



LSC TRANSPORTATION CONSULTANTS, INC.

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December 21, 2022

Mr. Joseph Huey
Lennar
9193 S. Jamaica Street, 4th Floor
Englewood, CO 80112

Re: Murphy Creek East
Filing 3
Aurora, CO
LSC #220660

Dear Mr. Huey:

In response to your request, LSC Transportation Consultants, Inc. has prepared this updated traffic impact analysis for the proposed Murphy Creek East Filing 3 development to address City comments. As shown on Figure 1, the site is located south of E. Jewell Avenue and east of S. Flatrock Trail in Aurora, 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-term 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 about 253 single-family detached dwelling units. Access is proposed to S. Flatrock Trail, Harvest Road, and E. Yale Avenue. Figure 2 shows the conceptual site plan. Figure 2 also shows the area trails. The future traffic signal at E. Jewell Avenue/S. Flatrock Trail will provide an enhanced pedestrian crossing of E. Jewell Avenue.

ROADWAY AND TRAFFIC CONDITIONS

Area Roadways

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

- **Gun Club Road (State Highway 30)** is a two-lane arterial roadway in the vicinity of the site. The intersection with E. Jewell Avenue is signalized with auxiliary turn lanes. The posted speed limit is 55 mph in the vicinity of the site. The City of Aurora *Northeast Aurora Transportation Study* (NEATS) shows this roadway as a six-lane arterial in the long term so it is assumed to be six lanes by 2040.
- **E. Jewell Avenue** is a two-lane roadway north of the site. The intersection with S. Gun Club Road (SH 30) is signalized with auxiliary turn lanes. The posted speed limit is 40 mph in the vicinity of the site. The NEATS shows a six-lane arterial in the long term so it is assumed to be six lanes by 2040. The Murphy Creek East development is assumed to construct the southern half of E. Jewell Avenue by 2024, completing the six-lane section adjacent to the site.
- **E. Yale Avenue** is a planned east-west minor arterial roadway south of the site. The SEATS study shows E Yale Avenue as a four-lane minor arterial by 2030.
- **S. Flatrock Trail** is a collector which currently extends northeast from E. Jewell Avenue to Harvest Road. It is planned to be extended south to E. Yale Avenue forming the west boundary of the site.

Existing Traffic Conditions

Figure 3 shows the existing traffic volumes, lane geometries, and traffic controls in the site's vicinity on a typical weekday. The weekday peak-hour traffic volumes and daily traffic counts are based on the attached traffic counts conducted by Counter Measures in September, 2021 and June, 2022.

2024 and 2040 Background Traffic

Figure 4a shows the estimated 2024 background traffic at all of the study area intersections along E. Jewell Avenue and E. Yale Avenue and Figure 4b show the estimated 2024 background traffic at all other intersections. The 2024 background traffic assumes a growth rate of two percent per year based on the CDOT 20-year growth factor for S. Gun Club Road in the vicinity of the site plus additional traffic projected to be generated by the development of Murphy Creek East Filings 1-2 and Harvest Crossing Filings 1-3.

Figure 5a shows the estimated 2040 background traffic at the E. Yale/E. Jewell Avenue intersection and Figure 5b show the estimated 2040 background traffic at all other intersections. The 2040 background traffic assumes a growth rate of two percent per year based on the CDOT 20-year growth factor for S. Gun Club Road in the vicinity of the site plus additional traffic projected to be generated by the development of Murphy Creek East (including traffic projected to be generated by buildout of the future school site and areas south of E. Yale Avenue within Murphy Creek East but not including any traffic generated by land uses within the currently proposed filing), Murphy Creek South, and Harvest Crossing Filings 1-3.

Figures 4a through 5b also show the recommended 2024 and 2040 lane geometry and traffic control.

Existing, 2024, 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 Figures 3a through 5b were analyzed to determine the existing, 2024, and 2040 background levels of service using Synchro. Table 1 shows the level of service analysis results. The level of service reports are attached.

- 4. E. Jewell Avenue/S. Flatrock Trail:** All movements at this stop-sign controlled intersection currently operate at LOS “A” during both morning and afternoon peak-hours. By 2024, the northbound and southbound approaches are expected to operate at LOS “F” during both peak-hours if it remains stop-sign controlled. By 2024, this intersection is expected to be signalized and operate at LOS “C” or better during both peak-hours.
- 5. E. Jewell Avenue/Harvest Road:** All movements at this stop-sign controlled intersection currently operate at LOS “A” during both morning and afternoon peak-hours. By 2024, the northbound and southbound approaches are expected to operate at LOS “E” or “F” during one or both peak-hours if it remains stop-sign controlled. By 2024, this intersection is expected to be signalized and operate at LOS “D” or better during both peak-hours.
- 8. E. Yale Avenue/S. Flatrock Trail:** All movements at this future roundabout controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours through 2040 whether it is built as a single-lane or two-lane roundabout.
- 9. E. Yale Avenue/S. Gold Bug Way/Future Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours in 2040.
- 10. E. Yale Avenue/Harvest Road:** This future roundabout controlled intersection is expected to operate at an overall LOS “A” through 2040.
- 11. S. Flatrock Trail/Warren Street:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours through 2040.
- 12. E. Warren Place/S. Fultondale Court:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours.
- 13. E. Warren Place/S. Haleyville Way:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours.
- 14. Harvest Road/E. Warren Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours.

- 15. Flatrock Trail/S. Eaton Parkway/E. Harvard Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours.
- 16. Harvest Road/E. Wesley Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours.

TRIP GENERATION

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

The proposed Murphy Creek East Filing 3 site is projected to generate about 2,386 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 46 vehicles would enter and about 131 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 150 vehicles would enter and about 88 vehicles would exit.

DIRECTIONAL DISTRIBUTION

Figure 6 shows the estimated directional distribution of the site-generated traffic volumes on the area roadways. 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 7a shows the estimated assignment of site-generated traffic volumes at all of the study area intersections along E. Jewell Avenue and E. Yale Avenue based on the trip generation estimate (from Table 2) and the directional distribution shown in Figure 6.

Figure 7b shows the estimated assignment of site-generated traffic volumes at all other intersections based on the trip generation estimate (from Table 2) and the directional distribution shown in Figure 6.

2024 AND 2040 TOTAL TRAFFIC

Figure 8a shows the estimated 2024 total traffic at all of the study area intersections along E. Jewell Avenue and E. Yale Avenue which is the sum of the 2024 background traffic volumes (from Figure 4a) and the 2024 site-generated traffic volumes (from Figure 7a). Figure 8a also shows the recommended 2024 lane geometry and traffic control.

Figure 8b shows the estimated 2024 total traffic at all other intersections which is the sum of the 2024 background traffic volumes (from Figure 4b) and the 2027 site-generated traffic volumes (from Figure 7a). Figure 8b also shows the recommended 2024 lane geometry and traffic control.

Figure 9a shows the estimated 2040 total traffic at all of the study area intersections along E. Jewell Avenue and E. Yale Avenue which is the sum of the 2040 background traffic volumes (from Figure 5a) and the 2040 site-generated traffic volumes (from Figure 7b). Figure 9a also shows the recommended 2040 lane geometry and traffic control.

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

TRAFFIC SIGNAL WARRANT ANALYSIS

Tables 3 and 4 show the projected traffic volumes compared to the traffic volume thresholds for Traffic Signal Warrant 1 (Eight-Hour), Warrant 2 (Four-Hour), and Warrant 3 (Peak-Hour) at the following intersections:

- E. Jewell Avenue/S. Flatrock Trail (#3)
- E. Jewell Avenue/Harvest Road (#4)

The off-peak traffic volumes were based on the 2040 background and total morning and afternoon peak-hour volumes shown in Figures 4a and 9a and 24-hour traffic counts conducted on E. Jewell Avenue and Harvest Road by Counter Measures in September 2021.

The findings of Tables 3 and 4 are summarized in Table 5. As shown on Table 5, the intersection of E. Jewell Avenue/S. Flatrock Trail is projected to meet multiple Traffic Signal Warrants based on the projected 2024 total traffic volumes and the intersection of E. Jewell Avenue/Harvest Road is projected to meet multiple Traffic Signal Warrants based on the projected 2024 background traffic volumes.

PROJECTED LEVELS OF SERVICE

The intersections in Figures 8a through 9b were analyzed to determine the 2024 and 2040 total levels of service. Table 1 shows the level of service analysis results. The level of service reports are attached.

- 4. E. Jewell Avenue/S. Flatrock Trail:** By 2024, the northbound and southbound approaches are expected to operate at LOS "F" during both peak-hours if it remains stop-sign controlled. By 2024, it is expected to be signalized and expected to operate at an overall LOS "C" or better during both morning and afternoon peak-hours through 2040.
- 5. E. Jewell Avenue/Harvest Road:** By 2024, the northbound and southbound approaches are expected to operate at LOS "F" during both peak-hours if it remains stop-sign controlled. By 2024, it is expected to be signalized and operate at an overall LOS "D" or better during both morning and afternoon peak-hours through 2040.
- 8. E. Yale Avenue/S. Flatrock Trail:** All movements at this future roundabout controlled intersection are expected to operate at LOS "B" or better during both morning and afternoon peak-hours through 2040 whether it is built as a single-lane or two-lane roundabout.

9. **E. Yale Avenue/S. Gold Bug Way/Future Access:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2040.
10. **E. Yale Avenue/Harvest Road:** This future roundabout controlled intersection is expected to operate at an overall LOS “A” through 2040 whether it is built as a single-lane or two-lane roundabout.
11. **S. Flatrock Trail/Warren Street:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours through 2040.
12. **E. Warren Place/S. Fultondale Court:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours through 2040.
13. **E. Warren Place/S. Haleyville Way:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “A” during both morning and afternoon peak-hours through 2040.
14. **Harvest Road/E. Warren Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “C” or better during both morning and afternoon peak-hours.
15. **Flatrock Trail/S. Eaton Parkway/E. Harvard Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours.
16. **Harvest Road/E. Wesley Place:** All movements at this future stop-sign controlled intersection are expected to operate at LOS “B” or better during both morning and afternoon peak-hours.

95TH PERCENTILE QUEUE LENGTHS AND RECOMMENDED TURN LANES

The estimated 2040 95th percentile queue lengths for the intersections in the study area are shown in Table 6. Table 6 also shows the recommended turn lane lengths based on the NR-B classification criteria in the *CDOT State Highway Access Code* and the projected 95th percentile queue lengths.

RECOMMENDED IMPROVEMENTS

Table 7 shows the recommended improvements by 2024 and 2040. The recommended turn lane lengths are based on the criteria contained in the *CDOT State Highway Access Code* for the NR-B classification, the projected total traffic volumes shown in Figure 9b, and the projected 95th percentile queue lengths shown in Table 6. A design speed of 40 mph was assumed for E. Jewell Avenue and for E. Yale Avenue. A design speed of 45 mph was assumed for Harvest Road north of E. Jewell Avenue. A design speed of 35 mph was assumed for all other non-local streets (including Harvest Road south of E. Jewell Avenue) and 25 mph was assumed for local streets.

CONCLUSIONS AND RECOMMENDATIONS

Trip Generation

1. The proposed Murphy Creek East Filing 3 site is projected to generate about 2,386 vehicle-trips on the average weekday, with about half entering and half exiting during a 24-hour period. During the morning peak-hour, about 46 vehicles would enter and about 131 vehicles would exit the site. During the afternoon peak-hour, about 150 vehicles would enter and about 88 vehicles would exit.

Projected Levels of Service

2. All movements at the unsignalized intersections analyzed are expected to operate at LOS “D” or better during both morning and afternoon peak-hours through 2040 or are expected to be signalized when warranted.
3. All signalized intersections are expected to operate at overall acceptable levels of service through 2040.

Conclusions

4. The impact of the site can be accommodated by the existing and planned roadway improvements with the following recommended improvements.

Recommendations

5. The recommended improvements for 2024 and 2040 are shown in Figures 8a through 9b and Tables 6 and 7.

* * * * *

We trust our findings will assist you in gaining approval of the proposed Murphy Creek East Filing 3 development. Please contact me if you have any questions or need further assistance.

Sincerely,

LSC TRANSPORTATION CONSULTANTS, INC.

By 

Christopher S. McGranahan, PE, PTOE
Principal

12-21-22

CSM/wc

Enclosures: Tables 1 - 7
Figures 1 - 9b
Traffic Counts
Level of Service Definitions
Level of Service Reports
Queuing Reports

Table 1 (Page 1 of 5)
Intersection Levels of Service Analysis
Murphy Creek East Filing 3
Aurora, Colorado
LSC #220660; December, 2022

Intersection Location	Traffic Control	Existing Traffic				2024 Background Traffic				2024 Total Traffic				2040 Background Traffic				2040 Total Traffic			
		Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay
4) E. Jewell Avenue/S. Flatrock Trail	TWSC	--	--	--	--	F	104.6	F	>240	F	>240	F	>240	--	--	--	--	--	--	--	--
NB Left		--	--	--	--	B	10.4	B	14.2	B	10.4	B	14.2	--	--	--	--	--	--	--	--
NB Through/Right		--	--	--	--	A	9.0	A	9.4	A	9.0	A	9.4	--	--	--	--	--	--	--	--
EB Left		A	7.7	A	7.7	A	8.2	A	9.9	A	8.2	B	10.3	--	--	--	--	--	--	--	--
WB Left		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB Approach		A	9.6	A	9.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SB Left		--	--	--	--	D	26.3	F	66.3	D	26.8	F	70.8	--	--	--	--	--	--	--	--
SB Through/Right or Right		--	--	--	--	B	14.0	B	14.7	B	14.0	B	14.7	--	--	--	--	--	--	--	--
	Signalized	--	--	--	--	--	--	--	--	B	11.5	B	10.2	C	29.1	D	50.8	C	26.9	D	53.4
EB Left		--	--	--	--	--	--	--	--	B	11.4	B	14.4	C	26.8	C	23.9	C	24.5	C	22.8
EB Through		--	--	--	--	--	--	--	--	A	9.0	A	8.5	C	22.0	B	15.9	C	20.8	B	16.7
EB Right		--	--	--	--	--	--	--	--	B	11.1	B	12.8	C	26.3	C	25.3	C	24.1	C	24.4
EB Approach & Delay		--	--	--	--	--	--	--	--	B	10.2	B	10.8	C	20.9	C	21.7	B	19.2	C	20.9
WB Left		--	--	--	--	--	--	--	--	B	17.4	B	15.1	D	38.8	D	37.2	C	34.2	C	34.5
WB Through/Right		--	--	--	--	--	--	--	--	B	17.4	B	15.0	D	36.0	C	34.3	C	31.9	C	32.0
WB Approach & Delay		--	--	--	--	--	--	--	--	D	51.2	D	53.1	D	52.9	D	47.4	E	61.0	E	69.7
NB Left		--	--	--	--	--	--	--	--	C	33.9	D	37.7	C	23.1	C	30.0	C	28.6	D	35.3
NB Through/Right		--	--	--	--	--	--	--	--	D	50.9	D	52.8	D	49.6	D	45.6	E	58.0	E	66.8
NB Approach & Delay		--	--	--	--	--	--	--	--	C	34.0	D	37.9	C	23.6	C	30.4	D	39.6	D	41.1
SB Left		--	--	--	--	--	--	--	--	D	36.6	D	41.8	C	25.9	C	34.1	D	53.0	D	54.3
SB Through/Right		--	--	--	--	--	--	--	--	D	36.6	D	41.7	C	25.9	C	34.0	D	52.7	D	53.8
SB Approach & Delay		--	--	--	--	--	--	--	--												
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	--	--	21.0		17.6		32.7		30.1		32.2		30.3	
Entire Intersection LOS		--	--	--	--	--	--	--	--	C		B		C		C		C		C	

Table 1 (Page 3 of 5)
Intersection Levels of Service Analysis
Murphy Creek East Filing 3
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LSC #220660; December, 2022

Intersection Location	Traffic Control	Existing Traffic				2024 Background Traffic				2024 Total Traffic				2040 Background Traffic				2040 Total Traffic			
		Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay
8) <u>E. Yale Avenue/Flatrock Trail</u>	TWSC																				
EB Left		--	--	--	--	A	7.3	A	7.4	A	7.4	A	7.4	--	--	--	--	--	--	--	--
SB Approach		--	--	--	--	A	8.7	A	8.6	A	8.9	A	8.7	--	--	--	--	--	--	--	--
EB Approach	1-Lane	--	--	--	--	A	2.8	A	3.3	A	3.0	A	3.6	A	5.3	A	9.4	A	5.4	B	10.1
WB Approach	Roundabout	--	--	--	--	A	3.0	A	3.0	A	3.2	A	3.2	A	7.0	A	7.3	A	7.4	A	7.7
NB Approach		--	--	--	--	--	--	--	--	--	--	--	--	A	5.2	A	6.5	A	5.3	A	6.8
SB Approach		--	--	--	--	A	3.1	A	3.0	A	3.3	A	3.1	A	6.3	A	6.0	A	6.7	A	6.3
Entire Intersection Delay (sec /veh)		--	--	--	--	3.0		3.2		3.2		3.5		6.1		8.2		6.4		8.8	
Entire Intersection LOS		--	--	--	--	A		A		A		A		A		A		A		A	
EB Approach	2-Lane	--	--	--	--	--	--	--	--	--	--	--	--	A	3.9	A	5.3	A	4.0	A	5.5
WB Approach	Roundabout	--	--	--	--	--	--	--	--	--	--	--	--	A	4.7	A	4.8	A	4.9	A	5.0
NB Approach		--	--	--	--	--	--	--	--	--	--	--	--	A	4.6	A	5.5	A	4.7	A	5.8
SB Approach		--	--	--	--	--	--	--	--	--	--	--	--	A	5.6	A	5.3	A	5.8	A	5.5
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	--	--	--	--	--	--	4.6		5.2		4.7		5.4	
Entire Intersection LOS		--	--	--	--	--	--	--	--	--	--	--	--	A		A		A		A	
9) <u>E. Yale Avenue/S. Gold Bug Way/</u>	TWSC																				
<u>Future Access</u>																					
NB Approach		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	B	14.1	C	20.2
EB Left		--	--	--	--	--	--	--	--	A	7.3	A	7.3	B	11.5	B	13.3	A	8.1	A	8.3
WB Left		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	A	7.9	A	8.6
SB Approach		--	--	--	--	--	--	--	--	A	8.6	A	8.5	A	7.9	A	8.6	A	9.6	A	9.7

Table 1 (Page 4 of 5)
Intersection Levels of Service Analysis
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Intersection Location	Traffic Control	Existing Traffic		2024 Background Traffic		2024 Total Traffic		2040 Background Traffic		2040 Total Traffic	
		Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay
10) <u>E. Yale Avenue/Harvest Road</u>	TWSC	--	--	--	--	A	7.3	A	7.3	A	7.3
EB Left		--	--	--	--	A	7.3	A	7.3	A	7.3
SB Approach		--	--	--	--	A	8.6	A	9.0	A	8.6
EB Approach	1-Lane Roundabout	--	--	--	--	A	2.7	A	3.0	A	2.7
WB Approach		--	--	--	--	A	2.9	A	2.8	A	2.9
SB Approach		--	--	--	--	A	2.9	A	3.0	A	2.9
Entire Intersection Delay (sec /veh)		--	--	--	--	2.9		3.0		2.9	
Entire Intersection LOS		--	--	--	--	A		A		A	
EB Approach	2-Lane Roundabout	--	--	--	--	--	--	--	--	A	3.6
WB Approach		--	--	--	--	--	--	--	--	A	4.0
SB Approach		--	--	--	--	--	--	--	--	A	4.3
Entire Intersection Delay (sec /veh)		--	--	--	--	--	--	--	--	3.9	
Entire Intersection LOS		--	--	--	--	--	--	--	--	A	
11) <u>S. Flatrock Trail/E. Warren Place/S. Eaton Pkwy.</u>	TWSC	--	--	--	--	--	--	--	--	A	7.8
NB Left		--	--	--	--	--	--	--	--	B	13.1
EB Left		--	--	--	--	--	--	--	--	B	10.9
EB Through/Right		--	--	--	--	--	--	--	--	B	10.2
WB Left		--	--	--	--	A	9.2	A	9.3	B	13.9
WB Through/Right		--	--	--	--	A	0.0	A	0.0	A	0.0
SB Left		--	--	--	--	A	0.0	A	0.0	A	0.0
12) <u>E. Warren Place/S. Fultondale Court</u>	TWSC	--	--	--	--	A	0.0	A	7.2	A	0.0
EB Left		--	--	--	--	A	8.5	A	8.5	A	8.7
SB Approach		--	--	--	--	A	8.5	A	8.6	A	8.5

Table 1 (Page 5 of 5)
Intersection Levels of Service Analysis
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Aurora, Colorado
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Intersection Location	Traffic Control	Existing Traffic		2024 Background Traffic		2024 Total Traffic		2040 Background Traffic		2040 Total Traffic	
		Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay	Level of Service PM	Move-ment Delay	Level of Service AM	Move-ment Delay
13) <u>E. Warren Place/S. Haleyville Way</u>	TWSC	--	--	--	--	--	--	--	--	A	8.6
NB Approach		--	--	--	--	A	8.6	A	8.8	--	--
EB Left		--	--	--	--	A	7.2	A	7.3	A	7.2
WB Left		--	--	--	--	--	--	--	--	A	7.2
SB Approach		--	--	--	--	A	8.6	A	8.6	A	8.8
14) <u>Harvest Road/E. Warren Place</u>	TWSC	--	--	--	--	A	7.3	A	7.5	A	7.3
NB Left or Through/Left		--	--	--	--	B	10.6	B	12.1	B	10.7
EB Left		--	--	--	--	A	8.6	A	9.0	A	8.5
EB Through/Right or Right		--	--	--	--	B	10.0	B	11.6	B	10.0
WB Left		--	--	--	--	A	9.2	A	8.9	A	9.2
WB Through/Right or Right		--	--	--	--	A	7.5	A	7.5	A	7.5
SB Left		--	--	--	--	A	7.5	A	7.5	A	7.5
15) <u>Flatrock Trail/S. Eaton Parkway/E. Harvard Place</u>	TWSC	--	--	--	--	--	--	--	--	A	7.6
NB Left		--	--	--	--	--	--	--	--	A	7.6
EB Approach		--	--	--	--	--	--	--	--	A	9.5
WB Approach		--	--	--	--	--	--	--	--	--	--
SB Left		--	--	--	--	--	--	--	--	A	7.6
16) <u>Harvest Road/E. Wesley Place</u>	TWSC	--	--	--	--	--	--	--	--	A	0.0
NB Left		--	--	--	--	--	--	--	--	A	9.9
EB Left		--	--	--	--	--	--	--	--	B	10.7
EB Through/Right		--	--	--	--	--	--	--	--	A	8.5
WB Left		--	--	--	--	A	9.4	B	10.1	A	9.5
WB Right or Through/Right		--	--	--	--	A	8.9	A	8.8	A	8.9
SB Left		--	--	--	--	A	7.4	A	7.4	A	7.4

Table 2
ESTIMATED TRAFFIC GENERATION
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Trip Generating Category	Quantity	Trip Generation Rates ⁽¹⁾					Vehicle-Trips Generated				
		Average	AM Peak-Hour		PM Peak-Hour		Average	AM Peak-Hour		PM Peak-Hour	
		Weekday	In	Out	In	Out	Weekday	In	Out	In	Out
CURRENTLY PROPOSED LAND USE											
Single-Family Detached Housing ⁽²⁾	253 DU ⁽³⁾	9.43	0.182	0.518	0.592	0.348	2,386	46	131	150	88

Notes:

- (1) Source: *Trip Generation*, Institute of Transportation Engineers, 11th Edition, 2021
- (2) ITE Land Use No. 210 - Single-Family Detached Housing
- (3) DU = dwelling units

Table 3
Intersection #4 - E. Jewell Avenue/S. Flatrock Trail
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Warrant Analysis ⁽¹⁾																													
Hour	Traffic Volumes (vehicles per hour)			Warrant 1: Eight Hour Vehicular Volume Evaluation									Warrant 2: Four Hour Vehicular Volume Evaluation			Warrant 3: Peak Hour Vehicular Volume Evaluation													
				Warrant Thresholds				Warrant Threshold Met?				56% Combined Condition Warrant Threshold Met?	70% Warrant Threshold Minor Minimum	Warrant Threshold Met?		70% Warrant Threshold Minor Minimum	Warrant Threshold Met?												
	Condition A (70%)		Condition B (70%)		North Leg		South Leg		North Leg	South Leg	North Leg			South Leg															
	Major ⁽²⁾	Minor 1 ⁽³⁾ North Leg	Minor 2 ⁽³⁾ South Leg	Major	Minor	Major	Minor	A							B		A	B											
2024 Background Traffic																													
6-7 AM	456	64	23	420	140	630	70	No	No	No	No	No	285	No	No	Low Vol	No	No											
7-8 AM	1021	111	38	420	140	630	70	No	Yes	No	No	No	80	Yes	No	145	No	No											
8-9 AM	1024	94	26	420	140	630	70	No	Yes	No	No	No	80	Yes	No	145	No	No											
9-10 AM	1027	59	21	420	140	630	70	No	No	No	No	No	80	No	No	145	No	No											
10-11 AM	1092	59	21	420	140	630	70	No	No	No	No	No	80	No	No	145	No	No											
11-12 PM	1055	56	22	420	140	630	70	No	No	No	No	No	80	No	No	145	No	No											
12-1 PM	1277	56	28	420	140	630	70	No	No	No	No	No	80	No	No	100	No	No											
1-2 PM	1179	58	30	420	140	630	70	No	No	No	No	No	80	No	No	120	No	No											
2-3 PM	1145	61	42	420	140	630	70	No	No	No	No	No	80	No	No	120	No	No											
3-4 PM	1714	59	47	420	140	630	70	No	No	No	No	No	80	No	No	100	No	No											
4-5 PM	1555	75	45	420	140	630	70	No	Yes	No	No	No	80	No	No	100	No	No											
5-6 PM	1280	74	35	420	140	630	70	No	Yes	No	No	No	80	No	No	100	No	No											
6-7 PM	1097	58	31	420	140	630	70	No	No	No	No	No	80	No	No	145	No	No											
7-8 PM	644	43	20	420	140	630	70	No	No	No	No	No	175	No	No	315	No	No											
8-9 PM	353	31	13	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No											
9-10 PM	300	24	6	420	140	630	70	No	No	No	No	No	Low Vol	No	No	N/A	No	No											
Numbers of Hours the Warrant Thresholds Are Met														0	4	0	0	0				2	0			0	0		
Warrant Met?														No					No					No					
2024 Total Traffic																													
6-7 AM	469	106	23	420	140	630	70	No	No	No	No	No	285	No	No	Low Vol	No	No											
7-8 AM	1047	184	38	420	140	630	70	Yes	Yes	No	No	Yes	80	Yes	No	145	Yes	No											
8-9 AM	1054	155	26	420	140	630	70	Yes	Yes	No	No	Yes	80	Yes	No	145	Yes	No											
9-10 AM	1053	97	21	420	140	630	70	No	Yes	No	No	No	80	Yes	No	145	No	No											
10-11 AM	1126	97	21	420	140	630	70	No	Yes	No	No	No	80	Yes	No	120	No	No											
11-12 PM	1099	92	22	420	140	630	70	No	Yes	No	No	No	80	Yes	No	145	No	No											
12-1 PM	1321	91	28	420	140	630	70	No	Yes	No	No	No	80	Yes	No	100	No	No											
1-2 PM	1227	96	30	420	140	630	70	No	Yes	No	No	No	80	Yes	No	100	No	No											
2-3 PM	1200	101	42	420	140	630	70	No	Yes	No	No	No	80	Yes	No	100	Yes	No											
3-4 PM	1781	98	47	420	140	630	70	No	Yes	No	No	No	80	Yes	No	100	No	No											
4-5 PM	1638	123	45	420	140	630	70	No	Yes	No	No	Yes	80	Yes	No	100	Yes	No											
5-6 PM	1361	121	35	420	140	630	70	No	Yes	No	No	Yes	80	Yes	No	100	Yes	No											
6-7 PM	1165	96	31	420	140	630	70	No	Yes	No	No	No	80	Yes	No	120	No	No											
7-8 PM	693	70	20	420	140	630	70	No	No	No	No	No	175	No	No	315	No	No											
8-9 PM	403	51	13	420	140	630	70	No	No	No	No	No	285	No	No	Low Vol	No	No											
9-10 PM	335	40	6	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No											
														2	12	0	0	4				12	0			5	0		
Numbers of Hours the Warrant Thresholds Are Met														Yes					Yes					Yes					
Warrant Met?																													

Notes:
 (1) Thresholds are based on 2 or more lanes on the major approach and 2 or more lanes on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
 (2) The major street traffic includes all movements (left, through, and right)
 (3) The minor street traffic includes left, through, and half of right-turn volumes from the minor street

<p>Table 4</p> <p>Intersection #5 - E. Jewell Avenue/Harvest Road</p> <p>Murphy Creek East Filing 3</p> <p>Aurora, CO</p> <p>LSC #220660; December, 2022</p>
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Warrant Analysis ⁽¹⁾																					
Hour	Traffic Volumes (vehicles per hour)			Warrant 1: Eight Hour Vehicular Volume Evaluation									Warrant 2: Four Hour Vehicular Volume Evaluation			Warrant 3: Peak Hour Vehicular Volume Evaluation					
				Warrant Thresholds				Warrant Threshold Met?				56% Combined Condition Warrant Threshold Met?	70% Warrant Threshold Minor Minimum	Warrant Threshold Met?		70% Warrant Threshold Minor Minimum	Warrant Threshold Met?				
	Condition A (70%)		Condition B (70%)		North Leg		South Leg		North Leg	South Leg	North Leg			South Leg							
	Major ⁽²⁾	Minor 1 ⁽³⁾ North Leg	Minor 2 ⁽³⁾ South Leg	Major	Minor	Major	Minor	A	B	A	B	Threshold Met?	Minimum	North Leg	South Leg	Minimum	North Leg	South Leg			
2030 Background Traffic																					
6-7 AM	303	195	32	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No			
7-8 AM	661	336	58	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	Yes	No			
8-9 AM	691	283	55	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	No	No			
9-10 AM	673	179	46	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	No	No			
10-11 AM	740	179	56	420	140	630	70	Yes	Yes	No	No	Yes	140	Yes	No	265	No	No			
11-12 PM	761	168	70	420	140	630	70	Yes	Yes	No	No	Yes	140	Yes	No	265	No	No			
12-1 PM	883	186	57	420	140	630	70	Yes	Yes	No	No	Yes	110	Yes	No	220	No	No			
1-2 PM	842	196	62	420	140	630	70	Yes	Yes	No	No	Yes	110	Yes	No	220	No	No			
2-3 PM	844	205	76	420	140	630	70	Yes	Yes	No	Yes	Yes	110	Yes	No	220	No	No			
3-4 PM	1206	199	91	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	100	Yes	No			
4-5 PM	1154	249	105	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	120	Yes	No			
5-6 PM	987	245	99	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	180	Yes	No			
6-7 PM	833	196	83	420	140	630	70	Yes	Yes	No	Yes	Yes	110	Yes	No	220	No	No			
7-8 PM	516	143	59	420	140	630	70	Yes	No	No	No	Yes	230	No	No	370	No	No			
8-9 PM	345	103	57	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No			
9-10 PM	273	79	39	420	140	630	70	No	No	No	No	No	Low Vol	No	No	N/A	No	No			
Numbers of Hours the Warrant Thresholds Are Met										13	12	0	5	13					4	0	
Warrant Met?										Yes				No				No			

2030 Total Traffic																		
6-7 AM	304	205	34	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No
7-8 AM	663	353	63	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	Yes	No
8-9 AM	693	297	61	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	No	No
9-10 AM	675	187	51	420	140	630	70	Yes	Yes	No	No	Yes	175	Yes	No	315	No	No
10-11 AM	743	187	63	420	140	630	70	Yes	Yes	No	No	Yes	140	Yes	No	265	No	No
11-12 PM	765	177	79	420	140	630	70	Yes	Yes	No	Yes	Yes	140	Yes	No	265	No	No
12-1 PM	887	194	65	420	140	630	70	Yes	Yes	No	No	Yes	110	Yes	No	220	No	No
1-2 PM	846	203	71	420	140	630	70	Yes	Yes	No	Yes	Yes	110	Yes	No	220	No	No
2-3 PM	848	214	86	420	140	630	70	Yes	Yes	No	Yes	Yes	110	Yes	No	220	No	No
3-4 PM	1211	207	103	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	100	Yes	Yes
4-5 PM	1160	259	120	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	120	Yes	Yes
5-6 PM	993	255	114	420	140	630	70	Yes	Yes	No	Yes	Yes	80	Yes	Yes	180	Yes	No
6-7 PM	838	203	95	420	140	630	70	Yes	Yes	No	Yes	Yes	110	Yes	No	220	No	No
7-8 PM	519	149	68	420	140	630	70	Yes	No	No	No	Yes	230	No	No	370	No	No
8-9 PM	349	107	66	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No
9-10 PM	275	83	45	420	140	630	70	No	No	No	No	No	Low Vol	No	No	Low Vol	No	No
Numbers of Hours the Warrant Thresholds Are Met								13	12	0	7	13		12	3		4	2
								Warrant Met?				Yes				Yes		

Notes:

- (1) Thresholds are based on 2 or more lanes on the major approach and 2 or more lanes on the minor approach with the 70% factor applied for a posted speed limit above 40 mph
- (2) The major street traffic includes all movements (left, through, and right)
- (3) The minor street traffic includes left, through, and half of right-turn volumes from the minor street

Source: LSC Transportation Consultants, Inc.

