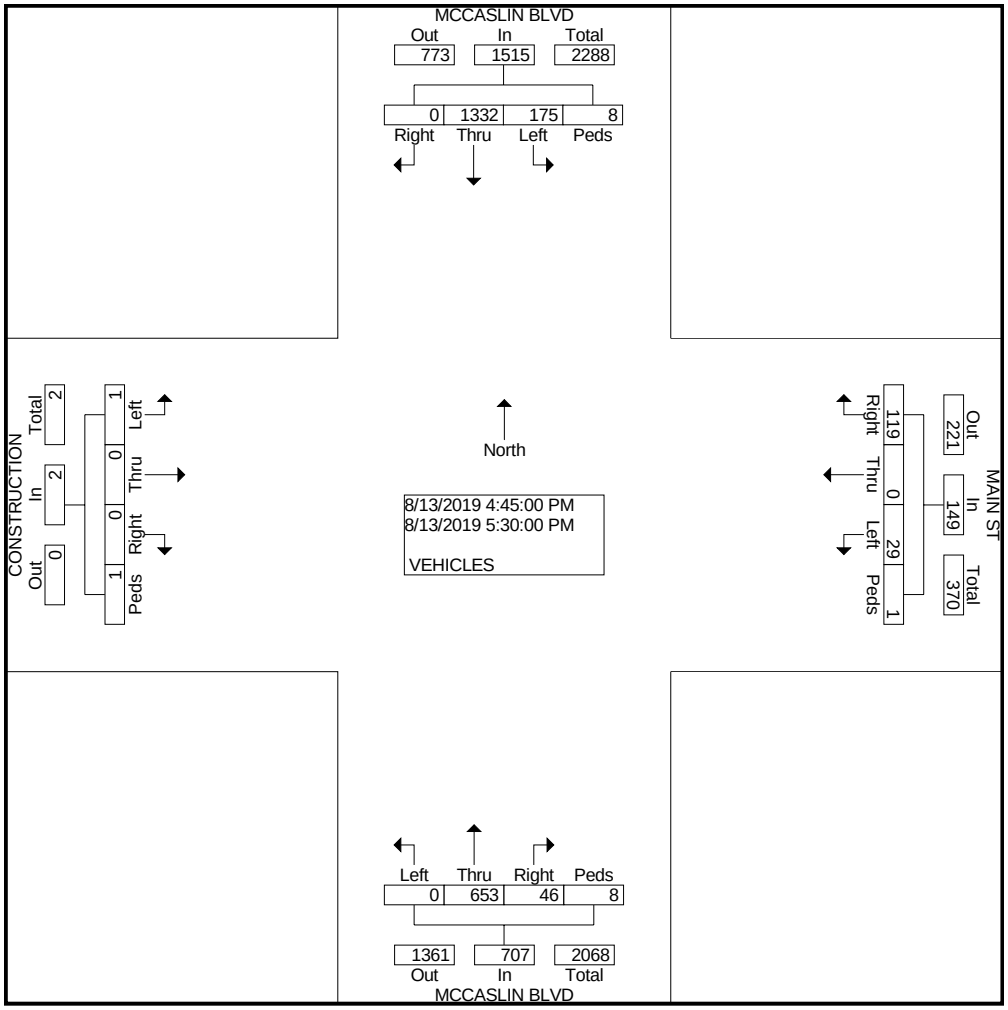
	MCCASLIN BLVD Southbound					MAIN ST Westbound					MCCASLIN BLVD Northbound					CONSTRUCTION Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:45 PM to 05:30 PM - Peak 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
303-333-7409

N/S STREET: 2ND AVE
E/W STREET: COAL CREEK DR
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2AVECOAL
Site Code : 00000011
Start Date : 10/23/2018
Page No : 1

Groups Printed- VEHICLES

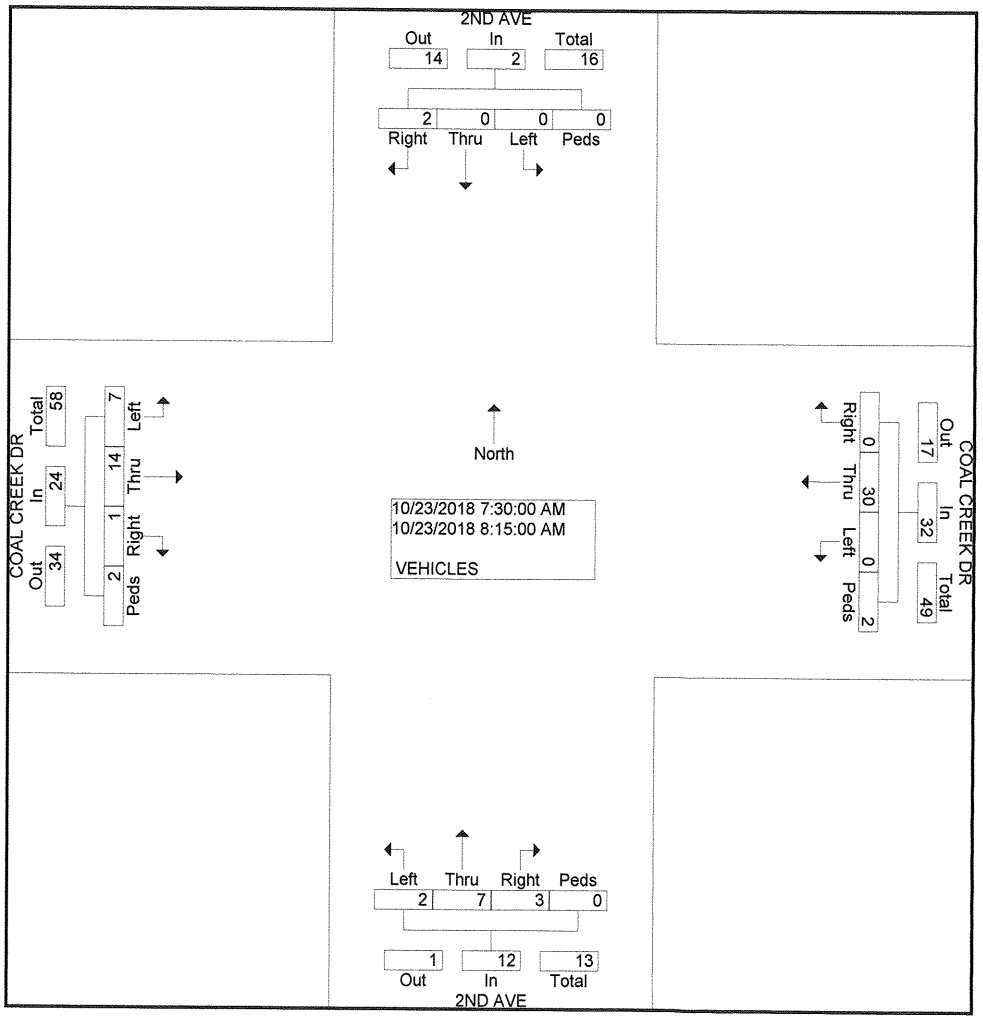
	2ND AVE Southbound				COAL CREEK DR Westbound				2ND AVE Northbound				COAL CREEK DR Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	6	1	1	0	4	0	0	2	1	0	0	15
06:45 AM	0	0	0	0	0	5	1	0	0	1	0	0	3	5	0	0	15
Total	0	0	0	0	0	11	2	1	0	5	0	0	5	6	0	0	30
07:00 AM	0	0	0	0	0	5	0	0	1	2	0	0	2	2	0	0	12
07:15 AM	0	0	0	0	2	4	0	0	0	1	0	0	2	3	0	0	12
07:30 AM	0	0	0	0	0	10	0	0	0	3	1	0	3	6	0	0	23
07:45 AM	0	0	2	0	0	11	0	1	2	2	1	0	2	5	0	0	26
Total	0	0	2	0	2	30	0	1	3	8	2	0	9	16	0	0	73
08:00 AM	0	0	0	0	0	9	0	1	0	2	1	0	2	3	1	2	21
Total	0	0	0	0	0	9	0	1	0	2	1	0	2	3	1	2	21
04:00 PM	0	0	1	0	4	16	2	2	1	6	0	0	4	7	0	0	43
04:15 PM	2	0	0	0	1	18	1	0	1	1	0	0	2	6	0	0	32
04:30 PM	0	0	0	0	4	15	0	3	0	3	1	0	0	10	0	1	37
04:45 PM	0	0	0	0	2	10	2	1	1	0	0	0	1	9	0	0	26
Total	2	0	1	0	11	59	5	6	3	10	1	0	7	32	0	1	138
05:00 PM	3	1	0	0	2	10	3	1	1	0	0	0	7	12	1	0	41
05:15 PM	0	0	1	1	4	16	3	0	0	1	0	0	3	9	1	2	41
05:30 PM	0	0	0	0	4	13	0	0	1	3	1	0	3	9	1	0	35
05:45 PM	0	0	0	0	3	20	1	0	0	2	2	0	4	12	0	0	44
Total	3	1	1	1	13	59	7	1	2	6	3	0	17	42	3	2	161
Grand Total	5	1	4	1	26	168	14	10	8	31	7	0	40	99	4	5	423
Apprch %	45.5	9.1	36.4	9.1	11.9	77.1	6.4	4.6	17.4	67.4	15.2	0.0	27.0	66.9	2.7	3.4	
Total %	1.2	0.2	0.9	0.2	6.1	39.7	3.3	2.4	1.9	7.3	1.7	0.0	9.5	23.4	0.9	1.2	

