COLORADO
Department of Transportation
Region 2
Traffic & Safety – Permits Unit

SH 21A / Fontaine Blvd. between
Marksheffel Rd and Powers Blvd.
City of Fountain

April 10, 2026

Luke Bonner
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Colorado Springs, CO 80920
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RE: Corvallis Development Traffic Impact Analysis

Luke,

I am in receipt of a referral request for comments for Corvallis Development Traffic Impact Analysis. The Corvallis Development is located east of Powers Boulevard (SH021A), south of Fontaine Boulevard, and west of Marksheffel Road. The development will consist of 860 single-family homes, 320 multi-family homes, a total of 394,000 sf of commercial, and a school for 410 students. Our comments regarding the submitted Traffic Impact Analysis are as follows:

The Traffic Impact Analysis dated April 6, 2026 is approved. As indicated in the analysis, at Powers Boulevard and Fontaine Boulevard, an additional thru lane for the eastbound/westbound direction are necessary for intersection operations.

A fair share calculation (without cost) is included for the 2030 buildout for the additional thru lanes; however, the Corvallis project triggers the need for additional thru lanes and the construcion will be required with the first phase of the development.

CDOT Traffic recommends that the long range transportation plan be amended to include the interchange at Powers Boulevard & Mesa Ridge Parkway.

Please contact me at 719-248-0318 or teresa.guagliardo@state.co.us with any questions.

Sincerely,

Teresa Guagliardo

Teresa Guagliardo
CDOT R2 Access Manager

Cc: Kristy Martinez, City of Fountain (kristy@fountaincolorado.org)
Anas Alhadad, Matrix Design Group (anas.alhadad@matrixdesigngroup.com)
Lancaster/file

Corvallis
Traffic Impact Analysis

Prepared for:

City of Fountain

Prepared by:

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On Behalf of:

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April 6, 2026

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1. Introduction

Corvallis is a 204.9-acre development that is planned in northeast Fountain. The property is comprised of 14 parcels, consisting of:

- 140.8 acres of single family residential
- 16.1 acres of multi-family residential
- 36.0 acres of commercial
- 12.0 acres of school
- 45.6 acres of open space
- 26.4 acres of dedicated right-of-way

The project lies to the south of Fontaine Boulevard and to the west of Marksheffel Road. Figure 1 shows the vicinity of the project location.

The intent of this traffic impact analysis is to assess the effects this proposed development will have on the surrounding transportation system.

The report is organized as follows:

- ***Introduction*** – Describes the purpose and intent of this study.
- ***Area Conditions*** – Describes the study area land uses as well as the existing and future roadway network.
- ***Proposed Development*** – Describes the proposed development and the location.
- ***Projected Traffic*** – Identifies the expected number of daily and peak hour trips that will be generated by the proposed development. The expected external trip distribution is also shown.
- ***Traffic Analysis*** – Analyzes the existing conditions in the study area as well as buildout year (2030) and horizon year (2050) conditions both with and without the project.
- ***Findings and Conclusions*** – Identifies any deficiencies in the study area roadway network with or without the project and mitigation measures that will alleviate any identified deficiencies.
- ***Recommendations*** – Provides a summary of the study findings.

2. Area Conditions

This section describes the existing conditions and the planned level of improvements adjacent to the proposed development.

2.1 Site Accessibility

Corvallis is located to the south of Fontaine Boulevard, to the northwest of Marksheffel Road, approximately one half-mile east of Powers Boulevard (CO-21), and north of the Lorson Boulevard alignment. It is approximately ¾-mile north of Mesa Ridge Parkway and will connect to this roadway via Autumn Glen Avenue and Spring Glen Drive. The existing roadway system consists of the following transportation facilities:

State Highway 21 (Powers Boulevard) is a north-south facility that provides a 4-lane divided roadway. State Highway 21 is owned and maintained by the CDOT. The speed limit on this roadway is 55 miles-per-hour. CDOT classifies this road as a principal arterial. The City of Colorado Springs classifies this road as a freeway in Major Thoroughfare Plan (MTP).

Marksheffel Road is a north-south transportation facility and is a three-lane facility between Fontaine Boulevard and Bradley Road, and a 4-lane facility north of Bradley Road. Marksheffel Road provides a paved shoulder to accommodate cyclists. The City of Colorado Springs MTP classifies this road as a principal arterial with a daily traffic capacity of up to 25,000 ADT for a 4-lane principal arterial or 60,000 ADT for a 6-lane principal arterial. The City of Colorado Springs has recently taken over the ownership and maintenance of this roadway. This roadway is classified as a major arterial in the City of Fountain Transportation Master Plan. The 2045 ADT traffic forecast according to the City of Fountain for Marksheffel Road is 29,000 ADT.

Fontaine Boulevard is an east-west facility classified as a principal arterial according to the City of Colorado Springs Major Throughfare Plan. It has a posted speed limit of 35 mph between Weeping Willow Drive and Marksheffel Road. There are traffic signals at the intersection with Powers Boulevard and Marksheffel Drive. All other intersections are side-street stop controlled. The City of Fountain Transportation Master Plan classifies this road as a major arterial.

Mesa Ridge Parkway is an east-west facility classified as a 2-lane principal arterial in the City of Colorado Springs MTP. The City of Fountain Transportation Master Plan classifies this road as a major arterial. Mesa Ridge Parkway is currently a two-lane undivided roadway consisting of 12 feet lanes and 5 feet shoulders with no median, streetlights, sidewalks, bicycle lanes, or curb and gutter. It has a posted speed limit of 45 mph. There is a traffic signal at the intersection with Powers Boulevard, with all other intersections being side-street stop controlled. Approved traffic impact studies for The Glen at Widefield development adjacent to Corvallis shows that Mesa Ridge Parkway will have traffic signals with Wayfarer Drive, Autumn Glen Avenue, and Spring Glen Drive.

Traffic counts were collected on November 13, 2024 to analyze existing and future conditions. Existing counts can be found in Appendix A – Traffic Counts.

The existing conditions analysis is limited to the following intersections:

1. Powers Boulevard/Fontaine Boulevard
2. Fontaine Boulevard/Rolling View Drive
3. Fontaine Boulevard/Marksheffel Road
4. Marksheffel Road/Lorson Boulevard
5. Marksheffel Road/Mesa Ridge Parkway
6. Mesa Ridge Parkway/Spring Glen Drive
7. Mesa Ridge Parkway/Autumn Glen Avenue
8. Mesa Ridge Parkway/Wayfarer Drive
9. Powers Boulevard/Mesa Ridge Parkway

The vicinity map is shown in Figure 1. Site plan is shown in Figure 2.

Traffic Growth

The previous study was used to estimate growth within the study area. Additionally, a 2 percent annual growth rate was assumed from 2040 to 2050 (new horizon year) in the updated analysis. The tables below illustrate how the growth rates were calculated for both the buildout and horizon years. PM peak hour turning volumes were used to obtain the assumed growth in the previous study.

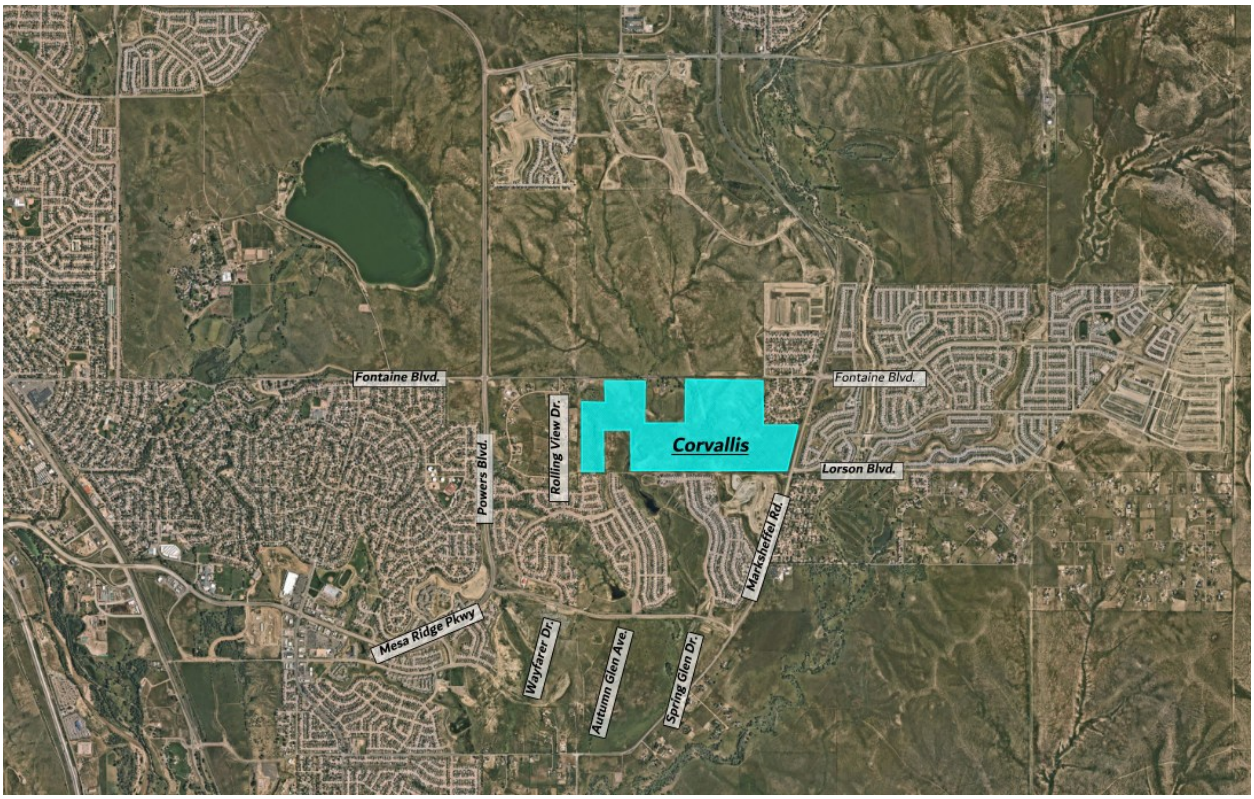
Buildout (2030) Growth

ID	Intersection	Source of annual growth rate	Annual growth Rate (previous Study)	2030 Growth Factor (From 2024 to 2030 in the Current Study
1	Powers Bl/Fontaine Bl	Previous Study per the growth on Powers Bl N.O Fontaine Bl, and Fontaine Bl E.O Powers Bl	2.30%	1.146
2	Fontaine Bl/Rolling View Dr	See ID#1	2.30%	1.146
3	Marksheffel Bl/Fontaine Bl	Previous Study (weighted Average of growth on 4 legs)	11.86%	1.96
4	Marksheffel Bl/Lorson Bl	Marksheffel Bl/Fontaine Bl (Weighted Average)	11.86%	1.96
5	Mesa Ridge Pkwy/Marksheffel Bl	Marksheffel Bl/Fontaine Bl (Weighted Average) - Mesa Rdige Pkwy east leg volumes derived from	11.86%	1.96 /Previous TIS
6	Mesa Ridge Pkwy/Spring Glen Ave	Previous Study (per the growth on Mesa Ridge W.O Marksheffel). Volumes on the south leg derived	10.00%	1.78 /Previous Study
7	Mesa Ridge Pkwy/Autumn Glen Ave	Previous Study (per the growth on Mesa Ridge W.O Marksheffel). Volumes on the south leg derived	10.00%	1.78 /Previous Study
8	Mesa Rdige Pkwy/Wayfarer Dr	Previous Study (per the growth on Mesa Ridge W.O Marksheffel). Volumes on the south leg derived	10.00%	1.78 /Previous Study
9	Powers Bl/Mesa Rdige Pkwy	Powers N.O of Mesa Ridge Pkwy	9.22%	1.69
10	Fontaine Bl/Autumn Glen Ave	See ID#1	2.30%	1.146
11	Fontaine BlCommunity Arterial 1	See ID#1	2.30%	1.146

Horizon (2050) Growth

ID	Intersection	Source (Growth from 2030 to 2040)	Annual growth Rate From 2030 to 2040 in Previous Study	2050 Growth Factor (From 2024 to 2050)	Notes
1	Powers Bl/Fontaine Bl	Previous Study	2.30%	1.8	-
2	Fontaine Bl/Rolling View Dr	Previous Study	2.30%	1.8	A uniform 2 percent annual growth was assumed for Rolling View Drive (a GF of 1.67)
3	Marksheffel Bl/Fontaine Bl	Previous Study	2.30%	3.086	No additional growth was assumed for the east leg of Fontaine Bl from 2030 to 2050 (A GF of 1.96 was applied)
4	Marksheffel Bl/Lorson Bl	Previous Study	2.30%	3.086	No additional growth was assumed for the east leg of Lorson Bl from 2030 to 2050 (A GF of 1.96 was applied)
5	Mesa Ridge Pkwy/Marksheffel Bl	Previous Study	2.30%	3.086	A 2 percent annual growth was applied to 2040 volumes (Previous TIS) on Mesa Ridge Pkwy east leg (a GF of 1.2189 was applied)
6	Mesa Ridge Pkwy/Spring Glen Ave	Previous Study	2.30%	2.79	A 2 percent annual growth was applied to 2040 volumes (Previous TIS) on Spring Glen Dr (a GF of 1.2189 was applied)
7	Mesa Ridge Pkwy/Autumn Glen Ave	Previous Study	2.30%	2.79	A 2 percent annual growth was applied to 2040 volumes (Previous TIS) on Autumn Glen Dr (a GF of 1.2189)
8	Mesa Rdige Pkwy/Wayfarer Dr	Previous Study	2.30%	2.79	A 2 percent annual growth was applied to 2040 volumes (Previous TIS) on Wayfarer Dr (a GF of 1.2189 was applied)
9	Powers Bl/Mesa Rdige Pkwy	Previous Study	2.30%	2.66	-

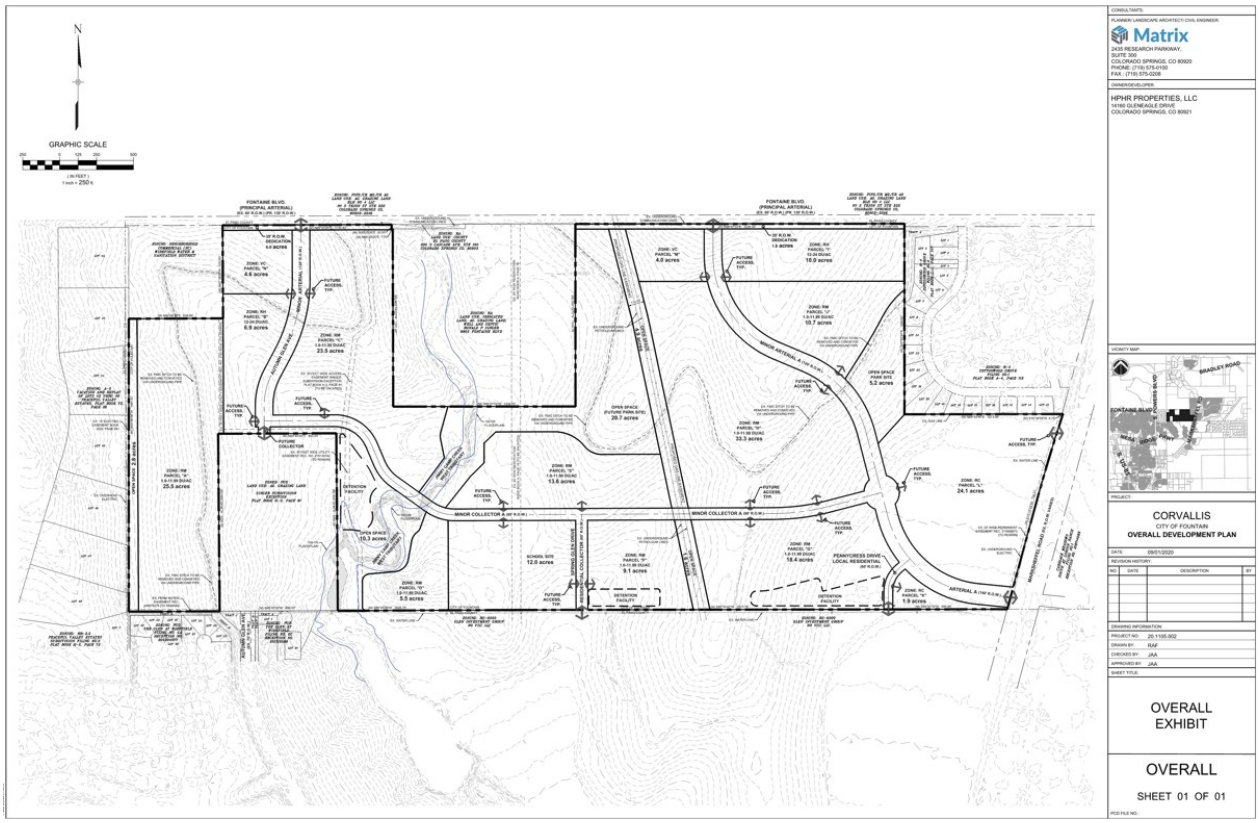
Figure 1. Vicinity Map



3. Proposed Development

The project will consist of 860 single-family homes, 320 multi-family homes, a total of 394,000 sf of commercial, and a school for 410 students.

Figure 2. Corvallis Site Plan



The AM and PM peak hour volumes at the studied intersections are shown in Figure 3 and Figure 4. The daily traffic volumes in the existing conditions are shown in Figure 5.

Figure 3. Existing Conditions Traffic Volumes (AM Peak Hour)



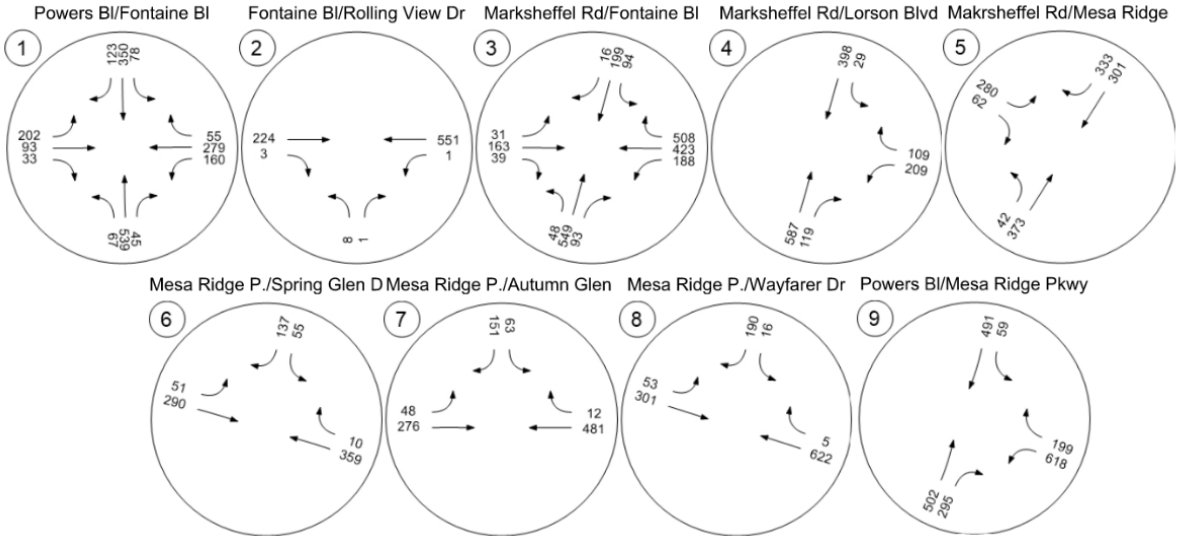


Figure 4. Existing Conditions Traffic Volumes (PM Peak Hour)



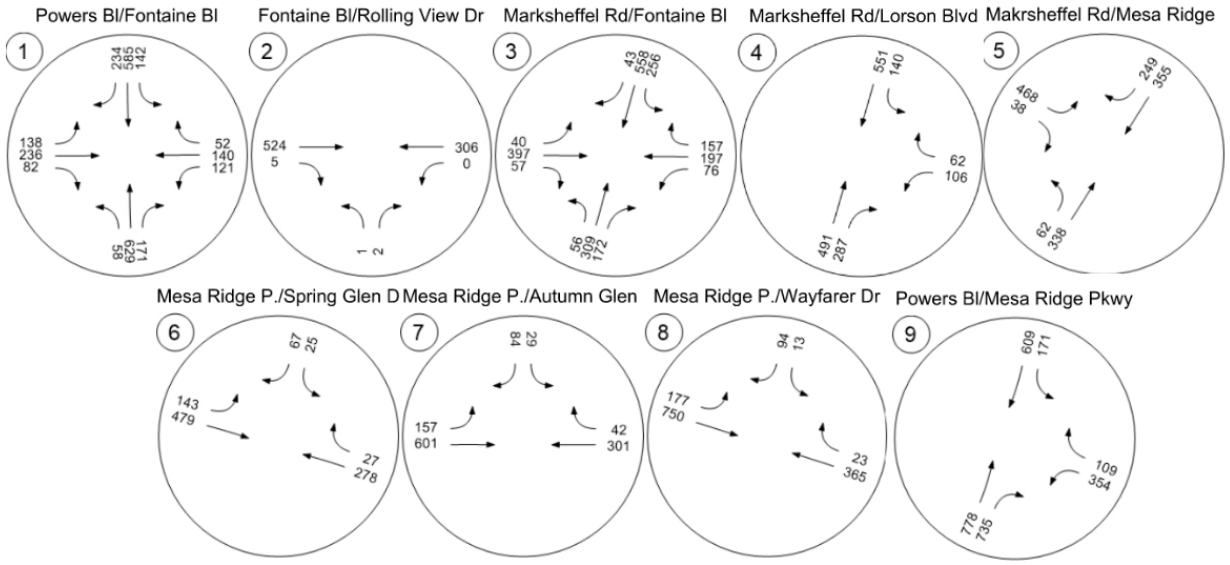
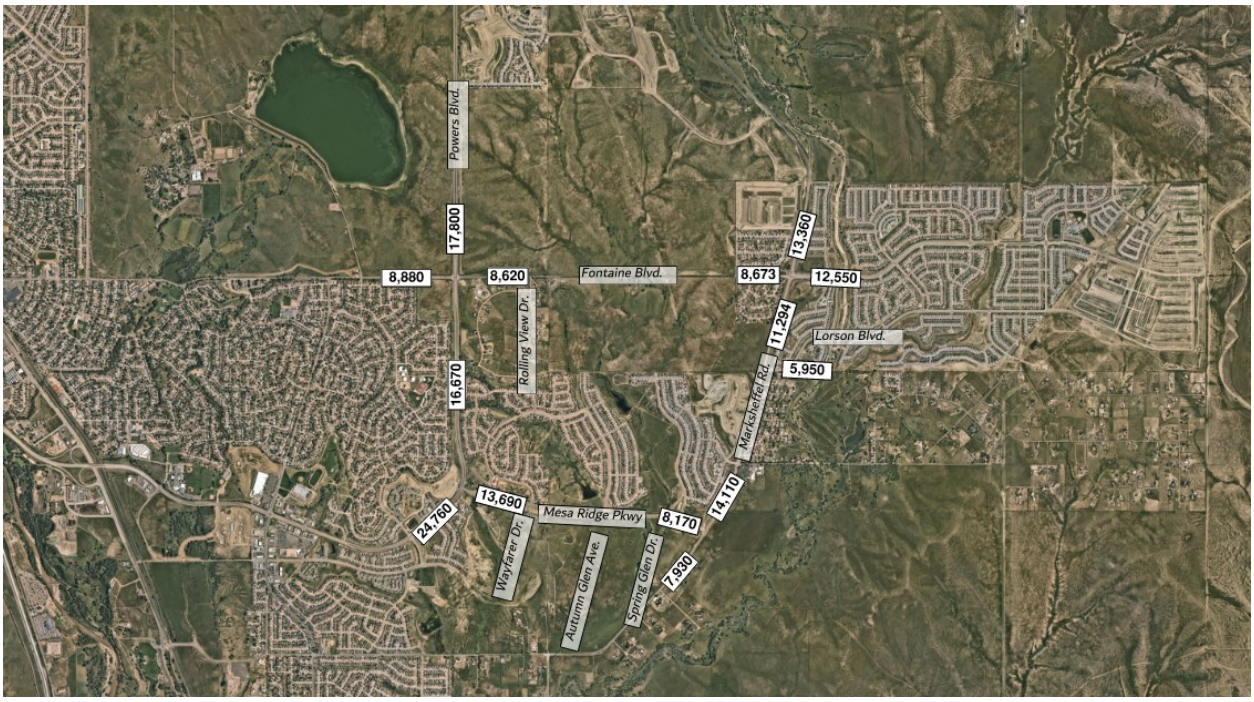


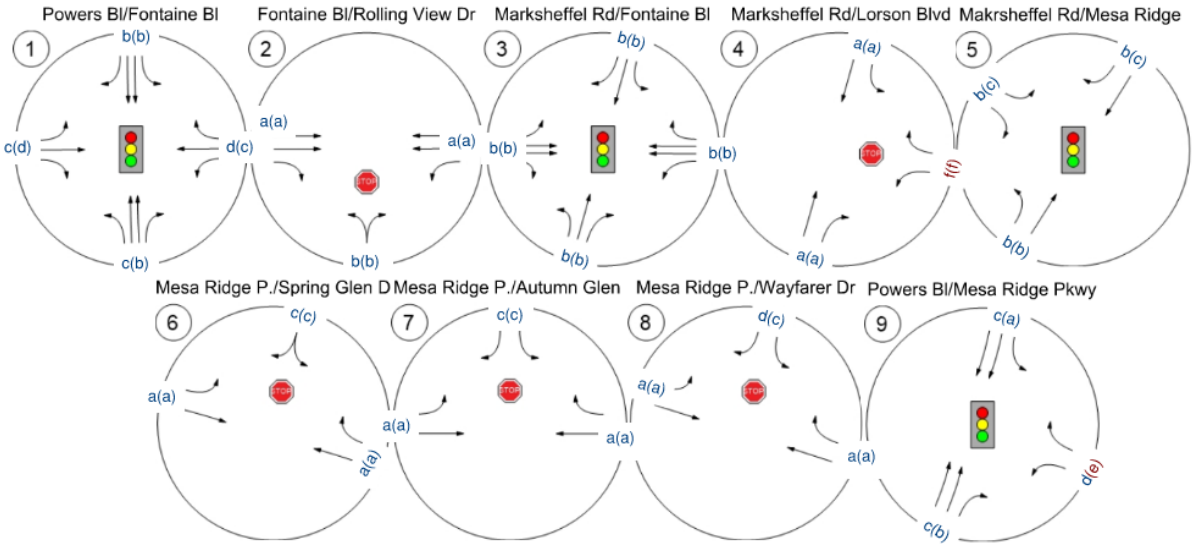
Figure 5. Existing Conditions Daily Traffic Volumes



The existing intersection configurations and movement LOS are shown in Figure 6.

Figure 6. Existing Conditions Intersection Configurations and LOS





Intersection LOS analysis was performed for the study area intersections and the results are shown in Table 1 and Table 2.

Table 1. Existing Conditions Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.447	25.9	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.019	12.9	B
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.509	15.9	B
4	Marksheffel Rd/Lorson Blvd	Two-way stop	HCM 7th Edition	WB Left	0.938	83.5	F
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	EB Left	0.405	15.7	B
6	Mesa Ridge P./Spring Glen Dr	Two-way stop	HCM 7th Edition	SB Left	0.210	23.0	C
7	Mesa Ridge P./Autumn Glen Ave	Two-way stop	HCM 7th Edition	SB Left	0.302	25.6	D
8	Mesa Ridge P./Wayfarer Dr	Two-way stop	HCM 7th Edition	SB Left	0.120	29.5	D
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Left	0.583	33.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 2. Existing Conditions Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.419	22.5	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.003	14.6	B
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Left	0.431	13.9	B
4	Marksheffel Rd/Lorson Blvd	Two-way stop	HCM 7th Edition	WB Left	0.814	92.0	F
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	EB Left	0.496	19.2	B
6	Mesa Ridge P./Spring Glen Dr	Two-way stop	HCM 7th Edition	SB Left	0.121	24.0	C
7	Mesa Ridge P./Autumn Glen Ave	Two-way stop	HCM 7th Edition	SB Left	0.173	31.0	D
8	Mesa Ridge P./Wayfarer Dr	Two-way stop	HCM 7th Edition	SB Left	0.129	43.1	E
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Left	0.481	21.6	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 1 and Table 2, all intersections operate at an acceptable LOS except for the intersection of Marksheffel Road/Lorson Boulevard (#4) which operates at LOS F during the AM and PM peak hour, and the intersection of Mesa Ridge Parkway/Wayfarer Drive (#8) which operates at an LOS E during the PM peak hour. Acceptable operations are defined as any operations at or above LOS D.

A traffic signal is warranted at both intersections. The traffic signal will improve the intersection operations to LOS B at both intersections. The intersection operations with the traffic signal are included in Appendix B – Existing Conditions Analyses labeled as *Mitigated*. In this study, it was assumed that both intersections will be signalized by the buildout year. The turn lane evaluation for the existing conditions is shown in Table 3.

Table 3. Existing Conditions Turn Lane Evaluations

ID	Intersection (Reference)	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Provided (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT - SHAC	E-X	NBL	1	55	67	36	222	600	100	**920**	965	-
		E-X	NBR	1	55	171	48	222	600	-	**820**	860	-
		E-X	SBL	1	55	142	58	222	600	140	**960**	800	160
		E-X	SBR	1	55	234	64	222	600	-	**820**	685	135
		NR-A	EBL	1	35	202	170	120	310	200	**630**	405	225
		NR-A	EBR	1	35	82	38	120	310	-	**430**	670	-
		NR-A	WBL	1	35	160	129	120	310	160	**590**	425	165
		NR-A	WBR	1	35	55	27	120	310	-	**430**	670	-
		NR-A	NBR to EBT Acceleration Lane	1	35	171		120	*150 (Accel. Lane)*	-	**270**	660	-
		NR-A	SBR to WBT Acceleration Lane	1	35	234		120	*150 (Accel. Lane)*	-	**270**	400	-
		E-X	EBR to SBT Acceleration Lane	1	55	82		222	*960 (Accel. Lane)*	-	**1180**	1,070	110
		E-X	WBR to NBT Acceleration Lane	1	55	55		222	*960 (Accel. Lane)*	-	**1180**	545	635
2	Fontaine Bl/Rolling View Dr CCS -TCM	Principal Arterial	EBR	1	35	5	0	140	120	-	**260**	0	260
		Principal Arterial	WBL	1	35	1	0	140	120	-	**260**	0	260
3	Marksheffel Rd/Fontaine Bl CCS -TCM	Principal Arterial	NBL	1	45	56	25	180	200	-	**380**	700	-
		Principal Arterial	NBR	1	45	172	19	180	200	-	**380**	700	-
		Principal Arterial	SBL	1	55	256	104	220	263	-	**485**	560	-
		Principal Arterial	SBR	1	55	43	4	220	263	-	**485**	560	-
		Principal Arterial	EBL	1	35	40	18	140	120	-	**260**	500	-
		Principal Arterial	EBR	1	35	57	10	140	120	-	**260**	275	-
		Principal Arterial	WBL	1	45	188	110	180	200	-	**380**	515	-
		Principal Arterial	WBR	1	45	508	130	180	200	-	**380**	Continuous	-
4	Marksheffel Rd/Lorson Bl CCS -TCM	Principal Arterial	NBR	1	45	287	0	180	200	-	**380**	565	-
		Principal Arterial	SBL	1	45	140	19	180	200	-	**380**	600	-
		Minor Arterial	WBL	1	35	209	214	140	120	-	**260**	475	-
		Minor Arterial	WBR	1	35	109	28	140	120	-	**260**	Continuous	-
5	Marksheffel Rd/Mesa Ridge Pkwy CCS -TCM	Principal Arterial	NBL	1	45	62	19	180	200	-	**380**	400	-
		Principal Arterial	SBR	1	45	333	82	180	200	-	**380**	840	-
		Principal Arterial	EBL	1	45	468	253	180	200	-	**380**	500	-
		Principal Arterial	EBR	1	45	62	14	180	200	-	**380**	Continuous	-
6	Mesa Rdige Pkwy/Spring Glen Dr CCS -TCM	Collector	SBR	1	35	137	60	140	120	-	**260**	0	260
		Principal Arterial	EBL	1	45	143	10	180	200	-	**380**	670	-
		Principal Arterial	WBR	1	45	27	0	180	200	-	**380**	410	-
7	Mesa Rdige Pkwy/Autumn Glen Ave CCS -TCM	Collector	SBL	1	35	63	31	140	120	-	**260**	520	-
		Collector	SBR	1	35	151	38	140	120	-	**260**	Continuous	-
		Principal Arterial	EBL	1	45	157	11	180	200	-	**380**	530	-
		Principal Arterial	WBR	1	45	42	0	180	200	-	**380**	450	-
8	Mesa Ridge Pkwy/Wayfarer Dr CCS -TCM	Collector	SBL	1	30	16	10	120	115	-	**235**	0	235
		Collector	SBR	1	30	190	95	120	115	-	**235**	Continuous	-
		Principal Arterial	EBL	1	45	177	14	180	200	-	**380**	520	-
		Principal Arterial	WBR	1	45	23	0	180	200	-	**380**	470	-
9	Powers Bl/Mesa Rdige Pkwy CDOT -SHAC	E-X	NBR	1	55	735	252	222	600	-	**820**	385	435
		E-X	SBL	1	55	171	87	222	600	170	**990**	1275	-
		NR-A	WBL	2	45	618	98	324	110	309	**745**	510	235

The City of Colorado Springs (CCS) Traffic Criteria Manual (TCM) and the CDOT State Highway Access Code (SHAC) were used to study the required turn lanes. A summary of recommended improvements is as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 160-ft extension of southbound left-turn lane.
- A 135-ft extension of southbound right-turn lane.
- A 225-ft extension of eastbound left-turn lane.
- A 165-ft extension of westbound left-turn lane.
- A 110-ft extension of eastbound right-turn to southbound thru acceleration lane.
- A 635-ft extension of westbound right-turn to northbound thru acceleration lane.

Fontaine Boulevard/Rolling Views Drive (#2)

- A 260-ft eastbound right-turn lane. Include 140-ft of taper and 120-ft of deceleration lane.
- A 260-ft westbound left-turn lane. Include 140-ft of taper and 120-ft of deceleration lane.

Marksheffel Road/Lorson Boulevard (#4)

- A traffic signal.

Mesa Ridge Parkway/Spring Glen Drive (#6)

- A 260-ft southbound right-turn lane. Include a 140-ft taper and a 120-ft deceleration lane.

Mesa Ridge Parkway/Wayfarer Drive (#8)

- A traffic signal.
- A 235-ft southbound left-turn lane. Include 120-ft of taper and 115-ft of deceleration lane.

Powers Boulevard/Mesa Ridge Parkway (#9)

- A 435- extension of northbound right-turn lane.
- Double westbound left-turn lanes. Include a 162-ft taper, a 275-ft deceleration lane and two 310-ft storage lane (A total of 745-ft)

In this study the future conditions were analyzed under the assumption that these required improvements have been addressed.

4. Projected Development Traffic

This section documents how much traffic the project development is expected to generate and how the external site trips will be distributed on the adjacent roadway network.

4.1 Trip Generation

The vehicle trips associated with the project were calculated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 12th Edition.* This methodology consists of choosing an independent variable for the land use for a particular time of day. The independent variable correlates to the variation in trip ends and is related to the land use. The value of the independent variable is either multiplied by a weighted average or used in a regression equation to calculate the trips generated by the land use. The *ITE Trip Generation Manual* provides guidance on when to use the weighted average versus the regression equation. Table 4 shows the trip generation summary for the project.

Table 4. Trip Generation Summary

Corvallis	AM Peak Hour			PM Peak Hour			Daily Total
	Inbound	Outbound	Total	Inbound	Outbound	Total	
Total Site Trips	580	800	1,380	1202	1027	2229	24,396
Internal Trips	3	3	6	194	190	384	-
Pass-By Trips	-	-	-	168	155	323	-
New Site Trips	**577**	**797**	**1,374**	**840**	**682**	**1522**	**24,396**

Table 5 shows the trips that are expected to be generated by the Corvallis development. It was assumed that 100 percent of the trips would be made by vehicles.

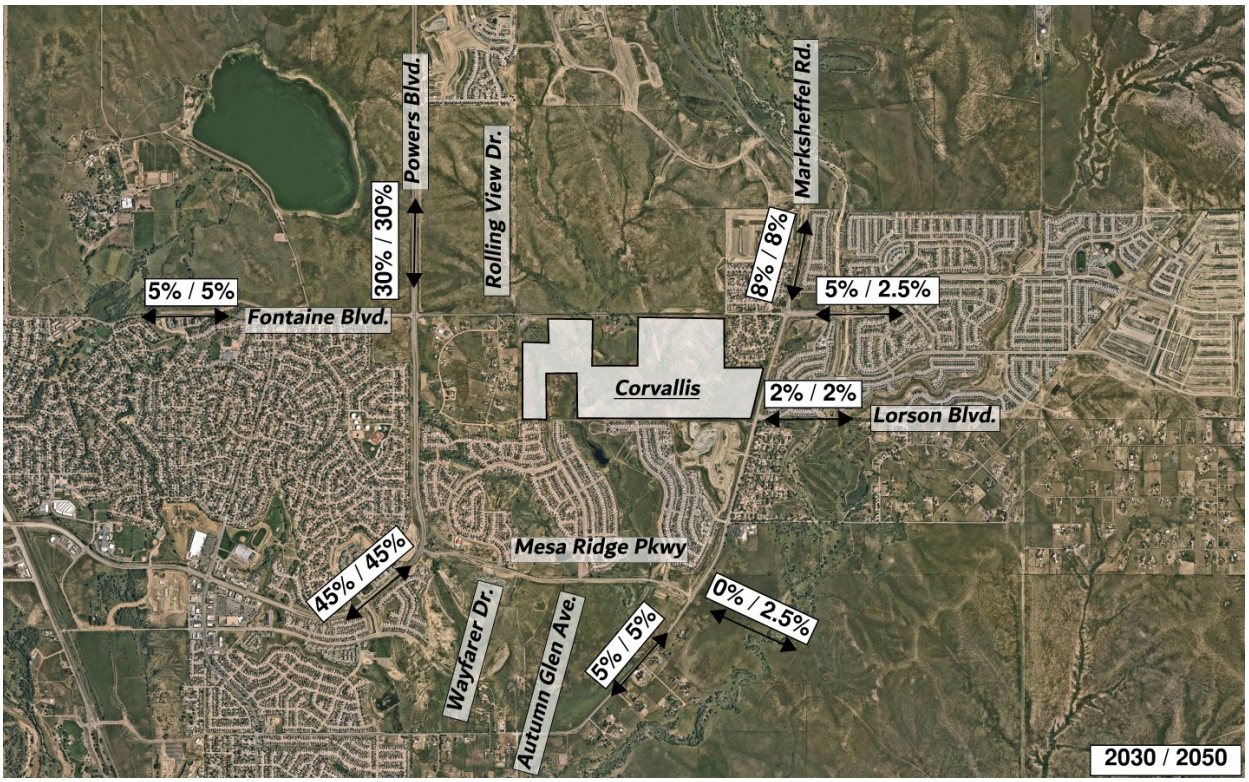
Table 5. Trip Generation (New Site Trips)

Parcel Name	ITE Code - Land Use	Value	Unit	Share of Total Single-Family	Share of Total Multi-Family	Share of Total Commercial	AM Peak Hour			PM Peak Hour			Daily
							Inbound	Outbound	Total	Inbound	Outbound	Total	Total
A	210 - Single-Family Detached Housing	135	Dwelling Units	16%	-	-	25	67	**91**	51	34	**85**	**1131**
C	210 - Single-Family Detached Housing	140	Dwelling Units	16%	-	-	26	69	**95**	53	35	**88**	**1173**
D	210 - Single-Family Detached Housing	53	Dwelling Units	6%	-	-	10	26	**36**	20	13	**33**	**444**
E	210 - Single-Family Detached Housing	120	Dwelling Units	14%	-	-	22	59	**81**	45	30	**75**	**1005**
G	210 - Single-Family Detached Housing	102	Dwelling Units	12%	-	-	19	50	**69**	38	26	**64**	**855**
H	210 - Single-Family Detached Housing	193	Dwelling Units	22%	-	-	35	95	**131**	73	48	**121**	**1617**
I (1)	210 - Single-Family Detached Housing	117	Dwelling Units	14%	-	-	21	58	**79**	44	29	**73**	**980**
B	220 - Multi-Family Housing	140	Dwelling Units	-	44%	-	13	42	**55**	33	22	**55**	**841**
I (2)	220 - Multi-Family Housing	180	Dwelling Units	-	56%	-	17	53	**70**	42	28	**70**	**1081**
K	820 - Shopping Center	21	ksf	-	-	5%	12	8	**20**	22	20	**42**	**764**
L	820 - Shopping Center	263	ksf	-	-	67%	154	95	**249**	274	254	**529**	**9571**
M	820 - Shopping Center	55	ksf	-	-	14%	32	20	**52**	57	53	**111**	**2001**
N	820 - Shopping Center	55	ksf	-	-	14%	32	20	**52**	57	53	**111**	**2001**
School	520 - Elementary School	410	Students	-	-	-	162	138	**300**	30	35	**65**	**930**
SUMMARY													
Total Single-Family							157	425	**582**	324	216	**540**	**7,206**
Total Multi-Family							30	95	**125**	75	50	**125**	**1,922**
Total Commercial							231	142	**373**	411	381	**792**	**14,338**
School							162	138	**300**	30	35	**65**	**930**
Grand Total							580	800	**1,380**	840	682	**1,522**	**24,396**

4.2 Trip Distribution

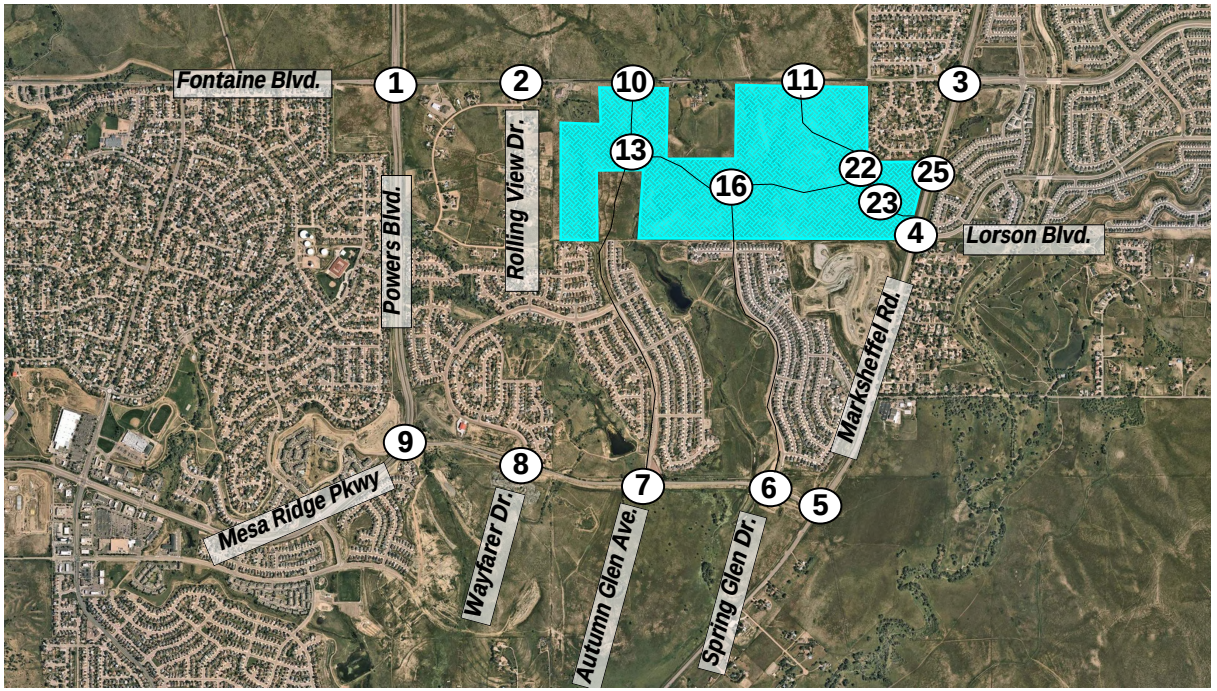
Figure 7 illustrates the expected external distribution of travel for the site-generated trips.

Figure 7. Trip Distribution

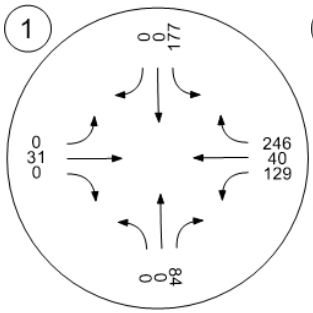


The project trips in AM and PM peak hours are shown in Figure 8 and Figure 9. The daily site trips are shown in Figure 10.

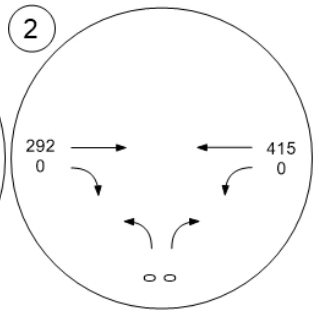
Figure 8. Corvallis - Site Traffic Short Term (AM Peak Hour)



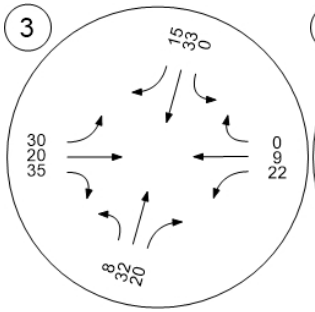
Powers Bl/Fontaine Bl



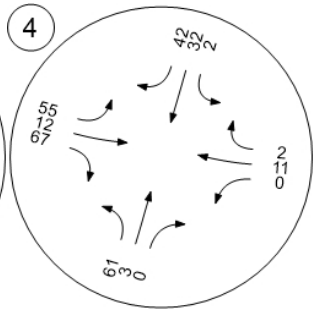
Fontaine Bl/Rolling View Dr



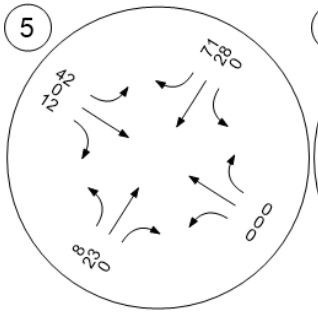
Marksheffel Rd/Fontaine Bl



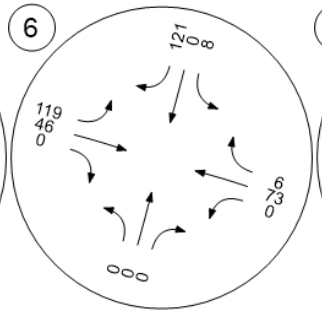
Marksheffel Rd/Lorson Blvd



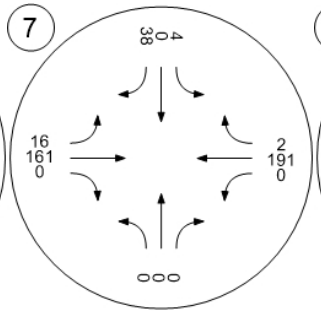
Makrsheffel Rd/Mesa Ridge



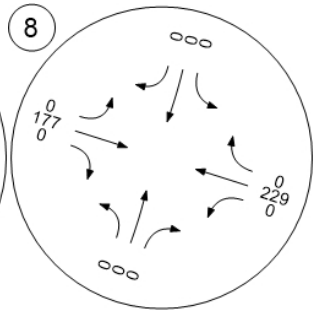
Mesa Ridge P./Spring Glen D



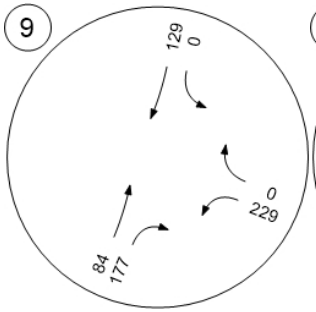
Mesa Ridge P./Autumn Glen



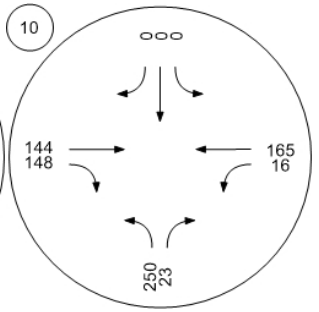
Mesa Ridge P./Wayfarer Dr



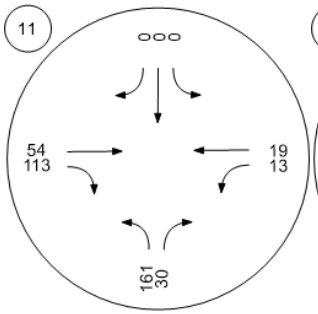
Powers Bl/Mesa Ridge Pkwy



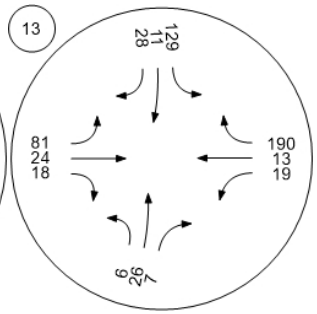
Fontaine Bl/Autumn Glen Ave



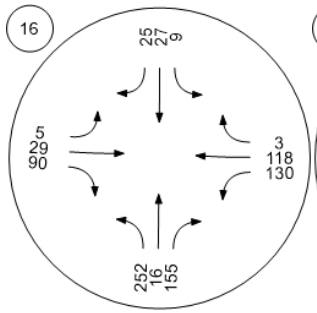
Fontaine Bl/Community Arteri



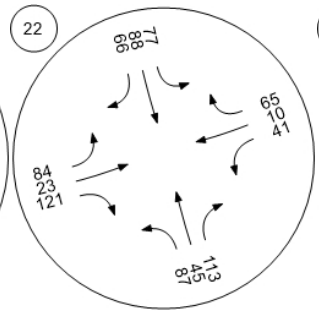
Autumn Glen Ave/Road A



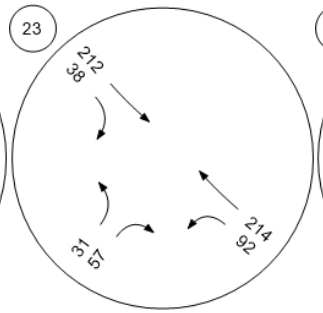
Road A/Collector #3



Community Arterial 1/Road A



Coomunity Arterial Rd/Acces



Marksheffel Rd/East Access

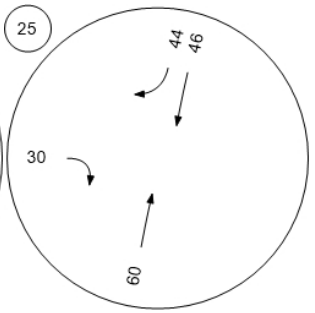
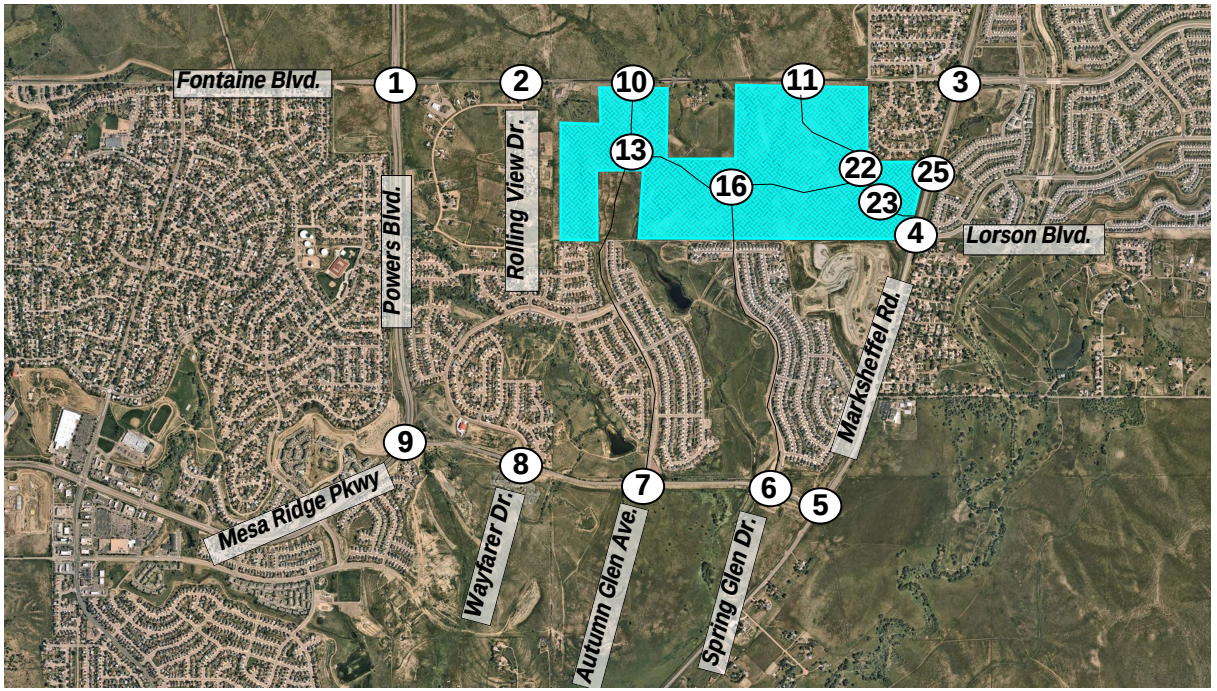
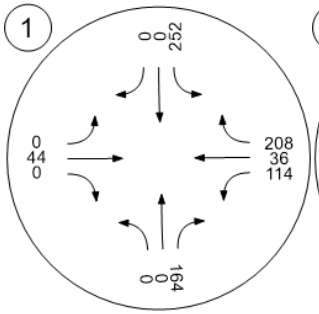


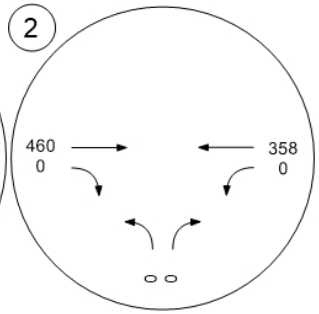
Figure 9. Corvallis - Site Traffic Short Term (PM Peak Hour)



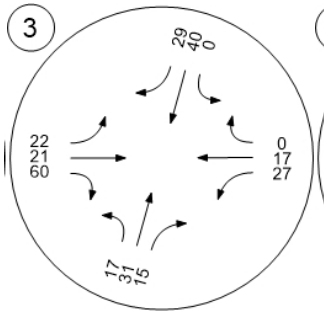
Powers Bl/Fontaine Bl



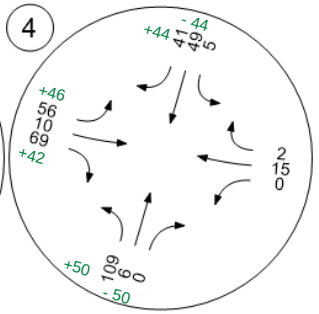
Fontaine Bl/Rolling View Dr



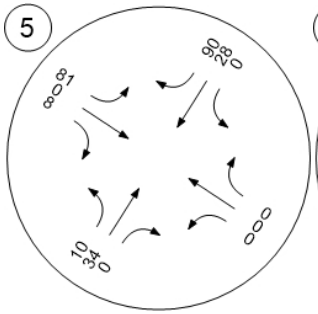
Marksheffel Rd/Fontaine Bl



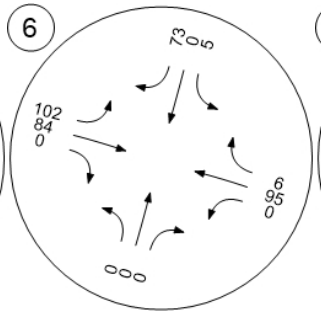
Marksheffel Rd/Lorson Blvd



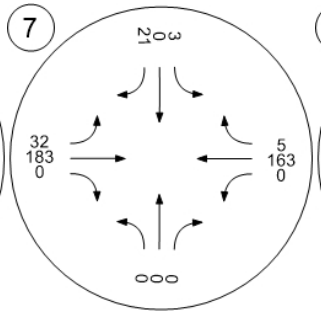
Makrsheffel Rd/Mesa Ridge



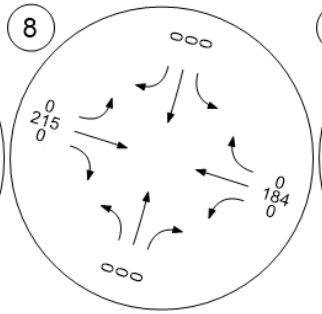
Mesa Ridge P./Spring Glen D



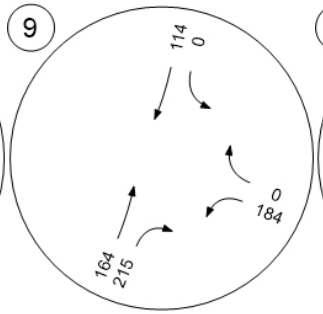
Mesa Ridge P./Autumn Glen



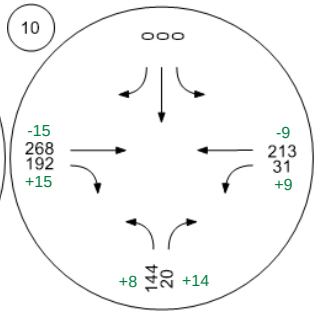
Mesa Ridge P./Wayfarer Dr



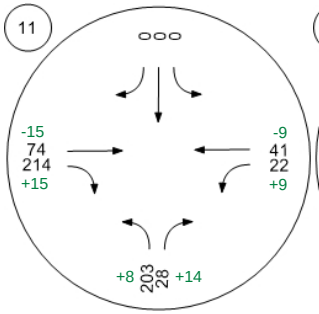
Powers Bl/Mesa Ridge Pkwy



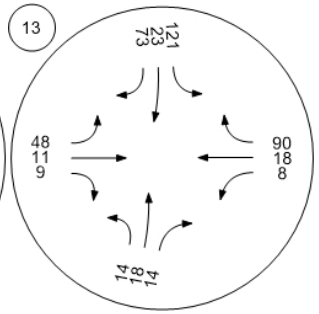
Fontaine Bl/Autumn Glen Ave



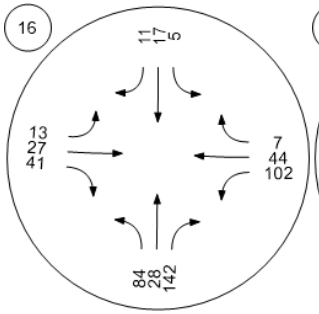
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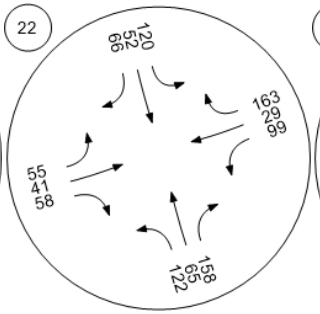
Autumn Glen Ave/Road A



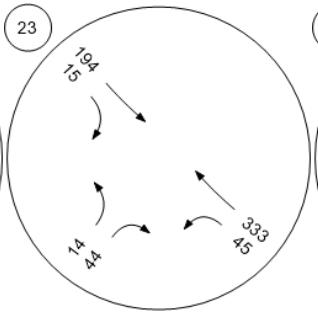
Road A/Collector #3



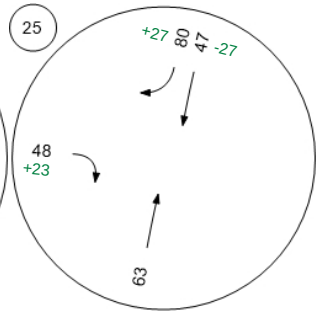
Community Arterial 1/Road A



Coomunity Arterial Rd/Acces



Marksheffel Rd/East Access



New Site Trips
Pass-By Trips

Matrix

Figure 10. Corvallis - Daily Site Traffic (Short-Term)



5. Buildout (2030) Traffic Analysis

Traffic conditions with and without the project for the buildout year (2030) and horizon year (2050) were studied in this report, and the results are documented as follows.