Table 5
Traffic Signal Warrant Summary
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Intersection No. & Location	Scenario Where Traffic Signal Warrant(s) Are Projected To Be Met
4) E. Jewell Avenue/S. Flatrock Trail (Table 3)	2024 Total
5) E. Jewell Avenue/Harvest Road (Table 4)	2030 Total

Table 6 (Page 1 of 2)
95th Percentile Queue Lengths
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Intersection No. & Location	2040	95th Percentile		Required	Recommended Lane Lengths (feet)	Recommended Transition Taper (feet)
	Assumed	Queue Lengths		CDOT		
	Posted Speed Limit (mph)	2040 Total		Deceleration Length (feet)		
		AM Peak (feet)	PM Peak (feet)			
4) <u>E. Jewell Avenue/S. Flatrock Trail</u>						
EB Left	40	m86	m175	225	225	145
EB Through	40	360	m507	--	--	--
EB Right	40	127	m105	225	225	145
WB Left	40	m17	m8	225	225	145
WB Through/Right	40	626	m687	--	--	--
NB Left	35	221	154	190	2 @ 225	240
NB Through/Right	35	0	0	--	--	--
SB Left	35	9	14	190	200	120
SB Through/Right	35	70	50	--	--	--
5) <u>E. Jewell Avenue/Harvest</u>						
EB Left	40	185	199	225	2 @ 225	290
EB Through	40	296	491	--	--	--
EB Right	40	m42	m191	225	225	145
WB Left	40	30	54	225	225	145
WB Through	40	428	484	--	--	--
WB Right	40	80	67	225	225	145
NB Left	35	217	348	190	2 @ 350	240
NB Through/Right	35	135	147	--	--	--
SB Left	45	122	200	275	2 @ 275	320
SB Through	45	140	337	--	--	--
SB Right	45	0	0	275	275	160
8) <u>E. Yale Avenue/S. Flatrock Trail</u>						
EB Approach	40	25	100	This intersection is planned to be constructed as a one- or two-lane modern roundabout		
WB Approach	40	50	50			
NB Approach	35	<25	<25			
SB Approach	35	25	25			
9) <u>E. Yale Avenue/S. Gold Bug Way/Future Access</u>						
EB Left	40	<25	<25	225	225	145
WB Left	40	<25	<25	225	225	145
NB Approach	25	<25	<25	--	--	--
SB Approach	25	<25	<25	--	--	--
10) <u>E. Yale Avenue/Harvest Road</u>						
EB Approach	40	25	50	This intersection is planned to be constructed as a one- or two-lane modern roundabout		
WB Approach	40	25	25			
SB Approach	35	<25	25			
11) <u>S. Flatrock Trail/S. Eaton Parkway/E. Warren Place</u>						
EB Left	25	<25	<25	150	150	100
EB Through/Right	25	<25	<25	--	--	--
WB Left	35	<25	<25	190	200	120
WB Through/Right	35	<25	<25	--	--	--
NB Left	35	<25	<25	190	200	120
SB Left	35	<25	<25	190	200	120

Notes:

- (1) Queue lengths for signalized intersections are from the queuing reports included in the appendix.
- (2) m = metered by adjacent signals
- (3) Auxiliary turn lane lengths on arterial roadways are based on deceleration length from NR-B classification in the *CDOT State Highway Access Code* and the 95th percentile queue length.
A redirect taper of 20:1 is appropriate for 35 mph, 30:1 for 40 mph, 45:1 for 45 mph and 55:1 for 55 mph.

Table 6 (Page 2 of 2)
95th Percentile Queue Lengths
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Intersection No. & Location	2040 Assumed Posted Speed Limit (mph)	95th Percentile Queue Lengths 2040 Total		Required CDOT Deceleration Length (feet)	Recommended Lane Lengths (feet)	Recommended Transition Taper (feet)
		AM Peak (feet)	PM Peak (feet)			
12) <u>E. Warren Place/S. Fultondale Court</u>						
EB Left	35	<25	<25	190	200	120
SB Approach	25	<25	<25	--	--	--
13) <u>E. Warren Place/S. Haleyville Way</u>						
EB Left	35	<25	<25	190	200	120
WB Left	35	<25	<25	190	200	120
NB Approach	25	<25	<25	--	--	--
SB Approach	25	<25	<25	--	--	--
14) <u>Harvest Road/E. Warren Place</u>						
EB Left	35	<25	<25	190	200	120
EB Through/Right	35	<25	<25	--	--	--
WB Left	35	<25	<25	190	200	120
WB Through/Right	35	<25	<25	--	--	--
NB Left	35	<25	<25	190	200	120
SB Left	35	<25	<25	190	200	120
15) <u>S. Flatrock Trail/S. Eaton Parkway/E. Harvard Place</u>						
EB Approach	25	<25	<25	--	--	--
WB Approach	25	<25	<25	--	--	--
NB Left	35	<25	<25	190	200	120
SB Left	35	<25	<25	190	200	120
16) <u>Harvest Road/E. Wesley Place</u>						
EB Left	25	<25	<25	150	150	100
EB Through/Right	25	<25	<25	--	--	--
WB Left	25	<25	<25	150	150	100
WB Through/Right	25	<25	<25	--	--	--
NB Left	35	<25	<25	190	200	120
SB Left	35	<25	<25	190	200	120

Notes:

- (1) Queue lengths for signalized intersections are from the queuing reports included in the appendix.
- (2) m = metered by adjacent signals
- (3) Auxiliary turn lane lengths on arterial roadways are based on deceleration length from NR-B classification in the *CDOT State Highway Access Code* and the 95th percentile queue length.
A redirect taper of 20:1 is appropriate for 35 mph, 30:1 for 40 mph, 45:1 for 45 mph and 55:1 for 55 mph.

Table 7 (Page 1 of 2)
Recommended Improvements to Public Street Network
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Inter-section						
No.	Intersection Location	Classification	2024 Recommended Improvements ⁽¹⁾	Responsibility	2040 Recommended Improvements ⁽¹⁾	Responsibility
E. Yale Avenue		4-Lane Minor Arterial	Construct 1 through lane in each direction between S. Flatrock Trail and Harvest Road	Applicant	Construct second through lane in each direction between S. Flatrock Trail and Harvest Road	Others
#4	E. Jewell Avenue/ S. Flatrock Trail	6-Lane Major Arterial/ Collector	EB LT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Others	NB LT Decel - construct second lane - 1 @ 200 feet and a 120-foot transition taper	Others
			EB RT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Applicant		
			WB LT Decel - construct lane - 1 @ 225 feet an a 145-foot transition taper	Applicant		
			NB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Applicant		
			SB LT Decel - restripe approach - 1 @ 200 and 120-foot transition taper	Others		
			Traffic signalization when warranted	Others/MARIA		
#5	E. Jewell Avenue/ Harvest Road	6-Lane Major Arterial/ 6-Lane Major Arterial (north of Jewell)/ Collector (south of Jewell)	EB LT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Applicant	EB LT Decel - construct second lane - 1 @ 225 feet and a 145-foot transition taper	Others
			EB RT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Applicant	WB RT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Others
			WB LT Decel - construct lane - 1 @ 225 feet an a 145-foot transition taper	Others	NB LT Decel - construct second lane - 1 @ 350 feet and a 160-foot transition taper	Others
			NB LT Decel - construct lane - 1 @ 350 feet and a 120-foot transition taper	Others	Convert NB RT Decel to shared TH/RT lane	Others
			NB RT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Others	SB RT Decel - construct lane - 1 @ 275 feet and a 160-foot transition taper	Others
			SB LT Decel - construct lane - 1 @ 275 feet and 160-foot transition taper	Others	SB to WB Accel - construct lane - 1 @ 235 feet and a 145-foot transition taper	Others
			Traffic signalization when warranted	Others/MARIA	SB LT Decel - construct second lane - 1 @ 275 feet and a 160-foot transition taper	Others
#8	E. Yale Avenue/ S. Flatrock Trail	4-Lane Minor Arterial/ Collector	Construct as interim one-lane modern roundabout	Applicant	Potentially expand to two-lane modern roundabout	Others
#9	E. Yale Avenue/ S. Gold Bug Way/ Future Access	Collector/ Local	EB LT Decel - construct lane - 1 @ 225 feet and a 145-foot transition taper	Applicant	WB LT Decel - construct lane - 1 @ 225 feet an a 145-foot transition taper	Others
#10	E. Yale Avenue/ Harvest Road	4-Lane Minor Arterial/ Collector	Construct as interim one-lane modern roundabout	Applicant	Potentially expand to two-lane modern roundabout	Others
#11	S. Flatrock Trail/ E. Warren Place/ S. Eaton Parkway	Collector/ Collector/ Local	WB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Applicant	EB LT Decel - construct lane - 1 @ 150 feet and a 100-foot transition taper	Others
			SB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Applicant	NB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Others

(1) A transition taper of 13.5:1 was used for Harvest Road north of E. Jewell Avenue based on a posted speed limit of 45 mph. An appropriate redirect taper for 45 mph is 45:1
A transition taper of 12:1 was used for E. Jewell Avenue and E Yale Avenue based on a posted speed limit of 40 mph. An appropriate redirect taper for 40 mph is 30:1
A transition taper of 10:1 was used for all other non-local roadways based on a posted speed of 35 mph. An appropriate redirect taper for 35 mph is 20:1
A transition taper of 7.5:1 was used for all local streets based on a posted speed of 25 mph. An appropriate redirect taper for 25 mph is 15:1
Some of the right-turn deceleration and acceleration lane termini are close enough that a continuous right-turn lane may be appropriate between intersections.

Table 7 (Page 2 of 2)
Recommended Improvements to Public Street Network
Murphy Creek East Filing 3
Aurora, CO
LSC #220660; December, 2022

Inter- section No.	Intersection Location	Classification	2024 Recommended Improvements ⁽¹⁾		2040 Recommended Improvements ⁽¹⁾		Responsibility
#12	E. Warren Place/ S. Fultondale Court	Collector/ Local	EB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Others			
#13	E. Warren Place/ S. Haleyville Way	Collector/ Local	EB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Others			
			WB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Applicant			
#14	Harvest Road/ E. Warren Place	Collector/ Collector	EB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Applicant			
			WB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Others			
			NB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Applicant			
			SB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Others			
#15	S. Flatrock Trail/ E. Harvard Place/ S. Eaton Parkway	Collector/ Local/ Local	SB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Applicant	NB LT Decel - construct lane - 1 @ 200 feet and a 120-foot transition taper	Others	
#16	Harvest Road/ E. Wesley Place	Collector/ Local	EB LT Decel - construct lane - 1 @ 150 feet an a 100-foot transition taper	Applicant			
			WB LT Decel - construct lane - 1 @ 150 feet an a 100-foot transition taper	Others			
			NB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Applicant			
			SB LT Decel - construct lane - 1 @ 200 feet an a 120-foot transition taper	Others			

(1) A transition taper of 13.5:1 was used for Harvest Road north of E. Jewell Avenue based on a posted speed limit of 45 mph. An appropriate redirect taper for 45 mph is 45:1
A transition taper of 12:1 was used for E. Jewell Avenue and E Yale Avenue based on a posted speed limit of 40 mph. An appropriate redirect taper for 40 mph is 30:1
A transition taper of 10:1 was used for all other non-local roadways based on a posted speed of 35 mph. An appropriate redirect taper for 35 mph is 20:1
A transition taper of 7.5:1 was used for all local streets based on a posted speed of 25 mph. An appropriate redirect taper for 25 mph is 15:1
Some of the right-turn deceleration and acceleration lane termini are close enough that a continuous right-turn lane may be appropriate between intersections.

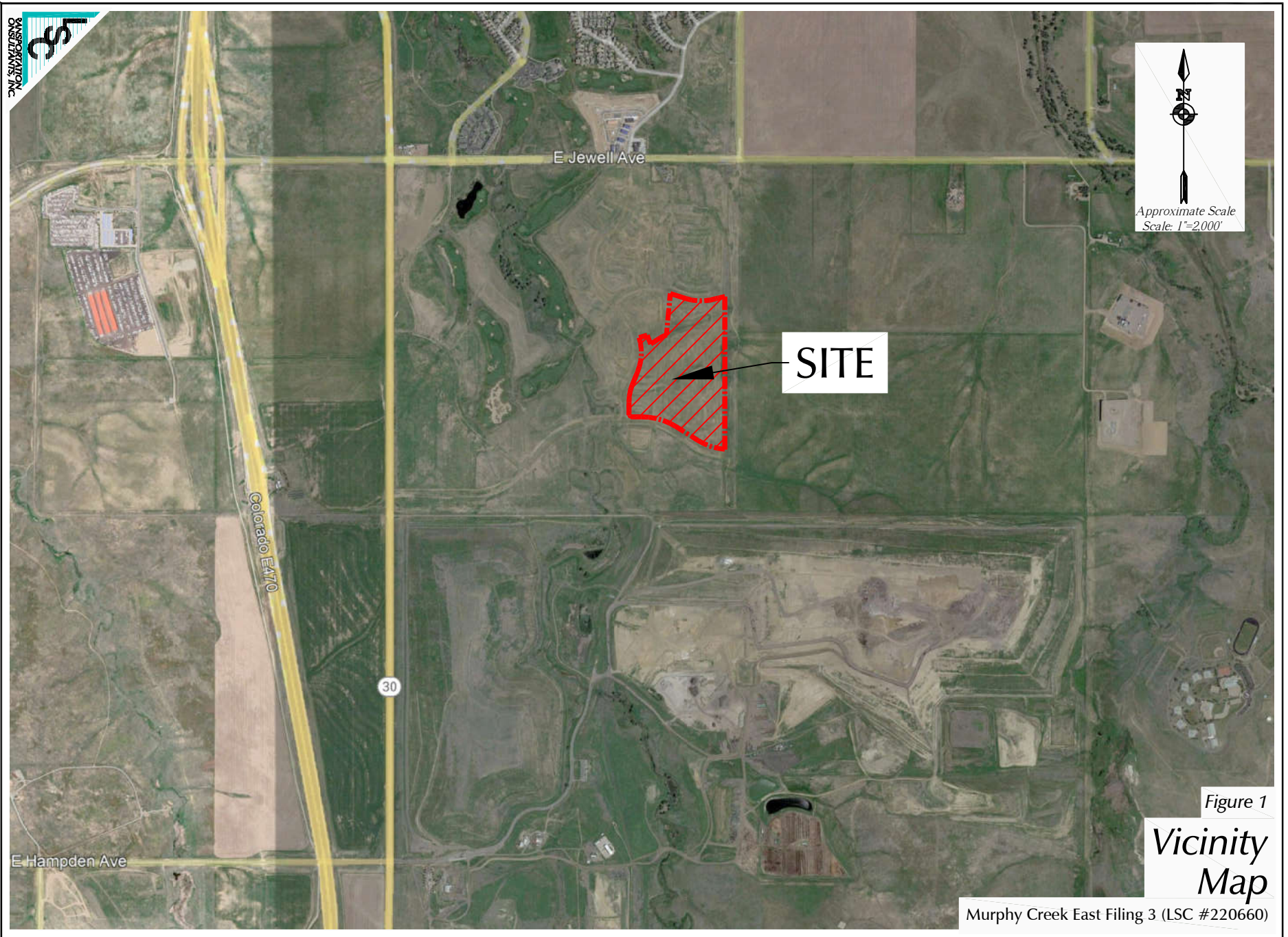


Figure 1

Vicinity Map

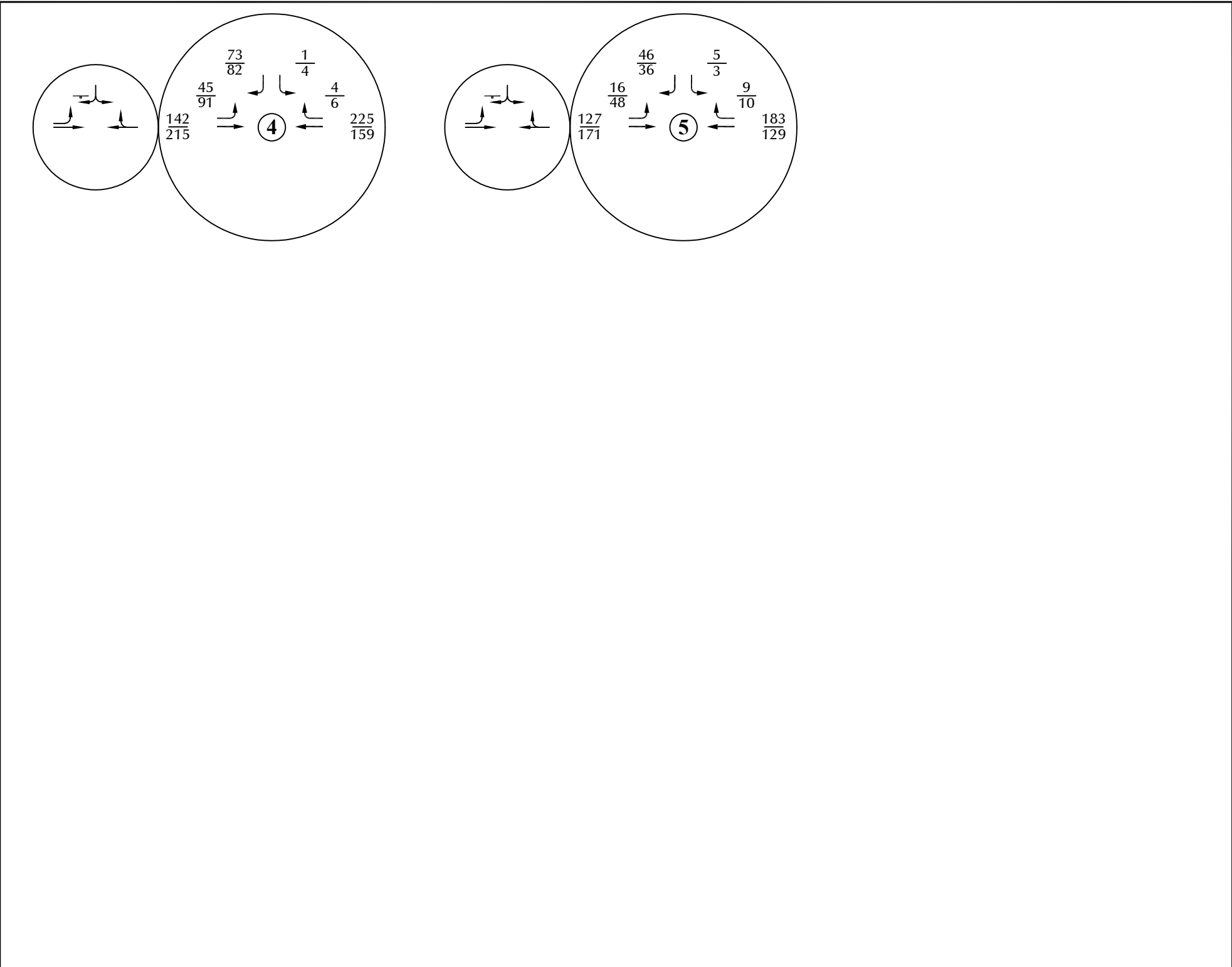
Murphy Creek East Filing 3 (LSC #220660)



Figure 2

Site Plan

Murphy Creek East Filing 3 (LSC #220660)

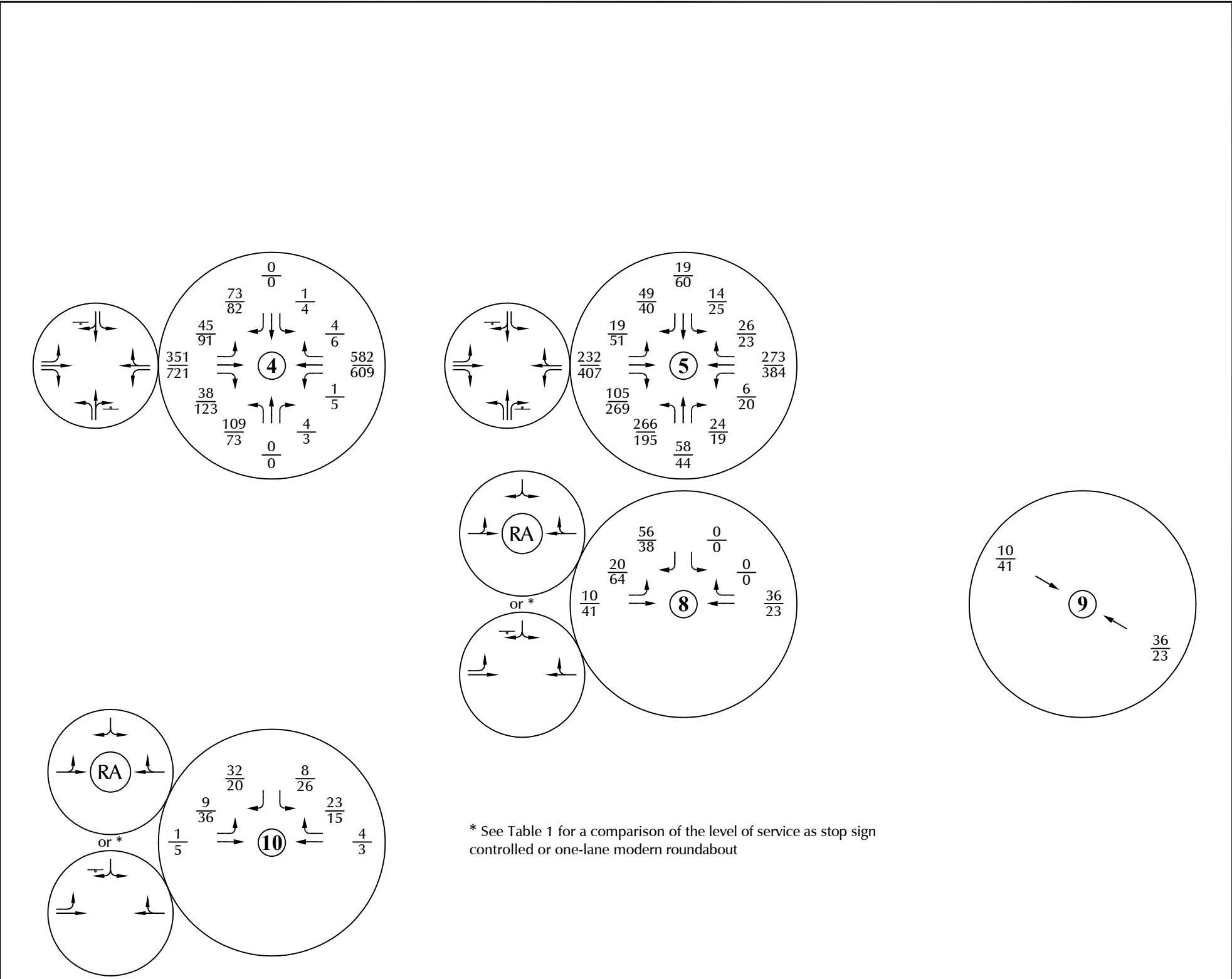


LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1 000 = Average Daily Traffic



Figure 3
**Existing Traffic, Lane
Geometry and Traffic Control**
Murphy Creek East Filing 3 (LSC #220660)



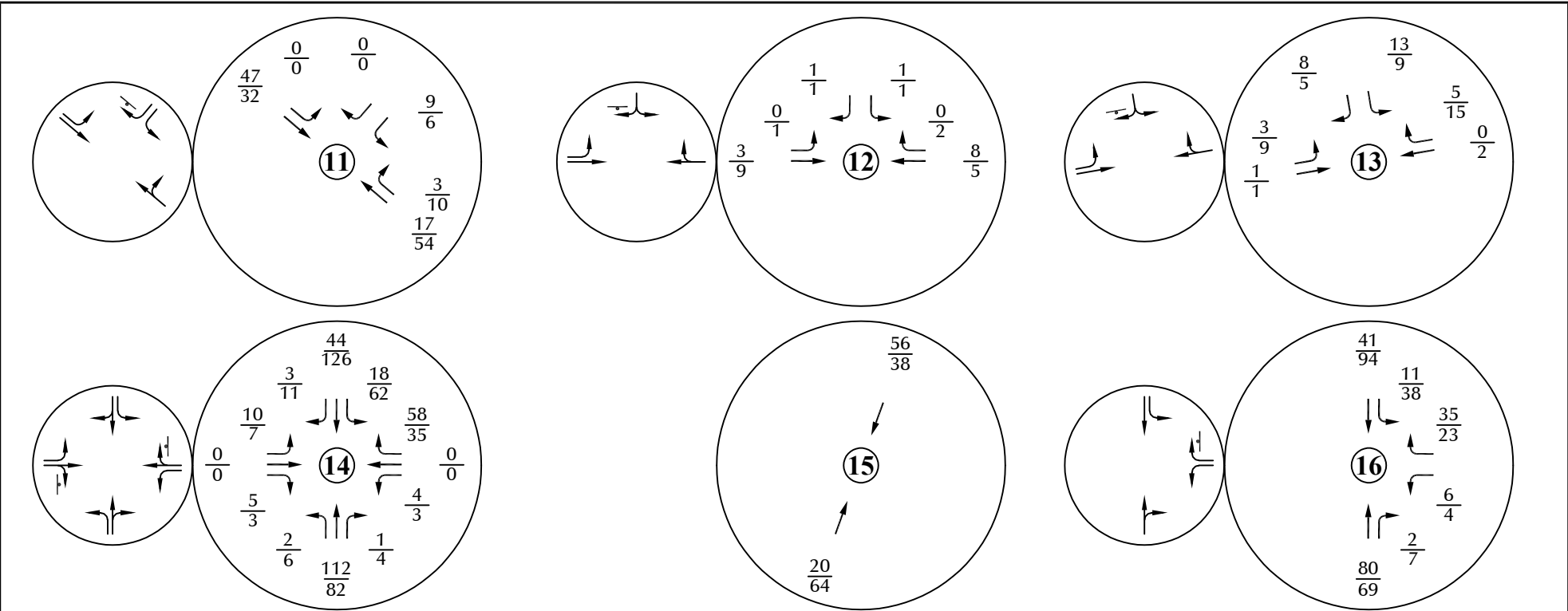
LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1 000 = Average Daily Traffic

Yale & Jewell Intersections - Year 2024 Background Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)

Figure 4a



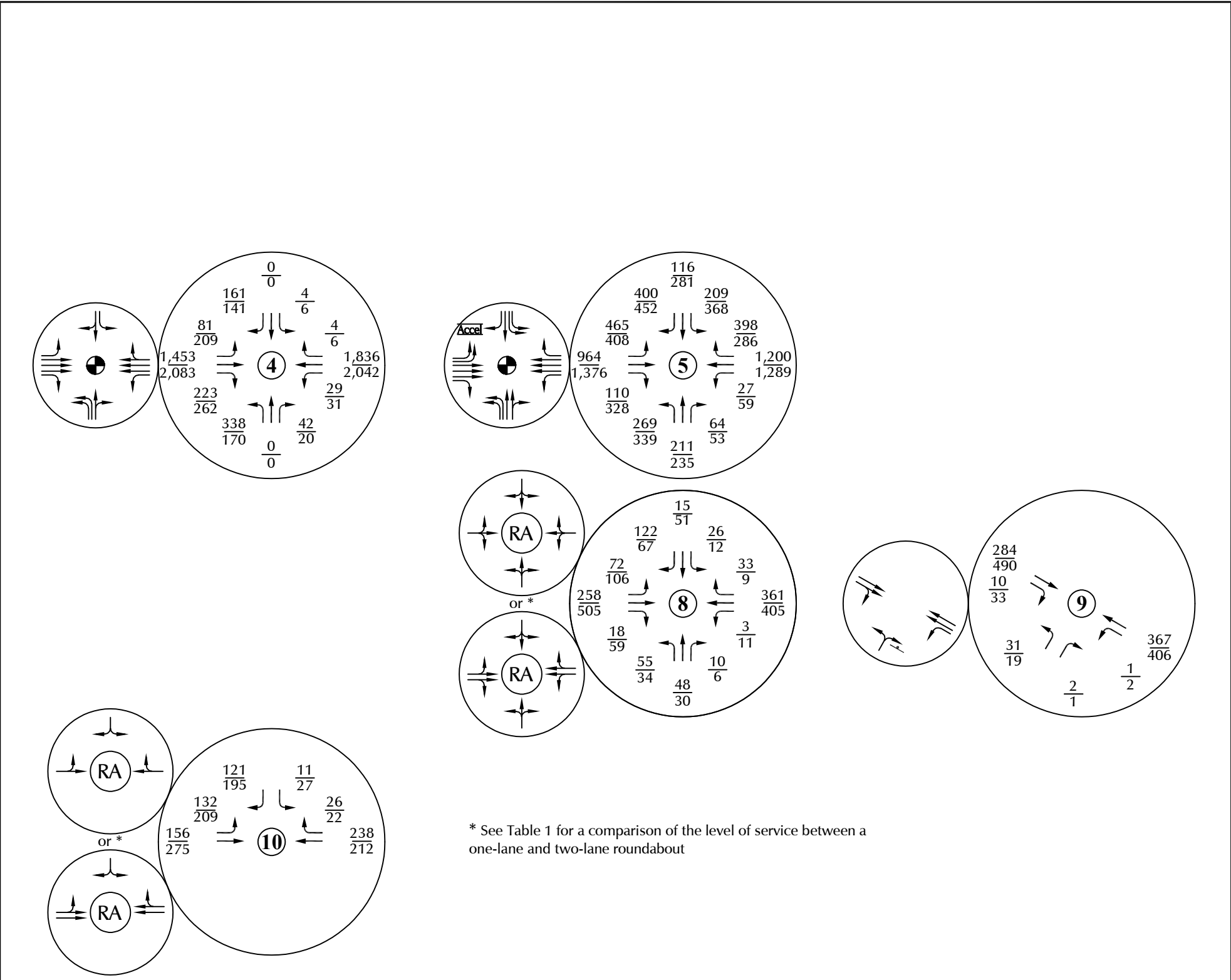
LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1 000 = Average Daily Traffic

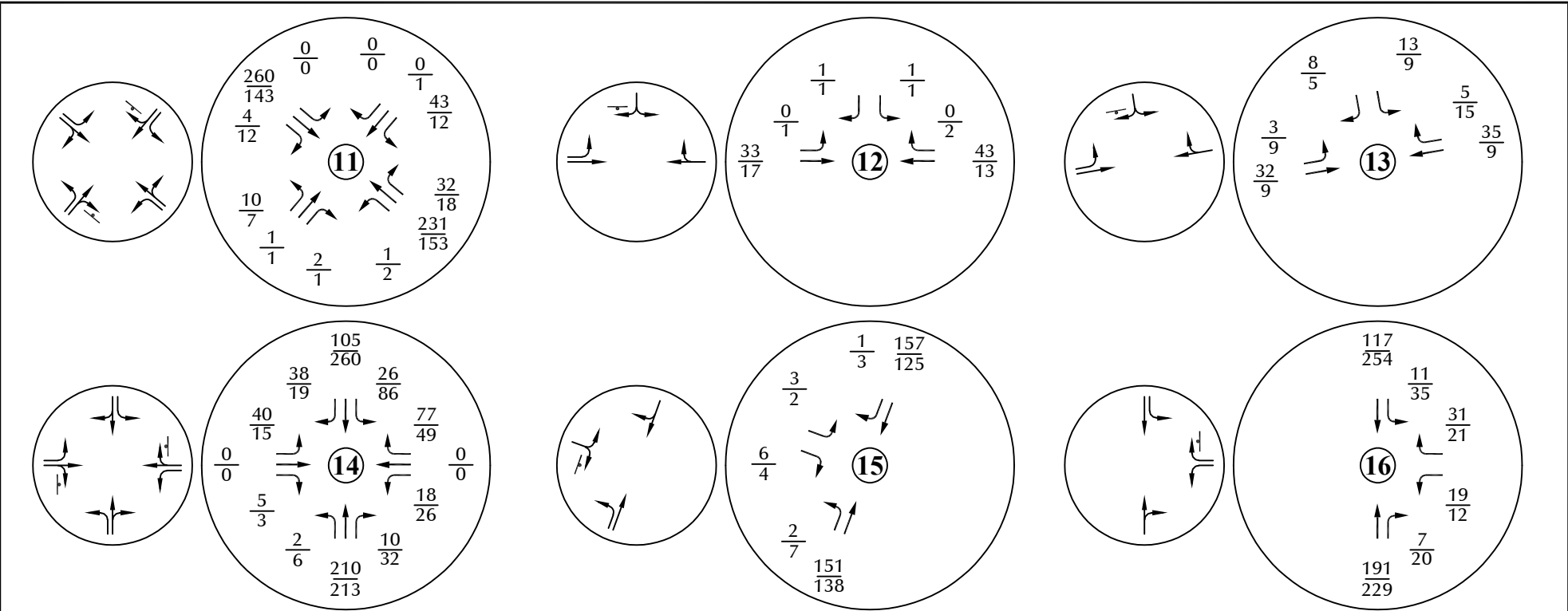
*All Other Intersections - Year 2024 Background Traffic,
Lane Geometry and Traffic Control*

Murphy Creek East Filing 3 (LSC #220660)

Figure 4b



Yale & Jewell Intersections - Year 2040
Background Traffic, Lane Geometry and Traffic Control
Murphy Creek East Filing 3 (LSC #220660)



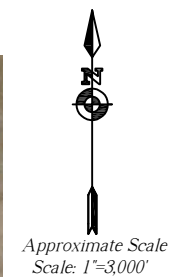
LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic / PM Peak Hour Traffic
- 1 000 = Average Daily Traffic

All Other Intersections - Year 2040 Background Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)