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

N/S STREET: 2ND AVE
E/W STREET: COAL CREEK DR
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2AVECOAL
Site Code : 00000011
Start Date : 10/23/2018
Page No : 2

	2ND AVE Southbound					COAL CREEK DR Westbound					2ND AVE Northbound					COAL CREEK DR 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	0	0	2	0	2	0	30	0	2	32	2	7	3	0	12	7	14	1	2	24	70
Percent	0.0	0.0	100.0	0.0		0.0	93.8	0.0	6.3		16.7	58.3	25.0	0.0		29.2	58.3	4.2	8.3		
07:45 Volume	0	0	2	0	2	0	11	0	1	12	2	2	1	0	5	2	5	0	0	7	26
Peak Factor																					0.673
High Int.	07:45 AM					07:45 AM					07:45 AM					07:30 AM					
Volume	0	0	2	0	2	0	11	0	1	12	2	2	1	0	5	3	6	0	0	9	
Peak Factor					0.250					0.667					0.600					0.667	

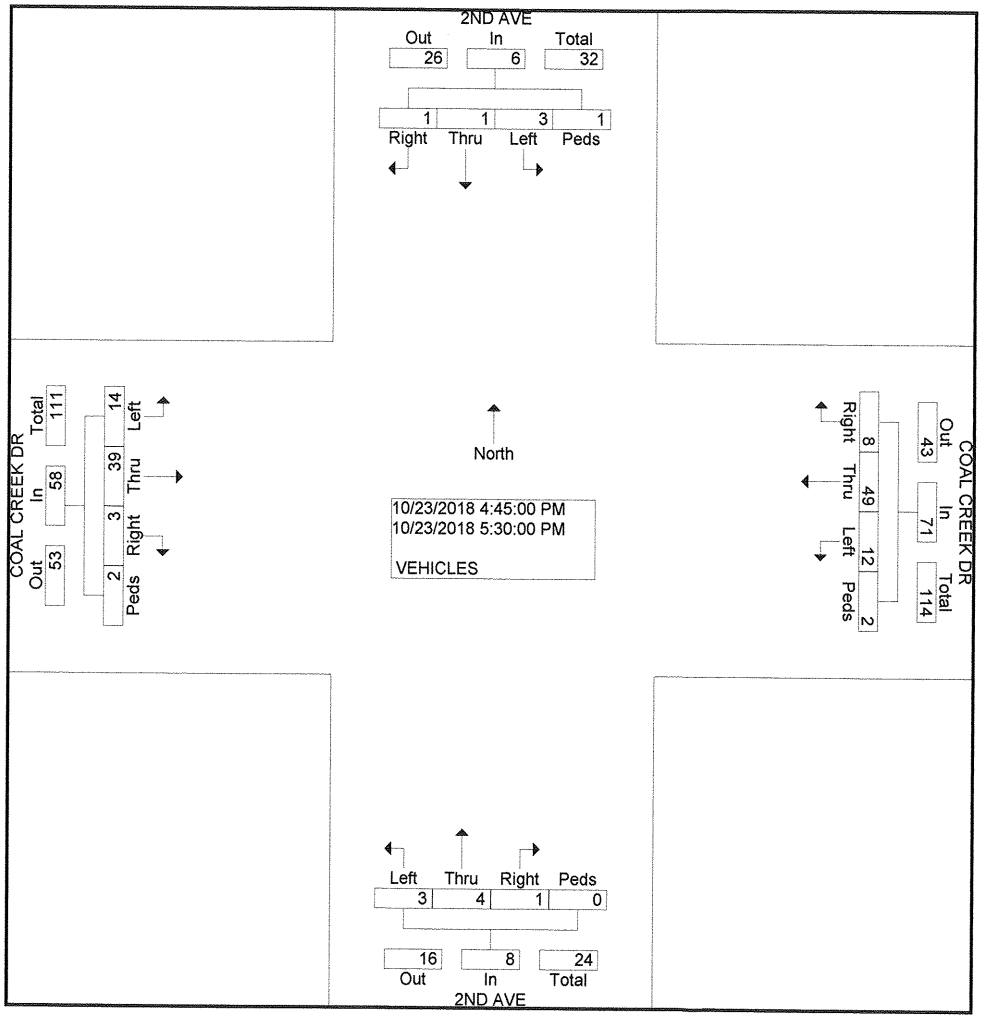


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 2ND AVE
E/W STREET: COAL CREEK DR
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2AVECOAL
Site Code : 00000011
Start Date : 10/23/2018
Page No : 2

	2ND AVE Southbound					COAL CREEK DR Westbound					2ND AVE Northbound					COAL CREEK DR 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	3	1	1	1	6	12	49	8	2	71	3	4	1	0	8	14	39	3	2	58	143
Percent	50.0	16.7	16.7	16.7		16.9	69.0	11.3	2.8		37.5	50.0	12.5	0.0		24.1	67.2	5.2	3.4		
05:15 Volume	0	0	1	1	2	4	16	3	0	23	0	1	0	0	1	3	9	1	2	15	41
Peak Factor																					0.872
High Int. 05:00 PM						05:15 PM					05:30 PM					05:00 PM					
Volume	3	1	0	0	4	4	16	3	0	23	1	3	1	0	5	7	12	1	0	20	
Peak Factor					0.375					0.772					0.400					0.725	



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

N/S STREET: 2ND AVE
E/W STREET: WILLIAM ST
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2NDAWILL
Site Code : 00000014
Start Date : 10/23/2018
Page No : 1