5.1 Buildout (2030) Background Conditions

The buildout year traffic volumes without the project are shown in Figure 11, and Figure 12 for the AM and PM peak hours, respectively. The daily traffic volumes are shown in Figure 13.

Figure 11. Buildout (2030) Background Volumes (AM Peak Hour)



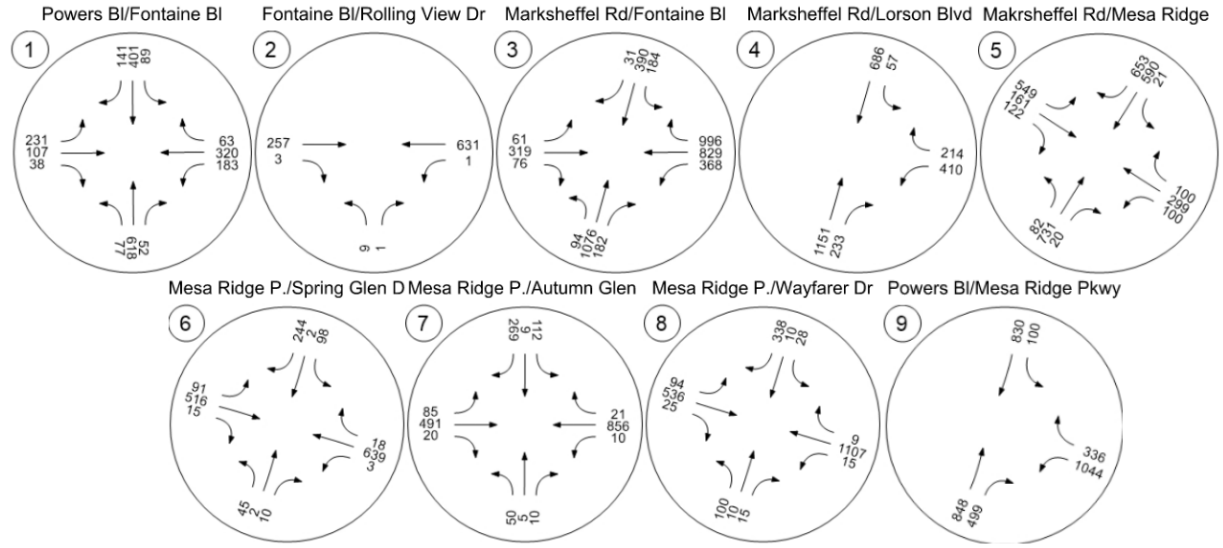


Figure 12. Buildout (2030) Background Volumes (PM Peak Hour)

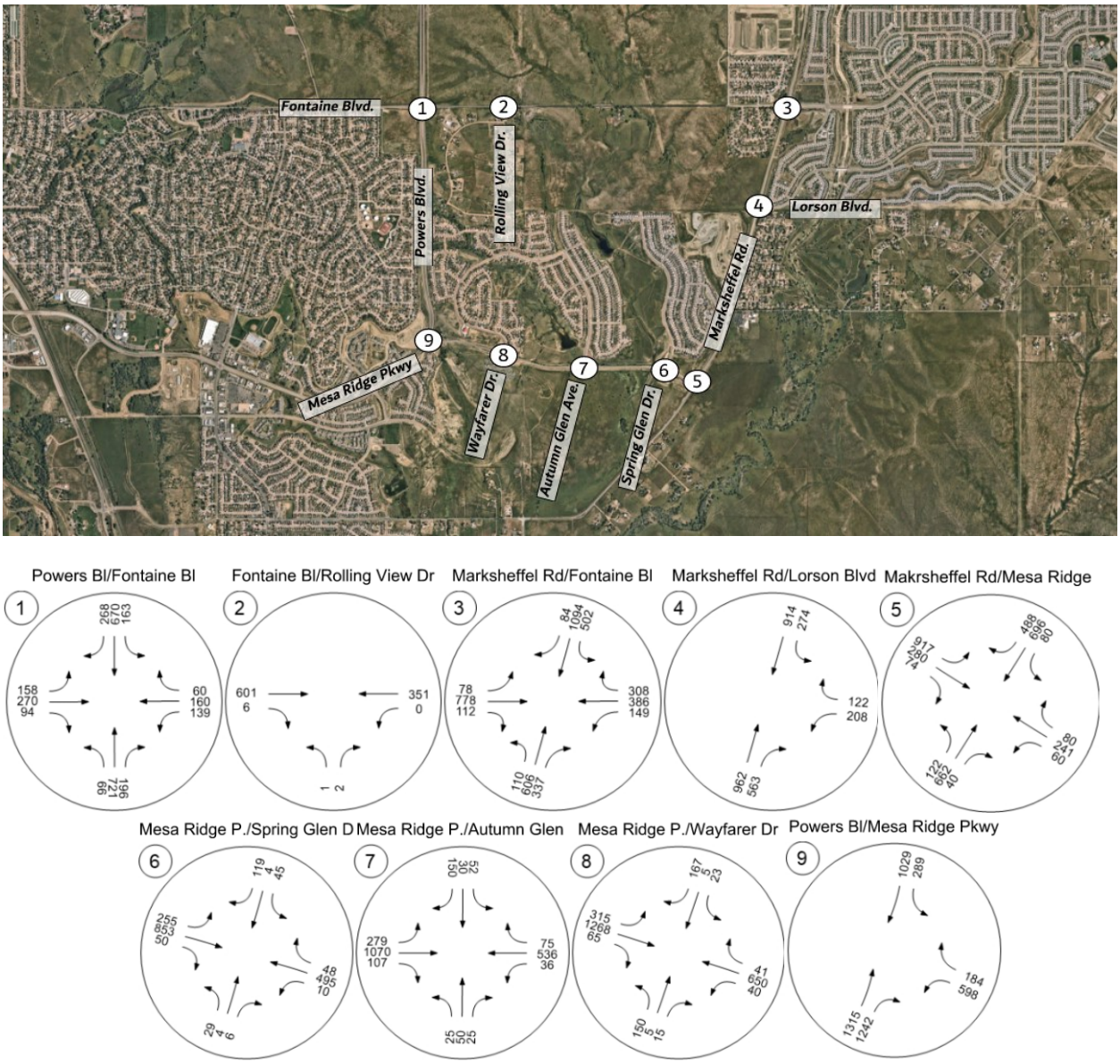
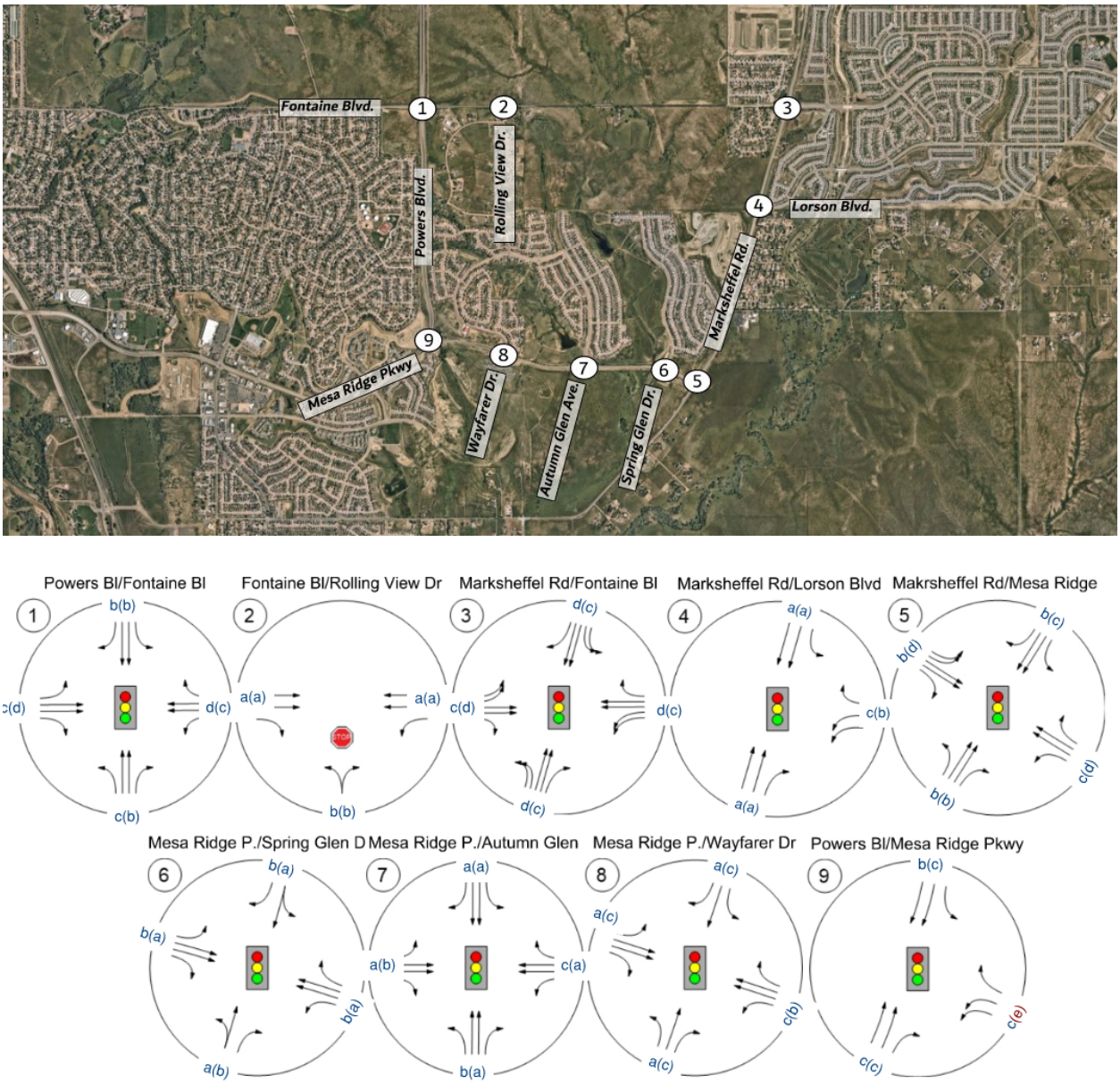


Figure 13. Buildout (2030) Background Daily Volumes



The intersection configurations and approach LOS are shown in Figure 14.

Figure 14. Buildout (2030) Background Intersection Configuration and LOS



The intersection operations in the AM and PM peak hours are shown in Table 6 and Table 7, respectively.

Table 6. Buildout (2030) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Thru	0.437	25.0	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.024	13.8	B
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.746	42.3	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	WB Left	0.673	10.2	B
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Thru	0.481	16.8	B
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	WB Thru	0.242	12.4	B
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	WB Thru	0.346	17.1	B
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	WB Thru	0.454	17.3	B
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	NB Thru	0.626	23.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 7. Buildout (2030) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.431	22.2	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.003	17.0	C
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.653	34.8	C
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	WB Left	0.738	5.1	A
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	EB Left	0.563	29.3	C
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	NB Left	0.332	9.3	A
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	EB Left	0.348	12.1	B
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	SB Right	0.523	24.7	C
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Left	0.683	31.7	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 6 and Table 7, all intersections operate at an acceptable LOS. The turn lane evaluations are shown in Table 8.

Table 8. Buildout (2030) Background Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT - SHAC	E-X	NBL	1	55	77	37	222	600	100	**920**	-
		E-X	NBR	1	55	196	55	222	600	-	**820**	-
		E-X	SBL	1	55	163	66	222	600	163	**985**	25
		E-X	SBR	1	55	268	72	222	600	-	**820**	-
		NR-A	EBL	1	45	231	198	162	273	231	**665**	35
		NR-A	EBR	1	45	94	47	162	273	-	**435**	-
		NR-A	WBL	1	45	183	153	162	273	183	**620**	30
		NR-A	WBR	1	45	63	32	162	273	-	**435**	-
		NR-A	NBR to EBT Acceleration Lane	1	45	196	55	162	*388 (Accel. Lane)*	-	**550**	-
		NR-A	SBR to WBT Acceleration Lane	1	45	268	72	162	*388 (Accel. Lane)*	-	**550**	150
		E-X	EBR to SBT Acceleration Lane	1	55	94	47	222	*960 (Accel. Lane)*	-	**1180**	-
		E-X	WBR to NBT Acceleration Lane	1	55	63	32	222	*960 (Accel. Lane)*	-	**1180**	-
2	Fontaine Bl/Rolling View Dr CCS -TCM	Principal Arterial	EBR	1	45	6	0	180	200	-	**380**	120
		Principal Arterial	WBL	1	45	1	0	180	200	-	**380**	120
3	Marksheffel Rd/Fontaine Bl CCS -TCM	Principal Arterial	NBL	2	45	110	60	360	200	-	**560**	Double Turn Lane
		Principal Arterial	NBR	1	45	337	149	180	200	-	**380**	-
		Principal Arterial	SBL	2	45	502	243	360	200	-	**560**	Double Turn Lane
		Principal Arterial	SBR	1	45	84	26	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	78	43	360	200	-	**560**	Double Turn Lane
		Principal Arterial	EBR	1	45	112	46	180	200	-	**380**	105
		Principal Arterial	WBL	2	45	368	210	360	200	-	**560**	Double Turn Lane
		Principal Arterial	WBR	1	45	996	596	180	200	-	**380**	-
4	Marksheffel Rd/Lorson Bl CCS -TCM	Principal Arterial	NBR	1	45	563	5	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	274	100	180	200	-	**380**	-
		Minor Arterial	WBL	2	35	410	115	280	120		**400**	Double Turn Lane
		Minor Arterial	WBR	1	35	214	13	140	120	-	**260**	-
5	Marksheffel Rd/Mesa Ridge Pkwy CCS -TCM	Principal Arterial	NBL	1	45	122	63	180	200	-	**380**	-
		Principal Arterial	NBR	1	45	40	12	180	200	-	**380**	380
		Principal Arterial	SBL	1	45	80	39	180	200	-	**380**	380
		Principal Arterial	SBR	1	45	653	180	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	917	416	360	200	-	**560**	Double Turn Lane
		Principal Arterial	EBR	1	45	122	32	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	100	42	180	200	-	**380**	380
		Principal Arterial	WBR	1	45	100	40	180	200	-	**380**	380
6	Mesa Rdige Pkwy/Spring Glen Dr CCS -TCM	Collector	SBR	1	30	244	33	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	255	22	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	50	3	180	200	-	**380**	380
		Principal Arterial	WBL	1	45	10	1	180	200	-	**380**	380
		Principal Arterial	WBR	1	45	48	3	180	200	-	**380**	-
7	Mesa Rdige Pkwy/Autumn Glen Ave CCS -TCM	Collector	SBL	1	30	112	12	120	115	-	**235**	-
		Collector	SBR	1	30	269	15	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	279	62	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	107	5	180	200	-	**380**	380
		Principal Arterial	WBL	1	45	36	10	180	200	-	**380**	380
		Principal Arterial	WBR	1	45	75	3	180	200	-	**380**	-
8	Mesa Ridge Pkwy/Wayfarer Dr CCS -TCM	Collector	SBL	1	30	28	15	120	115	-	**235**	-
		Collector	SBR	1	30	338	77	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	315	160	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	65	15	180	200	-	**380**	380
		Principal Arterial	WBL	1	45	40	13	180	200	-	**380**	380
		Principal Arterial	WBR	1	45	41	11	180	200	-	**380**	-
9	Powers Bl/Mesa Rdige Pkwy CDOT -SHAC	E-X	NBR	1	55	1242	545	222	600	-	**820**	-
		E-X	SBL	1	55	289	343	222	600	289	**1110**	-
		NR-A	WBL	2	45	1044	132	324	110	522	**955**	210

The improvements in the 2030 buildout scenario assume that improvements in the existing conditions have already been implemented. Summary of turn lane improvements are as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 25-ft extension of southbound left-turn lane.
- A 35-ft extension of eastbound left-turn lane.
- A 30-ft extension of westbound left-turn lane.
- A 150-ft extension of southbound right-turn to westbound thru acceleration lane.

Fontaine Boulevard/Rolling View Drive (#2)

- A 120-ft extension of eastbound right-turn.
- A 120-ft extension of westbound left-turn.

Although the turning volumes do not warrant these lanes, they are recommended to maintain consistency with the previous study and to prevent turning vehicles from blocking through movements.

Marksheffel Road/Fontaine Boulevard (#3)

- Double northbound left-turn lane. Include a 360-ft of taper, and a 200-ft of deceleration lane (560-ft in total).
- Double southbound left-turn lane. Include a 360-ft of taper, and a 200-ft of deceleration lane (560-ft in total).
- Double eastbound left-turn lane. Include a 360-ft of taper, and a 200-ft of deceleration lane (560-ft in total).
- Double westbound left-turn lane. Include a 360-ft of taper, and a 200-ft of deceleration lane (560-ft in total).
- A 105-ft extension of eastbound right-turn lane.

Marksheffel Road/Lorson Boulevard (#4)

- Double westbound left-turn lane. Include a 280-ft of taper, and a 120-ft of deceleration lane (400-ft in total).

Marksheffel Road/Mesa Ridge Parkway (#5)

- A 380-ft northbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft southbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- Double eastbound left-turn. Include a 360-ft of taper and a 200-ft of deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

Mesa Ridge Parkway/Spring Glen Drive (#6)

- A 380-ft eastbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

Mesa Ridge Parkway/Autumn Glen Avenue (#7)

- A 380-ft eastbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

Mesa Ridge Parkway/Wayfarer Drive (#8)

- A 380-ft eastbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

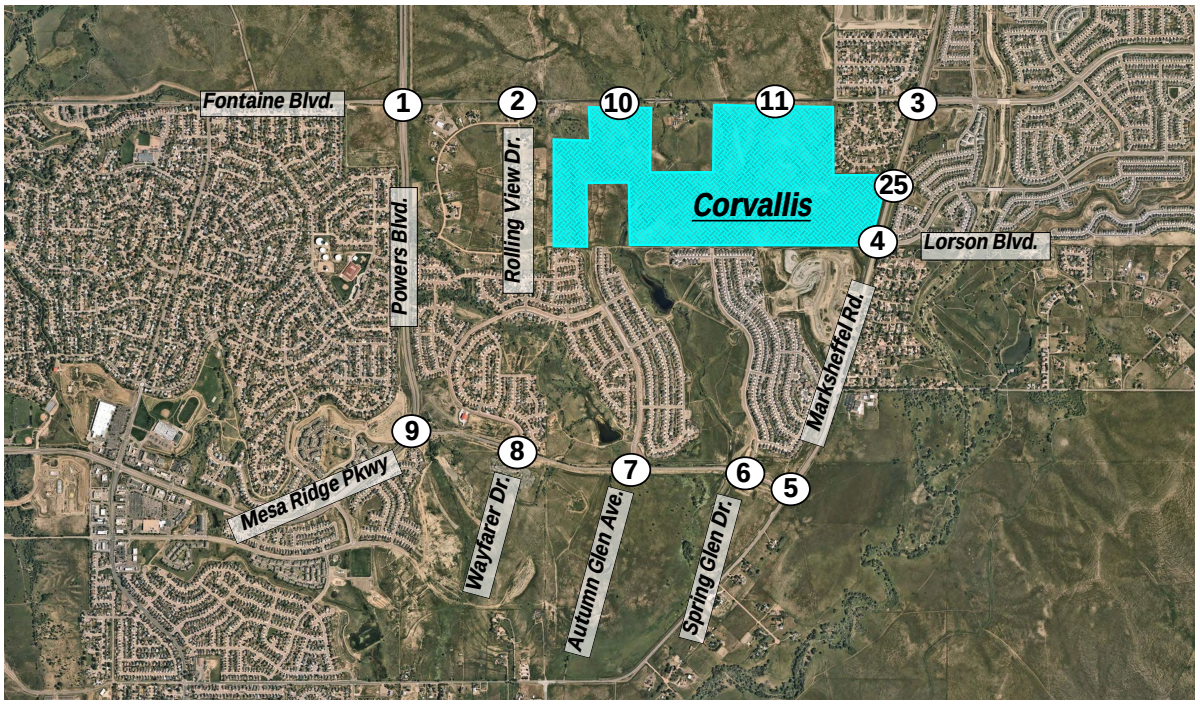
Powers Boulevard/Mesa Ridge Parkway (#9)

- A 210-ft extension of westbound left-turn lanes.

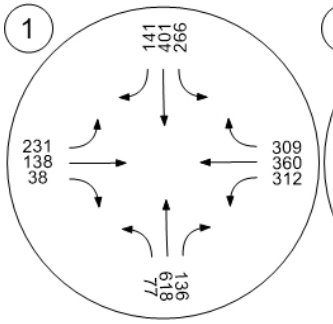
5.2 Buildout (2030) Total Conditions

Figure 15 and Figure 16 shows the buildout total traffic volumes for AM and PM Peak hour. The buildout traffic daily volumes with the project traffic added are shown in Figure 17.

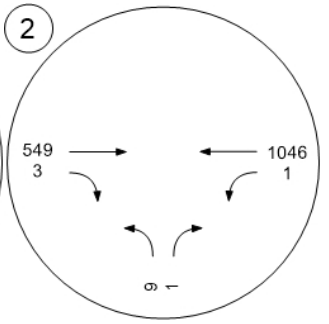
Figure 15. Buildout (2030) Total Volumes (AM Peak Hour)



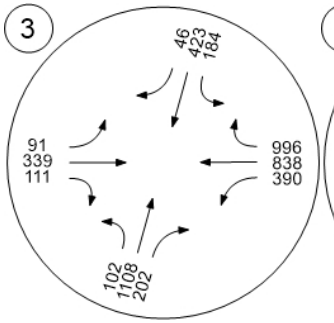
Powers Bl/Fontaine Bl



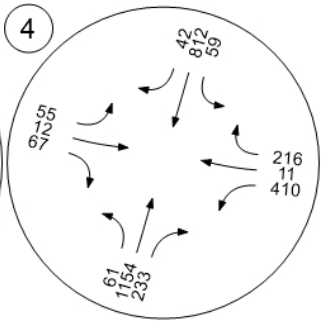
Fontaine Bl/Rolling View Dr



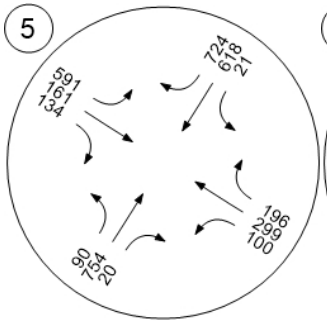
Marksheffel Rd/Fontaine Bl



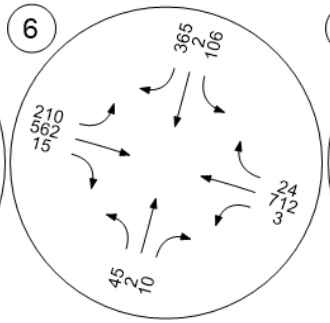
Marksheffel Rd/Lorson Blvd



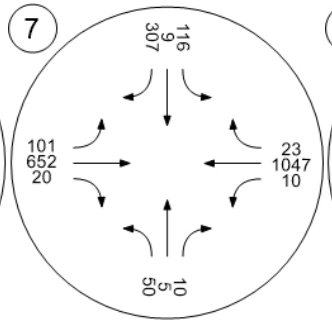
Makrsheffel Rd/Mesa Ridge



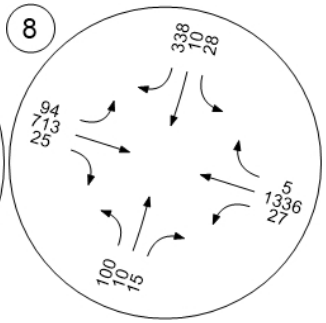
Mesa Ridge P./Spring Glen D



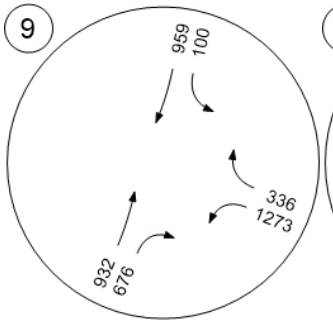
Mesa Ridge P./Autumn Glen



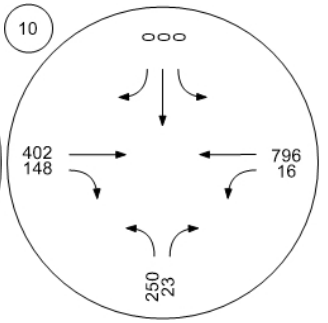
Mesa Ridge P./Wayfarer Dr



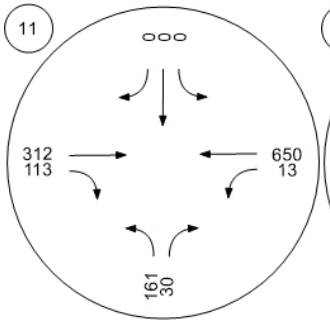
Powers Bl/Mesa Ridge Pkwy



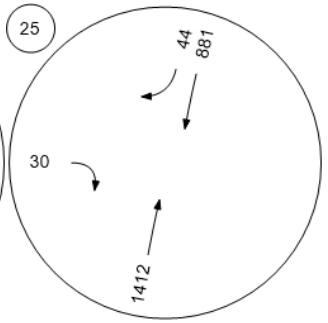
Fontaine Bl/Autumn Glen Ave



Fontaine Bl/Community Arteri

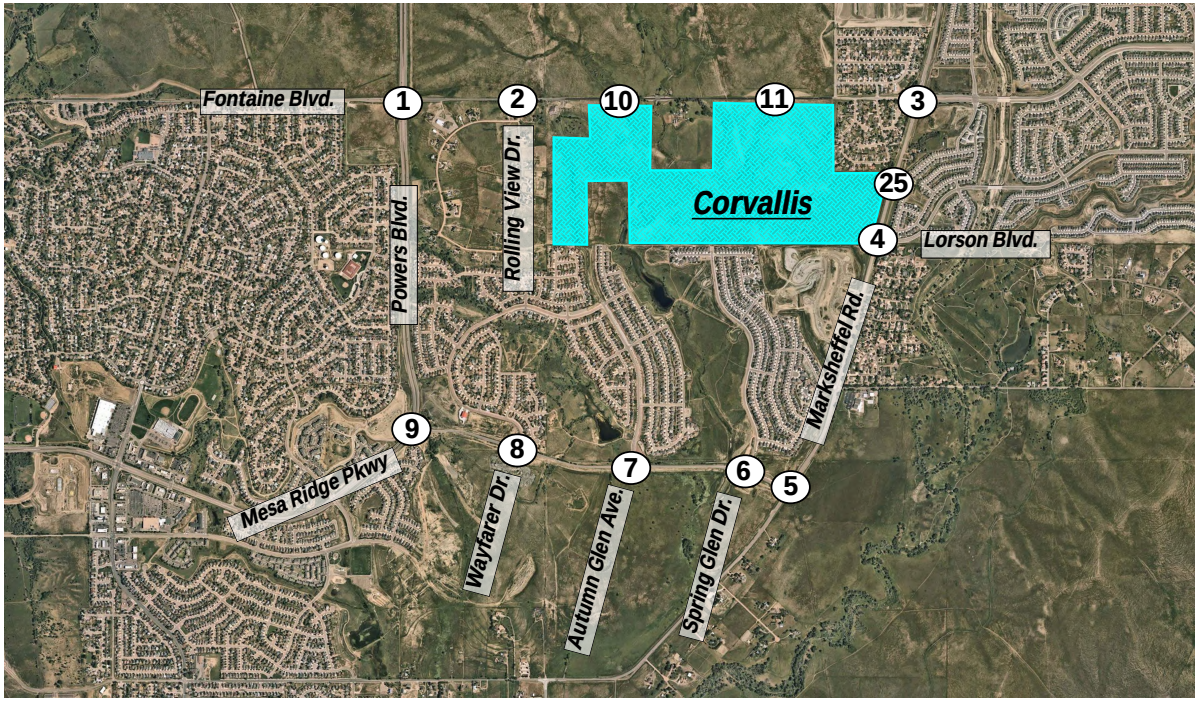


Marksheffel Rd/East Access

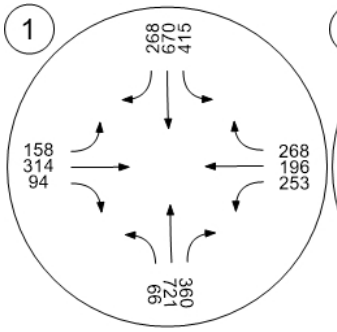


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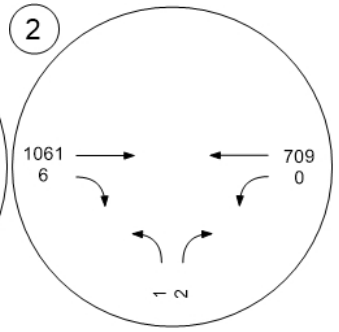
Figure 16. Buildout (2030) Total Volumes (PM Peak Hour)



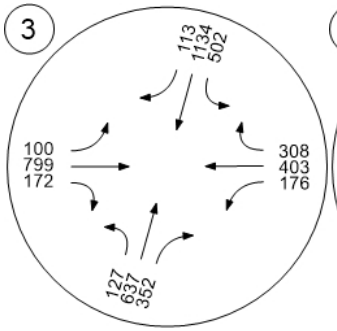
Powers Bl/Fontaine Bl



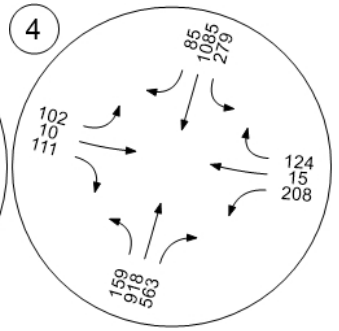
Fontaine Bl/Rolling View Dr



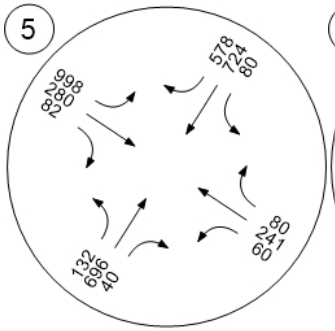
Marksheffel Rd/Fontaine Bl



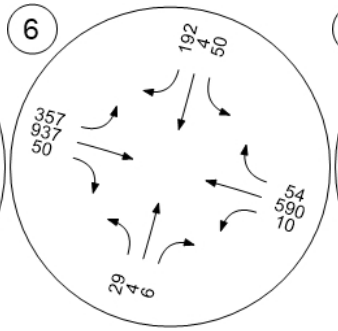
Marksheffel Rd/Lorson Blvd



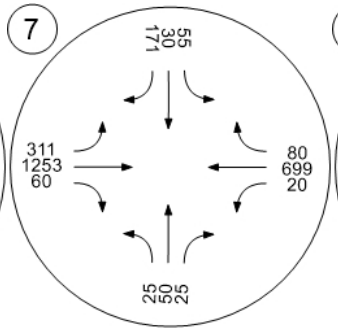
Makrsheffel Rd/Mesa Ridge



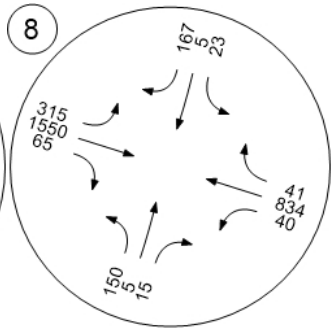
Mesa Ridge P./Spring Glen D



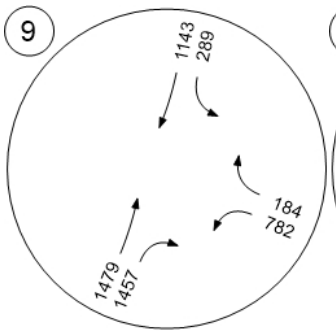
Mesa Ridge P./Autumn Glen



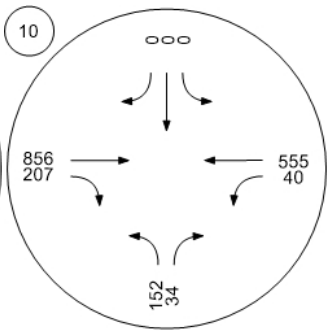
Mesa Ridge P./Wayfarer Dr



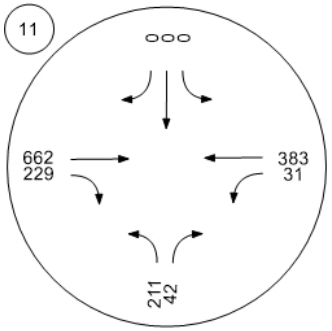
Powers Bl/Mesa Ridge Pkwy



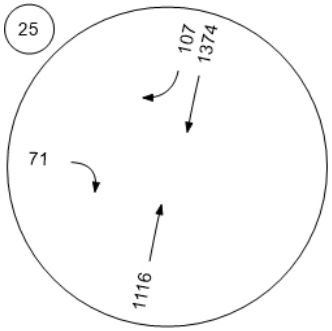
Fontaine Bl/Autumn Glen Ave



Fontaine Bl/Community Arteri



Marksheffel Rd/East Access



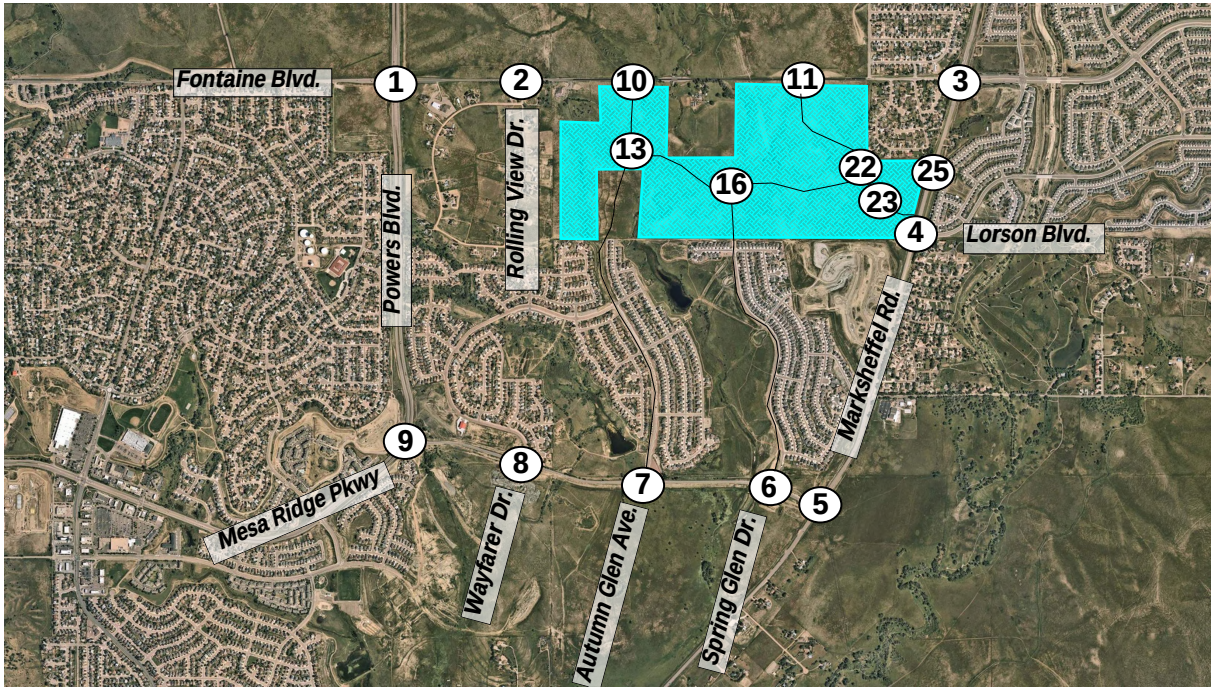
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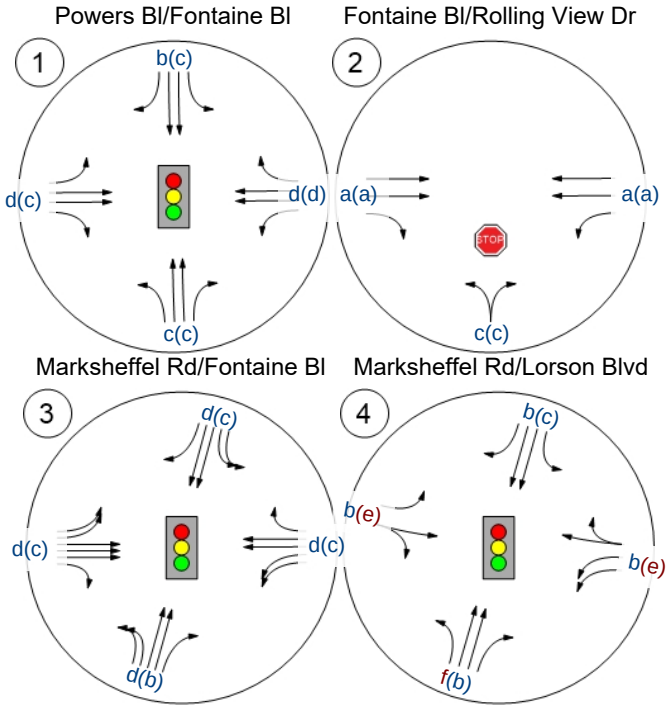
Figure 17. Buildout (2030) Total Daily Volumes

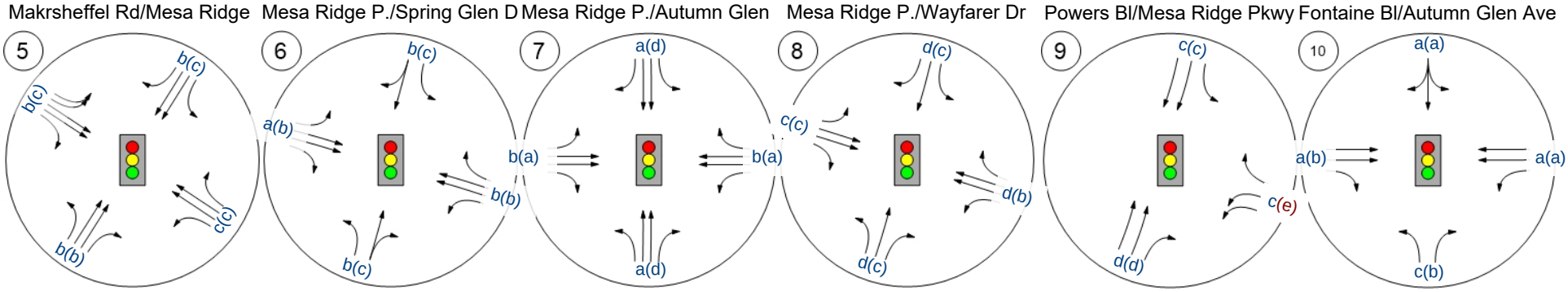


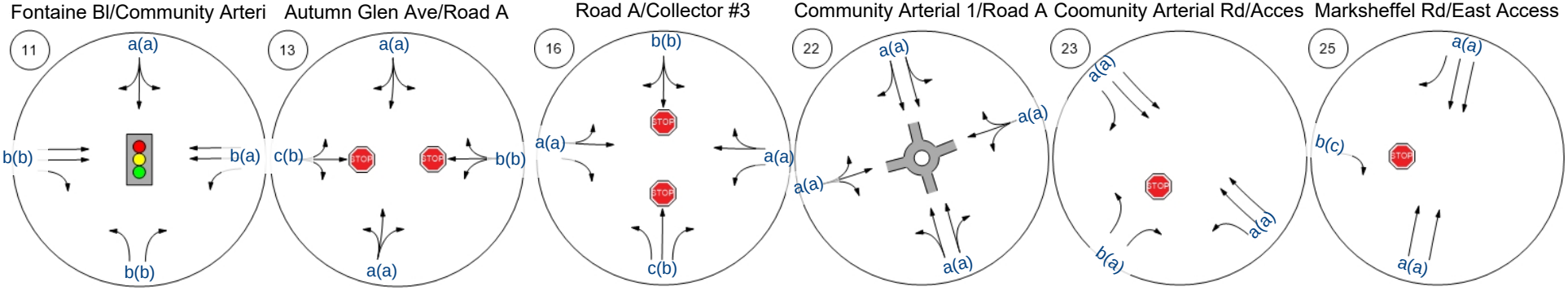
The intersection configurations and approach LOS for the buildout with project scenario are shown in Figure 18. The intersection operations in the AM and PM peak hours are shown in Table 9 and Table 10, respectively.

Figure 18. Buildout (2030) Total Intersection Configurations and LOS









Approach LOS AM(PM)

Matrix

Table 9. Buildout (2030) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Right	0.573	30.0	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.054	25.4	D
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.765	44.4	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	NB Thru	0.529	46.4	D
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Thru	0.517	17.6	B
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	NB Left	0.432	12.7	B
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	WB Thru	0.416	14.2	B
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	SB Right	0.600	37.4	D
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	NB Thru	0.725	30.3	C
10	Fontaine Bl/Autumn Glen Ave	Signalized	HCM 7th Edition	NB Left	0.435	8.4	A
11	Fontaine Bl/Community Arterial 1	Signalized	HCM 7th Edition	NB Left	0.322	11.6	B
25	Marksheffel Rd/East Access	Two-way stop	HCM 7th Edition	EB Right	0.062	12.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 10. Buildout (2030) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.591	29.0	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.009	39.1	E
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	SB Left	0.618	26.6	C
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	SB Left	0.867	25.2	C
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Thru	0.587	21.6	C
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	NB Left	0.376	17.0	B
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	SB Left	0.511	8.7	A
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Left	0.832	37.9	D
10	Fontaine Bl/Autumn Glen Ave	Signalized	HCM 7th Edition	WB Left	0.378	10.4	B
11	Fontaine Bl/Community Arterial 1	Signalized	HCM 7th Edition	NB Left	0.364	11.1	B
25	Marksheffel Rd/East Access	Two-way stop	HCM 7th Edition	EB Right	0.216	17.9	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 9 and Table 10 all intersections operate at an acceptable LOS except for the intersection of Fontaine Boulevard/Rolling View Drive (#2) with an LOS E during the PM peak hour. However, since the queue length is only 1 vehicle for the worst movement, Matrix does not recommend any improvement at this intersection. The required turn lanes are shown in Table 11.

Table 11. Buildout (2030) Total Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT - SHAC	E-X	NBL	1	55	77	41	222	600	100	**920**	-
		E-X	NBR	1	55	360	-	222	600	-	**820**	-
		E-X	SBL	1	55	415	315	222	600	415	**1235**	-
		E-X	SBR	1	55	268	-	222	600	-	**820**	-
		NR-A	EBL	1	45	231	206	162	273	230	**665**	-
		NR-A	EBR	1	45	94	-	162	273	-	**435**	-
		NR-A	WBL	1	45	312	282	162	273	300	**735**	-
		NR-A	WBR	1	45	309	-	162	273	-	**435**	-
		NR-A	NBR to EBT Acceleration Lane	1	45	360	-	162	*388 (Accel. Lane)*	-	**550**	-
		NR-A	SBR to WBT Acceleration Lane	1	45	268	-	162	*388 (Accel. Lane)*	-	**550**	-
		E-X	EBR to SBT Acceleration Lane	1	55	94	-	222	*960 (Accel. Lane)*	-	**1180**	-
		E-X	WBR to NBT Acceleration Lane	1	55	309	-	222	*960 (Accel. Lane)*	-	**1180**	-
2	Fontaine Bl/Rolling View Dr CCS -TCM	Principal Arterial	EBR	1	45	6	0	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	1	0	180	200	-	**380**	-
3	Marksheffel Rd/Fontaine Bl CCS -TCM	Principal Arterial	NBL	2	45	127	77	360	200	-	**560**	-
		Principal Arterial	NBR	1	45	352	97	180	200	-	**380**	-
		Principal Arterial	SBL	2	45	502	342	360	200	-	**560**	-
		Principal Arterial	SBR	1	45	113	27	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	100	70	360	200	-	**560**	-
		Principal Arterial	EBR	1	45	172	63	180	200	-	**380**	-
		Principal Arterial	WBL	2	45	390	261	360	200	-	**560**	-
		Principal Arterial	WBR	1	45	996	651	180	200	-	**380**	-
4	Marksheffel Rd/Lorson Bl CCS -TCM	Principal Arterial	NBL	1	45	159	178	180	200	-	**380**	380
		Principal Arterial	NBR	1	45	563	117	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	279	493	180	200	-	**380**	-
		Principal Arterial	SBR	1	45	85	15	180	200	-	**380**	380
		Minor Arterial	EBL	1	30	102	200	120	115	-	**235**	235
		Minor Arterial	WBL	2	35	410	198	280	155	-	**435**	-
5	Marksheffel Rd/Mesa Ridge Pkwy CCS -TCM	Principal Arterial	NBL	1	45	132	56	180	200	-	**380**	-
		Principal Arterial	NBR	1	45	40	10	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	80	32	180	200	-	**380**	-
		Principal Arterial	SBR	1	45	724	205	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	998	290	360	200	-	**560**	-
		Principal Arterial	EBR	1	45	134	35	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	100	42	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	196	58	180	200	-	**380**	-
6	Mesa Rdige Pkwy/Spring Glen Dr CCS -TCM	Collector	SBL	1	30	106	33	120	115	-	**235**	235
		Principal Arterial	EBL	1	45	357	151	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	50	10	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	10	3	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	54	12	180	200	-	**380**	-
7	Mesa Rdige Pkwy/Autumn Glen Ave CCS -TCM	Collector	SBL	1	30	116	53	120	115	-	**235**	-
		Collector	SBR	1	30	307	82	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	311	158	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	60	4	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	20	9	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	80	5	180	200	-	**380**	-
8	Mesa Ridge Pkwy/Wayfarer Dr CCS -TCM	Collector	SBL	1	30	28	36	120	115	-	**235**	-
		Collector	SBR	1	30	338	235	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	315	135	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	65	12	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	40	18	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	41	10	180	200	-	**380**	-
9	Powers Bl/Mesa Rdige Pkwy CDOT -SHAC	E-X	NBR	1	55	1457	745	222	600	-	**820**	-
		E-X	SBL	1	55	289	243	222	600	289	**1110**	-
		NR-A	WBL	2	45	1273	508	324	110	637	**1070**	115
10	Fontaine Bl/Autumn Glenn Ave CCS -TCM	Collector	NBL	1	30	250	160	120	115	-	**235**	235
		Principal Arterial	EBR	1	45	207	28	180	200	-	**380**	380
		Principal Arterial	WBL	1	45	40	20	180	200	-	**380**	380
11	Fontaine Bl/Community Arterial 1 CCS -TCM	Collector	NBL	1	30	211	104	120	115	100	**335**	335
		Principal Arterial	EBR	1	45	229	35	180	200	-	**380**	380
		Principal Arterial	WBL	1	45	31	15	180	200	-	**380**	380
25	Marksheffel Rd/East Access CCS -TCM	Principal Arterial	SBR	1	45	105	-	180	200	-	**380**	380
		Principal Arterial	EBR to SBT Acceleration Lane	1	45	71	-	162	388	-	**550**	550

The improvements for the buildout total scenario are with respect to the buildout background scenario. Summary of turn lane improvements are as follows:

Marksheffel Road/Lorson Boulevard (#4)

- A 380-ft northbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft southbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 235-ft eastbound left-turn lane. Include a 120-ft taper and 115-ft deceleration lane.

Mesa Ridge Parkway/Spring Glen Drive (#6)

- A 235-ft southbound left-turn lane. Include 120-ft taper and 115-ft of deceleration lane.

Powers Boulevard/Mesa Ridge Parkway (#9)

- A 115-ft extension of westbound left-turn lanes.

Fontaine Boulevard/Autumn Glenn Avenue (#10)

- A 235-ft northbound left-turn lane. Include a 120-ft taper and 115-ft deceleration lane.
- A 380-ft eastbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

Fontaine Boulevard/Community Arterial 1 (#11)

- A 335-ft northbound left-turn lane. Include a 120-ft taper, 115-ft deceleration lane and 100-ft of storage.
- A 380-ft eastbound right-turn lane. Include a 180-ft taper and 200-ft deceleration lane.
- A 380-ft westbound left-turn lane. Include a 180-ft taper and 200-ft deceleration lane.

Marksheffel Road/East Access (#25)

- A 380-ft southbound right-turn lane. Include 180-ft of taper and 200-ft of deceleration lane.
- A 550-ft eastbound right-turn to southbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.

6. Horizon (2050) Analysis

6.1 Horizon (2050) Background Conditions

The horizon year traffic volumes without the project in AM and PM peak hours are shown in Figure 19, and Figure 20, respectively. The daily volumes are shown in Figure 21.