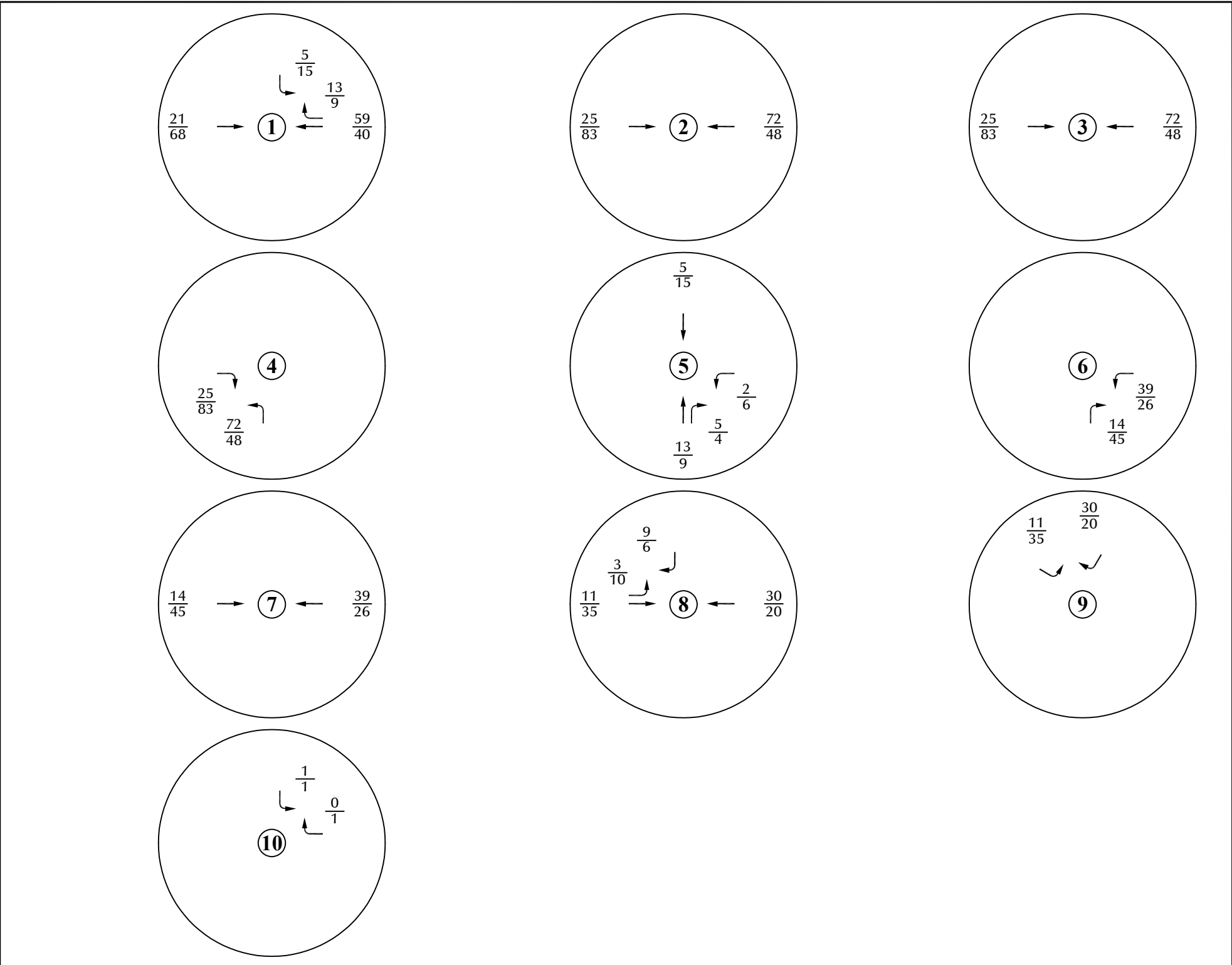
Figure 5b



$\overleftrightarrow{25\%}$ = Residential Percent Directional Distribution

Directional Distribution of Site-Generated Traffic

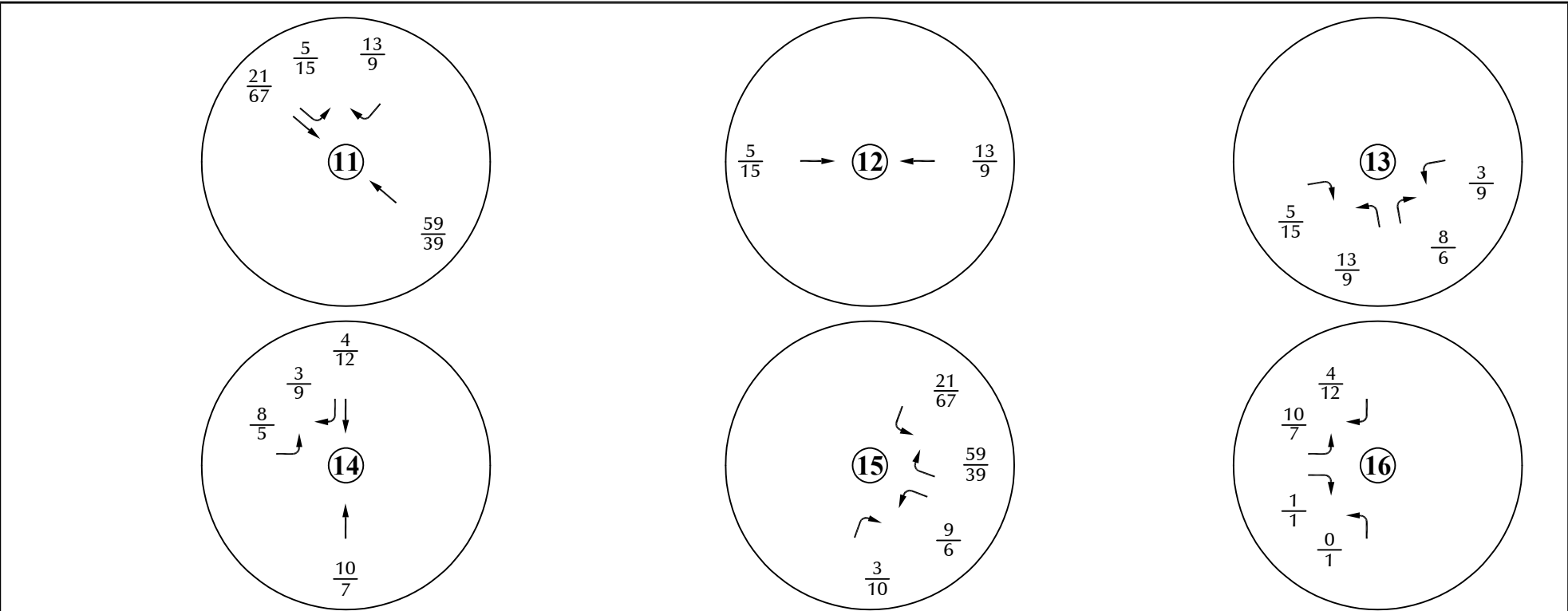
Murphy Creek East Filing 3 (LSC #220660)



LEGEND:
 $\frac{26}{35}$ = AM Peak Hour Traffic
 = PM Peak Hour Traffic
1,000 = Average Daily Traffic



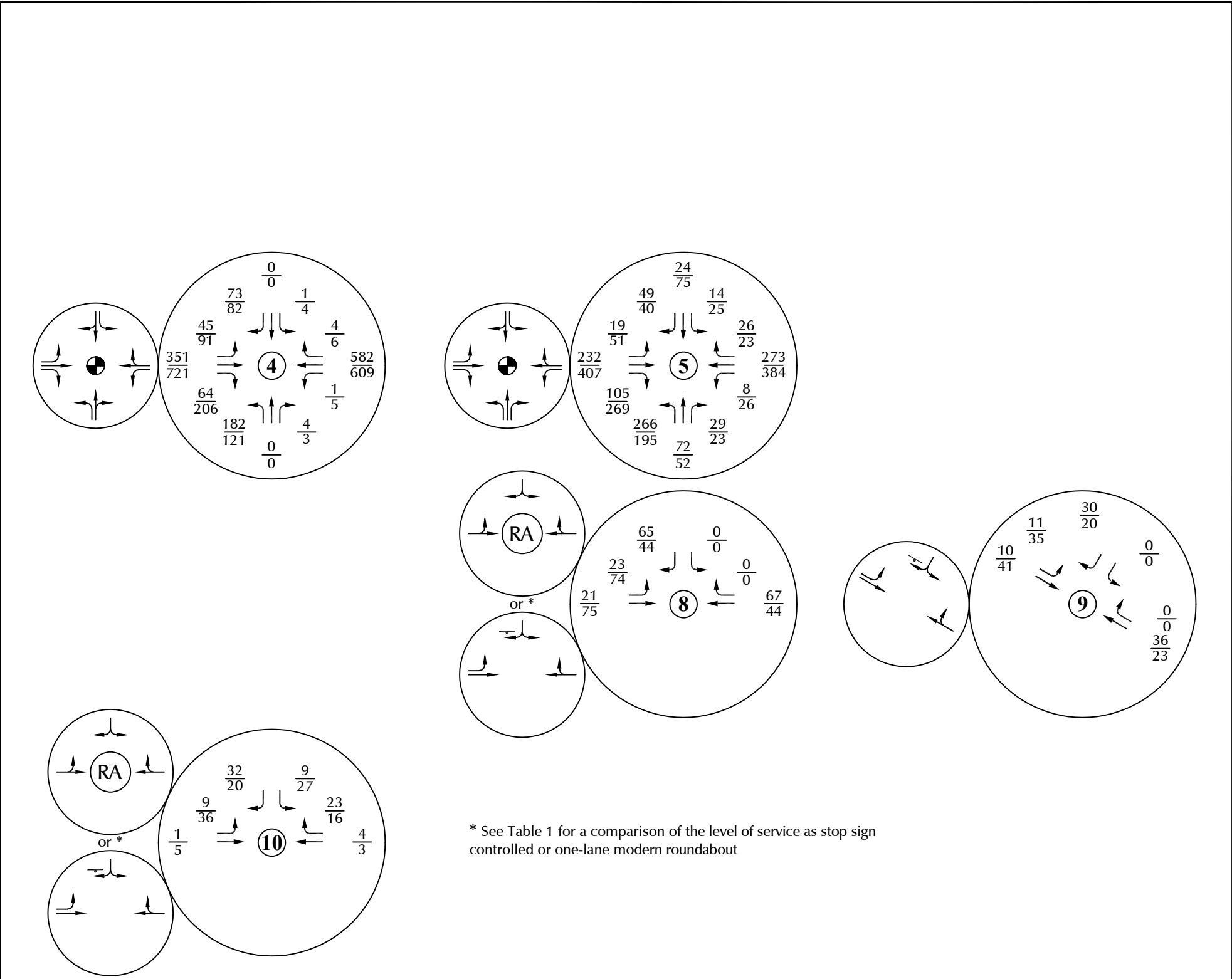
Figure 7a
Yale & Jewell Intersections
Assignment of Site-Generated Traffic
Murphy Creek East Filing 3 (LSC #220660)



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



Figure 7b
*All Other Intersections -
Assignment of Site-Generated Traffic*
Murphy Creek East Filing 3 (LSC #220660)



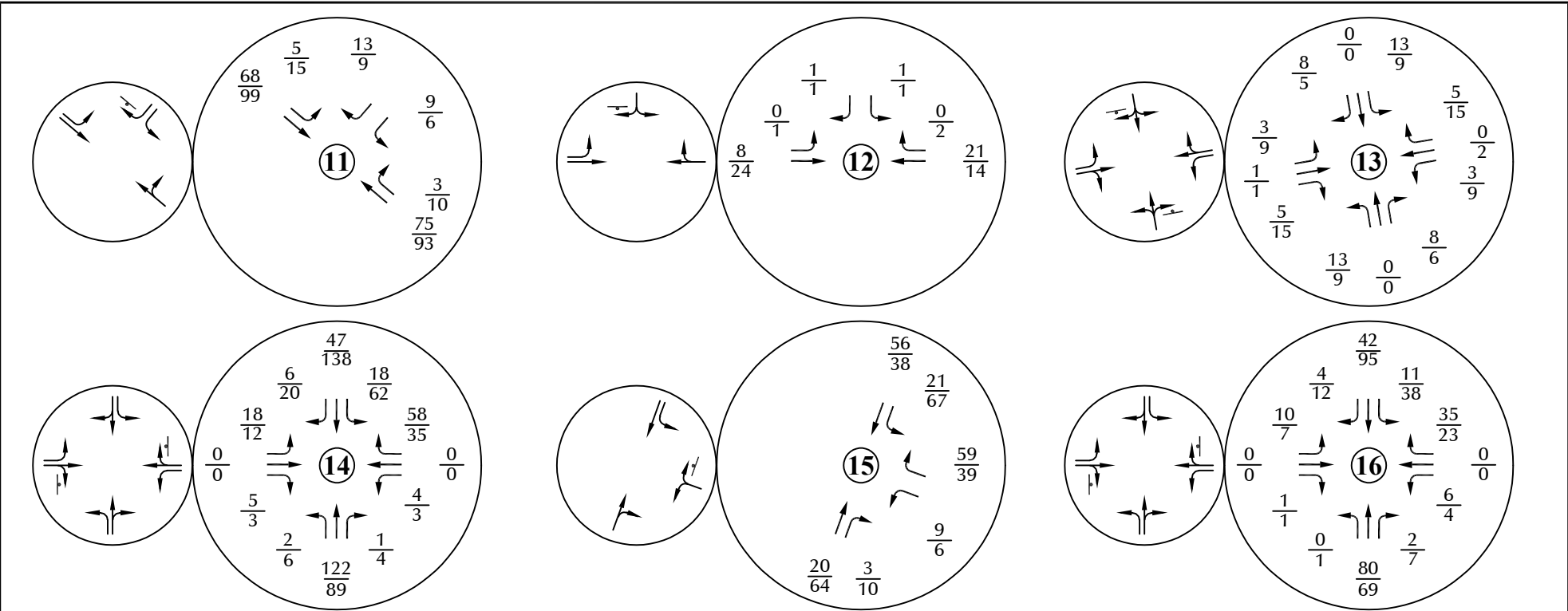
LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{1}{1000}$ = PM Peak Hour Traffic
- $\frac{1}{1000}$ = Average Daily Traffic

Yale & Jewell Intersections - Year 2024 Total Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)

Figure 8a



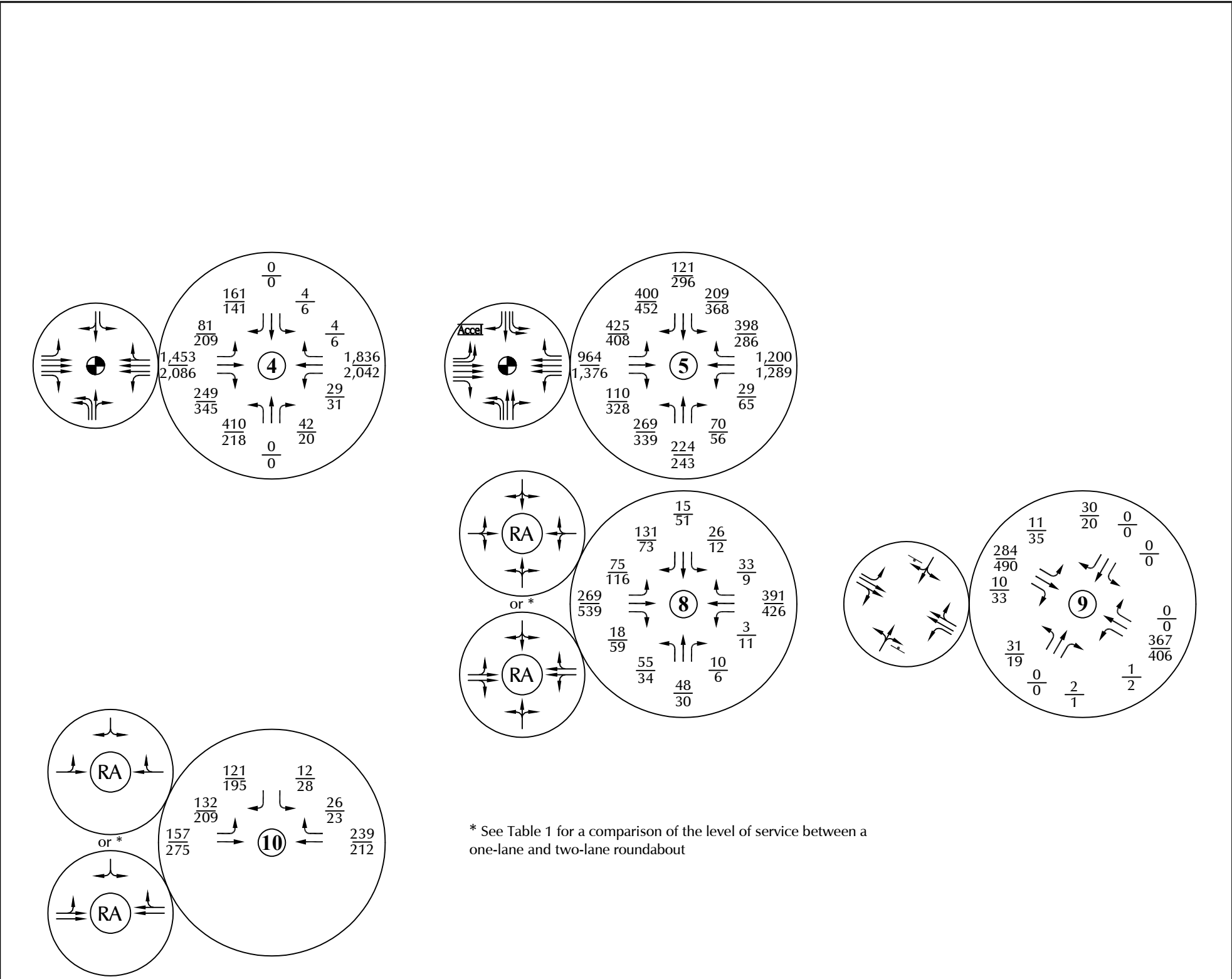
LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1 000 = Average Daily Traffic

Figure 8b

All Other Intersections - Year 2024 Total Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)



* See Table 1 for a comparison of the level of service between a one-lane and two-lane roundabout



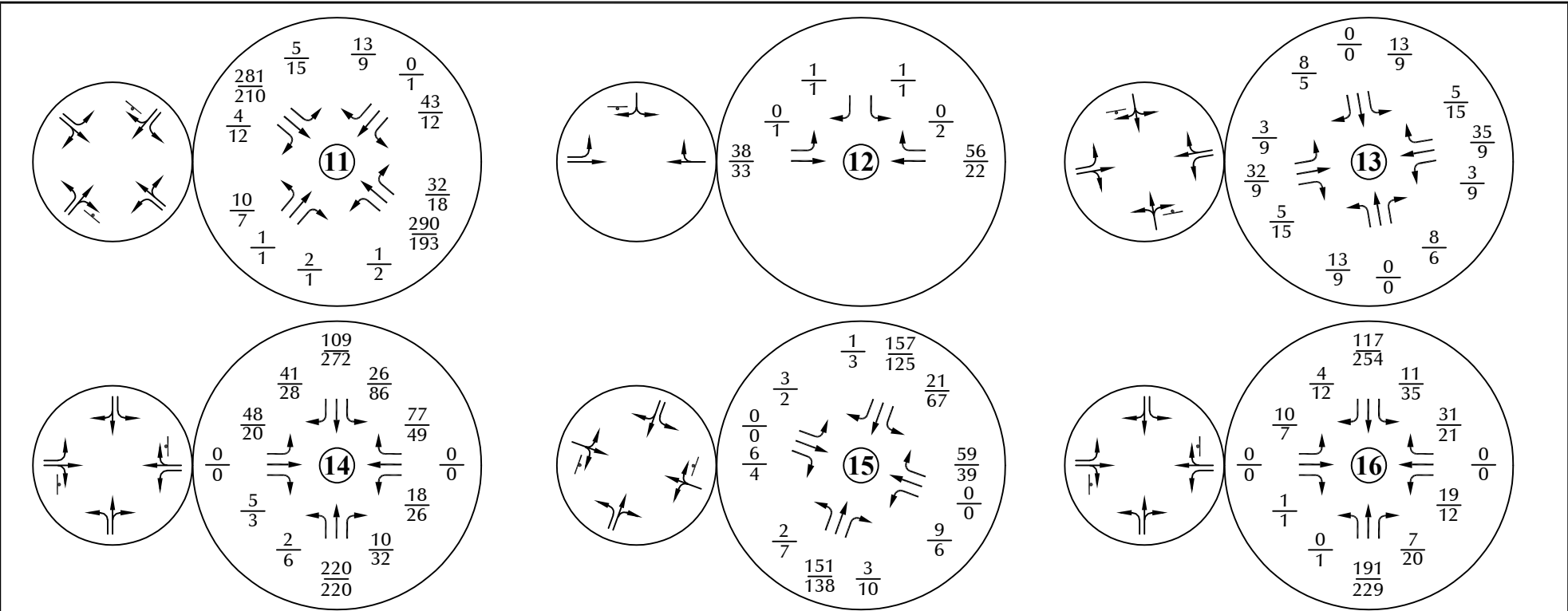
LEGEND:

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

Yale & Jewell Intersections - Year 2040 Total Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)

Figure 9a



LEGEND:

- = Stop Sign
- = Traffic Signal
- $\frac{26}{35}$ = AM Peak Hour Traffic
- $\frac{35}{26}$ = PM Peak Hour Traffic
- 1 000 = Average Daily Traffic

Figure 9b

All Other Intersections - Year 2040 Total Traffic, Lane Geometry and Traffic Control

Murphy Creek East Filing 3 (LSC #220660)

Traffic Counts

COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: HARVEST ROAD
E/W STREET: JEWELL AVENUE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : HARVJEWELL
Site Code : 00000025
Start Date : 9/21/2021
Page No : 1

Groups Printed- VEHICLES

	HARVEST ROAD Southbound				JEWELL AVENUE Westbound				Northbound				JEWELL AVENUE Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
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	1	0	7	0	0	30	0	0	0	0	0	0	4	17	0	0	59
06:45 AM	1	0	7	0	0	32	1	0	0	0	0	0	4	20	0	0	65
Total	2	0	14	0	0	62	1	0	0	0	0	0	8	37	0	0	124
07:00 AM	2	0	10	0	0	34	1	0	0	0	0	0	0	34	0	0	81
07:15 AM	0	0	15	0	0	42	6	0	0	0	0	0	7	39	0	0	109
07:30 AM	2	0	14	0	0	53	1	0	0	0	0	0	2	31	0	0	103
07:45 AM	1	0	7	0	0	54	1	0	0	0	0	0	7	23	0	0	93
Total	5	0	46	0	0	183	9	0	0	0	0	0	16	127	0	0	386
08:00 AM	0	0	9	0	0	33	0	0	0	0	0	0	8	19	0	0	69
08:15 AM	1	0	6	0	0	24	0	0	0	0	0	0	9	26	0	0	66
Total	1	0	15	0	0	57	0	0	0	0	0	0	17	45	0	0	135
04:00 PM	3	0	11	0	0	42	3	0	0	0	0	0	14	41	0	0	114
04:15 PM	0	0	5	0	0	30	1	0	0	0	0	0	17	42	0	0	95
04:30 PM	0	0	14	0	0	29	4	0	0	0	0	0	11	43	0	0	101
04:45 PM	0	0	6	0	0	28	2	0	0	0	0	0	6	45	0	0	87
Total	3	0	36	0	0	129	10	0	0	0	0	0	48	171	0	0	397
05:00 PM	1	0	7	0	0	23	1	0	0	0	0	0	11	45	0	0	88
05:15 PM	2	0	8	0	0	24	0	0	0	0	0	0	11	47	0	0	92
05:30 PM	0	0	8	0	0	21	2	0	0	0	0	0	11	37	0	0	79
05:45 PM	1	0	5	0	0	29	2	0	0	0	0	0	8	37	0	0	82
Total	4	0	28	0	0	97	5	0	0	0	0	0	41	166	0	0	341
Grand Total	15	0	139	0	0	528	25	0	0	0	0	0	130	546	0	0	1383
Apprch %	9.7	0.0	90.3	0.0	0.0	95.5	4.5	0.0	0.0	0.0	0.0	0.0	19.2	80.8	0.0	0.0	
Total %	1.1	0.0	10.1	0.0	0.0	38.2	1.8	0.0	0.0	0.0	0.0	0.0	9.4	39.5	0.0	0.0	

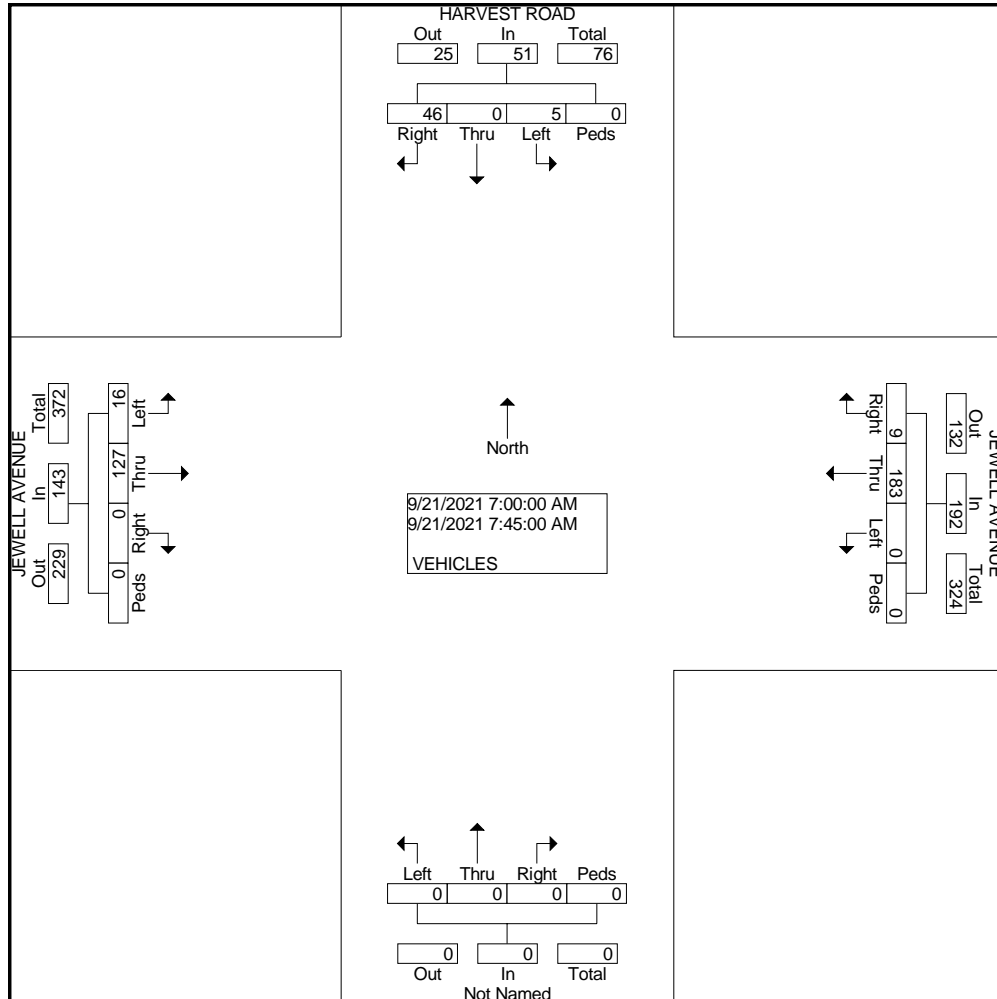
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: HARVEST ROAD
E/W STREET: JEWELL AVENUE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : HARVJEWELL
Site Code : 00000025
Start Date : 9/21/2021
Page No : 2

	HARVEST ROAD Southbound					JEWELL AVENUE Westbound					Northbound					JEWELL AVENUE 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 08:15 AM - Peak 1 of 1																					
Intersection	07:00 AM																				
Volume	5	0	46	0	51	0	183	9	0	192	0	0	0	0	0	16	127	0	0	143	386
Percent	9.8	0.0	90.2	0.0		0.0	95.3	4.7	0.0		0.0	0.0	0.0	0.0		11.2	88.8	0.0	0.0		
07:15																					
Volume	0	0	15	0	15	0	42	6	0	48	0	0	0	0	0	7	39	0	0	46	109
Peak Factor																					0.885
High Int.	07:30 AM					07:45 AM					6:15:00 AM					07:15 AM					
Volume	2	0	14	0	16	0	54	1	0	55	0	0	0	0	0	7	39	0	0	46	
Peak Factor	0.797					0.873										0.777					



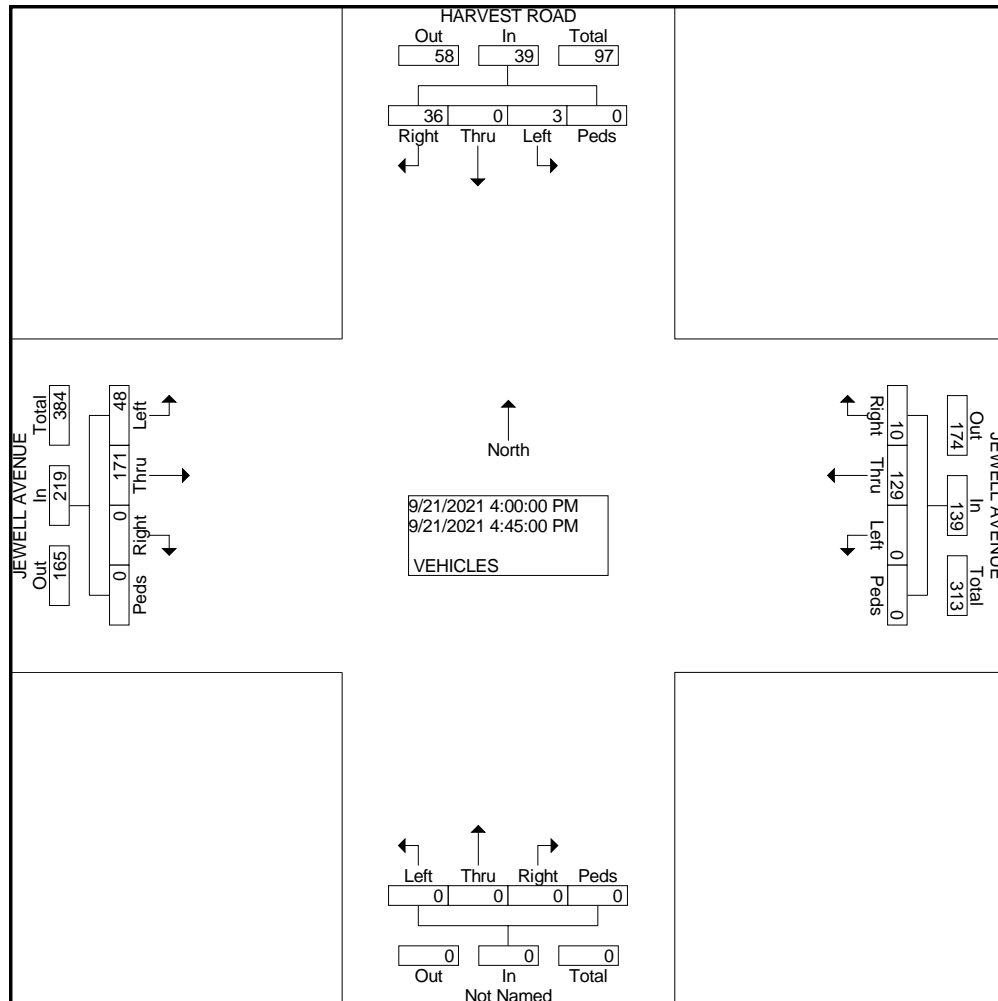
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: HARVEST ROAD
E/W STREET: JEWELL AVENUE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : HARVJEWELL
Site Code : 00000025
Start Date : 9/21/2021
Page No : 2

	HARVEST ROAD Southbound					JEWELL AVENUE Westbound					Northbound					JEWELL AVENUE 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	04:00 PM																				
Volume	3	0	36	0	39	0	129	10	0	139	0	0	0	0	0	48	171	0	0	219	397
Percent	7.7	0.0	92.3	0.0		0.0	92.8	7.2	0.0		0.0	0.0	0.0	0.0		21.9	78.1	0.0	0.0		
04:00																					
Volume	3	0	11	0	14	0	42	3	0	45	0	0	0	0	0	14	41	0	0	55	114
Peak Factor																					0.871
High Int.	04:00 PM					04:00 PM										04:15 PM					
Volume	3	0	11	0	14	0	42	3	0	45	0	0	0	0	0	17	42	0	0	59	
Peak Factor																					0.928



COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: S. FLATROCK TRAIL
E/W STREET: E. JEWELL AVE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : FLATJEWELL
Site Code : 00000011
Start Date : 6/28/2022
Page No : 1

Groups Printed- VEHICLES

	S. FLATROCK TRAIL Southbound				E. JEWELL AVE Westbound				NO ACCESS SERVICE RD Northbound				E. JEWELL AVE Eastbound				Int. Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
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	19	0	0	37	1	2	0	0	0	0	8	22	6	0	95
06:45 AM	0	0	19	1	0	34	3	0	0	0	0	0	14	30	4	0	105
Total	0	0	38	1	0	71	4	2	0	0	0	0	22	52	10	0	200
07:00 AM	0	0	12	0	1	35	0	2	0	0	0	0	9	28	2	0	89
07:15 AM	1	0	23	0	0	41	0	1	0	0	0	0	14	33	2	0	115
07:30 AM	0	0	19	0	0	33	1	1	0	0	0	0	6	16	2	0	78
07:45 AM	0	0	17	0	0	47	1	1	0	0	2	0	13	35	0	0	116
Total	1	0	71	0	1	156	2	5	0	0	2	0	42	112	6	0	398
08:00 AM	1	0	21	0	0	40	0	1	0	0	1	0	10	21	0	0	95
08:15 AM	0	0	19	0	0	36	1	0	2	0	0	0	5	19	0	0	82
Total	1	0	40	0	0	76	1	1	2	0	1	0	15	40	0	0	177
04:00 PM	0	1	19	0	0	33	2	0	0	0	1	0	17	46	0	0	119
04:15 PM	0	0	14	0	0	42	0	1	3	0	0	0	32	40	0	0	132
04:30 PM	0	0	17	0	0	43	2	0	0	0	0	0	21	63	0	0	146
04:45 PM	1	0	21	0	0	42	1	0	0	1	0	0	20	47	0	0	133
Total	1	1	71	0	0	160	5	1	3	1	1	0	90	196	0	0	530
05:00 PM	1	0	21	0	0	37	3	0	1	0	0	0	25	48	0	0	136
05:15 PM	2	0	23	0	0	34	0	0	1	0	0	0	25	59	1	0	145
05:30 PM	0	0	27	0	0	32	0	0	4	0	1	0	36	54	0	0	154
05:45 PM	1	0	18	0	0	19	1	0	1	0	0	0	24	41	0	0	105
Total	4	0	89	0	0	122	4	0	7	0	1	0	110	202	1	0	540
Grand Total	7	1	309	1	1	585	16	9	12	1	5	0	279	602	17	0	1845
Apprch %	2.2	0.3	97.2	0.3	0.2	95.7	2.6	1.5	66.7	5.6	27.8	0.0	31.1	67.0	1.9	0.0	
Total %	0.4	0.1	16.7	0.1	0.1	31.7	0.9	0.5	0.7	0.1	0.3	0.0	15.1	32.6	0.9	0.0	