Groups Printed- VEHICLES

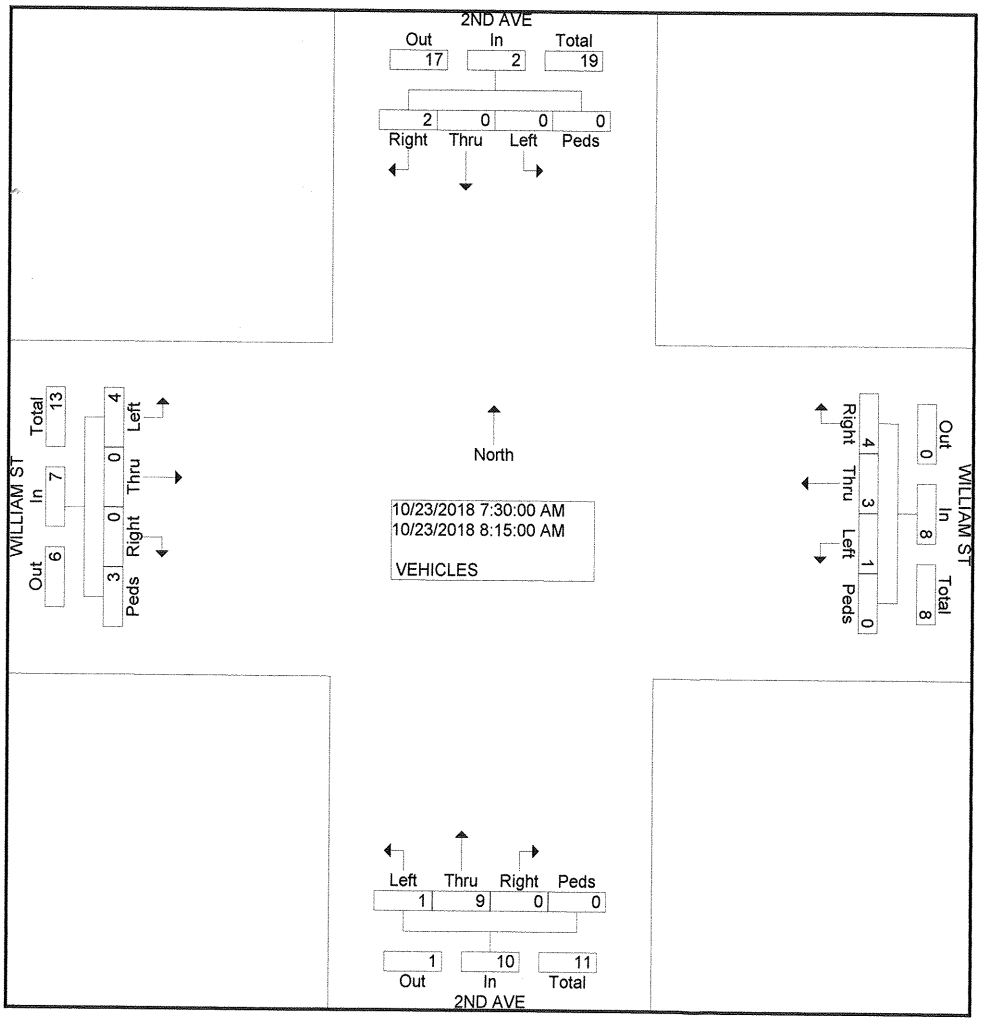
	2ND AVE Southbound				WILLIAM ST Westbound				2ND AVE Northbound				WILLIAM ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
06:30 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	4
06:45 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	5
Total	1	0	0	0	0	0	0	0	0	4	0	0	0	0	1	3	9
07:00 AM	1	1	0	0	0	0	0	0	0	2	0	0	0	1	0	2	7
07:15 AM	0	2	0	0	0	0	2	0	1	0	0	0	0	0	0	1	6
07:30 AM	0	0	0	0	0	0	1	0	1	2	0	0	1	0	0	0	5
07:45 AM	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	2	5
Total	1	3	0	0	0	0	4	0	2	6	0	0	1	1	0	5	23
08:00 AM	0	0	0	0	0	1	0	0	0	2	0	0	1	0	0	1	5
08:15 AM	0	0	2	0	1	2	2	0	0	3	0	0	2	0	0	0	12
Total	0	0	2	0	1	3	2	0	0	5	0	0	3	0	0	1	17
04:00 PM	0	2	1	0	1	0	3	1	0	2	1	0	2	1	1	0	15
04:15 PM	0	1	1	2	0	1	2	3	0	1	1	0	0	0	0	0	12
04:30 PM	0	1	1	1	0	1	2	0	0	1	0	0	0	1	0	0	8
04:45 PM	0	2	0	1	0	1	0	2	0	2	0	0	0	1	0	1	10
Total	0	6	3	4	1	3	7	6	0	6	2	0	2	3	1	1	45
05:00 PM	1	2	0	0	1	1	0	0	0	1	0	0	0	0	0	0	6
05:15 PM	0	3	2	2	0	0	0	4	0	0	0	0	0	0	0	0	11
05:30 PM	0	3	1	0	1	0	1	0	0	2	0	0	0	1	0	1	10
05:45 PM	0	1	1	1	0	0	0	1	0	3	0	2	0	2	0	2	13
Total	1	9	4	3	2	1	1	5	0	6	0	2	0	3	0	3	40
Grand Total	3	18	9	7	4	7	14	11	2	27	2	2	6	7	2	13	134
Apprch %	8.1	48.6	24.3	18.9	11.1	19.4	38.9	30.6	6.1	81.8	6.1	6.1	21.4	25.0	7.1	46.4	
Total %	2.2	13.4	6.7	5.2	3.0	5.2	10.4	8.2	1.5	20.1	1.5	1.5	4.5	5.2	1.5	9.7	

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

N/S STREET: 2ND AVE
E/W STREET: WILLIAM ST
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2NDAWILL
Site Code : 00000014
Start Date : 10/23/2018
Page No : 2

	2ND AVE Southbound					WILLIAM ST Westbound					2ND AVE Northbound					WILLIAM ST 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 06:30 AM to 08:30 AM - Peak 1 of 1																					
Intersection	07:30 AM																				
Volume	0	0	2	0	2	1	3	4	0	8	1	9	0	0	10	4	0	0	3	7	27
Percent	0.0	0.0	100.0	0.0		12.5	37.5	50.0	0.0		10.0	90.0	0.0	0.0		57.1	0.0	0.0	42.9		
08:15 Volume	0	0	2	0	2	1	2	2	0	5	0	3	0	0	3	2	0	0	0	2	12
Peak Factor																					0.563
High Int.	08:15 AM					08:15 AM					07:30 AM					07:45 AM					
Volume	0	0	2	0	2	1	2	2	0	5	1	2	0	0	3	0	0	0	2	2	
Peak Factor					0.250					0.400					0.833					0.875	