Figure 19. Horizon (2050) Background Volumes (AM Peak Hour)

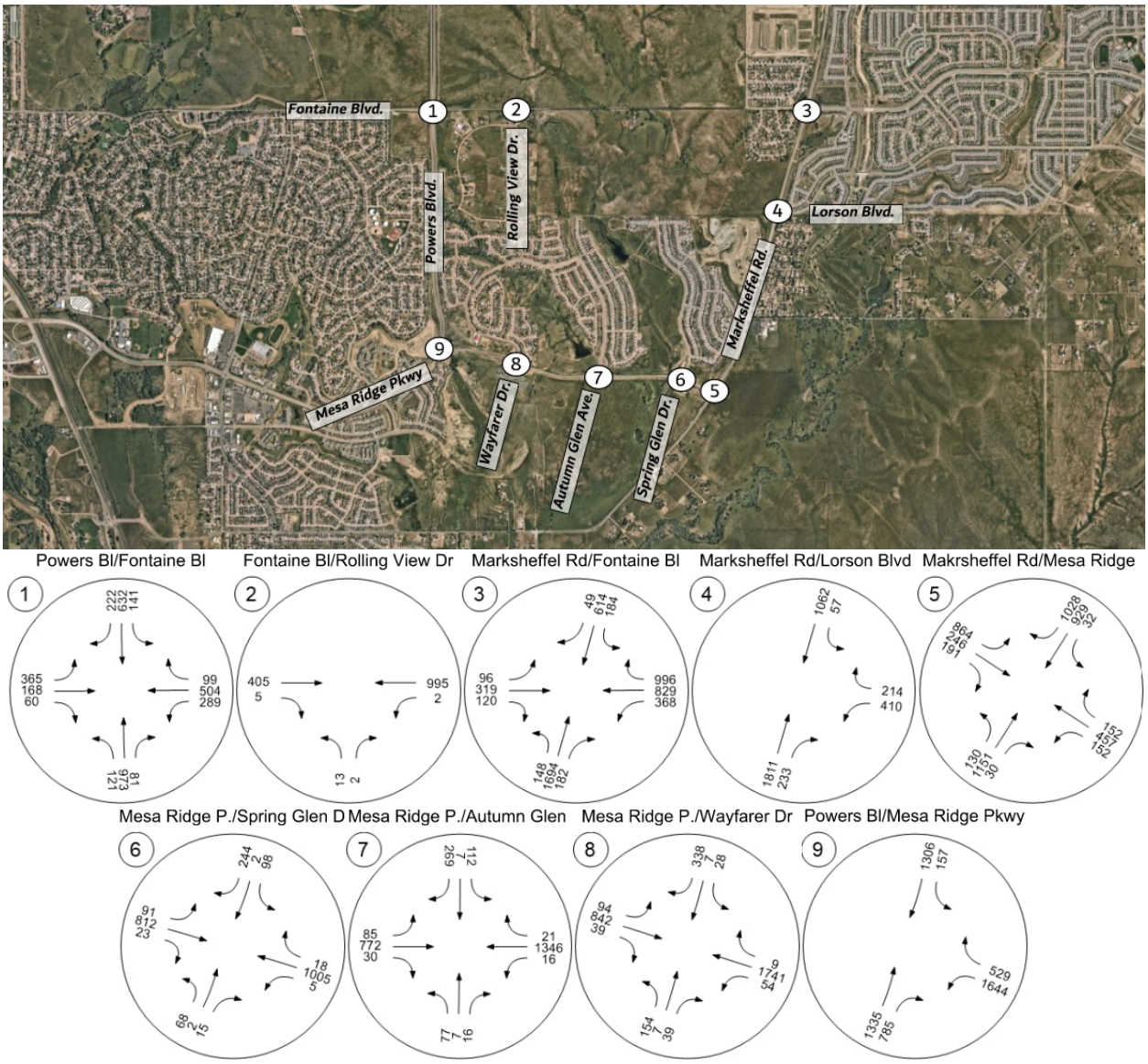


Figure 20. Horizon (2050) Background Volumes (PM Peak Hour)

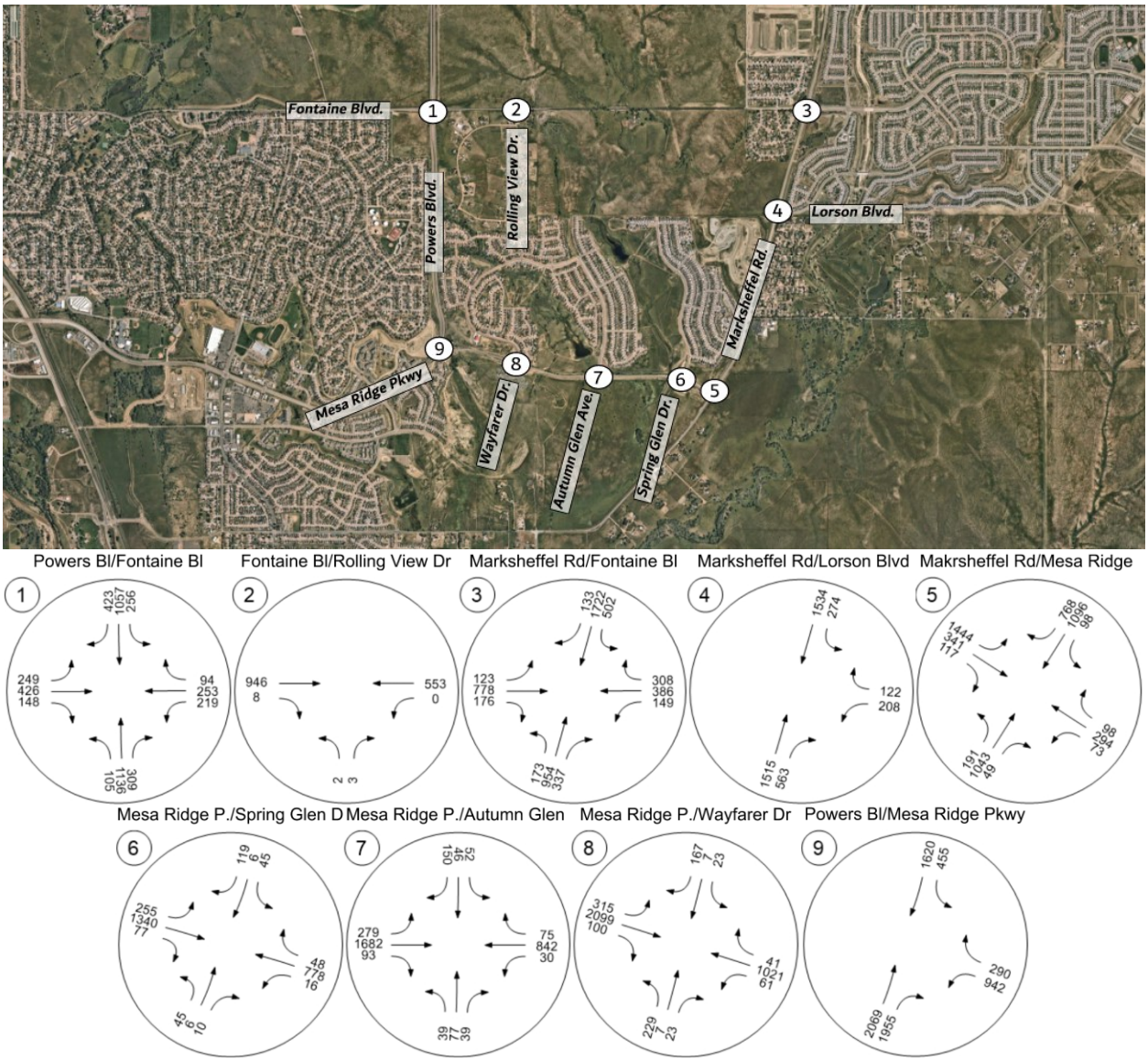
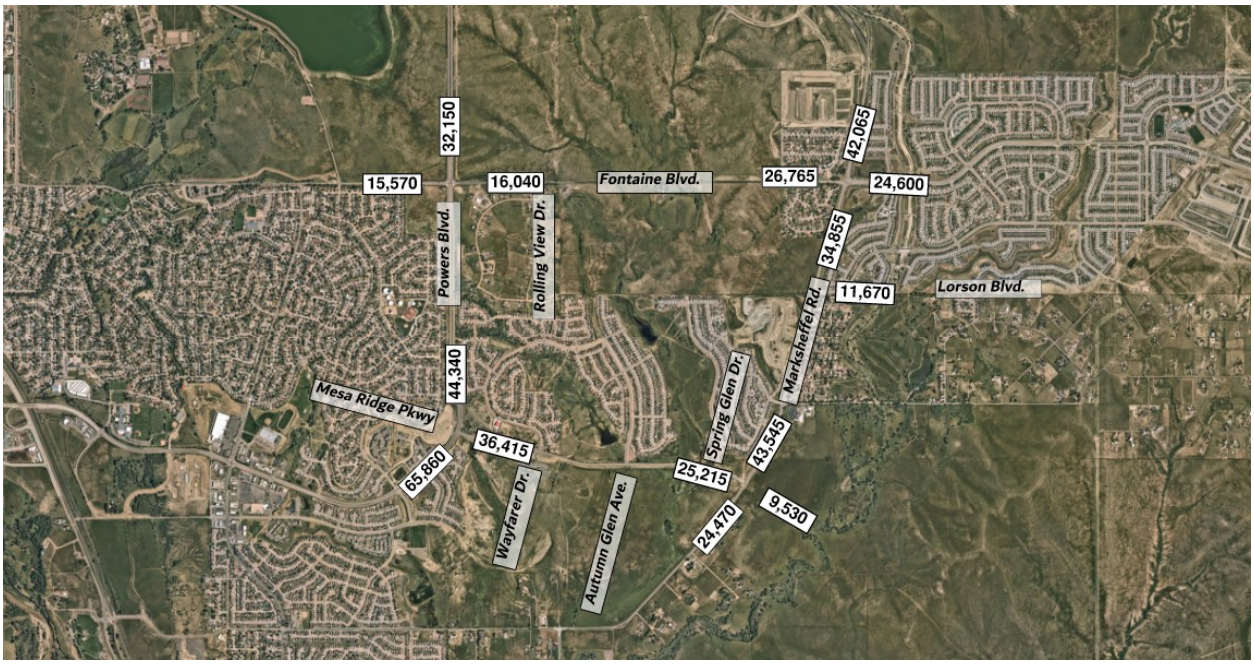
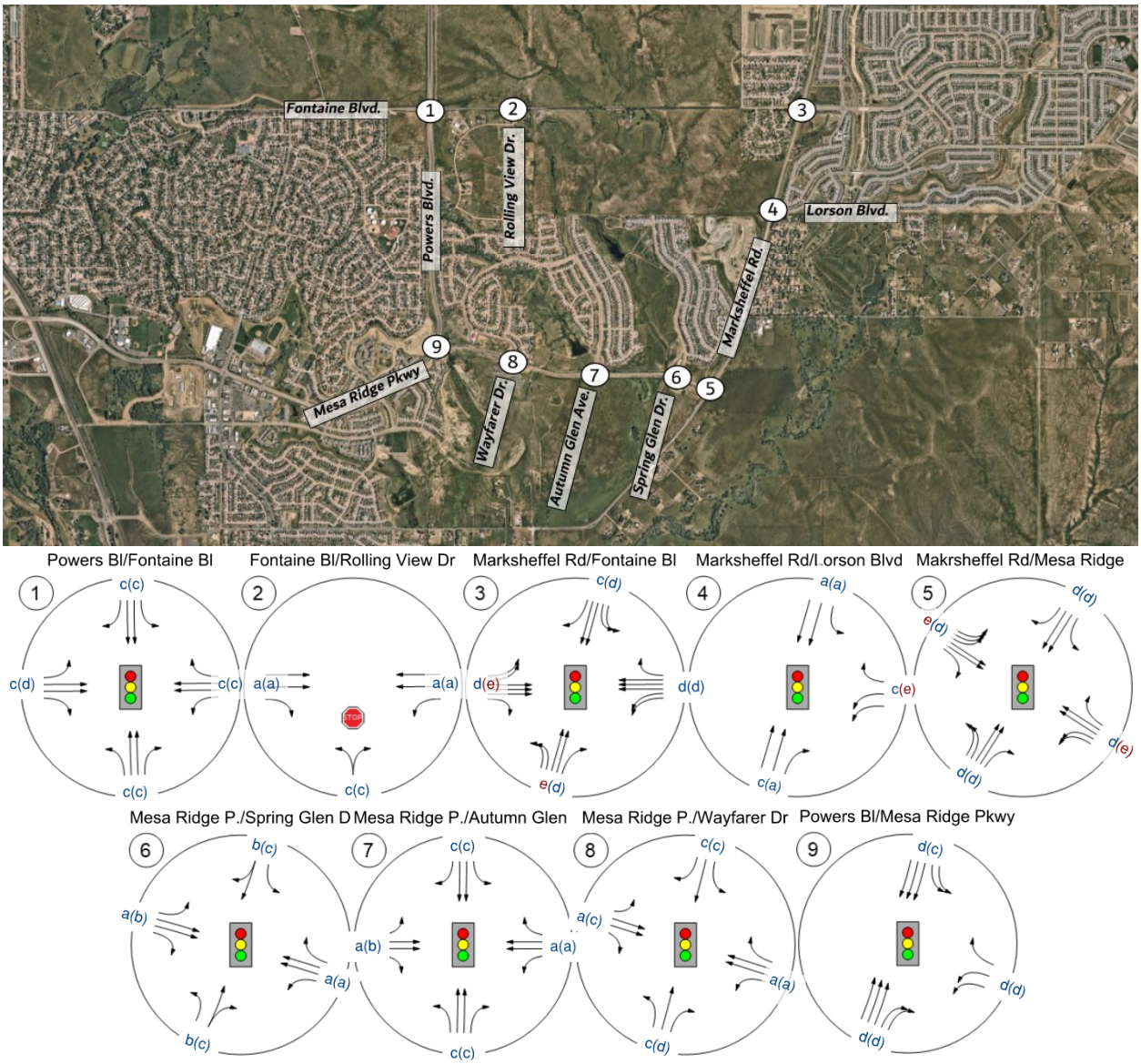


Figure 21. Horizon (2050) Background Daily Volume



The intersection configurations and approach LOS are shown in Figure 22.

Figure 22. Horizon (2050) Background Intersection Configuration and LOS



The intersection operations in the AM and PM peak hours are shown in Table 12 and Table 13, respectively.

Table 12. Horizon (2050) Background Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Left	0.681	30.8	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.057	20.6	C
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Thru	0.782	47.7	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	WB Left	0.696	20.9	C
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Right	0.713	54.2	D
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	EB Left	0.391	11.0	B
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	SB Left	0.503	9.4	A
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	EB Left	0.672	11.2	B
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	NB Thru	0.835	37.9	D

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 13. Horizon (2050) Background Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	EB Thru	0.678	30.0	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.014	29.9	D
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	WB Left	0.793	44.0	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	WB Left	0.570	11.7	B
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	NB Left	0.787	48.8	D
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	NB Left	0.480	9.5	A
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	EB Left	0.567	10.6	B
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	EB Left	0.880	18.4	B
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Left	0.882	32.3	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 12 and Table 13, all intersections operate at an acceptable LOS.

Table 14. Horizon (2050) Background Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl (CDOT - SHAC)	E-X	NBL	1	55	121	57	222	600	120	**940**	-
		E-X	NBR	1	55	309	-	222	600	-	**820**	-
		E-X	SBL	1	55	256	166	222	600	256	**1080**	95
		E-X	SBR	1	55	423	-	222	600	-	**820**	-
		NR-A	EBL	1	45	365	291	162	273	365	**800**	135
		NR-A	EBR	1	45	148	-	162	273	-	**435**	-
		NR-A	WBL	1	45	289	205	162	273	290	**725**	105
		NR-A	WBR	1	45	99	-	162	273	-	**435**	-
		NR-A	NBR to EBT Acceleration Lane	1	45	309	-	162	*388 (Accel. Lane)*	-	**550**	-
		NR-A	SBR to WBT Acceleration Lane	1	45	423	-	162	*388 (Accel. Lane)*	-	**550**	-
		E-X	EBR to SBT Acceleration Lane	1	55	148	-	222	*960 (Accel. Lane)*	-	**1180**	-
		E-X	WBR to NBT Acceleration Lane	1	55	99	-	222	*960 (Accel. Lane)*	-	**1180**	-
2	Fontaine Bl/Rolling View Dr(CCS - TCM)	Principal Arterial	EBR	1	45	8	0	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	2	0	180	200	-	**380**	-
3	Marksheffel Rd/Fontaine Bl(CCS - TCM)	Principal Arterial	NBL	2	45	173	146	360	200	-	**560**	-
		Principal Arterial	NBR	1	45	337	-	180	200	-	**380**	-
		Principal Arterial	SBL	2	45	502	311	360	200	-	**560**	-
		Principal Arterial	SBR	1	45	133	-	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	123	97	360	200	-	**560**	-
		Principal Arterial	EBR	1	45	176	-	180	200	-	**380**	-
		Principal Arterial	WBL	2	45	368	240	360	200	-	**560**	-
		Principal Arterial	WBR	1	45	996	-	180	200	-	**380**	-
		Principal Arterial	NBR to EBT Acceleration Lane	1	45	337	-	162	*388 (Accel. Lane)*	-	**550**	550
		Principal Arterial	SBR to WBT Acceleration Lane	1	45	133	-	162	*388 (Accel. Lane)*	-	**550**	550
		Principal Arterial	EBR to SBT Acceleration Lane	1	45	176	-	162	*388 (Accel. Lane)*	-	**550**	550
		Principal Arterial	WBR to NBT Acceleration Lane	1	45	996	-	162	*388 (Accel. Lane)*	-	**550**	550
4	Marksheffel Rd/Lorson Bl (CCS - TCM)	Principal Arterial	NBR	1	45	563	106	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	274	85	180	200	-	**380**	-
		Minor Arterial	WBL	2	40	410	131	320	155	-	**475**	-
		Minor Arterial	WBR	1	40	214	67	160	155	-	**315**	-
5	Marksheffel Rd/Mesa Ridge Pkwy (CCS -TCM)	Principal Arterial	NBL	2	45	191	139	360	200	-	**560**	180
		Principal Arterial	NBR	1	45	49	18	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	98	72	180	200	-	**380**	-
		Principal Arterial	SBR	1	45	768	772	180	200	-	**380**	-
		Principal Arterial	EBL	3	45	1444	547	540	200	-	**740**	180
		Principal Arterial	EBR	1	45	117	117	180	200	-	**380**	-
		Principal Arterial	WBL	2	45	152	133	360	200	-	**560**	180
		Principal Arterial	WBR	1	45	152	109	180	200	-	**380**	-
6	Mesa Rdige Pkwy/Spring Glen Dr (CCS -TCM)	Collector	SBL	1	30	98	58	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	255	162	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	63	3	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	16	8	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	48	3	180	200	-	**380**	-
7	Mesa Rdige Pkwy/Autumn Glen Ave (CCS -TCM)	Collector	SBL	1	30	112	80	120	115	-	**235**	-
		Collector	SBR	1	30	269	98	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	279	230	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	30	5	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	30	27	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	75	4	180	200	-	**380**	-
8	Mesa Ridge Pkwy/Wayfarer Dr (CCS -TCM)	Collector	SBL	1	30	28	31	120	115	-	**235**	-
		Collector	SBR	1	30	338	200	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	315	303	180	200		**380**	-
		Principal Arterial	EBR	1	45	100	8	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	61	166	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	41	3	180	200	-	**380**	-
9	Powers Bl/Mesa Rdige Pkwy (CDOT -SHAC)	E-X	NBR	1	55	1955	1108	222	600	-	**820**	-
		E-X	SBL	2	55	455	267	445	600	228	**1275**	165
		NR-A	WBL	2	45	1644	132	324	110	822	**1255**	300

The Improvements for the horizon background scenario are in respect to the improvements for the buildout background scenario. Summary of turn lane improvements are as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 95-ft extension of southbound left-turn lane.
- A 135-ft extension of eastbound left-turn lane.
- A 105-ft extension of westbound left-turn lane.

Marksheffel Road/Fontaine Boulevard (#3)

- A 550-ft northbound right-turn to eastbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.
- A 550-ft southbound right-turn to westbound thru acceleration lane. Include 162-ft of taper length and a 388-ft of acceleration lane.
- A 550-ft eastbound right-turn to southbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.
- A 550-ft westbound right-turn to northbound thru acceleration lane. Include 162-ft of taper and 388-ft of acceleration lane.

Marksheffel Road/Mesa Ridge Parkway (#5)

- Double northbound left-turn lane. Include a 360-ft of taper and a 200-ft of deceleration lane.
- Triple eastbound left-turn lane. Include a 240-ft of taper, and a 200-ft of deceleration lane.
- Double westbound left-turn lane. Include a 360-ft of taper and a 200-ft of deceleration lane.

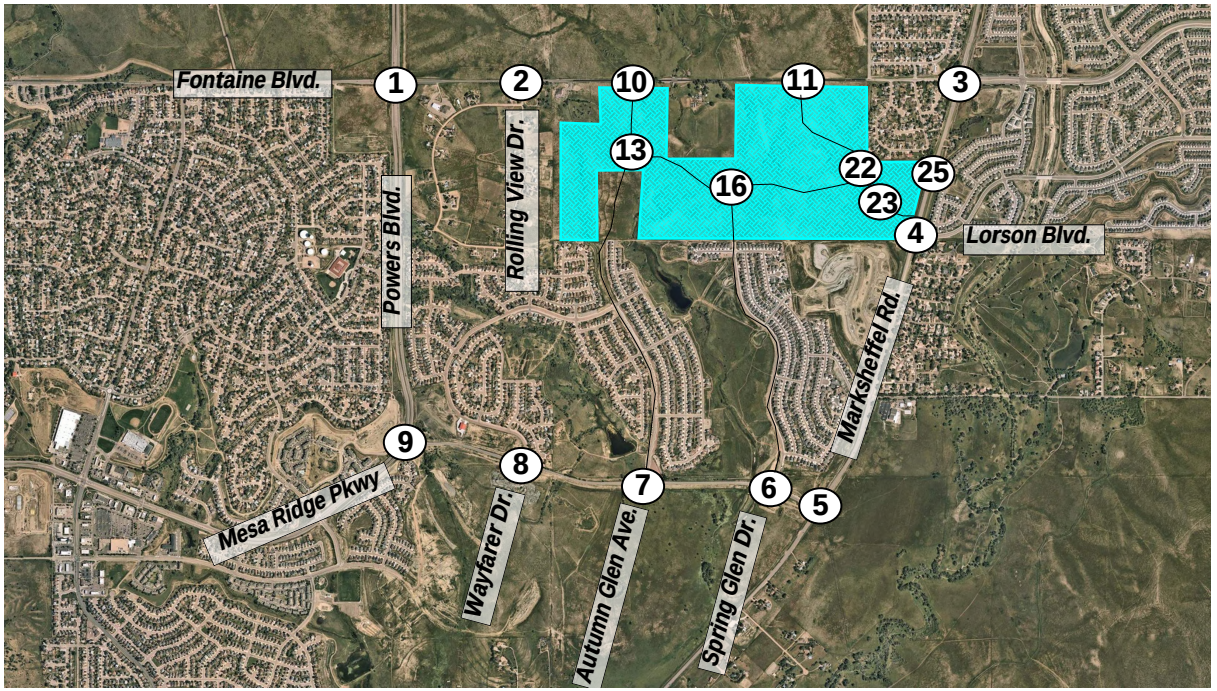
Powers Boulevard/Mesa Ridge Parkway (#9)

- Double southbound left-turn lane. Include 445-ft of taper, 600-ft of deceleration lane and 230-ft of storage.
- 300-ft extension of westbound left-turn lane.

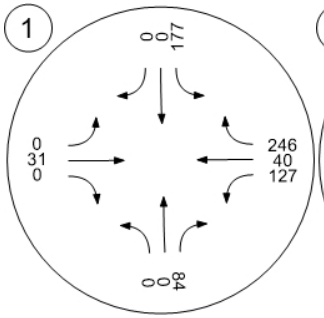
6.2 Horizon (2050) Total Conditions

The resulting long term site trips (due to construction of Mesa Ridge Parkway east of Marksheffel Road) for both the AM and PM peak hours are shown in Figure 23 and Figure 24. It was assumed that, at all signalized intersections, 50% of right-turning vehicles would make the turn during a red signal. The long term daily trips are shown in Figure 25.The total traffic volumes in the AM and PM peak hours are shown in Figure 26 and Figure 27. The daily volumes in the horizon year total conditions are shown in Figure 28.

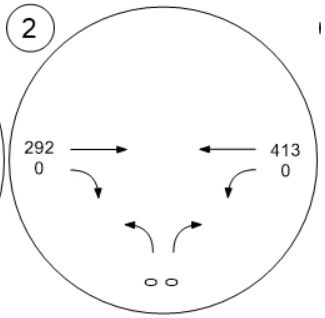
Figure 23. Corvallis - Site Traffic Long Term (AM Peak Hour)



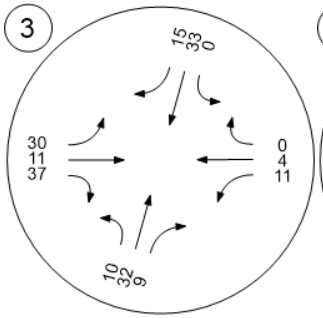
Powers Bl/Fontaine Bl



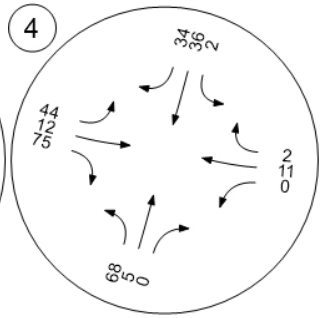
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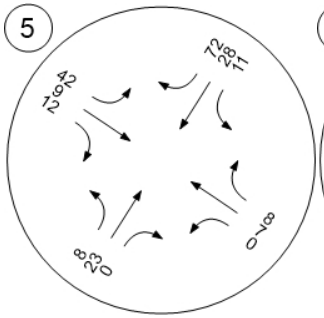
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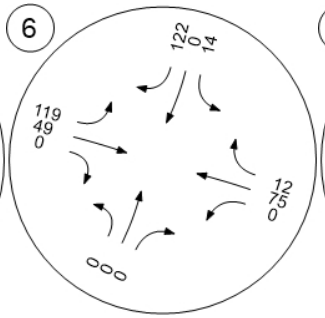
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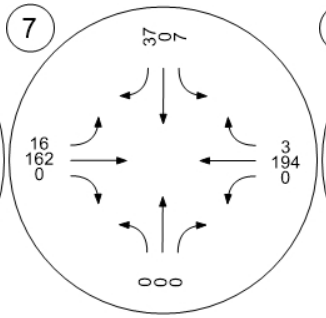
Makrsheffel Rd/Mesa Ridge



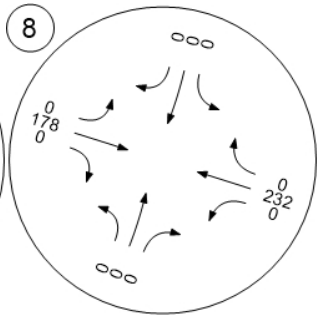
Mesa Ridge P./Spring Glen D



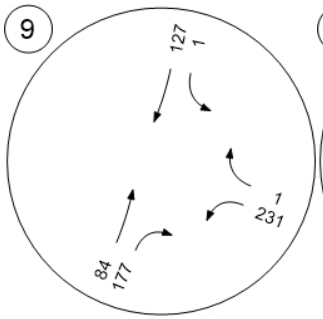
Mesa Ridge P./Autumn Glen



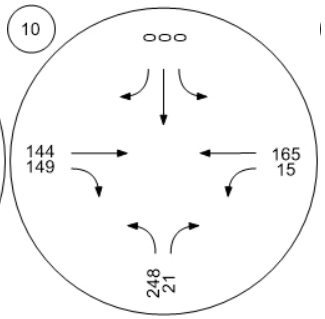
Mesa Ridge P./Wayfarer Dr



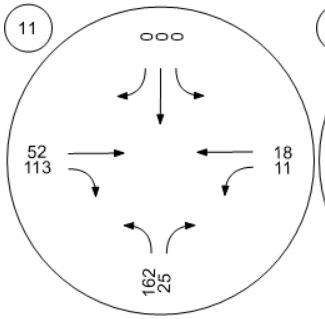
Powers Bl/Mesa Ridge Pkwy



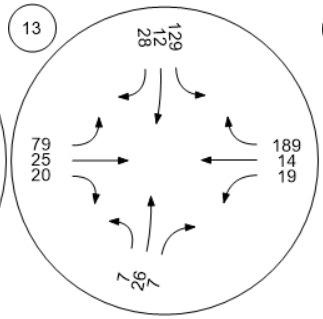
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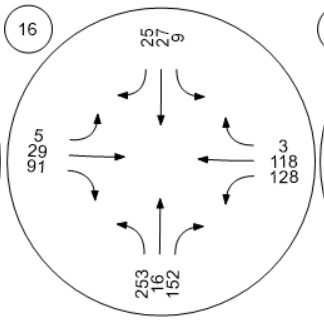
Fontaine Bl/Community Arteri



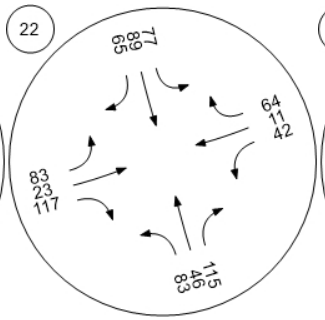
Autumn Glen Ave/Road A



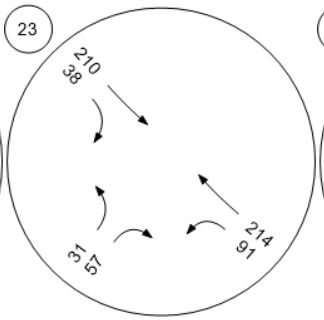
Road A/Collector #3



Community Arterial 1/Road A



Coomunity Arterial Rd/Acces



Marksheffel Rd/East Access

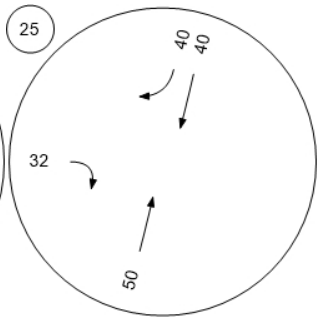
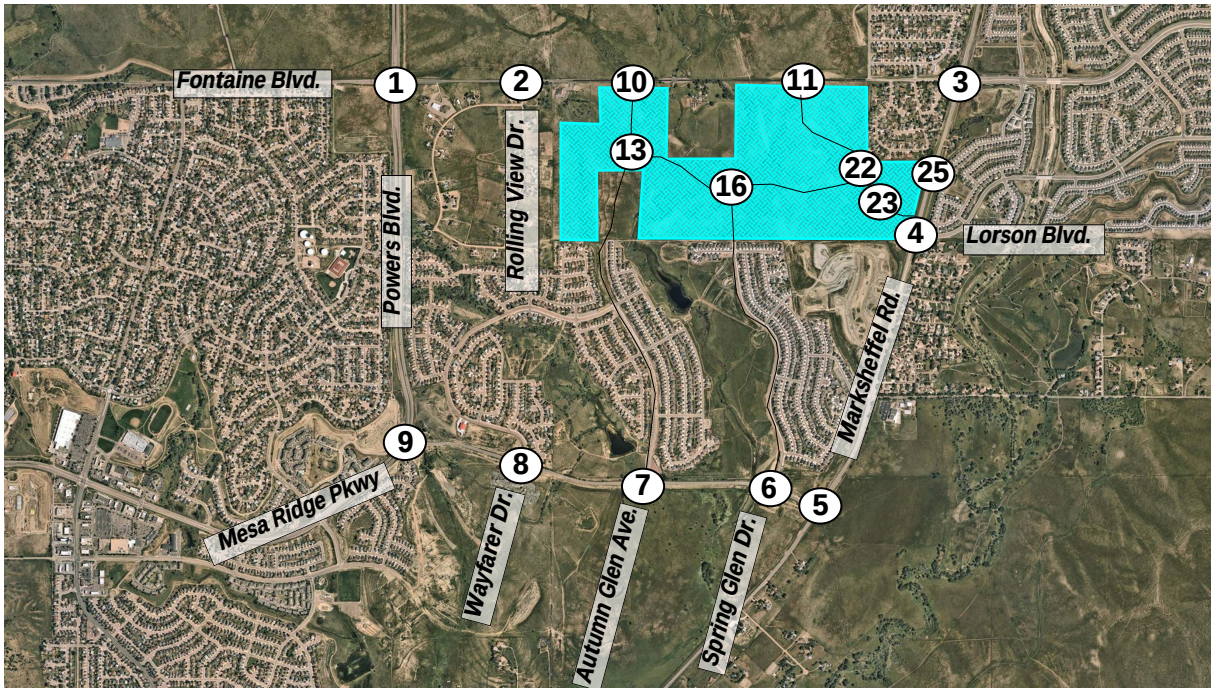
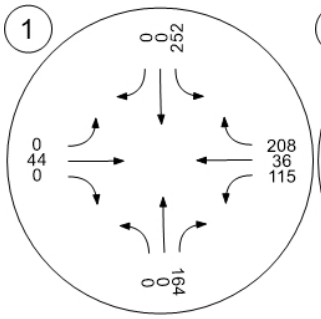


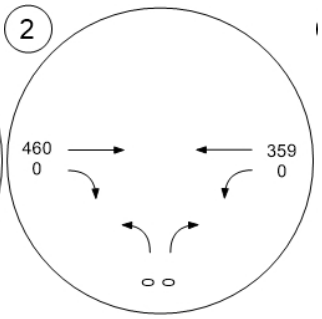
Figure 24. Corvallis - Site Traffic Long Term (PM Peak Hour)



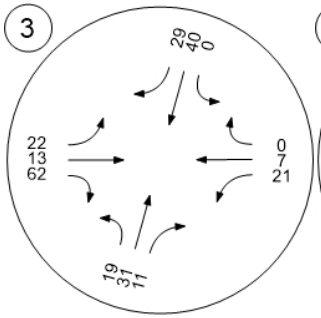
Powers Bl/Fontaine Bl



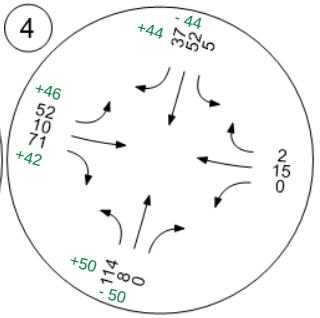
Fontaine Bl/Rolling View Dr



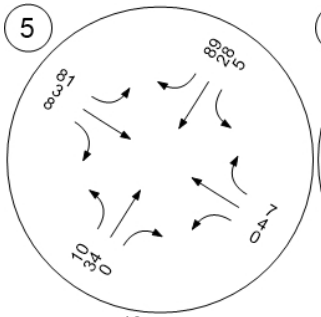
Marksheffel Rd/Fontaine Bl



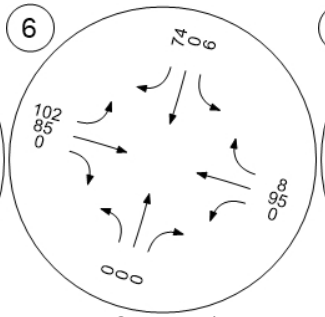
Marksheffel Rd/Lorson Blvd



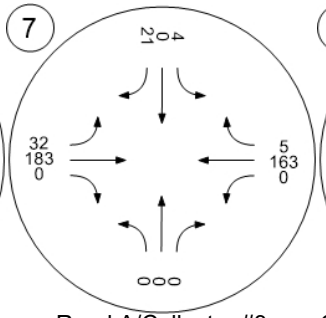
Makrsheffel Rd/Mesa Ridge



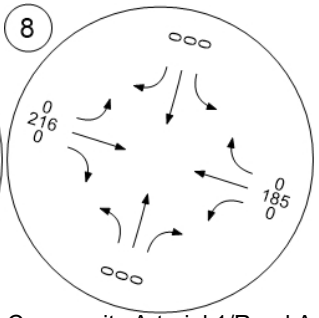
Mesa Ridge P./Spring Glen D



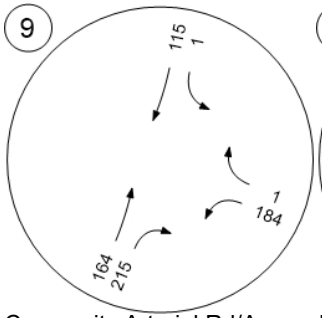
Mesa Ridge P./Autumn Glen



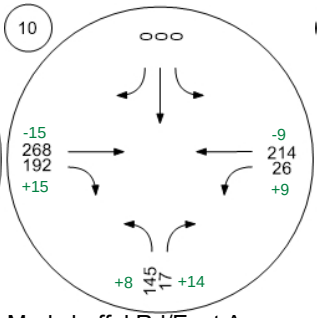
Mesa Ridge P./Wayfarer Dr



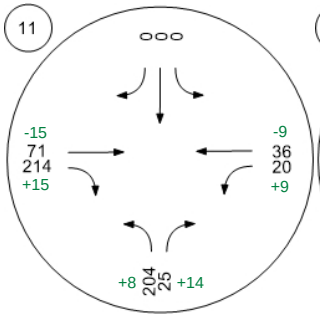
Powers Bl/Mesa Ridge Pkwy



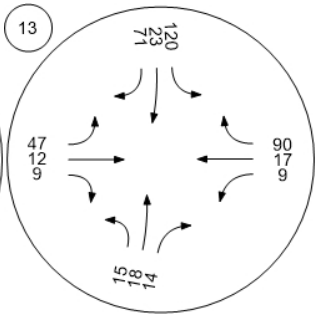
Fontaine Bl/Autumn Glen Ave



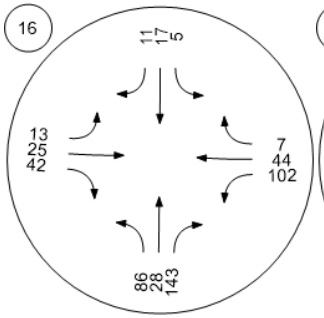
Fontaine Bl/Community Arteri



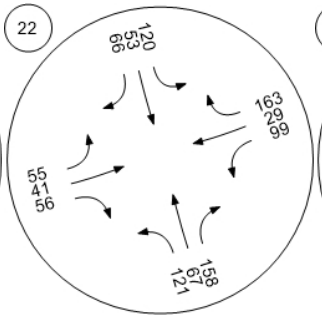
Autumn Glen Ave/Road A



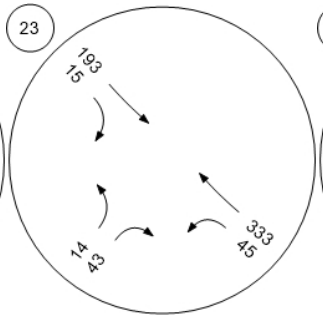
Road A/Collector #3



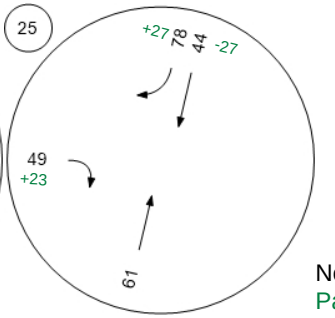
Community Arterial 1/Road A



Coomunity Arterial Rd/Acces



Marksheffel Rd/East Access



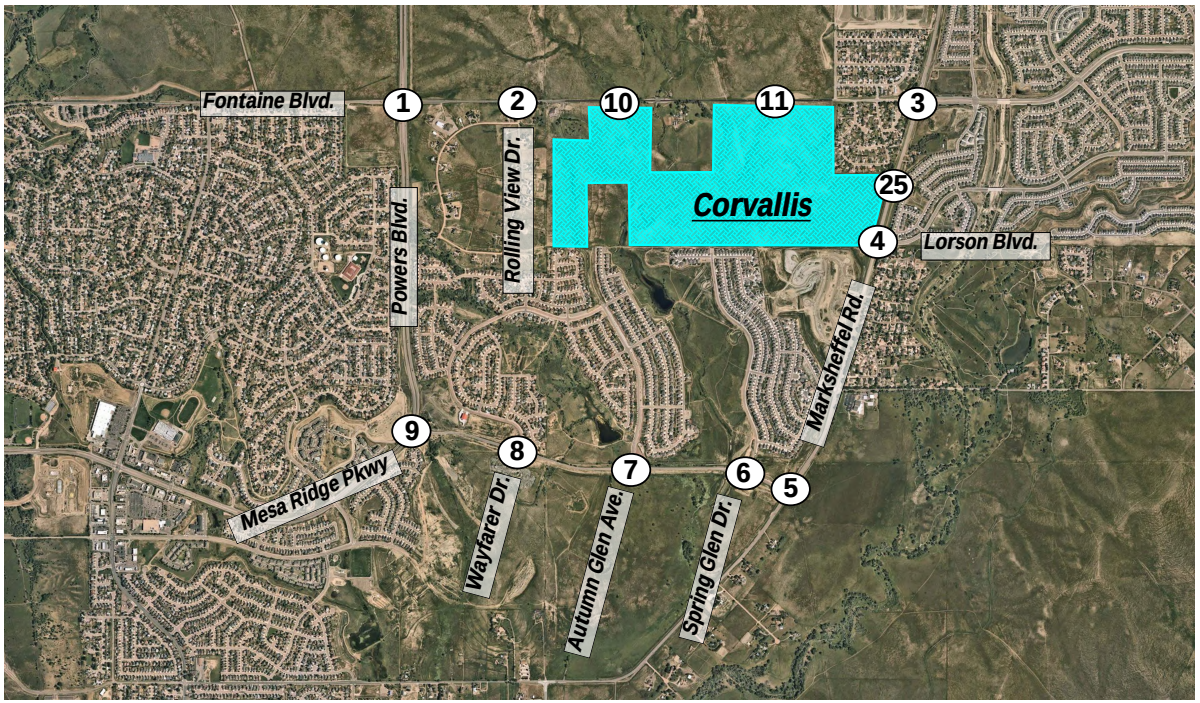
New Site Trips
Pass-By Trips

Matrix

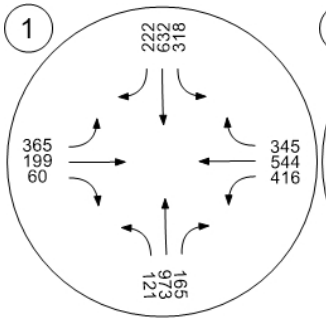
Figure 25. Corvallis - Daily Site Traffic (Long-Term)



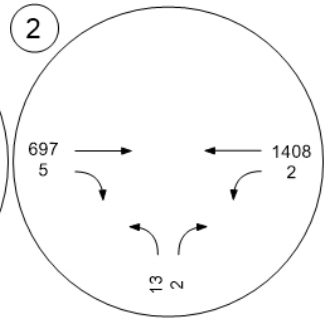
Figure 26. Horizon (2050) Total Volumes (AM Peak Hour)



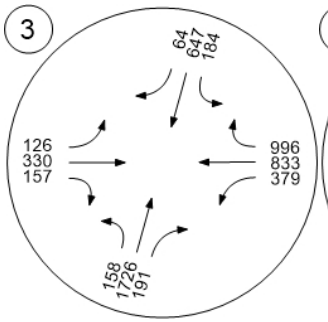
Powers Bl/Fontaine Bl



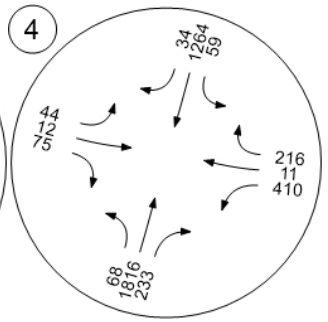
Fontaine Bl/Rolling View Dr



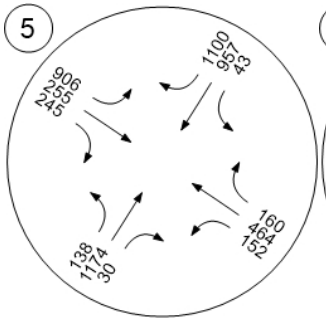
Marksheffel Rd/Fontaine Bl



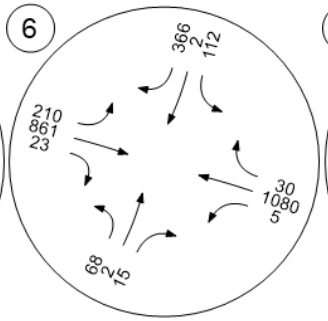
Marksheffel Rd/Lorson Blvd



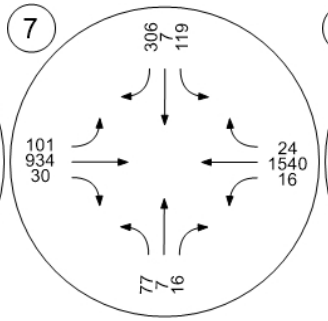
Makrsheffel Rd/Mesa Ridge



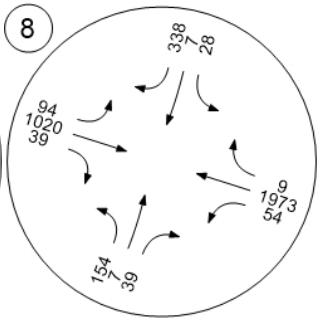
Mesa Ridge P./Spring Glen D



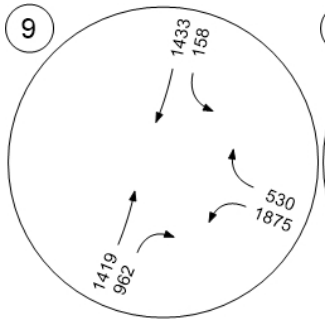
Mesa Ridge P./Autumn Glen



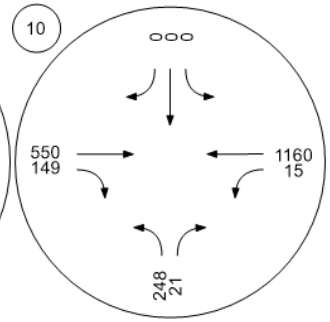
Mesa Ridge P./Wayfarer Dr



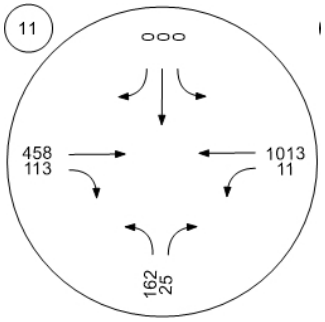
Powers Bl/Mesa Ridge Pkwy



Fontaine Bl/Autumn Glen Ave



Fontaine Bl/Community Arteri



Marksheffel Rd/East Access

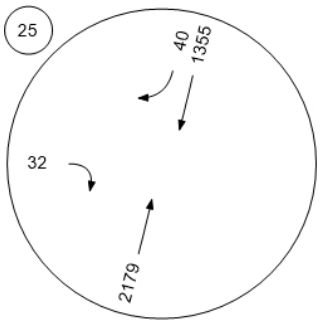
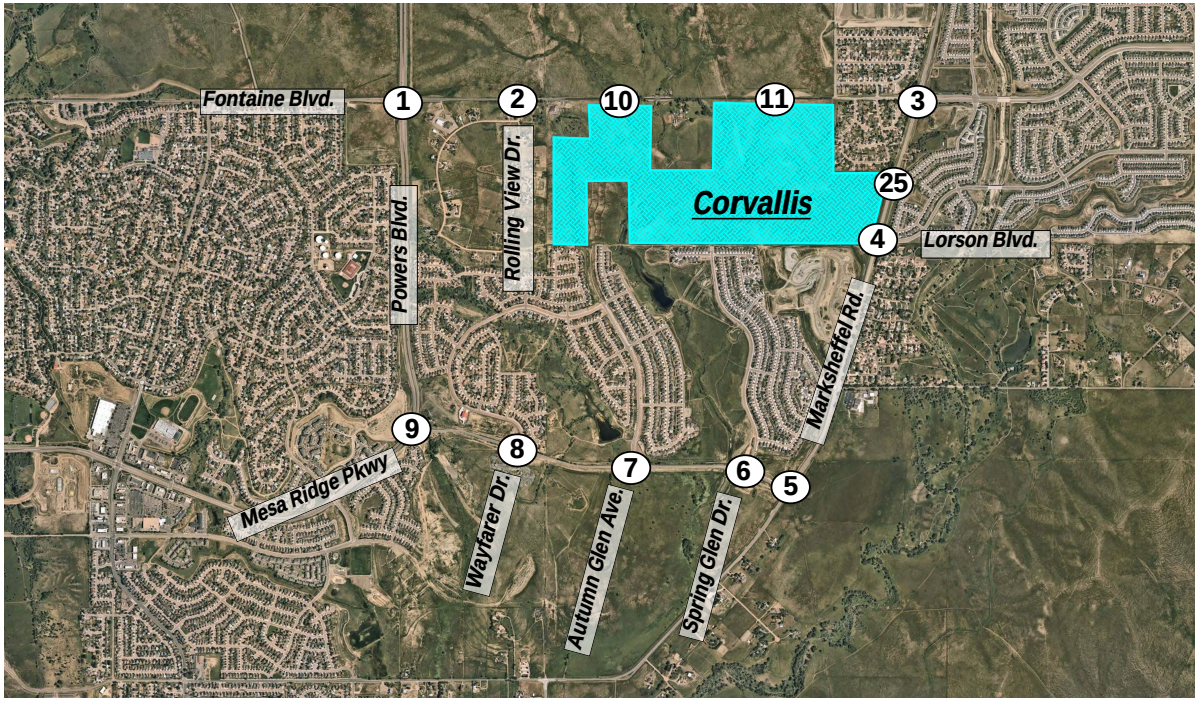
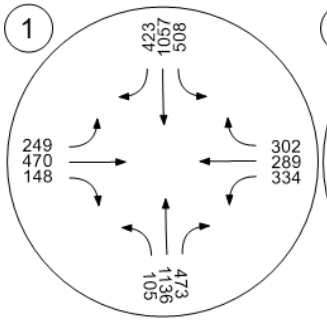


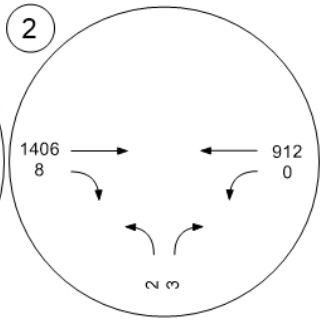
Figure 27. Horizon (2050) Total Volumes (PM Peak Hour)



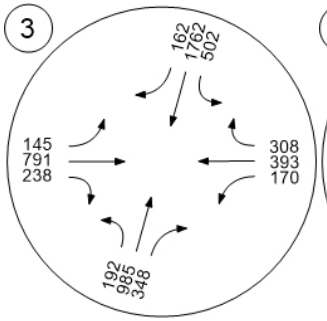
Powers Bl/Fontaine Bl



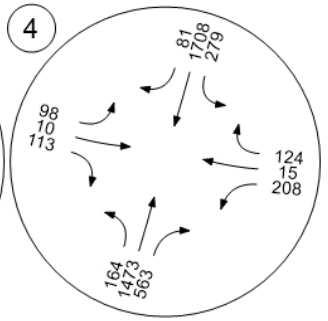
Fontaine Bl/Rolling View Dr



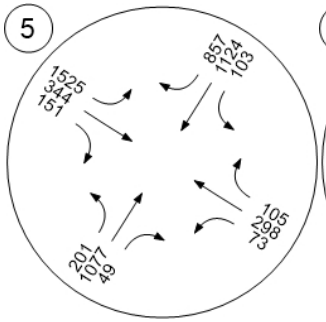
Marksheffel Rd/Fontaine Bl



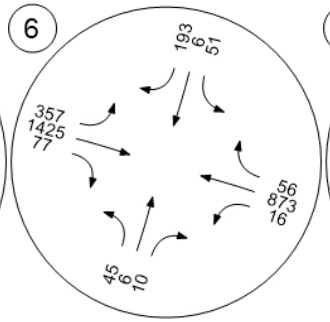
Marksheffel Rd/Lorson Blvd



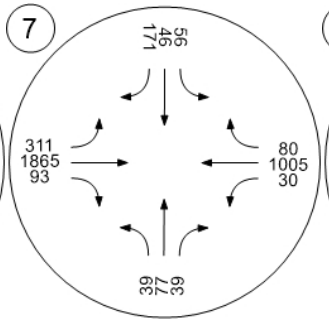
Makrsheffel Rd/Mesa Ridge



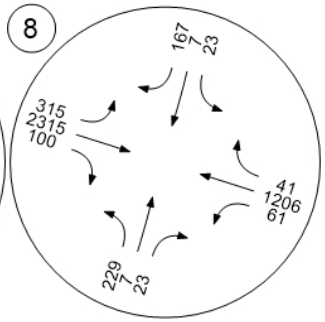
Mesa Ridge P./Spring Glen D



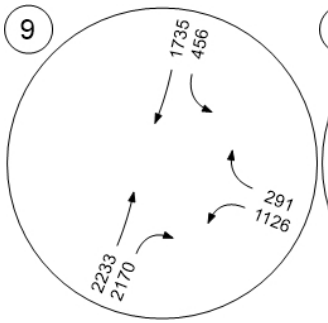
Mesa Ridge P./Autumn Glen



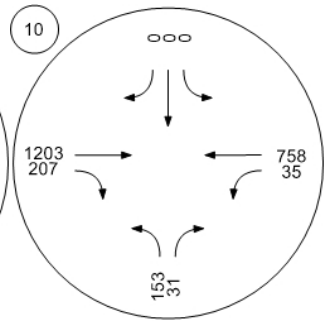
Mesa Ridge P./Wayfarer Dr



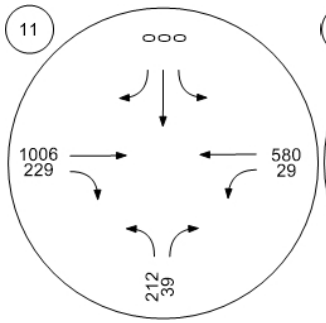
Powers Bl/Mesa Ridge Pkwy



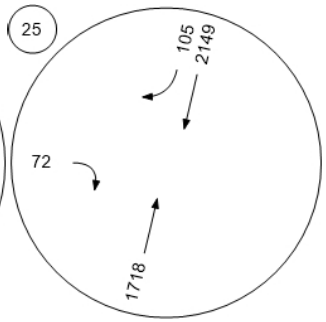
Fontaine Bl/Autumn Glen Ave



Fontaine Bl/Community Arteri

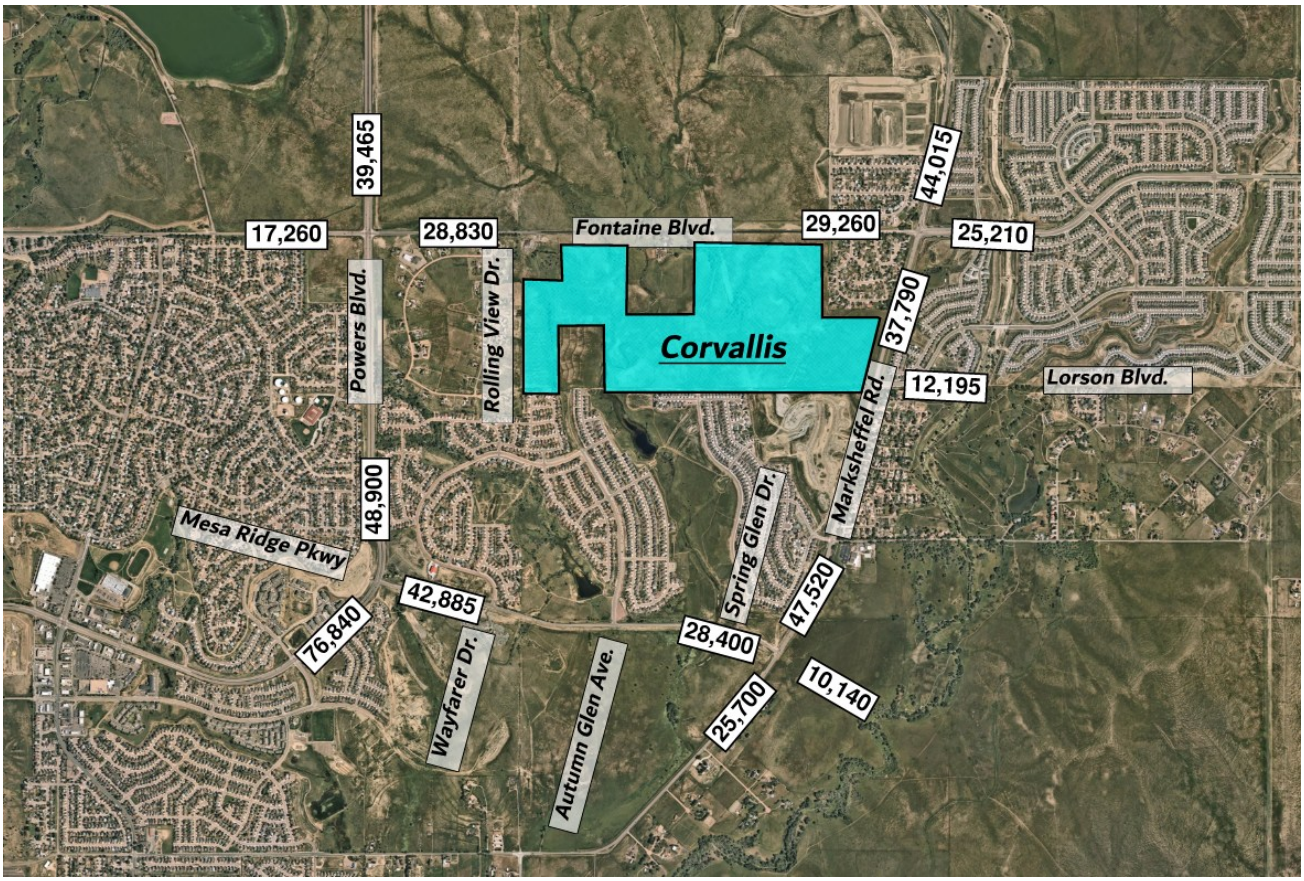


Marksheffel Rd/East Access



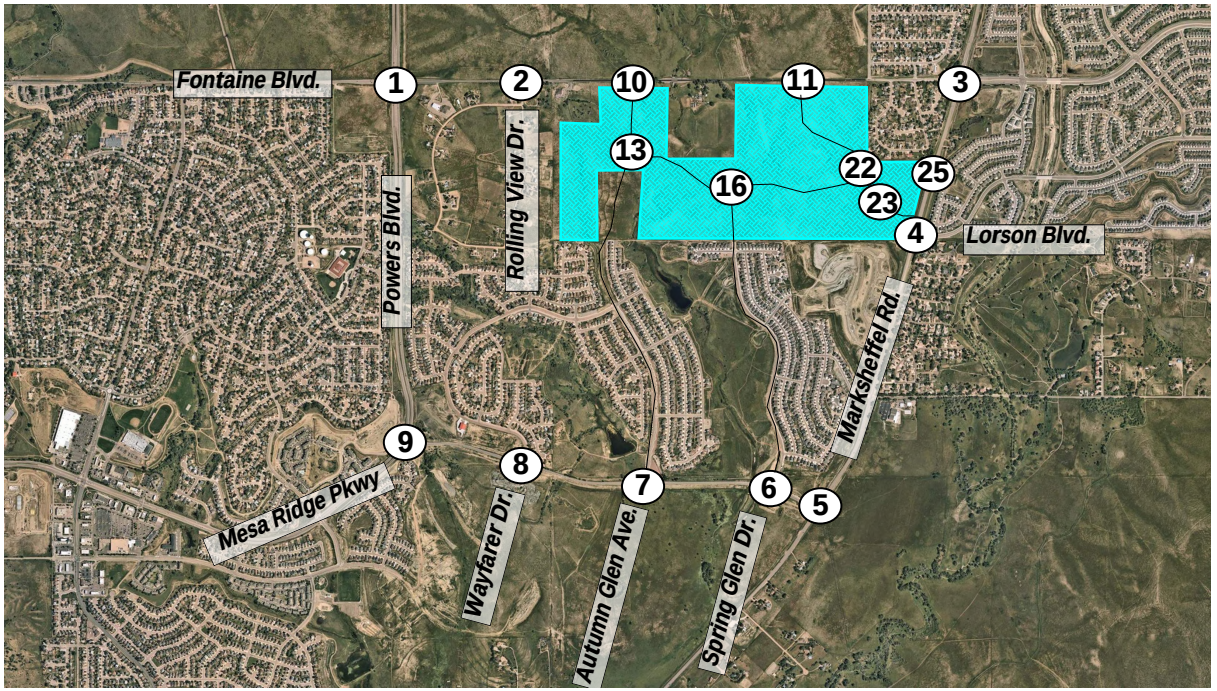
Matrix

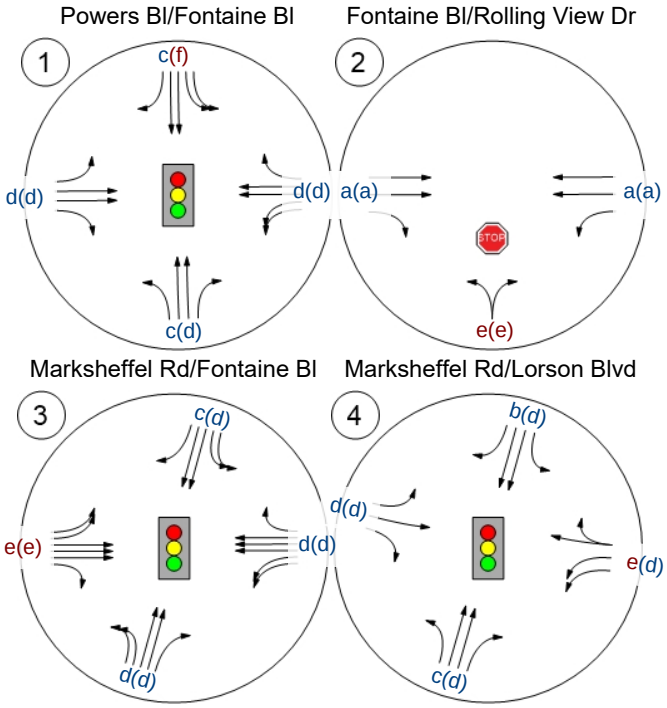
Figure 28. Horizon (2050) Total Daily Volume

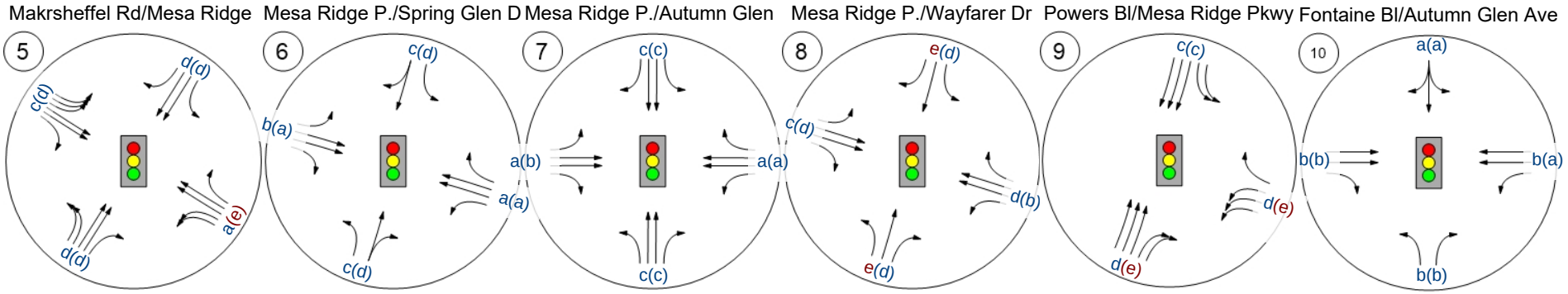


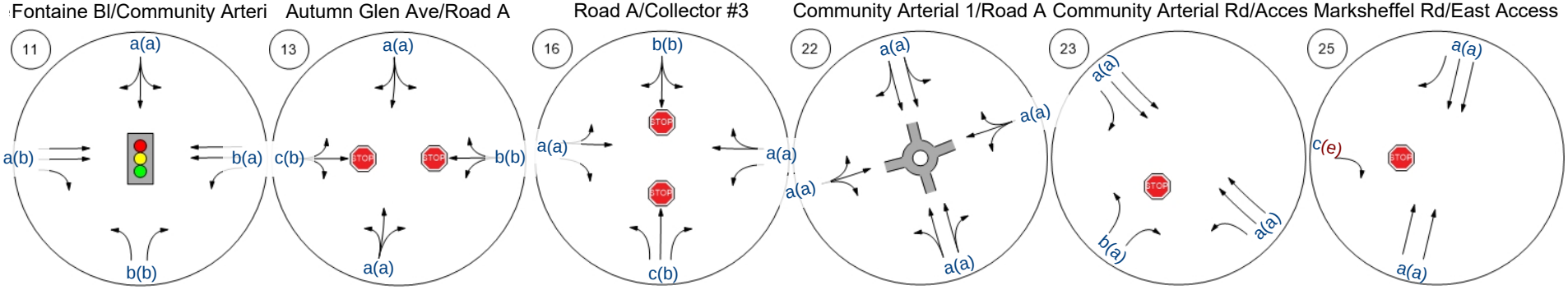
The intersection configuration and LOS are shown in Figure 29. The intersection operations in the AM and PM peak hours are shown in Table 15 and Table 16, respectively.