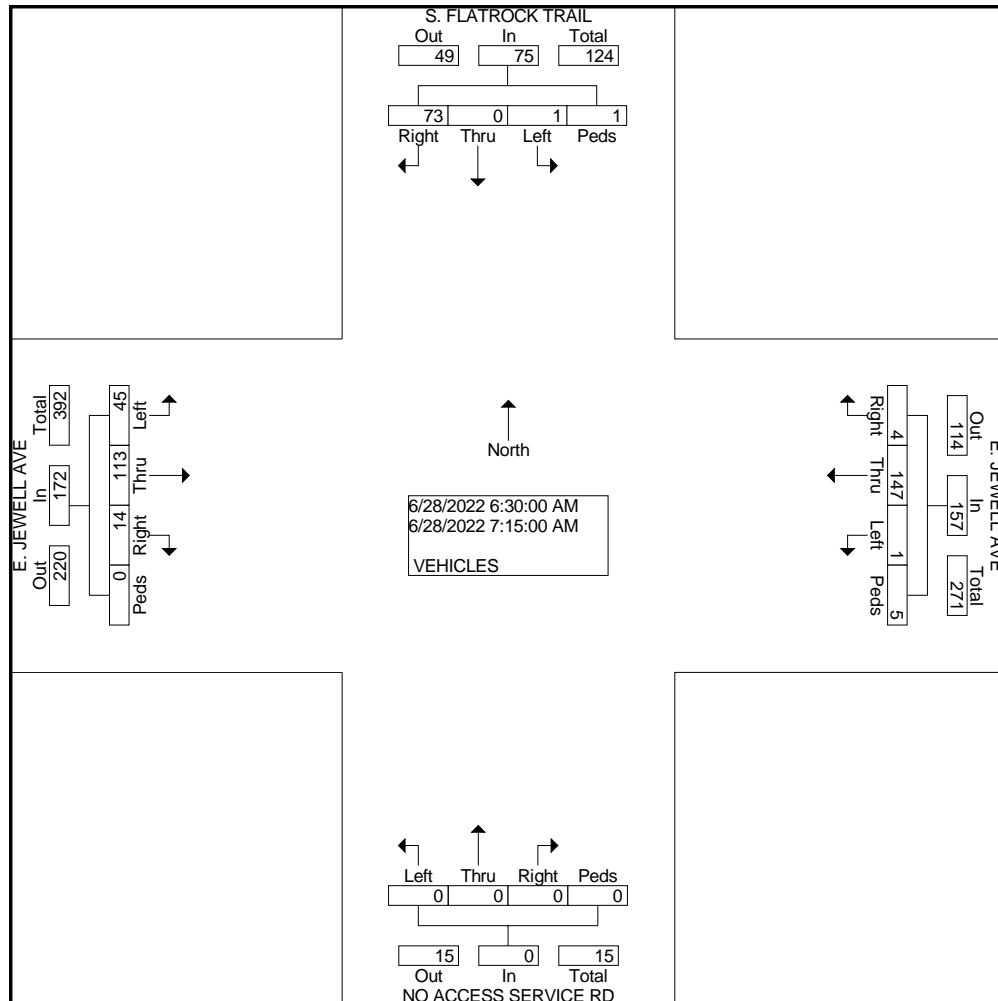
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: S. FLATROCK TRAIL
E/W STREET: E. JEWELL AVE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : FLATJEWELL
Site Code : 00000011
Start Date : 6/28/2022
Page No : 2

	S. FLATROCK TRAIL Southbound					E. JEWELL AVE Westbound					NO ACCESS SERVICE RD Northbound					E. JEWELL AVE 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 07:15 AM - Peak 1 of 1	06:30 AM																				
Intersection	06:30 AM																				
Volume	1	0	73	1	75	1	147	4	5	157	0	0	0	0	0	45	113	14	0	172	404
Percent	1.3	0.0	97.3	1.3		0.6	93.6	2.5	3.2		0.0	0.0	0.0	0.0		26.2	65.7	8.1	0.0		
07:15																					
Volume	1	0	23	0	24	0	41	0	1	42	0	0	0	0	0	14	33	2	0	49	115
Peak Factor																					0.878
High Int.	07:15 AM					07:15 AM					6:15:00 AM					07:15 AM					
Volume	1	0	23	0	24	0	41	0	1	42	0	0	0	0	0	14	33	2	0	49	
Peak Factor	0.78					0.93										0.87					8



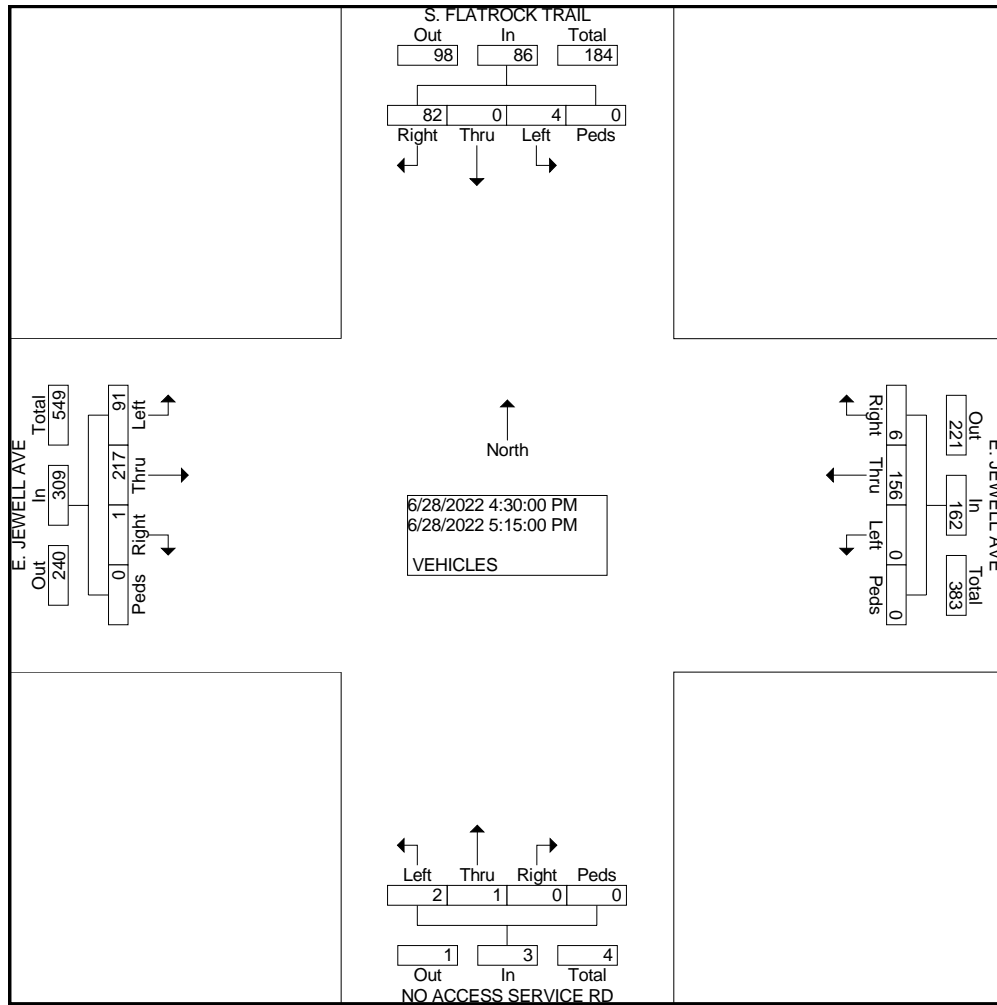
COUNTER MEASURES INC.

1889 YORK STREET
DENVER.COLORADO
303-333-7409

N/S STREET: S. FLATROCK TRAIL
E/W STREET: E. JEWELL AVE
CITY: AURORA
COUNTY: ARAPAHOE

File Name : FLATJEWELL
Site Code : 00000011
Start Date : 6/28/2022
Page No : 3

	S. FLATROCK TRAIL Southbound					E. JEWELL AVE Westbound					NO ACCESS SERVICE RD Northbound					E. JEWELL AVE 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 04:30 PM to 05:15 PM - Peak 1 of 1																					
Intersection	04:30 PM																				
Volume	4	0	82	0	86	0	156	6	0	162	2	1	0	0	3	91	217	1	0	309	560
Percent	4.7	0.0	95.3	0.0		0.0	96.3	3.7	0.0		66.7	33.3	0.0	0.0		29.4	70.2	0.3	0.0		
04:30 Volume	0	0	17	0	17	0	43	2	0	45	0	0	0	0	0	21	63	0	0	84	146
Peak Factor	0.959																				
High Int.	05:15 PM																				
Volume	2	0	23	0	25	0	43	2	0	45	0	1	0	0	1	25	59	1	0	85	
Peak Factor	0.86																				
	0																				
	0																				
	0																				



Location: JEWELL AVENUE E-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212018
Station ID: 212018

Start Time	21-Sep-21 Tue	EASTBOUN	WESTBOUN							Total
12:00 AM		5	6							11
01:00		4	2							6
02:00		4	2							6
03:00		3	7							10
04:00		17	10							27
05:00		34	49							83
06:00		59	116							175
07:00		133	193							326
08:00		77	107							184
09:00		79	83							162
10:00		63	79							142
11:00		71	90							161
12:00 PM		83	68							151
01:00		81	75							156
02:00		85	122							207
03:00		128	136							264
04:00		174	143							317
05:00		177	103							280
06:00		141	94							235
07:00		90	64							154
08:00		55	40							95
09:00		44	11							55
10:00		21	18							39
11:00		8	10							18
Total		1636	1628							3264
Percent		50.1%	49.9%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	133	193	-	-	-	-	-	-	326
PM Peak	-	17:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	177	143	-	-	-	-	-	-	317

Location: JEWELL AVENUE E-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212018
Station ID: 212018

Start Time	22-Sep-21 Wed	EASTBOUN	WESTBOUN							Total
12:00 AM		8	5							13
01:00		6	2							8
02:00		3	3							6
03:00		5	5							10
04:00		19	12							31
05:00		41	49							90
06:00		66	121							187
07:00		119	211							330
08:00		76	102							178
09:00		67	73							140
10:00		61	63							124
11:00		61	89							150
12:00 PM		81	71							152
01:00		91	57							148
02:00		100	120							220
03:00		119	157							276
04:00		143	160							303
05:00		152	135							287
06:00		141	88							229
07:00		81	49							130
08:00		65	26							91
09:00		28	22							50
10:00		21	10							31
11:00		15	14							29
Total		1569	1644							3213
Percent		48.8%	51.2%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	119	211	-	-	-	-	-	-	330
PM Peak	-	17:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	152	160	-	-	-	-	-	-	303

Location: JEWELL AVENUE E-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212018
Station ID: 212018

Start Time	23-Sep-21 Thu	EASTBOUN	WESTBOUN							Total
12:00 AM		9	9							18
01:00		3	4							7
02:00		6	2							8
03:00		5	2							7
04:00		14	10							24
05:00		42	43							85
06:00		53	105							158
07:00		126	206							332
08:00		84	112							196
09:00		72	83							155
10:00		61	77							138
11:00		77	93							170
12:00 PM		75	90							165
01:00		93	71							164
02:00		105	132							237
03:00		124	145							269
04:00		156	135							291
05:00		190	131							321
06:00		139	83							222
07:00		93	48							141
08:00		68	34							102
09:00		41	27							68
10:00		19	10							29
11:00		23	7							30
Total		1678	1659							3337
Percent		50.3%	49.7%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	126	206	-	-	-	-	-	-	332
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	190	145	-	-	-	-	-	-	321
Grand Total		4883	4931							9814
Percent		49.8%	50.2%							
ADT		ADT 3,271	AADT 3,271							

Location: JEWELL AVENUE W-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212007
Station ID: 212007

Start Time	21-Sep-21 Tue	EASTBOUN	WESTBOUN							Total
12:00 AM		7	6							13
01:00		4	3							7
02:00		4	2							6
03:00		3	8							11
04:00		19	13							32
05:00		32	54							86
06:00		65	133							198
07:00		132	228							360
08:00		85	152							237
09:00		83	121							204
10:00		73	121							194
11:00		78	124							202
12:00 PM		109	104							213
01:00		93	111							204
02:00		95	159							254
03:00		159	178							337
04:00		207	167							374
05:00		207	127							334
06:00		177	112							289
07:00		114	73							187
08:00		58	44							102
09:00		54	16							70
10:00		27	20							47
11:00		11	10							21
Total		1896	2086							3982
Percent		47.6%	52.4%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	132	228	-	-	-	-	-	-	360
PM Peak	-	16:00	15:00	-	-	-	-	-	-	16:00
Vol.	-	207	178	-	-	-	-	-	-	374

Location: JEWELL AVENUE W-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212007
Station ID: 212007

Start Time	22-Sep-21 Wed	EASTBOUN	WESTBOUN							Total
12:00 AM		10	6							16
01:00		6	4							10
02:00		3	3							6
03:00		5	5							10
04:00		19	17							36
05:00		43	61							104
06:00		71	139							210
07:00		129	237							366
08:00		93	130							223
09:00		76	95							171
10:00		65	84							149
11:00		78	97							175
12:00 PM		95	98							193
01:00		109	77							186
02:00		119	132							251
03:00		141	184							325
04:00		170	172							342
05:00		180	163							343
06:00		164	101							265
07:00		113	54							167
08:00		93	37							130
09:00		36	24							60
10:00		26	13							39
11:00		20	15							35
Total		1864	1948							3812
Percent		48.9%	51.1%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	129	237	-	-	-	-	-	-	366
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	180	184	-	-	-	-	-	-	343

Location: JEWELL AVENUE W-O HARVEST ROAD
City: AURORA
County: ARAPAHOE
Direction: EAST/WEST

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212007
Station ID: 212007

Start Time	23-Sep-21 Thu	EASTBOUN	WESTBOUN							Total
12:00 AM		9	10							19
01:00		2	5							7
02:00		6	2							8
03:00		5	3							8
04:00		14	14							28
05:00		41	49							90
06:00		55	129							184
07:00		122	232							354
08:00		94	134							228
09:00		84	99							183
10:00		68	87							155
11:00		84	102							186
12:00 PM		82	106							188
01:00		115	82							197
02:00		116	139							255
03:00		144	167							311
04:00		185	151							336
05:00		220	148							368
06:00		155	103							258
07:00		118	51							169
08:00		85	41							126
09:00		50	30							80
10:00		26	11							37
11:00		22	11							33
Total		1902	1906							3808
Percent		49.9%	50.1%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	122	232	-	-	-	-	-	-	354
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	220	167	-	-	-	-	-	-	368
Grand Total		5662	5940							11602
Percent		48.8%	51.2%							
ADT		ADT 3,867	AADT 3,867							

Location: HARVEST ROAD N-O JEWELL AVENUE
City: AURORA
County: ARAPAHOE
Direction: NORTH/SOUTH

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212013
Station ID: 212013

Start Time	21-Sep-21 Tue	NORTHBOU	SOUTHBOU							Total
12:00 AM		2	0							2
01:00		0	1							1
02:00		0	0							0
03:00		0	1							1
04:00		1	3							4
05:00		0	7							7
06:00		14	23							37
07:00		31	53							84
08:00		39	46							85
09:00		40	46							86
10:00		43	48							91
11:00		46	40							86
12:00 PM		54	35							89
01:00		42	38							80
02:00		38	38							76
03:00		67	50							117
04:00		61	41							102
05:00		48	33							81
06:00		48	23							71
07:00		26	14							40
08:00		11	8							19
09:00		11	6							17
10:00		6	2							8
11:00		3	0							3
Total		631	556							1187
Percent		53.2%	46.8%							
AM Peak	-	11:00	07:00	-	-	-	-	-	-	10:00
Vol.	-	46	53	-	-	-	-	-	-	91
PM Peak	-	15:00	15:00	-	-	-	-	-	-	15:00
Vol.	-	67	50	-	-	-	-	-	-	117

Location: HARVEST ROAD N-O JEWELL AVENUE
City: AURORA
County: ARAPAHOE
Direction: NORTH/SOUTH

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212013
Station ID: 212013

Start Time	22-Sep-21 Wed	NORTHBOU	SOUTHBOU							Total
12:00 AM		2	1							3
01:00		0	2							2
02:00		0	0							0
03:00		0	0							0
04:00		0	5							5
05:00		2	13							15
06:00		7	23							30
07:00		27	43							70
08:00		18	30							48
09:00		18	23							41
10:00		19	26							45
11:00		25	16							41
12:00 PM		22	30							52
01:00		24	21							45
02:00		25	21							46
03:00		38	45							83
04:00		40	32							72
05:00		41	34							75
06:00		36	18							54
07:00		36	8							44
08:00		28	11							39
09:00		8	2							10
10:00		5	3							8
11:00		5	1							6
Total		426	408							834
Percent		51.1%	48.9%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	27	43	-	-	-	-	-	-	70
PM Peak	-	17:00	15:00	-	-	-	-	-	-	15:00
Vol.	-	41	45	-	-	-	-	-	-	83

Location: HARVEST ROAD N-O JEWELL AVENUE
City: AURORA
County: ARAPAHOE
Direction: NORTH/SOUTH

COUNTER MEASURES INC.
1889 YORK STREET
DENVER, COLORADO 80206
303-333-7409

Site Code: 212013
Station ID: 212013

Start Time	23-Sep-21 Thu	NORTHBOU	SOUTHBOU								Total
12:00 AM		0	1								1
01:00		0	1								1
02:00		0	0								0
03:00		0	1								1
04:00		0	4								4
05:00		2	6								8
06:00		6	30								36
07:00		14	41								55
08:00		18	25								43
09:00		18	23								41
10:00		15	15								30
11:00		18	21								39
12:00 PM		14	21								35
01:00		29	15								44
02:00		23	20								43
03:00		28	31								59
04:00		41	23								64
05:00		42	29								71
06:00		25	23								48
07:00		35	9								44
08:00		18	9								27
09:00		11	4								15
10:00		7	1								8
11:00		0	4								4
Total		364	357								721
Percent		50.5%	49.5%								
AM Peak	-	08:00	07:00	-	-	-	-	-	-	07:00	
Vol.	-	18	41	-	-	-	-	-	-	55	
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00	
Vol.	-	42	31	-	-	-	-	-	-	71	
Grand Total		1421	1321								2742
Percent		51.8%	48.2%								
ADT		ADT 914	AADT 914								

Level of Service Definitions

LEVEL OF SERVICE DEFINITIONS

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

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)

LOS	<u>Average Vehicle Delay</u> sec/vehicle	<u>Operational Characteristics</u>
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. <u>The delay could be up to 15 seconds.</u> 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. <u>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.</u>
D	25 to 35 seconds	<u>This is the point at which a traffic signal may be warranted for this intersection.</u> 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. <u>There is a high probability that this intersection will meet traffic signal warrants.</u> 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. <u>The only remedy for these long delays is installing a traffic signal or restricting the accesses.</u> 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.

Level of Service Reports

HCM 6th TWSC
4: E. Jewell Ave & S Flatrock Trail





Existing Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	45	113	147	4	1	73
Future Vol, veh/h	45	113	147	4	1	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	130	169	5	1	84

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	174	0	0 406 172
Stage 1	-	-	- 172 -
Stage 2	-	-	- 234 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1403	-	- 601 872
Stage 1	-	-	- 858 -
Stage 2	-	-	- 805 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1403	-	- 579 872
Mov Cap-2 Maneuver	-	-	- 579 -
Stage 1	-	-	- 826 -
Stage 2	-	-	- 805 -

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	9.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1403	-	-	-	866
HCM Lane V/C Ratio	0.037	-	-	-	0.098
HCM Control Delay (s)	7.7	-	-	-	9.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection						
Int Delay, s/veh	1.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	16	127	183	9	5	46
Future Vol, veh/h	16	127	183	9	5	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	18	143	206	10	6	52





Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	216	0	0	390	211
Stage 1	-	-	-	211	-
Stage 2	-	-	-	179	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1354	-	-	614	829
Stage 1	-	-	-	824	-
Stage 2	-	-	-	852	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1354	-	-	606	829
Mov Cap-2 Maneuver	-	-	-	606	-
Stage 1	-	-	-	813	-
Stage 2	-	-	-	852	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9.8
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1354	-	-	-	800
HCM Lane V/C Ratio	0.013	-	-	-	0.072
HCM Control Delay (s)	7.7	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
4: E. Jewell Ave & S Flatrock Trail





Existing Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	91	217	156	6	4	82
Future Vol, veh/h	91	217	156	6	4	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	96	228	164	6	4	86

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	170	0	0 587 167
Stage 1	-	-	- 167 -
Stage 2	-	-	- 420 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1407	-	- 472 877
Stage 1	-	-	- 863 -
Stage 2	-	-	- 663 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1407	-	- 440 877
Mov Cap-2 Maneuver	-	-	- 440 -
Stage 1	-	-	- 804 -
Stage 2	-	-	- 663 -

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	9.8
HCM LOS			A













Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	838
HCM Lane V/C Ratio	0.068	-	-	-	0.108
HCM Control Delay (s)	7.7	-	-	-	9.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4












Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	48	171	129	10	3	36
Future Vol, veh/h	48	171	129	10	3	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	55	197	148	11	3	41





Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	159	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	-
Pot Cap-1 Maneuver	1420	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1420	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	9.5
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1420	-	-	-	849
HCM Lane V/C Ratio	0.039	-	-	-	0.053
HCM Control Delay (s)	7.6	-	-	-	9.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection												
Int Delay, s/veh	10.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	351	38	1	582	4	109	0	4	1	0	73
Future Vol, veh/h	45	351	38	1	582	4	109	0	4	1	0	73
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	275	-	275	275	-	-	200	-	-	200	-	-
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	49	382	41	1	633	4	118	0	4	1	0	79
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	637	0	0	423	0	0	1157	1119	382	1140	1158	635
Stage 1	-	-	-	-	-	-	480	480	-	637	637	-
Stage 2	-	-	-	-	-	-	677	639	-	503	521	-
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	947	-	-	1136	-	-	173	207	665	178	196	478
Stage 1	-	-	-	-	-	-	567	554	-	465	471	-
Stage 2	-	-	-	-	-	-	443	470	-	551	532	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	947	-	-	1136	-	-	138	196	665	170	186	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	138	196	-	170	186	-
Stage 1	-	-	-	-	-	-	538	525	-	441	471	-
Stage 2	-	-	-	-	-	-	369	470	-	519	504	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0			101.3			14.2		
HCM LOS							F			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	138	665	947	-	-	1136	-	-	170	478		
HCM Lane V/C Ratio	0.859	0.007	0.052	-	-	0.001	-	-	0.006	0.166		
HCM Control Delay (s)	104.6	10.4	9	-	-	8.2	-	-	26.3	14		
HCM Lane LOS	F	B	A	-	-	A	-	-	D	B		
HCM 95th %tile Q(veh)	5.6	0	0.2	-	-	0	-	-	0	0.6		

Intersection												
Int Delay, s/veh	16.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	232	105	6	273	26	266	58	24	14	19	49
Future Vol, veh/h	19	232	105	6	273	26	266	58	24	14	19	49
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	275	-	275	275	-	-	275	-	275	275	-	-
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	21	252	114	7	297	28	289	63	26	15	21	53
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	366	0	0	656	633	252	721	733	311
Stage 1	-	-	-	-	-	-	294	294	-	325	325	-
Stage 2	-	-	-	-	-	-	362	339	-	396	408	-
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	1235	-	-	1193	-	-	379	397	787	343	348	729
Stage 1	-	-	-	-	-	-	714	670	-	687	649	-
Stage 2	-	-	-	-	-	-	657	640	-	629	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1235	-	-	1193	-	-	329	388	787	285	340	729
Mov Cap-2 Maneuver	-	-	-	-	-	-	329	388	-	285	340	-
Stage 1	-	-	-	-	-	-	702	659	-	675	645	-
Stage 2	-	-	-	-	-	-	586	636	-	541	587	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			49.1			13.5		
HCM LOS							E			B		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	329	388	787	1235	-	-	1193	-	-	285	552	
HCM Lane V/C Ratio	0.879	0.162	0.033	0.017	-	-	0.005	-	-	0.053	0.134	
HCM Control Delay (s)	59.9	16.1	9.7	8	-	-	8	-	-	18.3	12.5	
HCM Lane LOS	F	C	A	A	-	-	A	-	-	C	B	
HCM 95th %tile Q(veh)	8.2	0.6	0.1	0.1	-	-	0	-	-	0.2	0.5	

Intersection						
Int Delay, s/veh	5.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	10	36	0	0	56
Future Vol, veh/h	20	10	36	0	0	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	22	11	39	0	0	61







Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	39	0	0 94 39
Stage 1	-	-	- 39 -
Stage 2	-	-	- 55 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1571	-	- 906 1033
Stage 1	-	-	- 983 -
Stage 2	-	-	- 968 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1571	-	- 893 1033
Mov Cap-2 Maneuver	-	-	- 850 -
Stage 1	-	-	- 969 -
Stage 2	-	-	- 968 -

Approach	EB	WB	SB
HCM Control Delay, s	4.9	0	8.7
HCM LOS			A





Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1571	-	-	-	1033
HCM Lane V/C Ratio	0.014	-	-	-	0.059
HCM Control Delay (s)	7.3	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Volume
8: E. Yale Ave & S Flatrock Trail

2024 Background Traffic
AM Peak Hour

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	20	10	36	0	0	56
Future Volume (vph)	20	10	36	0	0	56
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	22	11	39	0	0	61
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	33	39	0	61	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	3.0		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	33	39	61
Demand Flow Rate, veh/h	33	40	62
Vehicles Circulating, veh/h	0	22	40
Vehicles Exiting, veh/h	102	11	22
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.8	3.0	3.1
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	33	40	62
Cap Entry Lane, veh/h	1380	1349	1325
Entry HV Adj Factor	0.993	0.980	0.984
Flow Entry, veh/h	33	39	61
Cap Entry, veh/h	1371	1323	1303
V/C Ratio	0.024	0.030	0.047
Control Delay, s/veh	2.8	3.0	3.1
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1	4	23	8	32
Future Vol, veh/h	9	1	4	23	8	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	10	1	4	25	9	35

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	29	0	0	38	17
Stage 1	-	-	-	17	-
Stage 2	-	-	-	21	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1584	-	-	974	1062
Stage 1	-	-	-	1006	-
Stage 2	-	-	-	1002	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1584	-	-	968	1062
Mov Cap-2 Maneuver	-	-	-	968	-
Stage 1	-	-	-	1000	-
Stage 2	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1042
HCM Lane V/C Ratio	0.006	-	-	-	0.042
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1






Volume
10: E. Yale Ave & Harvest Rd

2024 Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	9	1	4	23	8	32
Future Volume (vph)	9	1	4	23	8	32
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	10	1	4	25	9	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	11	29	0	44	0
Intersection Summary						





Intersection			
Intersection Delay, s/veh	2.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	11	29	44
Demand Flow Rate, veh/h	11	30	45
Vehicles Circulating, veh/h	9	10	4
Vehicles Exiting, veh/h	40	10	35
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.7	2.9	2.9
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	11	30	45
Cap Entry Lane, veh/h	1367	1366	1374
Entry HV Adj Factor	0.998	0.964	0.978
Flow Entry, veh/h	11	29	44
Cap Entry, veh/h	1365	1317	1344
V/C Ratio	0.008	0.022	0.033
Control Delay, s/veh	2.7	2.9	2.9
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	0	17	3	0	47
Future Vol, veh/h	9	0	17	3	0	47
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	0	-	-	200	-
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	10	0	18	3	0	51

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	71	20	0	0	21
Stage 1	20	-	-	-	-
Stage 2	51	-	-	-	-
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	933	1058	-	-	1595
Stage 1	1003	-	-	-	-
Stage 2	971	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	933	1058	-	-	1595
Mov Cap-2 Maneuver	874	-	-	-	-
Stage 1	1003	-	-	-	-
Stage 2	971	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 874	- 1595	-
HCM Lane V/C Ratio	-	- 0.011	-	-
HCM Control Delay (s)	-	- 9.2	0	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0	- 0	-









Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	8	0	1	1
Future Vol, veh/h	0	3	8	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	0	3	9	0	1	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	9	0	12
Stage 1	-	-	9
Stage 2	-	-	3
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1611	-	1008
Stage 1	-	-	1014
Stage 2	-	-	1020
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1611	-	1008
Mov Cap-2 Maneuver	-	-	1008
Stage 1	-	-	1014
Stage 2	-	-	1020

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.5
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1611	-	-	-	1039
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0






Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	1	0	5	13	8
Future Vol, veh/h	3	1	0	5	13	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	3	1	0	5	14	9
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	5	0	-	0	10	3
Stage 1	-	-	-	-	3	-
Stage 2	-	-	-	-	7	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1616	-	-	-	1010	1081
Stage 1	-	-	-	-	1020	-
Stage 2	-	-	-	-	1016	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1616	-	-	-	1008	1081
Mov Cap-2 Maneuver	-	-	-	-	1008	-
Stage 1	-	-	-	-	1018	-
Stage 2	-	-	-	-	1016	-
Approach	EB	WB		SB		
HCM Control Delay, s	5.4	0		8.6		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1616	-	-	-	1035	
HCM Lane V/C Ratio	0.002	-	-	-	0.022	
HCM Control Delay (s)	7.2	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	













Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	5	4	0	58	2	112	1	18	44	3
Future Vol, veh/h	10	0	5	4	0	58	2	112	1	18	44	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	0	5	4	0	63	2	122	1	20	48	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	248	217	50	219	218	123	51	0	0	123	0	0
Stage 1	90	90	-	127	127	-	-	-	-	-	-	-
Stage 2	158	127	-	92	91	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	706	681	1018	737	680	928	1555	-	-	1464	-	-
Stage 1	917	820	-	877	791	-	-	-	-	-	-	-
Stage 2	844	791	-	915	820	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	650	671	1018	724	670	928	1555	-	-	1464	-	-
Mov Cap-2 Maneuver	650	671	-	724	670	-	-	-	-	-	-	-
Stage 1	916	809	-	876	790	-	-	-	-	-	-	-
Stage 2	786	790	-	898	809	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.9		9.3		0.1		2.1	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1555	-	-	650	1018	724	928	1464	-	-
HCM Lane V/C Ratio	0.001	-	-	0.017	0.005	0.006	0.068	0.013	-	-
HCM Control Delay (s)	7.3	-	-	10.6	8.6	10	9.2	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	0.2	0	-	-

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	35	80	2	11	41
Future Vol, veh/h	6	35	80	2	11	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	-	-	200	-
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	7	38	87	2	12	45
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	157	88	0	0	89	0
Stage 1	88	-	-	-	-	-
Stage 2	69	-	-	-	-	-
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	834	970	-	-	1506	-
Stage 1	935	-	-	-	-	-
Stage 2	954	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	827	970	-	-	1506	-
Mov Cap-2 Maneuver	827	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	946	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9	0		1.6		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT	
Capacity (veh/h)	-	-	827 970	1506	-	
HCM Lane V/C Ratio	-	-	0.008 0.039	0.008	-	
HCM Control Delay (s)	-	-	9.4 8.9	7.4	-	
HCM Lane LOS	-	-	A A	A	-	
HCM 95th %tile Q(veh)	-	-	0 0.1	0	-	












Intersection												
Int Delay, s/veh	19.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	721	123	5	609	6	73	0	3	4	0	82
Future Vol, veh/h	91	721	123	5	609	6	73	0	3	4	0	82
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	275	-	275	275	-	-	200	-	-	200	-	-
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	99	784	134	5	662	7	79	0	3	4	0	89





Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	669	0	0	918	0	0	1702	1661	784	1727	1792	666
Stage 1	-	-	-	-	-	-	982	982	-	676	676	-
Stage 2	-	-	-	-	-	-	720	679	-	1051	1116	-
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	921	-	-	743	-	-	~ 72	97	393	70	81	459
Stage 1	-	-	-	-	-	-	300	327	-	443	453	-
Stage 2	-	-	-	-	-	-	419	451	-	274	283	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	921	-	-	743	-	-	~ 53	86	393	63	72	459
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 53	86	-	63	72	-
Stage 1	-	-	-	-	-	-	268	292	-	396	450	-
Stage 2	-	-	-	-	-	-	335	448	-	243	253	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	\$ 409.9	17.1
HCM LOS			F	C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	53	393	921	-	-	743	-	-	63	459
HCM Lane V/C Ratio	1.497	0.008	0.107	-	-	0.007	-	-	0.069	0.194
HCM Control Delay (s)	\$ 426.2	14.2	9.4	-	-	9.9	-	-	66.3	14.7
HCM Lane LOS	F	B	A	-	-	A	-	-	F	B
HCM 95th %tile Q(veh)	7.3	0	0.4	-	-	0	-	-	0.2	0.7

Notes												
~: Volume exceeds capacity	\$: Delay exceeds 300s	+: Computation Not Defined							*: All major volume in platoon			

Intersection												
Int Delay, s/veh	66.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	407	269	20	384	23	195	44	19	25	60	40
Future Vol, veh/h	51	407	269	20	384	23	195	44	19	25	60	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	275	-	275	275	-	-	275	-	275	275	-	-
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	55	442	292	22	417	25	212	48	21	27	65	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	442	0	0	734	0	0	1080	1038	442	1207	1318	430
Stage 1	-	-	-	-	-	-	552	552	-	474	474	-
Stage 2	-	-	-	-	-	-	528	486	-	733	844	-
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	1118	-	-	871	-	-	~ 196	231	615	160	157	625
Stage 1	-	-	-	-	-	-	518	515	-	571	558	-
Stage 2	-	-	-	-	-	-	534	551	-	412	379	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1118	-	-	871	-	-	~ 113	214	615	121	146	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 113	214	-	121	146	-
Stage 1	-	-	-	-	-	-	493	490	-	543	544	-
Stage 2	-	-	-	-	-	-	426	537	-	342	360	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.4			\$ 375.9			39.8		
HCM LOS							F			E		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	113	214	615	1118	-	-	871	-	-	121	211	
HCM Lane V/C Ratio	1.876	0.223	0.034	0.05	-	-	0.025	-	-	0.225	0.515	
HCM Control Delay (s)	\$ 490.2	26.6	11.1	8.4	-	-	9.2	-	-	43.2	38.9	
HCM Lane LOS	F	D	B	A	-	-	A	-	-	E	E	
HCM 95th %tile Q(veh)	17	0.8	0.1	0.2	-	-	0.1	-	-	0.8	2.6	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Intersection						
Int Delay, s/veh	4.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	64	41	23	0	0	38
Future Vol, veh/h	64	41	23	0	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	70	45	25	0	0	41







Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	25	0	-	0	210
Stage 1	-	-	-	-	25
Stage 2	-	-	-	-	185
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1589	-	-	-	778
Stage 1	-	-	-	-	998
Stage 2	-	-	-	-	847
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1589	-	-	-	744
Mov Cap-2 Maneuver	-	-	-	-	742
Stage 1	-	-	-	-	954
Stage 2	-	-	-	-	847

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	8.6
HCM LOS			A





Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1589	-	-	-	1051
HCM Lane V/C Ratio	0.044	-	-	-	0.039
HCM Control Delay (s)	7.4	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Volume
8: E. Yale Ave & S Flatrock Trail

2024 Background Traffic
PM Peak Hour

						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	64	41	23	0	0	38
Future Volume (vph)	64	41	23	0	0	38
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	70	45	25	0	0	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	115	25	0	41	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	3.2		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	115	25	41
Demand Flow Rate, veh/h	117	26	42
Vehicles Circulating, veh/h	0	71	25
Vehicles Exiting, veh/h	67	46	71
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.3	3.0	3.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	117	26	42
Cap Entry Lane, veh/h	1380	1283	1345
Entry HV Adj Factor	0.984	0.980	0.976
Flow Entry, veh/h	115	25	41
Cap Entry, veh/h	1357	1258	1313
V/C Ratio	0.085	0.020	0.031
Control Delay, s/veh	3.3	3.0	3.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	5	3	15	26	20
Future Vol, veh/h	36	5	3	15	26	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	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	39	5	3	16	28	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	19	0	-	0	94	11
Stage 1	-	-	-	-	11	-
Stage 2	-	-	-	-	83	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1597	-	-	-	906	1070
Stage 1	-	-	-	-	1012	-
Stage 2	-	-	-	-	940	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1597	-	-	-	884	1070
Mov Cap-2 Maneuver	-	-	-	-	884	-
Stage 1	-	-	-	-	988	-
Stage 2	-	-	-	-	940	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.4	0		9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1597	-	-	-	956	
HCM Lane V/C Ratio	0.025	-	-	-	0.052	
HCM Control Delay (s)	7.3	-	-	-	9	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	






Volume
10: E. Yale Ave & Harvest Rd

2024 Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	36	5	3	15	26	20
Future Volume (vph)	36	5	3	15	26	20
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	39	5	3	16	28	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	44	19	0	50	0
Intersection Summary						





Intersection			
Intersection Delay, s/veh	3.0		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	44	19	50
Demand Flow Rate, veh/h	45	19	51
Vehicles Circulating, veh/h	29	40	3
Vehicles Exiting, veh/h	25	34	56
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.0	2.8	3.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	45	19	51
Cap Entry Lane, veh/h	1340	1325	1376
Entry HV Adj Factor	0.976	0.997	0.980
Flow Entry, veh/h	44	19	50
Cap Entry, veh/h	1307	1321	1349
V/C Ratio	0.034	0.014	0.037
Control Delay, s/veh	3.0	2.8	3.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	54	10	0	32
Future Vol, veh/h	6	0	54	10	0	32
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	0	-	-	200	-
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	7	0	59	11	0	35

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	100	65	0	0	70
Stage 1	65	-	-	-	-
Stage 2	35	-	-	-	-
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	899	999	-	-	1531
Stage 1	958	-	-	-	-
Stage 2	987	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	899	999	-	-	1531
Mov Cap-2 Maneuver	853	-	-	-	-
Stage 1	958	-	-	-	-
Stage 2	987	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		





Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	- 853	- 1531	-
HCM Lane V/C Ratio	-	- 0.008	-	-
HCM Control Delay (s)	-	- 9.3	0	0
HCM Lane LOS	-	- A	A	A
HCM 95th %tile Q(veh)	-	- 0	- 0	-









Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	9	5	2	1	1
Future Vol, veh/h	1	9	5	2	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	1	10	5	2	1	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	7	0	0 18 6
Stage 1	-	-	- - 6 -
Stage 2	-	-	- - 12 -
Critical Hdwy	4.12	-	- - 6.42 6.22
Critical Hdwy Stg 1	-	-	- - 5.42 -
Critical Hdwy Stg 2	-	-	- - 5.42 -
Follow-up Hdwy	2.218	-	- - 3.518 3.318
Pot Cap-1 Maneuver	1614	-	- - 1000 1077
Stage 1	-	-	- - 1017 -
Stage 2	-	-	- - 1011 -
Platoon blocked, %		-	- -
Mov Cap-1 Maneuver	1614	-	- - 999 1077
Mov Cap-2 Maneuver	-	-	- - 999 -
Stage 1	-	-	- - 1016 -
Stage 2	-	-	- - 1011 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1614	-	-	-	1037
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.2	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0






Intersection						
Int Delay, s/veh	4.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1	2	15	9	5
Future Vol, veh/h	9	1	2	15	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	10	1	2	16	10	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	18	0	-	0	31	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1599	-	-	-	983	1071
Stage 1	-	-	-	-	1013	-
Stage 2	-	-	-	-	1002	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1599	-	-	-	977	1071
Mov Cap-2 Maneuver	-	-	-	-	977	-
Stage 1	-	-	-	-	1007	-
Stage 2	-	-	-	-	1002	-
Approach	EB	WB		SB		
HCM Control Delay, s	6.5	0		8.6		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1599	-	-	-	1009	
HCM Lane V/C Ratio	0.006	-	-	-	0.015	
HCM Control Delay (s)	7.3	-	-	-	8.6	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0	

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	3	3	0	35	6	82	4	62	126	11
Future Vol, veh/h	7	0	3	3	0	35	6	82	4	62	126	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	8	0	3	3	0	38	7	89	4	67	137	12

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	401	384	143	384	388	91	149	0	0	93	0	0
Stage 1	277	277	-	105	105	-	-	-	-	-	-	-
Stage 2	124	107	-	279	283	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	560	550	905	574	547	967	1432	-	-	1501	-	-
Stage 1	729	681	-	901	808	-	-	-	-	-	-	-
Stage 2	880	807	-	728	677	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	517	523	905	550	520	967	1432	-	-	1501	-	-
Mov Cap-2 Maneuver	517	523	-	550	520	-	-	-	-	-	-	-
Stage 1	725	650	-	896	804	-	-	-	-	-	-	-
Stage 2	841	803	-	693	647	-	-	-	-	-	-	-










Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.2		9.1		0.5		2.3	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1432	-	-	517	905	550	967	1501	-	-
HCM Lane V/C Ratio	0.005	-	-	0.015	0.004	0.006	0.039	0.045	-	-
HCM Control Delay (s)	7.5	-	-	12.1	9	11.6	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0.1	0.1	-	-

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	23	69	7	38	94
Future Vol, veh/h	4	23	69	7	38	94
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	200	0	-	-	200	-
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	4	25	75	8	41	102
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	263	79	0	0	83	0
Stage 1	79	-	-	-	-	-
Stage 2	184	-	-	-	-	-
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	726	981	-	-	1514	-
Stage 1	944	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	706	981	-	-	1514	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	825	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9	0	2.1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 706 981 1514	-	-		
HCM Lane V/C Ratio	-	- 0.006 0.025 0.027	-	-		
HCM Control Delay (s)	-	- 10.1 8.8 7.4	-	-		
HCM Lane LOS	-	- B A A	-	-		
HCM 95th %tile Q(veh)	-	- 0 0.1 0.1	-	-		



















HCM 6th TWSC
4: S Flatrock Trail & E. Jewell Ave

2024 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	41.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	45	351	64	1	582	4	182	0	4	1	0	73
Future Vol, veh/h	45	351	64	1	582	4	182	0	4	1	0	73
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	275	-	275	275	-	-	200	-	-	200	-	-
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	49	382	70	1	633	4	198	0	4	1	0	79
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	637	0	0	452	0	0	1157	1119	382	1154	1187	635
Stage 1	-	-	-	-	-	-	480	480	-	637	637	-
Stage 2	-	-	-	-	-	-	677	639	-	517	550	-
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	947	-	-	1109	-	-	~ 173	207	665	174	188	478
Stage 1	-	-	-	-	-	-	567	554	-	465	471	-
Stage 2	-	-	-	-	-	-	443	470	-	541	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	947	-	-	1109	-	-	~ 138	196	665	166	178	478
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 138	196	-	166	178	-
Stage 1	-	-	-	-	-	-	538	525	-	441	471	-
Stage 2	-	-	-	-	-	-	369	470	-	510	489	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0			284.9			14.2		
HCM LOS							F			B		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	138	665	947	-	-	1109	-	-	166	478		
HCM Lane V/C Ratio	1.434	0.007	0.052	-	-	0.001	-	-	0.007	0.166		
HCM Control Delay (s)	290.9	10.4	9	-	-	8.2	-	-	26.8	14		
HCM Lane LOS	F	B	A	-	-	A	-	-	D	B		
HCM 95th %tile Q(veh)	13.1	0	0.2	-	-	0	-	-	0	0.6		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined				*: All major volume in platoon				

Timings
4: S Flatrock Trail & E. Jewell Ave

2024 Total Traffic
AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	45	351	64	1	582	182	0	1	0
Future Volume (vph)	45	351	64	1	582	182	0	1	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	12.0	73.0	73.0	12.0	73.0	35.0	35.0	35.0	35.0
Total Split (%)	10.0%	60.8%	60.8%	10.0%	60.8%	29.2%	29.2%	29.2%	29.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max	Max
Act Effect Green (s)	79.3	77.9	77.9	75.1	70.7	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.66	0.65	0.65	0.63	0.59	0.25	0.25	0.25	0.25
v/c Ratio	0.12	0.32	0.07	0.00	0.58	0.60	0.01	0.00	0.12
Control Delay	3.5	4.3	0.1	8.0	23.0	48.7	0.0	34.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.5	4.3	0.1	8.0	23.0	48.7	0.0	34.0	0.4
LOS	A	A	A	A	C	D	A	C	A
Approach Delay		3.6			23.0		47.7		0.8
Approach LOS		A			C		D		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 58 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 60
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.60
 Intersection Signal Delay: 18.4
 Intersection Capacity Utilization 62.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B























Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave














HCM 6th Signalized Intersection Summary

4: S Flatrock Trail & E. Jewell Ave

2024 Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	351	64	1	582	4	182	0	4	1	0	73
Future Volume (veh/h)	45	351	64	1	582	4	182	0	4	1	0	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	382	70	1	633	4	198	0	4	1	0	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	420	1166	988	557	1098	7	338	0	396	410	0	396
Arrive On Green	0.03	0.62	0.62	0.00	0.59	0.59	0.25	0.00	0.25	0.25	0.00	0.25
Sat Flow, veh/h	1781	1870	1585	1781	1857	12	1320	0	1585	1412	0	1585
Grp Volume(v), veh/h	49	382	70	1	0	637	198	0	4	1	0	79
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1868	1320	0	1585	1412	0	1585
Q Serve(g_s), s	1.2	11.6	2.1	0.0	0.0	25.4	16.7	0.0	0.2	0.1	0.0	4.7
Cycle Q Clear(g_c), s	1.2	11.6	2.1	0.0	0.0	25.4	21.4	0.0	0.2	0.3	0.0	4.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	420	1166	988	557	0	1105	338	0	396	410	0	396
V/C Ratio(X)	0.12	0.33	0.07	0.00	0.00	0.58	0.59	0.00	0.01	0.00	0.00	0.20
Avail Cap(c_a), veh/h	465	1166	988	659	0	1105	338	0	396	410	0	396
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.4	10.7	8.9	10.2	0.0	15.2	44.0	0.0	33.8	33.9	0.0	35.5
Incr Delay (d2), s/veh	0.1	0.7	0.1	0.0	0.0	2.2	7.2	0.0	0.0	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.6	0.7	0.0	0.0	10.4	6.1	0.0	0.1	0.0	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	11.4	9.0	10.2	0.0	17.4	51.2	0.0	33.9	34.0	0.0	36.6
LnGrp LOS	B	B	A	B	A	B	D	A	C	C	A	D
Approach Vol, veh/h	501			638			202			80		
Approach Delay, s/veh	11.1			17.4			50.9			36.6		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.2	79.8	35.0		9.0	76.0	35.0					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	7.0	68.0	30.0		7.0	68.0	30.0					
Max Q Clear Time (g_c+I1), s	2.0	13.6	6.7		3.2	27.4	23.4					
Green Ext Time (p_c), s	0.0	2.5	0.4		0.0	4.3	0.3					
Intersection Summary												
HCM 6th Ctrl Delay				21.0								
HCM 6th LOS				C								

Intersection												
Int Delay, s/veh	18.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	232	105	8	273	26	266	72	29	14	24	49
Future Vol, veh/h	19	232	105	8	273	26	266	72	29	14	24	49
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	275	-	275	275	-	-	275	-	275	275	-	-
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	21	252	114	9	297	28	289	78	32	15	26	53





















Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	325	0	0	366	0	0	663	637	252	735	737	311
Stage 1	-	-	-	-	-	-	294	294	-	329	329	-
Stage 2	-	-	-	-	-	-	369	343	-	406	408	-
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	1235	-	-	1193	-	-	375	395	787	335	346	729
Stage 1	-	-	-	-	-	-	714	670	-	684	646	-
Stage 2	-	-	-	-	-	-	651	637	-	622	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1235	-	-	1193	-	-	321	385	787	266	337	729
Mov Cap-2 Maneuver	-	-	-	-	-	-	321	385	-	266	337	-
Stage 1	-	-	-	-	-	-	702	659	-	672	641	-
Stage 2	-	-	-	-	-	-	575	632	-	517	587	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.2			51.1			14		
HCM LOS							F			B		

Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	321	385	787	1235	-	-	1193	-	-	266	527
HCM Lane V/C Ratio	0.901	0.203	0.04	0.017	-	-	0.007	-	-	0.057	0.151
HCM Control Delay (s)	64.9	16.7	9.8	8	-	-	8	-	-	19.4	13
HCM Lane LOS	F	C	A	A	-	-	A	-	-	C	B
HCM 95th %tile Q(veh)	8.6	0.8	0.1	0.1	-	-	0	-	-	0.2	0.5

Timings
5: Harvest Rd & E. Jewell Ave

2024 Total Traffic
AM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	19	232	105	8	273	266	72	29	14	24
Future Volume (vph)	19	232	105	8	273	266	72	29	14	24
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	5	2	2	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	10.0	23.0	23.0	10.0	23.0
Total Split (s)	12.0	66.0	66.0	12.0	66.0	12.0	30.0	30.0	12.0	30.0
Total Split (%)	10.0%	55.0%	55.0%	10.0%	55.0%	10.0%	25.0%	25.0%	10.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max
Act Effect Green (s)	72.1	70.7	70.7	70.8	68.3	35.1	32.3	32.3	31.2	25.0
Actuated g/C Ratio	0.60	0.59	0.59	0.59	0.57	0.29	0.27	0.27	0.26	0.21
v/c Ratio	0.04	0.23	0.12	0.01	0.31	0.78	0.16	0.06	0.04	0.20
Control Delay	14.5	15.7	6.6	9.5	15.2	53.7	36.9	0.2	29.5	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.5	15.7	6.6	9.5	15.2	53.7	36.9	0.2	29.5	17.6
LOS	B	B	A	A	B	D	D	A	C	B
Approach Delay		13.0			15.1		46.1			19.5
Approach LOS		B			B		D			B

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 25.0

Intersection LOS: C

Intersection Capacity Utilization 45.7%

ICU Level of Service A

Analysis Period (min) 15
























Splits and Phases: 5: Harvest Rd & E. Jewell Ave








HCM 6th Signalized Intersection Summary

5: Harvest Rd & E. Jewell Ave

2024 Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	232	105	8	273	26	266	72	29	14	24	49
Future Volume (veh/h)	19	232	105	8	273	26	266	72	29	14	24	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	252	114	9	297	28	289	78	32	15	26	53
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	570	1040	881	574	918	87	387	468	397	357	114	233
Arrive On Green	0.02	0.56	0.56	0.01	0.55	0.55	0.06	0.25	0.25	0.02	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1683	159	1781	1870	1585	1781	549	1120
Grp Volume(v), veh/h	21	252	114	9	0	325	289	78	32	15	0	79
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1842	1781	1870	1585	1781	0	1669
Q Serve(g_s), s	0.6	8.3	4.1	0.3	0.0	11.7	7.0	3.9	1.9	0.8	0.0	4.7
Cycle Q Clear(g_c), s	0.6	8.3	4.1	0.3	0.0	11.7	7.0	3.9	1.9	0.8	0.0	4.7
Prop In Lane	1.00		1.00	1.00		0.09	1.00		1.00	1.00		0.67
Lane Grp Cap(c), veh/h	570	1040	881	574	0	1005	387	468	397	357	0	348
V/C Ratio(X)	0.04	0.24	0.13	0.02	0.00	0.32	0.75	0.17	0.08	0.04	0.00	0.23
Avail Cap(c_a), veh/h	637	1040	881	658	0	1005	387	468	397	431	0	348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.0	13.7	12.8	12.1	0.0	15.0	41.5	35.2	34.4	36.4	0.0	39.5
Incr Delay (d2), s/veh	0.0	0.6	0.3	0.0	0.0	0.9	7.8	0.8	0.4	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.4	1.5	0.1	0.0	4.8	5.3	1.8	0.7	0.3	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	14.2	13.1	12.1	0.0	15.9	49.2	36.0	34.8	36.4	0.0	41.0
LnGrp LOS	B	B	B	B	A	B	D	D	C	D	A	D
Approach Vol, veh/h	387			334			399			94		
Approach Delay, s/veh	13.8			15.8			45.5			40.3		
Approach LOS	B			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.3	71.7	12.0	30.0	7.5	70.5	7.0	35.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	61.0	7.0	25.0	7.0	61.0	7.0	25.0				
Max Q Clear Time (g_c+I1), s	2.3	10.3	9.0	6.7	2.6	13.7	2.8	5.9				
Green Ext Time (p_c), s	0.0	1.8	0.0	0.3	0.0	1.9	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay	26.8											
HCM 6th LOS	C											

Intersection						
Int Delay, s/veh	4.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	23	21	67	0	0	65
Future Vol, veh/h	23	21	67	0	0	65
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	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	25	23	73	0	0	71
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	73	0	-	0	146	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	73	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1527	-	-	-	846	989
Stage 1	-	-	-	-	950	-
Stage 2	-	-	-	-	950	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1527	-	-	-	832	989
Mov Cap-2 Maneuver	-	-	-	-	810	-
Stage 1	-	-	-	-	935	-
Stage 2	-	-	-	-	950	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.9	0		8.9		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1527	-	-	-	989	
HCM Lane V/C Ratio	0.016	-	-	-	0.071	
HCM Control Delay (s)	7.4	-	-	-	8.9	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	

Volume
8: E. Yale Ave & S Flatrock Trail

2024 Total Traffic
AM Peak Hour







Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	23	21	67	0	0	65
Future Volume (vph)	23	21	67	0	0	65
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	25	23	73	0	0	71
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	48	73	0	71	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	3.2		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	48	73	71
Demand Flow Rate, veh/h	49	74	72
Vehicles Circulating, veh/h	0	25	74
Vehicles Exiting, veh/h	146	23	25
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.0	3.2	3.3
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	49	74	72
Cap Entry Lane, veh/h	1380	1345	1280
Entry HV Adj Factor	0.970	0.980	0.986
Flow Entry, veh/h	48	73	71
Cap Entry, veh/h	1339	1319	1262
V/C Ratio	0.036	0.055	0.056
Control Delay, s/veh	3.0	3.2	3.3
LOS	A	A	A
95th %tile Queue, veh	0	0	0

HCM 6th TWSC
9: E. Yale Ave & S. Gold Bug Way





2024 Total Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	11	10	36	0	0	30
Future Vol, veh/h	11	10	36	0	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	11	39	0	0	33

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	39	0	0	74	39
Stage 1	-	-	-	39	-
Stage 2	-	-	-	35	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1571	-	-	930	1033
Stage 1	-	-	-	983	-
Stage 2	-	-	-	987	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1571	-	-	923	1033
Mov Cap-2 Maneuver	-	-	-	869	-
Stage 1	-	-	-	975	-
Stage 2	-	-	-	987	-

Approach	EB	WB	SB
HCM Control Delay, s	3.8	0	8.6
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1571	-	-	-	1033
HCM Lane V/C Ratio	0.008	-	-	-	0.032
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	5.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	1	4	23	9	32
Future Vol, veh/h	9	1	4	23	9	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	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	10	1	4	25	10	35

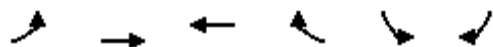
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	29	0	0	38	17
Stage 1	-	-	-	17	-
Stage 2	-	-	-	21	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1584	-	-	974	1062
Stage 1	-	-	-	1006	-
Stage 2	-	-	-	1002	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1584	-	-	968	1062
Mov Cap-2 Maneuver	-	-	-	968	-
Stage 1	-	-	-	1000	-
Stage 2	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	8.6
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1584	-	-	-	1040
HCM Lane V/C Ratio	0.006	-	-	-	0.043
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1






Volume
10: E. Yale Ave & Harvest Rd

2024 Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	9	1	4	23	9	32
Future Volume (vph)	9	1	4	23	9	32
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	10	1	4	25	10	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	11	29	0	45	0
Intersection Summary						





Intersection			
Intersection Delay, s/veh	2.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	11	29	45
Demand Flow Rate, veh/h	11	30	46
Vehicles Circulating, veh/h	10	10	4
Vehicles Exiting, veh/h	40	11	35
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	2.7	2.9	2.9
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	11	30	46
Cap Entry Lane, veh/h	1366	1366	1374
Entry HV Adj Factor	0.998	0.964	0.978
Flow Entry, veh/h	11	29	45
Cap Entry, veh/h	1363	1317	1344
V/C Ratio	0.008	0.022	0.033
Control Delay, s/veh	2.7	2.9	2.9
LOS	A	A	A
95th %tile Queue, veh	0	0	0

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	13	75	3	5	68
Future Vol, veh/h	9	13	75	3	5	68
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	0	-	-	200	-
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	10	14	82	3	5	74

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	168	84	0	0	85	0
Stage 1	84	-	-	-	-	-
Stage 2	84	-	-	-	-	-
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	822	975	-	-	1512	-
Stage 1	939	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	820	975	-	-	1512	-
Mov Cap-2 Maneuver	802	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	936	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.5
HCM LOS	A		







Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	802	975	1512
HCM Lane V/C Ratio	-	-	0.012	0.014	0.004
HCM Control Delay (s)	-	-	9.5	8.7	7.4
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	0

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	8	21	0	1	1
Future Vol, veh/h	0	8	21	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	0	9	23	0	1	1

Major/Minor	Major1	Major2	Minor2			
Conflicting Flow All	23	0	-	0	32	23
Stage 1	-	-	-	-	23	-
Stage 2	-	-	-	-	9	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1592	-	-	-	982	1054
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1014	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1592	-	-	-	982	1054
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	1014	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.5
HCM LOS	A		









Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1592	-	-	-	1017
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	1	5	3	0	5	13	0	8	13	0	8
Future Vol, veh/h	3	1	5	3	0	5	13	0	8	13	0	8
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	200	-	-	200	-	-	-	-	-	-	-	-
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	3	1	5	3	0	5	14	0	9	14	0	9

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	5	0	0	6	0	0	23	21	4	23	21	3
Stage 1	-	-	-	-	-	-	10	10	-	9	9	-
Stage 2	-	-	-	-	-	-	13	11	-	14	12	-
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	1616	-	-	1615	-	-	989	873	1080	989	873	1081
Stage 1	-	-	-	-	-	-	1011	887	-	1012	888	-
Stage 2	-	-	-	-	-	-	1007	886	-	1006	886	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1616	-	-	1615	-	-	978	870	1080	978	870	1081
Mov Cap-2 Maneuver	-	-	-	-	-	-	978	870	-	978	870	-
Stage 1	-	-	-	-	-	-	1009	885	-	1010	886	-
Stage 2	-	-	-	-	-	-	997	884	-	996	884	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.4			2.7			8.6			8.6		
HCM LOS							A			A		





Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	1015	1616	-	-	1615	-	-	1015
HCM Lane V/C Ratio	0.022	0.002	-	-	0.002	-	-	0.022
HCM Control Delay (s)	8.6	7.2	-	-	7.2	-	-	8.6
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1









Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	0	5	4	0	58	2	122	1	18	47	6
Future Vol, veh/h	18	0	5	4	0	58	2	122	1	18	47	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	20	0	5	4	0	63	2	133	1	20	51	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	264	233	55	235	236	134	58	0	0	134	0	0
Stage 1	95	95	-	138	138	-	-	-	-	-	-	-
Stage 2	169	138	-	97	98	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	706	679	1037	739	677	915	1556	-	-	1451	-	-
Stage 1	931	826	-	865	782	-	-	-	-	-	-	-
Stage 2	833	782	-	929	823	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	-	-	-
Mov Cap-1 Maneuver	650	669	1037	726	667	915	1556	-	-	1451	-	-
Mov Cap-2 Maneuver	650	669	-	726	667	-	-	-	-	-	-	-
Stage 1	930	814	-	864	781	-	-	-	-	-	-	-
Stage 2	775	781	-	911	812	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		9.3		0.1		1.9	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1556	-	-	650	1037	726	915	1451	-	-
HCM Lane V/C Ratio	0.001	-	-	0.03	0.005	0.006	0.069	0.013	-	-
HCM Control Delay (s)	7.3	-	-	10.7	8.5	10	9.2	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	0.2	0	-	-

Intersection						
Int Delay, s/veh	4.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	59	20	3	21	56
Future Vol, veh/h	9	59	20	3	21	56
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	-	-	-	200	-
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	10	64	22	3	23	61
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	131	24	0	0	25	0
Stage 1	24	-	-	-	-	-
Stage 2	107	-	-	-	-	-
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	863	1052	-	-	1589	-
Stage 1	999	-	-	-	-	-
Stage 2	917	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	851	1052	-	-	1589	-
Mov Cap-2 Maneuver	812	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	8.8	0		2		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	- 1012		1589	-	
HCM Lane V/C Ratio	-	- 0.073		0.014	-	
HCM Control Delay (s)	-	- 8.8		7.3	-	
HCM Lane LOS	-	- A		A	-	
HCM 95th %tile Q(veh)	-	- 0.2		0	-	

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	1	6	0	35	0	80	2	11	42	4
Future Vol, veh/h	10	0	1	6	0	35	0	80	2	11	42	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	0	1	7	0	38	0	87	2	12	46	4













Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	179	161	48	161	162	88	50	0	0	89	0	0
Stage 1	72	72	-	88	88	-	-	-	-	-	-	-
Stage 2	107	89	-	73	74	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	783	731	1021	804	730	970	1557	-	-	1506	-	-
Stage 1	938	835	-	920	822	-	-	-	-	-	-	-
Stage 2	898	821	-	937	833	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	748	725	1021	798	724	970	1557	-	-	1506	-	-
Mov Cap-2 Maneuver	748	725	-	798	724	-	-	-	-	-	-	-
Stage 1	938	828	-	920	822	-	-	-	-	-	-	-
Stage 2	863	821	-	929	826	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.8		9		0		1.4	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1557	-	-	748	1021	798	970	1506	-	-
HCM Lane V/C Ratio	-	-	-	0.015	0.001	0.008	0.039	0.008	-	-
HCM Control Delay (s)	0	-	-	9.9	8.5	9.5	8.9	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0.1	0	-	-



















HCM 6th TWSC
4: S Flatrock Trail & E. Jewell Ave

2024 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	56.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	91	721	206	5	609	6	121	0	3	4	0	82
Future Vol, veh/h	91	721	206	5	609	6	121	0	3	4	0	82
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	275	-	275	275	-	-	200	-	-	200	-	-
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	99	784	224	5	662	7	132	0	3	4	0	89
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	669	0	0	1008	0	0	1702	1661	784	1772	1882	666
Stage 1	-	-	-	-	-	-	982	982	-	676	676	-
Stage 2	-	-	-	-	-	-	720	679	-	1096	1206	-
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	921	-	-	687	-	-	~ 72	97	393	65	71	459
Stage 1	-	-	-	-	-	-	300	327	-	443	453	-
Stage 2	-	-	-	-	-	-	419	451	-	259	257	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	921	-	-	687	-	-	~ 53	86	393	59	63	459
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 53	86	-	59	63	-
Stage 1	-	-	-	-	-	-	268	292	-	396	450	-
Stage 2	-	-	-	-	-	-	335	448	-	229	230	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.1			\$ 818.8			17.3		
HCM LOS							F			C		
Minor Lane/Major Mvmt	NBLn1 NBLn2		EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2		
Capacity (veh/h)	53	393	921	-	-	687	-	-	59	459		
HCM Lane V/C Ratio	2.482	0.008	0.107	-	-	0.008	-	-	0.074	0.194		
HCM Control Delay (s)	\$ 838.7	14.2	9.4	-	-	10.3	-	-	70.8	14.7		
HCM Lane LOS	F	B	A	-	-	B	-	-	F	B		
HCM 95th %tile Q(veh)	13.5	0	0.4	-	-	0	-	-	0.2	0.7		
Notes												
~: Volume exceeds capacity		\$: Delay exceeds 300s		+: Computation Not Defined		*: All major volume in platoon						

Timings
4: S Flatrock Trail & E. Jewell Ave

2024 Total Traffic
PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	91	721	206	5	609	121	0	4	0
Future Volume (vph)	91	721	206	5	609	121	0	4	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	12.0	78.0	78.0	12.0	78.0	30.0	30.0	30.0	30.0
Total Split (%)	10.0%	65.0%	65.0%	10.0%	65.0%	25.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max	Max
Act Effect Green (s)	84.2	82.8	82.8	78.8	73.2	25.0	25.0	25.0	25.0
Actuated g/C Ratio	0.70	0.69	0.69	0.66	0.61	0.21	0.21	0.21	0.21
v/c Ratio	0.24	0.61	0.19	0.01	0.59	0.49	0.01	0.01	0.15
Control Delay	6.8	13.3	1.5	4.6	15.2	48.9	0.0	38.0	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	13.3	1.5	4.6	15.2	48.9	0.0	38.0	0.5
LOS	A	B	A	A	B	D	A	D	A
Approach Delay		10.3			15.1		47.8		2.1
Approach LOS		B			B		D		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 58 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.0
 Intersection Capacity Utilization 68.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C























Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave














HCM 6th Signalized Intersection Summary

4: S Flatrock Trail & E. Jewell Ave





















2024 Total Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	721	206	5	609	6	121	0	3	4	0	82
Future Volume (veh/h)	91	721	206	5	609	6	121	0	3	4	0	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	99	784	224	5	662	7	132	0	3	4	0	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	452	1235	1047	303	1157	12	271	0	330	352	0	330
Arrive On Green	0.04	0.66	0.66	0.01	0.63	0.63	0.21	0.00	0.21	0.21	0.00	0.21
Sat Flow, veh/h	1781	1870	1585	1781	1847	20	1308	0	1585	1414	0	1585
Grp Volume(v), veh/h	99	784	224	5	0	669	132	0	3	4	0	89
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1867	1308	0	1585	1414	0	1585
Q Serve(g_s), s	2.3	29.4	6.7	0.1	0.0	25.0	11.3	0.0	0.2	0.3	0.0	5.7
Cycle Q Clear(g_c), s	2.3	29.4	6.7	0.1	0.0	25.0	17.0	0.0	0.2	0.5	0.0	5.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	452	1235	1047	303	0	1170	271	0	330	352	0	330
V/C Ratio(X)	0.22	0.63	0.21	0.02	0.00	0.57	0.49	0.00	0.01	0.01	0.00	0.27
Avail Cap(c_a), veh/h	485	1235	1047	396	0	1170	271	0	330	352	0	330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.9	11.9	8.1	10.8	0.0	13.0	46.9	0.0	37.7	37.9	0.0	39.8
Incr Delay (d2), s/veh	0.2	2.5	0.5	0.0	0.0	2.0	6.2	0.0	0.0	0.1	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	11.4	2.2	0.0	0.0	9.9	4.1	0.0	0.1	0.1	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.2	14.4	8.5	10.8	0.0	15.1	53.1	0.0	37.7	37.9	0.0	41.8
LnGrp LOS	B	B	A	B	A	B	D	A	D	D	A	D
Approach Vol, veh/h	1107				674				135			
Approach Delay, s/veh	12.8				15.0				52.8			
Approach LOS	B				B				D			
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	5.8	84.2	30.0		9.8	80.2	30.0					
Change Period (Y+Rc), s	5.0	5.0	5.0		5.0	5.0	5.0					
Max Green Setting (Gmax), s	7.0	73.0	25.0		7.0	73.0	25.0					
Max Q Clear Time (g_c+I1), s	2.1	31.4	7.7		4.3	27.0	19.0					
Green Ext Time (p_c), s	0.0	6.9	0.4		0.0	4.7	0.2					
Intersection Summary												
HCM 6th Ctrl Delay	17.6											
HCM 6th LOS	B											