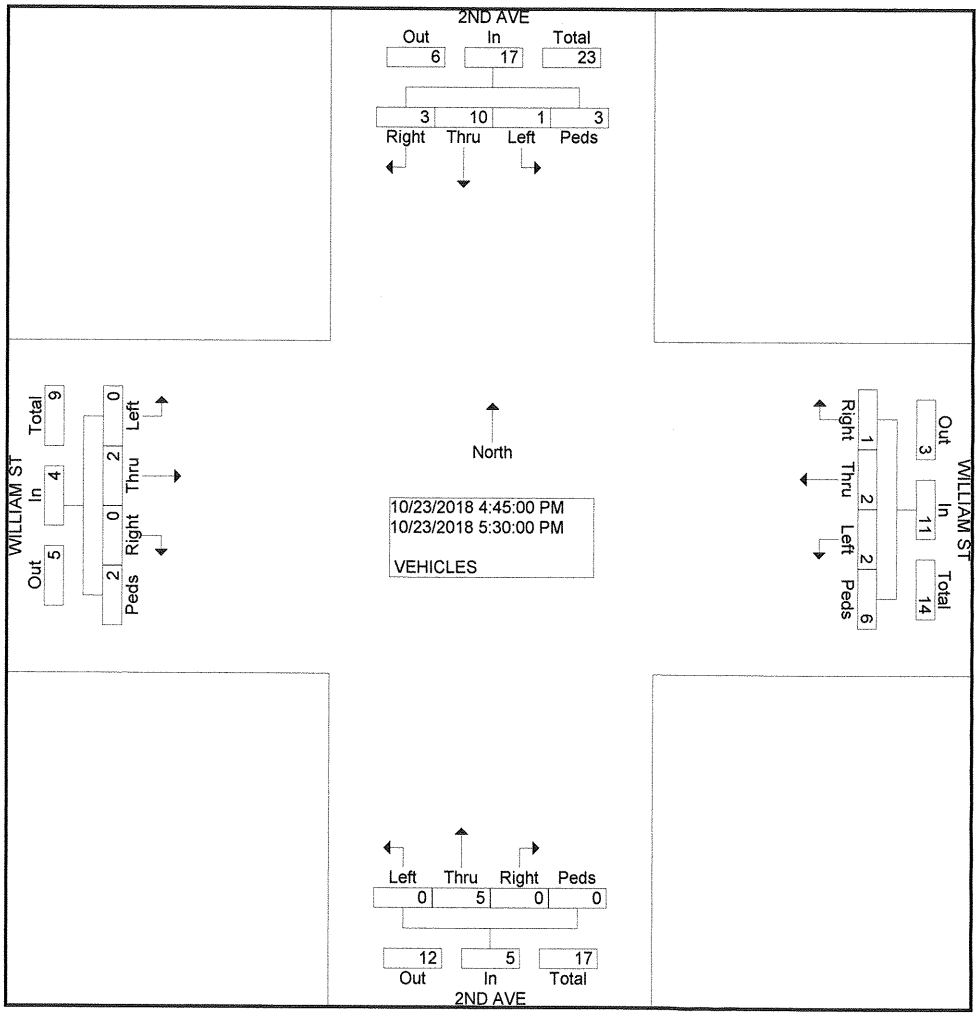


COUNTER MEASURES INC.
1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: 2ND AVE
E/W STREET: WILLIAM ST
CITY: SUPERIOR
COUNTY: BOULDER

File Name : 2NDAWILL
Site Code : 00000014
Start Date : 10/23/2018
Page No : 2

	2ND AVE Southbound					WILLIAM ST Westbound					2ND AVE Northbound					WILLIAM ST 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	1	10	3	3	17	2	2	1	6	11	0	5	0	0	5	0	2	0	2	4	37
Percent	5.9	58.8	17.6	17.6		18.2	18.2	9.1	54.5		0.0	100.0	0.0	0.0		0.0	50.0	0.0	50.0		
05:15 Volume	0	3	2	2	7	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	11
Peak Factor																					0.841
High Int.	05:15 PM					05:15 PM					04:45 PM					04:45 PM					
Volume	0	3	2	2	7	0	0	0	4	4	0	2	0	0	2	0	1	0	1	2	
Peak Factor					0.607					0.688					0.625					0.500	



COUNTER MEASURES INC.

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

Location: SECOND AVE S/O COAL CREEK DR
City: SUPERIOR
County: BOULDER
Direction: NORTHBOUND

Site Code: 102307
Station ID: 102307

Start	22-Oct-18		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	2	3	*	*	*	*	2	3	*	*	*	*
01:00	*	*	*	*	1	1	*	*	*	*	1	1	*	*	*	*
02:00	*	*	*	*	0	2	*	*	*	*	0	2	*	*	*	*
03:00	*	*	*	*	1	0	*	*	*	*	1	0	*	*	*	*
04:00	*	*	*	*	4	3	*	*	*	*	4	3	*	*	*	*
05:00	*	*	*	*	4	4	*	*	*	*	4	4	*	*	*	*
06:00	*	*	*	*	7	0	*	*	*	*	7	0	*	*	*	*
07:00	*	*	*	*	11	6	*	*	*	*	11	6	*	*	*	*
08:00	*	*	*	*	11	10	*	*	*	*	11	10	*	*	*	*
09:00	*	*	*	*	18	16	*	*	*	*	18	16	*	*	*	*
10:00	*	*	*	*	15	13	*	*	*	*	15	13	*	*	*	*
11:00	*	*	*	*	10	8	*	*	*	*	10	8	*	*	*	*
12:00 PM	*	*	*	*	10	10	*	*	*	*	10	10	*	*	*	*
01:00	*	*	*	*	12	14	*	*	*	*	12	14	*	*	*	*
02:00	*	*	*	*	16	16	*	*	*	*	16	16	*	*	*	*
03:00	*	*	*	*	14	16	*	*	*	*	14	16	*	*	*	*
04:00	*	*	*	*	14	10	*	*	*	*	14	10	*	*	*	*
05:00	*	*	*	*	14	20	*	*	*	*	14	20	*	*	*	*
06:00	*	*	*	*	16	10	*	*	*	*	16	10	*	*	*	*
07:00	*	*	*	*	8	12	*	*	*	*	8	12	*	*	*	*
08:00	*	*	*	*	8	6	*	*	*	*	8	6	*	*	*	*
09:00	*	*	*	*	2	6	*	*	*	*	2	6	*	*	*	*
10:00	*	*	*	*	2	7	*	*	*	*	2	7	*	*	*	*
11:00	*	*	*	*	1	3	*	*	*	*	1	3	*	*	*	*
Total	0	0	0	0	201	196	0	0	0	0	201	196	0	0	0	0
Day	0		0		397		0		0		397		0		0	
AM Peak	-	-	-	-	09:00	09:00	-	-	-	-	09:00	09:00	-	-	-	-
Vol.	-	-	-	-	18	16	-	-	-	-	18	16	-	-	-	-
PM Peak	-	-	-	-	14:00	17:00	-	-	-	-	14:00	17:00	-	-	-	-
Vol.	-	-	-	-	16	20	-	-	-	-	16	20	-	-	-	-

Comb. Total	0		0		397		0		0		397		0		0	

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COUNTER MEASURES INC.

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

Location: SECOND AVE S/O WILLIAM ST
City: SUPERIOR
County: BOULDER
Direction: NORTHBOUND

Site Code: 102320
Station ID: 102320

Start	22-Oct-18		Tue		Wed		Thu		Fri		Weekday Average		Sat		Sun	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	*	*	1	1	*	*	*	*	1	1	*	*	*	*
01:00	*	*	*	*	1	1	*	*	*	*	1	1	*	*	*	*
02:00	*	*	*	*	0	1	*	*	*	*	0	1	*	*	*	*
03:00	*	*	*	*	0	0	*	*	*	*	0	0	*	*	*	*
04:00	*	*	*	*	2	0	*	*	*	*	2	0	*	*	*	*
05:00	*	*	*	*	3	4	*	*	*	*	3	4	*	*	*	*
06:00	*	*	*	*	6	1	*	*	*	*	6	1	*	*	*	*
07:00	*	*	*	*	5	2	*	*	*	*	5	2	*	*	*	*
08:00	*	*	*	*	6	3	*	*	*	*	6	3	*	*	*	*
09:00	*	*	*	*	10	7	*	*	*	*	10	7	*	*	*	*
10:00	*	*	*	*	6	9	*	*	*	*	6	9	*	*	*	*
11:00	*	*	*	*	9	7	*	*	*	*	9	7	*	*	*	*
12:00 PM	*	*	*	*	6	8	*	*	*	*	6	8	*	*	*	*
01:00	*	*	*	*	12	8	*	*	*	*	12	8	*	*	*	*
02:00	*	*	*	*	12	11	*	*	*	*	12	11	*	*	*	*
03:00	*	*	*	*	10	12	*	*	*	*	10	12	*	*	*	*
04:00	*	*	*	*	8	10	*	*	*	*	8	10	*	*	*	*
05:00	*	*	*	*	6	8	*	*	*	*	6	8	*	*	*	*
06:00	*	*	*	*	12	6	*	*	*	*	12	6	*	*	*	*
07:00	*	*	*	*	3	7	*	*	*	*	3	7	*	*	*	*
08:00	*	*	*	*	3	2	*	*	*	*	3	2	*	*	*	*
09:00	*	*	*	*	2	3	*	*	*	*	2	3	*	*	*	*
10:00	*	*	*	*	0	2	*	*	*	*	0	2	*	*	*	*
11:00	*	*	*	*	0	1	*	*	*	*	0	1	*	*	*	*
Total	0	0	0	0	123	114	0	0	0	0	123	114	0	0	0	0
Day	0		0		237		0		0		237		0		0	
AM Peak	-	-	-	-	09:00	10:00	-	-	-	-	09:00	10:00	-	-	-	-
Vol.	-	-	-	-	10	9	-	-	-	-	10	9	-	-	-	-
PM Peak	-	-	-	-	13:00	15:00	-	-	-	-	13:00	15:00	-	-	-	-
Vol.	-	-	-	-	12	12	-	-	-	-	12	12	-	-	-	-

Comb. Total	0	0	237	0	0	237	0	0

ADT ADT 237 AADT 237

LEVEL OF SERVICE DEFINITIONS

From *Highway Capacity Manual*, Transportation Research Board, 2010

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.