Figure 29. Horizon (2050) Total Intersection Configurations and LOS









Approach LOS AM(PM)

Table 15. Horizon (2050) Total Intersection Operations (AM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	WB Left	0.702	34.2	C
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.130	42.9	E
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	EB Left	0.802	41.2	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	EB Right	0.721	26.4	C
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Right	0.811	31.3	C
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	EB Left	0.611	11.4	B
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	EB Left	0.566	9.8	A
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	SB Right	0.780	37.6	D
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	NB Thru	1.004	39.5	D
10	Fontaine Bl/Autumn Glen Ave	Signalized	HCM 7th Edition	NB Left	0.545	13.7	B
11	Fontaine Bl/Community Arterial 1	Signalized	HCM 7th Edition	NB Left	0.433	12.3	B
25	Marksheffel Rd/East Access	Two-way stop	HCM 7th Edition	EB Right	0.097	16.0	C

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Table 16. Horizon (2050) Total Intersection Operations (PM Peak Hour)

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Powers Bl/Fontaine Bl	Signalized	HCM 7th Edition	NB Thru	0.755	47.3	D
2	Fontaine Bl/Rolling View Dr	Two-way stop	HCM 7th Edition	NB Left	0.040	78.4	F
3	Marksheffel Rd/Fontaine Bl	Signalized	HCM 7th Edition	NB Left	0.821	49.6	D
4	Marksheffel Rd/Lorson Blvd	Signalized	HCM 7th Edition	SB Left	0.667	37.1	D
5	Makrsheffel Rd/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	WB Thru	0.794	48.2	D
6	Mesa Ridge P./Spring Glen Dr	Signalized	HCM 7th Edition	NB Left	0.745	9.8	A
7	Mesa Ridge P./Autumn Glen Ave	Signalized	HCM 7th Edition	EB Left	0.679	10.7	B
8	Mesa Ridge P./Wayfarer Dr	Signalized	HCM 7th Edition	SB Right	0.849	39.6	D
9	Powers Bl/Mesa Ridge Pkwy	Signalized	HCM 7th Edition	SB Left	0.675	52.3	D
10	Fontaine Bl/Autumn Glen Ave	Signalized	HCM 7th Edition	WB Left	0.485	10.2	B
11	Fontaine Bl/Community Arterial 1	Signalized	HCM 7th Edition	WB Left	0.469	11.3	B
25	Marksheffel Rd/East Access	Two-way stop	HCM 7th Edition	EB Right	0.419	37.5	E

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

As shown in Table 15 and Table 16 all intersections operate at an acceptable LOS except for the intersection of Fontaine Boulevard/Rolling View Drive (#2), Powers Boulevard/Mesa Ridge Parkway (#9), and Marksheffel Road/Site East Access (#25).

Fontaine Boulevard/Rolling View Drive (#2)

This intersection operates at LOS E and LOS F in AM and PM peak hours, respectively. However, the 95-percentile queue is only one vehicle in any hour. Therefore, no mitigation is recommended.

Marksheffel Road/Site East Access (#25)

A free eastbound right-turn to southbound through lane acceleration lane is recommended in Table 17, which will eliminate the deficiency at this intersection.

Marksheffel Road as a 6-Lane Roadway

As shown in the figures, some approaches at the studied intersections are projected to operate below the acceptable LOS. It is anticipated that this roadway will require three lanes in each direction in the future due to high daily volumes. As a result, Matrix evaluated the horizon total conditions with this configuration, and the results are only included in Appendix F – Supporting Documents as an alternative analysis. With the conversion of Marksheffel Road to a six-lane facility, all approaches are expected to operate at an acceptable LOS at the intersections along this corridor.

Table 17 shows the ultimate turn lane requirements in the horizon year.

Table 17. Horizon (2050) Total Turn Lane Evaluations

ID	Intersection	Access Category/Roadway Classificaiton	Movement	No. Lanes	Speed (mph)	Volume (vph)	Queue (ft)	Taper (ft)	Deceleration (ft)	Storage (ft)	Total (ft)	Improvement (ft)
1	Powers Bl/Fontaine Bl CDOT - SHAC	E-X	NBL	1	55	121	166	222	600	120	**940**	-
		E-X	NBR	1	55	473	-	222	600	-	**820**	-
		E-X	SBL	2	55	508	346	444	600	254	**1300**	35
		E-X	SBR	1	55	423	-	222	600	-	**820**	-
		NR-A	EBL	1	45	365	366	162	273	365	**800**	-
		NR-A	EBR	1	45	148	-	162	273	-	**435**	-
		NR-A	WBL	2	45	416	258	324	111	208	**645**	-
		NR-A	WBR	1	45	345	-	162	273	-	**435**	-
		NR-A	NBR to EBT Acceleration Lane	1	45	473	-	162	*388 (Accel. Lane)*	-	**550**	-
		NR-A	SBR to WBT Acceleration Lane	1	45	423	-	162	*388 (Accel. Lane)*	-	**550**	-
		E-X	EBR to SBT Acceleration Lane	1	55	148	-	222	*960 (Accel. Lane)*	-	**1180**	-
		E-X	WBR to NBT Acceleration Lane	1	55	345	-	222	*960 (Accel. Lane)*	-	**1180**	-
2	Fontaine Bl/Rolling View Dr CCS -TCM	Principal Arterial	EBR	1	45	8	0	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	2	0	180	200	-	**380**	-
3	Marksheffel Rd/Fontaine Bl CCS -TCM	Principal Arterial	NBL	2	45	192	200	360	200	-	**560**	-
		Principal Arterial	NBR	1	45	348	-	180	200	-	**380**	-
		Principal Arterial	SBL	2	45	502	414	360	200	-	**560**	-
		Principal Arterial	SBR	1	45	162	-	180	200	-	**380**	-
		Principal Arterial	EBL	2	45	145	150	360	200	-	**560**	-
		Principal Arterial	EBR	1	45	238	-	180	200	-	**380**	-
		Principal Arterial	WBL	2	45	379	273	360	200	-	**560**	-
		Principal Arterial	WBR	1	45	996	-	180	200	-	**380**	-
		Principal Arterial	NBR to EBT Acceleration Lane	1	45	348	-	162	*388 (Accel. Lane)*	-	**550**	-
		Principal Arterial	SBR to WBT Acceleration Lane	1	45	162	-	162	*388 (Accel. Lane)*	-	**550**	-
		Principal Arterial	EBR to SBT Acceleration Lane	1	45	238	-	162	*388 (Accel. Lane)*	-	**550**	-
		Principal Arterial	WBR to NBT Acceleration Lane	1	45	996	-	162	*388 (Accel. Lane)*	-	**550**	-
4	Marksheffel Rd/Lorson Bl CCS -TCM	Principal Arterial	NBL	1	45	164	148	180	200	-	**380**	-
		Principal Arterial	NBR	1	45	563	230	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	279	230	180	200	-	**380**	-
		Principal Arterial	SBR	1	45	81	23	180	200	-	**380**	-
		Minor Arterial	EBL	1	40	98	111	160	155	-	**315**	80
		Minor Arterial	EBR	1	40	113	84	160	155	-	**315**	315
		Minor Arterial	WBL	2	40	410	300	320	155	-	**475**	-
5	Marksheffel Rd/Mesa Ridge Pkwy CCS -TCM	Principal Arterial	NBL	2	45	201	76	360	200	-	**560**	-
		Principal Arterial	NBR	1	45	49	18	180	200	-	**380**	-
		Principal Arterial	SBL	1	45	103	82	180	200	-	**380**	-
		Principal Arterial	SBR	1	45	1100	587	180	200	200	**580**	-
		Principal Arterial	EBL	3	45	1525	558	540	200	-	**740**	-
		Principal Arterial	EBR	1	45	245	58	180	200	-	**380**	-
		Principal Arterial	WBL	2	45	152	60	360	200	-	**560**	-
		Principal Arterial	WBR	1	45	160	69	180	200	-	**380**	-
6	Mesa Rdige Pkwy/Spring Glen Dr CCS -TCM	Collector	SBL	1	30	112	74	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	357	280	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	77	4	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	16	7	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	56	3	180	200	-	**380**	-
7	Mesa Rdige Pkwy/Autumn Glen Ave CCS -TCM	Collector	SBL	1	30	119	76	120	115	-	**235**	-
		Collector	SBR	1	30	306	100	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	311	233	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	93	5	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	30	22	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	80	4	180	200	-	**380**	-
8	Mesa Ridge Pkwy/Wayfarer Dr CCS -TCM	Collector	SBL	1	30	28	58	120	115	-	**235**	-
		Collector	SBR	1	30	338	366	120	115	-	**235**	-
		Principal Arterial	EBL	1	45	315	192	180	200	-	**380**	-
		Principal Arterial	EBR	1	45	100	18	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	61	40	180	200	-	**380**	-
		Principal Arterial	WBR	1	45	41	8	180	200	-	**380**	-
9	Powers Bl/Mesa Rdige Pkwy CDOT -SHAC	E-X	NBR	2	55	2170	557	444	600	-	**1045**	225
		E-X	SBL	2	55	456	310	445	600	228	**1275**	-
		NR-A	WBL	1	45	1875	541	162	273	625	**1060**	1060
		NR-A	WBR	1	45	530	190	162	541	-	**705**	See description on the next page
10	Fontaine Bl/Autumn Glenn Ave CCS -TCM	Collector	NBL	1	30	248	129	120	115	-	**235**	-
		Principal Arterial	EBR	1	45	207	25	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	35	21	180	200	-	**380**	-
11	Fontaine Bl/Community Arterial 1 CCS -TCM	Collector	NBL	1	30	212	114	120	115	-	**235**	-
		Principal Arterial	EBR	1	45	229	34	180	200	-	**380**	-
		Principal Arterial	WBL	1	45	29	17	180	200	-	**380**	-
25	Marksheffel Rd/East Access CCS -TCM	Principal Arterial	SBR	1	45	105	-	180	200	-	**380**	-
		Principal Arterial	EBR to SBT Acceleration Lane	1	45	72	-	162	388 (Accel. Lane)	-	**550**	-

The Improvements for the horizon total scenario are in respect to the improvements for the horizon background scenario. Summary of turn lane improvements are as follows:

Powers Boulevard/Fontaine Boulevard (#1)

- A 35-ft extension of southbound left-turn lane.

Marksheffel Road/Lorson Boulevard (#4)

- A 80-ft extension of eastbound left-turn lane.
- A 315-ft eastbound right-turn lane. Include 160-ft of taper and 155-ft of deceleration lane.

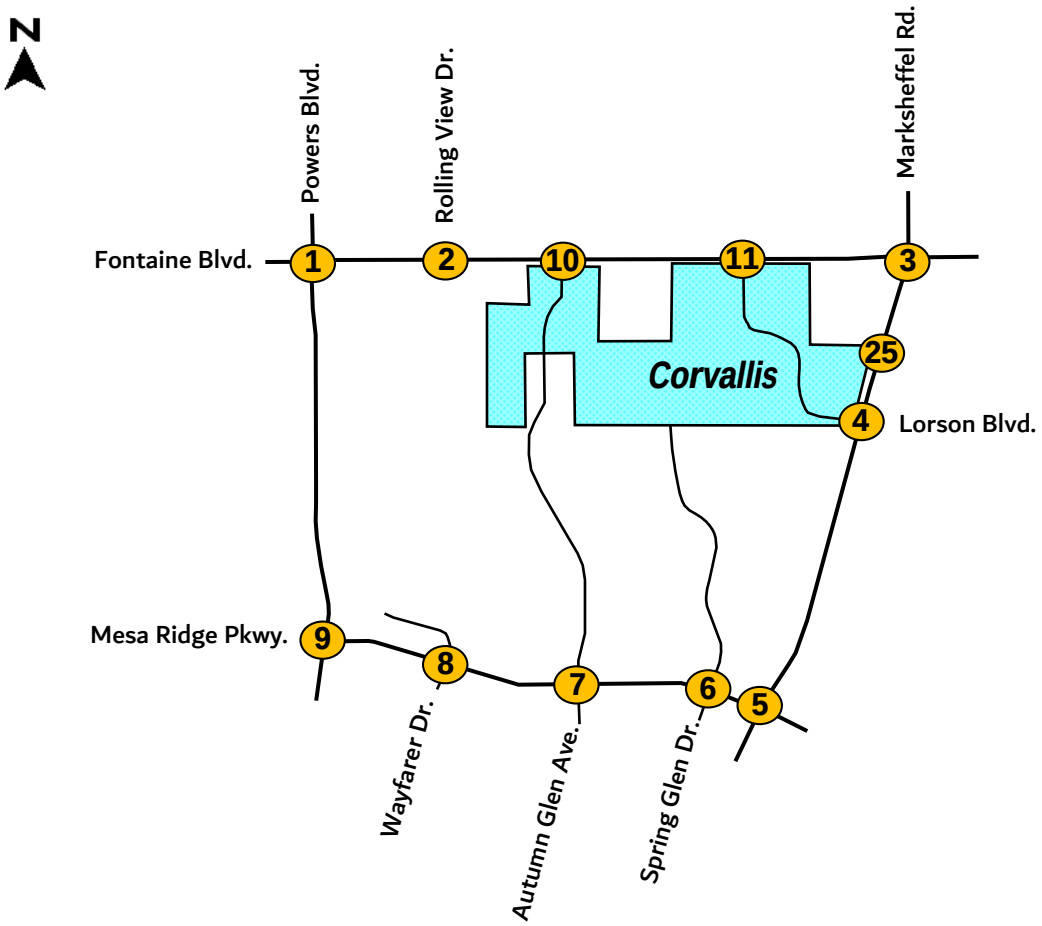
Powers Boulevard/Mesa Ridge Parkway (#9)

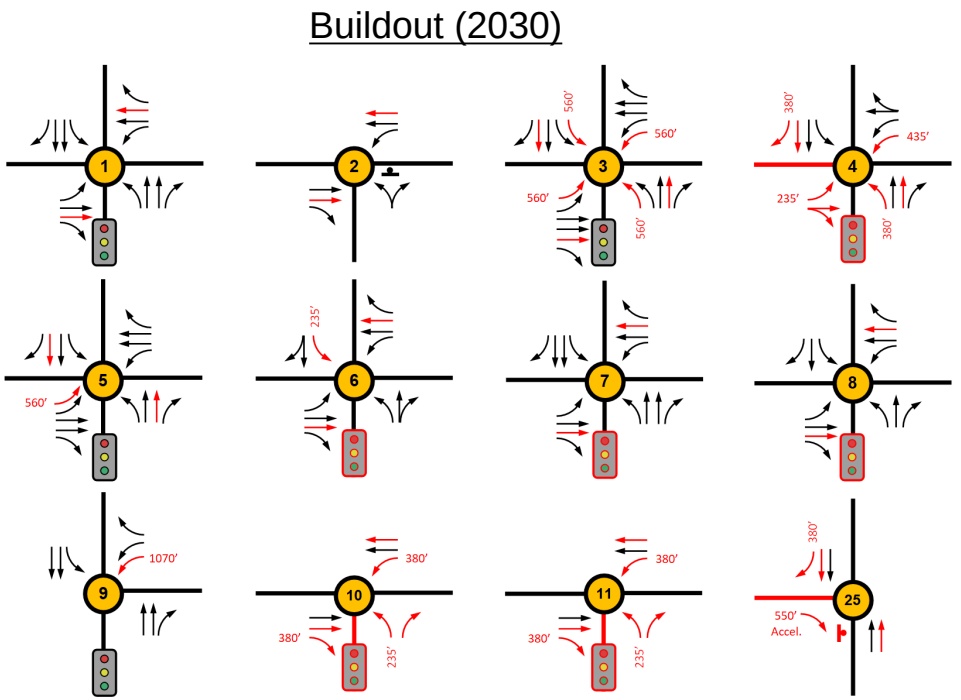
- Double northbound right-turn lane. Include 444-ft of taper, 600-ft of deceleration lane for total of 1,045-ft.
- A westbound left-turn lane. Include 162-ft of taper, 273-ft of deceleration lane and 625-ft of storage for a total turn lane length of 1,060-ft.
- A westbound right-turn lane, including a 162 ft taper and a 541 ft deceleration lane. The taper begins just before the westbound left-turn lane queue.

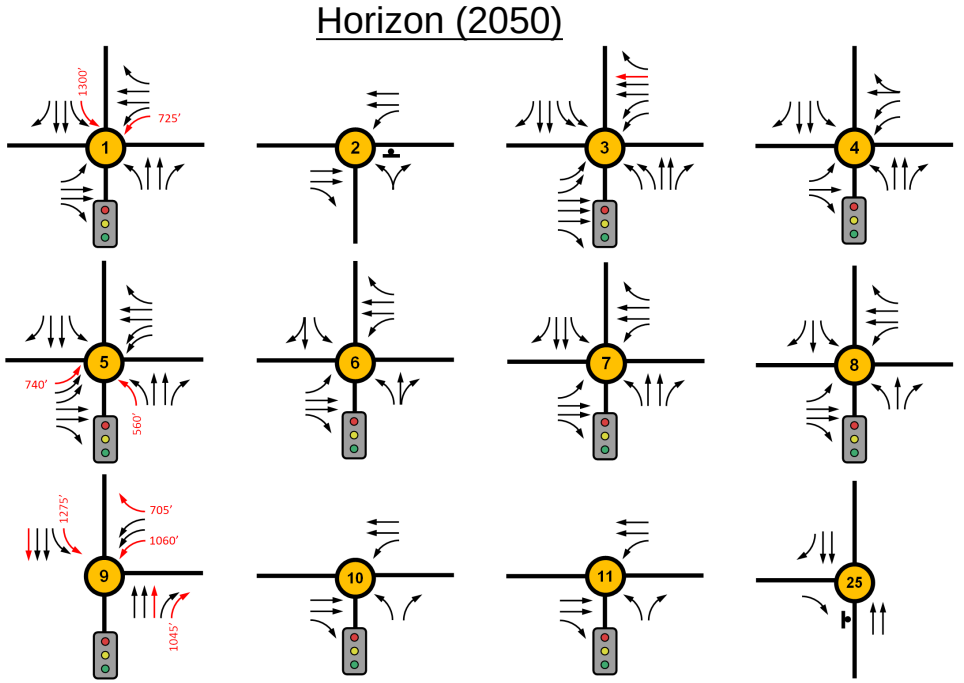
6. Conclusions and Recommendations

This study evaluates the transportation impacts of the proposed Corvallis development through existing conditions, full buildout (2030), and horizon (2050) year. The analysis identified necessary improvements, and incorporated traffic growth from adjacent developments and the existing traffic. The findings indicate that, while the proposed development will generate significant traffic volumes, the transportation network can accommodate the demand with strategic improvements in both short term (2030), and long term (2050). Most intersections will operate at acceptable level of service provided the recommended configurations, and turn lanes are implemented in a timely manner. Two stop-controlled intersections operate below the acceptable LOS: Fontaine Boulevard/Rolling View Drive (#2) and Marksheffel Road/Site East Access (#25). An acceleration lane has been proposed to mitigate the deficiency at the site access (#25). Regarding Intersection #2, note that it is not uncommon for motorists on cross streets to experience delays for one to two hours a day in an urban setting. The queue on the deficient movement is not long, and a traffic signal is not warranted at this intersection either. As a result, Matrix concludes that by implementing the required improvements the project will not make any adverse traffic impact to the studied transportation network. The summary of required improvements for the buildout (2030) and horizon (2050) total are shown in Figure 30. The fair share calculations for the Corvallis project for the buildout year and horizon year are shown in Table 18 and Table 19, respectively.

Figure 30. Summary of Improvements







LEGEND

- Site
- Key Roads
- 1 Study Intersection
- Lane Configuration
- Added/Modified

Matrix

Table 18. Buildout (2030) Fair Share Calculations

ID	Intersection	Site AM	Site PM	Existing AM	Existing PM	2030 Buildout Total AM	2030 Buildout Total PM	Fairshare 2030 AM	Fairshare 2030 PM	Fairshare 2030 (Weighted Average)
1	Powers Boulevard/Fontaine Boulevard	479	819	2204	2588	3027	3783	58.25%	68.54%	63.96%
9	Powers Boulevard/Mesa Ridge Parkway	422	680	2164	2756	4276	5334	19.99%	26.38%	23.54%

Table 19. Horizon (2050) Fair Share Calculations

ID	Intersection	Site AM	Site PM	Existing AM	Existing PM	2050 Horizon Total AM	2050 Horizon Total PM	Fairshare 2050 AM	Fairshare 2050 PM	Fairshare 2050 (Weighted Average)
1	Powers Boulevard/Fontaine Boulevard	479	819	2204	2588	4360	5494	22.24%	28.18%	25.55%
9	Powers Boulevard/Mesa Ridge Parkway	422	680	2164	2756	6377	12188	10.02%	18.78%	28.80%

In this study, to maintain a conservative estimate, no internal or pass by trip capture was assumed for the AM peak hour because the ITE Trip Generation Handbook does not provide a complete data point for the AM peak hour for this purpose. For the project fair share calculation, on the other hand, the same trip reduction rate used for the PM peak per the ITE handbook was applied to the AM peak hour as shown in Table 18, and 19 above.

Appendix A – Traffic Counts

All Traffic Data Services
12200 W 52nd Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Site Code: 10
Station ID: 10
MESA RIDGE PKWY W.O. AUTUMN GLEN AVE

Start Time	13-Nov-24 Wed	EB	WB							Total
12:00 AM		28	7							35
01:00		12	9							21
02:00		7	10							17
03:00		7	31							38
04:00		10	81							91
05:00		46	272							318
06:00		173	547							720
07:00		**317**	**627**							**944**
08:00		260	482							742
09:00		190	300							490
10:00		235	245							480
11:00		280	280							560
12:00 PM		341	302							643
01:00		310	274							584
02:00		404	303							707
03:00		568	**396**							964
04:00		687	326							1013
05:00		**763**	388							**1151**
06:00		535	278							813
07:00		351	183							534
08:00		278	119							397
09:00		149	53							202
10:00		110	39							149
11:00		45	19							64
Total		6106	5571							11677
Percent		52.3%	47.7%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	317	627	-	-	-	-	-	-	944
PM Peak	-	17:00	15:00	-	-	-	-	-	-	17:00
Vol.	-	763	396	-	-	-	-	-	-	1151
Grand Total		6106	5571							11677
Percent		52.3%	47.7%							
ADT		ADT 11,677		AADT 11,677						

All Traffic Data Services
12200 W 52nd Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Site Code: 11
Station ID: 11
S MARKSHEFFEL RD S.O. PEACEFUL VALLEY RD

Start Time	13-Nov-24 Wed	NB	SB							Total
12:00 AM		24	23							47
01:00		14	9							23
02:00		8	15							23
03:00		15	25							40
04:00		47	66							113
05:00		135	229							364
06:00		428	498							926
07:00		**653**	**634**							**1287**
08:00		425	539							964
09:00		312	342							654
10:00		314	329							643
11:00		375	320							695
12:00 PM		385	345							730
01:00		350	350							700
02:00		480	413							893
03:00		627	558							1185
04:00		**807**	**605**							**1412**
05:00		749	577							1326
06:00		481	353							834
07:00		242	197							439
08:00		203	149							352
09:00		146	91							237
10:00		73	59							132
11:00		60	23							83
Total		7353	6749							14102
Percent		52.1%	47.9%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	653	634	-	-	-	-	-	-	1287
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	807	605	-	-	-	-	-	-	1412
Grand Total		7353	6749							14102
Percent		52.1%	47.9%							
ADT		ADT 14,102		AADT 14,102						

All Traffic Data Services
12200 W 52nd Ave
Wheat Ridge, CO 80033
www.alltrafficdata.net

Site Code: 12
Station ID: 12
MARKSHEFFEL RD S.O. FONTAINE BLVD

Start Time	13-Nov-24 Wed	NB	SB							Total
12:00 AM		14	22							36
01:00		8	7							15
02:00		8	4							12
03:00		22	12							34
04:00		58	37							95
05:00		169	138							307
06:00		536	329							865
07:00		**690**	**425**							**1115**
08:00		398	379							777
09:00		268	210							478
10:00		246	184							430
11:00		261	232							493
12:00 PM		251	257							508
01:00		275	279							554
02:00		334	353							687
03:00		496	552							1048
04:00		**537**	**691**							**1228**
05:00		487	549							1036
06:00		303	352							655
07:00		157	158							315
08:00		164	141							305
09:00		77	81							158
10:00		41	58							99
11:00		21	23							44
Total		5821	5473							11294
Percent		51.5%	48.5%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	690	425	-	-	-	-	-	-	1115
PM Peak	-	16:00	16:00	-	-	-	-	-	-	16:00
Vol.	-	537	691	-	-	-	-	-	-	1228
Grand Total		5821	5473							11294
Percent		51.5%	48.5%							
ADT		ADT 11,294		AADT 11,294						

All Traffic Data Services
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Wheat Ridge, CO 80033
www.alltrafficdata.net

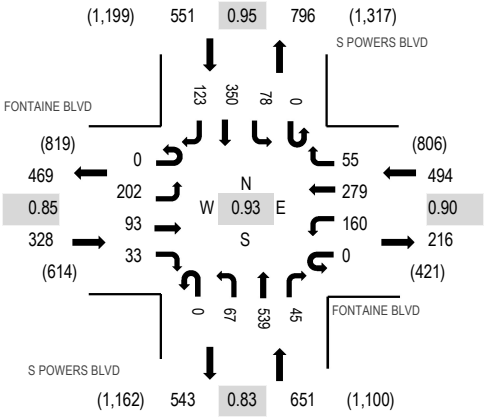
Site Code: 13
Station ID: 13
FONTAINE BLVD W.O. MARKSHEFFEL BLVD

Start Time	13-Nov-24 Wed	EB	WB							Total
12:00 AM		16	8							24
01:00		20	4							24
02:00		9	5							14
03:00		12	29							41
04:00		9	74							83
05:00		32	165							197
06:00		106	405							511
07:00		**223**	**540**							**763**
08:00		200	334							534
09:00		142	222							364
10:00		152	212							364
11:00		180	234							414
12:00 PM		236	232							468
01:00		239	165							404
02:00		249	225							474
03:00		457	**343**							800
04:00		**541**	276							**817**
05:00		492	291							783
06:00		375	241							616
07:00		232	130							362
08:00		175	93							268
09:00		119	63							182
10:00		69	27							96
11:00		48	22							70
Total		4333	4340							8673
Percent		50.0%	50.0%							
AM Peak	-	07:00	07:00	-	-	-	-	-	-	07:00
Vol.	-	223	540	-	-	-	-	-	-	763
PM Peak	-	16:00	15:00	-	-	-	-	-	-	16:00
Vol.	-	541	343	-	-	-	-	-	-	817
Grand Total		4333	4340							8673
Percent		50.0%	50.0%							
ADT		ADT 8,673		AADT 8,673						

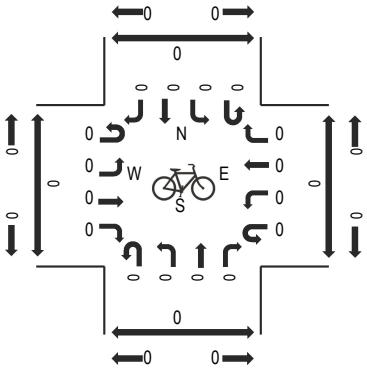
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 S POWERS BLVD & FONTAINE BLVD AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:15 AM - 07:30 AM

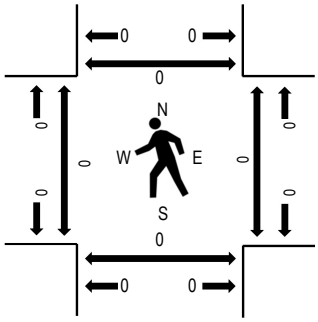
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

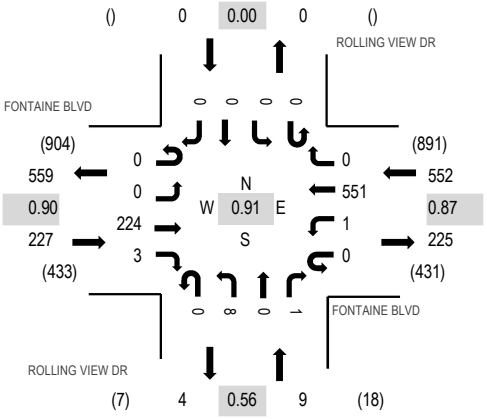
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				S POWERS BLVD Northbound				S POWERS BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	55	29	8	0	42	74	10	0	10	145	10	0	15	84	37	519	2,024	0	0	0	0
7:15 AM	0	64	25	7	0	45	64	12	0	17	169	9	0	29	75	27	543	1,894	0	0	0	0
7:30 AM	0	44	25	9	0	46	77	14	0	18	116	14	0	12	80	25	480	1,806	0	0	0	0
7:45 AM	0	39	14	9	0	27	64	19	0	22	109	12	0	22	111	34	482	1,793	0	0	0	0
8:00 AM	0	38	28	8	0	26	40	7	0	28	65	11	0	16	83	39	389	1,695	0	0	0	0
8:15 AM	0	34	30	15	0	30	41	11	0	15	96	15	0	19	121	28	455		0	0	0	0
8:30 AM	0	42	18	8	0	50	35	9	0	11	110	13	0	9	117	45	467		0	0	0	0
8:45 AM	0	32	18	15	0	30	23	10	0	5	67	13	0	15	116	40	384		0	0	0	0
Count Total	0	348	187	79	0	296	418	92	0	126	877	97	0	137	787	275	3,719		0	0	0	0
Peak Hour	0	202	93	33	0	160	279	55	0	67	539	45	0	78	350	123	2,024		0	0	0	0

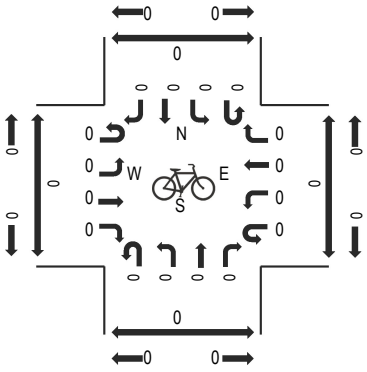
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 ROLLING VIEW DR & FONTAINE BLVD AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

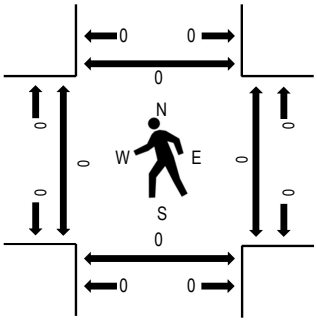
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

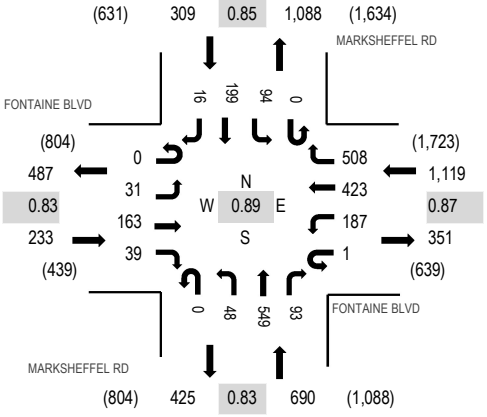
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				ROLLING VIEW DR Northbound				ROLLING VIEW DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	57	0	0	0	158	0	0	2	0	0	0	0	0	0	217	788	0	0	0	0
7:15 AM	0	0	63	1	0	0	131	0	0	2	0	1	0	0	0	0	198	703	0	0	0	0
7:30 AM	0	0	52	0	0	0	151	0	0	2	0	0	0	0	0	0	205	642	0	0	0	0
7:45 AM	0	0	52	2	0	1	111	0	0	2	0	0	0	0	0	0	168	597	0	0	0	0
8:00 AM	0	0	63	2	0	0	67	0	0	0	0	0	0	0	0	0	132	554	0	0	0	0
8:15 AM	0	0	51	0	0	0	84	0	0	1	0	1	0	0	0	0	137		0	0	0	0
8:30 AM	0	0	41	0	0	1	115	0	0	2	0	1	0	0	0	0	160		0	0	0	0
8:45 AM	0	0	49	0	0	0	72	0	0	4	0	0	0	0	0	0	125		0	0	0	0
Count Total	0	0	428	5	0	2	889	0	0	15	0	3	0	0	0	0	1,342		0	0	0	0
Peak Hour	0	0	224	3	0	1	551	0	0	8	0	1	0	0	0	0	788		0	0	0	0

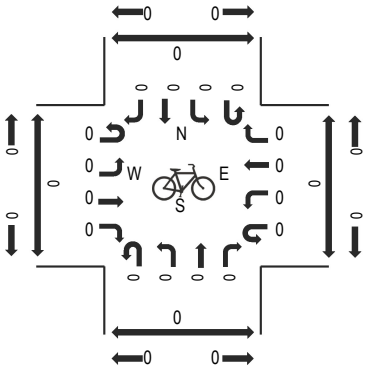
ALL TRAFFIC DATA SERVICES
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Location: 3 MARKSHEFFEL RD & FONTAINE BLVD AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

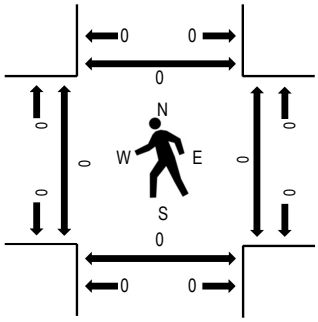
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

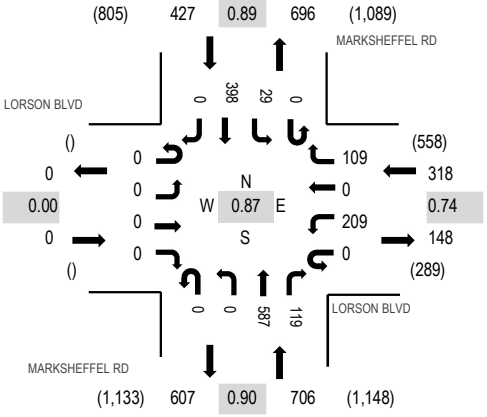
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				MARKSHEFFEL RD Northbound				MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	6	50	3	0	60	122	136	0	11	168	28	0	24	49	2	659	2,351	0	0	0	0
7:15 AM	0	11	48	12	0	30	101	145	0	19	132	25	0	22	49	4	598	2,085	0	0	0	0
7:30 AM	0	9	33	11	1	54	124	143	0	11	155	20	0	16	58	4	639	1,900	0	0	0	0
7:45 AM	0	5	32	13	0	43	76	84	0	7	94	20	0	32	43	6	455	1,682	0	0	0	0
8:00 AM	0	7	31	25	1	33	55	55	0	8	87	20	0	26	44	1	393	1,530	0	0	0	0
8:15 AM	0	7	36	13	0	32	60	64	0	20	84	11	0	38	45	3	413		0	0	0	0
8:30 AM	0	5	26	6	0	25	86	68	0	14	78	13	1	24	69	6	421		0	0	0	0
8:45 AM	0	6	30	14	0	30	56	39	0	6	45	12	0	20	43	2	303		0	0	0	0
Count Total	0	56	286	97	2	307	680	734	0	96	843	149	1	202	400	28	3,881		0	0	0	0
Peak Hour	0	31	163	39	1	187	423	508	0	48	549	93	0	94	199	16	2,351		0	0	0	0

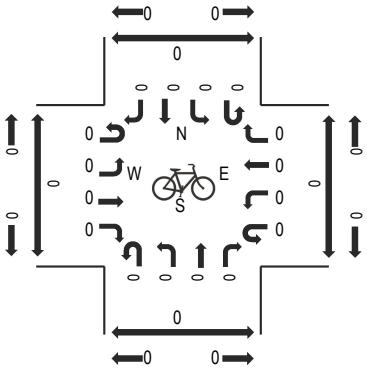
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 MARKSHEFFEL RD & LORSON BLVD AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

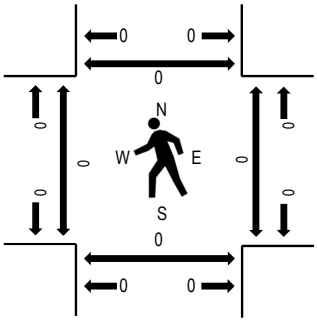
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

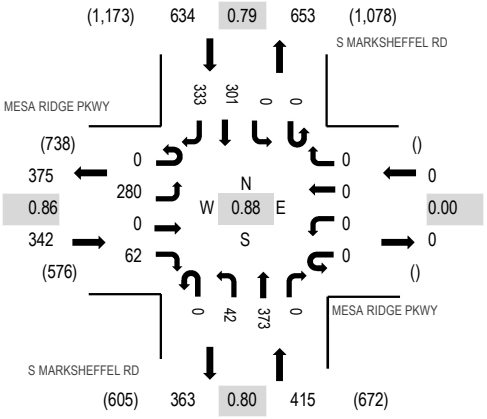
Traffic Counts - Motorized Vehicles

Interval Start Time	LORSON BLVD Eastbound				LORSON BLVD Westbound				MARKSHEFFEL RD Northbound				MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	70	0	38	0	0	173	24	0	6	106	0	417	1,451	0	0	0	0
7:15 AM	0	0	0	0	0	44	0	30	0	0	138	39	0	10	80	0	341	1,330	0	0	0	0
7:30 AM	0	0	0	0	0	47	0	27	0	0	161	28	0	9	111	0	383	1,280	0	0	0	0
7:45 AM	0	0	0	0	0	48	0	14	0	0	115	28	0	4	101	0	310	1,170	0	0	0	0
8:00 AM	0	0	0	0	0	55	0	17	0	0	92	32	0	9	91	0	296	1,060	0	0	0	0
8:15 AM	0	0	0	0	0	46	0	20	0	0	106	27	0	9	83	0	291		0	0	0	0
8:30 AM	0	0	0	0	0	48	0	15	0	0	83	26	0	3	98	0	273		0	0	0	0
8:45 AM	0	0	0	0	0	31	0	8	0	0	52	24	0	11	74	0	200		0	0	0	0
Count Total	0	0	0	0	0	389	0	169	0	0	920	228	0	61	744	0	2,511		0	0	0	0
Peak Hour	0	0	0	0	0	209	0	109	0	0	587	119	0	29	398	0	1,451		0	0	0	0

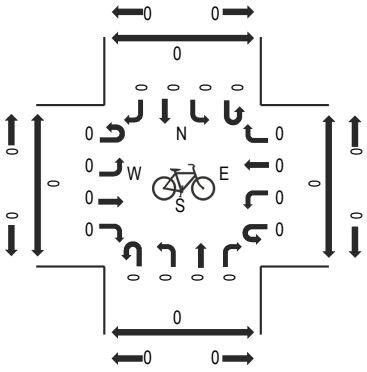
ALL TRAFFIC DATA SERVICES
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Location: 5 S MARKSHEFFEL RD & MESA RIDGE PKWY AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

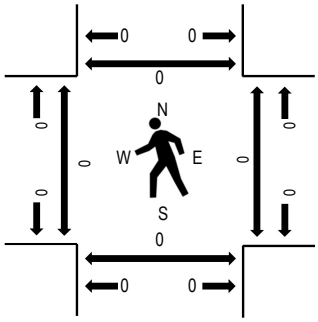
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

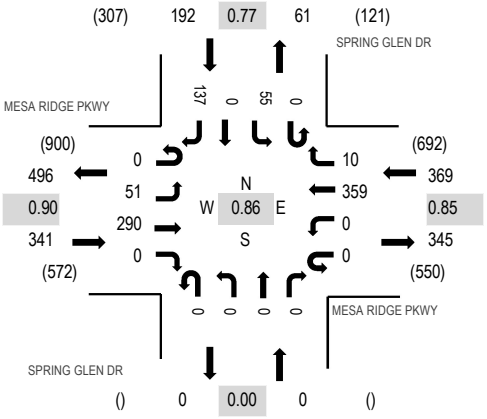
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				S MARKSHEFFEL RD Northbound				S MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	74	0	16	0	0	0	0	0	7	99	0	0	0	96	104	396	1,391	0	0	0	0
7:15 AM	0	79	0	21	0	0	0	0	0	17	112	0	0	0	83	71	383	1,281	0	0	0	0
7:30 AM	0	65	0	14	0	0	0	0	0	3	104	0	0	0	67	82	335	1,162	0	0	0	0
7:45 AM	0	62	0	11	0	0	0	0	0	15	58	0	0	0	55	76	277	1,082	0	0	0	0
8:00 AM	0	55	0	6	0	0	0	0	0	9	63	0	0	0	66	87	286	1,030	0	0	0	0
8:15 AM	0	47	0	14	0	0	0	0	0	7	71	0	0	0	48	77	264		0	0	0	0
8:30 AM	0	53	0	10	0	0	0	0	0	7	55	0	0	0	44	86	255		0	0	0	0
8:45 AM	0	44	0	5	0	0	0	0	0	8	37	0	0	0	49	82	225		0	0	0	0
Count Total	0	479	0	97	0	0	0	0	0	73	599	0	0	0	508	665	2,421		0	0	0	0
Peak Hour	0	280	0	62	0	0	0	0	0	42	373	0	0	0	301	333	1,391		0	0	0	0

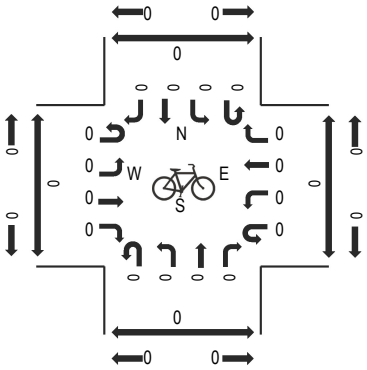
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 SPRING GLEN DR & MESA RIDGE PKWY AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

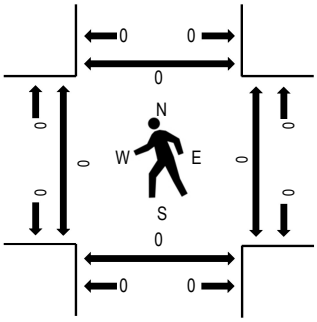
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

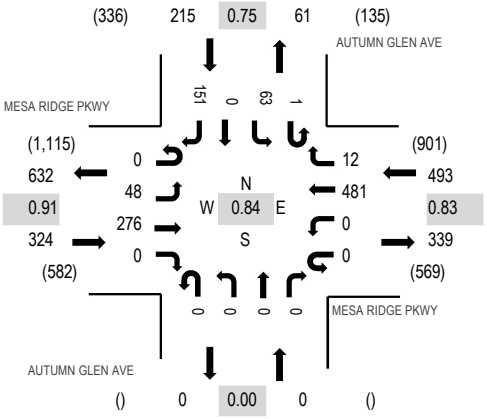
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				SPRING GLEN DR Northbound				SPRING GLEN DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	16	77	0	0	0	107	1	0	0	0	0	0	18	0	44	263	902	0	0	0	0
7:15 AM	0	9	86	0	0	0	79	3	0	0	0	0	0	9	0	36	222	814	0	0	0	0
7:30 AM	0	13	65	0	0	0	78	1	0	0	0	0	0	14	0	24	195	786	0	0	0	0
7:45 AM	0	13	62	0	0	0	95	5	0	0	0	0	0	14	0	33	222	762	0	0	0	0
8:00 AM	0	12	53	0	0	0	79	6	0	0	0	0	0	4	0	21	175	669	0	0	0	0
8:15 AM	0	15	53	0	0	0	89	4	0	0	0	0	0	8	0	25	194		0	0	0	0
8:30 AM	0	11	43	0	0	0	80	2	0	0	0	0	0	7	0	28	171		0	0	0	0
8:45 AM	0	10	34	0	0	0	63	0	0	0	0	0	0	3	0	19	129		0	0	0	0
Count Total	0	99	473	0	0	0	670	22	0	0	0	0	0	77	0	230	1,571		0	0	0	0
Peak Hour	0	51	290	0	0	0	359	10	0	0	0	0	0	55	0	137	902		0	0	0	0

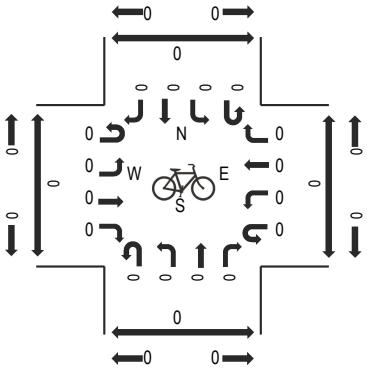
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 AUTUMN GLEN AVE & MESA RIDGE PKWY AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

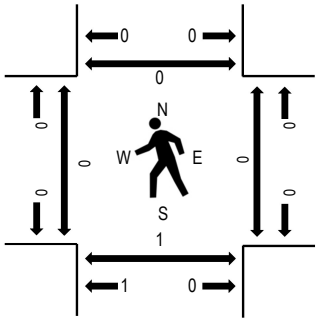
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

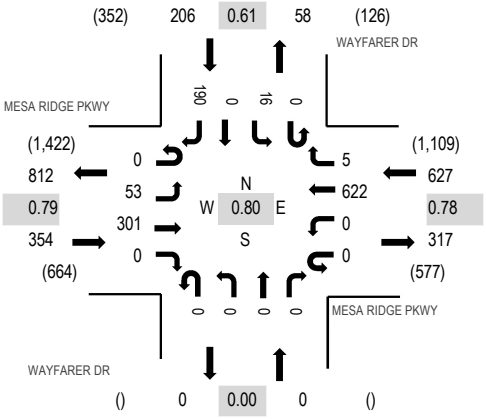
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				AUTUMN GLEN AVE Northbound				AUTUMN GLEN AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	10	76	0	0	0	146	2	0	0	0	0	0	15	0	57	306	1,032	0	0	1	0
7:15 AM	0	15	74	0	0	0	116	2	0	0	0	0	0	20	0	37	264	940	0	0	0	0
7:30 AM	0	8	65	0	0	0	101	2	0	0	0	0	0	19	0	30	225	886	0	0	0	0
7:45 AM	0	15	61	0	0	0	118	6	0	0	0	0	1	9	0	27	237	870	0	0	0	0
8:00 AM	0	15	61	0	0	0	98	5	0	0	0	0	0	6	0	29	214	787	0	0	0	0
8:15 AM	0	7	52	0	0	0	109	5	0	0	0	0	0	11	0	26	210		0	0	0	0
8:30 AM	0	17	54	0	0	0	105	5	0	0	0	0	0	4	0	24	209		0	0	0	0
8:45 AM	0	14	38	0	0	0	75	6	0	0	0	0	0	4	0	17	154		0	0	0	0
Count Total	0	101	481	0	0	0	868	33	0	0	0	0	1	88	0	247	1,819		0	0	1	0
Peak Hour	0	48	276	0	0	0	481	12	0	0	0	0	1	63	0	151	1,032		0	0	1	0

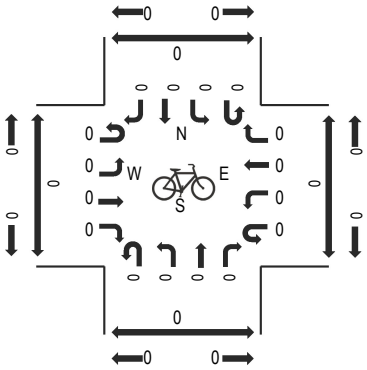
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 8 WAYFARER DR & MESA RIDGE PKWY AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

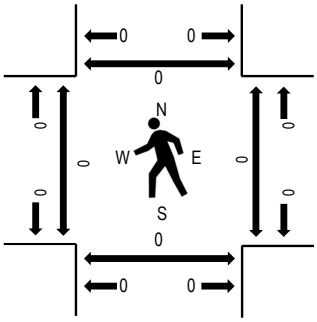
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

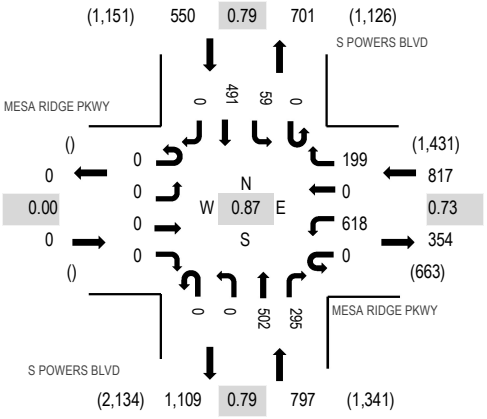
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				WAYFARER DR Northbound				WAYFARER DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	6	79	0	0	0	200	0	0	0	0	0	0	3	0	81	369	1,187	0	0	0	0
7:15 AM	0	25	87	0	0	0	153	1	0	0	0	0	0	3	0	39	308	1,063	0	0	0	0
7:30 AM	0	12	66	0	0	0	126	2	0	0	0	0	0	5	0	29	240	1,000	0	0	0	0
7:45 AM	0	10	69	0	0	0	143	2	0	0	0	0	0	5	0	41	270	1,014	0	0	0	0
8:00 AM	0	8	74	0	0	0	124	3	0	0	0	0	0	2	0	34	245	938	0	0	0	0
8:15 AM	0	16	59	0	0	0	131	3	0	0	0	0	0	1	0	35	245		0	0	0	0
8:30 AM	1	16	70	0	0	0	124	1	0	0	0	0	0	3	0	39	254		0	0	0	0
8:45 AM	0	17	49	0	0	0	92	4	0	0	0	0	0	2	0	30	194		0	0	0	0
Count Total	1	110	553	0	0	0	1,093	16	0	0	0	0	0	24	0	328	2,125		0	0	0	0
Peak Hour	0	53	301	0	0	0	622	5	0	0	0	0	0	16	0	190	1,187		0	0	0	0

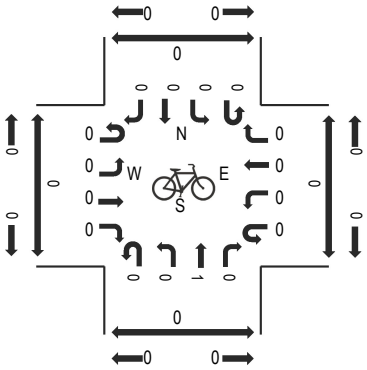
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 9 S POWERS BLVD & MESA RIDGE PKWY AM
Date: Wednesday, November 13, 2024
Peak Hour: 07:00 AM - 08:00 AM
Peak 15-Minutes: 07:00 AM - 07:15 AM

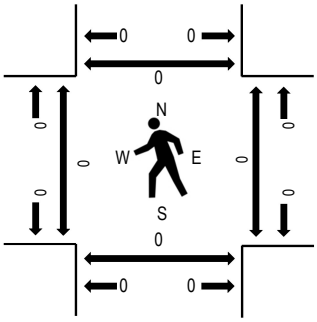
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