Intersection												
Int Delay, s/veh	92.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	407	269	26	384	23	195	52	23	25	75	40
Future Vol, veh/h	51	407	269	26	384	23	195	52	23	25	75	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	275	-	275	275	-	-	275	-	275	275	-	-
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	55	442	292	28	417	25	212	57	25	27	82	43
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	442	0	0	734	0	0	1100	1050	442	1225	1330	430
Stage 1	-	-	-	-	-	-	552	552	-	486	486	-
Stage 2	-	-	-	-	-	-	548	498	-	739	844	-
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	1118	-	-	871	-	-	~ 190	227	615	156	155	625
Stage 1	-	-	-	-	-	-	518	515	-	563	551	-
Stage 2	-	-	-	-	-	-	521	544	-	409	379	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1118	-	-	871	-	-	~ 92	209	615	112	143	625
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 92	209	-	112	143	-
Stage 1	-	-	-	-	-	-	493	490	-	535	533	-
Stage 2	-	-	-	-	-	-	397	527	-	330	360	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.6			\$ 507.2			50.7		
HCM LOS							F			F		
Minor Lane/Major Mvmt	NBLn1	NBLn2	NBLn3	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	SBLn2	
Capacity (veh/h)	92	209	615	1118	-	-	871	-	-	112	195	
HCM Lane V/C Ratio	2.304	0.27	0.041	0.05	-	-	0.032	-	-	0.243	0.641	
HCM Control Delay (s)	\$ 693.4	28.5	11.1	8.4	-	-	9.3	-	-	47.1	51.5	
HCM Lane LOS	F	D	B	A	-	-	A	-	-	E	F	
HCM 95th %tile Q(veh)	19.1	1.1	0.1	0.2	-	-	0.1	-	-	0.9	3.8	
Notes												
~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

Timings
5: Harvest Rd & E. Jewell Ave



2024 Total Traffic
PM Peak Hour

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	51	407	269	26	384	195	52	23	25	75
Future Volume (vph)	51	407	269	26	384	195	52	23	25	75
Turn Type	pm+pt	NA	Perm	pm+pt	NA	pm+pt	NA	Perm	pm+pt	NA
Protected Phases	5	2		1	6	3	8		7	4
Permitted Phases	2		2	6		8		8	4	
Detector Phase	5	2	2	1	6	3	8	8	7	4
Switch Phase										
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	10.0	10.0	5.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	10.0	23.0	23.0	10.0	23.0
Total Split (s)	12.0	63.0	63.0	12.0	63.0	14.0	31.0	31.0	14.0	31.0
Total Split (%)	10.0%	52.5%	52.5%	10.0%	52.5%	11.7%	25.8%	25.8%	11.7%	25.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	Max	None	Max
Act Effect Green (s)	67.2	63.0	63.0	65.7	60.5	37.9	32.5	32.5	32.8	26.0
Actuated g/C Ratio	0.56	0.52	0.52	0.55	0.50	0.32	0.27	0.27	0.27	0.22
v/c Ratio	0.13	0.45	0.30	0.06	0.47	0.56	0.11	0.05	0.07	0.31
Control Delay	13.8	19.2	4.2	11.1	22.1	38.3	36.6	0.2	27.9	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	19.2	4.2	11.1	22.1	38.3	36.6	0.2	27.9	35.5
LOS	B	B	A	B	C	D	D	A	C	D
Approach Delay		13.3			21.4		34.7			34.2
Approach LOS		B			C		C			C

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 42 (35%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 21.1
Intersection Capacity Utilization 55.7%
Analysis Period (min) 15
Intersection LOS: C
ICU Level of Service B
























Splits and Phases: 5: Harvest Rd & E. Jewell Ave

					
Ø1	Ø2 (R)		Ø3	Ø4	
12 s	63 s		14 s	31 s	
					
Ø5	Ø6 (R)		Ø7	Ø8	
12 s	63 s		14 s	31 s	

HCM 6th Signalized Intersection Summary





5: Harvest Rd & E. Jewell Ave

2024 Total Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	407	269	26	384	23	195	52	23	25	75	40
Future Volume (veh/h)	51	407	269	26	384	23	195	52	23	25	75	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	442	292	28	417	25	212	57	25	27	82	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	456	966	818	370	885	53	392	499	423	389	250	131
Arrive On Green	0.04	0.52	0.52	0.03	0.51	0.51	0.08	0.27	0.27	0.02	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1747	105	1781	1870	1585	1781	1155	606
Grp Volume(v), veh/h	55	442	292	28	0	442	212	57	25	27	0	125
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1852	1781	1870	1585	1781	0	1761
Q Serve(g_s), s	1.8	18.0	13.1	0.9	0.0	18.6	9.0	2.8	1.4	1.4	0.0	7.2
Cycle Q Clear(g_c), s	1.8	18.0	13.1	0.9	0.0	18.6	9.0	2.8	1.4	1.4	0.0	7.2
Prop In Lane	1.00		1.00	1.00		0.06	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	456	966	818	370	0	938	392	499	423	389	0	382
V/C Ratio(X)	0.12	0.46	0.36	0.08	0.00	0.47	0.54	0.11	0.06	0.07	0.00	0.33
Avail Cap(c_a), veh/h	497	966	818	429	0	938	392	499	423	479	0	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.5	18.4	17.2	14.6	0.0	19.2	34.6	33.3	32.8	35.1	0.0	39.6
Incr Delay (d2), s/veh	0.1	1.6	1.2	0.1	0.0	1.7	1.5	0.5	0.3	0.1	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	7.7	4.8	0.4	0.0	7.9	1.1	1.3	0.6	0.6	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.6	19.9	18.4	14.7	0.0	20.9	36.1	33.7	33.0	35.1	0.0	41.9
LnGrp LOS	B	B	B	B	A	C	D	C	C	D	A	D
Approach Vol, veh/h		789			470			294			152	
Approach Delay, s/veh		19.0			20.5			35.4			40.7	
Approach LOS		B			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	67.0	14.0	31.0	9.2	65.8	8.0	37.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	58.0	9.0	26.0	7.0	58.0	9.0	26.0				
Max Q Clear Time (g_c+I1), s	2.9	20.0	11.0	9.2	3.8	20.6	3.4	4.8				
Green Ext Time (p_c), s	0.0	3.7	0.0	0.5	0.0	2.7	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay			24.2									
HCM 6th LOS			C									

HCM 6th TWSC
8: Gun Club Rd & S Flatrock Trail

2024 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	3.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	74	75	44	0	0	44
Future Vol, veh/h	74	75	44	0	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	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	80	82	48	0	0	48







Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	48	0	0 290 48
Stage 1	-	-	- 48 -
Stage 2	-	-	- 242 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1559	-	- 701 1021
Stage 1	-	-	- 974 -
Stage 2	-	-	- 798 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1559	-	- 665 1021
Mov Cap-2 Maneuver	-	-	- 687 -
Stage 1	-	-	- 924 -
Stage 2	-	-	- 798 -

Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	8.7
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1559	-	-	-	1021
HCM Lane V/C Ratio	0.052	-	-	-	0.047
HCM Control Delay (s)	7.4	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.2	-	-	-	0.1

Volume
8: E. Yale Ave & S Flatrock Trail





2024 Total Traffic
PM Peak Hour





						
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	74	75	44	0	0	44
Future Volume (vph)	74	75	44	0	0	44
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	80	82	48	0	0	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	162	48	0	48	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	3.5		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	162	48	48
Demand Flow Rate, veh/h	166	49	49
Vehicles Circulating, veh/h	0	82	49
Vehicles Exiting, veh/h	98	84	82
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.6	3.2	3.1
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	166	49	49
Cap Entry Lane, veh/h	1380	1269	1313
Entry HV Adj Factor	0.978	0.980	0.980
Flow Entry, veh/h	162	48	48
Cap Entry, veh/h	1350	1244	1286
V/C Ratio	0.120	0.039	0.037
Control Delay, s/veh	3.6	3.2	3.1
LOS	A	A	A
95th %tile Queue, veh	0	0	0

HCM 6th TWSC
9: E. Yale Ave & S. Gold Bug Way

2024 Total Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	41	23	0	0	20
Future Vol, veh/h	35	41	23	0	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	38	45	25	0	0	22
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	25	0	-	0	146	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1589	-	-	-	846	1051
Stage 1	-	-	-	-	998	-
Stage 2	-	-	-	-	904	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1589	-	-	-	826	1051
Mov Cap-2 Maneuver	-	-	-	-	801	-
Stage 1	-	-	-	-	974	-
Stage 2	-	-	-	-	904	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.4	0		8.5		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1589	-	-	-	1051	
HCM Lane V/C Ratio	0.024	-	-	-	0.021	
HCM Control Delay (s)	7.3	-	-	-	8.5	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1	

Intersection						
Int Delay, s/veh	6.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	36	5	3	16	27	20
Future Vol, veh/h	36	5	3	16	27	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	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	39	5	3	17	29	22

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	20	0	-	0	95
Stage 1	-	-	-	-	12
Stage 2	-	-	-	-	83
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1596	-	-	-	905
Stage 1	-	-	-	-	1011
Stage 2	-	-	-	-	940
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1596	-	-	-	883
Mov Cap-2 Maneuver	-	-	-	-	883
Stage 1	-	-	-	-	987
Stage 2	-	-	-	-	940

Approach	EB	WB	SB
HCM Control Delay, s	6.4	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1596	-	-	-	954
HCM Lane V/C Ratio	0.025	-	-	-	0.054
HCM Control Delay (s)	7.3	-	-	-	9
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2






Volume
10: E. Yale Ave & Harvest Rd





2024 Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	36	5	3	16	27	20
Future Volume (vph)	36	5	3	16	27	20
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	39	5	3	17	29	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	44	20	0	51	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	3.0		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	44	20	51
Demand Flow Rate, veh/h	45	20	52
Vehicles Circulating, veh/h	30	40	3
Vehicles Exiting, veh/h	25	35	57
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	3.0	2.8	3.0
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	45	20	52
Cap Entry Lane, veh/h	1338	1325	1376
Entry HV Adj Factor	0.976	0.997	0.981
Flow Entry, veh/h	44	20	51
Cap Entry, veh/h	1306	1321	1349
V/C Ratio	0.034	0.015	0.038
Control Delay, s/veh	3.0	2.8	3.0
LOS	A	A	A
95th %tile Queue, veh	0	0	0







Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	9	93	10	15	99
Future Vol, veh/h	6	9	93	10	15	99
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	0	-	-	200	-
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	7	10	101	11	16	108
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	247	107	0	0	112	0
Stage 1	107	-	-	-	-	-
Stage 2	140	-	-	-	-	-
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	741	947	-	-	1478	-
Stage 1	917	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	733	947	-	-	1478	-
Mov Cap-2 Maneuver	743	-	-	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	9.2	0	1			
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 743 947 1478	-	-		
HCM Lane V/C Ratio	-	- 0.009 0.01 0.011	-	-		
HCM Control Delay (s)	-	- 9.9 8.8 7.5	-	-		
HCM Lane LOS	-	- A A A	-	-		
HCM 95th %tile Q(veh)	-	- 0 0 0	-	-		









Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	24	14	2	1	1
Future Vol, veh/h	1	24	14	2	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	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	1	26	15	2	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	17	0	-	0	44
Stage 1	-	-	-	-	16
Stage 2	-	-	-	-	28
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1600	-	-	-	967
Stage 1	-	-	-	-	1007
Stage 2	-	-	-	-	995
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1600	-	-	-	966
Mov Cap-2 Maneuver	-	-	-	-	966
Stage 1	-	-	-	-	1006
Stage 2	-	-	-	-	995

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1600	-	-	-	1012
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0





Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	1	15	9	2	15	9	0	6	9	0	5
Future Vol, veh/h	9	1	15	9	2	15	9	0	6	9	0	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	200	-	-	200	-	-	-	-	-	-	-	-
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	10	1	16	10	2	16	10	0	7	10	0	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	18	0	0	17	0	0	62	67	9	63	67	10
Stage 1	-	-	-	-	-	-	29	29	-	30	30	-
Stage 2	-	-	-	-	-	-	33	38	-	33	37	-
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	1599	-	-	1600	-	-	933	824	1073	932	824	1071
Stage 1	-	-	-	-	-	-	988	871	-	987	870	-
Stage 2	-	-	-	-	-	-	983	863	-	983	864	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1599	-	-	1600	-	-	919	814	1073	917	814	1071
Mov Cap-2 Maneuver	-	-	-	-	-	-	919	814	-	917	814	-
Stage 1	-	-	-	-	-	-	982	866	-	981	865	-
Stage 2	-	-	-	-	-	-	972	858	-	971	859	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.6			2.5			8.8			8.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	975	1599	-	-	1600	-	-	967				
HCM Lane V/C Ratio	0.017	0.006	-	-	0.006	-	-	0.016				
HCM Control Delay (s)	8.8	7.3	-	-	7.3	-	-	8.8				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				









Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	12	0	3	3	0	35	6	89	4	62	138	20
Future Vol, veh/h	12	0	3	3	0	35	6	89	4	62	138	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	13	0	3	3	0	38	7	97	4	67	150	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	427	410	161	410	419	99	172	0	0	101	0	0
Stage 1	295	295	-	113	113	-	-	-	-	-	-	-
Stage 2	132	115	-	297	306	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	579	559	961	597	551	957	1431	-	-	1491	-	-
Stage 1	756	688	-	892	802	-	-	-	-	-	-	-
Stage 2	871	800	-	754	679	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1		1	-	-		-	-
Mov Cap-1 Maneuver	535	531	961	572	524	957	1431	-	-	1491	-	-
Mov Cap-2 Maneuver	535	531	-	572	524	-	-	-	-	-	-	-
Stage 1	752	657	-	888	798	-	-	-	-	-	-	-
Stage 2	832	796	-	718	649	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.3		9.1		0.5		2.1	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1431	-	-	535	961	572	957	1491	-	-
HCM Lane V/C Ratio	0.005	-	-	0.024	0.003	0.006	0.04	0.045	-	-
HCM Control Delay (s)	7.5	-	-	11.9	8.8	11.3	8.9	7.5	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	0.1	0.1	-	-

Intersection						
Int Delay, s/veh	4.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	39	64	10	67	38
Future Vol, veh/h	6	39	64	10	67	38
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	-	-	-	200	-
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	7	42	70	11	73	41
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	263	76	0	0	81	0
Stage 1	76	-	-	-	-	-
Stage 2	187	-	-	-	-	-
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	726	985	-	-	1517	-
Stage 1	947	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	691	985	-	-	1517	-
Mov Cap-2 Maneuver	702	-	-	-	-	-
Stage 1	947	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Approach	WB	NB		SB		
HCM Control Delay, s	9.1	0		4.8		
HCM LOS	A					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBL	SBT	
Capacity (veh/h)	-	-	935	1517	-	
HCM Lane V/C Ratio	-	-	0.052	0.048	-	
HCM Control Delay (s)	-	-	9.1	7.5	-	
HCM Lane LOS	-	-	A	A	-	
HCM 95th %tile Q(veh)	-	-	0.2	0.2	-	

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	1	4	0	23	1	69	7	38	95	12
Future Vol, veh/h	7	0	1	4	0	23	1	69	7	38	95	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
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	8	0	1	4	0	25	1	75	8	41	103	13























Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	286	277	110	273	279	79	116	0	0	83	0	0
Stage 1	192	192	-	81	81	-	-	-	-	-	-	-
Stage 2	94	85	-	192	198	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	666	631	943	679	629	981	1473	-	-	1514	-	-
Stage 1	810	742	-	927	828	-	-	-	-	-	-	-
Stage 2	913	824	-	810	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	635	613	943	664	611	981	1473	-	-	1514	-	-
Mov Cap-2 Maneuver	635	613	-	664	611	-	-	-	-	-	-	-
Stage 1	809	722	-	926	827	-	-	-	-	-	-	-
Stage 2	889	823	-	787	717	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.5		9.1		0.1		2	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1473	-	-	635	943	664	981	1514	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.001	0.007	0.025	0.027	-	-
HCM Control Delay (s)	7.4	-	-	10.7	8.8	10.5	8.8	7.4	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	0.1	0.1	-	-

Timings
4: S Flatrock Trail & E. Jewell Ave

2040 Background Traffic
AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		  			  				
Traffic Volume (vph)	81	1453	223	29	1836	338	0	4	0
Future Volume (vph)	81	1453	223	29	1836	338	0	4	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	12.0	56.0	56.0	12.0	56.0	52.0	52.0	52.0	52.0
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	43.3%	43.3%	43.3%	43.3%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max	Max
Act Effect Green (s)	60.1	55.9	55.9	58.7	53.4	47.0	47.0	47.0	47.0
Actuated g/C Ratio	0.50	0.47	0.47	0.49	0.44	0.39	0.39	0.39	0.39
v/c Ratio	0.53	0.65	0.27	0.19	0.86	0.79	0.06	0.01	0.24
Control Delay	31.0	12.8	4.3	20.7	30.8	47.1	0.2	22.5	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.0	12.8	4.3	20.7	30.8	47.1	0.2	22.5	7.5
LOS	C	B	A	C	C	D	A	C	A
Approach Delay		12.6			30.7		41.9		7.8
Approach LOS		B			C		D		A

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 58 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 23.2

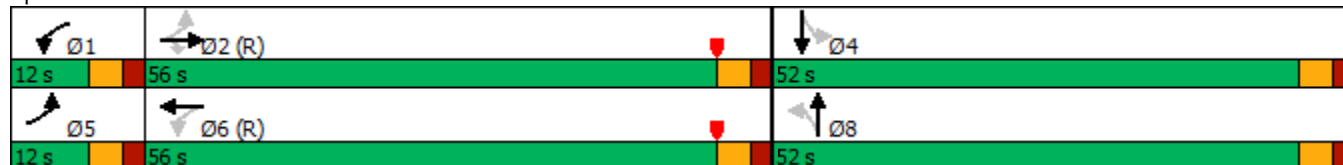
Intersection LOS: C

Intersection Capacity Utilization 85.4%

ICU Level of Service E

Analysis Period (min) 15


























Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave



HCM 6th Signalized Intersection Summary























4: S Flatrock Trail & E. Jewell Ave

2040 Background Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	81	1453	223	29	1836	4	338	0	42	4	0	161
Future Volume (veh/h)	81	1453	223	29	1836	4	338	0	42	4	0	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	1529	235	31	1933	4	356	0	44	4	0	169
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	2331	724	169	2331	5	448	0	621	570	0	621
Arrive On Green	0.04	0.46	0.46	0.03	0.44	0.44	0.39	0.00	0.39	0.39	0.00	0.39
Sat Flow, veh/h	1781	5106	1585	1781	5262	11	1216	0	1585	1362	0	1585
Grp Volume(v), veh/h	85	1529	235	31	1251	686	356	0	44	4	0	169
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1868	1216	0	1585	1362	0	1585
Q Serve(g_s), s	3.1	27.9	11.4	1.1	38.8	38.8	33.8	0.0	2.1	0.2	0.0	8.7
Cycle Q Clear(g_c), s	3.1	27.9	11.4	1.1	38.8	38.8	42.5	0.0	2.1	2.3	0.0	8.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	2331	724	169	1508	828	448	0	621	570	0	621
V/C Ratio(X)	0.53	0.66	0.32	0.18	0.83	0.83	0.79	0.00	0.07	0.01	0.00	0.27
Avail Cap(c_a), veh/h	191	2331	724	225	1508	828	448	0	621	570	0	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.3	25.3	20.8	20.4	29.4	29.4	39.3	0.0	22.8	23.6	0.0	24.9
Incr Delay (d2), s/veh	2.8	1.5	1.2	0.5	5.4	9.4	13.5	0.0	0.2	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	10.9	4.3	0.5	16.0	18.4	11.6	0.0	0.8	0.1	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.1	26.8	22.0	20.9	34.8	38.8	52.9	0.0	23.1	23.6	0.0	25.9
LnGrp LOS	C	C	C	C	C	D	D	A	C	C	A	C
Approach Vol, veh/h		1849			1968			400			173	
Approach Delay, s/veh		26.3			36.0			49.6			25.9	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.2	59.8		52.0	9.8	58.2		52.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	51.0		47.0	7.0	51.0		47.0				
Max Q Clear Time (g_c+I1), s	3.1	29.9		10.7	5.1	40.8		44.5				
Green Ext Time (p_c), s	0.0	11.6		1.1	0.0	7.7		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				32.7								
HCM 6th LOS				C								

Timings
5: Harvest Rd & E. Jewell Ave

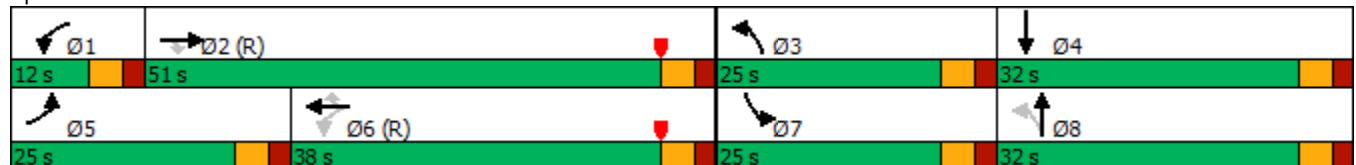
2040 Background Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	425	964	110	27	1200	398	269	211	209	116	400
Future Volume (vph)	425	964	110	27	1200	398	269	211	209	116	400
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2	6		6	8				Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0	
Total Split (s)	25.0	51.0	51.0	12.0	38.0	38.0	25.0	32.0	25.0	32.0	
Total Split (%)	20.8%	42.5%	42.5%	10.0%	31.7%	31.7%	20.8%	26.7%	20.8%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	
Act Effect Green (s)	18.9	50.9	50.9	40.4	34.1	34.1	51.2	34.0	13.0	29.7	120.0
Actuated g/C Ratio	0.16	0.42	0.42	0.34	0.28	0.28	0.43	0.28	0.11	0.25	1.00
v/c Ratio	0.83	0.47	0.16	0.12	0.88	0.56	0.51	0.29	0.59	0.27	0.27
Control Delay	71.6	45.2	24.0	19.0	49.2	6.4	26.8	31.4	57.4	39.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.6	45.2	24.0	19.0	49.2	6.4	26.8	31.4	57.4	39.3	0.4
LOS	E	D	C	B	D	A	C	C	E	D	A
Approach Delay		51.1			38.2			29.1		23.1	
Approach LOS		D			D			C		C	

Intersection Summary

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 39.0
Intersection Capacity Utilization 75.2%
Analysis Period (min) 15
Intersection LOS: D
ICU Level of Service D























Splits and Phases: 5: Harvest Rd & E. Jewell Ave



HCM 6th Signalized Intersection Summary

5: Harvest Rd & E. Jewell Ave

2040 Background Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	425	964	110	27	1200	398	269	211	64	209	116	400
Future Volume (veh/h)	425	964	110	27	1200	398	269	211	64	209	116	400
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	447	1015	116	28	1263	419	283	222	67	220	122	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	509	2280	708	259	1656	514	520	754	222	287	421	
Arrive On Green	0.15	0.45	0.45	0.03	0.32	0.32	0.14	0.28	0.28	0.08	0.22	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	2707	797	3456	1870	1585
Grp Volume(v), veh/h	447	1015	116	28	1263	419	283	144	145	220	122	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	1777	1727	1728	1870	1585
Q Serve(g_s), s	15.2	16.5	5.2	1.2	26.6	29.1	14.1	7.6	7.9	7.5	6.5	0.0
Cycle Q Clear(g_c), s	15.2	16.5	5.2	1.2	26.6	29.1	14.1	7.6	7.9	7.5	6.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h	509	2280	708	259	1656	514	520	495	481	287	421	
V/C Ratio(X)	0.88	0.45	0.16	0.11	0.76	0.81	0.54	0.29	0.30	0.77	0.29	
Avail Cap(c_a), veh/h	576	2280	708	318	1656	514	574	495	481	576	421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.1	22.9	19.8	25.8	36.4	37.2	28.0	34.0	34.1	53.9	38.6	0.0
Incr Delay (d2), s/veh	13.3	0.6	0.5	0.2	3.4	13.3	0.9	1.5	1.6	4.3	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	6.4	2.0	0.5	11.1	12.7	5.9	3.4	3.5	3.3	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.4	23.6	20.3	26.0	39.8	50.5	28.8	35.5	35.7	58.2	40.3	0.0
LnGrp LOS	E	C	C	C	D	D	C	D	D	E	D	
Approach Vol, veh/h	1578				1710				572		342	
Approach Delay, s/veh	34.6				42.2				32.3		51.8	
Approach LOS	C				D				C		D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	58.6	21.4	32.0	22.7	43.9	15.0	38.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	46.0	20.0	27.0	20.0	33.0	20.0	27.0				
Max Q Clear Time (g_c+I1), s	3.2	18.5	16.1	8.5	17.2	31.1	9.5	9.9				
Green Ext Time (p_c), s	0.0	7.8	0.3	0.5	0.5	1.5	0.5	1.3				

Intersection Summary













HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Volume - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Background Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	72	258	18	3	361	33	55	48	10	26	15	122
Future Volume (vph)	72	258	18	3	361	33	55	48	10	26	15	122
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	76	272	19	3	380	35	58	51	11	27	16	128
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	367	0	0	418	0	0	120	0	0	171	0
Intersection Summary												

Intersection				
Intersection Delay, s/veh	6.1			
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	367	418	120	171
Demand Flow Rate, veh/h	374	427	122	175
Vehicles Circulating, veh/h	47	189	383	450
Vehicles Exiting, veh/h	578	316	38	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.3	7.0	5.2	6.3
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	374	427	122	175
Cap Entry Lane, veh/h	1315	1138	934	872
Entry HV Adj Factor	0.980	0.980	0.983	0.975
Flow Entry, veh/h	367	418	120	171
Cap Entry, veh/h	1289	1115	918	851
V/C Ratio	0.284	0.375	0.131	0.201
Control Delay, s/veh	5.3	7.0	5.2	6.3
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	1

Intersection						
Intersection Delay, s/veh	4.6					
Intersection LOS	A					
Approach	EB		WB		NB	
Entry Lanes	2		2		1	
Conflicting Circle Lanes	2		2		2	
Adj Approach Flow, veh/h	367		418		120	
Demand Flow Rate, veh/h	374		427		122	
Vehicles Circulating, veh/h	47		189		383	
Vehicles Exiting, veh/h	578		316		38	
Ped Vol Crossing Leg, #/h	0		0		0	
Ped Cap Adj	1.000		1.000		1.000	
Approach Delay, s/veh	3.9		4.7		4.6	
Approach LOS	A		A		A	
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.471	0.529	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	176	198	201	226	122	175
Cap Entry Lane, veh/h	1293	1364	1134	1209	1025	969
Entry HV Adj Factor	0.979	0.981	0.978	0.981	0.983	0.975
Flow Entry, veh/h	172	194	197	222	120	171
Cap Entry, veh/h	1265	1339	1110	1187	1008	945
V/C Ratio	0.136	0.145	0.177	0.187	0.119	0.181
Control Delay, s/veh	4.0	3.9	4.8	4.7	4.6	5.6
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	1	1	1	0	1

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	284	10	1	367	31	2
Future Vol, veh/h	284	10	1	367	31	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	299	11	1	386	33	2
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	310	0	500	155
Stage 1	-	-	-	-	305	-
Stage 2	-	-	-	-	195	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1247	-	500	863
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	819	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1247	-	500	863
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	818	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0		11.5	
HCM LOS					B	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	587	-	-	1247	-	
HCM Lane V/C Ratio	0.059	-	-	0.001	-	
HCM Control Delay (s)	11.5	-	-	7.9	-	
HCM Lane LOS	B	-	-	A	-	
HCM 95th %tile Q(veh)	0.2	-	-	0	-	

Volume - One Lane
10: E. Yale Ave & Harvest Rd









2040 Background Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	132	156	238	26	11	121
Future Volume (vph)	132	156	238	26	11	121
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	139	164	251	27	12	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	303	278	0	139	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	4.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	303	278	139
Demand Flow Rate, veh/h	309	284	142
Vehicles Circulating, veh/h	12	142	256
Vehicles Exiting, veh/h	386	179	170
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.6	5.2	4.7
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	309	284	142
Cap Entry Lane, veh/h	1363	1194	1063
Entry HV Adj Factor	0.980	0.979	0.979
Flow Entry, veh/h	303	278	139
Cap Entry, veh/h	1335	1169	1040
V/C Ratio	0.227	0.238	0.134
Control Delay, s/veh	4.6	5.2	4.7
LOS	A	A	A
95th %tile Queue, veh	1	1	0





Intersection					
Intersection Delay, s/veh	3.9				
Intersection LOS	A				
Approach	EB		WB		SB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	303		278		139
Demand Flow Rate, veh/h	309		284		142
Vehicles Circulating, veh/h	12		142		256
Vehicles Exiting, veh/h	386		179		170
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	3.6		4.0		4.3
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.469	0.531	0.468	0.532	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	145	164	133	151	142
Cap Entry Lane, veh/h	1335	1406	1185	1259	1142
Entry HV Adj Factor	0.981	0.978	0.982	0.976	0.979
Flow Entry, veh/h	142	160	131	147	139
Cap Entry, veh/h	1310	1375	1164	1228	1118
V/C Ratio	0.109	0.117	0.112	0.120	0.124
Control Delay, s/veh	3.6	3.5	4.0	3.9	4.3
LOS	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	2	43	0	0	1	231	32	0	260	4
Future Vol, veh/h	10	1	2	43	0	0	1	231	32	0	260	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	1	2	45	0	0	1	243	34	0	274	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	538	555	276	540	540	260	278	0	0	277	0	0
Stage 1	276	276	-	262	262	-	-	-	-	-	-	-
Stage 2	262	279	-	278	278	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	454	440	763	453	449	779	1285	-	-	1286	-	-
Stage 1	730	682	-	743	691	-	-	-	-	-	-	-
Stage 2	743	680	-	728	680	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	454	440	763	451	449	779	1285	-	-	1286	-	-
Mov Cap-2 Maneuver	454	440	-	451	449	-	-	-	-	-	-	-
Stage 1	729	682	-	742	690	-	-	-	-	-	-	-
Stage 2	742	679	-	725	680	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.6		13.9		0		0	
HCM LOS	B		B					





Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1285	-	-	454	613	451	-	1286	-	-
HCM Lane V/C Ratio	0.001	-	-	0.023	0.005	0.1	-	-	-	-
HCM Control Delay (s)	7.8	-	-	13.1	10.9	13.9	0	0	-	-
HCM Lane LOS	A	-	-	B	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.3	-	0	-	-









Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	33	43	0	1	1
Future Vol, veh/h	0	33	43	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	35	45	0	1	1

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	45	0	80
Stage 1	-	-	45
Stage 2	-	-	35
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1563	-	922
Stage 1	-	-	977
Stage 2	-	-	987
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1563	-	922
Mov Cap-2 Maneuver	-	-	922
Stage 1	-	-	977
Stage 2	-	-	987

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1563	-	-	-	971
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	32	35	5	13	8
Future Vol, veh/h	3	32	35	5	13	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	34	37	5	14	8
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	42	0	-	0	80	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	40	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1567	-	-	-	922	1031
Stage 1	-	-	-	-	982	-
Stage 2	-	-	-	-	982	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1567	-	-	-	920	1031
Mov Cap-2 Maneuver	-	-	-	-	920	-
Stage 1	-	-	-	-	980	-
Stage 2	-	-	-	-	982	-
Approach	EB	WB		SB		
HCM Control Delay, s	0.6	0		8.8		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1567	-	-	-	959	
HCM Lane V/C Ratio	0.002	-	-	-	0.023	
HCM Control Delay (s)	7.3	-	-	-	8.8	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	0	-	-	-	0.1	

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	0	5	18	0	77	2	210	10	26	105	38
Future Vol, veh/h	40	0	5	18	0	77	2	210	10	26	105	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	0	5	19	0	81	2	221	11	27	111	40






Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	456	421	131	419	436	227	151	0	0	232	0	0
Stage 1	185	185	-	231	231	-	-	-	-	-	-	-
Stage 2	271	236	-	188	205	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	542	543	979	575	532	812	1450	-	-	1336	-	-
Stage 1	861	767	-	772	713	-	-	-	-	-	-	-
Stage 2	735	710	-	857	752	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	480	531	979	562	521	812	1450	-	-	1336	-	-
Mov Cap-2 Maneuver	480	531	-	562	521	-	-	-	-	-	-	-
Stage 1	860	752	-	771	712	-	-	-	-	-	-	-
Stage 2	661	709	-	835	737	-	-	-	-	-	-	-






Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.7		10.2		0.1		1.2	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1450	-	-	480	979	562	812	1336	-	-
HCM Lane V/C Ratio	0.001	-	-	0.088	0.005	0.034	0.1	0.02	-	-
HCM Control Delay (s)	7.5	-	-	13.2	8.7	11.6	9.9	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0	0.1	0.3	0.1	-	-

HCM 6th TWSC
15: S Flatrock Trail & S Eaton Pkway



















2040 Background Traffic
AM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	6	2	151	157	1
Future Vol, veh/h	3	6	2	151	157	1
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	6	2	159	165	1
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	329	166	166	0	-	0
Stage 1	166	-	-	-	-	-
Stage 2	163	-	-	-	-	-
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	665	878	1412	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	664	878	1412	-	-	-
Mov Cap-2 Maneuver	697	-	-	-	-	-
Stage 1	862	-	-	-	-	-
Stage 2	866	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.5	0.1		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1412	-	808	-	-	
HCM Lane V/C Ratio	0.001	-	0.012	-	-	
HCM Control Delay (s)	7.6	-	9.5	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	31	191	7	11	117
Future Vol, veh/h	19	31	191	7	11	117
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	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	33	201	7	12	123
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	352	205	0	0	208	0
Stage 1	205	-	-	-	-	-
Stage 2	147	-	-	-	-	-
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	646	836	-	-	1363	-
Stage 1	829	-	-	-	-	-
Stage 2	880	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	640	836	-	-	1363	-
Mov Cap-2 Maneuver	640	-	-	-	-	-
Stage 1	829	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10	0	0.7			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 640 836	1363	-		
HCM Lane V/C Ratio	-	- 0.031 0.039	0.008	-		
HCM Control Delay (s)	-	- 10.8 9.5	7.7	-		
HCM Lane LOS	-	- B A	A	-		
HCM 95th %tile Q(veh)	-	- 0.1 0.1	0	-		