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	14	1	0	30	0	2	7	3	0	0	2
Future Vol, veh/h	7	14	1	0	30	0	2	7	3	0	0	2
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	10	21	1	0	45	0	3	10	4	0	0	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	7.2	7.1	6.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	32%	0%	0%
Vol Thru, %	58%	64%	100%	0%
Vol Right, %	25%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	12	22	30	2
LT Vol	2	7	0	0
Through Vol	7	14	30	0
RT Vol	3	1	0	2
Lane Flow Rate	18	33	45	3
Geometry Grp	1	1	1	1
Degree of Util (X)	0.02	0.037	0.05	0.003
Departure Headway (Hd)	3.954	4.041	3.996	3.481
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	903	888	898	1023
Service Time	1.989	2.058	2.01	1.52
HCM Lane V/C Ratio	0.02	0.037	0.05	0.003
HCM Control Delay	7.1	7.2	7.2	6.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	0	1	3	4	1	9	0	0	0	2
Future Vol, veh/h	4	0	0	1	3	4	1	9	0	0	0	2
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	0	2	5	7	2	16	0	0	0	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	6.8	7.1	6.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	100%	12%	0%
Vol Thru, %	90%	0%	38%	0%
Vol Right, %	0%	0%	50%	100%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	4	8	2
LT Vol	1	4	1	0
Through Vol	9	0	3	0
RT Vol	0	0	4	2
Lane Flow Rate	18	7	14	4
Geometry Grp	1	1	1	1
Degree of Util (X)	0.02	0.008	0.015	0.003
Departure Headway (Hd)	3.994	4.182	3.701	3.384
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	859	970	1060
Service Time	2.002	2.192	1.711	1.396
HCM Lane V/C Ratio	0.02	0.008	0.014	0.004
HCM Control Delay	7.1	7.2	6.8	6.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0

Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	39	3	12	49	8	3	4	1	3	1	1
Future Vol, veh/h	14	39	3	12	49	8	3	4	1	3	1	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	45	3	14	56	9	3	5	1	3	1	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.4	7.3	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	38%	25%	17%	60%
Vol Thru, %	50%	70%	71%	20%
Vol Right, %	12%	5%	12%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	8	56	69	5
LT Vol	3	14	12	3
Through Vol	4	39	49	1
RT Vol	1	3	8	1
Lane Flow Rate	9	64	79	6
Geometry Grp	1	1	1	1
Degree of Util (X)	0.011	0.072	0.088	0.007
Departure Headway (Hd)	4.185	4.036	3.972	4.187
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	847	888	903	847
Service Time	2.25	2.061	1.995	2.253
HCM Lane V/C Ratio	0.011	0.072	0.087	0.007
HCM Control Delay	7.3	7.4	7.4	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0.2	0.3	0

Intersection	
Intersection Delay, s/veh	6.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	2	0	2	2	1	0	5	0	1	10	3
Future Vol, veh/h	0	2	0	2	2	1	0	5	0	1	10	3
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	2	2	1	0	6	0	1	12	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7	7	6.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	0%	40%	7%
Vol Thru, %	100%	100%	40%	71%
Vol Right, %	0%	0%	20%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	5	2	5	14
LT Vol	0	0	2	1
Through Vol	5	2	2	10
RT Vol	0	0	1	3
Lane Flow Rate	6	2	6	17
Geometry Grp	1	1	1	1
Degree of Util (X)	0.007	0.003	0.007	0.018
Departure Headway (Hd)	3.96	3.977	3.935	3.838
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	907	903	913	936
Service Time	1.969	1.989	1.945	1.845
HCM Lane V/C Ratio	0.007	0.002	0.007	0.018
HCM Control Delay	7	7	7	6.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0	0	0	0.1

Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	15	2	2	35	1	3	15	4	1	15	3
Future Vol, veh/h	8	15	2	2	35	1	3	15	4	1	15	3
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	22	3	3	52	1	4	22	6	1	22	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.4	7.2	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	32%	5%	5%
Vol Thru, %	68%	60%	92%	79%
Vol Right, %	18%	8%	3%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	25	38	19
LT Vol	3	8	2	1
Through Vol	15	15	35	15
RT Vol	4	2	1	3
Lane Flow Rate	33	37	57	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.037	0.042	0.064	0.032
Departure Headway (Hd)	4.035	4.098	4.062	4.036
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	870	879	881
Service Time	2.086	2.14	2.099	2.088
HCM Lane V/C Ratio	0.037	0.043	0.065	0.032
HCM Control Delay	7.2	7.3	7.4	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.1

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	1	2	4	5	1	15	1	1	11	3
Future Vol, veh/h	4	1	1	2	4	5	1	15	1	1	11	3
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	2	2	4	7	9	2	27	2	2	20	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	6.9	7.1	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	67%	18%	7%
Vol Thru, %	88%	17%	36%	73%
Vol Right, %	6%	17%	45%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	17	6	11	15
LT Vol	1	4	2	1
Through Vol	15	1	4	11
RT Vol	1	1	5	3
Lane Flow Rate	30	11	20	27
Geometry Grp	1	1	1	1
Degree of Util (X)	0.034	0.012	0.021	0.029
Departure Headway (Hd)	3.984	4.081	3.805	3.903
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	877	940	918
Service Time	2	2.108	1.831	1.921
HCM Lane V/C Ratio	0.033	0.013	0.021	0.029
HCM Control Delay	7.1	7.2	6.9	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2022 Background*
		Project ID	*LSC #181240*

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	*16*	*3*	*8*	*0*	*75*	*3*	*175*	*0*	*3*	*1140*	*65*	*0*	*160*	*400*	*4*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*703*			*1285*			*198*			*89*		
Exiting Flow (V_{ex}), pc/h	*252*			*10*			*1282*			*535*		
Entry Flow (V_e), pc/h		*30*			*86*	*194*	*629*	*710*		*293*	*331*	
Entry Volume veh/h		*29*			*84*	*190*	*617*	*696*		*287*	*325*	

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		*842*			*540*		*1238*	*1238*		*1345*	*1345*	
Capacity (c), veh/h		*825*			*529*		*1214*	*1214*		*1319*	*1319*	
v/c Ratio (X)		*0.04*			*0.16*		*0.51*	*0.57*		*0.22*	*0.25*	

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*			*8.9*	*0.0*	*8.5*	*9.7*		*4.6*	*4.8*	
Lane LOS		*A*			*A*		*A*	*A*		*A*	*A*	
Lane 95% Queue		*0.1*			*0.6*		*3.0*	*3.8*		*0.8*	*1.0*	
Approach Delay, s/veh	*4.70*			*2.72*			*9.17*			*4.72*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*7.10*											
Intersection LOS	*A*											