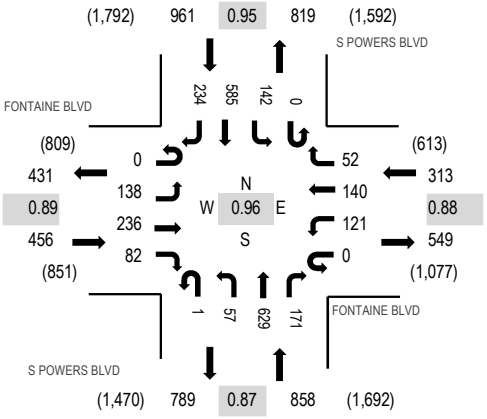
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				S POWERS BLVD Northbound				S POWERS BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
7:00 AM	0	0	0	0	0	221	0	57	0	0	113	69	0	15	147	0	622	2,164	0	0	0	0
7:15 AM	0	0	0	0	0	147	0	54	0	0	152	99	0	14	93	0	559	1,952	0	0	0	0
7:30 AM	0	0	0	0	0	119	0	33	0	0	138	64	0	16	116	0	486	1,835	0	0	0	0
7:45 AM	0	0	0	0	0	131	0	55	0	0	99	63	0	14	135	0	497	1,864	0	0	0	0
8:00 AM	0	0	0	0	0	126	0	32	0	0	70	69	0	14	99	0	410	1,759	0	0	0	0
8:15 AM	0	0	0	0	0	130	0	35	0	0	77	58	0	19	123	0	442		0	0	0	0
8:30 AM	0	0	0	0	0	136	0	29	0	0	101	59	0	24	166	0	515		0	0	0	0
8:45 AM	0	0	0	0	0	106	0	20	0	0	61	49	0	17	139	0	392		0	0	0	0
Count Total	0	0	0	0	0	1,116	0	315	0	0	811	530	0	133	1,018	0	3,923		0	0	0	0
Peak Hour	0	0	0	0	0	618	0	199	0	0	502	295	0	59	491	0	2,164		0	0	0	0

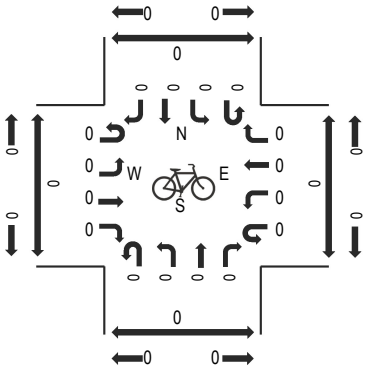
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 1 S POWERS BLVD & FONTAINE BLVD PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

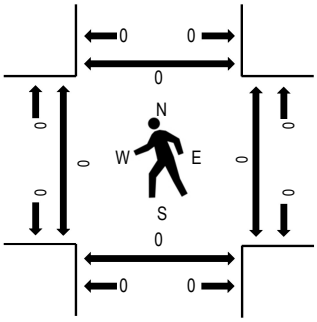
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

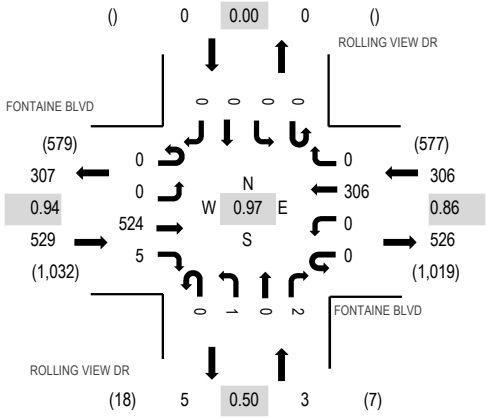
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				S POWERS BLVD Northbound				S POWERS BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	27	52	18	0	17	28	13	0	17	158	62	1	27	145	46	611	2,577	0	0	0	0
4:15 PM	0	29	57	24	0	30	32	17	0	13	148	42	0	30	148	59	629	2,588	0	0	0	0
4:30 PM	0	33	54	14	0	25	38	10	0	20	178	60	0	32	142	59	665	2,577	0	0	0	0
4:45 PM	0	38	66	24	0	33	45	15	0	15	145	39	0	44	146	62	672	2,492	0	0	0	0
5:00 PM	0	38	59	20	0	33	25	10	1	9	158	30	0	36	149	54	622	2,371	0	0	0	0
5:15 PM	0	31	50	17	0	27	39	11	0	8	165	53	0	27	133	57	618		0	0	0	0
5:30 PM	0	31	48	19	0	31	43	20	0	6	139	44	0	38	102	59	580		0	0	0	0
5:45 PM	0	30	55	17	0	26	36	9	0	6	138	38	0	34	129	33	551		0	0	0	0
Count Total	0	257	441	153	0	222	286	105	1	94	1,229	368	1	268	1,094	429	4,948		0	0	0	0
Peak Hour	0	138	236	82	0	121	140	52	1	57	629	171	0	142	585	234	2,588		0	0	0	0

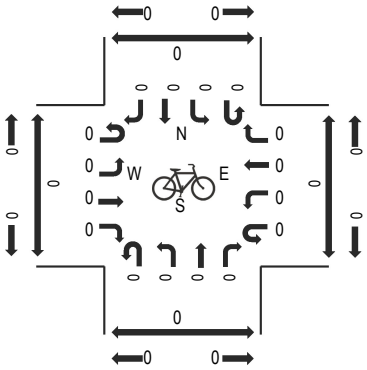
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 2 ROLLING VIEW DR & FONTAINE BLVD PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:30 PM - 05:30 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

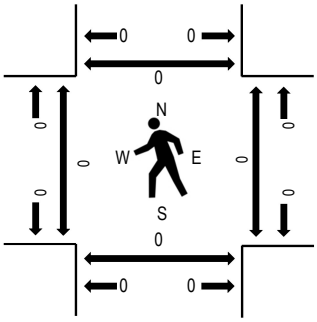
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

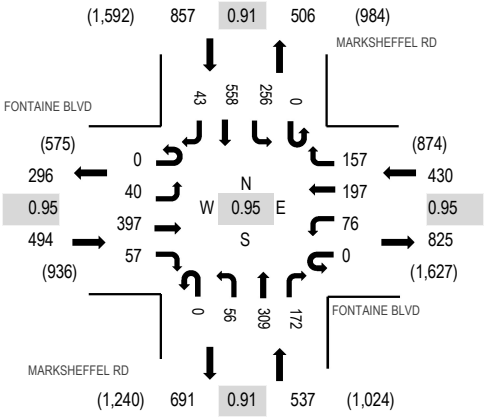
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				ROLLING VIEW DR Northbound				ROLLING VIEW DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	138	4	0	0	56	0	0	2	0	1	0	0	0	0	201	829	0	0	0	0
4:15 PM	0	0	135	1	0	1	64	0	0	0	0	0	0	0	0	0	201	831	0	0	0	0
4:30 PM	0	0	132	1	0	0	77	0	0	0	0	0	0	0	0	0	210	838	0	0	0	0
4:45 PM	0	0	122	1	0	0	91	0	0	1	0	2	0	0	0	0	217	821	0	0	0	0
5:00 PM	0	0	131	1	0	0	71	0	0	0	0	0	0	0	0	0	203	787	0	0	0	0
5:15 PM	0	0	139	2	0	0	67	0	0	0	0	0	0	0	0	0	208		0	0	0	0
5:30 PM	0	0	107	1	0	1	84	0	0	0	0	0	0	0	0	0	193		0	0	0	0
5:45 PM	0	0	112	5	0	0	65	0	0	1	0	0	0	0	0	0	183		0	0	0	0
Count Total	0	0	1,016	16	0	2	575	0	0	4	0	3	0	0	0	0	1,616		0	0	0	0
Peak Hour	0	0	524	5	0	0	306	0	0	1	0	2	0	0	0	0	838		0	0	0	0

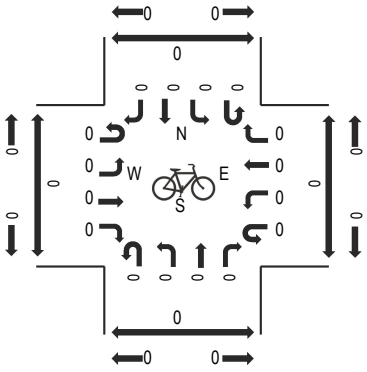
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 3 MARKSHEFFEL RD & FONTAINE BLVD PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

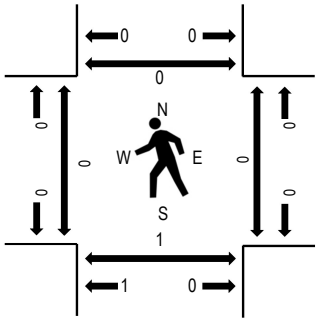
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

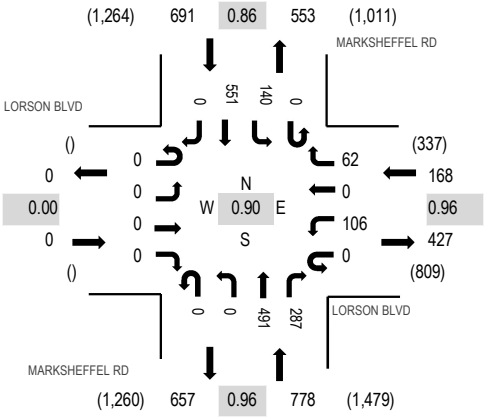
Traffic Counts - Motorized Vehicles

Interval Start Time	FONTAINE BLVD Eastbound				FONTAINE BLVD Westbound				MARKSHEFFEL RD Northbound				MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	15	98	17	0	19	37	38	0	11	79	45	0	84	129	10	582	2,318	0	0	1	0
4:15 PM	0	7	106	14	0	17	49	50	0	14	86	48	0	61	137	6	595	2,281	0	0	0	0
4:30 PM	0	10	92	10	0	16	55	36	0	15	63	40	0	57	128	10	532	2,199	0	0	0	0
4:45 PM	0	8	101	16	0	24	56	33	0	16	81	39	0	54	164	17	609	2,223	0	0	0	0
5:00 PM	0	8	98	14	0	29	47	44	0	14	80	34	0	62	111	4	545	2,108	0	0	0	0
5:15 PM	0	7	97	10	0	22	51	39	0	8	78	28	0	59	107	7	513		0	0	0	0
5:30 PM	0	4	101	6	0	12	57	43	0	13	79	50	0	63	119	9	556		0	0	0	0
5:45 PM	0	4	84	9	0	10	53	37	0	8	55	40	0	86	100	8	494		0	1	0	0
Count Total	0	63	777	96	0	149	405	320	0	99	601	324	0	526	995	71	4,426		0	1	1	0
Peak Hour	0	40	397	57	0	76	197	157	0	56	309	172	0	256	558	43	2,318		0	0	1	0

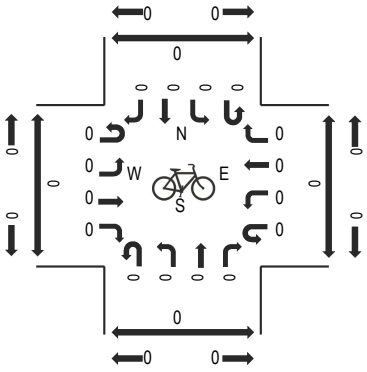
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 4 MARKSHEFFEL RD & LORSON BLVD PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:45 PM - 05:00 PM

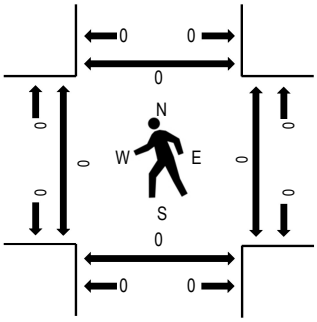
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

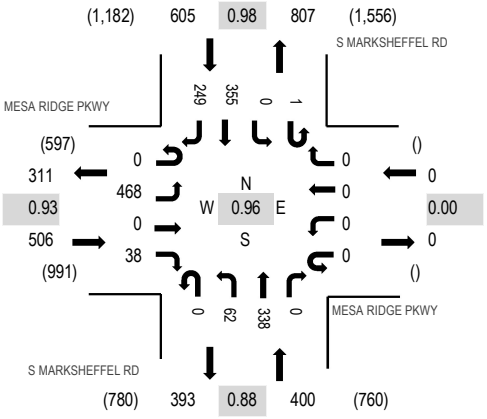
Traffic Counts - Motorized Vehicles

Interval Start Time	LORSON BLVD Eastbound				LORSON BLVD Westbound				MARKSHEFFEL RD Northbound				MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	22	0	5	0	0	140	62	0	32	133	0	394	1,637	0	0	0	0
4:15 PM	0	0	0	0	0	30	0	17	0	0	128	72	0	30	141	0	418	1,632	0	0	0	0
4:30 PM	0	0	0	0	0	24	0	20	0	0	102	71	0	26	128	0	371	1,595	0	0	0	0
4:45 PM	0	0	0	0	0	30	0	20	0	0	121	82	0	52	149	0	454	1,592	0	0	0	0
5:00 PM	0	0	0	0	0	42	0	8	0	0	107	71	0	28	133	0	389	1,443	0	0	0	0
5:15 PM	0	0	0	0	0	27	0	15	0	0	110	77	0	18	134	0	381		0	0	0	0
5:30 PM	0	0	0	0	0	29	0	11	0	0	117	72	0	29	110	0	368		0	0	0	0
5:45 PM	0	0	0	0	0	30	0	7	0	0	83	64	0	23	98	0	305		0	0	0	0
Count Total	0	0	0	0	0	234	0	103	0	0	908	571	0	238	1,026	0	3,080		0	0	0	0
Peak Hour	0	0	0	0	0	106	0	62	0	0	491	287	0	140	551	0	1,637		0	0	0	0

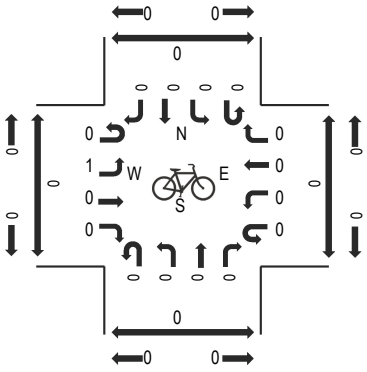
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 5 S MARKSHEFFEL RD & MESA RIDGE PKWY PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:00 PM - 05:00 PM
Peak 15-Minutes: 04:15 PM - 04:30 PM

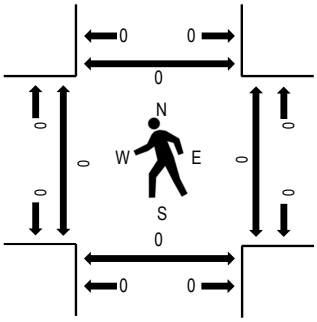
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

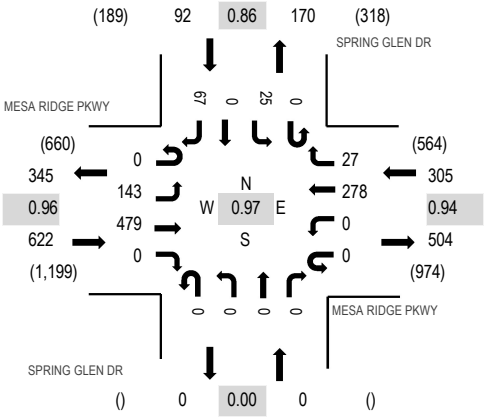
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				S MARKSHEFFEL RD Northbound				S MARKSHEFFEL RD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	127	0	9	0	0	0	0	0	14	82	0	1	0	81	58	372	1,511	0	0	0	0
4:15 PM	0	109	0	12	0	0	0	0	0	19	94	0	0	0	98	60	392	1,502	0	0	0	0
4:30 PM	0	116	0	10	0	0	0	0	0	11	85	0	0	0	84	67	373	1,481	0	0	0	0
4:45 PM	0	116	0	7	0	0	0	0	0	18	77	0	0	0	92	64	374	1,464	0	0	0	0
5:00 PM	0	111	0	8	0	0	0	0	0	12	80	0	0	0	90	62	363	1,422	0	0	0	0
5:15 PM	0	104	0	16	0	0	0	0	0	13	97	0	0	0	81	60	371		0	0	0	0
5:30 PM	0	113	0	4	0	0	0	0	1	15	57	0	0	0	106	60	356		0	0	0	0
5:45 PM	0	111	0	18	0	0	0	0	0	9	76	0	0	0	63	55	332		0	0	0	0
Count Total	0	907	0	84	0	0	0	0	1	111	648	0	1	0	695	486	2,933		0	0	0	0
Peak Hour	0	468	0	38	0	0	0	0	0	62	338	0	1	0	355	249	1,511		0	0	0	0

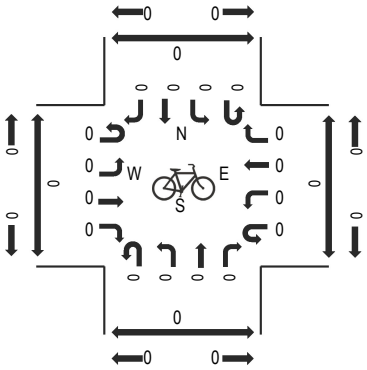
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 6 SPRING GLEN DR & MESA RIDGE PKWY PM
Date: Wednesday, November 13, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

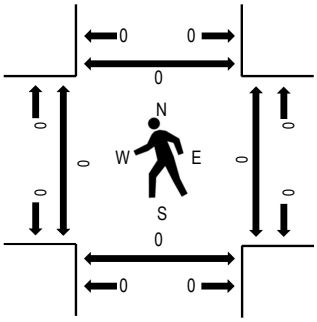
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

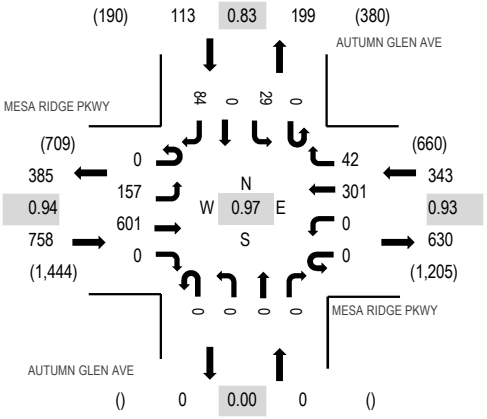
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				SPRING GLEN DR Northbound				SPRING GLEN DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	31	116	0	0	0	64	6	0	0	0	0	0	7	0	12	236	933	0	0	0	0
4:15 PM	0	30	115	0	0	0	63	3	0	0	0	0	0	7	0	19	237	960	0	0	0	0
4:30 PM	0	34	107	0	0	0	56	4	0	0	0	0	0	5	0	18	224	978	0	0	0	0
4:45 PM	0	36	108	0	0	0	59	4	0	0	0	0	0	5	0	24	236	1,005	0	0	0	0
5:00 PM	0	43	119	0	0	0	77	4	0	0	0	0	0	8	0	12	263	1,019	0	0	0	0
5:15 PM	0	26	120	0	0	0	68	13	0	0	0	0	0	2	0	26	255		0	0	0	0
5:30 PM	0	42	112	0	0	0	70	6	0	0	0	0	0	5	0	16	251		0	0	0	0
5:45 PM	0	32	128	0	0	0	63	4	0	0	0	0	0	10	0	13	250		0	0	0	0
Count Total	0	274	925	0	0	0	520	44	0	0	0	0	0	49	0	140	1,952		0	0	0	0
Peak Hour	0	143	479	0	0	0	278	27	0	0	0	0	0	25	0	67	1,019		0	0	0	0

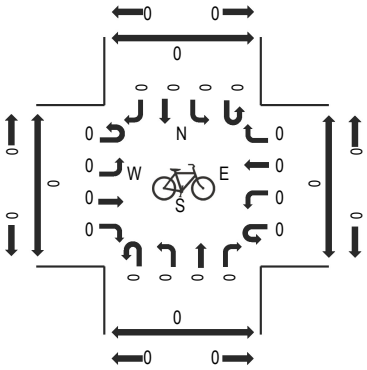
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 7 AUTUMN GLEN AVE & MESA RIDGE PKWY PM
Date: Wednesday, November 13, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

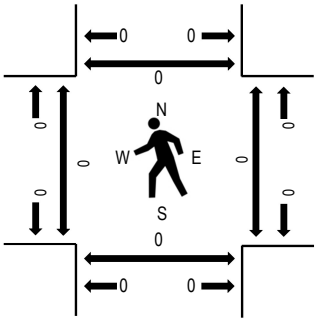
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

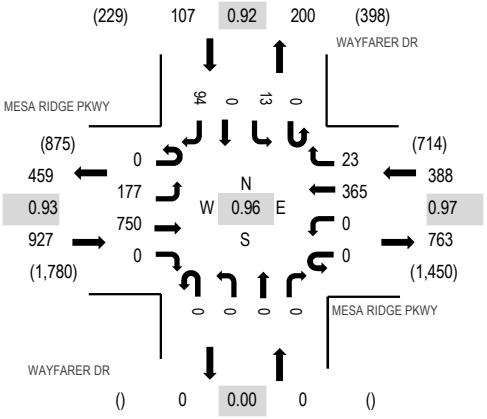
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				AUTUMN GLEN AVE Northbound				AUTUMN GLEN AVE Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	34	134	0	0	0	65	13	0	0	0	0	1	6	0	12	265	1,080	0	0	0	0
4:15 PM	0	38	133	0	0	0	72	11	0	0	0	0	0	9	0	16	279	1,128	0	0	0	0
4:30 PM	0	30	140	0	0	0	57	12	0	0	0	0	0	3	0	8	250	1,149	0	0	0	0
4:45 PM	0	32	145	0	0	0	77	10	0	0	0	0	0	5	0	17	286	1,209	1	0	0	1
5:00 PM	0	47	155	0	0	0	80	8	0	0	0	0	0	6	0	17	313	1,214	0	0	0	0
5:15 PM	0	43	139	0	0	0	84	10	0	0	0	0	0	6	0	18	300		0	0	0	0
5:30 PM	0	36	161	0	0	0	67	14	0	0	0	0	0	7	0	25	310		0	0	0	0
5:45 PM	0	31	146	0	0	0	70	10	0	0	0	0	0	10	0	24	291		0	0	0	0
Count Total	0	291	1,153	0	0	0	572	88	0	0	0	0	1	52	0	137	2,294		1	0	0	1
Peak Hour	0	157	601	0	0	0	301	42	0	0	0	0	0	29	0	84	1,214		0	0	0	0

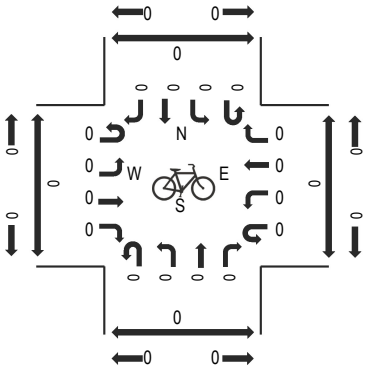
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 8 WAYFARER DR & MESA RIDGE PKWY PM
Date: Wednesday, November 13, 2024
Peak Hour: 05:00 PM - 06:00 PM
Peak 15-Minutes: 05:30 PM - 05:45 PM

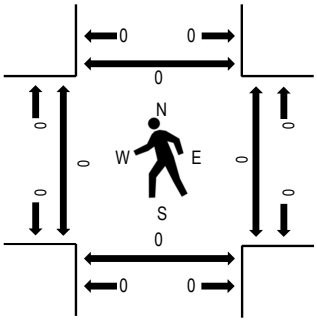
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

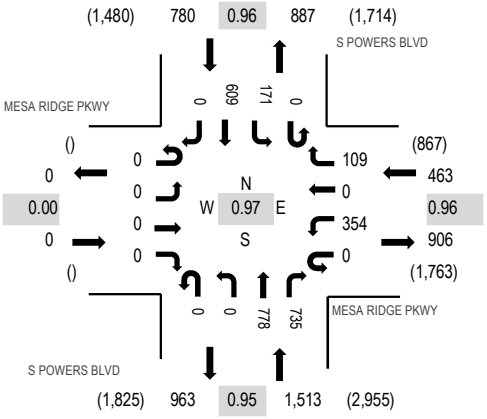
Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				WAYFARER DR Northbound				WAYFARER DR Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	42	165	0	0	0	73	9	0	0	0	0	0	3	0	27	319	1,301	0	0	0	0
4:15 PM	0	44	165	0	0	0	81	6	0	0	0	0	0	4	0	29	329	1,349	0	0	0	0
4:30 PM	0	49	173	0	0	0	62	3	0	0	0	0	0	1	0	31	319	1,364	0	0	0	0
4:45 PM	0	41	174	0	0	0	88	4	0	0	0	0	0	2	0	25	334	1,414	0	0	0	1
5:00 PM	0	41	199	0	0	0	92	8	0	0	0	0	0	5	0	22	367	1,422	0	0	0	0
5:15 PM	0	43	170	0	0	0	94	6	0	0	0	0	0	2	0	29	344		0	0	0	0
5:30 PM	0	51	198	0	0	0	91	3	0	0	0	0	0	3	0	23	369		0	0	0	0
5:45 PM	0	42	183	0	0	0	88	6	0	0	0	0	0	3	0	20	342		0	0	0	0
Count Total	0	353	1,427	0	0	0	669	45	0	0	0	0	0	23	0	206	2,723		0	0	0	1
Peak Hour	0	177	750	0	0	0	365	23	0	0	0	0	0	13	0	94	1,422		0	0	0	0

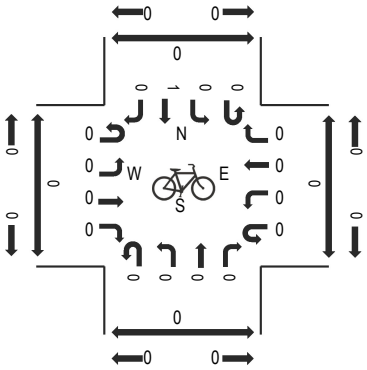
ALL TRAFFIC DATA SERVICES
(303) 216-2439
www.alltrafficdata.net

Location: 9 S POWERS BLVD & MESA RIDGE PKWY PM
Date: Wednesday, November 13, 2024
Peak Hour: 04:45 PM - 05:45 PM
Peak 15-Minutes: 05:00 PM - 05:15 PM

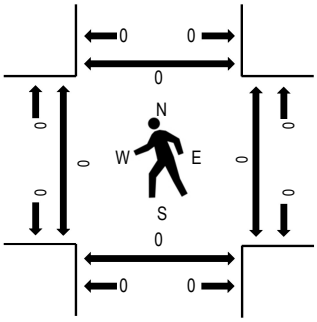
Peak Hour - Motorized Vehicles



Peak Hour - Bicycles



Peak Hour - Pedestrians



Note: Total study counts contained in parentheses.

Traffic Counts - Motorized Vehicles

Interval Start Time	MESA RIDGE PKWY Eastbound				MESA RIDGE PKWY Westbound				S POWERS BLVD Northbound				S POWERS BLVD Southbound					Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	Total		West	East	South	North
4:00 PM	0	0	0	0	0	65	0	30	0	0	200	175	0	36	132	0	638	2,626	1	0	0	0
4:15 PM	0	0	0	0	0	89	0	21	0	0	179	153	1	46	140	0	629	2,696	0	0	0	0
4:30 PM	0	0	0	0	0	70	0	23	0	0	200	193	0	33	151	0	670	2,723	1	0	0	0
4:45 PM	0	0	0	0	0	100	0	20	0	0	198	171	0	40	160	0	689	2,756	0	0	0	0
5:00 PM	0	0	0	0	0	84	0	26	0	0	208	194	0	39	157	0	708	2,676	0	0	0	0
5:15 PM	0	0	0	0	0	93	0	27	0	0	181	175	0	41	139	0	656		0	0	0	0
5:30 PM	0	0	0	0	0	77	0	36	0	0	191	195	0	51	153	0	703		0	0	0	0
5:45 PM	0	0	0	0	0	90	0	16	0	0	157	185	0	36	125	0	609		0	0	0	0
Count Total	0	0	0	0	0	668	0	199	0	0	1,514	1,441	1	322	1,157	0	5,302		2	0	0	0
Peak Hour	0	0	0	0	0	354	0	109	0	0	778	735	0	171	609	0	2,756		0	0	0	0

Appendix B – Existing Conditions Analyses

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	25.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.447

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	67	539	45	78	350	123	202	93	33	160	279	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	23	0	0	62	0	0	17	0	0	28
Total Hourly Volume [veh/h]	67	539	22	78	350	61	202	93	16	160	279	27
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	145	6	21	94	16	54	25	4	43	75	7
Total Analysis Volume [veh/h]	72	580	24	84	376	66	217	100	17	172	300	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	31	0	9	31	0	9	39	0	18	45	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	51	40	40	51	41	41	36	21	21	36	19	19
g / C, Green / Cycle	0.51	0.40	0.40	0.51	0.41	0.41	0.36	0.21	0.21	0.36	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.07	0.16	0.02	0.09	0.11	0.04	0.16	0.05	0.01	0.12	0.16	0.02
s, saturation flow rate [veh/h]	1076	3560	1589	985	3560	1589	1360	1870	1589	1459	1870	1589
c, Capacity [veh/h]	585	1416	632	509	1455	650	434	390	331	577	350	297
d1, Uniform Delay [s]	13.02	21.78	18.52	13.63	19.66	18.35	25.03	33.28	31.84	22.98	39.59	33.85
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.43	0.88	0.11	0.15	0.43	0.31	0.89	0.34	0.06	0.29	6.13	0.14
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.41	0.04	0.16	0.26	0.10	0.50	0.26	0.05	0.30	0.86	0.10
d, Delay for Lane Group [s/veh]	13.45	22.66	18.63	13.78	20.09	18.66	25.92	33.63	31.91	23.26	45.72	33.99
Lane Group LOS	B	C	B	B	C	B	C	C	C	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.80	4.60	0.33	0.88	2.71	0.91	3.76	2.04	0.33	2.86	7.59	0.59
50th-Percentile Queue Length [ft/ln]	20.01	114.93	8.27	21.98	67.69	22.87	94.07	51.08	8.30	71.55	189.86	14.76
95th-Percentile Queue Length [veh/ln]	1.44	8.11	0.60	1.58	4.87	1.65	6.77	3.68	0.60	5.15	12.11	1.06
95th-Percentile Queue Length [ft/ln]	36.01	202.84	14.89	39.56	121.84	41.17	169.32	91.94	14.94	128.79	302.84	26.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.45	22.66	18.63	13.78	20.09	18.66	25.92	33.63	31.91	23.26	45.72	33.99
Movement LOS	B	C	B	B	C	B	C	C	C	C	D	C
d_A, Approach Delay [s/veh]	21.54			18.90			28.53			37.33		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	25.89											
Intersection LOS	C											
Intersection V/C	0.447											

Emissions

Vehicle Miles Traveled [mph]	80.55	648.90	26.85	136.37	610.42	107.15	120.89	55.71	9.47	47.16	82.25	7.95
Stops [stops/h]	28.68	329.51	11.86	31.51	194.07	32.79	134.85	73.22	11.90	102.57	272.17	21.15
Fuel consumption [US gal/h]	3.42	30.50	1.21	5.38	25.56	4.44	6.77	3.36	0.56	3.38	7.97	0.66
CO [g/h]	239.37	2132.11	84.54	376.25	1786.77	310.64	473.01	234.76	39.21	236.48	557.30	46.33
NOx [g/h]	46.57	414.83	16.45	73.20	347.64	60.44	92.03	45.68	7.63	46.01	108.43	9.01
VOC [g/h]	55.48	494.14	19.59	87.20	414.10	71.99	109.62	54.41	9.09	54.81	129.16	10.74

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.83	39.83	39.83	39.83
l_p,int, Pedestrian LOS Score for Intersectio	2.928	3.119	2.567	2.568
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	796	796	677	677
d_b, Bicycle Delay [s]	18.19	18.19	21.98	21.98
l_b,int, Bicycle LOS Score for Intersection	2.136	2.045	2.139	2.432
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	12.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	8	1	224	3	1	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	1	224	3	1	551
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	62	1	0	151
Total Analysis Volume [veh/h]	9	1	246	3	1	605
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	12.91	9.13	0.00	0.00	7.74	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.57	1.57	0.00	0.00	0.06	0.00
d_A, Approach Delay [s/veh]	12.53		0.00		0.01	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.15					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	15.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.509

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	2	1	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	47	0	0	8	0	0	20	0	0	254
Total Hourly Volume [veh/h]	48	549	46	94	199	8	31	163	19	188	423	254
Peak Hour Factor	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900	0.8900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	154	13	26	56	2	9	46	5	53	119	71
Total Analysis Volume [veh/h]	54	617	52	106	224	9	35	183	21	211	475	285
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	45	0	0	45	0	0	40	0	0	40	0
Amber [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	35	0	0	35	0	0	25	0	0	25	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	20	0	0	20	0	0	12	0	0	12	0
Vehicle Extension [s]	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	59	59	59	59	59	59	59	59	59	59	59	59
L, Total Lost Time per Cycle [s]	7.50	7.50	7.50	7.50	7.50	7.50	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	27	27	27	27	27	27	17	17	17	17	17	17
g / C, Green / Cycle	0.47	0.47	0.47	0.47	0.47	0.47	0.29	0.29	0.29	0.29	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.05	0.33	0.03	0.14	0.12	0.01	0.05	0.05	0.01	0.18	0.13	0.18
s, saturation flow rate [veh/h]	1147	1870	1589	768	1870	1589	705	3560	1589	1178	3560	1589
c, Capacity [veh/h]	533	872	741	253	872	741	223	1022	456	373	1022	456
d1, Uniform Delay [s]	12.71	12.49	8.65	23.52	9.51	8.42	22.77	15.75	15.14	22.20	17.24	18.21
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.03	0.40	0.01	0.41	0.06	0.00	0.12	0.03	0.02	0.50	0.12	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.71	0.07	0.42	0.26	0.01	0.16	0.18	0.05	0.57	0.46	0.62
d, Delay for Lane Group [s/veh]	12.74	12.89	8.67	23.93	9.56	8.42	22.90	15.78	15.16	22.70	17.37	18.73
Lane Group LOS	B	B	A	C	A	A	C	B	B	C	B	B
Critical Lane Group	No	Yes	No	No	No	No	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	0.40	4.85	0.28	1.20	1.21	0.04	0.41	0.83	0.18	2.44	2.23	2.87
50th-Percentile Queue Length [ft/ln]	9.93	121.28	7.02	30.10	30.30	1.08	10.23	20.71	4.59	61.07	55.84	71.87
95th-Percentile Queue Length [veh/ln]	0.72	8.46	0.51	2.17	2.18	0.08	0.74	1.49	0.33	4.40	4.02	5.17
95th-Percentile Queue Length [ft/ln]	17.88	211.59	12.63	54.19	54.54	1.94	18.42	37.27	8.27	109.93	100.51	129.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.74	12.89	8.67	23.93	9.56	8.42	22.90	15.78	15.16	22.70	17.37	18.73
Movement LOS	B	B	A	C	A	A	C	B	B	C	B	B
d_A, Approach Delay [s/veh]	12.57			14.03			16.77			18.93		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	15.95											
Intersection LOS	B											
Intersection V/C	0.509											

Emissions

Vehicle Miles Traveled [mph]	11.79	134.72	11.35	19.45	41.10	1.65	8.72	45.58	5.23	138.09	310.86	186.52
Stops [stops/h]	24.29	296.66	17.16	73.64	74.11	2.64	25.03	101.29	11.23	149.39	273.18	175.79
Fuel consumption [US gal/h]	0.85	9.92	0.69	2.53	3.19	0.12	0.68	3.09	0.35	7.57	15.73	9.67
CO [g/h]	59.15	693.74	48.53	177.17	222.80	8.36	47.78	215.77	24.37	528.84	1099.60	675.63
NOx [g/h]	11.51	134.98	9.44	34.47	43.35	1.63	9.30	41.98	4.74	102.89	213.94	131.45
VOC [g/h]	13.71	160.78	11.25	41.06	51.64	1.94	11.07	50.01	5.65	122.56	254.84	156.58

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1529	1529	1359	1359
d_b, Bicycle Delay [s]	1.63	1.63	3.02	3.02
l_b,int, Bicycle LOS Score for Intersection	2.830	2.132	1.773	2.570
Bicycle LOS	C	B	A	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Two-way stop	Delay (sec / veh):	83.5
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.938

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		Lorson Blvd	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	475.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		Lorson Blvd	
Base Volume Input [veh/h]	587	119	29	398	209	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	587	119	29	232	209	109
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	169	34	8	67	60	31
Total Analysis Volume [veh/h]	675	137	33	267	240	125
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.00	0.94	0.28
d_M, Delay for Movement [s/veh]	0.00	0.00	9.61	0.00	83.54	15.92
Movement LOS	A	A	A	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	8.55	1.11
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.16	0.00	213.82	27.75
d_A, Approach Delay [s/veh]	0.00		1.06		60.38	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	15.14					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	15.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	400.00	100.00	100.00	840.00	500.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		Mesa Ridge Parkway	
Base Volume Input [veh/h]	42	373	301	333	280	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	167	0	31
Total Hourly Volume [veh/h]	42	373	301	166	280	31
Peak Hour Factor	0.8800	0.8800	0.8800	0.8800	0.8800	0.8800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	106	86	47	80	9
Total Analysis Volume [veh/h]	48	424	342	189	318	35
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	3	0
Auxiliary Signal Groups						
Maximum Green [s]	5	25	25	0	25	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	2.0	2.0	0.0	2.0	0.0
Walk [s]	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	7	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	3.0	0.0	3.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	35	26	0	25	0
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	10	10	0	5	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	30	30	21	21	20	20
g / C, Green / Cycle	0.50	0.50	0.35	0.35	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.04	0.23	0.18	0.12	0.18	0.02
s, saturation flow rate [veh/h]	1085	1870	1870	1589	1781	1589
c, Capacity [veh/h]	595	935	654	556	594	530
d1, Uniform Delay [s]	8.38	9.70	15.51	14.39	16.23	13.63
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.27	1.59	2.97	1.66	3.44	0.24
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.08	0.45	0.52	0.34	0.54	0.07
d, Delay for Lane Group [s/veh]	8.65	11.29	18.48	16.04	19.67	13.87
Lane Group LOS	A	B	B	B	B	B
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.28	3.03	3.58	1.81	3.49	0.31
50th-Percentile Queue Length [ft/ln]	6.98	75.67	89.55	45.37	87.22	7.64
95th-Percentile Queue Length [veh/ln]	0.50	5.45	6.45	3.27	6.28	0.55
95th-Percentile Queue Length [ft/ln]	12.56	136.21	161.18	81.67	156.99	13.74

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.65	11.29	18.48	16.04	19.67	13.87
Movement LOS	A	B	B	B	B	B
d_A, Approach Delay [s/veh]	11.02		17.61		19.10	
Approach LOS	B		B		B	
d_I, Intersection Delay [s/veh]	15.70					
Intersection LOS	B					
Intersection V/C	0.405					

Emissions

Vehicle Miles Traveled [mph]	29.09	256.98	323.59	178.83	47.97	5.28
Stops [stops/h]	16.75	181.61	214.91	108.90	209.32	18.32
Fuel consumption [US gal/h]	1.29	12.04	15.05	8.10	5.52	0.51
CO [g/h]	90.16	841.64	1052.02	566.24	385.87	35.48
NOx [g/h]	17.54	163.75	204.69	110.17	75.08	6.90
VOC [g/h]	20.90	195.06	243.82	131.23	89.43	8.22

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.372
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1000	700	667
d_b, Bicycle Delay [s]	7.50	12.68	13.33
l_b,int, Bicycle LOS Score for Intersection	2.338	2.711	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Two-way stop	Delay (sec / veh):	23.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.210

Intersection Setup

Name	Spring Glen Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	670.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Spring Glen Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	55	137	51	290	359	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	137	51	290	359	10
Peak Hour Factor	0.8600	0.8600	0.8600	0.8600	0.8600	0.8600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	40	15	84	104	3
Total Analysis Volume [veh/h]	64	159	59	337	417	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop		Free		Free	
Flared Lane	No					
Storage Area [veh]	0		0		0	
Two-Stage Gap Acceptance	No					
Number of Storage Spaces in Median	0		0		0	

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.21	0.25	0.05	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	23.01	16.85	8.36	0.00	0.00	0.00
Movement LOS	C	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	2.39	2.39	0.16	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	59.63	59.63	4.12	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.62		1.25		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	4.43					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Two-way stop	Delay (sec / veh):	25.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.302

Intersection Setup

Name	Autumn Glen Ave.		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1
Entry Pocket Length [ft]	520.00	100.00	530.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Autumn Glen Ave.		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	63	151	48	276	481	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	151	48	276	481	12
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	45	14	82	143	4
Total Analysis Volume [veh/h]	75	180	57	329	573	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.30	0.35	0.06	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	25.64	15.58	8.87	0.00	0.00	0.00
Movement LOS	D	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.23	1.54	0.18	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	30.69	38.44	4.58	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	18.54		1.31		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	4.26					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Two-way stop	Delay (sec / veh):	29.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	520.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	16	190	53	301	622	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	190	53	301	622	5
Peak Hour Factor	0.8000	0.8000	0.8000	0.8000	0.8000	0.8000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	59	17	94	194	2
Total Analysis Volume [veh/h]	20	238	66	376	778	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.60	0.08	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	29.46	26.83	9.69	0.00	0.00	0.00
Movement LOS	D	D	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.40	3.79	0.26	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	9.98	94.63	6.43	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	27.03		1.45		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	5.13					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	33.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.583

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	502	295	59	491	618	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	148	0	0	0	100
Total Hourly Volume [veh/h]	502	147	59	491	618	99
Peak Hour Factor	0.8700	0.8700	0.8700	0.8700	0.8700	0.8700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	144	42	17	141	178	28
Total Analysis Volume [veh/h]	577	169	68	564	710	114
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	83.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	43	0	12	55	75	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	52	52	63	63	54	54
g / C, Green / Cycle	0.40	0.40	0.48	0.48	0.42	0.42
(v / s)_i Volume / Saturation Flow Rate	0.16	0.11	0.08	0.16	0.40	0.07
s, saturation flow rate [veh/h]	3560	1589	861	3560	1781	1589
c, Capacity [veh/h]	1426	637	405	1716	744	664
d1, Uniform Delay [s]	27.87	26.13	19.34	20.72	36.62	23.72
k, delay calibration	0.50	0.50	0.11	0.50	0.27	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.85	1.02	0.19	0.51	15.56	0.12
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.27	0.17	0.33	0.95	0.17
d, Delay for Lane Group [s/veh]	28.72	27.15	19.54	21.24	52.18	23.84
Lane Group LOS	C	C	B	C	D	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.23	3.51	1.06	5.04	23.83	2.17
50th-Percentile Queue Length [ft/ln]	155.78	87.74	26.49	126.04	595.70	54.15
95th-Percentile Queue Length [veh/ln]	10.33	6.32	1.91	8.72	31.83	3.90
95th-Percentile Queue Length [ft/ln]	258.13	157.93	47.69	218.09	795.83	97.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.72	27.15	19.54	21.24	52.18	23.84
Movement LOS	C	C	B	C	D	C
d_A, Approach Delay [s/veh]	28.36		21.05		48.26	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	33.71					
Intersection LOS	C					
Intersection V/C	0.583					

Emissions

Vehicle Miles Traveled [mph]	107.91	31.61	76.08	631.00	272.03	43.68
Stops [stops/h]	345.11	97.19	29.35	279.22	659.85	59.98
Fuel consumption [US gal/h]	13.39	3.80	3.36	28.73	25.07	2.80
CO [g/h]	936.13	265.35	234.89	2008.33	1752.19	195.44
NOx [g/h]	182.14	51.63	45.70	390.75	340.91	38.03
VOC [g/h]	216.96	61.50	54.44	465.45	406.09	45.30

Other Modes

g_Walk,mi, Effective Walk Time [s]	69.0	69.0	36.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	14.31	14.31	33.98
l_p,int, Pedestrian LOS Score for Intersectio	3.249	2.773	2.760
Crosswalk LOS	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	554	738	1062
d_b, Bicycle Delay [s]	33.98	25.86	14.31
l_b,int, Bicycle LOS Score for Intersection	2.297	2.081	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	552	227	9
2	535	220	9
3	524	216	9
4	491	202	8
5	436	179	7
6	431	177	7
7	425	175	7
8	386	159	6
9	381	157	6
10	375	154	6
11	326	134	5
12	304	125	5
13	298	123	5
14	221	91	4
15	221	91	4
16	155	64	3
17	88	36	1
18	88	36	1
19	50	20	1
20	28	11	0
21	17	7	0
22	6	2	0
23	6	2	0
24	6	2	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	779	1	9	No	No	No	No	No	No	No	No	No	No
2	3	755	1	9	No	No	No	No	No	No	No	No	No	No
3	3	740	1	9	No	No	No	No	No	No	No	No	No	No
4	3	693	1	8	No	No	No	No	No	No	No	No	No	No
5	3	615	1	7	No	No	No	No	No	No	No	No	No	No
6	3	608	1	7	No	No	No	No	No	No	No	No	No	No
7	3	600	1	7	No	No	No	No	No	No	No	No	No	No
8	3	545	1	6	No	No	No	No	No	No	No	No	No	No
9	3	538	1	6	No	No	No	No	No	No	No	No	No	No
10	3	529	1	6	No	No	No	No	No	No	No	No	No	No
11	3	460	1	5	No	No	No	No	No	No	No	No	No	No
12	3	429	1	5	No	No	No	No	No	No	No	No	No	No
13	3	421	1	5	No	No	No	No	No	No	No	No	No	No
14	3	312	1	4	No	No	No	No	No	No	No	No	No	No
15	3	312	1	4	No	No	No	No	No	No	No	No	No	No
16	3	219	1	3	No	No	No	No	No	No	No	No	No	No
17	3	124	1	1	No	No	No	No	No	No	No	No	No	No
18	3	124	1	1	No	No	No	No	No	No	No	No	No	No
19	3	70	1	1	No	No	No	No	No	No	No	No	No	No
20	3	39	1	0	No	No	No	No	No	No	No	No	No	No
21	3	24	1	0	No	No	No	No	No	No	No	No	No	No
22	3	8	1	0	No	No	No	No	No	No	No	No	No	No
23	3	8	1	0	No	No	No	No	No	No	No	No	No	No
24	3	8	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	9
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	788
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 4: Marksheffel Rd/Lorson Blvd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	E
1	261	706	318
2	253	685	308
3	248	671	302
4	232	628	283
5	206	558	251
6	204	551	248
7	201	544	245
8	183	494	223
9	180	487	219
10	177	480	216
11	154	417	188
12	144	388	175
13	141	381	172
14	104	282	127
15	104	282	127
16	73	198	89
17	42	113	51
18	42	113	51
19	23	64	29
20	13	35	16
21	8	21	10
22	3	7	3
23	3	7	3
24	3	7	3

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	967	2	318	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	938	2	308	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	919	2	302	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	860	2	283	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
5	2	764	2	251	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
6	2	755	2	248	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
7	2	745	2	245	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
8	2	677	2	223	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
9	2	667	2	219	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
10	2	657	2	216	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
11	2	571	2	188	No	Yes	Yes	Yes	No	No	No	Yes	No	No
12	2	532	2	175	No	Yes	Yes	Yes	No	No	No	Yes	No	No
13	2	522	2	172	No	Yes	Yes	Yes	No	No	No	Yes	No	No
14	2	386	2	127	No	No	No	Yes	No	No	No	No	No	No
15	2	386	2	127	No	No	No	Yes	No	No	No	No	No	No
16	2	271	2	89	No	No	No	No	No	No	No	No	No	No
17	2	155	2	51	No	No	No	No	No	No	No	No	No	No
18	2	155	2	51	No	No	No	No	No	No	No	No	No	No
19	2	87	2	29	No	No	No	No	No	No	No	No	No	No
20	2	48	2	16	No	No	No	No	No	No	No	No	No	No
21	2	29	2	10	No	No	No	No	No	No	No	No	No	No
22	2	10	2	3	No	No	No	No	No	No	No	No	No	No
23	2	10	2	3	No	No	No	No	No	No	No	No	No	No
24	2	10	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					10	13	13	15	3	7	10	13	10	7

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	60.4
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	5:20
Delay Condition Met	Yes
Volume on Minor Street Approach During Same Hour	318
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1285
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	Yes
Warrant Met for Intersection	**Yes**

Signal Warrants Report For Intersection 6: Mesa Ridge P./Spring Glen Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	369	341	192
2	358	331	186
3	351	324	182
4	328	303	171
5	292	269	152
6	288	266	150
7	284	263	148
8	258	239	134
9	255	235	132
10	251	232	131
11	218	201	113
12	203	188	106
13	199	184	104
14	148	136	77
15	148	136	77
16	103	95	54
17	59	55	31
18	59	55	31
19	33	31	17
20	18	17	10
21	11	10	6
22	4	3	2
23	4	3	2
24	4	3	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	710	1	192	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
2	2	689	1	186	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
3	2	675	1	182	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
4	2	631	1	171	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
5	2	561	1	152	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
6	2	554	1	150	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
7	2	547	1	148	No	Yes	Yes	Yes	No	No	No	Yes	No	No
8	2	497	1	134	No	Yes	Yes	Yes	No	No	No	No	No	No
9	2	490	1	132	No	Yes	Yes	Yes	No	No	No	No	No	No
10	2	483	1	131	No	Yes	Yes	Yes	No	No	No	No	No	No
11	2	419	1	113	No	No	No	Yes	No	No	No	No	No	No
12	2	391	1	106	No	No	No	Yes	No	No	No	No	No	No
13	2	383	1	104	No	No	No	Yes	No	No	No	No	No	No
14	2	284	1	77	No	No	No	No	No	No	No	No	No	No
15	2	284	1	77	No	No	No	No	No	No	No	No	No	No
16	2	198	1	54	No	No	No	No	No	No	No	No	No	No
17	2	114	1	31	No	No	No	No	No	No	No	No	No	No
18	2	114	1	31	No	No	No	No	No	No	No	No	No	No
19	2	64	1	17	No	No	No	No	No	No	No	No	No	No
20	2	35	1	10	No	No	No	No	No	No	No	No	No	No
21	2	21	1	6	No	No	No	No	No	No	No	No	No	No
22	2	7	1	2	No	No	No	No	No	No	No	No	No	No
23	2	7	1	2	No	No	No	No	No	No	No	No	No	No
24	2	7	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					4	10	10	13	0	0	4	7	6	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	18.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:59
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	192
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	902
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Mesa Ridge P./Autumn Glen Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	493	324	214
2	478	314	208
3	468	308	203
4	439	288	190
5	389	256	169
6	385	253	167
7	380	249	165
8	345	227	150
9	340	224	148
10	335	220	146
11	291	191	126
12	271	178	118
13	266	175	116
14	197	130	86
15	197	130	86
16	138	91	60
17	79	52	34
18	79	52	34
19	44	29	19
20	25	16	11
21	15	10	6
22	5	3	2
23	5	3	2
24	5	3	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	817	2	214	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
2	2	792	2	208	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
3	2	776	2	203	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
4	2	727	2	190	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
5	2	645	2	169	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
6	2	638	2	167	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
7	2	629	2	165	No	Yes	Yes	Yes	No	No	No	Yes	Yes	No
8	2	572	2	150	No	No	Yes	Yes	No	No	No	Yes	No	No
9	2	564	2	148	No	No	Yes	Yes	No	No	No	Yes	No	No
10	2	555	2	146	No	No	Yes	Yes	No	No	No	Yes	No	No
11	2	482	2	126	No	No	No	Yes	No	No	No	No	No	No
12	2	449	2	118	No	No	No	Yes	No	No	No	No	No	No
13	2	441	2	116	No	No	No	Yes	No	No	No	No	No	No
14	2	327	2	86	No	No	No	No	No	No	No	No	No	No
15	2	327	2	86	No	No	No	No	No	No	No	No	No	No
16	2	229	2	60	No	No	No	No	No	No	No	No	No	No
17	2	131	2	34	No	No	No	No	No	No	No	No	No	No
18	2	131	2	34	No	No	No	No	No	No	No	No	No	No
19	2	73	2	19	No	No	No	No	No	No	No	No	No	No
20	2	41	2	11	No	No	No	No	No	No	No	No	No	No
21	2	25	2	6	No	No	No	No	No	No	No	No	No	No
22	2	8	2	2	No	No	No	No	No	No	No	No	No	No
23	2	8	2	2	No	No	No	No	No	No	No	No	No	No
24	2	8	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					3	7	10	13	0	4	6	10	7	1

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	18.5
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	214
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1031
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 8: Mesa Ridge P./Wayfarer Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	627	354	206
2	608	343	200
3	596	336	196
4	558	315	183
5	495	280	163
6	489	276	161
7	483	273	159
8	439	248	144
9	433	244	142
10	426	241	140
11	370	209	122
12	345	195	113
13	339	191	111
14	251	142	82
15	251	142	82
16	176	99	58
17	100	57	33
18	100	57	33
19	56	32	19
20	31	18	10
21	19	11	6
22	6	4	2
23	6	4	2
24	6	4	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	981	2	206	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	951	2	200	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	932	2	196	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	873	2	183	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
5	2	775	2	163	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
6	2	765	2	161	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
7	2	756	2	159	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
8	2	687	2	144	No	No	Yes	Yes	No	No	Yes	Yes	Yes	No
9	2	677	2	142	No	No	Yes	Yes	No	No	Yes	Yes	No	No
10	2	667	2	140	No	No	Yes	Yes	No	No	Yes	Yes	No	No
11	2	579	2	122	No	No	No	Yes	No	No	No	Yes	No	No
12	2	540	2	113	No	No	No	Yes	No	No	No	Yes	No	No
13	2	530	2	111	No	No	No	No	No	No	No	Yes	No	No
14	2	393	2	82	No	No	No	No	No	No	No	No	No	No
15	2	393	2	82	No	No	No	No	No	No	No	No	No	No
16	2	275	2	58	No	No	No	No	No	No	No	No	No	No
17	2	157	2	33	No	No	No	No	No	No	No	No	No	No
18	2	157	2	33	No	No	No	No	No	No	No	No	No	No
19	2	88	2	19	No	No	No	No	No	No	No	No	No	No
20	2	49	2	10	No	No	No	No	No	No	No	No	No	No
21	2	30	2	6	No	No	No	No	No	No	No	No	No	No
22	2	10	2	2	No	No	No	No	No	No	No	No	No	No
23	2	10	2	2	No	No	No	No	No	No	No	No	No	No
24	2	10	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					2	6	10	12	3	7	10	13	8	3

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	27
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	1:32
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	206
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1187
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Option 1: Signalized Intersection

Number	4					
Intersection	Marksheffel Rd/Lorson Blvd					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Marksheffel Rd		Marksheffel Rd			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	587	119	29	398	209	109
Total Analysis Volume [veh/h]	675	68	33	457	240	62

Intersection Settings

Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	33	0	10	33	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5	0	5	5	5	0
Pedestrian Clearance [s]	10	0	10	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	35	0	14	49	21	0
Lead / Lag	-	-	Lag	-	Lead	-
Minimum Green [s]	10	0	10	10	5	0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.44	0.44	0.64	0.64	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.36	0.04	0.03	0.24	0.13	0.04
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
c, saturation flow rate [veh/h]	1870	1580	1095	1870	1781	1580

Mitigated

s, saturation flow rate [veh/h]	1870	1589	1095	1870	1781	1589
c, Capacity [veh/h]	828	704	510	1202	433	386
X, volume / capacity	0.82	0.10	0.06	0.38	0.55	0.16
d, Delay for Lane Group [s/veh]	25.68	11.62	18.24	6.82	28.25	21.77
Lane Group LOS	C	B	B	A	C	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	9.67	0.57	0.15	2.35	3.83	0.84
50th-Percentile Queue Length [ft/ln]	241.83	14.24	3.71	58.74	95.72	21.11
95th-Percentile Queue Length [veh/ln]	14.77	1.03	0.27	4.23	6.89	1.52
95th-Percentile Queue Length [ft/ln]	369.35	25.64	6.67	105.73	172.29	38.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.68	11.62	18.24	6.82	28.25	21.77
Movement LOS	C	B	B	A	C	C
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	24.39		7.59		26.92	
Approach LOS	C		A		C	
d_I, Intersection Delay [s/veh]	19.53					
Intersection LOS	B					
Intersection V/C	0.500					