Timings
4: S Flatrock Trail & E. Jewell Ave

2040 Background Traffic
PM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	209	2086	262	31	2042	170	0	6	0
Future Volume (vph)	209	2086	262	31	2042	170	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases	2		2	6		8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	8.0	8.0	8.0	8.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	23.0	23.0	23.0
Total Split (s)	22.0	67.0	67.0	12.0	57.0	41.0	41.0	41.0	41.0
Total Split (%)	18.3%	55.8%	55.8%	10.0%	47.5%	34.2%	34.2%	34.2%	34.2%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	C-Max	C-Max	None	C-Max	Max	Max	Max	Max
Act Effect Green (s)	74.0	67.0	67.0	61.0	54.7	36.0	36.0	36.0	36.0
Actuated g/C Ratio	0.62	0.56	0.56	0.51	0.46	0.30	0.30	0.30	0.30
v/c Ratio	0.81	0.77	0.28	0.21	0.93	0.52	0.04	0.01	0.24
Control Delay	49.8	8.6	1.4	18.2	34.7	41.3	0.1	29.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	8.6	1.4	18.2	34.7	41.3	0.1	29.8	2.0
LOS	D	A	A	B	C	D	A	C	A
Approach Delay		11.2			34.5		37.0		3.1
Approach LOS		B			C		D		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 58 (48%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.93
 Intersection Signal Delay: 21.7
 Intersection Capacity Utilization 86.0%
 Analysis Period (min) 15


























Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave
































HCM 6th Signalized Intersection Summary 4: S Flatrock Trail & E. Jewell Ave

2040 Background Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	209	2086	262	31	2042	6	170	0	20	6	0	141
Future Volume (veh/h)	209	2086	262	31	2042	6	170	0	20	6	0	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	2196	276	33	2149	6	179	0	21	6	0	148
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	250	2794	867	137	2530	7	343	0	476	464	0	476
Arrive On Green	0.09	0.55	0.55	0.03	0.48	0.48	0.30	0.00	0.30	0.30	0.00	0.30
Sat Flow, veh/h	1781	5106	1585	1781	5257	15	1240	0	1585	1391	0	1585
Grp Volume(v), veh/h	220	2196	276	33	1391	764	179	0	21	6	0	148
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1868	1240	0	1585	1391	0	1585
Q Serve(g_s), s	9.0	41.0	11.5	1.1	43.0	43.1	15.6	0.0	1.1	0.4	0.0	8.7
Cycle Q Clear(g_c), s	9.0	41.0	11.5	1.1	43.0	43.1	24.3	0.0	1.1	1.5	0.0	8.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	250	2794	867	137	1638	899	343	0	476	464	0	476
V/C Ratio(X)	0.88	0.79	0.32	0.24	0.85	0.85	0.52	0.00	0.04	0.01	0.00	0.31
Avail Cap(c_a), veh/h	335	2794	867	192	1638	899	343	0	476	464	0	476
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.5	21.6	14.9	20.8	27.3	27.3	41.8	0.0	29.8	30.3	0.0	32.4
Incr Delay (d2), s/veh	18.3	2.3	1.0	0.9	5.7	9.9	5.6	0.0	0.2	0.1	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	15.4	4.1	0.5	17.5	20.2	5.3	0.0	0.5	0.1	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	23.9	15.9	21.7	33.0	37.2	47.4	0.0	30.0	30.4	0.0	34.1
LnGrp LOS	D	C	B	C	C	D	D	A	C	C	A	C
Approach Vol, veh/h		2692			2188			200			154	
Approach Delay, s/veh		25.3			34.3			45.6			34.0	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.3	70.7		41.0	16.3	62.7		41.0				
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	5.0		5.0				
Max Green Setting (Gmax), s	7.0	62.0		36.0	17.0	52.0		36.0				
Max Q Clear Time (g_c+I1), s	3.1	43.0		10.7	11.0	45.1		26.3				
Green Ext Time (p_c), s	0.0	15.1		0.9	0.3	5.9		0.5				
Intersection Summary												
HCM 6th Ctrl Delay			30.1									
HCM 6th LOS			C									

Timings
5: Harvest Rd & E. Jewell Ave

2040 Background Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  			  			 	 		
Traffic Volume (vph)	408	1376	328	59	1289	286	339	235	368	281	452
Future Volume (vph)	408	1376	328	59	1289	286	339	235	368	281	452
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2	6		6	8				Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0	
Total Split (s)	25.0	51.0	51.0	12.0	38.0	38.0	25.0	32.0	25.0	32.0	
Total Split (%)	20.8%	42.5%	42.5%	10.0%	31.7%	31.7%	20.8%	26.7%	20.8%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	
Act Effect Green (s)	18.7	48.4	48.4	41.0	34.3	34.3	48.5	29.1	17.9	27.6	120.0
Actuated g/C Ratio	0.16	0.40	0.40	0.34	0.29	0.29	0.40	0.24	0.15	0.23	1.00
v/c Ratio	0.80	0.71	0.41	0.39	0.93	0.45	0.86	0.36	0.76	0.69	0.30
Control Delay	71.8	40.5	14.4	25.9	54.4	6.1	46.2	36.9	58.9	52.1	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
Total Delay	71.8	40.5	14.4	25.9	54.4	6.1	46.2	36.9	58.9	52.1	0.5
LOS	E	D	B	C	D	A	D	D	E	D	A
Approach Delay		42.5			45.0			41.9		33.2	
Approach LOS		D			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 41.3

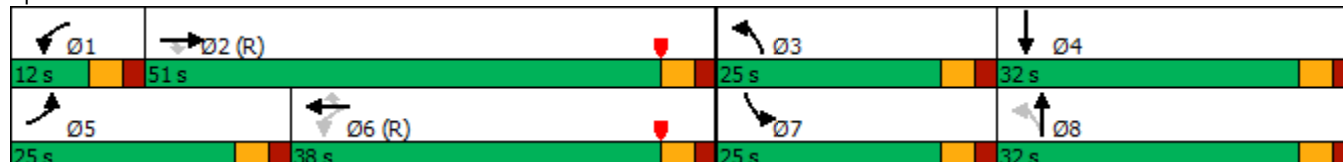
Intersection LOS: D

Intersection Capacity Utilization 86.8%

ICU Level of Service E

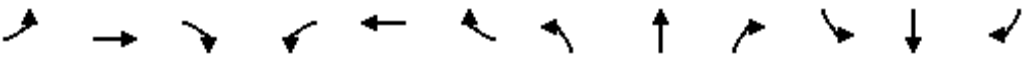
Analysis Period (min) 15

Splits and Phases: 5: Harvest Rd & E. Jewell Ave



HCM 6th Signalized Intersection Summary 5: Harvest Rd & E. Jewell Ave

2040 Background Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗	↗	↑↑↑	↗	↗	↑↑		↔↔	↑	↗
Traffic Volume (veh/h)	408	1376	328	59	1289	286	339	235	53	368	281	452
Future Volume (veh/h)	408	1376	328	59	1289	286	339	235	53	368	281	452
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	429	1448	345	62	1357	301	357	247	56	387	296	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	493	2070	642	170	1527	474	443	752	167	454	421	
Arrive On Green	0.14	0.41	0.41	0.04	0.30	0.30	0.17	0.26	0.26	0.13	0.22	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	2888	643	3456	1870	1585
Grp Volume(v), veh/h	429	1448	345	62	1357	301	357	150	153	387	296	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	1777	1755	1728	1870	1585
Q Serve(g_s), s	14.6	28.2	19.9	2.9	30.4	19.7	18.0	8.2	8.5	13.1	17.5	0.0
Cycle Q Clear(g_c), s	14.6	28.2	19.9	2.9	30.4	19.7	18.0	8.2	8.5	13.1	17.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	493	2070	642	170	1527	474	443	462	457	454	421	
V/C Ratio(X)	0.87	0.70	0.54	0.37	0.89	0.63	0.81	0.32	0.33	0.85	0.70	
Avail Cap(c_a), veh/h	576	2070	642	209	1527	474	443	462	457	576	421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	29.6	27.1	28.8	40.1	36.4	29.0	35.9	36.0	51.0	42.8	0.0
Incr Delay (d2), s/veh	12.2	2.0	3.2	1.3	8.1	6.4	10.5	1.9	2.0	9.7	9.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	11.3	7.7	1.3	13.3	8.2	8.6	3.7	3.8	6.1	8.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	31.6	30.3	30.1	48.2	42.7	39.6	37.7	37.9	60.7	52.3	0.0
LnGrp LOS	E	C	C	C	D	D	D	D	D	E	D	
Approach Vol, veh/h		2222			1720			660			683	
Approach Delay, s/veh		37.4			46.6			38.8			57.1	
Approach LOS		D			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.4	53.6	25.0	32.0	22.1	40.9	20.8	36.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	46.0	20.0	27.0	20.0	33.0	20.0	27.0				
Max Q Clear Time (g_c+I1), s	4.9	30.2	20.0	19.5	16.6	32.4	15.1	10.5				
Green Ext Time (p_c), s	0.0	9.6	0.0	0.9	0.5	0.5	0.6	1.4				

Intersection Summary













HCM 6th Ctrl Delay	43.1
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Volume - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Background Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	106	505	59	11	405	9	34	30	6	12	51	67
Future Volume (vph)	106	505	59	11	405	9	34	30	6	12	51	67
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	112	532	62	12	426	9	36	32	6	13	54	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	706	0	0	447	0	0	74	0	0	138	0
Intersection Summary												

Intersection				
Intersection Delay, s/veh	8.2			
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	706	447	74	138
Demand Flow Rate, veh/h	720	456	76	140
Vehicles Circulating, veh/h	80	184	670	484
Vehicles Exiting, veh/h	544	562	130	156
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.4	7.3	6.5	6.0
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	720	456	76	140
Cap Entry Lane, veh/h	1272	1144	697	842
Entry HV Adj Factor	0.981	0.981	0.978	0.985
Flow Entry, veh/h	706	447	74	138
Cap Entry, veh/h	1248	1122	682	830
V/C Ratio	0.566	0.399	0.109	0.166
Control Delay, s/veh	9.4	7.3	6.5	6.0
LOS	A	A	A	A
95th %tile Queue, veh	4	2	0	1

Intersection						
Intersection Delay, s/veh	5.2					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	706		447		74	138
Demand Flow Rate, veh/h	720		456		76	140
Vehicles Circulating, veh/h	80		184		670	484
Vehicles Exiting, veh/h	544		562		130	156
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	5.3		4.8		5.5	5.3
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.469	0.531	0.469	0.531	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	338	382	214	242	76	140
Cap Entry Lane, veh/h	1254	1327	1140	1214	803	941
Entry HV Adj Factor	0.982	0.980	0.983	0.980	0.978	0.985
Flow Entry, veh/h	332	374	210	237	74	138
Cap Entry, veh/h	1232	1300	1120	1190	786	927
V/C Ratio	0.270	0.288	0.188	0.199	0.095	0.149
Control Delay, s/veh	5.3	5.3	4.9	4.8	5.5	5.3
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	1

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	490	33	2	406	19	1
Future Vol, veh/h	490	33	2	406	19	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	516	35	2	427	20	1

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	551	0	752	276
Stage 1	-	-	-	-	534	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	1015	-	346	721
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	797	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1015	-	345	721
Mov Cap-2 Maneuver	-	-	-	-	444	-
Stage 1	-	-	-	-	552	-
Stage 2	-	-	-	-	795	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	453	-	-	1015	-
HCM Lane V/C Ratio	0.046	-	-	0.002	-
HCM Control Delay (s)	13.3	-	-	8.6	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Volume - One Lane
10: E. Yale Ave & Harvest Rd









2040 Background Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	209	275	212	22	27	195
Future Volume (vph)	209	275	212	22	27	195
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	220	289	223	23	28	205
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	509	246	0	233	0
Intersection Summary						

Intersection			
Intersection Delay, s/veh	5.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	509	246	233
Demand Flow Rate, veh/h	519	250	238
Vehicles Circulating, veh/h	29	224	227
Vehicles Exiting, veh/h	436	324	247
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.4	5.5	5.4
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	519	250	238
Cap Entry Lane, veh/h	1340	1098	1095
Entry HV Adj Factor	0.981	0.982	0.979
Flow Entry, veh/h	509	246	233
Cap Entry, veh/h	1314	1078	1072
V/C Ratio	0.387	0.228	0.217
Control Delay, s/veh	6.4	5.5	5.4
LOS	A	A	A
95th %tile Queue, veh	2	1	1





Intersection					
Intersection Delay, s/veh	4.4				
Intersection LOS	A				
Approach	EB		WB		SB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	509		246		233
Demand Flow Rate, veh/h	519		250		238
Vehicles Circulating, veh/h	29		224		227
Vehicles Exiting, veh/h	436		324		247
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.3		4.2		5.0
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.472	0.528	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	244	275	118	132	238
Cap Entry Lane, veh/h	1314	1386	1098	1174	1171
Entry HV Adj Factor	0.981	0.981	0.978	0.986	0.979
Flow Entry, veh/h	239	270	115	130	233
Cap Entry, veh/h	1289	1360	1074	1157	1146
V/C Ratio	0.186	0.198	0.107	0.112	0.203
Control Delay, s/veh	4.4	4.3	4.3	4.1	5.0
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	1

Intersection												
Int Delay, s/veh	0.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	1	1	12	1	0	2	153	18	0	143	12
Future Vol, veh/h	7	1	1	12	1	0	2	153	18	0	143	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1	1	13	1	0	2	161	19	0	151	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	333	342	158	334	339	171	164	0	0	180	0	0
Stage 1	158	158	-	175	175	-	-	-	-	-	-	-
Stage 2	175	184	-	159	164	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	620	580	887	620	582	873	1414	-	-	1396	-	-
Stage 1	844	767	-	827	754	-	-	-	-	-	-	-
Stage 2	827	747	-	843	762	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	619	579	887	618	581	873	1414	-	-	1396	-	-
Mov Cap-2 Maneuver	619	579	-	618	581	-	-	-	-	-	-	-
Stage 1	843	767	-	826	753	-	-	-	-	-	-	-
Stage 2	825	746	-	841	762	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.7		10.9		0.1		0	
HCM LOS	B		B					





Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1414	-	-	619	701	618	581	1396	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.003	0.02	0.002	-	-	-
HCM Control Delay (s)	7.5	-	-	10.9	10.2	10.9	11.2	0	-	-
HCM Lane LOS	A	-	-	B	B	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	0	0	-	-









Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	17	13	2	1	1
Future Vol, veh/h	1	17	13	2	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	18	14	2	1	1

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	16	0	-	0	35
Stage 1	-	-	-	-	15
Stage 2	-	-	-	-	20
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1602	-	-	-	978
Stage 1	-	-	-	-	1008
Stage 2	-	-	-	-	1003
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1602	-	-	-	977
Mov Cap-2 Maneuver	-	-	-	-	977
Stage 1	-	-	-	-	1007
Stage 2	-	-	-	-	1003

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1602	-	-	-	1019
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.2	-	-	-	8.5
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	3.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	9	9	15	9	5
Future Vol, veh/h	9	9	9	15	9	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	9	9	16	9	5
Major/Minor	Major1	Major2		Minor2		
Conflicting Flow All	25	0	-	0	44	17
Stage 1	-	-	-	-	17	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1589	-	-	-	967	1062
Stage 1	-	-	-	-	1006	-
Stage 2	-	-	-	-	996	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1589	-	-	-	961	1062
Mov Cap-2 Maneuver	-	-	-	-	961	-
Stage 1	-	-	-	-	1000	-
Stage 2	-	-	-	-	996	-
Approach	EB	WB		SB		
HCM Control Delay, s	3.6	0		8.7		
HCM LOS	A					
Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	
Capacity (veh/h)	1589	-	-	-	995	
HCM Lane V/C Ratio	0.006	-	-	-	0.015	
HCM Control Delay (s)	7.3	-	-	-	8.7	
HCM Lane LOS	A	-	-	-	A	
HCM 95th %tile Q(veh)	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	15	0	3	26	0	49	6	213	32	86	260	19
Future Vol, veh/h	15	0	3	26	0	49	6	213	32	86	260	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	3	27	0	52	6	224	34	91	274	20

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	745	736	284	721	729	241	294	0	0	258	0	0
Stage 1	466	466	-	253	253	-	-	-	-	-	-	-
Stage 2	279	270	-	468	476	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	352	356	*875	369	360	798	1304	-	-	1307	-	-
Stage 1	633	582	-	751	698	-	-	-	-	-	-	-
Stage 2	728	686	-	631	575	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	310	329	*875	347	333	798	1304	-	-	1307	-	-
Mov Cap-2 Maneuver	310	329	-	347	333	-	-	-	-	-	-	-
Stage 1	629	542	-	747	695	-	-	-	-	-	-	-
Stage 2	678	683	-	585	535	-	-	-	-	-	-	-






Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.8		12.1		0.2		1.9	
HCM LOS	C		B					






Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1304	-	-	310	875	347	798	1307	-	-
HCM Lane V/C Ratio	0.005	-	-	0.051	0.004	0.079	0.065	0.069	-	-
HCM Control Delay (s)	7.8	-	-	17.2	9.1	16.3	9.8	8	-	-
HCM Lane LOS	A	-	-	C	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.3	0.2	0.2	-	-

Notes												
~: Volume exceeds capacity			\$: Delay exceeds 300s			+: Computation Not Defined			*: All major volume in platoon			

HCM 6th TWSC
15: S Flatrock Trail & S Eaton Pkway
























2040 Background Traffic
PM Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	4	7	138	125	3
Future Vol, veh/h	2	4	7	138	125	3
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	-	200	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	2	4	7	145	132	3
Major/Minor	Minor2	Major1		Major2		
Conflicting Flow All	293	134	135	0	-	0
Stage 1	134	-	-	-	-	-
Stage 2	159	-	-	-	-	-
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	698	915	1449	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	695	915	1449	-	-	-
Mov Cap-2 Maneuver	718	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Approach	EB	NB		SB		
HCM Control Delay, s	9.3	0.4		0		
HCM LOS	A					
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR	
Capacity (veh/h)	1449	-	838	-	-	
HCM Lane V/C Ratio	0.005	-	0.008	-	-	
HCM Control Delay (s)	7.5	-	9.3	-	-	
HCM Lane LOS	A	-	A	-	-	
HCM 95th %tile Q(veh)	0	-	0	-	-	

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	21	229	20	35	254
Future Vol, veh/h	12	21	229	20	35	254
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	-	-	200	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	22	241	21	37	267
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	593	252	0	0	262	0
Stage 1	252	-	-	-	-	-
Stage 2	341	-	-	-	-	-
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	468	787	-	-	1302	-
Stage 1	790	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	455	787	-	-	1302	-
Mov Cap-2 Maneuver	455	-	-	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Approach	WB	NB	SB			
HCM Control Delay, s	10.9	0	1			
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1WBLn2	SBL	SBT		
Capacity (veh/h)	-	- 455 787 1302	-	-		
HCM Lane V/C Ratio	-	- 0.028 0.028 0.028	-	-		
HCM Control Delay (s)	-	- 13.1 9.7 7.8	-	-		
HCM Lane LOS	-	- B A A	-	-		
HCM 95th %tile Q(veh)	-	- 0.1 0.1 0.1	-	-		

Timings
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		  			  	 			
Traffic Volume (vph)	81	1453	249	29	1836	410	0	4	0
Future Volume (vph)	81	1453	249	29	1836	410	0	4	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	2		2	6				4	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	10.0	5.0	10.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0
Total Split (s)	12.0	55.0	55.0	12.0	55.0	26.0	40.0	13.0	27.0
Total Split (%)	10.0%	45.8%	45.8%	10.0%	45.8%	21.7%	33.3%	10.8%	22.5%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	59.1	54.9	54.9	57.7	52.4	19.1	45.8	29.6	23.9
Actuated g/C Ratio	0.49	0.46	0.46	0.48	0.44	0.16	0.38	0.25	0.20
v/c Ratio	0.51	0.66	0.30	0.19	0.87	0.79	0.06	0.01	0.38
Control Delay	42.6	43.0	16.7	11.1	37.6	59.6	0.1	23.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	43.0	16.7	11.1	37.6	59.6	0.1	23.5	11.1
LOS	D	D	B	B	D	E	A	C	B
Approach Delay		39.3			37.2		54.1		11.4
Approach LOS		D			D		D		B

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 38.9

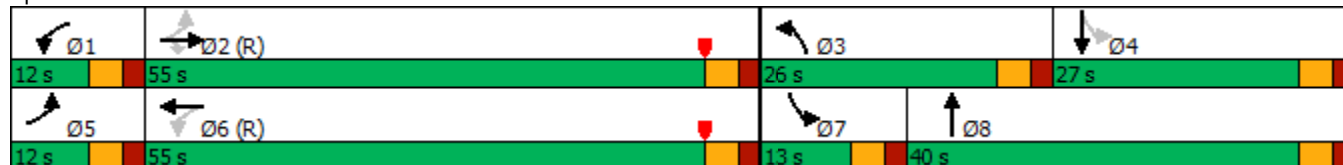
Intersection LOS: D

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15



























Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave



HCM 6th Signalized Intersection Summary























4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 					
Traffic Volume (veh/h)	81	1453	249	29	1836	4	410	0	42	4	0	161
Future Volume (veh/h)	81	1453	249	29	1836	4	410	0	42	4	0	161
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	1529	262	31	1933	4	432	0	44	4	0	169
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	166	2444	759	175	2453	5	499	0	511	319	0	291
Arrive On Green	0.04	0.48	0.48	0.03	0.47	0.47	0.14	0.00	0.32	0.01	0.00	0.18
Sat Flow, veh/h	1781	5106	1585	1781	5262	11	3456	0	1585	1781	0	1585
Grp Volume(v), veh/h	85	1529	262	31	1251	686	432	0	44	4	0	169
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1868	1728	0	1585	1781	0	1585
Q Serve(g_s), s	3.0	26.7	12.4	1.1	37.2	37.2	14.7	0.0	2.3	0.2	0.0	11.7
Cycle Q Clear(g_c), s	3.0	26.7	12.4	1.1	37.2	37.2	14.7	0.0	2.3	0.2	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	166	2444	759	175	1587	871	499	0	511	319	0	291
V/C Ratio(X)	0.51	0.63	0.35	0.18	0.79	0.79	0.87	0.00	0.09	0.01	0.00	0.58
Avail Cap(c_a), veh/h	200	2444	759	231	1587	871	605	0	511	429	0	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	23.3	19.5	18.7	27.0	27.0	50.2	0.0	28.3	39.6	0.0	44.8
Incr Delay (d2), s/veh	2.4	1.2	1.2	0.5	4.0	7.1	10.8	0.0	0.3	0.0	0.0	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	10.3	4.7	0.4	14.9	17.2	7.0	0.0	0.9	0.1	0.0	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	24.5	20.8	19.2	31.1	34.2	61.0	0.0	28.6	39.6	0.0	53.0
LnGrp LOS	C	C	C	B	C	C	E	A	C	D	A	D
Approach Vol, veh/h	1876				1968		476				173	
Approach Delay, s/veh	24.1				31.9		58.0				52.7	
Approach LOS	C				C		E				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	62.4	22.3	27.0	9.7	61.0	5.6	43.7				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	50.0	21.0	22.0	7.0	50.0	8.0	35.0				
Max Q Clear Time (g_c+I1), s	3.1	28.7	16.7	13.7	5.0	39.2	2.2	4.3				
Green Ext Time (p_c), s	0.0	11.8	0.7	0.5	0.0	8.1	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			32.2									
HCM 6th LOS			C									

Timings
5: Harvest Rd & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations											
Traffic Volume (vph)	425	964	110	29	1200	398	269	224	209	121	400
Future Volume (vph)	425	964	110	29	1200	398	269	224	209	121	400
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2	6		6	8				Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0	
Total Split (s)	25.0	51.0	51.0	12.0	38.0	38.0	25.0	32.0	25.0	32.0	
Total Split (%)	20.8%	42.5%	42.5%	10.0%	31.7%	31.7%	20.8%	26.7%	20.8%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	
Act Effect Green (s)	18.9	50.9	50.9	40.5	34.1	34.1	51.2	34.0	13.0	29.7	120.0
Actuated g/C Ratio	0.16	0.42	0.42	0.34	0.28	0.28	0.43	0.28	0.11	0.25	1.00
v/c Ratio	0.83	0.47	0.16	0.13	0.88	0.56	0.52	0.31	0.59	0.28	0.27
Control Delay	45.5	12.1	4.2	19.1	49.2	6.4	26.9	31.8	57.4	39.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	12.1	4.2	19.1	49.2	6.4	26.9	31.8	57.4	39.5	0.4
LOS	D	B	A	B	D	A	C	C	E	D	A
Approach Delay		21.0			38.2			29.4		23.2	
Approach LOS		C			D			C		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 28.8

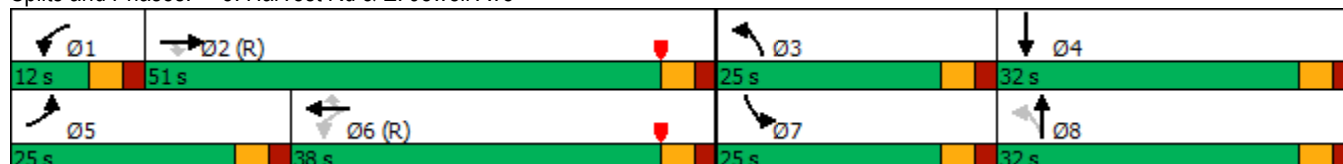
Intersection LOS: C

Intersection Capacity Utilization 75.2%

ICU Level of Service D

Analysis Period (min) 15

























Splits and Phases: 5: Harvest Rd & E. Jewell Ave



HCM 6th Signalized Intersection Summary

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	425	964	110	29	1200	398	269	224	70	209	121	400
Future Volume (veh/h)	425	964	110	29	1200	398	269	224	70	209	121	400
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	447	1015	116	31	1263	419	283	236	74	220	127	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	509	2272	705	261	1656	514	516	746	228	287	421	
Arrive On Green	0.15	0.44	0.44	0.03	0.32	0.32	0.14	0.28	0.28	0.08	0.22	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	2680	820	3456	1870	1585
Grp Volume(v), veh/h	447	1015	116	31	1263	419	283	155	155	220	127	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	1777	1723	1728	1870	1585
Q Serve(g_s), s	15.2	16.5	5.3	1.4	26.6	29.1	14.1	8.2	8.6	7.5	6.8	0.0
Cycle Q Clear(g_c), s	15.2	16.5	5.3	1.4	26.6	29.1	14.1	8.2	8.6	7.5	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	509	2272	705	261	1656	514	516	495	480	287	421	
V/C Ratio(X)	0.88	0.45	0.16	0.12	0.76	0.81	0.55	0.31	0.32	0.77	0.30	
Avail Cap(c_a), veh/h	576	2272	705	317	1656	514	570	495	480	576	421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.1	23.1	19.9	25.7	36.4	37.2	28.0	34.2	34.3	53.9	38.7	0.0
Incr Delay (d2), s/veh	13.3	0.6	0.5	0.2	3.4	13.3	0.9	1.6	1.8	4.3	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	6.4	2.0	0.6	11.1	12.7	5.9	3.7	3.7	3.3	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.4	23.7	20.5	25.9	39.8	50.5	28.9	35.8	36.1	58.2	40.5	0.0
LnGrp LOS	E	C	C	C	D	D	C	D	D	E	D	
Approach Vol, veh/h	1578			1713			593			347		
Approach Delay, s/veh	34.7			42.2			32.6			51.7		
Approach LOS	C			D			C			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	58.4	21.4	32.0	22.7	43.9	15.0	38.4				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	46.0	20.0	27.0	20.0	33.0	20.0	27.0				
Max Q Clear Time (g_c+I1), s	3.4	18.5	16.1	8.8	17.2	31.1	9.5	10.6				
Green Ext Time (p_c), s	0.0	7.8	0.3	0.5	0.5	1.5	0.5	1.4				

Intersection Summary













HCM 6th Ctrl Delay	38.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Volume - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
AM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	75	269	18	3	391	33	55	48	10	26	15	131
Future Volume (vph)	75	269	18	3	391	33	55	48	10	26	15	131
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	79	283	19	3	412	35	58	51	11	27	16	138
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	381	0	0	450	0	0	120	0	0	181	0
Intersection Summary												

HCM 6th Roundabout - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
AM Peak Hour

Intersection				
Intersection Delay, s/veh	6.4			
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	381	450	120	181
Demand Flow Rate, veh/h	389	459	122	185
Vehicles Circulating, veh/h	47	192	398	482
Vehicles Exiting, veh/h	620	328	38	169
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	5.4	7.4	5.3	6.7
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	389	459	122	185
Cap Entry Lane, veh/h	1315	1134	919	844
Entry HV Adj Factor	0.980	0.980	0.983	0.977
Flow Entry, veh/h	381	450	120	181
Cap Entry, veh/h	1289	1112	904	824
V/C Ratio	0.296	0.405	0.133	0.219
Control Delay, s/veh	5.4	7.4	5.3	6.7
LOS	A	A	A	A
95th %tile Queue, veh	1	2	0	1







HCM 6th Roundabout
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
AM Peak Hour

Intersection						
Intersection Delay, s/veh	4.7					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	381		450		120	181
Demand Flow Rate, veh/h	389		459		122	185
Vehicles Circulating, veh/h	47		192		398	482
Vehicles Exiting, veh/h	620		328		38	169
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	4.0		4.9		4.7	5.8
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.470	0.530	0.471	0.529	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	183	206	216	243	122	185
Cap Entry Lane, veh/h	1293	1364	1131	1206	1012	943
Entry HV Adj Factor	0.979	0.981	0.979	0.981	0.983	0.977
Flow Entry, veh/h	179	202	211	238	120	181
Cap Entry, veh/h	1266	1339	1107	1183	996	921
V/C Ratio	0.142	0.151	0.191	0.201	0.120	0.196
Control Delay, s/veh	4.0	3.9	5.0	4.8	4.7	5.8
LOS	A	A	A	A	A	A
95th %tile Queue, veh	0	1	1	1	0	1

HCM 6th TWSC
9: Future Access/S. Gold Bug Way & E. Yale Ave

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	284	10	1	367	0	31	0	2	0	0	30
Future Vol, veh/h	11	284	10	1	367	0	31	0	2	0	0	30
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	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	299	11	1	386	0	33	0	2	0	0	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	386	0	0	310	0	0	524	717	155	562	722	193
Stage 1	-	-	-	-	-	-	329	329	-	388	388	-
Stage 2	-	-	-	-	-	-	195	388	-	174	334	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1169	-	-	1247	-	-	436	354	863	410	351	816
Stage 1	-	-	-	-	-	-	658	645	-	607	607	-
Stage 2	-	-	-	-	-	-	788	607	-	811	642	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1169	-	-	1247	-	-	416	350	863	405	347	816
Mov Cap-2 Maneuver	-	-	-	-	-	-	416	350	-	405	347	-
Stage 1	-	-	-	-	-	-	651	639	-	601	606	-
Stage 2	-	-	-	-	-	-	757	606	-	801	636	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	14.1	9.6
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	429	1169	-	-	1247	-	-	816
HCM Lane V/C Ratio	0.081	0.01	-	-	0.001	-	-	0.039
HCM Control Delay (s)	14.1	8.1	-	-	7.9	-	-	9.6
HCM Lane LOS	B	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.3	0	-	-	0	-	-	0.1

Volume - One Lane
10: E. Yale Ave & Harvest Rd

2040 Total Traffic
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	132	157	239	26	12	121
Future Volume (vph)	132	157	239	26	12	121
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	139	165	252	27	13	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	304	279	0	140	0
Intersection Summary						

HCM 6th Roundabout - One Lane
10: E. Yale Ave & Harvest Rd









2040 Total Traffic
AM Peak Hour

Intersection			
Intersection Delay, s/veh	4.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	304	279	140
Demand Flow Rate, veh/h	310	285	143
Vehicles Circulating, veh/h	13	142	257
Vehicles Exiting, veh/h	387	181	170
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.6	5.2	4.7
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	310	285	143
Cap Entry Lane, veh/h	1362	1194	1062
Entry HV Adj Factor	0.980	0.979	0.979
Flow Entry, veh/h	304	279	140
Cap Entry, veh/h	1334	1169	1039
V/C Ratio	0.228	0.239	0.135
Control Delay, s/veh	4.6	5.2	4.7
LOS	A	A	A
95th %tile Queue, veh	1	1	0

Intersection					
Intersection Delay, s/veh	3.9				
Intersection LOS	A				
Approach	EB		WB		SB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	304		279		140
Demand Flow Rate, veh/h	310		285		143
Vehicles Circulating, veh/h	13		142		257
Vehicles Exiting, veh/h	387		181		170
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	3.6		4.0		4.3
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.471	0.529	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	146	164	134	151	143
Cap Entry Lane, veh/h	1334	1405	1185	1259	1141
Entry HV Adj Factor	0.978	0.981	0.978	0.979	0.979
Flow Entry, veh/h	143	161	131	148	140
Cap Entry, veh/h	1304	1379	1159	1232	1117
V/C Ratio	0.109	0.117	0.113	0.120	0.125
Control Delay, s/veh	3.6	3.5	4.1	3.9	4.3
LOS	A	A	A	A	A
95th %tile Queue, veh	0	0	0	0	0

HCM 6th TWSC
11: S Flatrock Trail & E. Warren PI





2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	1	2	43	0	13	1	290	32	5	281	4
Future Vol, veh/h	10	1	2	43	0	13	1	290	32	5	281	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	1	2	45	0	14	1	305	34	5	296	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	639	649	298	634	634	322	300	0	0	339	0	0
Stage 1	308	308	-	324	324	-	-	-	-	-	-	-
Stage 2	331	341	-	310	310	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	389	389	741	392	397	719	1261	-	-	1220	-	-
Stage 1	702	660	-	688	650	-	-	-	-	-	-	-
Stage 2	682	639	-	700	659	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	380	387	741	388	395	719	1261	-	-	1220	-	-
Mov Cap-2 Maneuver	380	387	-	388	395	-	-	-	-	-	-	-
Stage 1	701	657	-	687	649	-	-	-	-	-	-	-
Stage 2	668	638	-	694	656	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.9		14.2		0		0.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1261	-	-	380	568	388	719	1220	-	-
HCM Lane V/C Ratio	0.001	-	-	0.028	0.006	0.117	0.019	0.004	-	-
HCM Control Delay (s)	7.9	-	-	14.7	11.4	15.5	10.1	8	-	-
HCM Lane LOS	A	-	-	B	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.4	0.1	0	-	-