 HCS+™ 2010 6.1 Roundabouts Generated: 5/19/2020 12:46 PM

Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	40	5	17	55	9	4	15	2	4	8	2
Future Vol, veh/h	15	40	5	17	55	9	4	15	2	4	8	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	46	6	20	63	10	5	17	2	5	9	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.5	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	25%	21%	29%
Vol Thru, %	71%	67%	68%	57%
Vol Right, %	10%	8%	11%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	60	81	14
LT Vol	4	15	17	4
Through Vol	15	40	55	8
RT Vol	2	5	9	2
Lane Flow Rate	24	69	93	16
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.078	0.104	0.019
Departure Headway (Hd)	4.206	4.073	4.029	4.203
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	841	876	886	841
Service Time	2.284	2.115	2.068	2.282
HCM Lane V/C Ratio	0.029	0.079	0.105	0.019
HCM Control Delay	7.4	7.5	7.5	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.3	0.1

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	1	3	3	2	1	18	1	2	20	4
Future Vol, veh/h	1	2	1	3	3	2	1	18	1	2	20	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	1	4	4	2	1	21	1	2	24	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7	7.1	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	38%	8%
Vol Thru, %	90%	50%	38%	77%
Vol Right, %	5%	25%	25%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	4	8	26
LT Vol	1	1	3	2
Through Vol	18	2	3	20
RT Vol	1	1	2	4
Lane Flow Rate	24	5	10	31
Geometry Grp	1	1	1	1
Degree of Util (X)	0.026	0.005	0.01	0.034
Departure Headway (Hd)	3.961	3.936	3.958	3.898
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	907	909	905	922
Service Time	1.972	1.96	1.98	1.908
HCM Lane V/C Ratio	0.026	0.006	0.011	0.034
HCM Control Delay	7.1	7	7	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2022 Background*
		Project ID	*LSC #181240*

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	*10*	*2*	*4*	*0*	*60*	*3*	*225*	*0*	*8*	*700*	*70*	*0*	*200*	*1450*	*14*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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)	*5.1929*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*1897*			*796*			*235*			*79*		
Exiting Flow (V_{ex}), pc/h	*302*			*28*			*787*			*1679*		
Entry Flow (V_e), pc/h		*17*			*70*	*249*	*406*	*457*		*868*	*978*	
Entry Volume veh/h		*17*			*69*	*244*	*398*	*448*		*851*	*959*	

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		*338*			*784*		*1203*	*1203*		*1356*	*1356*	
Capacity (c), veh/h		*331*			*769*		*1179*	*1179*		*1329*	*1329*	
v/c Ratio (X)		*0.05*			*0.09*		*0.34*	*0.38*		*0.64*	*0.72*	

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		*11.7*			*5.6*	*0.0*	*6.3*	*6.8*		*10.6*	*13.0*	
Lane LOS		*B*			*A*		*A*	*A*		*B*	*B*	
Lane 95% Queue		*0.2*			*0.3*		*1.5*	*1.8*		*4.9*	*6.8*	
Approach Delay, s/veh	*11.70*			*1.23*			*6.57*			*11.86*		
Approach LOS, s/veh	*B*			*A*			*A*			*B*		
Intersection Delay, s/veh	*9.24*											
Intersection LOS	*A*											

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Intersection	
Intersection Delay, s/veh	7.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	15	2	3	35	1	5	15	4	1	15	3
Future Vol, veh/h	8	15	2	3	35	1	5	15	4	1	15	3
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	22	3	4	52	1	7	22	6	1	22	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.3	7.4	7.3	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	21%	32%	8%	5%
Vol Thru, %	62%	60%	90%	79%
Vol Right, %	17%	8%	3%	16%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	24	25	39	19
LT Vol	5	8	3	1
Through Vol	15	15	35	15
RT Vol	4	2	1	3
Lane Flow Rate	36	37	58	28
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.043	0.066	0.032
Departure Headway (Hd)	4.063	4.106	4.074	4.043
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	875	869	877	879
Service Time	2.116	2.147	2.111	2.097
HCM Lane V/C Ratio	0.041	0.043	0.066	0.032
HCM Control Delay	7.3	7.3	7.4	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	1	2	4	5	1	17	1	1	12	3
Future Vol, veh/h	4	1	1	2	4	5	1	17	1	1	12	3
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	2	2	4	7	9	2	30	2	2	21	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	6.9	7.2	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	67%	18%	6%
Vol Thru, %	89%	17%	36%	75%
Vol Right, %	5%	17%	45%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	19	6	11	16
LT Vol	1	4	2	1
Through Vol	17	1	4	12
RT Vol	1	1	5	3
Lane Flow Rate	34	11	20	29
Geometry Grp	1	1	1	1
Degree of Util (X)	0.038	0.012	0.021	0.031
Departure Headway (Hd)	3.987	4.089	3.813	3.912
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	899	874	937	916
Service Time	2.004	2.12	1.842	1.931
HCM Lane V/C Ratio	0.038	0.013	0.021	0.032
HCM Control Delay	7.2	7.2	6.9	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2022 Total*
		Project ID	*LSC #181240*

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	*39*	*5*	*15*	*0*	*75*	*4*	*175*	*0*	*5*	*1140*	*65*	*0*	*160*	*400*	*11*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*2.5000*	*2.5000*	*2.5000*	*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	*703*			*1313*			*226*			*93*		
Exiting Flow (V_{ex}), pc/h	*255*			*22*			*1307*			*543*		
Entry Flow (V_e), pc/h		*66*			*87*	*194*	*631*	*711*		*297*	*335*	
Entry Volume veh/h		*65*			*85*	*190*	*619*	*697*		*291*	*328*	

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		*842*			*528*		*1212*	*1212*		*1341*	*1341*	
Capacity (c), veh/h		*825*			*518*		*1188*	*1188*		*1315*	*1315*	
v/c Ratio (X)		*0.08*			*0.16*		*0.52*	*0.59*		*0.22*	*0.25*	

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		*5.1*			*9.1*	*0.0*	*8.9*	*10.2*		*4.6*	*4.9*	
Lane LOS		*A*			*A*		*A*	*B*		*A*	*A*	
Lane 95% Queue		*0.3*			*0.6*		*3.1*	*4.0*		*0.8*	*1.0*	
Approach Delay, s/veh	*5.13*			*2.82*			*9.56*			*4.77*		
Approach LOS, s/veh	*A*			*A*			*A*			*A*		
Intersection Delay, s/veh	*7.32*											
Intersection LOS	*A*											

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Intersection	
Intersection Delay, s/veh	7.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	40	6	20	55	9	5	15	2	4	8	2
Future Vol, veh/h	15	40	6	20	55	9	5	15	2	4	8	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	46	7	23	63	10	6	17	2	5	9	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.5	7.6	7.4	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	25%	24%	29%
Vol Thru, %	68%	66%	65%	57%
Vol Right, %	9%	10%	11%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	61	84	14
LT Vol	5	15	20	4
Through Vol	15	40	55	8
RT Vol	2	6	9	2
Lane Flow Rate	25	70	97	16
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.079	0.108	0.019
Departure Headway (Hd)	4.224	4.067	4.04	4.212
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	837	876	883	839
Service Time	2.303	2.112	2.08	2.294
HCM Lane V/C Ratio	0.03	0.08	0.11	0.019
HCM Control Delay	7.4	7.5	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.4	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	1	3	3	2	1	19	1	2	24	4
Future Vol, veh/h	1	2	1	3	3	2	1	19	1	2	24	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	1	4	4	2	1	23	1	2	29	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7	7.1	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	38%	7%
Vol Thru, %	90%	50%	38%	80%
Vol Right, %	5%	25%	25%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	4	8	30
LT Vol	1	1	3	2
Through Vol	19	2	3	24
RT Vol	1	1	2	4
Lane Flow Rate	25	5	10	36
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.005	0.01	0.039
Departure Headway (Hd)	3.965	3.946	3.968	3.909
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	906	906	902	919
Service Time	1.977	1.973	1.994	1.92
HCM Lane V/C Ratio	0.028	0.006	0.011	0.039
HCM Control Delay	7.1	7	7	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2022 Total*
		Project ID	*LSC #181240*