Mitigated

Option 1: Install a traffic signal

Number	8					
Intersection	Mesa Ridge P./Wayfarer Dr					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Base Volume Input [veh/h]	16	190	53	301	622	5
Total Analysis Volume [veh/h]	20	119	66	376	778	3

Intersection Settings

Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	16	0	0	36	36	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	20	0	0	40	40	0
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	10	10	0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.27	0.27	0.60	0.60	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.01	0.07	0.10	0.20	0.42	0.00
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
[illegible]	1781	1589	602	1870	1870	1589

Mitigated

s, saturation flow rate [veh/h]	1781	1589	692	1870	1870	1589
c, Capacity [veh/h]	475	424	315	1122	1122	954
X, volume / capacity	0.04	0.28	0.21	0.34	0.69	0.00
d, Delay for Lane Group [s/veh]	16.48	19.09	18.62	6.81	11.76	4.82
Lane Group LOS	B	B	B	A	B	A
Critical Lane Group	No	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.21	1.40	0.75	1.71	5.23	0.01
50th-Percentile Queue Length [ft/ln]	5.27	34.88	18.64	42.78	130.87	0.27
95th-Percentile Queue Length [veh/ln]	0.38	2.51	1.34	3.08	8.99	0.02
95th-Percentile Queue Length [ft/ln]	9.49	62.79	33.54	77.00	224.68	0.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.48	19.09	18.62	6.81	11.76	4.82
Movement LOS	B	B	B	A	B	A
Critical Movement	No	Yes	No	No	No	No
d_A, Approach Delay [s/veh]	18.71		8.58		11.73	
Approach LOS	B		A		B	
d_I, Intersection Delay [s/veh]	11.42					
Intersection LOS	B					
Intersection V/C	0.491					

Mitigated

Option 1: Dual WBLT

Number	9					
Intersection	Powers Bl/Mesa Ridge Pkwy					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	502	295	59	491	618	199
Total Analysis Volume [veh/h]	577	169	68	564	710	114

Intersection Settings

Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	32	0	11	43	27	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.44	0.44	0.57	0.57	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.16	0.11	0.07	0.16	0.21	0.07
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3560	1583	914	3560	3459	1583

Mitigated

s, saturation flow rate [veh/h]	3560	1589	914	3560	3459	1589
c, Capacity [veh/h]	1549	692	591	2030	845	388
X, volume / capacity	0.37	0.24	0.11	0.28	0.84	0.29
d, Delay for Lane Group [s/veh]	14.02	13.34	7.34	8.03	27.51	21.95
Lane Group LOS	B	B	A	A	C	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.54	1.48	0.32	1.55	5.25	1.41
50th-Percentile Queue Length [ft/ln]	63.53	36.89	8.01	38.70	131.27	35.31
95th-Percentile Queue Length [veh/ln]	4.57	2.66	0.58	2.79	9.01	2.54
95th-Percentile Queue Length [ft/ln]	114.35	66.41	14.42	69.65	225.22	63.57

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.02	13.34	7.34	8.03	27.51	21.95
Movement LOS	B	B	A	A	C	C
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	13.86		7.95		26.74	
Approach LOS	B		A		C	
d_I, Intersection Delay [s/veh]	16.99					
Intersection LOS	B					
Intersection V/C	0.388					

Mitigated

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.419

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	58	629	171	142	585	234	138	236	82	121	140	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	86	0	0	117	0	0	41	0	0	26
Total Hourly Volume [veh/h]	58	629	85	142	585	117	138	236	41	121	140	26
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	164	22	37	152	30	36	61	11	32	36	7
Total Analysis Volume [veh/h]	60	655	89	148	609	122	144	246	43	126	146	27
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	14	0	9	14	0	9	14	0	9	14	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	93	93	93	93	93	93	93	93	93	93	93	93
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	51	40	40	51	42	42	28	15	15	28	14	14
g / C, Green / Cycle	0.56	0.43	0.43	0.56	0.45	0.45	0.30	0.16	0.16	0.30	0.15	0.15
(v / s)_i Volume / Saturation Flow Rate	0.07	0.18	0.06	0.16	0.17	0.08	0.10	0.13	0.03	0.09	0.08	0.02
s, saturation flow rate [veh/h]	878	3560	1589	912	3560	1589	1453	1870	1589	1361	1870	1589
c, Capacity [veh/h]	520	1535	685	528	1611	719	468	300	255	388	282	240
d1, Uniform Delay [s]	10.18	18.39	15.90	11.04	16.77	15.06	25.00	37.65	33.61	25.30	36.28	34.02
k, delay calibration	0.50	0.50	0.50	0.22	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	0.87	0.39	0.58	0.68	0.51	0.37	5.54	0.31	0.48	1.47	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.43	0.13	0.28	0.38	0.17	0.31	0.82	0.17	0.33	0.52	0.11
d, Delay for Lane Group [s/veh]	10.64	19.26	16.29	11.62	17.45	15.57	25.37	43.19	33.92	25.78	37.75	34.23
Lane Group LOS	B	B	B	B	B	B	C	D	C	C	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.53	4.44	1.07	1.28	3.84	1.43	2.39	5.70	0.84	2.08	3.08	0.53
50th-Percentile Queue Length [ft/ln]	13.15	110.91	26.83	32.07	96.07	35.75	59.64	142.57	20.99	51.88	77.10	13.22
95th-Percentile Queue Length [veh/ln]	0.95	7.89	1.93	2.31	6.92	2.57	4.29	9.62	1.51	3.74	5.55	0.95
95th-Percentile Queue Length [ft/ln]	23.67	197.26	48.29	57.73	172.93	64.35	107.35	240.47	37.78	93.38	138.78	23.79

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.64	19.26	16.29	11.62	17.45	15.57	25.37	43.19	33.92	25.78	37.75	34.23
Movement LOS	B	B	B	B	B	B	C	D	C	C	D	C
d_A, Approach Delay [s/veh]	18.29			16.21			36.35			32.39		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	22.51											
Intersection LOS	C											
Intersection V/C	0.419											

Emissions

Vehicle Miles Traveled [mph]	67.13	732.81	99.57	240.27	988.69	198.06	80.22	137.05	23.96	34.54	40.03	7.40
Stops [stops/h]	20.45	344.91	41.72	49.87	298.79	55.59	92.74	221.69	32.64	80.67	119.89	20.55
Fuel consumption [US gal/h]	2.76	33.49	4.40	9.31	40.79	8.04	4.50	9.05	1.46	2.58	3.55	0.62
CO [g/h]	192.59	2340.76	307.61	651.04	2850.93	562.32	314.47	632.83	101.73	180.65	248.06	43.67
NOx [g/h]	37.47	455.43	59.85	126.67	554.69	109.41	61.18	123.13	19.79	35.15	48.26	8.50
VOC [g/h]	44.63	542.49	71.29	150.88	660.73	130.32	72.88	146.67	23.58	41.87	57.49	10.12

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	35.96	35.96	35.96	35.96
l_p,int, Pedestrian LOS Score for Intersectio	3.118	3.268	2.609	2.637
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	864	864	734	734
d_b, Bicycle Delay [s]	14.94	14.94	18.54	18.54
l_b,int, Bicycle LOS Score for Intersection	2.294	2.381	2.342	2.096
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	14.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	1	2	524	5	0	306
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	524	5	0	306
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	135	1	0	79
Total Analysis Volume [veh/h]	1	2	540	5	0	315
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	14.64	9.98	0.00	0.00	8.53	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.41	0.41	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.53		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.04					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	13.9
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	2	1	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	86	0	0	22	0	0	29	0	0	79
Total Hourly Volume [veh/h]	56	309	86	256	558	21	40	397	28	76	197	78
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	15	81	23	67	147	6	11	104	7	20	52	21
Total Analysis Volume [veh/h]	59	325	91	269	587	22	42	418	29	80	207	82
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	45	0	0	45	0	0	40	0	0	40	0
Amber [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	20	0	0	20	0	0	12	0	0	12	0
Vehicle Extension [s]	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	53	53	53	53	53	53	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	7.50	7.50	7.50	7.50	7.50	7.50	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	24	24	24	24	24	24	14	14	14	14	14	14
g / C, Green / Cycle	0.46	0.46	0.46	0.46	0.46	0.46	0.26	0.26	0.26	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.07	0.17	0.06	0.28	0.31	0.01	0.04	0.12	0.02	0.08	0.06	0.05
s, saturation flow rate [veh/h]	812	1870	1589	970	1870	1589	1090	3560	1589	943	3560	1589
c, Capacity [veh/h]	286	871	740	442	871	740	326	923	412	250	923	412
d1, Uniform Delay [s]	18.92	9.11	7.98	17.11	10.97	7.63	18.72	16.38	14.72	22.26	15.35	15.24
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.13	0.10	0.03	0.51	0.34	0.01	0.07	0.13	0.03	0.27	0.05	0.09
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.37	0.12	0.61	0.67	0.03	0.13	0.45	0.07	0.32	0.22	0.20
d, Delay for Lane Group [s/veh]	19.05	9.20	8.01	17.62	11.31	7.63	18.79	16.51	14.75	22.52	15.39	15.33
Lane Group LOS	B	A	A	B	B	A	B	B	B	C	B	B
Critical Lane Group	No	No	No	No	Yes	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.54	1.70	0.42	2.30	3.35	0.09	0.40	1.84	0.23	0.83	0.80	0.64
50th-Percentile Queue Length [ft/ln]	13.61	42.58	10.44	57.57	83.63	2.16	9.95	46.08	5.77	20.76	20.09	15.94
95th-Percentile Queue Length [veh/ln]	0.98	3.07	0.75	4.14	6.02	0.16	0.72	3.32	0.42	1.49	1.45	1.15
95th-Percentile Queue Length [ft/ln]	24.49	76.64	18.80	103.62	150.53	3.88	17.90	82.94	10.39	37.37	36.16	28.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.05	9.20	8.01	17.62	11.31	7.63	18.79	16.51	14.75	22.52	15.39	15.33
Movement LOS	B	A	A	B	B	A	B	B	B	C	B	B
d_A, Approach Delay [s/veh]	10.20			13.15			16.60			16.92		
Approach LOS	B			B			B			B		
d_I, Intersection Delay [s/veh]	13.91											
Intersection LOS	B											
Intersection V/C	0.431											

Emissions

Vehicle Miles Traveled [mph]	12.88	70.96	19.87	49.35	107.70	4.04	10.46	104.10	7.22	50.33	130.22	51.59
Stops [stops/h]	37.20	116.41	28.55	157.39	228.64	5.90	27.19	251.96	15.78	56.77	109.84	43.58
Fuel consumption [US gal/h]	1.13	4.49	1.18	5.54	9.20	0.28	0.76	7.27	0.48	2.80	6.48	2.57
CO [g/h]	79.19	313.75	82.78	387.17	643.10	19.49	53.39	507.98	33.62	195.56	452.80	179.36
NOx [g/h]	15.41	61.04	16.11	75.33	125.12	3.79	10.39	98.83	6.54	38.05	88.10	34.90
VOC [g/h]	18.35	72.71	19.19	89.73	149.05	4.52	12.37	117.73	7.79	45.32	104.94	41.57

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1709	1709	1519	1519
d_b, Bicycle Delay [s]	0.56	0.56	1.52	1.52
l_b,int, Bicycle LOS Score for Intersection	2.485	3.045	1.987	1.929
Bicycle LOS	B	C	A	A

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Two-way stop	Delay (sec / veh):	92.0
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.814

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		Lorson Blvd.	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	475.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		Lorson Blvd.	
Base Volume Input [veh/h]	491	287	140	551	106	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	491	287	140	385	106	62
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	136	80	39	107	29	17
Total Analysis Volume [veh/h]	546	319	156	428	118	69
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.20	0.00	0.81	0.13
d_M, Delay for Movement [s/veh]	0.00	0.00	10.78	0.00	92.01	12.68
Movement LOS	A	A	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.75	0.00	5.17	0.44
95th-Percentile Queue Length [ft/ln]	0.00	0.00	18.63	0.00	129.33	10.96
d_A, Approach Delay [s/veh]	0.00		2.88		62.74	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	8.20					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	19.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.496

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	400.00	100.00	100.00	840.00	500.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		Mesa Ridge Parkway	
Base Volume Input [veh/h]	62	338	355	249	468	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	125	0	19
Total Hourly Volume [veh/h]	62	338	355	124	468	19
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	88	92	32	122	5
Total Analysis Volume [veh/h]	65	352	370	129	488	20
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	1	6	2	0	3	0
Auxiliary Signal Groups						
Maximum Green [s]	5	25	25	0	25	0
Amber [s]	3.0	3.0	3.0	0.0	3.0	0.0
All red [s]	1.0	2.0	2.0	0.0	2.0	0.0
Walk [s]	0	7	7	0	7	0
Pedestrian Clearance [s]	0	10	7	0	7	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No	No		No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	3.0	0.0	3.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	33	24	0	27	0
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	10	10	0	5	0
Vehicle Extension [s]	3.0	3.0	3.0	0.0	3.0	0.0
Minimum Recall	No	No	No		No	
Maximum Recall	No	No	No		No	
Pedestrian Recall	No	No	No		No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	C	R	L	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	5.00	5.00	5.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	3.00	3.00	3.00
g_i, Effective Green Time [s]	28	28	19	19	22	22
g / C, Green / Cycle	0.47	0.47	0.32	0.32	0.37	0.37
(v / s)_i Volume / Saturation Flow Rate	0.06	0.19	0.20	0.08	0.27	0.01
s, saturation flow rate [veh/h]	1119	1870	1870	1589	1781	1589
c, Capacity [veh/h]	550	873	592	503	653	583
d1, Uniform Delay [s]	9.78	10.51	17.46	15.25	16.58	12.19
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	1.39	4.92	1.23	7.64	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.40	0.62	0.26	0.75	0.03
d, Delay for Lane Group [s/veh]	10.21	11.90	22.38	16.47	24.21	12.30
Lane Group LOS	B	B	C	B	C	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.43	2.64	4.42	1.27	6.08	0.16
50th-Percentile Queue Length [ft/ln]	10.65	66.12	110.45	31.75	152.11	3.98
95th-Percentile Queue Length [veh/ln]	0.77	4.76	7.87	2.29	10.13	0.29
95th-Percentile Queue Length [ft/ln]	19.17	119.02	196.63	57.15	253.25	7.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.21	11.90	22.38	16.47	24.21	12.30
Movement LOS	B	B	C	B	C	B
d_A, Approach Delay [s/veh]	11.64		20.86		23.74	
Approach LOS	B		C		C	
d_I, Intersection Delay [s/veh]	19.19					
Intersection LOS	B					
Intersection V/C	0.496					

Emissions

Vehicle Miles Traveled [mph]	39.40	213.34	348.66	121.56	73.62	3.02
Stops [stops/h]	25.56	158.69	265.08	76.21	365.07	9.56
Fuel consumption [US gal/h]	1.80	10.14	16.93	5.55	9.47	0.27
CO [g/h]	126.05	708.68	1183.59	387.72	661.77	19.04
NOx [g/h]	24.53	137.88	230.28	75.44	128.76	3.70
VOC [g/h]	29.21	164.24	274.31	89.86	153.37	4.41

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	2.389
Crosswalk LOS	F	F	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	933	633	733
d_b, Bicycle Delay [s]	8.53	14.01	12.03
l_b,int, Bicycle LOS Score for Intersection	2.248	2.589	1.560
Bicycle LOS	B	B	A

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Two-way stop	Delay (sec / veh):	24.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

Intersection Setup

Name	Spring Glen Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	670.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Spring Glen Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	25	67	143	479	278	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	67	143	479	278	27
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	17	37	123	72	7
Total Analysis Volume [veh/h]	26	69	147	494	287	28
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.12	0.09	0.12	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	23.96	11.96	8.28	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.80	0.80	0.40	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	19.94	19.94	10.01	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.24		1.90		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.54					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Two-way stop	Delay (sec / veh):	31.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.173

Intersection Setup

Name	Autumn Glen Ave.		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	1
Entry Pocket Length [ft]	520.00	100.00	530.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Autumn Glen Ave.		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	29	84	157	601	301	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	84	157	601	301	42
Peak Hour Factor	1.0000	1.0000	1.0000	0.9700	0.9700	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	21	39	155	78	11
Total Analysis Volume [veh/h]	29	84	157	620	310	42
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.12	0.13	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	30.97	10.57	8.43	0.00	0.00	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.61	0.39	0.45	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.19	9.70	11.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.81		1.70		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.50					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Two-way stop	Delay (sec / veh):	43.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.129

Intersection Setup

Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	520.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Base Volume Input [veh/h]	13	94	177	750	365	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	94	177	750	365	23
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	24	46	195	95	6
Total Analysis Volume [veh/h]	14	98	184	781	380	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.15	0.16	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	43.06	11.32	8.71	0.00	0.00	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.43	0.51	0.57	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	10.73	12.83	14.15	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.29		1.66		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	2.24					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	778	735	171	609	354	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	368	0	0	0	55
Total Hourly Volume [veh/h]	778	367	171	609	354	54
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	201	95	44	157	91	14
Total Analysis Volume [veh/h]	802	378	176	628	365	56
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	70	0	15	85	55	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	84	84	96	96	31	31
g / C, Green / Cycle	0.60	0.60	0.69	0.69	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.23	0.24	0.29	0.18	0.20	0.04
s, saturation flow rate [veh/h]	3560	1589	612	3560	1781	1589
c, Capacity [veh/h]	2132	952	436	2439	395	353
d1, Uniform Delay [s]	14.54	14.78	9.47	8.43	53.28	43.91
k, delay calibration	0.50	0.50	0.50	0.50	0.14	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	1.24	2.76	0.26	11.50	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.38	0.40	0.40	0.26	0.92	0.16
d, Delay for Lane Group [s/veh]	15.05	16.02	12.22	8.68	64.79	44.12
Lane Group LOS	B	B	B	A	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.13	6.06	1.94	3.22	13.52	1.57
50th-Percentile Queue Length [ft/ln]	153.23	151.42	48.48	80.49	338.00	39.25
95th-Percentile Queue Length [veh/ln]	10.19	10.09	3.49	5.80	19.55	2.83
95th-Percentile Queue Length [ft/ln]	254.74	252.32	87.27	144.88	488.75	70.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.05	16.02	12.22	8.68	64.79	44.12
Movement LOS	B	B	B	A	E	D
d_A, Approach Delay [s/veh]	15.36		9.46		62.04	
Approach LOS	B		A		E	
d_I, Intersection Delay [s/veh]	21.56					
Intersection LOS	C					
Intersection V/C	0.481					

Emissions

Vehicle Miles Traveled [mph]	149.99	70.70	196.91	702.60	139.84	21.46
Stops [stops/h]	315.22	155.74	49.87	165.57	347.65	40.37
Fuel consumption [US gal/h]	13.33	6.49	7.95	27.69	13.93	1.74
CO [g/h]	931.66	453.65	555.77	1935.43	973.55	121.63
NOx [g/h]	181.27	88.26	108.13	376.56	189.42	23.67
VOC [g/h]	215.92	105.14	128.81	448.55	225.63	28.19

Other Modes

g_Walk,mi, Effective Walk Time [s]	49.0	49.0	63.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.58	29.58	21.18
l_p,int, Pedestrian LOS Score for Intersectio	3.725	2.907	2.833
Crosswalk LOS	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	1114	700
d_b, Bicycle Delay [s]	21.18	13.73	29.58
l_b,int, Bicycle LOS Score for Intersection	2.837	2.223	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	306	529	3
2	297	513	3
3	291	503	3
4	272	471	3
5	242	418	2
6	239	413	2
7	236	407	2
8	214	370	2
9	211	365	2
10	208	360	2
11	181	312	2
12	168	291	2
13	165	286	2
14	122	212	1
15	122	212	1
16	86	148	1
17	49	85	0
18	49	85	0
19	28	48	0
20	15	26	0
21	9	16	0
22	3	5	0
23	3	5	0
24	3	5	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	835	1	3	No	No	No	No	No	No	No	No	No	No
2	3	810	1	3	No	No	No	No	No	No	No	No	No	No
3	3	794	1	3	No	No	No	No	No	No	No	No	No	No
4	3	743	1	3	No	No	No	No	No	No	No	No	No	No
5	3	660	1	2	No	No	No	No	No	No	No	No	No	No
6	3	652	1	2	No	No	No	No	No	No	No	No	No	No
7	3	643	1	2	No	No	No	No	No	No	No	No	No	No
8	3	584	1	2	No	No	No	No	No	No	No	No	No	No
9	3	576	1	2	No	No	No	No	No	No	No	No	No	No
10	3	568	1	2	No	No	No	No	No	No	No	No	No	No
11	3	493	1	2	No	No	No	No	No	No	No	No	No	No
12	3	459	1	2	No	No	No	No	No	No	No	No	No	No
13	3	451	1	2	No	No	No	No	No	No	No	No	No	No
14	3	334	1	1	No	No	No	No	No	No	No	No	No	No
15	3	334	1	1	No	No	No	No	No	No	No	No	No	No
16	3	234	1	1	No	No	No	No	No	No	No	No	No	No
17	3	134	1	0	No	No	No	No	No	No	No	No	No	No
18	3	134	1	0	No	No	No	No	No	No	No	No	No	No
19	3	76	1	0	No	No	No	No	No	No	No	No	No	No
20	3	41	1	0	No	No	No	No	No	No	No	No	No	No
21	3	25	1	0	No	No	No	No	No	No	No	No	No	No
22	3	8	1	0	No	No	No	No	No	No	No	No	No	No
23	3	8	1	0	No	No	No	No	No	No	No	No	No	No
24	3	8	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	3
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	838
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 4: Marksheffel Rd/Lorson Blvd

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	E
1	525	778	168
2	509	755	163
3	499	739	160
4	467	692	150
5	415	615	133
6	410	607	131
7	404	599	129
8	368	545	118
9	362	537	116
10	357	529	114
11	310	459	99
12	289	428	92
13	284	420	91
14	210	311	67
15	210	311	67
16	147	218	47
17	84	124	27
18	84	124	27
19	47	70	15
20	26	39	8
21	16	23	5
22	5	8	2
23	5	8	2
24	5	8	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1303	2	168	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1264	2	163	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	2	1238	2	160	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	2	1159	2	150	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	2	1030	2	133	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
6	2	1017	2	131	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
7	2	1003	2	129	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
8	2	913	2	118	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
9	2	899	2	116	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No
10	2	886	2	114	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No
11	2	769	2	99	No	No	No	No	No	Yes	Yes	Yes	No	No
12	2	717	2	92	No	No	No	No	No	No	Yes	Yes	No	No
13	2	704	2	91	No	No	No	No	No	No	Yes	Yes	No	No
14	2	521	2	67	No	No	No	No	No	No	No	Yes	No	No
15	2	521	2	67	No	No	No	No	No	No	No	Yes	No	No
16	2	365	2	47	No	No	No	No	No	No	No	No	No	No
17	2	208	2	27	No	No	No	No	No	No	No	No	No	No
18	2	208	2	27	No	No	No	No	No	No	No	No	No	No
19	2	117	2	15	No	No	No	No	No	No	No	No	No	No
20	2	65	2	8	No	No	No	No	No	No	No	No	No	No
21	2	39	2	5	No	No	No	No	No	No	No	No	No	No
22	2	13	2	2	No	No	No	No	No	No	No	No	No	No
23	2	13	2	2	No	No	No	No	No	No	No	No	No	No
24	2	13	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	3	4	10	8	11	13	15	10	4

Warrant 3 Condition A

Orientation	E
Total Stopped Delay Per Vehicle on Minor Approach (s)	62.7
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	2:55
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	168
High Minor Volume Condition Met	Yes
Total Entering Volume on All Approaches During Same Hour	1471
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 6: Mesa Ridge P./Spring Glen Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	305	622	92
2	296	603	89
3	290	591	87
4	271	554	82
5	241	491	73
6	238	485	72
7	235	479	71
8	214	435	64
9	210	429	63
10	207	423	63
11	180	367	54
12	168	342	51
13	165	336	50
14	122	249	37
15	122	249	37
16	85	174	26
17	49	100	15
18	49	100	15
19	27	56	8
20	15	31	5
21	9	19	3
22	3	6	1
23	3	6	1
24	3	6	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	927	1	92	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	899	1	89	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No
3	2	881	1	87	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No
4	2	825	1	82	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	2	732	1	73	No	No	No	No	No	Yes	Yes	Yes	No	No
6	2	723	1	72	No	No	No	No	No	Yes	Yes	Yes	No	No
7	2	714	1	71	No	No	No	No	No	No	Yes	Yes	No	No
8	2	649	1	64	No	No	No	No	No	No	Yes	Yes	No	No
9	2	639	1	63	No	No	No	No	No	No	Yes	Yes	No	No
10	2	630	1	63	No	No	No	No	No	No	Yes	Yes	No	No
11	2	547	1	54	No	No	No	No	No	No	No	Yes	No	No
12	2	510	1	51	No	No	No	No	No	No	No	Yes	No	No
13	2	501	1	50	No	No	No	No	No	No	No	No	No	No
14	2	371	1	37	No	No	No	No	No	No	No	No	No	No
15	2	371	1	37	No	No	No	No	No	No	No	No	No	No
16	2	259	1	26	No	No	No	No	No	No	No	No	No	No
17	2	149	1	15	No	No	No	No	No	No	No	No	No	No
18	2	149	1	15	No	No	No	No	No	No	No	No	No	No
19	2	83	1	8	No	No	No	No	No	No	No	No	No	No
20	2	46	1	5	No	No	No	No	No	No	No	No	No	No
21	2	28	1	3	No	No	No	No	No	No	No	No	No	No
22	2	9	1	1	No	No	No	No	No	No	No	No	No	No
23	2	9	1	1	No	No	No	No	No	No	No	No	No	No
24	2	9	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	3	1	6	10	12	4	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	15.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:23
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	92
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1019
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 7: Mesa Ridge P./Autumn Glen Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	343	758	113
2	333	735	110
3	326	720	107
4	305	675	101
5	271	599	89
6	268	591	88
7	264	584	87
8	240	531	79
9	237	523	78
10	233	515	77
11	202	447	67
12	189	417	62
13	185	409	61
14	137	303	45
15	137	303	45
16	96	212	32
17	55	121	18
18	55	121	18
19	31	68	10
20	17	38	6
21	10	23	3
22	3	8	1
23	3	8	1
24	3	8	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1101	2	113	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No
2	2	1068	2	110	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
3	2	1046	2	107	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
4	2	980	2	101	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
5	2	870	2	89	No	No	No	No	No	Yes	Yes	Yes	No	No
6	2	859	2	88	No	No	No	No	No	Yes	Yes	Yes	No	No
7	2	848	2	87	No	No	No	No	No	Yes	Yes	Yes	No	No
8	2	771	2	79	No	No	No	No	No	No	Yes	Yes	No	No
9	2	760	2	78	No	No	No	No	No	No	Yes	Yes	No	No
10	2	748	2	77	No	No	No	No	No	No	Yes	Yes	No	No
11	2	649	2	67	No	No	No	No	No	No	No	Yes	No	No
12	2	606	2	62	No	No	No	No	No	No	No	Yes	No	No
13	2	594	2	61	No	No	No	No	No	No	No	Yes	No	No
14	2	440	2	45	No	No	No	No	No	No	No	No	No	No
15	2	440	2	45	No	No	No	No	No	No	No	No	No	No
16	2	308	2	32	No	No	No	No	No	No	No	No	No	No
17	2	176	2	18	No	No	No	No	No	No	No	No	No	No
18	2	176	2	18	No	No	No	No	No	No	No	No	No	No
19	2	99	2	10	No	No	No	No	No	No	No	No	No	No
20	2	55	2	6	No	No	No	No	No	No	No	No	No	No
21	2	33	2	3	No	No	No	No	No	No	No	No	No	No
22	2	11	2	1	No	No	No	No	No	No	No	No	No	No
23	2	11	2	1	No	No	No	No	No	No	No	No	No	No
24	2	11	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	1	4	7	10	13	4	0

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	15.8
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:29
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	113
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1214
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 8: Mesa Ridge P./Wayfarer Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	N
1	388	927	107
2	376	899	104
3	369	881	102
4	345	825	95
5	307	732	85
6	303	723	83
7	299	714	82
8	272	649	75
9	268	640	74
10	264	630	73
11	229	547	63
12	213	510	59
13	210	501	58
14	155	371	43
15	155	371	43
16	109	260	30
17	62	148	17
18	62	148	17
19	35	83	10
20	19	46	5
21	12	28	3
22	4	9	1
23	4	9	1
24	4	9	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	1315	2	107	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
2	2	1275	2	104	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
3	2	1250	2	102	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
4	2	1170	2	95	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	2	1039	2	85	No	No	No	No	No	Yes	Yes	Yes	Yes	No
6	2	1026	2	83	No	No	No	No	No	Yes	Yes	Yes	Yes	No
7	2	1013	2	82	No	No	No	No	No	Yes	Yes	Yes	Yes	No
8	2	921	2	75	No	No	No	No	No	No	Yes	Yes	No	No
9	2	908	2	74	No	No	No	No	No	No	Yes	Yes	No	No
10	2	894	2	73	No	No	No	No	No	No	Yes	Yes	No	No
11	2	776	2	63	No	No	No	No	No	No	No	Yes	No	No
12	2	723	2	59	No	No	No	No	No	No	No	Yes	No	No
13	2	711	2	58	No	No	No	No	No	No	No	Yes	No	No
14	2	526	2	43	No	No	No	No	No	No	No	No	No	No
15	2	526	2	43	No	No	No	No	No	No	No	No	No	No
16	2	369	2	30	No	No	No	No	No	No	No	No	No	No
17	2	210	2	17	No	No	No	No	No	No	No	No	No	No
18	2	210	2	17	No	No	No	No	No	No	No	No	No	No
19	2	118	2	10	No	No	No	No	No	No	No	No	No	No
20	2	65	2	5	No	No	No	No	No	No	No	No	No	No
21	2	40	2	3	No	No	No	No	No	No	No	No	No	No
22	2	13	2	1	No	No	No	No	No	No	No	No	No	No
23	2	13	2	1	No	No	No	No	No	No	No	No	No	No
24	2	13	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	3	7	10	13	7	3

Warrant 3 Condition A

Orientation	N
Total Stopped Delay Per Vehicle on Minor Approach (s)	15.3
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:27
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	107
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1422
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Option 1: Signalized Intersection

Number	4					
Intersection	Marksheffel Rd/Lorson Blvd					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Marksheffel Rd		Marksheffel Rd		Lorson Blvd.	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	491	287	140	551	106	62
Total Analysis Volume [veh/h]	546	159	156	612	118	34

Intersection Settings

Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	10	0	5	10	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	31	0	13	60	16	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	5	10	5	0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.45	0.45	0.15	0.93	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.29	0.10	0.09	0.33	0.15	0.02
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
c, saturation flow rate [veh/h]	1870	1580	1781	1870	810	1580

Mitigated

s, saturation flow rate [veh/h]	1870	1589	1781	1870	810	1589
c, Capacity [veh/h]	841	715	267	1745	229	318
X, volume / capacity	0.65	0.22	0.58	0.35	0.52	0.11
d, Delay for Lane Group [s/veh]	16.68	10.80	32.78	0.75	34.38	20.30
Lane Group LOS	B	B	C	A	C	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	5.22	1.13	2.48	0.27	2.08	0.41
50th-Percentile Queue Length [ft/ln]	130.54	28.31	62.05	6.74	51.94	10.37
95th-Percentile Queue Length [veh/ln]	8.97	2.04	4.47	0.49	3.74	0.75
95th-Percentile Queue Length [ft/ln]	224.23	50.95	111.70	12.13	93.49	18.67

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.68	10.80	32.78	0.75	34.38	20.30
Movement LOS	B	B	C	A	C	C
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	15.35		7.26		31.23	
Approach LOS	B		A		C	
d_I, Intersection Delay [s/veh]	13.01					
Intersection LOS	B					
Intersection V/C	0.525					

Mitigated

Option 1: Install traffic signal

Number	8					
Intersection	Mesa Ridge P./Wayfarer Dr					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Wayfarer Drive		Mesa Ridge Parkway		Mesa Ridge Parkway	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Base Volume Input [veh/h]	13	94	177	750	365	23
Total Analysis Volume [veh/h]	14	49	184	781	380	11

Intersection Settings

Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	7	0	0	2	6	0
Auxiliary Signal Groups						
Maximum Green [s]	18	0	0	34	34	0
Amber [s]	3.0	0.0	0.0	3.0	3.0	0.0
All red [s]	1.0	0.0	0.0	1.0	1.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	22	0	0	38	38	0
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	0	10	10	0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.30	0.30	0.57	0.57	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.01	0.03	0.19	0.42	0.20	0.01
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
[illegible]	1781	1580	903	1870	1870	1580

Mitigated

s, saturation flow rate [veh/h]	1781	1589	993	1870	1870	1589
c, Capacity [veh/h]	534	477	540	1060	1060	901
X, volume / capacity	0.03	0.10	0.34	0.74	0.36	0.01
d, Delay for Lane Group [s/veh]	14.91	15.60	13.98	14.26	8.02	5.70
Lane Group LOS	B	B	B	B	A	A
Critical Lane Group	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.14	0.50	1.62	6.25	2.02	0.05
50th-Percentile Queue Length [ft/ln]	3.43	12.53	40.62	156.34	50.57	1.17
95th-Percentile Queue Length [veh/ln]	0.25	0.90	2.92	10.36	3.64	0.08
95th-Percentile Queue Length [ft/ln]	6.18	22.56	73.11	258.88	91.03	2.10

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.91	15.60	13.98	14.26	8.02	5.70
Movement LOS	B	B	B	B	A	A
Critical Movement	No	Yes	No	No	No	No
d_A, Approach Delay [s/veh]	15.45		14.20		7.95	
Approach LOS	B		B		A	
d_I, Intersection Delay [s/veh]	12.54					
Intersection LOS	B					
Intersection V/C	0.448					

Mitigated

Option 1: Dual WBLT

Number	9					
Intersection	Powers Bl/Mesa Ridge Pkwy					
Control Type	Signalized					
Analysis Method	HCM 7th Edition					
Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Base Volume Input [veh/h]	778	735	171	609	354	109
Total Analysis Volume [veh/h]	802	378	176	628	365	56

Intersection Settings

Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	32	0	11	43	17	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.46	0.46	0.64	0.64	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.23	0.24	0.23	0.18	0.11	0.04
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3	
s, saturation flow rate [veh/h]	3560	1583	771	3560	3459	1583

Mitigated

s, saturation flow rate [veh/h]	3560	1589	771	3560	3459	1589
c, Capacity [veh/h]	1646	735	595	2281	494	227
X, volume / capacity	0.49	0.51	0.30	0.28	0.74	0.25
d, Delay for Lane Group [s/veh]	12.24	13.95	6.06	5.01	26.83	23.41
Lane Group LOS	B	B	A	A	C	C
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.79	2.97	0.46	0.84	2.34	0.66
50th-Percentile Queue Length [ft/ln]	69.64	74.15	11.47	21.01	58.52	16.46
95th-Percentile Queue Length [veh/ln]	5.01	5.34	0.83	1.51	4.21	1.19
95th-Percentile Queue Length [ft/ln]	125.35	133.47	20.64	37.81	105.34	29.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.24	13.95	6.06	5.01	26.83	23.41
Movement LOS	B	B	A	A	C	C
Critical Movement	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	12.79		5.24		26.38	
Approach LOS	B		A		C	
d_I, Intersection Delay [s/veh]	12.64					
Intersection LOS	B					
Intersection V/C	0.393					

Mitigated

Appendix C – Trip Generation

PROJECT DETAILS

Project Name:	Corvallis	Type of Project:	
Project No:		City:	
Country:		Built-up Area(Sq.ft):	
Analyst Name:	Navid Shafieirad	Clients Name:	
Date:	8/20/2025	ZIP/Postal Code:	
State/Province:		No. of Scenarios:	3
Analysis Region:			

SCENARIO SUMMARY

Scenarios	Name	No. of Land Uses	Phases of Development	No. of Years to Project Traffic	User Group	Estimated New Vehicle Trips		
						Entry	Exit	Total
Scenario - 1	Weekday	4	1	0		12198	12198	24396
Scenario - 1	AM Peak Hour	4	1	0		580	800	1380
Scenario - 1	PM Peak Hour	4	1	0		1202	1027	2229

Scenario - 1

Scenario Name: Weekday
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	860	Weekday	Best Fit (LIN)	3603	3603	7206
Data Source: Trip Generation Manual, 12th Ed					T = 8.07(X) + 265.45	50%	50%	
220 - Multifamily Housing (Low-Rise) - Not Close	General Urban/Suburban	Dwelling Units	320	Weekday	Best Fit (LIN)	961	961	1922
Data Source: Trip Generation Manual, 12th Ed					T = 5.63(X) + 120.45	50%	50%	
820 - Shopping Center (>150k)	General Urban/Suburban	1000 Sq. Ft. GLA	394	Weekday	Average	7169	7169	14338
Data Source: Trip Generation Manual, 12th Ed					36.39	50%	50%	
520 - Elementary School	General Urban/Suburban	Students	410	Weekday	Average	465	465	930
Data Source: Trip Generation Manual, 12th Ed					2.27	50%	50%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	50	50
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	50	50
820 - Shopping Center (>150k)	100	100	1	1	50	50
520 - Elementary School	100	100	1	1	50	50

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	3603	3603	0	0	3603	3603
	7206		0		7206	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	961	961	0	0	961	961
	1922		0		1922	
820 - Shopping Center (>150k)	7169	7169	0	0	7169	7169
	14338		0		14338	
520 - Elementary School	465	465	0	0	465	465
	930		0		930	

Scenario - 2

Scenario Name: AM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	**General**	**Dwelling Units**	**860**	**Weekday, Peak Hour of**	**Best Fit (LIN)**	**157**	**425**	**582**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	T = 0.67(X) + 5.59	27%	73%	
220 - Multifamily Housing (Low-Rise) - Not	**General**	**Dwelling Units**	**320**	**Weekday, Peak Hour of**	**Best Fit (LIN)**	**30**	**95**	**125**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	T = 0.35(X) + 12.93	24%	76%	
820 - Shopping Center (>150k)	**General**	**1000 Sq. Ft. GLA**	**394**	**Weekday, Peak Hour of**	**Best Fit (LIN)**	**231**	**142**	**373**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	T = 0.61(X) + 132.89	62%	38%	
520 - Elementary School	**General**	**Students**	**410**	**Weekday, Peak Hour of**	Average	162	**138**	**300**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	0.73	54%	46%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	27	73
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	24	76
820 - Shopping Center (>150k)	100	100	1	1	62	38
520 - Elementary School	100	100	1	1	54	46

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	157	425	0	0	157	425
	582		0		582	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	30	95	0	0	30	95
	125		0		125	
820 - Shopping Center (>150k)	231	142	0	0	231	142
	373		0		373	
520 - Elementary School	162	138	0	0	162	138
	300		0		300	

Scenario - 3

Scenario Name: PM Peak Hour
User Group:
Dev. phase: 1
No. of Years to Project Traffic : 0
Analyst Note:
Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	**General**	**Dwelling Units**	**860**	**Weekday, Peak Hour of**	**Best Fit (LOG)**	**432**	**265**	**697**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	Ln(T) =0.92Ln(X) + 0.33	62%	38%	
220 - Multifamily Housing (Low-Rise) - Not	**General**	**Dwelling Units**	**320**	**Weekday, Peak Hour of**	**Best Fit (LIN)**	**100**	**61**	**161**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	T = 0.48(X) + 7.35	62%	38%	
820 - Shopping Center (>150k)	**General**	**1000 Sq. Ft. GLA**	**394**	**Weekday, Peak Hour of**	**Best Fit (LOG)**	**640**	**666**	**1306**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	Ln(T) =0.66Ln(X) + 3.23	49%	51%	
520 - Elementary School	**General**	**Students**	**410**	**Weekday, Peak Hour of**	Average	30	**35**	**65**
Data Source: Trip Generation Manual, 12th Ed	**Urban/Suburban**			**Adjacent Street Traffic,**	0.16	46%	54%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

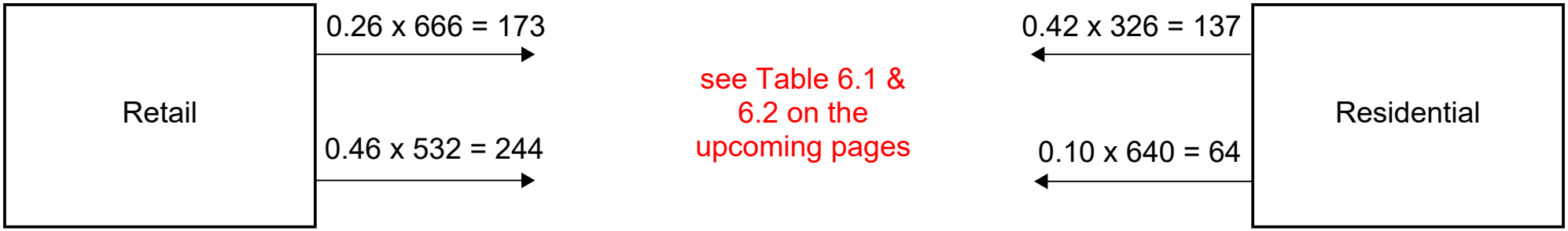
Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	62	38
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	100	1	1	62	38
820 - Shopping Center (>150k)	100	100	1	1	49	51
520 - Elementary School	100	100	1	1	46	54

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	432	265	0	0	432	265
	697		0		697	
220 - Multifamily Housing (Low-Rise) - Not Close to Rail Transit	100	61	0	0	100	61
	161		0		161	
820 - Shopping Center (>150k)	640	666	0	0	640	666
	1306		0		1306	
520 - Elementary School	30	35	0	0	30	35
	65		0		65	

Internal Trips
PM Peak

	Inbound	Outbound	Total
Retail	640	666	1306
Residential	532	326	858



Unconstrained

173 →

← 64

Total = 237

Constrained

The average distance between load uses assumed to be 1000 - FT at this stage of planning

175 x 0.75 = 131

see table 6.4 on the upcoming pages

64 x 0.94 = 60

Total = 191

Internal Capture by Land Use		
	Entering Trips	Exiting Trips
Retail	9.5%	19.5%
Residential	25%	18.5%

Computation Summary

	Entering	Exiting	Total
All Person Trips	1202	1027	2229
Internal Capture	194	190	389
Percentage	16%	19%	17%

See the upcoming pages for pass-by trips reduction

	Inbound	Outbound	Total
External Trips	1008	837	1845
Pass-by (29%) Reduction	168	155	323
Net New Site Trips	840	682	1522

Table 6.1 Unconstrained Internal Person Trip Capture Rates for Trip Origins within a Mixed-Use Development

		WEEKDAY	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Retail	28%	20%
	To Restaurant	63%	4%
	To Cinema/Entertainment	0%	0%
	To Residential	1%	2%
	To Hotel	0%	0%
From RETAIL	To Office	29%	2%
	To Restaurant	13%	29%
	To Cinema/Entertainment	0%	4%
	To Residential	14%	26%
	To Hotel	0%	5%
From RESTAURANT	To Office	31%	3%
	To Retail	14%	41%
	To Cinema/Entertainment	0%	8%
	To Residential	4%	18%
	To Hotel	3%	7%
From CINEMA/ENTERTAINMENT	To Office	0%	2%
	To Retail	0%	21%
	To Restaurant	0%	31%
	To Residential	0%	8%
	To Hotel	0%	2%
From RESIDENTIAL	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Cinema/Entertainment	0%	0%
	To Hotel	0%	3%
From HOTEL	To Office	75%	0%
	To Retail	14%	16%
	To Restaurant	9%	68%
	To Cinema/Entertainment	0%	0%
	To Residential	0%	2%

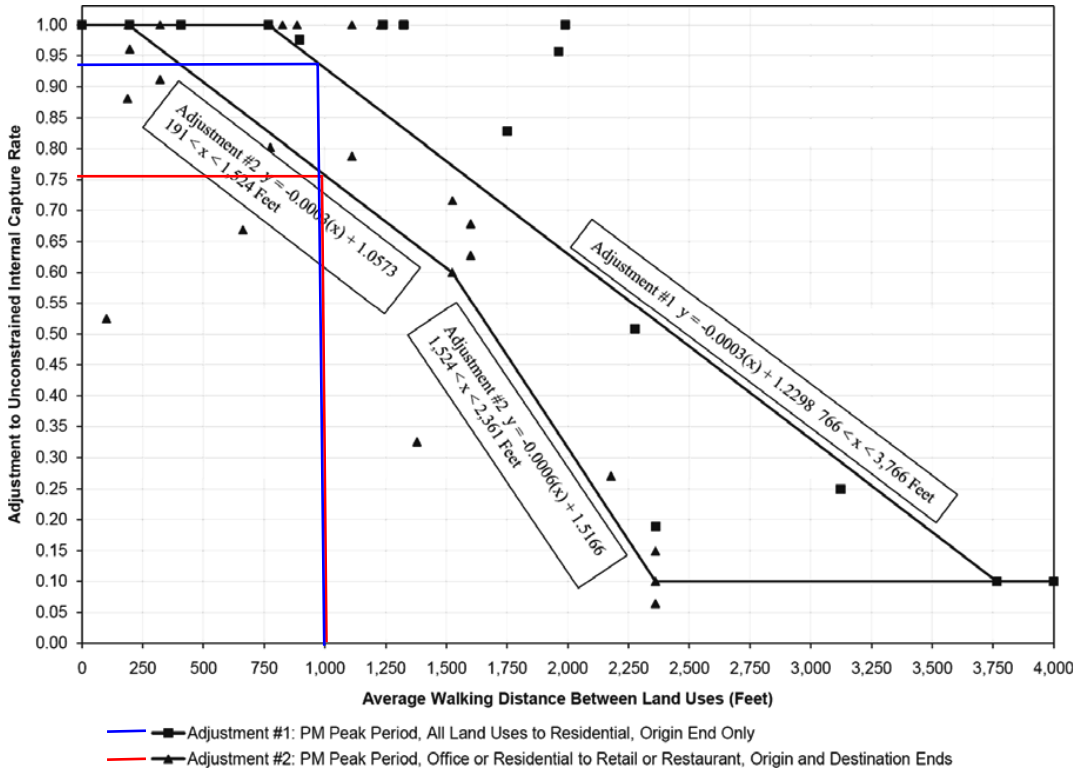
Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 99 and 100, 2011.

Table 6.2 Unconstrained Internal Person Trip Capture Rates for Trip Destinations within a Mixed-Use Development

		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Retail	4%	31%
	From Restaurant	14%	30%
	From Cinema/Entertainment	0%	6%
	From Residential	3%	57%
	From Hotel	3%	0%
To RETAIL	From Office	32%	8%
	From Restaurant	8%	50%
	From Cinema/Entertainment	0%	4%
	From Residential	17%	10%
	From Hotel	4%	2%
To RESTAURANT	From Office	23%	2%
	From Retail	50%	29%
	From Cinema/Entertainment	0%	3%
	From Residential	20%	14%
	From Hotel	6%	5%
To CINEMA/ENTERTAINMENT	From Office	0%	1%
	From Retail	0%	26%
	From Restaurant	0%	32%
	From Residential	0%	0%
	From Hotel	0%	0%
To RESIDENTIAL	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Cinema/Entertainment	0%	4%
	From Hotel	0%	0%
To HOTEL	From Office	0%	0%
	From Retail	0%	17%
	From Restaurant	4%	71%
	From Cinema/Entertainment	0%	1%
	From Residential	0%	12%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 101 and 102, 2011.

Figure 6.4 Proximity Adjustment Factors for Unconstrained Internal Trip Capture Rates within a Mixed-Use Development



Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*. Washington, DC: Transportation Research Board, Figure 22, 2011.

6.5.5 Step 5: Estimate Unconstrained Demand between On-Site Land Use Pairs

In this step, unconstrained demand between on-site land use pairs is estimated. The proximity-adjusted internal trip capture rates (from Step 4) are multiplied by the appropriate directional person trip generation value in the estimation spreadsheet tool (calculated earlier in Step 2). For each pair of land uses, four values for unconstrained demand will be estimated, two for each direction of travel (as demonstrated earlier in Figure 6.1). The origin-destination matrix for unconstrained internal trips between on-site land uses computed at the origin is reported in Table 8(O) in the computational details worksheet of the spreadsheet estimator tool. The origin-destination matrix for unconstrained internal trips between on-site land uses computed at the destination is reported in Table 8(D).