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	38	56	0	1	1
Future Vol, veh/h	0	38	56	0	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	40	59	0	1	1







Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	59	0	0 99 59
Stage 1	-	-	- 59 -
Stage 2	-	-	- 40 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1545	-	- 900 1007
Stage 1	-	-	- 964 -
Stage 2	-	-	- 982 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1545	-	- 900 1007
Mov Cap-2 Maneuver	-	-	- 900 -
Stage 1	-	-	- 964 -
Stage 2	-	-	- 982 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1545	-	-	-	950
HCM Lane V/C Ratio	-	-	-	-	0.002
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0









HCM 6th TWSC
13: S Haleyville Way & E. Warren PI

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	32	5	3	35	5	13	0	8	13	0	8
Future Vol, veh/h	3	32	5	3	35	5	13	0	8	13	0	8
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	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	34	5	3	37	5	14	0	8	14	0	8
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	42	0	0	39	0	0	93	91	37	93	91	40
Stage 1	-	-	-	-	-	-	43	43	-	46	46	-
Stage 2	-	-	-	-	-	-	50	48	-	47	45	-
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	1567	-	-	1571	-	-	891	799	1035	891	799	1031
Stage 1	-	-	-	-	-	-	971	859	-	968	857	-
Stage 2	-	-	-	-	-	-	963	855	-	967	857	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1567	-	-	1571	-	-	881	796	1035	881	796	1031
Mov Cap-2 Maneuver	-	-	-	-	-	-	881	796	-	881	796	-
Stage 1	-	-	-	-	-	-	969	857	-	966	855	-
Stage 2	-	-	-	-	-	-	953	853	-	957	855	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0.5			8.9			9		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	934	1567	-	-	1571	-	-	933				
HCM Lane V/C Ratio	0.024	0.002	-	-	0.002	-	-	0.024				
HCM Control Delay (s)	8.9	7.3	-	-	7.3	-	-	9				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1				

HCM 6th TWSC
14: Harvest Rd & E. Warren Pl

2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	3.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	48	0	5	18	0	77	2	220	10	26	109	41
Future Vol, veh/h	48	0	5	18	0	77	2	220	10	26	109	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	0	5	19	0	81	2	232	11	27	115	43

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	473	438	137	435	454	238	158	0	0	243	0	0
Stage 1	191	191	-	242	242	-	-	-	-	-	-	-
Stage 2	282	247	-	193	212	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	527	530	971	560	518	801	1441	-	-	1323	-	-
Stage 1	854	763	-	762	705	-	-	-	-	-	-	-
Stage 2	725	702	-	852	746	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	466	519	971	548	507	801	1441	-	-	1323	-	-
Mov Cap-2 Maneuver	466	519	-	548	507	-	-	-	-	-	-	-
Stage 1	854	748	-	761	704	-	-	-	-	-	-	-
Stage 2	651	701	-	830	731	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.2		10.3		0.1		1.1	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1441	-	-	466	971	548	801	1323	-	-
HCM Lane V/C Ratio	0.001	-	-	0.108	0.005	0.035	0.101	0.021	-	-
HCM Control Delay (s)	7.5	-	-	13.7	8.7	11.8	10	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0.1	0.3	0.1	-	-

HCM 6th TWSC
15: S Flatrock Trail & S Eaton Pkway/E. Harvard Pl









2040 Total Traffic
AM Peak Hour

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	3	0	6	9	0	59	2	151	3	21	157	1
Future Vol, veh/h	3	0	6	9	0	59	2	151	3	21	157	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	6	9	0	62	2	159	3	22	165	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	406	376	166	378	375	161	166	0	0	162	0	0
Stage 1	210	210	-	165	165	-	-	-	-	-	-	-
Stage 2	196	166	-	213	210	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	555	555	878	580	556	884	1412	-	-	1417	-	-
Stage 1	792	728	-	837	762	-	-	-	-	-	-	-
Stage 2	806	761	-	789	728	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	509	546	878	568	547	884	1412	-	-	1417	-	-
Mov Cap-2 Maneuver	509	546	-	568	547	-	-	-	-	-	-	-
Stage 1	791	716	-	836	761	-	-	-	-	-	-	-
Stage 2	748	760	-	771	716	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		9.8		0.1		0.9	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1412	-	-	707 823	1417	-	-
HCM Lane V/C Ratio	0.001	-	-	0.013 0.087	0.016	-	-
HCM Control Delay (s)	7.6	-	-	10.2 9.8	7.6	-	-
HCM Lane LOS	A	-	-	B A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0 0.3	0	-	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	0	1	19	0	31	0	191	7	11	117	4
Future Vol, veh/h	10	0	1	19	0	31	0	191	7	11	117	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	1	20	0	33	0	201	7	12	123	4
























Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	370	357	125	355	356	205	127	0	0	208	0	0
Stage 1	149	149	-	205	205	-	-	-	-	-	-	-
Stage 2	221	208	-	150	151	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	587	569	926	600	570	836	1459	-	-	1363	-	-
Stage 1	854	774	-	797	732	-	-	-	-	-	-	-
Stage 2	781	730	-	853	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	561	564	926	595	565	836	1459	-	-	1363	-	-
Mov Cap-2 Maneuver	561	564	-	595	565	-	-	-	-	-	-	-
Stage 1	854	767	-	797	732	-	-	-	-	-	-	-
Stage 2	751	730	-	845	765	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.3		10.2		0		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	561	926	595	836	1363	-	-
HCM Lane V/C Ratio	-	-	-	0.019	0.001	0.034	0.039	0.008	-	-
HCM Control Delay (s)	0	-	-	11.5	8.9	11.3	9.5	7.7	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0.1	0	-	-

Timings
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
PM Peak Hour

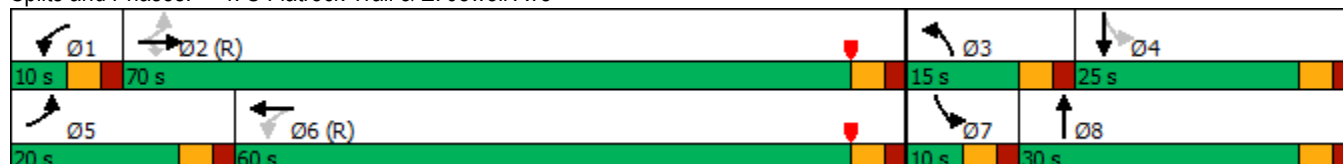
									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations		  			  	 			
Traffic Volume (vph)	209	2086	345	31	2042	218	0	6	0
Future Volume (vph)	209	2086	345	31	2042	218	0	6	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	pm+pt	NA
Protected Phases	5	2		1	6	3	8	7	4
Permitted Phases	2		2	6				4	
Detector Phase	5	2	2	1	6	3	8	7	4
Switch Phase									
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	5.0	8.0	5.0	8.0
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	10.0	23.0	10.0	23.0
Total Split (s)	20.0	70.0	70.0	10.0	60.0	15.0	30.0	10.0	25.0
Total Split (%)	16.7%	58.3%	58.3%	8.3%	50.0%	12.5%	25.0%	8.3%	20.8%
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	Lead	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	None	Max	None	Max
Act Effect Green (s)	75.0	69.0	69.0	61.5	56.5	10.0	33.0	25.0	20.0
Actuated g/C Ratio	0.62	0.58	0.58	0.51	0.47	0.08	0.28	0.21	0.17
v/c Ratio	0.83	0.75	0.34	0.24	0.90	0.80	0.04	0.02	0.37
Control Delay	44.7	32.8	10.7	12.2	34.9	74.9	0.1	31.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	32.8	10.7	12.2	34.9	74.9	0.1	31.0	8.5
LOS	D	C	B	B	C	E	A	C	A
Approach Delay		30.9			34.6		68.7		9.3
Approach LOS		C			C		E		A

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 33.5
 Intersection Capacity Utilization 82.8%
 Analysis Period (min) 15



























Intersection LOS: C
 ICU Level of Service E

Splits and Phases: 4: S Flatrock Trail & E. Jewell Ave
































HCM 6th Signalized Intersection Summary 4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  		 					
Traffic Volume (veh/h)	209	2086	345	31	2042	6	218	0	20	6	0	141
Future Volume (veh/h)	209	2086	345	31	2042	6	218	0	20	6	0	141
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	220	2196	363	33	2149	6	229	0	21	6	0	148
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	249	2844	883	137	2595	7	283	0	382	305	0	264
Arrive On Green	0.09	0.56	0.56	0.03	0.49	0.49	0.08	0.00	0.24	0.01	0.00	0.17
Sat Flow, veh/h	1781	5106	1585	1781	5257	15	3456	0	1585	1781	0	1585
Grp Volume(v), veh/h	220	2196	363	33	1391	764	229	0	21	6	0	148
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	1781	1702	1868	1728	0	1585	1781	0	1585
Q Serve(g_s), s	8.7	40.1	15.8	1.1	42.0	42.0	7.8	0.0	1.2	0.3	0.0	10.3
Cycle Q Clear(g_c), s	8.7	40.1	15.8	1.1	42.0	42.0	7.8	0.0	1.2	0.3	0.0	10.3
Prop In Lane	1.00		1.00	1.00		0.01	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	249	2844	883	137	1680	922	283	0	382	305	0	264
V/C Ratio(X)	0.88	0.77	0.41	0.24	0.83	0.83	0.81	0.00	0.05	0.02	0.00	0.56
Avail Cap(c_a), veh/h	309	2844	883	162	1680	922	288	0	382	366	0	264
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	20.7	15.3	20.0	26.0	26.0	54.2	0.0	35.0	41.1	0.0	46.0
Incr Delay (d2), s/veh	21.4	2.1	1.4	0.9	4.9	8.5	15.5	0.0	0.3	0.0	0.0	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	14.9	5.8	0.4	16.8	19.4	4.0	0.0	0.5	0.1	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.4	22.8	16.7	20.9	30.9	34.5	69.7	0.0	35.3	41.1	0.0	54.3
LnGrp LOS	D	C	B	C	C	C	E	A	D	D	A	D
Approach Vol, veh/h	2779					2188		250		154		
Approach Delay, s/veh	24.4					32.0		66.8		53.8		
Approach LOS	C					C		E		D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	71.8	14.8	25.0	15.9	64.2	5.9	33.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	65.0	10.0	20.0	15.0	55.0	5.0	25.0				
Max Q Clear Time (g_c+I1), s	3.1	42.1	9.8	12.3	10.7	44.0	2.3	3.2				
Green Ext Time (p_c), s	0.0	17.8	0.0	0.4	0.2	8.8	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									

Timings
5: Harvest Rd & E. Jewell Ave

2040 Total Traffic
PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Configurations	 	  			  			 	 		
Traffic Volume (vph)	408	1376	328	65	1289	286	339	243	368	296	452
Future Volume (vph)	408	1376	328	65	1289	286	339	243	368	296	452
Turn Type	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Prot	NA	Free
Protected Phases	5	2		1	6		3	8	7	4	
Permitted Phases			2	6		6	8				Free
Detector Phase	5	2	2	1	6	6	3	8	7	4	
Switch Phase											
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	5.0	10.0	
Minimum Split (s)	10.0	23.0	23.0	10.0	23.0	23.0	10.0	23.0	10.0	23.0	
Total Split (s)	25.0	51.0	51.0	12.0	38.0	38.0	25.0	32.0	25.0	32.0	
Total Split (%)	20.8%	42.5%	42.5%	10.0%	31.7%	31.7%	20.8%	26.7%	20.8%	26.7%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	Max	None	Max	
Act Effect Green (s)	18.7	48.4	48.4	41.1	34.3	34.3	48.7	29.1	17.9	27.5	120.0
Actuated g/C Ratio	0.16	0.40	0.40	0.34	0.29	0.29	0.41	0.24	0.15	0.23	1.00
v/c Ratio	0.80	0.71	0.41	0.42	0.93	0.45	0.88	0.37	0.76	0.73	0.30
Control Delay	45.5	24.4	10.0	27.1	54.4	6.1	49.9	37.2	58.9	54.4	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
Total Delay	45.5	24.4	10.0	27.1	54.4	6.1	49.9	37.2	58.9	54.4	0.5
LOS	D	C	B	C	D	A	D	D	E	D	A
Approach Delay		26.2			44.9			43.9		34.0	
Approach LOS		C			D			D		C	

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 42 (35%), Referenced to phase 2:EBT and 6:WBTL, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 35.4

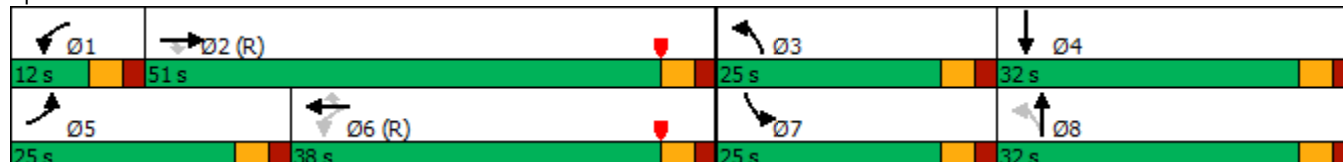
Intersection LOS: D

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15
































Splits and Phases: 5: Harvest Rd & E. Jewell Ave



HCM 6th Signalized Intersection Summary

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 	  			  			 		 	 	
Traffic Volume (veh/h)	408	1376	328	65	1289	286	339	243	56	368	296	452
Future Volume (veh/h)	408	1376	328	65	1289	286	339	243	56	368	296	452
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	429	1448	345	68	1357	301	357	256	59	387	312	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	493	2058	639	173	1527	474	431	749	170	454	421	
Arrive On Green	0.14	0.40	0.40	0.04	0.30	0.30	0.17	0.26	0.26	0.13	0.22	0.00
Sat Flow, veh/h	3456	5106	1585	1781	5106	1585	1781	2878	652	3456	1870	1585
Grp Volume(v), veh/h	429	1448	345	68	1357	301	357	156	159	387	312	0
Grp Sat Flow(s),veh/h/ln	1728	1702	1585	1781	1702	1585	1781	1777	1753	1728	1870	1585
Q Serve(g_s), s	14.6	28.4	19.9	3.2	30.4	19.7	18.0	8.6	8.8	13.1	18.6	0.0
Cycle Q Clear(g_c), s	14.6	28.4	19.9	3.2	30.4	19.7	18.0	8.6	8.8	13.1	18.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	493	2058	639	173	1527	474	431	462	456	454	421	
V/C Ratio(X)	0.87	0.70	0.54	0.39	0.89	0.63	0.83	0.34	0.35	0.85	0.74	
Avail Cap(c_a), veh/h	576	2058	639	208	1527	474	431	462	456	576	421	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	50.4	29.8	27.3	28.8	40.1	36.4	29.3	36.0	36.1	51.0	43.3	0.0
Incr Delay (d2), s/veh	12.2	2.0	3.3	1.5	8.1	6.4	12.6	2.0	2.1	9.7	11.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	11.4	7.8	1.4	13.3	8.2	8.8	3.9	3.9	6.1	9.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	31.9	30.6	30.2	48.2	42.7	41.9	38.0	38.2	60.7	54.4	0.0
LnGrp LOS	E	C	C	C	D	D	D	D	D	E	D	
Approach Vol, veh/h	2222				1726				672			
Approach Delay, s/veh	37.6				46.6				40.1			
Approach LOS	D				D				D			
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.6	53.4	25.0	32.0	22.1	40.9	20.8	36.2				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	7.0	46.0	20.0	27.0	20.0	33.0	20.0	27.0				
Max Q Clear Time (g_c+I1), s	5.2	30.4	20.0	20.6	16.6	32.4	15.1	10.8				
Green Ext Time (p_c), s	0.0	9.5	0.0	0.8	0.5	0.5	0.6	1.4				

Intersection Summary













HCM 6th Ctrl Delay	43.5
HCM 6th LOS	D

Notes

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Volume - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
PM Peak Hour

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	116	539	59	11	426	9	34	30	6	12	51	73
Future Volume (vph)	116	539	59	11	426	9	34	30	6	12	51	73
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Adj. Flow (vph)	122	567	62	12	448	9	36	32	6	13	54	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	751	0	0	469	0	0	74	0	0	144	0
Intersection Summary												

HCM 6th Roundabout - One Lane
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
PM Peak Hour

Intersection				
Intersection Delay, s/veh	8.8			
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	751	469	74	144
Demand Flow Rate, veh/h	765	478	76	147
Vehicles Circulating, veh/h	80	194	715	506
Vehicles Exiting, veh/h	573	597	130	166
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.1	7.7	6.8	6.3
Approach LOS	B	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	765	478	76	147
Cap Entry Lane, veh/h	1272	1132	665	824
Entry HV Adj Factor	0.981	0.981	0.978	0.979
Flow Entry, veh/h	751	469	74	144
Cap Entry, veh/h	1248	1111	651	806
V/C Ratio	0.602	0.422	0.114	0.178
Control Delay, s/veh	10.1	7.7	6.8	6.3
LOS	B	A	A	A
95th %tile Queue, veh	4	2	0	1







HCM 6th Roundabout
8: E. Yale Ave & S Flatrock Trail

2040 Total Traffic
PM Peak Hour

Intersection						
Intersection Delay, s/veh	5.4					
Intersection LOS	A					
Approach	EB		WB		NB	SB
Entry Lanes	2		2		1	1
Conflicting Circle Lanes	2		2		2	2
Adj Approach Flow, veh/h	751		469		74	144
Demand Flow Rate, veh/h	765		478		76	147
Vehicles Circulating, veh/h	80		194		715	506
Vehicles Exiting, veh/h	573		597		130	166
Ped Vol Crossing Leg, #/h	0		0		0	0
Ped Cap Adj	1.000		1.000		1.000	1.000
Approach Delay, s/veh	5.5		5.0		5.8	5.5
Approach LOS	A		A		A	A
Lane	Left	Right	Left	Right	Left	Left
Designated Moves	LT	TR	LT	TR	LTR	LTR
Assumed Moves	LT	TR	LT	TR	LTR	LTR
RT Channelized						
Lane Util	0.471	0.529	0.471	0.529	1.000	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328	4.328
Entry Flow, veh/h	360	405	225	253	76	147
Cap Entry Lane, veh/h	1254	1327	1129	1204	773	924
Entry HV Adj Factor	0.980	0.982	0.980	0.983	0.978	0.979
Flow Entry, veh/h	353	398	220	249	74	144
Cap Entry, veh/h	1229	1303	1106	1183	757	904
V/C Ratio	0.287	0.305	0.199	0.210	0.098	0.159
Control Delay, s/veh	5.5	5.5	5.1	4.9	5.8	5.5
LOS	A	A	A	A	A	A
95th %tile Queue, veh	1	1	1	1	0	1

HCM 6th TWSC
9: Future Access/S. Gold Bug Way & E. Yale Ave

2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	0.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	490	33	2	406	0	19	0	1	0	0	20
Future Vol, veh/h	35	490	33	2	406	0	19	0	1	0	0	20
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	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	516	35	2	427	0	20	0	1	0	0	21
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	427	0	0	551	0	0	826	1039	276	763	1056	214
Stage 1	-	-	-	-	-	-	608	608	-	431	431	-
Stage 2	-	-	-	-	-	-	218	431	-	332	625	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.54	6.54	6.94	7.54	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.54	5.54	-	6.54	5.54	-
Follow-up Hdwy	2.22	-	-	2.22	-	-	3.52	4.02	3.32	3.52	4.02	3.32
Pot Cap-1 Maneuver	1129	-	-	1015	-	-	264	229	721	294	224	791
Stage 1	-	-	-	-	-	-	450	484	-	573	581	-
Stage 2	-	-	-	-	-	-	764	581	-	655	475	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1129	-	-	1015	-	-	250	221	721	286	216	791
Mov Cap-2 Maneuver	-	-	-	-	-	-	250	221	-	286	216	-
Stage 1	-	-	-	-	-	-	435	468	-	554	580	-
Stage 2	-	-	-	-	-	-	742	580	-	633	459	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.5			0			20.2			9.7		
HCM LOS							C			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	258	1129	-	-	1015	-	-	791				
HCM Lane V/C Ratio	0.082	0.033	-	-	0.002	-	-	0.027				
HCM Control Delay (s)	20.2	8.3	-	-	8.6	-	-	9.7				
HCM Lane LOS	C	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.1				

Volume - One Lane
10: E. Yale Ave & Harvest Rd

2040 Total Traffic
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Volume (vph)	209	275	212	23	28	195
Future Volume (vph)	209	275	212	23	28	195
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)		0%	0%		0%	
Adj. Flow (vph)	220	289	223	24	29	205
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	509	247	0	234	0
Intersection Summary						

HCM 6th Roundabout - One Lane
10: E. Yale Ave & Harvest Rd









2040 Total Traffic
PM Peak Hour

Intersection			
Intersection Delay, s/veh	5.9		
Intersection LOS	A		
Approach	EB	WB	SB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	509	247	234
Demand Flow Rate, veh/h	519	251	239
Vehicles Circulating, veh/h	30	224	227
Vehicles Exiting, veh/h	436	325	248
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	6.4	5.5	5.4
Approach LOS	A	A	A
Lane	Left	Left	Left
Designated Moves	LT	TR	LR
Assumed Moves	LT	TR	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	519	251	239
Cap Entry Lane, veh/h	1338	1098	1095
Entry HV Adj Factor	0.981	0.982	0.979
Flow Entry, veh/h	509	247	234
Cap Entry, veh/h	1313	1079	1072
V/C Ratio	0.388	0.229	0.218
Control Delay, s/veh	6.4	5.5	5.4
LOS	A	A	A
95th %tile Queue, veh	2	1	1

Intersection					
Intersection Delay, s/veh	4.4				
Intersection LOS	A				
Approach	EB		WB		SB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	509		247		234
Demand Flow Rate, veh/h	519		251		239
Vehicles Circulating, veh/h	30		224		227
Vehicles Exiting, veh/h	436		325		248
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.3		4.2		5.0
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	244	275	118	133	239
Cap Entry Lane, veh/h	1313	1384	1098	1174	1171
Entry HV Adj Factor	0.981	0.981	0.982	0.982	0.979
Flow Entry, veh/h	239	270	116	131	234
Cap Entry, veh/h	1288	1359	1079	1153	1146
V/C Ratio	0.186	0.199	0.107	0.113	0.204
Control Delay, s/veh	4.4	4.3	4.3	4.1	5.0
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	0	0	1

HCM 6th TWSC
11: S Flatrock Trail & E. Warren PI





2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	1	1	12	1	9	2	193	18	15	210	12
Future Vol, veh/h	7	1	1	12	1	9	2	193	18	15	210	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1	1	13	1	9	2	203	19	16	221	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	482	486	228	478	483	213	234	0	0	222	0	0
Stage 1	260	260	-	217	217	-	-	-	-	-	-	-
Stage 2	222	226	-	261	266	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	495	481	811	498	483	827	1333	-	-	1347	-	-
Stage 1	745	693	-	785	723	-	-	-	-	-	-	-
Stage 2	780	717	-	744	689	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	484	474	811	492	476	827	1333	-	-	1347	-	-
Mov Cap-2 Maneuver	484	474	-	492	476	-	-	-	-	-	-	-
Stage 1	744	685	-	783	722	-	-	-	-	-	-	-
Stage 2	769	716	-	733	681	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	12.2		11.2		0.1		0.5	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1333	-	-	484	598	492	770	1347	-	-
HCM Lane V/C Ratio	0.002	-	-	0.015	0.004	0.026	0.014	0.012	-	-
HCM Control Delay (s)	7.7	-	-	12.6	11	12.5	9.7	7.7	-	-
HCM Lane LOS	A	-	-	B	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.1	0	0	-	-

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	1	33	22	2	1	1
Future Vol, veh/h	1	33	22	2	1	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	35	23	2	1	1







Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	25	0	0	61	24
Stage 1	-	-	-	24	-
Stage 2	-	-	-	37	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1589	-	-	945	1052
Stage 1	-	-	-	999	-
Stage 2	-	-	-	985	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1589	-	-	944	1052
Mov Cap-2 Maneuver	-	-	-	944	-
Stage 1	-	-	-	998	-
Stage 2	-	-	-	985	-









Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	8.6
HCM LOS	A		

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1589	-	-	-	995
HCM Lane V/C Ratio	0.001	-	-	-	0.002
HCM Control Delay (s)	7.3	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

HCM 6th TWSC
13: S Haleyville Way & E. Warren PI

2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	9	15	9	9	15	9	0	6	9	0	5
Future Vol, veh/h	9	9	15	9	9	15	9	0	6	9	0	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	200	-	-	200	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	9	16	9	9	16	9	0	6	9	0	5
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	25	0	0	25	0	0	73	78	17	73	78	17
Stage 1	-	-	-	-	-	-	35	35	-	35	35	-
Stage 2	-	-	-	-	-	-	38	43	-	38	43	-
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	1589	-	-	1589	-	-	918	812	1062	918	812	1062
Stage 1	-	-	-	-	-	-	981	866	-	981	866	-
Stage 2	-	-	-	-	-	-	977	859	-	977	859	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1589	-	-	1589	-	-	905	802	1062	904	802	1062
Mov Cap-2 Maneuver	-	-	-	-	-	-	905	802	-	904	802	-
Stage 1	-	-	-	-	-	-	975	861	-	975	861	-
Stage 2	-	-	-	-	-	-	967	854	-	966	854	-
Approach	EB		WB				NB			SB		
HCM Control Delay, s	2		2				8.8			8.8		
HCM LOS							A			A		
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1				
Capacity (veh/h)	962	1589	-	-	1589	-	-	955				
HCM Lane V/C Ratio	0.016	0.006	-	-	0.006	-	-	0.015				
HCM Control Delay (s)	8.8	7.3	-	-	7.3	-	-	8.8				
HCM Lane LOS	A	A	-	-	A	-	-	A				
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0				

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	3	26	0	49	6	220	32	86	272	28
Future Vol, veh/h	20	0	3	26	0	49	6	220	32	86	272	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	0	3	27	0	52	6	232	34	91	286	29

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	770	761	301	745	758	249	315	0	0	266	0	0
Stage 1	483	483	-	261	261	-	-	-	-	-	-	-
Stage 2	287	278	-	484	497	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	336	341	860	352	344	790	1276	-	-	1298	-	-
Stage 1	616	570	-	744	692	-	-	-	-	-	-	-
Stage 2	720	680	-	616	561	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	296	316	860	331	318	790	1276	-	-	1298	-	-
Mov Cap-2 Maneuver	296	316	-	331	318	-	-	-	-	-	-	-
Stage 1	613	530	-	740	689	-	-	-	-	-	-	-
Stage 2	670	677	-	570	521	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	16.9		12.3		0.2		1.8	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1276	-	-	296	860	331	790	1298	-	-
HCM Lane V/C Ratio	0.005	-	-	0.071	0.004	0.083	0.065	0.07	-	-
HCM Control Delay (s)	7.8	-	-	18.1	9.2	16.9	9.9	8	-	-
HCM Lane LOS	A	-	-	C	A	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0.3	0.2	0.2	-	-

HCM 6th TWSC
15: S Flatrock Trail & S Eaton Pkway/E. Harvard Pl









2040 Total Traffic
PM Peak Hour

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↵	↵		↵	↵	
Traffic Vol, veh/h	2	0	4	6	0	39	7	138	10	67	125	3
Future Vol, veh/h	2	0	4	6	0	39	7	138	10	67	125	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	4	6	0	41	7	145	11	71	132	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	461	446	134	443	442	151	135	0	0	156	0	0
Stage 1	276	276	-	165	165	-	-	-	-	-	-	-
Stage 2	185	170	-	278	277	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	511	507	915	525	510	895	1449	-	-	1424	-	-
Stage 1	730	682	-	837	762	-	-	-	-	-	-	-
Stage 2	817	758	-	728	681	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	467	479	915	501	482	895	1449	-	-	1424	-	-
Mov Cap-2 Maneuver	467	479	-	501	482	-	-	-	-	-	-	-
Stage 1	726	648	-	833	758	-	-	-	-	-	-	-
Stage 2	776	754	-	689	647	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.2		9.7		0.3		2.6	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1449	-	-	693	810	1424	-
HCM Lane V/C Ratio	0.005	-	-	0.009	0.058	0.05	-
HCM Control Delay (s)	7.5	-	-	10.2	9.7	7.7	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.2	-

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	0	1	12	0	21	1	230	20	35	255	12
Future Vol, veh/h	7	0	1	12	0	21	1	230	20	35	255	12
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	200	-	-	200	-	-	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	0	1	13	0	22	1	242	21	37	268	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	615	614	275	604	610	253	281	0	0	263	0	0
Stage 1	349	349	-	255	255	-	-	-	-	-	-	-
Stage 2	266	265	-	349	355	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	403	407	764	410	409	786	1282	-	-	1301	-	-
Stage 1	667	633	-	749	696	-	-	-	-	-	-	-
Stage 2	739	689	-	667	630	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	383	395	764	400	397	786	1282	-	-	1301	-	-
Mov Cap-2 Maneuver	383	395	-	400	397	-	-	-	-	-	-	-
Stage 1	666	615	-	748	695	-	-	-	-	-	-	-
Stage 2	718	688	-	647	612	-	-	-	-	-	-	-










Approach	EB		WB		NB		SB	
HCM Control Delay, s	14		11.4		0		0.9	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	383	764	400	786	1301	-	-
HCM Lane V/C Ratio	0.001	-	-	0.019	0.001	0.032	0.028	0.028	-	-
HCM Control Delay (s)	7.8	-	-	14.6	9.7	14.3	9.7	7.8	-	-
HCM Lane LOS	A	-	-	B	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	0.1	0.1	-	-

Queuing Reports

Queues
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	1529	262	31	1937	432	44	4	169
v/c Ratio	0.51	0.66	0.30	0.19	0.87	0.79	0.06	0.01	0.38
Control Delay	42.6	43.0	16.7	11.1	37.6	59.6	0.1	23.5	11.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	43.0	16.7	11.1	37.6	59.6	0.1	23.5	11.1
Queue Length 50th (ft)	49	330	70	12	570	165	0	2	9
Queue Length 95th (ft)	m86	360	127	m17	626	221	0	9	70
Internal Link Dist (ft)		552			828		300		376
Turn Bay Length (ft)	275		275	275		200		200	
Base Capacity (vph)	169	2326	866	169	2220	600	760	387	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.66	0.30	0.18	0.87	0.72	0.06	0.01	0.38

Intersection Summary












m Volume for 95th percentile queue is metered by upstream signal.

Queues

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic

AM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	447	1015	116	31	1263	419	283	310	220	127	421
v/c Ratio	0.83	0.47	0.16	0.13	0.88	0.56	0.52	0.31	0.59	0.28	0.27
Control Delay	45.5	12.1	4.2	19.1	49.2	6.4	26.9	31.8	57.4	39.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	12.1	4.2	19.1	49.2	6.4	26.9	31.8	57.4	39.5	0.4
Queue Length 50th (ft)	104	224	27	12	346	0	145	88	85	81	0
Queue Length 95th (ft)	#185	296	m42	30	#428	80	217	135	122	140	0
Internal Link Dist (ft)		833			1020			802		545	
Turn Bay Length (ft)	275		275	275		275	275		275		275
Base Capacity (vph)	572	2156	738	245	1443	749	566	990	572	460	1583
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.47	0.16	0.13	0.88	0.56	0.50	0.31	0.38	0.28	0.27

Intersection Summary










95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
PM Peak Hour












									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	220	2196	363	33	2155	229	21	6	148
v/c Ratio	0.83	0.75	0.34	0.24	0.90	0.80	0.04	0.02	0.37
Control Delay	44.7	32.8	10.7	12.2	34.9	74.9	0.1	31.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	32.8	10.7	12.2	34.9	74.9	0.1	31.0	8.5
Queue Length 50th (ft)	160	473	92	6	632	91	0	3	0
Queue Length 95th (ft)	m175	m507	m105	m8	m687	#154	0	14	50
Internal Link Dist (ft)		552			828		300		376
Turn Bay Length (ft)	275		275	275		200		200	
Base Capacity (vph)	286	2924	1061	140	2393	286	548	304	396
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.75	0.34	0.24	0.90	0.80	0.04	0.02	0.37
Intersection Summary									
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Queues

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic

PM Peak Hour

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	429	1448	345	68	1357	301	357	315	387	312	476
v/c Ratio	0.80	0.71	0.41	0.42	0.93	0.45	0.88	0.37	0.76	0.73	0.30
Control Delay	45.5	24.4	10.0	27.1	54.4	6.1	49.9	37.2	58.9	54.4	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
Total Delay	45.5	24.4	10.0	27.1	54.4	6.1	49.9	37.2	58.9	54.4	0.5
Queue Length 50th (ft)	147	429	128	28	381	0	193	101	148	227	0
Queue Length 95th (ft)	199	491	m191	54	#484	67	#348	147	200	#337	0
Internal Link Dist (ft)		833			1020			802		545	
Turn Bay Length (ft)	275		275	275		275	275		275		275
Base Capacity (vph)	572	2051	844	165	1455	667	410	850	572	426	1583
Starvation Cap Reductn	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
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.71	0.41	0.41	0.93	0.45	0.87	0.37	0.68	0.73	0.30

Intersection Summary










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Queues
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
AM Peak Hour

									
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	85	1529	262	31	1937	432	44	4	169
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Reduced v/c Ratio	0.50	0.66	0.30	0.18	0.87	0.72	0.06	0.01	0.38

Intersection Summary












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Queues

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic

AM Peak Hour

											
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Intersection Summary










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Queues
4: S Flatrock Trail & E. Jewell Ave

2040 Total Traffic
PM Peak Hour












									
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Total Delay	44.7	32.8	10.7	12.2	34.9	74.9	0.1	31.0	8.5
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Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.75	0.34	0.24	0.90	0.80	0.04	0.02	0.37
Intersection Summary									
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Queues

5: Harvest Rd & E. Jewell Ave

2040 Total Traffic

PM Peak Hour

											
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Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.71	0.41	0.41	0.93	0.45	0.87	0.37	0.68	0.73	0.30

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