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	*26*	*3*	*8*	*0*	*60*	*5*	*225*	*0*	*16*	*700*	*70*	*0*	*200*	*1450*	*38*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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)	*5.1929*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*1897*			*823*			*254*			*91*		
Exiting Flow (V_{ex}), pc/h	*303*			*66*			*805*			*1684*		
Entry Flow (V_e), pc/h		*41*			*73*	*249*	*410*	*462*		*880*	*992*	
Entry Volume veh/h		*40*			*72*	*244*	*402*	*453*		*863*	*973*	

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		*338*			*768*		*1186*	*1186*		*1343*	*1343*	
Capacity (c), veh/h		*331*			*753*		*1163*	*1163*		*1317*	*1317*	
v/c Ratio (X)		*0.12*			*0.10*		*0.35*	*0.39*		*0.66*	*0.74*	

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		*13.0*			*5.8*	*0.0*	*6.4*	*7.0*		*11.0*	*13.7*	
Lane LOS		*B*			*A*		*A*	*A*		*B*	*B*	
Lane 95% Queue		*0.4*			*0.3*		*1.6*	*1.9*		*5.2*	*7.2*	
Approach Delay, s/veh	*12.98*			*1.31*			*6.74*			*12.45*		
Approach LOS, s/veh	*B*			*A*			*A*			*B*		
Intersection Delay, s/veh	*9.70*											
Intersection LOS	*A*											

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Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	20	2	2	40	2	3	16	4	2	16	4
Future Vol, veh/h	10	20	2	2	40	2	3	16	4	2	16	4
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	30	3	3	60	3	4	24	6	3	24	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.4	7.3	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	31%	5%	9%
Vol Thru, %	70%	62%	91%	73%
Vol Right, %	17%	6%	5%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	32	44	22
LT Vol	3	10	2	2
Through Vol	16	20	40	16
RT Vol	4	2	2	4
Lane Flow Rate	34	48	66	33
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.055	0.074	0.037
Departure Headway (Hd)	4.075	4.126	4.069	4.065
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	870	864	877	872
Service Time	2.139	2.171	2.111	2.128
HCM Lane V/C Ratio	0.039	0.056	0.075	0.038
HCM Control Delay	7.3	7.4	7.4	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	1	2	4	5	1	16	1	1	12	3
Future Vol, veh/h	4	1	1	2	4	5	1	16	1	1	12	3
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	2	2	4	7	9	2	29	2	2	21	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	6.9	7.2	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	67%	18%	6%
Vol Thru, %	89%	17%	36%	75%
Vol Right, %	6%	17%	45%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	18	6	11	16
LT Vol	1	4	2	1
Through Vol	16	1	4	12
RT Vol	1	1	5	3
Lane Flow Rate	32	11	20	29
Geometry Grp	1	1	1	1
Degree of Util (X)	0.036	0.012	0.021	0.031
Departure Headway (Hd)	3.986	4.087	3.811	3.911
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	900	875	938	917
Service Time	2.003	2.116	1.838	1.929
HCM Lane V/C Ratio	0.036	0.013	0.021	0.032
HCM Control Delay	7.2	7.2	6.9	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2040 Background*
		Project ID	*LSC #181240*

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	*16*	*4*	*8*	*0*	*75*	*4*	*275*	*0*	*3*	*1300*	*125*	*0*	*275*	*540*	*4*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*2.5000*	*3.1858*	*2.5000*	*2.5000*	*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	*987*			*1462*			*327*			*90*		
Exiting Flow (V_{ex}), pc/h	*448*			*11*			*1459*			*691*		
Entry Flow (V_e), pc/h		*31*			*87*	*305*	*744*	*839*		*427*	*481*	
Entry Volume veh/h		*30*			*85*	*299*	*729*	*823*		*419*	*472*	

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		*678*			*471*		*1122*	*1122*		*1344*	*1344*	
Capacity (c), veh/h		*665*			*462*		*1100*	*1100*		*1318*	*1318*	
v/c Ratio (X)		*0.05*			*0.18*		*0.66*	*0.75*		*0.32*	*0.36*	

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		*5.9*			*10.5*	*0.0*	*12.8*	*16.0*		*5.6*	*6.0*	
Lane LOS		*A*			*B*		*B*	*C*		*A*	*A*	
Lane 95% Queue		*0.1*			*0.7*		*5.3*	*7.3*		*1.4*	*1.6*	
Approach Delay, s/veh	*5.90*			*2.32*			*14.49*			*5.82*		
Approach LOS, s/veh	*A*			*A*			*B*			*A*		
Intersection Delay, s/veh	*10.06*											
Intersection LOS	*B*											

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Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	45	5	16	60	10	4	16	2	5	9	2
Future Vol, veh/h	20	45	5	16	60	10	4	16	2	5	9	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	52	6	18	69	11	5	18	2	6	10	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.6	7.5	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	29%	19%	31%
Vol Thru, %	73%	64%	70%	56%
Vol Right, %	9%	7%	12%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	70	86	16
LT Vol	4	20	16	5
Through Vol	16	45	60	9
RT Vol	2	5	10	2
Lane Flow Rate	25	80	99	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.03	0.092	0.111	0.022
Departure Headway (Hd)	4.24	4.097	4.037	4.251
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	832	870	884	830
Service Time	2.327	2.145	2.082	2.34
HCM Lane V/C Ratio	0.03	0.092	0.112	0.022
HCM Control Delay	7.5	7.6	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.4	0.1

Intersection	
Intersection Delay, s/veh	7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	1	3	3	2	1	19	1	2	20	4
Future Vol, veh/h	1	2	1	3	3	2	1	19	1	2	20	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	1	4	4	2	1	23	1	2	24	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7	7.1	7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	38%	8%
Vol Thru, %	90%	50%	38%	77%
Vol Right, %	5%	25%	25%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	21	4	8	26
LT Vol	1	1	3	2
Through Vol	19	2	3	20
RT Vol	1	1	2	4
Lane Flow Rate	25	5	10	31
Geometry Grp	1	1	1	1
Degree of Util (X)	0.028	0.005	0.01	0.034
Departure Headway (Hd)	3.962	3.938	3.96	3.899
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	907	908	904	921
Service Time	1.973	1.963	1.984	1.91
HCM Lane V/C Ratio	0.028	0.006	0.011	0.034
HCM Control Delay	7.1	7	7	7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2040 Background*
		Project ID	*LSC #181240*

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	*10*	*3*	*4*	*0*	*125*	*4*	*380*	*0*	*8*	*875*	*145*	*0*	*450*	*1800*	*14*	*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)	*5.1929*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*2550*			*959*			*497*			*147*		
Exiting Flow (V_{ex}), pc/h	*642*			*28*			*950*			*2071*		
Entry Flow (V_e), pc/h		*18*			*138*	*408*	*519*	*585*		*1216*	*1216*	
Entry Volume veh/h		*18*			*135*	*400*	*509*	*574*		*1192*	*1192*	

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		*205*			*692*		*985*	*985*		*1287*	*1287*	
Capacity (*c*), veh/h		*201*			*678*		*966*	*966*		*1262*	*1262*	
v/c Ratio (X)		*0.09*			*0.20*		*0.53*	*0.59*		*0.94*	*0.94*	