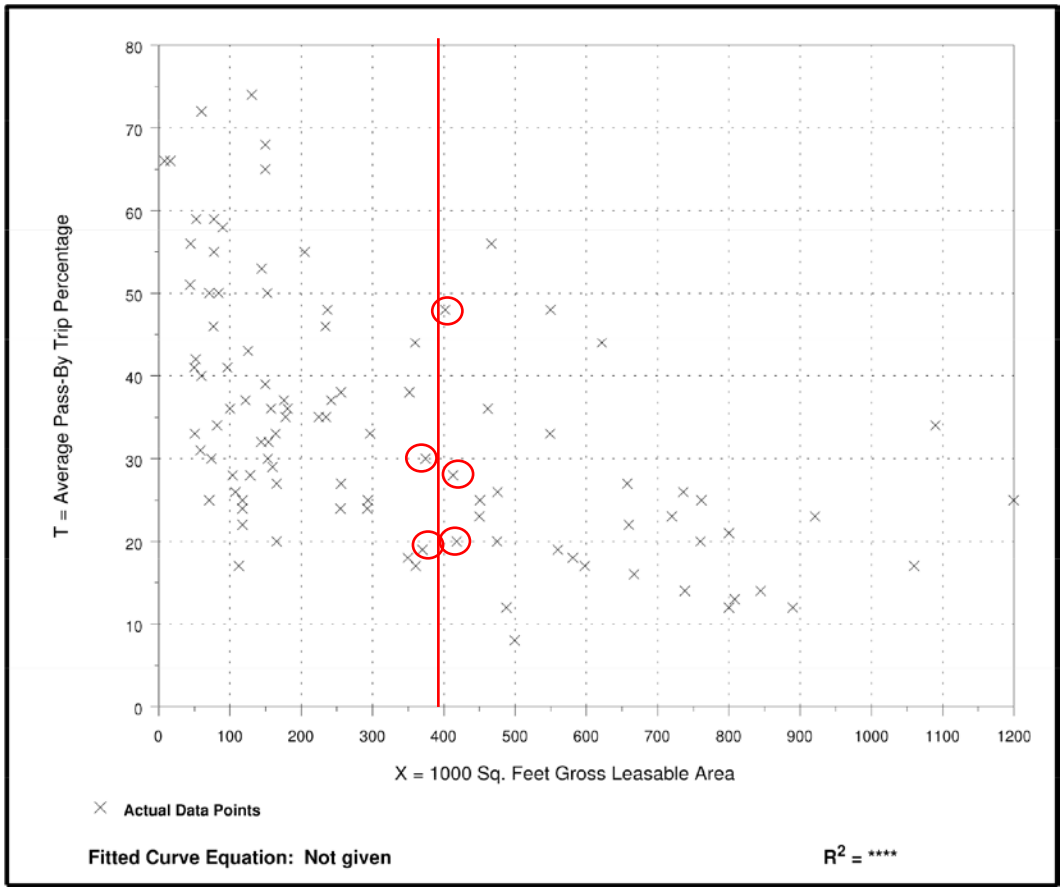
6.5.6 Step 6: Estimate Balanced Demand between On-Site Land Use Pairs

In this step, internal demand volume is balanced by direction by comparing the values in the corresponding cells of Table 8(O) and Table 8(D) for each land use pair and selecting the lower value. The purpose of this step is to balance the estimates of directionally internally captured trips

Figure E.7 Shopping Center (820)

Average Pass-By Trip Percentage vs: 1000 Sq. Feet Gross Leasable Area
On a: Weekday, P.M. Peak Period
Number of Studies: 100
Average 1000 Sq. Feet GLA: 329

Data Plot



Average of available data points for developments of similar size = 29%

Corvallis TIS

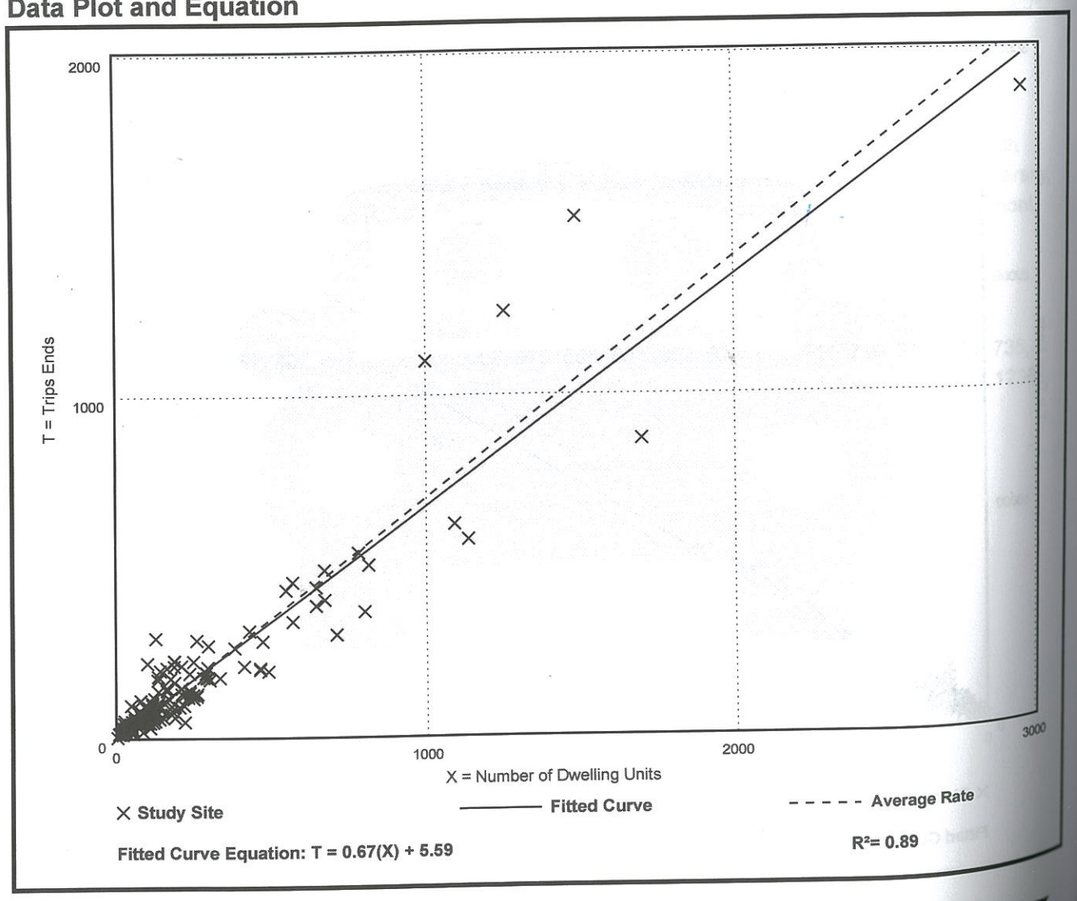
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 153
Avg. Num. of Dwelling Units: 239
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Fitted Curve Equation: T = 0.67(X) + 5.59

R^2= 0.89

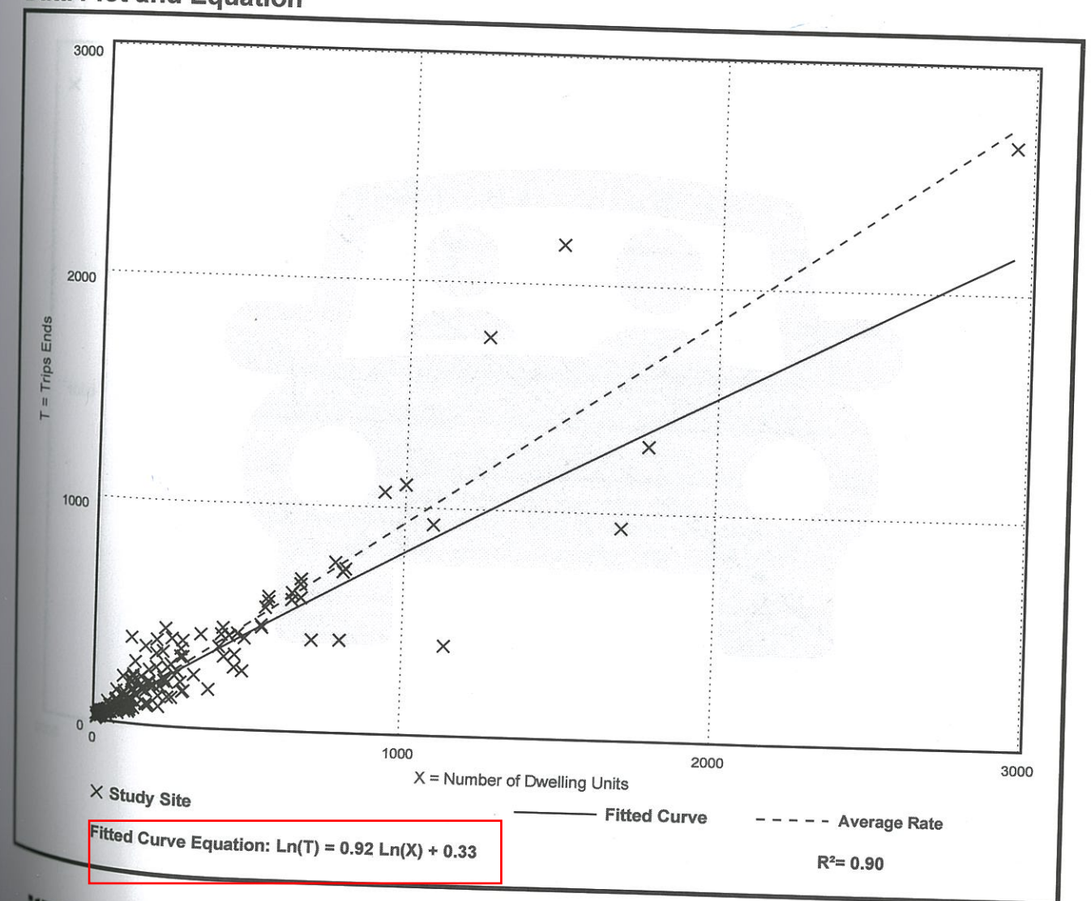
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 166
Avg. Num. of Dwelling Units: 266
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.92 Ln(X) + 0.33

R^2= 0.90

Corvallis TZS

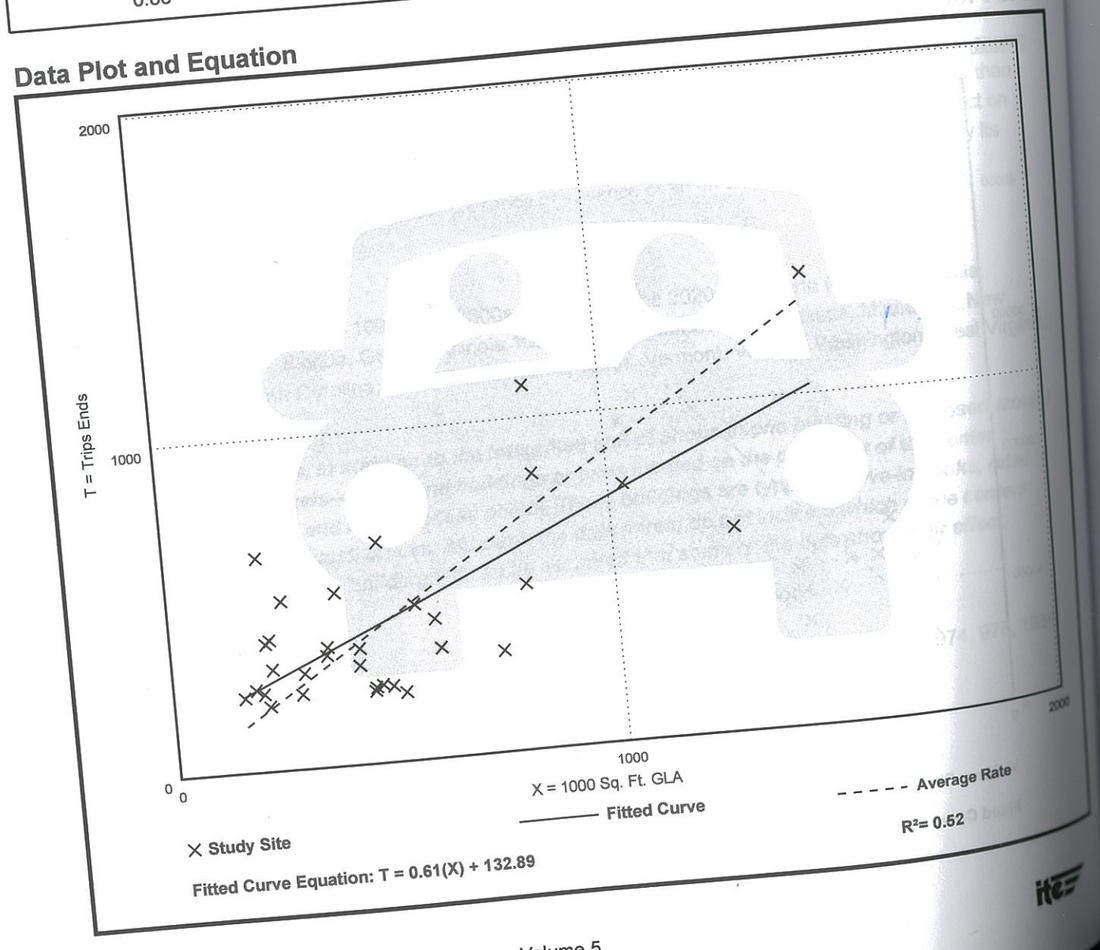
Shopping Center (>150k)
(820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
Number of Studies: 32
Avg. 1000 Sq. Ft. GLA: 498
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.88	0.40 - 3.10	0.45

Data Plot and Equation



Fitted Curve Equation: T = 0.61(X) + 132.89

R²= 0.52

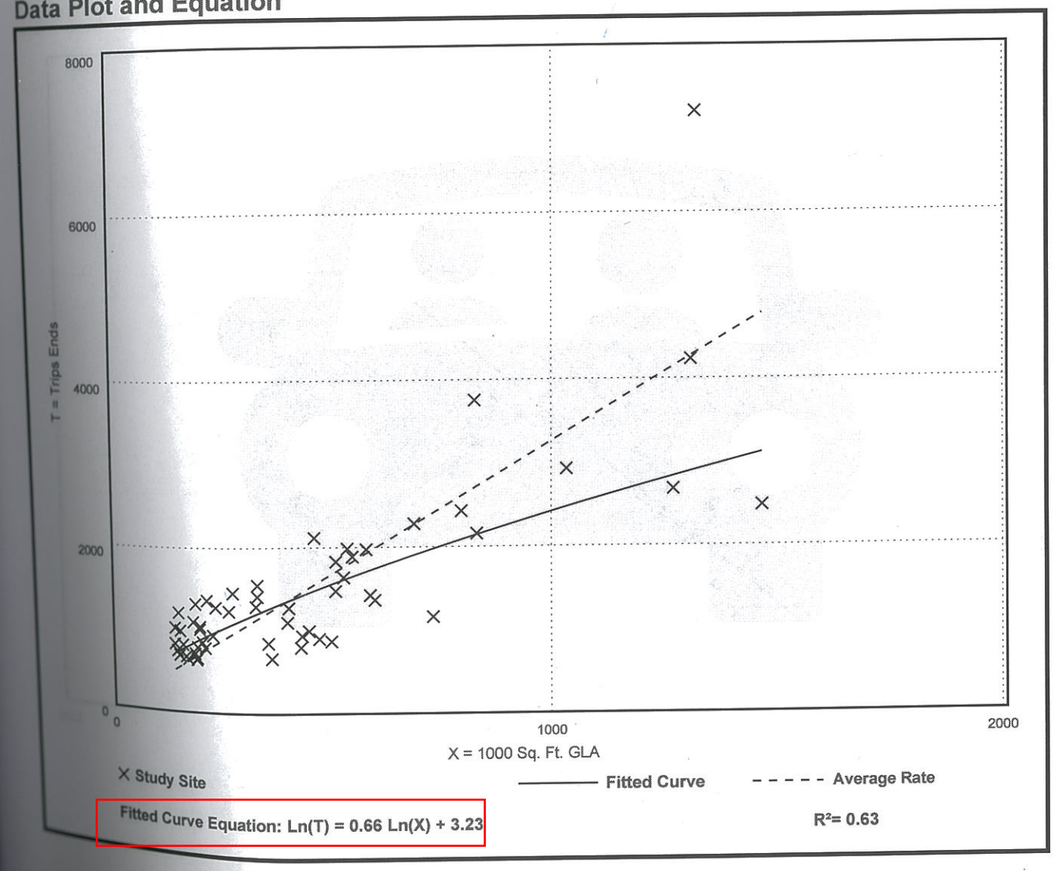
Shopping Center (>150k)
(820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 55
Avg. 1000 Sq. Ft. GLA: 460
Directional Distribution: 49% entering, 51% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.26	1.57 - 7.22	1.25

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.66 Ln(X) + 3.23

R²= 0.63

Corvallis

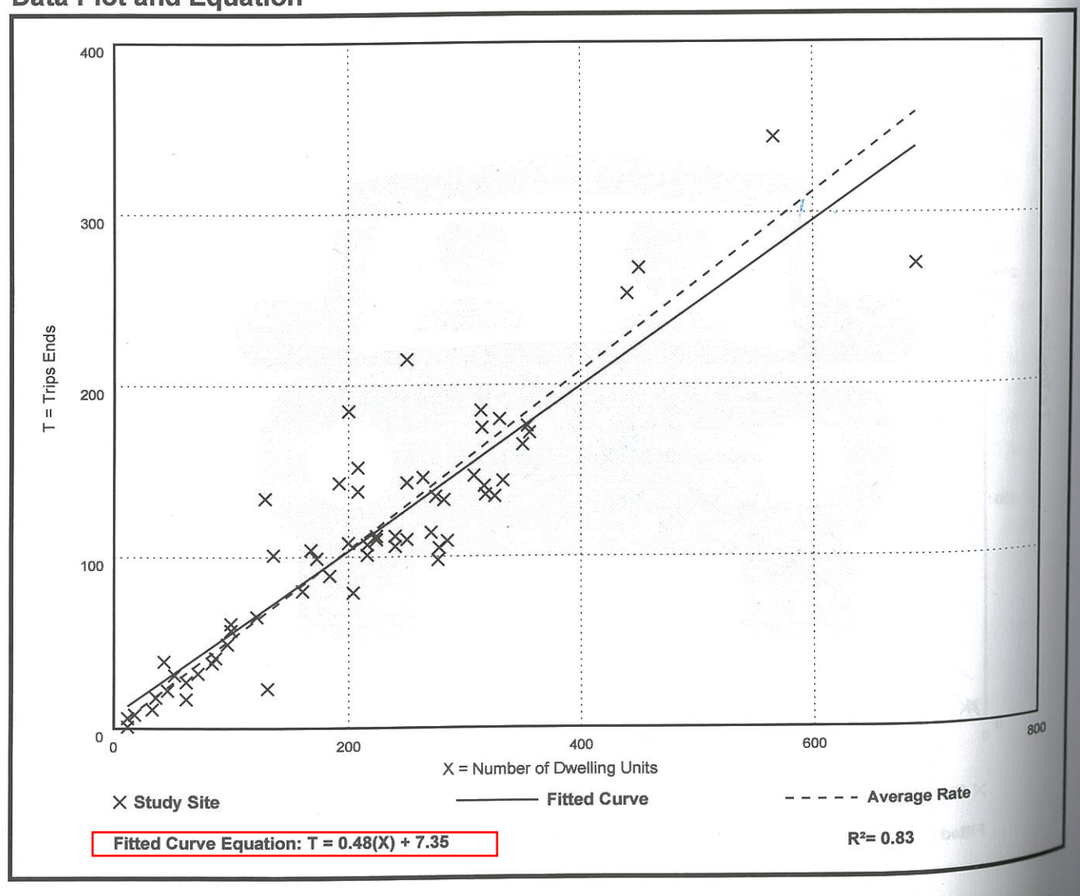
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
Number of Studies: 61
Avg. Num. of Dwelling Units: 215
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 7.35

R^2= 0.83

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

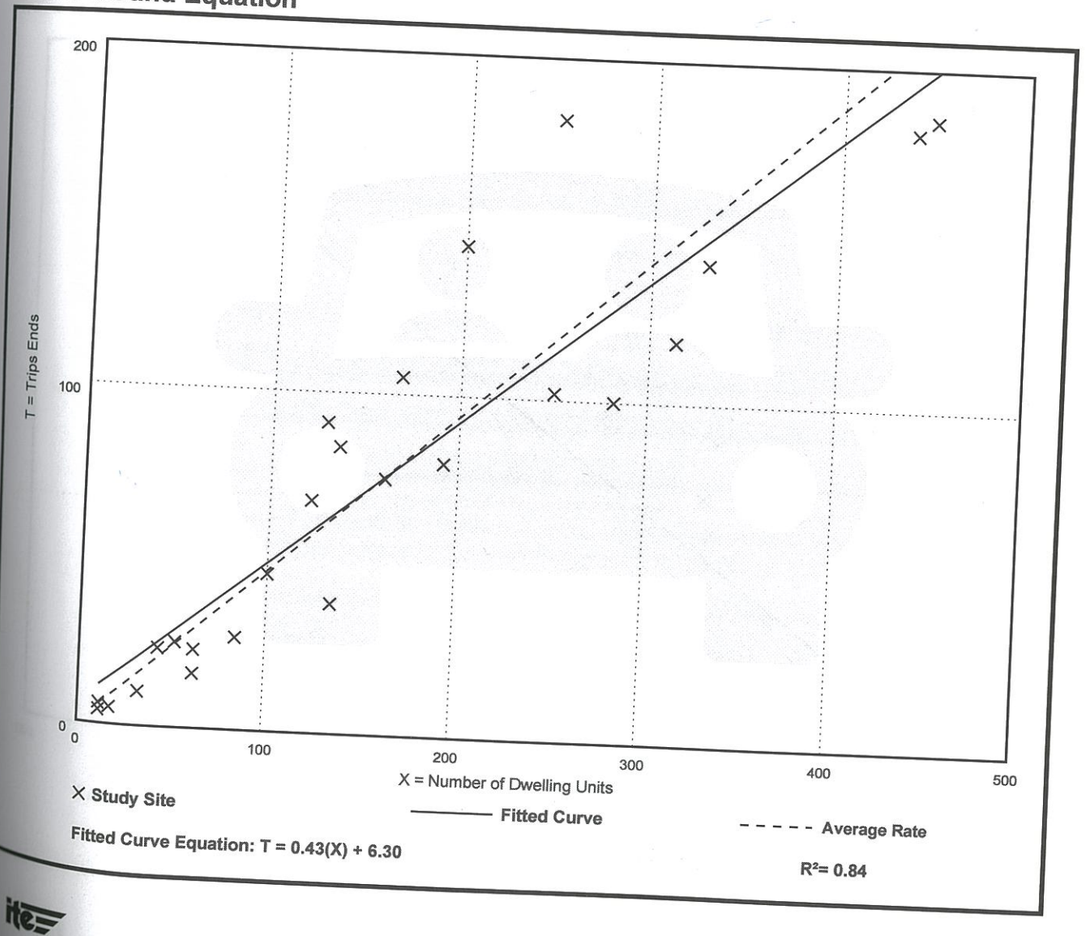
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
AM Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 25
Avg. Num. of Dwelling Units: 161
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.26 - 0.73	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.43(X) + 6.30

R^2= 0.84

Appendix D – Buildout Conditions Analyses

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	25.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.437

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	67	539	45	78	350	123	202	93	33	160	279	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	26	0	0	71	0	0	19	0	0	32
Total Hourly Volume [veh/h]	77	618	26	89	401	70	231	107	19	183	320	31
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	168	7	24	109	19	63	29	5	50	87	8
Total Analysis Volume [veh/h]	84	672	28	97	436	76	251	116	21	199	348	34
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	31	0	9	31	0	9	39	0	18	45	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	96	96	96	96	96	96	96	96	96	96	96	96
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	51	40	40	51	41	41	31	15	15	31	12	12
g / C, Green / Cycle	0.53	0.42	0.42	0.53	0.43	0.43	0.33	0.16	0.16	0.33	0.13	0.13
(v / s)_i Volume / Saturation Flow Rate	0.08	0.19	0.02	0.10	0.12	0.05	0.18	0.03	0.01	0.13	0.10	0.02
s, saturation flow rate [veh/h]	1029	3560	1589	931	3560	1589	1422	3560	1589	1495	3560	1589
c, Capacity [veh/h]	585	1481	661	502	1521	679	488	557	249	571	462	206
d1, Uniform Delay [s]	11.43	20.21	16.69	12.23	17.97	16.56	25.81	35.35	34.66	24.49	40.34	37.19
k, delay calibration	0.50	0.50	0.50	0.11	0.50	0.50	0.11	0.11	0.11	0.13	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.51	1.00	0.12	0.19	0.47	0.33	0.84	0.18	0.14	0.45	2.50	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.45	0.04	0.19	0.29	0.11	0.51	0.21	0.08	0.35	0.75	0.16
d, Delay for Lane Group [s/veh]	11.94	21.21	16.81	12.42	18.45	16.90	26.65	35.54	34.80	24.94	42.84	37.56
Lane Group LOS	B	C	B	B	B	B	C	D	C	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.83	4.98	0.35	0.89	2.89	0.96	4.45	1.18	0.42	3.39	4.04	0.72
50th-Percentile Queue Length [ft/ln]	20.71	124.51	8.77	22.31	72.23	23.98	111.18	29.42	10.57	84.85	100.93	17.99
95th-Percentile Queue Length [veh/ln]	1.49	8.64	0.63	1.61	5.20	1.73	7.91	2.12	0.76	6.11	7.27	1.30
95th-Percentile Queue Length [ft/ln]	37.27	216.01	15.78	40.15	130.02	43.16	197.65	52.96	19.02	152.73	181.68	32.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.94	21.21	16.81	12.42	18.45	16.90	26.65	35.54	34.80	24.94	42.84	37.56
Movement LOS	B	C	B	B	B	B	C	D	C	C	D	D
d_A, Approach Delay [s/veh]	20.06			17.29			29.75			36.40		
Approach LOS	C			B			C			D		
d_I, Intersection Delay [s/veh]	24.96											
Intersection LOS	C											
Intersection V/C	0.437											

Emissions

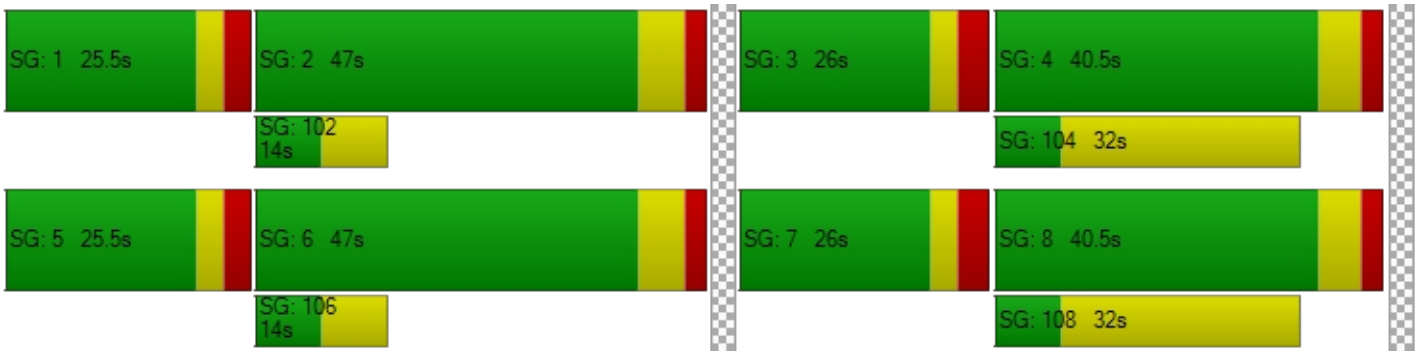
Vehicle Miles Traveled [mph]	94.15	753.16	31.38	157.48	707.83	123.38	139.84	64.63	11.70	54.56	95.41	9.32
Stops [stops/h]	31.07	373.66	13.15	33.47	216.77	35.98	166.83	88.29	15.85	127.32	302.90	27.00
Fuel consumption [US gal/h]	3.93	35.04	1.39	6.13	29.34	5.06	7.95	3.97	0.71	4.05	8.95	0.82
CO [g/h]	274.74	2449.00	97.15	428.82	2050.96	353.48	555.44	277.24	49.90	282.88	625.47	57.19
NOx [g/h]	53.46	476.49	18.90	83.43	399.04	68.77	108.07	53.94	9.71	55.04	121.69	11.13
VOC [g/h]	63.67	567.58	22.52	99.38	475.33	81.92	128.73	64.25	11.57	65.56	144.96	13.25

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	37.61	37.61	37.61	37.61
l_p,int, Pedestrian LOS Score for Intersectio	2.985	3.177	2.723	2.728
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	834	834	709	709
d_b, Bicycle Delay [s]	16.32	16.32	20.01	20.01
l_b,int, Bicycle LOS Score for Intersection	2.228	2.121	1.895	2.065
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	13.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.024

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	8	1	224	3	1	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	1	257	3	1	631
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	70	1	0	171
Total Analysis Volume [veh/h]	10	1	279	3	1	686
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	13.84	9.29	0.00	0.00	7.82	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.93	1.93	0.00	0.00	0.06	0.00
d_A, Approach Delay [s/veh]	13.43		0.00		0.01	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	42.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	91	0	0	16	0	0	38	0	0	498
Total Hourly Volume [veh/h]	94	1076	91	184	390	15	61	319	38	368	829	498
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	292	25	50	106	4	17	87	10	100	225	135
Total Analysis Volume [veh/h]	102	1170	99	200	424	16	66	347	41	400	901	541
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12	40	0	10	38	0	9	19	0	31	41	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	7.50	7.50	4.00	7.50	7.50	4.00	7.00	7.00	4.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	5.50	2.00	5.50	5.50	2.00	5.00	5.00	2.00	5.00	5.00
g_i, Effective Green Time [s]	5	33	33	6	34	34	4	25	25	14	35	35
g / C, Green / Cycle	0.05	0.33	0.33	0.06	0.34	0.34	0.04	0.25	0.25	0.14	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.03	0.33	0.06	0.06	0.12	0.01	0.02	0.10	0.03	0.12	0.25	0.34
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	165	1157	517	208	1201	536	146	880	393	494	1239	553
d1, Uniform Delay [s]	46.73	33.75	24.29	46.89	24.92	22.17	46.77	31.40	29.09	41.54	28.47	32.24
k, delay calibration	0.11	0.04	0.04	0.11	0.04	0.04	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.77	10.43	0.07	21.50	0.07	0.01	2.19	1.33	0.53	3.23	3.76	33.31
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.62	1.01	0.19	0.96	0.35	0.03	0.45	0.39	0.10	0.81	0.73	0.98
d, Delay for Lane Group [s/veh]	50.51	44.18	24.36	68.40	24.98	22.18	48.96	32.72	29.62	44.77	32.23	65.55
Lane Group LOS	D	F	C	E	C	C	D	C	C	D	C	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.29	14.69	1.61	2.96	3.47	0.23	0.83	3.58	0.81	4.80	9.42	17.05
50th-Percentile Queue Length [ft/ln]	32.24	367.29	40.32	74.11	86.77	5.84	20.87	89.54	20.17	120.08	235.54	426.20
95th-Percentile Queue Length [veh/ln]	2.32	21.13	2.90	5.34	6.25	0.42	1.50	6.45	1.45	8.40	14.46	23.82
95th-Percentile Queue Length [ft/ln]	58.03	528.21	72.57	133.40	156.19	10.51	37.57	161.16	36.31	209.93	361.39	595.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	50.51	44.18	24.36	68.40	24.98	22.18	48.96	32.72	29.62	44.77	32.23	65.55
Movement LOS	D	F	C	E	C	C	D	C	C	D	C	E
d_A, Approach Delay [s/veh]	43.22			38.48			34.80			44.74		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	42.28											
Intersection LOS	D											
Intersection V/C	0.746											

Emissions

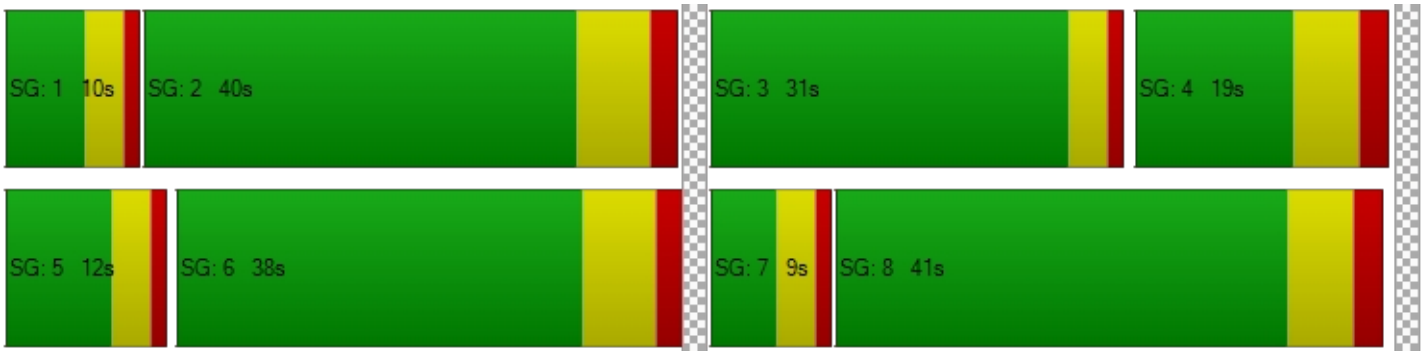
Vehicle Miles Traveled [mph]	22.27	255.46	21.62	36.69	77.79	2.94	16.44	86.42	10.21	79.46	178.99	107.47
Stops [stops/h]	92.84	1057.81	58.06	213.44	249.90	8.41	60.11	257.86	29.04	345.82	678.36	613.73
Fuel consumption [US gal/h]	2.97	32.43	1.95	7.98	9.40	0.33	1.74	7.54	0.85	10.67	20.48	18.53
CO [g/h]	207.33	2266.65	136.55	557.48	657.04	22.83	121.35	527.33	59.75	745.65	1431.50	1295.29
NOx [g/h]	40.34	441.01	26.57	108.46	127.84	4.44	23.61	102.60	11.63	145.08	278.52	252.02
VOC [g/h]	48.05	525.32	31.65	129.20	152.27	5.29	28.12	122.21	13.85	172.81	331.77	300.20

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	34.0	30.5	32.5
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	38.72	21.78	24.15	22.78
l_p,int, Pedestrian LOS Score for Intersectio	3.221	3.435	2.881	3.979
Crosswalk LOS	C	C	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	610	240	680
d_b, Bicycle Delay [s]	22.78	24.15	38.72	21.78
l_b,int, Bicycle LOS Score for Intersection	2.766	2.101	1.966	3.490
Bicycle LOS	C	B	A	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.673

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	1
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd			
Base Volume Input [veh/h]	587	119	29	398	209	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	72	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	117	0	0	0	107
Total Hourly Volume [veh/h]	1151	116	57	686	410	107
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	313	32	15	186	111	29
Total Analysis Volume [veh/h]	1251	126	62	746	446	116
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	10	0	5	10	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5	0	0	5	5	0
Pedestrian Clearance [s]	10	0	0	10	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	35	0	64	60	25	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	5	10	5	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	23	23	23	23	23	23
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	19	19	5	5
g / C, Green / Cycle	0.43	0.43	0.83	0.83	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.35	0.08	0.16	0.21	0.32	0.07
s, saturation flow rate [veh/h]	3560	1589	394	3560	1388	1589
c, Capacity [veh/h]	1548	691	488	2941	436	346
d1, Uniform Delay [s]	5.66	3.99	4.20	0.44	11.21	7.60
k, delay calibration	0.11	0.11	0.11	0.11	0.13	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.05	0.13	0.12	0.04	28.04	0.57
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.18	0.13	0.25	1.02	0.34
d, Delay for Lane Group [s/veh]	6.71	4.12	4.32	0.48	39.26	8.16
Lane Group LOS	A	A	A	A	F	A
Critical Lane Group	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.27	0.03	0.19	0.02	2.56	0.29
50th-Percentile Queue Length [ft/ln]	6.73	0.76	4.87	0.46	63.99	7.27
95th-Percentile Queue Length [veh/ln]	0.48	0.05	0.35	0.03	4.61	0.52
95th-Percentile Queue Length [ft/ln]	12.12	1.37	8.76	0.83	115.18	13.09

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	6.71	4.12	4.32	0.48	39.26	8.16
Movement LOS	A	A	A	A	F	A
d_A, Approach Delay [s/veh]	6.47		0.78		32.84	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	10.19					
Intersection LOS	B					
Intersection V/C	0.673					

Emissions

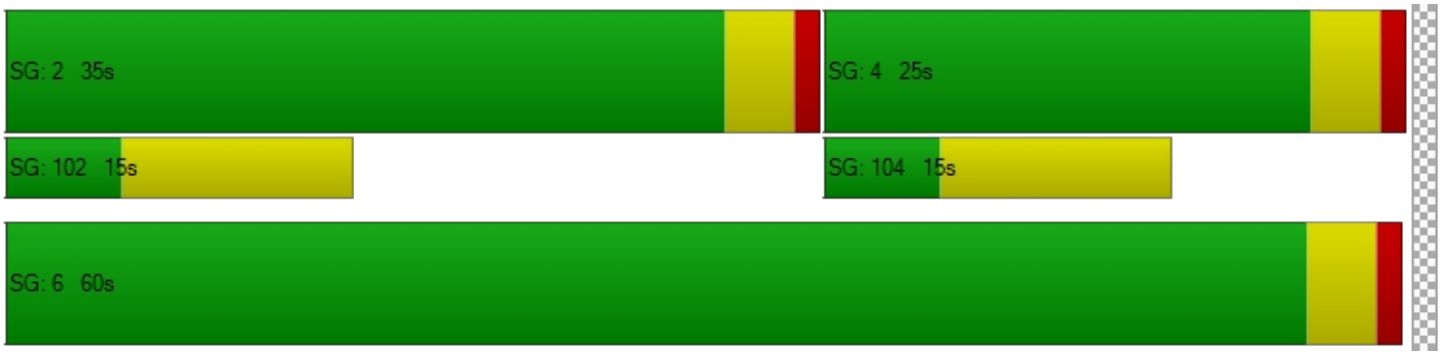
Vehicle Miles Traveled [mph]	1166.79	117.52	11.07	133.24	76.84	19.99
Stops [stops/h]	84.29	4.76	30.49	5.75	801.34	45.53
Fuel consumption [US gal/h]	42.75	4.19	0.81	4.71	12.52	1.30
CO [g/h]	2988.28	293.08	56.84	329.38	875.10	90.66
NOx [g/h]	581.41	57.02	11.06	64.09	170.26	17.64
VOC [g/h]	692.56	67.92	13.17	76.34	202.81	21.01

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	4.26	4.26	4.26
l_p,int, Pedestrian LOS Score for Intersectio	3.824	2.883	2.564
Crosswalk LOS	D	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	2696	4870	1826
d_b, Bicycle Delay [s]	1.39	23.68	0.09
l_b,int, Bicycle LOS Score for Intersection	2.792	2.226	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	400.00	100.00	100.00	100.00	100.00	840.00	500.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	42	373	20	21	301	333	280	161	62	100	299	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.0000	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	10	0	0	327	0	0	61	0	0	50
Total Hourly Volume [veh/h]	82	731	10	21	590	326	549	161	61	100	299	50
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	199	3	6	160	89	149	44	17	27	81	14
Total Analysis Volume [veh/h]	89	795	11	23	641	354	597	175	66	109	325	54
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	25	10	0	5	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	2.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	7	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	7	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	3.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	24	0	9	24	0	10	18	0	9	17	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	3.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	31	25	25	31	23	23	20	12	12	20	10	10
g / C, Green / Cycle	0.52	0.42	0.42	0.52	0.39	0.39	0.33	0.20	0.20	0.33	0.17	0.17
(v / s)_i Volume / Saturation Flow Rate	0.11	0.22	0.01	0.03	0.18	0.22	0.23	0.05	0.04	0.08	0.09	0.03
s, saturation flow rate [veh/h]	797	3560	1589	806	3560	1589	2552	3560	1589	1338	3560	1589
c, Capacity [veh/h]	512	1503	671	478	1370	612	930	702	313	581	595	266
d1, Uniform Delay [s]	8.09	12.90	10.09	8.05	13.85	14.61	16.57	20.34	20.17	14.23	22.90	21.54
k, delay calibration	0.47	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.69	1.34	0.04	0.19	1.15	3.96	0.75	0.18	0.33	0.15	0.78	0.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.53	0.02	0.05	0.47	0.58	0.64	0.25	0.21	0.19	0.55	0.20
d, Delay for Lane Group [s/veh]	8.78	14.24	10.13	8.24	15.00	18.57	17.32	20.52	20.51	14.39	23.68	21.91
Lane Group LOS	A	B	B	A	B	B	B	C	C	B	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.52	3.38	0.08	0.13	2.83	3.71	2.82	0.92	0.71	0.90	1.91	0.60
50th-Percentile Queue Length [ft/ln]	12.97	84.42	1.88	3.25	70.74	92.87	70.46	23.04	17.63	22.52	47.76	15.11
95th-Percentile Queue Length [veh/ln]	0.93	6.08	0.14	0.23	5.09	6.69	5.07	1.66	1.27	1.62	3.44	1.09
95th-Percentile Queue Length [ft/ln]	23.35	151.95	3.39	5.85	127.33	167.17	126.83	41.47	31.73	40.54	85.98	27.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	8.78	14.24	10.13	8.24	15.00	18.57	17.32	20.52	20.51	14.39	23.68	21.91
Movement LOS	A	B	B	A	B	B	B	C	C	B	C	C
d_A, Approach Delay [s/veh]	13.64			16.09			18.24			21.41		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	16.77											
Intersection LOS	B											
Intersection V/C	0.481											

Emissions

Vehicle Miles Traveled [mph]	53.94	481.84	6.67	21.45	597.85	330.17	90.06	26.40	9.96	7.13	21.25	3.53
Stops [stops/h]	31.14	405.20	4.52	7.80	339.54	222.90	338.20	110.60	42.30	54.05	229.27	36.27
Fuel consumption [US gal/h]	2.40	23.86	0.31	0.87	26.67	15.43	9.40	3.01	1.14	1.24	5.15	0.81
CO [g/h]	167.42	1667.66	21.49	60.87	1864.31	1078.32	656.78	210.46	79.87	86.36	359.66	56.82
NOx [g/h]	32.57	324.47	4.18	11.84	362.73	209.80	127.79	40.95	15.54	16.80	69.98	11.05
VOC [g/h]	38.80	386.50	4.98	14.11	432.07	249.91	152.21	48.78	18.51	20.02	83.35	13.17

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	3.128	2.701
Crosswalk LOS	F	F	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	467	433
d_b, Bicycle Delay [s]	14.01	14.01	17.63	18.41
l_b,int, Bicycle LOS Score for Intersection	2.306	2.669	2.301	2.003
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	12.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.242

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	670.00	100.00	100.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	45	2	10	55	2	137	51	290	15	3	359	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	122	0	0	8	0	0	9
Total Hourly Volume [veh/h]	45	2	5	98	2	122	91	516	7	3	639	9
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	1	1	27	1	33	25	140	2	1	174	2
Total Analysis Volume [veh/h]	49	2	5	107	2	133	99	561	8	3	695	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.2	0.0	0.0	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	23	0	0	18	0	20	40	0	12	27	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	38	38	38	38	38	38	38	38	38	38
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	0.00	3.20	0.00	4.30	4.30	0.00	4.30	4.30
g_i, Effective Green Time [s]	7	7	10	10	17	10	10	15	10	10
g / C, Green / Cycle	0.18	0.18	0.26	0.26	0.43	0.26	0.26	0.38	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.14	0.00	0.08	0.08	0.08	0.16	0.01	0.00	0.20	0.01
s, saturation flow rate [veh/h]	376	1589	1449	1589	1208	3560	1589	1139	3560	1589
c, Capacity [veh/h]	0	293	664	421	673	930	415	604	931	416
d1, Uniform Delay [s]	0.00	12.75	11.04	11.27	6.48	12.38	10.49	4.85	12.95	10.49
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.00	0.02	0.12	0.43	0.10	0.63	0.02	0.00	1.22	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	10000.00	0.02	0.16	0.32	0.15	0.60	0.02	0.00	0.75	0.02
d, Delay for Lane Group [s/veh]	0.00	12.78	11.16	11.70	6.58	13.02	10.50	4.85	14.17	10.51
Lane Group LOS	F	B	B	B	A	B	B	A	B	B
Critical Lane Group	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.00	0.03	0.56	0.73	0.27	1.49	0.04	0.01	1.99	0.05
50th-Percentile Queue Length [ft/ln]	0.00	0.74	14.09	18.19	6.82	37.34	0.91	0.13	49.65	1.13
95th-Percentile Queue Length [veh/ln]	0.00	0.05	1.01	1.31	0.49	2.69	0.07	0.01	3.57	0.08
95th-Percentile Queue Length [ft/ln]	0.00	1.33	25.36	32.75	12.28	67.21	1.63	0.24	89.37	2.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	12.78	11.16	11.16	11.70	6.58	13.02	10.50	4.85	14.17	10.51
Movement LOS	A	A	B	B	B	B	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	1.14			11.45			12.03			14.07		
Approach LOS	A			B			B			B		
d_I, Intersection Delay [s/veh]	12.45											
Intersection LOS	B											
Intersection V/C	0.242											

Emissions

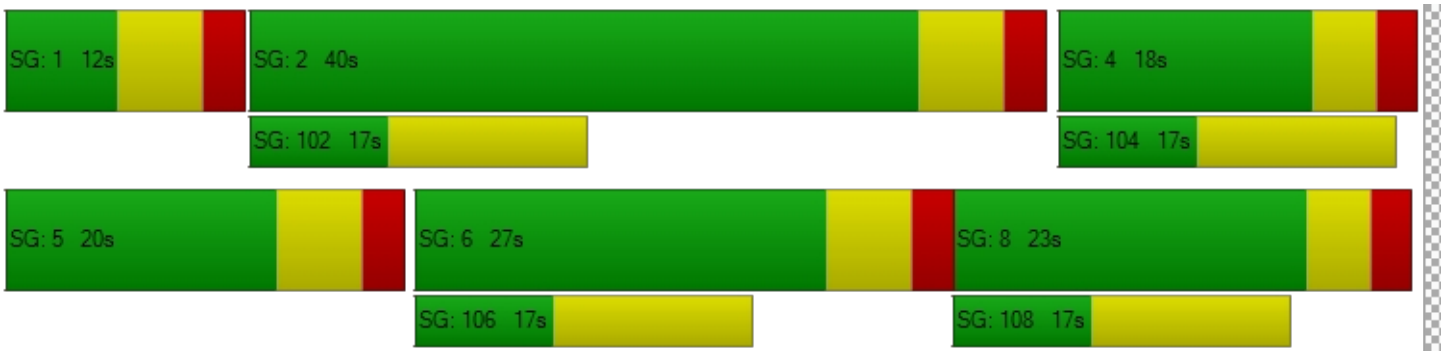
Vehicle Miles Traveled [mph]	2.10	0.21	93.22	113.75	39.90	226.12	3.22	0.45	104.85	1.51
Stops [stops/h]	0.00	2.80	53.28	68.81	25.79	282.44	3.42	0.50	375.55	4.28
Fuel consumption [US gal/h]	0.08	0.04	4.20	5.17	1.82	12.75	0.17	0.02	10.27	0.13
CO [g/h]	5.59	2.93	293.69	361.38	127.29	891.16	11.90	1.72	717.68	8.83
NOx [g/h]	1.09	0.57	57.14	70.31	24.77	173.39	2.31	0.34	139.63	1.72
VOC [g/h]	1.30	0.68	68.07	83.75	29.50	206.54	2.76	0.40	166.33	2.05

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	9.63	9.63	9.63	9.63
l_p,int, Pedestrian LOS Score for Intersectio	2.111	2.423	2.890	2.978
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	935	672	1770	1087
d_b, Bicycle Delay [s]	5.40	8.39	0.25	3.97
l_b,int, Bicycle LOS Score for Intersection	1.660	2.160	2.117	2.151
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.346

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	520.00	100.00	100.00	530.00	100.00	100.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			No			No		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	50	5	10	63	5	151	48	276	20	10	481	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.7800	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	135	0	0	10	0	0	11
Total Hourly Volume [veh/h]	50	5	5	112	9	134	85	491	10	10	856	10
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	1	1	28	2	34	21	133	3	3	233	3
Total Analysis Volume [veh/h]	54	5	5	112	9	134	85	534	11	11	930	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	8	0	0	10	0	0	10	0	0	7	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	84	16	0	0	33	0	0	64	0	0	47	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	27	27	27	27	27	27	27	27	27	27	27	27
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	3.20	0.00	3.20	3.20	0.00	4.30	4.30	4.30	4.30	4.30
g_i, Effective Green Time [s]	6	6	6	9	9	9	10	10	10	7	7	7
g / C, Green / Cycle	0.21	0.21	0.21	0.32	0.32	0.32	0.37	0.37	0.37	0.26	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.00	0.00	0.17	0.00	0.08	0.10	0.15	0.01	0.01	0.26	0.01
s, saturation flow rate [veh/h]	1245	3560	1589	659	3560	1589	883	3560	1589	861	3560	1589
c, Capacity [veh/h]	446	752	336	548	1135	507	457	1301	581	330	918	410
d1, Uniform Delay [s]	10.38	8.46	8.48	7.56	6.32	6.88	9.10	6.43	5.51	11.75	10.08	7.53
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.00	0.02	0.18	0.00	0.28	0.19	0.21	0.01	0.04	17.23	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.01	0.01	0.20	0.01	0.26	0.19	0.41	0.02	0.03	1.01	0.02
d, Delay for Lane Group [s/veh]	10.50	8.46	8.49	7.74	6.32	7.16	9.30	6.64	5.52	11.79	27.31	7.55
Lane Group LOS	B	A	A	A	A	A	A	A	A	B	F	A
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.20	0.01	0.02	0.27	0.01	0.34	0.13	0.42	0.02	0.04	3.44	0.02
50th-Percentile Queue Length [ft/ln]	5.08	0.19	0.40	6.75	0.24	8.39	3.31	10.42	0.39	1.04	86.09	0.58
95th-Percentile Queue Length [veh/ln]	0.37	0.01	0.03	0.49	0.02	0.60	0.24	0.75	0.03	0.07	6.20	0.04
95th-Percentile Queue Length [ft/ln]	9.15	0.34	0.71	12.16	0.43	15.10	5.96	18.76	0.70	1.87	154.97	1.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.50	8.46	8.49	7.74	6.32	7.16	9.30	6.64	5.52	11.79	27.31	7.55
Movement LOS	B	A	A	A	A	A	A	A	A	B	F	A
d_A, Approach Delay [s/veh]	10.18			7.38			6.98			26.92		
Approach LOS	B			A			A			C		
d_I, Intersection Delay [s/veh]	17.12											
Intersection LOS	B											
Intersection V/C	0.346											

Emissions

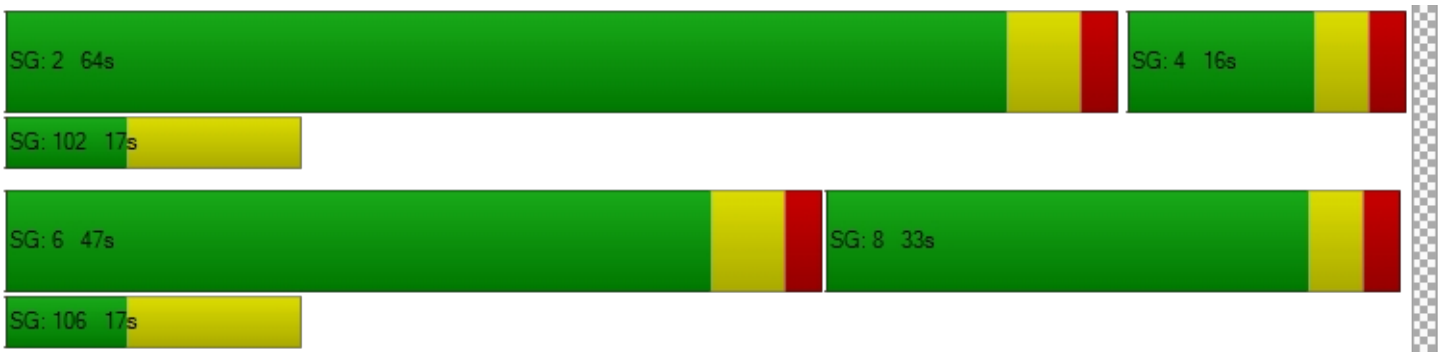
Vehicle Miles Traveled [mph]	2.71	0.25	0.25	112.83	9.07	134.99	34.11	214.28	4.41	4.43	374.86	4.03
Stops [stops/h]	27.01	1.98	2.11	35.89	2.55	44.58	17.60	110.75	2.05	5.51	915.00	3.06
Fuel consumption [US gal/h]	0.42	0.03	0.03	4.75	0.38	5.68	1.55	9.44	0.19	0.25	29.39	0.19
CO [g/h]	29.49	2.31	2.38	331.82	26.30	396.75	108.26	660.13	13.22	17.26	2054.71	13.39
NOx [g/h]	5.74	0.45	0.46	64.56	5.12	77.19	21.06	128.44	2.57	3.36	399.77	2.60
VOC [g/h]	6.83	0.54	0.55	76.90	6.10	91.95	25.09	152.99	3.06	4.00	476.20	3.10

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	4.78	4.78	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	2.417	2.759	0.000	0.000
Crosswalk LOS	B	C	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	797	2052	4259	3004
d_b, Bicycle Delay [s]	4.90	0.01	17.28	3.41
l_b,int, Bicycle LOS Score for Intersection	1.617	1.881	2.088	2.353
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	17.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.454

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	520.00	100.00	100.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	100	10	15	16	10	190	53	301	25	15	622	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	169	0	0	13	0	0	5
Total Hourly Volume [veh/h]	100	10	7	28	10	169	94	536	12	15	1107	4
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	3	2	8	3	46	26	146	3	4	301	1
Total Analysis Volume [veh/h]	100	10	7	30	10	184	102	583	12	15	1203	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	9	0	5	10	0	5	10	0	0	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	4.3	4.3	0.0	0.0	4.3	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	4.3	4.3	0.0	0.0	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	46	17	0	46	17	0	48	43	0	0	43	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	-	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	30	30	30	30	30	30	30	30	30	30	30	30
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.00	3.00	3.00	3.00	3.00	3.00	4.30	4.30	4.30	4.30	4.30	4.30
g_i, Effective Green Time [s]	8	8	8	8	8	8	10	10	10	10	10	10
g / C, Green / Cycle	0.29	0.29	0.29	0.29	0.29	0.29	0.34	0.34	0.34	0.34	0.34	0.34
(v / s)_i Volume / Saturation Flow Rate	0.08	0.01	0.00	0.02	0.01	0.12	0.22	0.16	0.01	0.02	0.34	0.00
s, saturation flow rate [veh/h]	1189	1870	1589	1396	1870	1589	463	3560	1589	822	3560	1589
c, Capacity [veh/h]	507	536	456	554	536	456	251	1192	532	363	1192	532
d1, Uniform Delay [s]	9.81	7.64	7.63	9.19	7.64	8.59	14.90	7.90	6.65	11.04	9.93	6.62
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.19	0.01	0.01	0.04	0.01	0.58	1.06	0.31	0.02	0.05	14.32	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.02	0.02	0.05	0.02	0.40	0.41	0.49	0.02	0.04	1.01	0.01
d, Delay for Lane Group [s/veh]	10.00	7.65	7.64	9.23	7.65	9.17	15.96	8.21	6.67	11.08	24.25	6.63
Lane Group LOS	B	A	A	A	A	A	B	A	A	B	F	A
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.41	0.03	0.02	0.12	0.03	0.70	0.63	0.73	0.03	0.06	4.11	0.01
50th-Percentile Queue Length [ft/ln]	10.36	0.81	0.58	2.88	0.81	17.60	15.87	18.15	0.65	1.45	102.65	0.21
95th-Percentile Queue Length [veh/ln]	0.75	0.06	0.04	0.21	0.06	1.27	1.14	1.31	0.05	0.10	7.39	0.02
95th-Percentile Queue Length [ft/ln]	18.64	1.46	1.04	5.18	1.46	31.68	28.56	32.67	1.16	2.61	184.76	0.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	10.00	7.65	7.64	9.23	7.65	9.17	15.96	8.21	6.67	11.08	24.25	6.63
Movement LOS	B	A	A	A	A	A	B	A	A	B	F	A
d_A, Approach Delay [s/veh]	9.66			9.11			9.32			24.03		
Approach LOS	A			A			A			C		
d_I, Intersection Delay [s/veh]	17.27											
Intersection LOS	B											
Intersection V/C	0.454											

Emissions

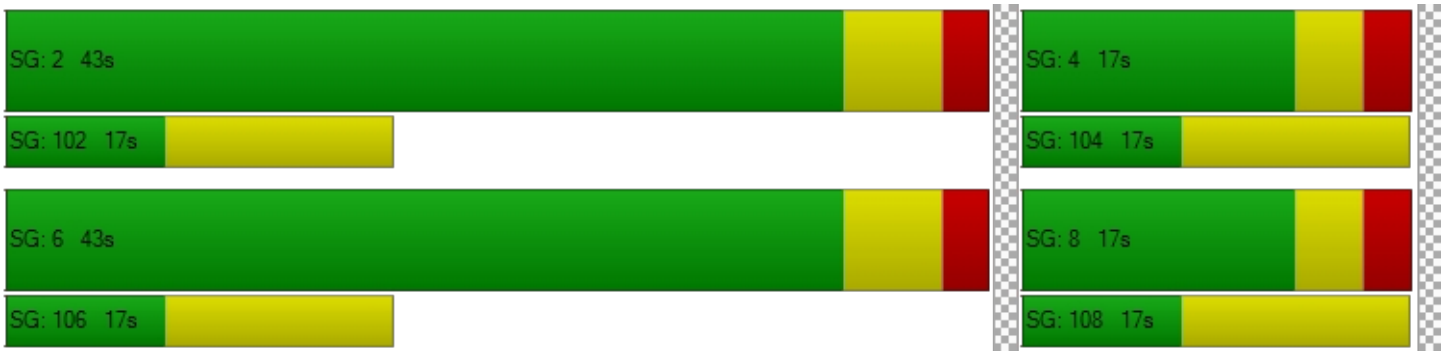
Vehicle Miles Traveled [mph]	6.08	0.61	0.43	4.93	1.64	30.26	38.96	222.66	4.58	6.02	482.73	1.61
Stops [stops/h]	50.05	3.93	2.78	13.90	3.93	85.06	76.68	175.41	3.13	6.99	992.05	1.04
Fuel consumption [US gal/h]	0.73	0.06	0.04	0.34	0.11	2.06	2.62	10.79	0.21	0.33	34.82	0.07
CO [g/h]	51.05	4.36	3.06	23.51	7.34	143.94	183.14	754.01	14.84	22.86	2433.79	5.12
NOx [g/h]	9.93	0.85	0.60	4.57	1.43	28.00	35.63	146.70	2.89	4.45	473.53	1.00
VOC [g/h]	11.83	1.01	0.71	5.45	1.70	33.36	42.44	174.75	3.44	5.30	564.05	1.19

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	5.93	5.93	5.93	5.93
l_p,int, Pedestrian LOS Score for Intersectio	2.135	2.571	3.178	2.960
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	805	805	2463	2463
d_b, Bicycle Delay [s]	5.32	5.32	0.80	0.80
l_b,int, Bicycle LOS Score for Intersection	1.766	2.208	2.145	2.572
Bicycle LOS	A	B	B	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	23.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.626

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	502	295	59	491	618	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.6900	1.6900	1.6900	1.6900	1.6900	1.6900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	250	0	0	0	168
Total Hourly Volume [veh/h]	848	249	100	830	1044	168
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	230	68	27	226	284	46
Total Analysis Volume [veh/h]	922	271	109	902	1135	183
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	32	0	11	43	37	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	28	28	38	38	29	29
g / C, Green / Cycle	0.35	0.35	0.48	0.48	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.26	0.17	0.14	0.25	0.33	0.12
s, saturation flow rate [veh/h]	3560	1589	763	3560	3459	1589
c, Capacity [veh/h]	1225	547	386	1694	1251	575
d1, Uniform Delay [s]	23.22	20.74	14.67	14.72	24.26	18.42
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.30	3.19	0.40	1.20	2.85	0.32
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.50	0.28	0.53	0.91	0.32
d, Delay for Lane Group [s/veh]	27.52	23.93	15.07	15.92	27.11	18.73
Lane Group LOS	C	C	B	B	C	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.28	3.92	0.93	4.88	9.48	2.25
50th-Percentile Queue Length [ft/ln]	182.06	98.10	23.16	122.03	236.96	56.24
95th-Percentile Queue Length [veh/ln]	11.71	7.06	1.67	8.50	14.53	4.05
95th-Percentile Queue Length [ft/ln]	292.70	176.59	41.69	212.62	363.18	101.24

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.52	23.93	15.07	15.92	27.11	18.73
Movement LOS	C	C	B	B	C	B
d_A, Approach Delay [s/veh]	26.71		15.83		25.94	
Approach LOS	C		B		C	
d_I, Intersection Delay [s/veh]	23.30					
Intersection LOS	C					
Intersection V/C	0.626					

Emissions

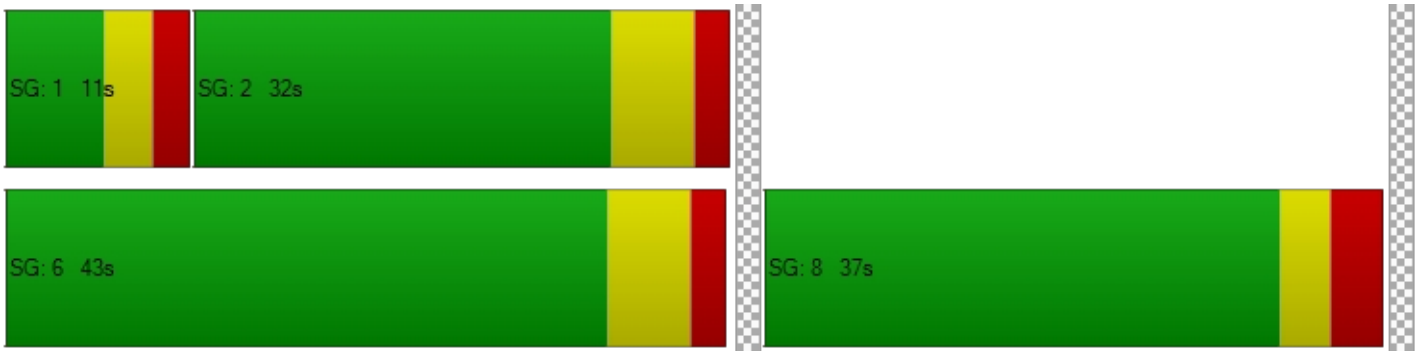
Vehicle Miles Traveled [mph]	172.44	50.68	122.16	1010.94	433.47	69.89
Stops [stops/h]	655.40	176.59	41.69	439.32	853.04	101.24
Fuel consumption [US gal/h]	23.11	6.30	5.20	44.90	31.73	4.35
CO [g/h]	1615.09	440.04	363.14	3138.56	2217.63	304.21
NOx [g/h]	314.24	85.62	70.65	610.65	431.47	59.19
VOC [g/h]	374.31	101.98	84.16	727.39	513.96	70.50