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		*20.1*			*7.6*	*0.0*	*10.4*	*12.0*		*32.1*	*32.1*	
Lane LOS		*C*			*A*		*B*	*B*		*D*	*D*	
Lane 95% Queue		*0.3*			*0.7*		*3.2*	*4.0*		*17.2*	*17.2*	
Approach Delay, s/veh	*20.07*			*1.92*			*11.26*			*32.11*		
Approach LOS, s/veh	*C*			*A*			*B*			*D*		
Intersection Delay, s/veh	*22.42*											
Intersection LOS	*C*											

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Intersection	
Intersection Delay, s/veh	7.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	20	2	3	40	2	5	16	4	2	16	4
Future Vol, veh/h	10	20	2	3	40	2	5	16	4	2	16	4
Peak Hour Factor	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	15	30	3	4	60	3	7	24	6	3	24	6
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.4	7.5	7.4	7.3
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	31%	7%	9%
Vol Thru, %	64%	62%	89%	73%
Vol Right, %	16%	6%	4%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	32	45	22
LT Vol	5	10	3	2
Through Vol	16	20	40	16
RT Vol	4	2	2	4
Lane Flow Rate	37	48	67	33
Geometry Grp	1	1	1	1
Degree of Util (X)	0.043	0.055	0.076	0.037
Departure Headway (Hd)	4.102	4.132	4.078	4.07
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	865	862	874	871
Service Time	2.165	2.181	2.124	2.135
HCM Lane V/C Ratio	0.043	0.056	0.077	0.038
HCM Control Delay	7.4	7.4	7.5	7.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.2	0.2	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	1	1	2	4	5	1	18	1	1	13	3
Future Vol, veh/h	4	1	1	2	4	5	1	18	1	1	13	3
Peak Hour Factor	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56	0.56
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	2	2	4	7	9	2	32	2	2	23	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.2	6.9	7.2	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	67%	18%	6%
Vol Thru, %	90%	17%	36%	76%
Vol Right, %	5%	17%	45%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	6	11	17
LT Vol	1	4	2	1
Through Vol	18	1	4	13
RT Vol	1	1	5	3
Lane Flow Rate	36	11	20	30
Geometry Grp	1	1	1	1
Degree of Util (X)	0.04	0.012	0.021	0.033
Departure Headway (Hd)	3.99	4.097	3.821	3.92
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	899	872	935	915
Service Time	2.006	2.128	1.85	1.938
HCM Lane V/C Ratio	0.04	0.013	0.021	0.033
HCM Control Delay	7.2	7.2	6.9	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0.1	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*AM Peak*	Analysis Year	*2040 Total*
		Project ID	*LSC #181240*

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	*39*	*6*	*15*	*0*	*75*	*5*	*275*	*0*	*5*	*1300*	*125*	*0*	*275*	*540*	*11*	*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*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*	*0.92*	*0.92*	*0.92*	*1.00*
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*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*987*			*1490*			*355*			*95*		
Exiting Flow (V_{ex}), pc/h	*451*			*24*			*1484*			*699*		
Entry Flow (V_e), pc/h		*67*			*89*	*305*	*745*	*841*		*431*	*485*	
Entry Volume veh/h		*66*			*87*	*299*	*730*	*825*		*423*	*475*	

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		*678*			*461*		*1098*	*1098*		*1339*	*1339*	
Capacity (c), veh/h		*665*			*452*		*1076*	*1076*		*1313*	*1313*	
v/c Ratio (X)		*0.10*			*0.19*		*0.68*	*0.77*		*0.32*	*0.36*	

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		*6.5*			*10.8*	*0.0*	*13.5*	*17.2*		*5.6*	*6.1*	
Lane LOS		*A*			*B*		*B*	*C*		*A*	*A*	
Lane 95% Queue		*0.3*			*0.7*		*5.6*	*7.9*		*1.4*	*1.7*	
Approach Delay, s/veh	*6.50*			*2.44*			*15.46*			*5.89*		
Approach LOS, s/veh	*A*			*A*			*C*			*A*		
Intersection Delay, s/veh	*10.57*											
Intersection LOS	*B*											

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Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	45	6	19	60	10	5	16	2	5	9	2
Future Vol, veh/h	20	45	6	19	60	10	5	16	2	5	9	2
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	23	52	7	22	69	11	6	18	2	6	10	2
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.6	7.6	7.5	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	28%	21%	31%
Vol Thru, %	70%	63%	67%	56%
Vol Right, %	9%	8%	11%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	71	89	16
LT Vol	5	20	19	5
Through Vol	16	45	60	9
RT Vol	2	6	10	2
Lane Flow Rate	26	82	102	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.031	0.093	0.115	0.022
Departure Headway (Hd)	4.257	4.093	4.048	4.259
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	829	871	881	828
Service Time	2.346	2.142	2.092	2.351
HCM Lane V/C Ratio	0.031	0.094	0.116	0.022
HCM Control Delay	7.5	7.6	7.6	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.3	0.4	0.1

Intersection	
Intersection Delay, s/veh	7.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	2	1	3	3	2	1	20	1	2	24	4
Future Vol, veh/h	1	2	1	3	3	2	1	20	1	2	24	4
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	2	1	4	4	2	1	24	1	2	29	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7	7	7.1	7.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	25%	38%	7%
Vol Thru, %	91%	50%	38%	80%
Vol Right, %	5%	25%	25%	13%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	4	8	30
LT Vol	1	1	3	2
Through Vol	20	2	3	24
RT Vol	1	1	2	4
Lane Flow Rate	26	5	10	36
Geometry Grp	1	1	1	1
Degree of Util (X)	0.029	0.005	0.011	0.039
Departure Headway (Hd)	3.966	3.948	3.97	3.91
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	905	906	901	918
Service Time	1.98	1.976	1.996	1.923
HCM Lane V/C Ratio	0.029	0.006	0.011	0.039
HCM Control Delay	7.1	7	7	7.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0	0	0.1

ROUNDABOUT REPORT

General Information		Site Information	
Analyst	*KMK*	Intersection	*McCaslin/Main*
Agency or Co.	*LSC*	E/W Street Name	*Main Street*
Date Performed	*10/7/2019*	N/S Street Name	*McCaslin Boulevard*
Time Period	*PM Peak*	Analysis Year	*2040 Total*
		Project ID	*LSC #181240*

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	*26*	*4*	*8*	*0*	*125*	*6*	*380*	*0*	*16*	*875*	*145*	*0*	*450*	*1800*	*38*	*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*	*0.96*	*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)	*5.1929*	*4.0000*	*5.1929*	*4.2929*	*4.0000*	*4.0000*	*4.0000*	*4.0000*	*5.1929*	*4.0000*	*4.0000*	*5.1929*
Follow-Up Headway (sec)	*3.1858*	*2.5000*	*3.1858*	*3.1858*	*2.5000*	*2.5000*	*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	*2529*			*984*			*515*			*157*		
Exiting Flow (V_{ex}), pc/h	*643*			*64*			*967*			*2055*		
Entry Flow (V_e), pc/h		*41*			*140*	*408*	*523*	*589*		*1218*	*1218*	
Entry Volume veh/h		*40*			*137*	*400*	*513*	*577*		*1194*	*1194*	

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		*209*			*679*		*972*	*972*		*1277*	*1277*	
Capacity (*c*), veh/h		*205*			*666*		*953*	*953*		*1252*	*1252*	
v/c Ratio (X)		*0.20*			*0.21*		*0.54*	*0.61*		*0.95*	*0.95*	

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		*22.8*			*7.8*	*0.0*	*10.8*	*12.4*		*33.9*	*33.9*	
Lane LOS		*C*			*A*		*B*	*B*		*D*	*D*	
Lane 95% Queue		*0.7*			*0.8*		*3.3*	*4.2*		*17.9*	*17.9*	
Approach Delay, s/veh	*22.77*			*2.00*			*11.66*			*33.88*		
Approach LOS, s/veh	*C*			*A*			*B*			*D*		
Intersection Delay, s/veh	*23.57*											
Intersection LOS	*C*											

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