Other Modes

g_Walk,mi, Effective Walk Time [s]	31.0	31.0	25.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.01	15.01	18.91
l_p,int, Pedestrian LOS Score for Intersectio	3.865	3.082	3.190
Crosswalk LOS	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	625	900	775
d_b, Bicycle Delay [s]	18.91	12.10	15.01
l_b,int, Bicycle LOS Score for Intersection	2.750	2.394	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	632	260	10
2	613	252	10
3	600	247	10
4	562	231	9
5	499	205	8
6	493	203	8
7	487	200	8
8	442	182	7
9	436	179	7
10	430	177	7
11	373	153	6
12	348	143	6
13	341	140	5
14	253	104	4
15	253	104	4
16	177	73	3
17	101	42	2
18	101	42	2
19	57	23	1
20	32	13	1
21	19	8	0
22	6	3	0
23	6	3	0
24	6	3	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	892	1	10	No	No	No	No	No	No	No	No	No	No
2	3	865	1	10	No	No	No	No	No	No	No	No	No	No
3	3	847	1	10	No	No	No	No	No	No	No	No	No	No
4	3	793	1	9	No	No	No	No	No	No	No	No	No	No
5	3	704	1	8	No	No	No	No	No	No	No	No	No	No
6	3	696	1	8	No	No	No	No	No	No	No	No	No	No
7	3	687	1	8	No	No	No	No	No	No	No	No	No	No
8	3	624	1	7	No	No	No	No	No	No	No	No	No	No
9	3	615	1	7	No	No	No	No	No	No	No	No	No	No
10	3	607	1	7	No	No	No	No	No	No	No	No	No	No
11	3	526	1	6	No	No	No	No	No	No	No	No	No	No
12	3	491	1	6	No	No	No	No	No	No	No	No	No	No
13	3	481	1	5	No	No	No	No	No	No	No	No	No	No
14	3	357	1	4	No	No	No	No	No	No	No	No	No	No
15	3	357	1	4	No	No	No	No	No	No	No	No	No	No
16	3	250	1	3	No	No	No	No	No	No	No	No	No	No
17	3	143	1	2	No	No	No	No	No	No	No	No	No	No
18	3	143	1	2	No	No	No	No	No	No	No	No	No	No
19	3	80	1	1	No	No	No	No	No	No	No	No	No	No
20	3	45	1	1	No	No	No	No	No	No	No	No	No	No
21	3	27	1	0	No	No	No	No	No	No	No	No	No	No
22	3	9	1	0	No	No	No	No	No	No	No	No	No	No
23	3	9	1	0	No	No	No	No	No	No	No	No	No	No
24	3	9	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:02
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	10
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	902
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	22.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	58	629	171	142	585	234	138	236	82	121	140	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	98	0	0	134	0	0	47	0	0	30
Total Hourly Volume [veh/h]	66	721	98	163	670	134	158	270	47	139	160	30
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	196	27	44	182	36	43	73	13	38	43	8
Total Analysis Volume [veh/h]	72	784	107	177	728	146	172	293	51	151	174	33
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	14	0	9	14	0	9	14	0	9	14	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	52	40	40	52	42	42	24	10	10	24	9	9
g / C, Green / Cycle	0.58	0.44	0.44	0.58	0.47	0.47	0.27	0.11	0.11	0.27	0.10	0.10
(v / s)_i Volume / Saturation Flow Rate	0.09	0.22	0.07	0.21	0.20	0.09	0.11	0.08	0.03	0.11	0.05	0.02
s, saturation flow rate [veh/h]	804	3560	1589	847	3560	1589	1501	3560	1589	1406	3560	1589
c, Capacity [veh/h]	496	1581	706	508	1672	746	478	410	183	423	369	165
d1, Uniform Delay [s]	9.36	17.86	14.93	10.56	15.93	13.95	26.48	38.44	36.44	26.36	38.05	36.96
k, delay calibration	0.50	0.50	0.50	0.34	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.62	1.11	0.46	1.30	0.83	0.59	0.46	2.34	0.82	0.51	0.94	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.15	0.50	0.15	0.35	0.44	0.20	0.36	0.71	0.28	0.36	0.47	0.20
d, Delay for Lane Group [s/veh]	9.97	18.97	15.39	11.86	16.76	14.54	26.94	40.77	37.26	26.87	38.99	37.55
Lane Group LOS	A	B	B	B	B	B	C	D	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.57	5.20	1.22	1.47	4.41	1.60	2.93	3.17	1.04	2.55	1.81	0.68
50th-Percentile Queue Length [ft/ln]	14.36	129.91	30.48	36.63	110.25	40.08	73.28	79.18	26.08	63.69	45.32	16.93
95th-Percentile Queue Length [veh/ln]	1.03	8.93	2.19	2.64	7.85	2.89	5.28	5.70	1.88	4.59	3.26	1.22
95th-Percentile Queue Length [ft/ln]	25.84	223.37	54.87	65.94	196.35	72.15	131.90	142.52	46.94	114.63	81.58	30.47

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.97	18.97	15.39	11.86	16.76	14.54	26.94	40.77	37.26	26.87	38.99	37.55
Movement LOS	A	B	B	B	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	17.90			15.62			35.81			33.74		
Approach LOS	B			B			D			C		
d_I, Intersection Delay [s/veh]	22.24											
Intersection LOS	C											
Intersection V/C	0.431											

Emissions

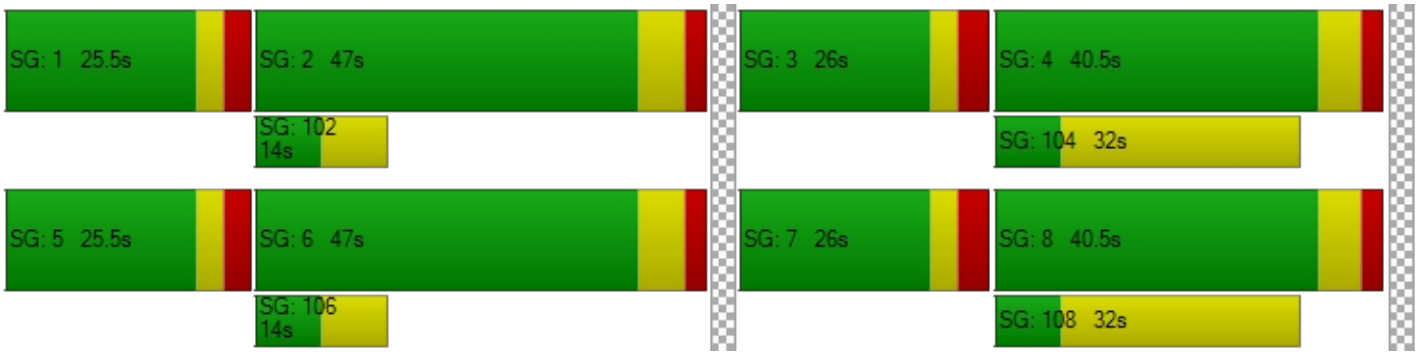
Vehicle Miles Traveled [mph]	80.61	877.71	119.79	287.35	1181.89	237.03	95.82	163.23	28.41	41.40	47.70	9.05
Stops [stops/h]	22.99	416.01	48.81	58.65	353.06	64.18	117.33	253.56	41.75	101.97	145.13	27.11
Fuel consumption [US gal/h]	3.27	40.12	5.25	11.13	48.58	9.55	5.48	10.56	1.78	3.17	4.29	0.80
CO [g/h]	228.54	2804.06	366.89	777.93	3395.48	667.76	382.90	738.13	124.68	221.61	299.89	55.98
NOx [g/h]	44.47	545.57	71.38	151.36	660.64	129.92	74.50	143.61	24.26	43.12	58.35	10.89
VOC [g/h]	52.97	649.87	85.03	180.29	786.94	154.76	88.74	171.07	28.90	51.36	69.50	12.97

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.64	34.64	34.64	34.64
l_p,int, Pedestrian LOS Score for Intersectio	3.228	3.377	2.776	2.926
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	890	890	756	756
d_b, Bicycle Delay [s]	13.86	13.86	17.39	17.39
l_b,int, Bicycle LOS Score for Intersection	2.435	2.537	2.024	1.880
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	17.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.003

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	1	2	524	5	0	306
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	601	6	0	351
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	163	2	0	95
Total Analysis Volume [veh/h]	1	2	653	7	0	382
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	16.96	10.43	0.00	0.00	8.90	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.48	0.48	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.61		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.04					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	34.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	169	0	0	42	0	0	56	0	0	154
Total Hourly Volume [veh/h]	110	606	168	502	1094	42	78	778	56	149	386	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	165	46	136	297	11	21	211	15	40	105	42
Total Analysis Volume [veh/h]	120	659	183	546	1189	46	85	846	61	162	420	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	32	33	0	27	28	0	9	19	0	11	21	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	7.50	7.50	4.00	7.50	7.50	4.00	7.00	7.00	4.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	5.50	2.00	5.50	5.50	2.00	5.00	5.00	2.00	5.00	5.00
g_i, Effective Green Time [s]	5	20	20	17	32	32	4	24	24	6	26	26
g / C, Green / Cycle	0.06	0.22	0.22	0.19	0.35	0.35	0.05	0.27	0.27	0.07	0.29	0.29
(v / s)_i Volume / Saturation Flow Rate	0.03	0.19	0.12	0.16	0.33	0.03	0.02	0.24	0.04	0.05	0.12	0.11
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	3560	1589	3459	3560	1589
c, Capacity [veh/h]	200	796	355	645	1254	560	169	961	429	242	1036	463
d1, Uniform Delay [s]	41.38	33.30	30.66	35.37	28.36	19.45	41.73	31.46	24.94	40.83	25.64	25.27
k, delay calibration	0.11	0.04	0.04	0.11	0.04	0.04	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.87	0.86	0.43	3.18	1.95	0.02	2.29	11.35	0.69	3.18	1.18	2.18
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.60	0.83	0.52	0.85	0.95	0.08	0.50	0.88	0.14	0.67	0.41	0.36
d, Delay for Lane Group [s/veh]	44.25	34.16	31.09	38.55	30.31	19.47	44.02	42.81	25.63	44.01	26.82	27.45
Lane Group LOS	D	C	C	D	C	B	D	D	C	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.32	6.51	3.32	5.58	11.20	0.58	0.95	9.91	1.04	1.78	3.54	2.92
50th-Percentile Queue Length [ft/ln]	33.08	162.74	83.08	139.38	280.12	14.51	23.86	247.65	26.05	44.49	88.40	72.97
95th-Percentile Queue Length [veh/ln]	2.38	10.69	5.98	9.45	16.69	1.04	1.72	15.07	1.88	3.20	6.37	5.25
95th-Percentile Queue Length [ft/ln]	59.55	267.34	149.54	236.19	417.36	26.11	42.94	376.69	46.89	80.08	159.13	131.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	44.25	34.16	31.09	38.55	30.31	19.47	44.02	42.81	25.63	44.01	26.82	27.45
Movement LOS	D	C	C	D	C	B	D	D	C	D	C	C
d_A, Approach Delay [s/veh]	34.83			32.55			41.86			30.68		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	34.79											
Intersection LOS	C											
Intersection V/C	0.653											

Emissions

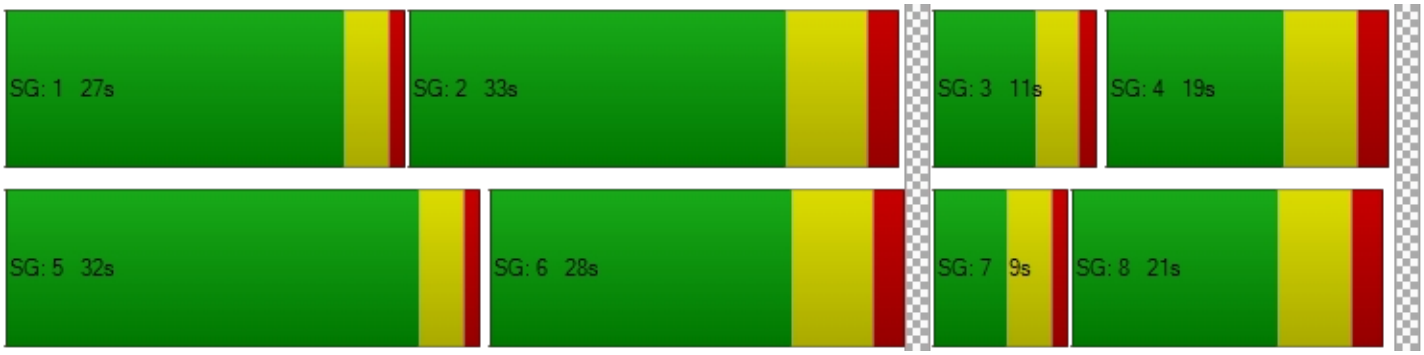
Vehicle Miles Traveled [mph]	26.20	143.89	39.96	100.18	218.15	8.44	21.17	210.70	15.19	32.18	83.44	33.18
Stops [stops/h]	105.87	520.76	132.92	446.03	896.37	23.21	76.34	792.48	41.68	142.36	282.89	116.76
Fuel consumption [US gal/h]	3.29	15.99	4.18	15.92	31.28	0.90	2.14	21.36	1.21	4.32	8.67	3.52
CO [g/h]	230.31	1117.53	292.20	1112.71	2186.46	62.61	149.75	1493.11	84.63	302.24	606.01	246.18
NOx [g/h]	44.81	217.43	56.85	216.49	425.41	12.18	29.14	290.50	16.47	58.80	117.91	47.90
VOC [g/h]	53.38	259.00	67.72	257.88	506.73	14.51	34.71	346.04	19.61	70.05	140.45	57.05

Other Modes

g_Walk,mi, Effective Walk Time [s]	12.0	14.0	20.5	25.5
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	33.80	32.09	26.83	23.11
l_p,int, Pedestrian LOS Score for Intersectio	3.376	3.388	2.935	3.412
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	456	267	311
d_b, Bicycle Delay [s]	23.11	26.83	33.80	32.09
l_b,int, Bicycle LOS Score for Intersection	2.493	3.064	2.424	2.305
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	5.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	475.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd			
Base Volume Input [veh/h]	491	287	140	551	106	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	282	0	0	0	61
Total Hourly Volume [veh/h]	962	281	274	914	208	61
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	261	76	74	248	57	17
Total Analysis Volume [veh/h]	1046	305	298	993	226	66
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal Group	2	0	6	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	10	0	5	5	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5	0	0	0	5	0
Pedestrian Clearance [s]	10	0	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	39	0	60	60	21	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	5	5	5	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No			No	No	
Maximum Recall	No			No	No	
Pedestrian Recall	No			No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	23	23	23	23	23	23
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	19	19	5	5
g / C, Green / Cycle	0.43	0.43	0.83	0.83	0.22	0.22
(v / s)_i Volume / Saturation Flow Rate	0.29	0.19	0.74	0.28	0.21	0.04
s, saturation flow rate [veh/h]	3560	1589	404	3560	1101	1589
c, Capacity [veh/h]	1548	691	518	2941	385	346
d1, Uniform Delay [s]	5.20	4.55	7.46	0.48	11.26	7.35
k, delay calibration	0.11	0.11	0.50	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	0.44	4.58	0.07	1.42	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.44	0.57	0.34	0.59	0.19
d, Delay for Lane Group [s/veh]	5.72	4.99	12.05	0.55	12.68	7.61
Lane Group LOS	A	A	B	A	B	A
Critical Lane Group	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	0.15	0.10	2.23	0.03	0.48	0.16
50th-Percentile Queue Length [ft/ln]	3.66	2.56	55.81	0.69	12.06	3.89
95th-Percentile Queue Length [veh/ln]	0.26	0.18	4.02	0.05	0.87	0.28
95th-Percentile Queue Length [ft/ln]	6.58	4.62	100.47	1.24	21.71	7.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	5.72	4.99	12.05	0.55	12.68	7.61
Movement LOS	A	A	B	A	B	A
d_A, Approach Delay [s/veh]	5.56		3.20		11.53	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.12					
Intersection LOS	A					
Intersection V/C	0.738					

Emissions

Vehicle Miles Traveled [mph]	975.59	284.47	53.22	177.35	38.94	11.37
Stops [stops/h]	45.79	16.06	349.47	8.62	151.06	24.35
Fuel consumption [US gal/h]	35.23	10.26	6.90	6.30	3.20	0.72
CO [g/h]	2462.47	717.19	482.36	440.20	223.93	50.25
NOx [g/h]	479.11	139.54	93.85	85.65	43.57	9.78
VOC [g/h]	570.70	166.22	111.79	102.02	51.90	11.65

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	4.26	4.26	4.26
l_p,int, Pedestrian LOS Score for Intersectio	3.772	2.936	2.909
Crosswalk LOS	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	3044	4870	1478
d_b, Bicycle Delay [s]	3.13	23.68	0.78
l_b,int, Bicycle LOS Score for Intersection	2.907	2.625	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	-	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.563

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	400.00	100.00	100.00	100.00	100.00	840.00	500.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	62	338	40	80	355	249	468	280	38	60	241	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.0000	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	244	0	0	37	0	0	40
Total Hourly Volume [veh/h]	122	662	20	80	696	244	917	280	37	60	241	40
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	180	5	22	189	66	249	76	10	16	65	11
Total Analysis Volume [veh/h]	133	720	22	87	757	265	997	304	40	65	262	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	2	25	0	2	25	0	25	10	0	3	10	0
Amber [s]	4.3	4.3	0.0	4.3	4.3	0.0	4.3	4.3	0.0	3.2	3.2	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	7	5	0	0	5	0
Pedestrian Clearance [s]	0	23	0	0	27	0	7	21	0	0	21	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	4.3	4.3	0.0	4.3	4.3	0.0	4.3	4.3	0.0	3.2	3.2	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12	41	0	12	41	0	21	26	0	11	16	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.30	5.20	5.20	5.20
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.30	4.30	0.00	4.30	4.30	0.00	4.30	4.30	0.00	3.20	3.20
g_i, Effective Green Time [s]	47	37	37	47	36	36	30	21	21	31	10	10
g / C, Green / Cycle	0.53	0.41	0.41	0.53	0.40	0.40	0.33	0.23	0.23	0.34	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.17	0.20	0.01	0.10	0.21	0.17	0.34	0.09	0.03	0.08	0.07	0.03
s, saturation flow rate [veh/h]	800	3560	1589	915	3560	1589	2957	3560	1589	835	3560	1589
c, Capacity [veh/h]	450	1450	647	491	1419	633	996	816	364	396	397	177
d1, Uniform Delay [s]	12.48	19.83	16.04	11.79	20.67	19.54	29.76	29.24	27.43	20.58	38.34	36.50
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.12	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.67	1.22	0.10	0.79	1.44	2.03	14.22	0.28	0.13	0.19	1.87	0.70
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.50	0.03	0.18	0.53	0.42	1.00	0.37	0.11	0.16	0.66	0.24
d, Delay for Lane Group [s/veh]	14.15	21.04	16.14	12.58	22.11	21.56	43.98	29.52	27.57	20.78	40.21	37.20
Lane Group LOS	B	C	B	B	C	C	F	C	C	C	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.39	5.32	0.27	0.86	5.79	4.00	11.15	2.64	0.66	0.93	2.84	0.89
50th-Percentile Queue Length [ft/ln]	34.84	132.92	6.71	21.54	144.80	100.02	278.81	66.03	16.44	23.30	70.92	22.22
95th-Percentile Queue Length [veh/ln]	2.51	9.10	0.48	1.55	9.74	7.20	16.64	4.75	1.18	1.68	5.11	1.60
95th-Percentile Queue Length [ft/ln]	62.71	227.45	12.07	38.77	243.48	180.04	415.88	118.85	29.59	41.94	127.66	40.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.15	21.04	16.14	12.58	22.11	21.56	43.98	29.52	27.57	20.78	40.21	37.20
Movement LOS	B	C	B	B	C	C	F	C	C	C	D	D
d_A, Approach Delay [s/veh]	19.87			21.23			40.21			36.44		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	29.32											
Intersection LOS	C											
Intersection V/C	0.563											

Emissions

Vehicle Miles Traveled [mph]	80.61	436.38	13.33	81.14	706.04	247.16	150.41	45.86	6.03	3.75	15.12	2.48
Stops [stops/h]	55.75	425.33	10.73	34.47	463.37	160.03	892.19	211.29	26.30	37.28	226.96	35.56
Fuel consumption [US gal/h]	3.84	23.33	0.66	3.43	33.37	11.62	25.17	6.03	0.76	0.64	4.02	0.62
CO [g/h]	268.35	1630.77	46.33	239.94	2332.53	812.57	1759.45	421.18	53.00	44.40	280.98	43.62
NOx [g/h]	52.21	317.29	9.01	46.68	453.82	158.10	342.33	81.95	10.31	8.64	54.67	8.49
VOC [g/h]	62.19	377.95	10.74	55.61	540.59	188.32	407.77	97.61	12.28	10.29	65.12	10.11

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersectio	2.941	3.840	3.203	2.699
Crosswalk LOS	C	D	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	771	771	438	240
d_b, Bicycle Delay [s]	16.99	16.99	27.46	34.85
l_b,int, Bicycle LOS Score for Intersection	2.298	2.676	2.696	1.898
Bicycle LOS	B	B	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	9.3
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.332

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	1	0	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	670.00	100.00	100.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	29	4	6	25	4	67	143	479	50	10	278	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	60	0	0	25	0	0	24
Total Hourly Volume [veh/h]	29	4	3	45	4	59	255	853	25	10	495	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	1	12	1	16	69	232	7	3	135	7
Total Analysis Volume [veh/h]	32	4	3	49	4	64	277	927	27	11	538	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	19	0	0	51	0	62	35	0	14	19	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	32	32	32	32	32	32	32	32	32	32
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	5	5	9	9	14	10	10	18	10	10
g / C, Green / Cycle	0.16	0.16	0.29	0.29	0.46	0.32	0.32	0.58	0.31	0.31
(v / s)_i Volume / Saturation Flow Rate	0.06	0.00	0.07	0.04	0.22	0.26	0.02	0.01	0.15	0.02
s, saturation flow rate [veh/h]	560	1589	717	1589	1257	3560	1589	1541	3560	1589
c, Capacity [veh/h]	301	231	536	435	841	1152	514	810	1142	510
d1, Uniform Delay [s]	12.91	11.30	8.65	8.49	5.19	9.55	7.19	2.57	8.39	7.24
k, delay calibration	0.11	0.11	0.11	0.11	0.16	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.17	0.02	0.08	0.15	0.34	1.37	0.04	0.01	0.30	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.01	0.10	0.15	0.33	0.80	0.05	0.01	0.47	0.05
d, Delay for Lane Group [s/veh]	13.08	11.33	8.73	8.64	5.53	10.92	7.23	2.58	8.70	7.29
Lane Group LOS	B	B	A	A	A	B	A	A	A	A
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.20	0.01	0.26	0.23	0.48	1.76	0.07	0.00	0.83	0.07
50th-Percentile Queue Length [ft/ln]	4.96	0.35	6.62	5.67	11.98	43.92	1.83	0.07	20.83	1.78
95th-Percentile Queue Length [veh/ln]	0.36	0.03	0.48	0.41	0.86	3.16	0.13	0.00	1.50	0.13
95th-Percentile Queue Length [ft/ln]	8.93	0.64	11.92	10.21	21.56	79.05	3.30	0.12	37.49	3.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.08	13.08	11.33	8.73	8.73	8.64	5.53	10.92	7.23	2.58	8.70	7.29
Movement LOS	B	B	B	A	A	A	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	12.95			8.68			9.62			8.52		
Approach LOS	B			A			A			A		
d_I, Intersection Delay [s/veh]	9.31											
Intersection LOS	A											
Intersection V/C	0.332											

Emissions

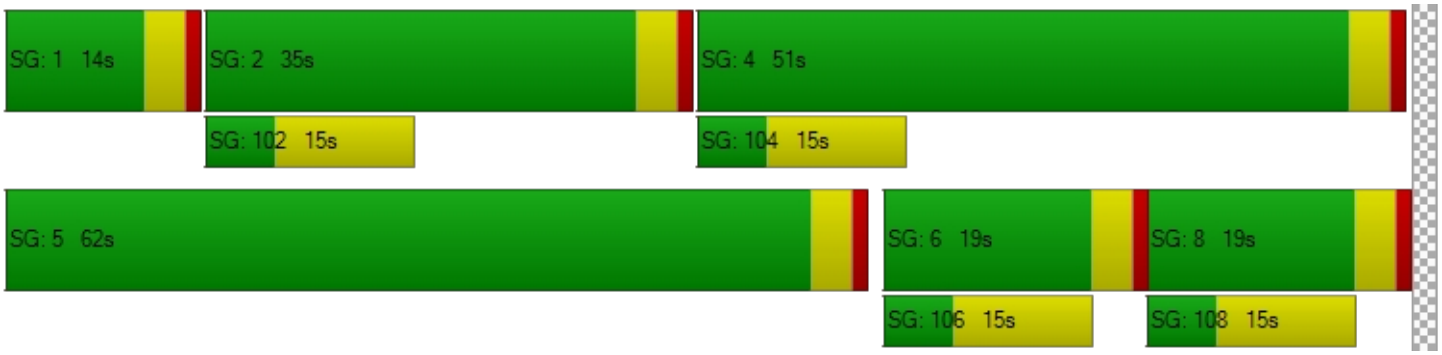
Vehicle Miles Traveled [mph]	1.46	0.12	45.33	54.74	111.65	373.65	10.88	1.66	81.16	3.92
Stops [stops/h]	22.57	1.61	30.11	25.79	54.46	399.41	8.34	0.31	189.44	8.11
Fuel consumption [US gal/h]	0.32	0.02	2.05	2.39	4.82	19.83	0.52	0.07	6.09	0.27
CO [g/h]	22.47	1.65	143.18	167.26	336.63	1386.37	36.10	4.65	425.68	19.14
NOx [g/h]	4.37	0.32	27.86	32.54	65.50	269.74	7.02	0.90	82.82	3.72
VOC [g/h]	5.21	0.38	33.18	38.77	78.02	321.30	8.37	1.08	98.66	4.44

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	8.11	8.11	8.11	8.11
l_p,int, Pedestrian LOS Score for Intersectio	2.115	2.401	2.951	3.060
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	947	2969	1958	947
d_b, Bicycle Delay [s]	4.39	3.71	0.01	4.39
l_b,int, Bicycle LOS Score for Intersection	1.629	1.852	2.596	2.054
Bicycle LOS	A	A	B	B

Sequence

Ring 1	1	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	12.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.348

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	520.00	100.00	100.00	530.00	100.00	100.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	25	50	25	29	30	84	157	601	60	20	301	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.7800	1.7800	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	75	0	0	54	0	0	38
Total Hourly Volume [veh/h]	25	50	12	52	30	75	279	1070	53	36	536	37
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	13	3	13	8	19	70	291	14	10	146	9
Total Analysis Volume [veh/h]	27	50	13	52	30	75	279	1163	58	39	583	37
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	64	20	0	0	21	0	0	40	0	0	39	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	29	29	29	29	29	29	29	29	29	29	29	29
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	3.20	0.00	3.20	3.20	0.00	4.30	4.30	4.30	4.30	4.30
g_i, Effective Green Time [s]	7	7	7	9	7	7	10	10	10	10	10	10
g / C, Green / Cycle	0.25	0.25	0.25	0.32	0.25	0.25	0.35	0.35	0.35	0.35	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.01	0.04	0.01	0.05	0.28	0.33	0.04	0.09	0.16	0.02
s, saturation flow rate [veh/h]	1289	3560	1589	1339	3560	1589	999	3560	1589	457	3560	1589
c, Capacity [veh/h]	491	899	401	675	900	402	324	1238	553	255	1237	552
d1, Uniform Delay [s]	9.72	8.15	8.10	8.46	8.10	8.43	12.11	9.09	6.35	14.37	7.32	6.27
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.16	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.05	0.03	0.03	0.05	0.01	0.22	9.45	4.23	0.08	0.28	0.28	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.06	0.06	0.03	0.08	0.03	0.19	0.86	0.94	0.10	0.15	0.47	0.07
d, Delay for Lane Group [s/veh]	9.77	8.17	8.13	8.51	8.12	8.65	21.55	13.32	6.44	14.64	7.60	6.32
Lane Group LOS	A	A	A	A	A	A	C	B	A	B	A	A
Critical Lane Group	Yes	No	No	No	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.10	0.08	0.04	0.16	0.05	0.25	1.39	2.14	0.11	0.20	0.62	0.07
50th-Percentile Queue Length [ft/ln]	2.49	1.89	1.03	4.06	1.13	6.25	34.71	53.39	2.77	5.10	15.42	1.74
95th-Percentile Queue Length [veh/ln]	0.18	0.14	0.07	0.29	0.08	0.45	2.50	3.84	0.20	0.37	1.11	0.13
95th-Percentile Queue Length [ft/ln]	4.49	3.41	1.85	7.30	2.03	11.25	62.49	96.11	4.99	9.18	27.76	3.13

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.77	8.17	8.13	8.51	8.12	8.65	21.55	13.32	6.44	14.64	7.60	6.32
Movement LOS	A	A	A	A	A	A	C	B	A	B	A	A
d_A, Approach Delay [s/veh]	8.65			8.50			14.58			7.95		
Approach LOS	A			A			B			A		
d_I, Intersection Delay [s/veh]	12.15											
Intersection LOS	B											
Intersection V/C	0.348											

Emissions

Vehicle Miles Traveled [mph]	1.60	2.96	0.77	52.39	30.22	75.56	112.14	467.45	23.31	15.72	234.99	14.91
Stops [stops/h]	12.51	19.00	5.16	20.35	11.32	31.35	174.14	535.66	13.90	25.59	154.71	8.72
Fuel consumption [US gal/h]	0.21	0.34	0.09	2.24	1.29	3.25	7.23	25.84	1.05	0.97	10.88	0.67
CO [g/h]	14.59	23.69	6.27	156.56	89.94	227.02	505.56	1805.91	73.25	68.03	760.55	46.64
NOx [g/h]	2.84	4.61	1.22	30.46	17.50	44.17	98.36	351.37	14.25	13.24	147.97	9.07
VOC [g/h]	3.38	5.49	1.45	36.29	20.84	52.61	117.17	418.54	16.98	15.77	176.26	10.81

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	5.46	5.46	5.46	5.46
l_p,int, Pedestrian LOS Score for Intersectio	2.506	2.975	3.058	3.002
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1031	1101	2348	2278
d_b, Bicycle Delay [s]	3.37	2.90	0.43	0.28
l_b,int, Bicycle LOS Score for Intersection	1.645	1.751	2.842	2.135
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	24.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	520.00	100.00	100.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	150	5	15	13	5	94	177	750	65	40	365	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.6900	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	84	0	0	33	0	0	21
Total Hourly Volume [veh/h]	150	5	7	23	5	83	315	1268	32	40	650	20
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	2	6	1	23	86	345	8	10	177	5
Total Analysis Volume [veh/h]	150	5	7	25	5	90	342	1378	32	40	707	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	3	8	0	3	8	0	2	10	0	2	10	0
Amber [s]	3.2	3.2	0.0	3.2	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	21	0	0	21	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.2	3.2	0.0	3.2	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	11	16	0	14	19	0	12	38	0	12	38	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.20	3.20	0.00	3.20	3.20	0.00	4.30	4.30	0.00	4.30	4.30
g_i, Effective Green Time [s]	25	17	17	25	14	14	44	34	34	44	32	32
g / C, Green / Cycle	0.31	0.22	0.22	0.31	0.17	0.17	0.55	0.43	0.43	0.55	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.10	0.00	0.00	0.02	0.00	0.06	0.35	0.39	0.02	0.07	0.20	0.01
s, saturation flow rate [veh/h]	1475	1870	1589	1485	1870	1589	967	3560	1589	615	3560	1589
c, Capacity [veh/h]	589	406	345	586	323	274	554	1532	684	332	1411	630
d1, Uniform Delay [s]	20.80	24.59	24.63	19.32	27.46	29.03	11.88	21.19	13.26	14.32	18.19	14.79
k, delay calibration	0.42	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.12	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	0.06	0.11	0.14	0.09	3.17	5.08	8.82	0.13	0.18	1.27	0.10
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.01	0.02	0.04	0.02	0.33	0.62	0.90	0.05	0.12	0.50	0.03
d, Delay for Lane Group [s/veh]	21.68	24.64	24.74	19.45	27.55	32.21	16.96	30.01	13.38	14.50	19.47	14.89
Lane Group LOS	C	C	C	B	C	C	B	C	B	B	B	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.18	0.08	0.11	0.34	0.09	1.72	3.54	12.10	0.32	0.28	4.60	0.24
50th-Percentile Queue Length [ft/ln]	54.60	1.97	2.81	8.45	2.14	43.02	88.52	302.41	8.04	7.09	114.88	5.95
95th-Percentile Queue Length [veh/ln]	3.93	0.14	0.20	0.61	0.15	3.10	6.37	17.80	0.58	0.51	8.11	0.43
95th-Percentile Queue Length [ft/ln]	98.28	3.55	5.05	15.21	3.85	77.44	159.34	445.01	14.47	12.77	202.77	10.70

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.68	24.64	24.74	19.45	27.55	32.21	16.96	30.01	13.38	14.50	19.47	14.89
Movement LOS	C	C	C	B	C	C	B	C	B	B	B	B
d_A, Approach Delay [s/veh]	21.90			29.36			27.16			19.08		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	24.73											
Intersection LOS	C											
Intersection V/C	0.523											

Emissions

Vehicle Miles Traveled [mph]	6.06	0.20	0.28	4.06	0.81	14.63	129.99	523.77	12.16	16.08	284.17	8.84
Stops [stops/h]	98.28	3.55	5.05	15.21	3.85	77.44	159.34	1088.69	14.47	12.77	413.56	10.70
Fuel consumption [US gal/h]	1.45	0.05	0.07	0.35	0.08	1.62	7.62	39.91	0.68	0.83	17.68	0.50
CO [g/h]	101.66	3.71	5.23	24.48	5.79	113.23	532.46	2789.43	47.81	57.87	1236.08	35.15
NOx [g/h]	19.78	0.72	1.02	4.76	1.13	22.03	103.60	542.72	9.30	11.26	240.50	6.84
VOC [g/h]	23.56	0.86	1.21	5.67	1.34	26.24	123.40	646.48	11.08	13.41	286.47	8.15

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersectio	2.230	2.594	3.222	3.023
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	270	345	793	793
d_b, Bicycle Delay [s]	29.93	27.39	14.58	14.58
l_b,int, Bicycle LOS Score for Intersection	1.840	1.896	3.032	2.211
Bicycle LOS	A	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	31.7
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.683

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	778	735	171	609	354	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.6900	1.6900	1.6900	1.6900	1.6900	1.6900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	621	0	0	0	92
Total Hourly Volume [veh/h]	1315	621	289	1029	598	92
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	357	169	79	280	163	25
Total Analysis Volume [veh/h]	1429	675	314	1118	650	100
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	70	0	15	85	55	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	82	82	97	97	30	30
g / C, Green / Cycle	0.59	0.59	0.69	0.69	0.21	0.21
(v / s)_i Volume / Saturation Flow Rate	0.40	0.42	0.77	0.31	0.19	0.06
s, saturation flow rate [veh/h]	3560	1589	406	3560	3459	1589
c, Capacity [veh/h]	2091	934	303	2473	735	338
d1, Uniform Delay [s]	19.91	20.72	48.39	9.52	53.44	46.31
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.83	4.84	61.05	0.60	3.75	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.68	0.72	1.04	0.45	0.88	0.30
d, Delay for Lane Group [s/veh]	21.74	25.56	109.44	10.12	57.19	46.79
Lane Group LOS	C	C	F	B	E	D
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.87	15.35	8.01	6.60	11.22	2.93
50th-Percentile Queue Length [ft/ln]	371.85	383.85	200.36	165.05	280.38	73.34
95th-Percentile Queue Length [veh/ln]	21.20	21.78	12.98	10.82	16.71	5.28
95th-Percentile Queue Length [ft/ln]	529.97	544.50	324.56	270.40	417.68	132.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.74	25.56	109.44	10.12	57.19	46.79
Movement LOS	C	C	F	B	E	D
d_A, Approach Delay [s/veh]	22.97		31.90		55.80	
Approach LOS	C		C		E	
d_I, Intersection Delay [s/veh]	31.70					
Intersection LOS	C					
Intersection V/C	0.683					

Emissions

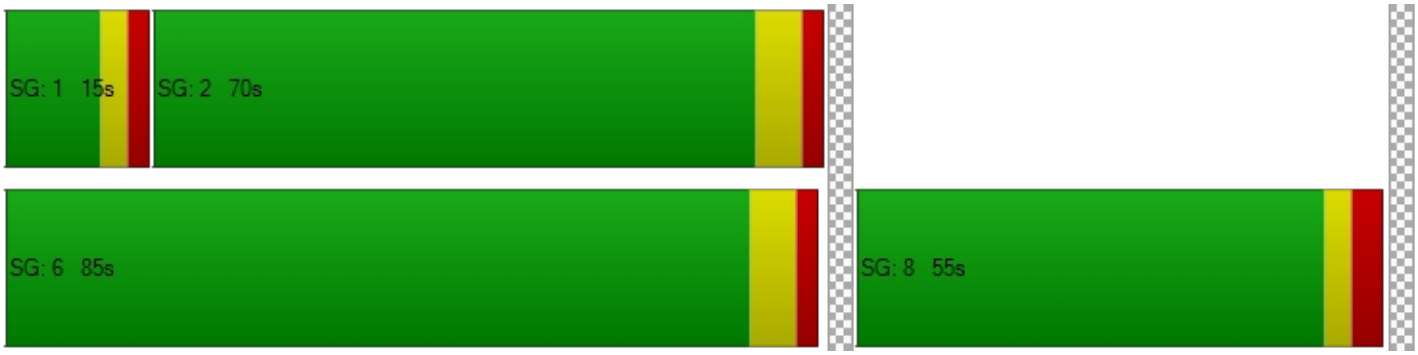
Vehicle Miles Traveled [mph]	269.30	127.21	351.53	1251.63	247.06	38.01
Stops [stops/h]	764.94	394.81	206.08	339.53	576.78	75.43
Fuel consumption [US gal/h]	29.54	15.10	22.58	50.48	23.20	3.19
CO [g/h]	2064.87	1055.49	1578.25	3528.48	1621.95	223.18
NOx [g/h]	401.75	205.36	307.07	686.51	315.57	43.42
VOC [g/h]	478.55	244.62	365.78	817.76	375.90	51.72

Other Modes

g_Walk,mi, Effective Walk Time [s]	49.0	49.0	63.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.58	29.58	21.18
l_p,int, Pedestrian LOS Score for Intersectio	4.783	3.384	3.397
Crosswalk LOS	E	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	900	1114	700
d_b, Bicycle Delay [s]	21.18	13.73	29.58
l_b,int, Bicycle LOS Score for Intersection	3.808	2.741	1.560
Bicycle LOS	D	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	351	607	3
2	340	589	3
3	333	577	3
4	312	540	3
5	277	480	2
6	274	473	2
7	270	467	2
8	246	425	2
9	242	419	2
10	239	413	2
11	207	358	2
12	193	334	2
13	190	328	2
14	140	243	1
15	140	243	1
16	98	170	1
17	56	97	0
18	56	97	0
19	32	55	0
20	18	30	0
21	11	18	0
22	4	6	0
23	4	6	0
24	4	6	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	958	1	3	No	No	No	No	No	No	No	No	No	No
2	3	929	1	3	No	No	No	No	No	No	No	No	No	No
3	3	910	1	3	No	No	No	No	No	No	No	No	No	No
4	3	852	1	3	No	No	No	No	No	No	No	No	No	No
5	3	757	1	2	No	No	No	No	No	No	No	No	No	No
6	3	747	1	2	No	No	No	No	No	No	No	No	No	No
7	3	737	1	2	No	No	No	No	No	No	No	No	No	No
8	3	671	1	2	No	No	No	No	No	No	No	No	No	No
9	3	661	1	2	No	No	No	No	No	No	No	No	No	No
10	3	652	1	2	No	No	No	No	No	No	No	No	No	No
11	3	565	1	2	No	No	No	No	No	No	No	No	No	No
12	3	527	1	2	No	No	No	No	No	No	No	No	No	No
13	3	518	1	2	No	No	No	No	No	No	No	No	No	No
14	3	383	1	1	No	No	No	No	No	No	No	No	No	No
15	3	383	1	1	No	No	No	No	No	No	No	No	No	No
16	3	268	1	1	No	No	No	No	No	No	No	No	No	No
17	3	153	1	0	No	No	No	No	No	No	No	No	No	No
18	3	153	1	0	No	No	No	No	No	No	No	No	No	No
19	3	87	1	0	No	No	No	No	No	No	No	No	No	No
20	3	48	1	0	No	No	No	No	No	No	No	No	No	No
21	3	29	1	0	No	No	No	No	No	No	No	No	No	No
22	3	10	1	0	No	No	No	No	No	No	No	No	No	No
23	3	10	1	0	No	No	No	No	No	No	No	No	No	No
24	3	10	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.6
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	3
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	961
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.573

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	920.00	100.00	820.00	1265.00	100.00	820.00	665.00	100.00	435.00	740.00	100.00	435.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	1180.00	0.00	0.00	1180.00	0.00	0.00	550.00	0.00	0.00	550.00
Speed [mph]	55.00			55.00			54.00			54.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	67	539	45	78	350	123	202	93	33	160	279	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	84	177	0	0	0	31	0	129	40	246
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	68	0	0	71	0	0	19	0	0	155
Total Hourly Volume [veh/h]	77	618	68	266	401	70	231	138	19	312	360	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	168	18	72	109	19	63	38	5	85	98	42
Total Analysis Volume [veh/h]	84	672	74	289	436	76	251	150	21	339	391	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	9	31	0	9	31	0	9	39	0	18	45	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	106	106	106	106	106	106	106	106	106	106	106	106
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	57	40	40	57	47	47	35	10	10	35	15	15
g / C, Green / Cycle	0.54	0.38	0.38	0.54	0.45	0.45	0.33	0.10	0.10	0.33	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.08	0.19	0.05	0.29	0.12	0.05	0.19	0.04	0.01	0.21	0.11	0.11
s, saturation flow rate [veh/h]	1014	3560	1589	1003	3560	1589	1325	3560	1589	1581	3560	1589
c, Capacity [veh/h]	580	1338	597	538	1586	708	453	351	156	581	514	230
d1, Uniform Delay [s]	12.15	25.57	21.76	15.37	18.65	17.19	28.42	45.17	43.85	29.39	43.77	43.54
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.13	0.11	0.11	0.46	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.52	1.35	0.43	3.82	0.43	0.31	1.24	0.83	0.38	3.91	2.35	4.37
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.50	0.12	0.54	0.27	0.11	0.55	0.43	0.13	0.58	0.76	0.73
d, Delay for Lane Group [s/veh]	12.67	26.92	22.19	19.19	19.08	17.50	29.66	46.00	44.23	33.30	46.12	47.91
Lane Group LOS	B	C	C	B	B	B	C	D	D	C	D	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.93	6.21	1.19	3.86	3.16	1.05	4.76	1.81	0.50	7.22	4.84	4.25
50th-Percentile Queue Length [ft/ln]	23.13	155.30	29.69	96.52	79.03	26.13	118.90	45.35	12.47	180.59	121.11	106.31
95th-Percentile Queue Length [veh/ln]	1.67	10.30	2.14	6.95	5.69	1.88	8.33	3.27	0.90	11.63	8.45	7.63
95th-Percentile Queue Length [ft/ln]	41.64	257.49	53.45	173.74	142.25	47.04	208.32	81.63	22.45	290.78	211.36	190.85

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.67	26.92	22.19	19.19	19.08	17.50	29.66	46.00	44.23	33.30	46.12	47.91
Movement LOS	B	C	C	B	B	B	C	D	D	C	D	D
d_A, Approach Delay [s/veh]	25.06			18.97			36.19			41.61		
Approach LOS	C			B			D			D		
d_I, Intersection Delay [s/veh]	30.03											
Intersection LOS	C											
Intersection V/C	0.573											

Emissions

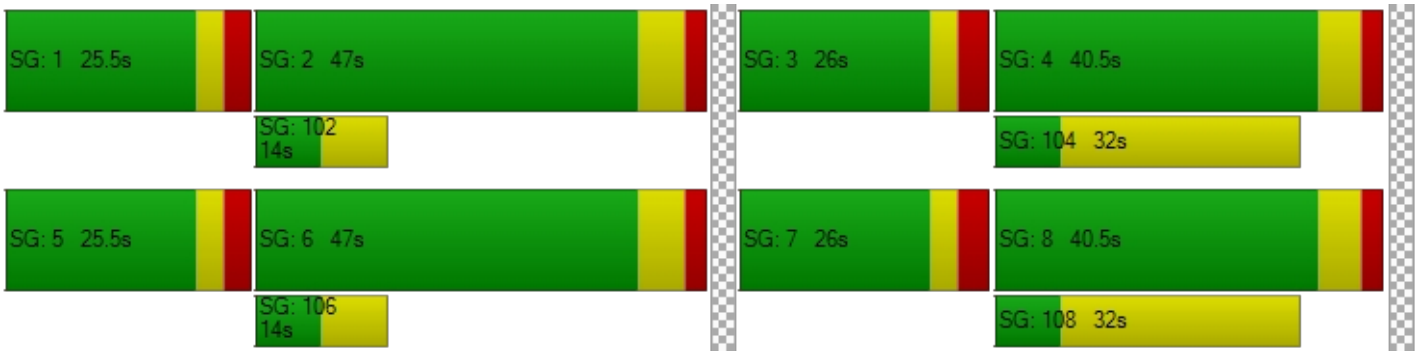
Vehicle Miles Traveled [mph]	93.98	751.83	82.79	469.18	707.83	123.38	139.84	83.57	11.70	92.94	107.20	45.78
Stops [stops/h]	31.34	420.80	40.23	130.77	214.13	35.40	161.09	122.88	16.89	244.66	328.17	144.02
Fuel consumption [US gal/h]	3.94	36.65	3.85	19.25	29.35	5.06	9.07	6.40	0.88	9.78	13.13	5.74
CO [g/h]	275.58	2561.69	269.17	1345.75	2051.47	353.39	633.97	447.02	61.67	683.77	917.48	400.94
NOx [g/h]	53.62	498.41	52.37	261.83	399.14	68.76	123.35	86.97	12.00	133.04	178.51	78.01
VOC [g/h]	63.87	593.70	62.38	311.89	475.45	81.90	146.93	103.60	14.29	158.47	212.64	92.92

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	42.71	42.71	42.71	42.71
l_p,int, Pedestrian LOS Score for Intersectio	3.192	3.302	2.854	3.394
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	753	753	640	640
d_b, Bicycle Delay [s]	20.67	20.67	24.58	24.58
l_b,int, Bicycle LOS Score for Intersection	2.300	2.279	1.923	2.428
Bicycle LOS	B	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	25.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.054

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	380.00	380.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	8	1	224	3	1	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	292	0	0	415
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	1	549	3	1	1046
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	149	1	0	284
Total Analysis Volume [veh/h]	10	1	597	3	1	1137
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	25.36	11.21	0.00	0.00	8.70	0.00
Movement LOS	D	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	4.34	4.34	0.00	0.00	0.08	0.00
d_A, Approach Delay [s/veh]	24.07		0.00		0.01	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	44.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.765

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	32	20	0	33	15	30	20	35	22	9	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	101	0	0	23	0	0	56	0	0	498
Total Hourly Volume [veh/h]	102	1108	101	184	423	23	91	339	55	390	838	498
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	301	27	50	115	6	25	92	15	106	228	135
Total Analysis Volume [veh/h]	111	1204	110	200	460	25	99	368	60	424	911	541
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	16	0	0	16	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	17	49	0	12	44	0	9	30	0	29	50	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	7.50	7.50	4.00	7.50	7.50	4.00	7.00	7.00	4.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	5.50	2.00	5.50	5.50	2.00	5.00	5.00	2.00	5.00	5.00
g_i, Effective Green Time [s]	6	42	42	8	44	44	5	31	31	17	43	43
g / C, Green / Cycle	0.05	0.35	0.35	0.07	0.36	0.36	0.04	0.26	0.26	0.14	0.36	0.36
(v / s)_i Volume / Saturation Flow Rate	0.03	0.34	0.07	0.06	0.13	0.02	0.03	0.07	0.04	0.12	0.26	0.34
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	5094	1589	3459	3560	1589
c, Capacity [veh/h]	172	1231	550	231	1292	577	144	1302	406	500	1276	570
d1, Uniform Delay [s]	55.99	38.79	27.59	55.47	27.97	24.75	56.73	35.84	34.56	50.05	33.20	37.45
k, delay calibration	0.11	0.04	0.04	0.11	0.04	0.04	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.03	3.75	0.07	9.52	0.06	0.01	5.69	0.54	0.77	4.12	3.43	27.16
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.98	0.20	0.87	0.36	0.04	0.69	0.28	0.15	0.85	0.71	0.95
d, Delay for Lane Group [s/veh]	60.02	42.54	27.65	64.99	28.03	24.76	62.42	36.39	35.32	54.17	36.63	64.61
Lane Group LOS	E	D	C	E	C	C	E	D	D	D	D	E
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.71	17.23	2.17	3.23	4.67	0.45	1.56	2.87	1.41	6.32	11.52	18.92
50th-Percentile Queue Length [ft/ln]	42.75	430.80	54.14	80.71	116.80	11.25	39.00	71.82	35.26	157.99	287.96	472.89
95th-Percentile Queue Length [veh/ln]	3.08	24.04	3.90	5.81	8.22	0.81	2.81	5.17	2.54	10.44	17.08	26.05
95th-Percentile Queue Length [ft/ln]	76.94	601.00	97.45	145.28	205.41	20.25	70.21	129.27	63.46	261.06	427.11	651.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	60.02	42.54	27.65	64.99	28.03	24.76	62.42	36.39	35.32	54.17	36.63	64.61
Movement LOS	E	D	C	E	C	C	E	D	D	D	D	E
d_A, Approach Delay [s/veh]	42.75			38.71			41.16			48.66		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	44.41											
Intersection LOS	D											
Intersection V/C	0.765											

Emissions

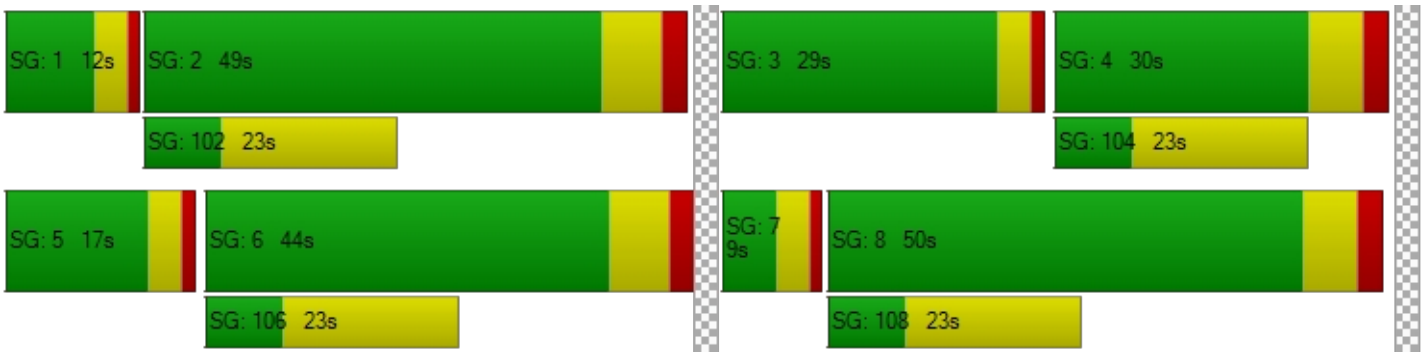
Vehicle Miles Traveled [mph]	24.24	262.89	24.02	36.69	84.40	4.59	24.66	91.65	14.94	84.23	180.98	107.47
Stops [stops/h]	102.59	1033.93	64.97	193.71	280.31	13.50	93.61	258.54	42.31	379.17	691.10	567.47
Fuel consumption [US gal/h]	3.46	32.29	2.25	6.31	9.00	0.45	3.27	9.08	1.47	12.28	21.59	17.85
CO [g/h]	241.99	2257.02	157.27	441.14	629.26	31.53	228.32	634.75	102.72	858.06	1508.91	1247.88
NOx [g/h]	47.08	439.13	30.60	85.83	122.43	6.13	44.42	123.50	19.99	166.95	293.58	242.79
VOC [g/h]	56.08	523.09	36.45	102.24	145.84	7.31	52.92	147.11	23.81	198.86	349.71	289.21

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersectio	3.279	3.278	3.211	4.024
Crosswalk LOS	C	C	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	692	608	383	717
d_b, Bicycle Delay [s]	25.68	29.05	39.20	24.70
l_b,int, Bicycle LOS Score for Intersection	2.819	2.144	1.880	3.518
Bicycle LOS	C	B	A	D

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	46.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	2	0	0
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	235.00	100.00	100.00	435.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			30.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd								
Base Volume Input [veh/h]	0	587	119	29	398	0	0	0	0	209	0	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	61	3	0	2	32	42	55	12	67	0	11	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	117	0	0	21	0	0	34	0	0	108
Total Hourly Volume [veh/h]	61	1154	116	59	812	21	55	12	33	410	11	108
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	314	32	16	221	6	15	3	9	111	3	29
Total Analysis Volume [veh/h]	66	1254	126	64	883	23	60	13	36	446	12	117
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	98	0	0	98	0	0	19	0	13	32	0
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Calculated Cycle Length [s]	33	33	33	33	33	33	33	33	33	33
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	10	10	10	10	10	10	6	6	5	15
g / C, Green / Cycle	0.30	0.30	0.30	0.30	0.30	0.30	0.19	0.19	0.15	0.46
(v / s)_i Volume / Saturation Flow Rate	0.11	0.35	0.08	0.16	0.25	0.01	0.05	0.03	0.13	0.08
s, saturation flow rate [veh/h]	615	3560	1589	393	3560	1589	1261	1655	3459	1612
c, Capacity [veh/h]	221	1063	475	217	1063	475	331	320	516	745
d1, Uniform Delay [s]	16.73	11.74	8.94	16.74	10.95	8.36	14.49	11.22	13.91	5.26
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.75	83.01	0.30	0.75	1.75	0.04	0.26	0.22	4.44	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	1.18	0.27	0.30	0.83	0.05	0.18	0.15	0.86	0.17
d, Delay for Lane Group [s/veh]	17.48	94.75	9.24	17.49	12.70	8.40	14.75	11.44	18.35	5.37
Lane Group LOS	B	F	A	B	B	A	B	B	B	A
Critical Lane Group	No	Yes	No	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.46	14.49	0.44	0.46	1.99	0.07	0.37	0.25	1.54	0.29
50th-Percentile Queue Length [ft/ln]	11.56	362.26	11.04	11.54	49.65	1.85	9.35	6.31	38.60	7.19
95th-Percentile Queue Length [veh/ln]	0.83	22.71	0.79	0.83	3.57	0.13	0.67	0.45	2.78	0.52
95th-Percentile Queue Length [ft/ln]	20.81	567.85	19.87	20.77	89.37	3.34	16.84	11.37	69.48	12.94

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.48	94.75	9.24	17.49	12.70	8.40	14.75	11.44	11.44	18.35	5.37	5.37
Movement LOS	B	F	A	B	B	A	B	B	B	B	A	A
d_A, Approach Delay [s/veh]	83.77			12.91			13.26			15.44		
Approach LOS	F			B			B			B		
d_I, Intersection Delay [s/veh]	46.45											
Intersection LOS	D											
Intersection V/C	0.529											

Emissions

Vehicle Miles Traveled [mph]	61.56	1169.59	117.52	11.43	157.71	4.11	8.96	7.32	76.84	22.23
Stops [stops/h]	49.80	3121.14	47.57	49.71	427.78	7.99	40.30	27.20	332.56	30.96
Fuel consumption [US gal/h]	2.96	103.08	4.86	1.24	13.01	0.28	0.77	0.57	7.10	1.22
CO [g/h]	207.18	7205.06	339.48	86.52	909.20	19.53	53.95	39.54	496.01	85.35
NOx [g/h]	40.31	1401.84	66.05	16.83	176.90	3.80	10.50	7.69	96.51	16.61
VOC [g/h]	48.02	1669.84	78.68	20.05	210.72	4.53	12.50	9.16	114.96	19.78

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	8.93	8.93	8.93	8.93
l_p,int, Pedestrian LOS Score for Intersectio	3.286	3.130	2.283	2.606
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	5624	5624	897	1675
d_b, Bicycle Delay [s]	54.88	54.88	5.08	0.44
l_b,int, Bicycle LOS Score for Intersection	2.849	2.377	1.796	2.687
Bicycle LOS	C	B	A	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	17.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.517

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	2	0	0	1	0	1
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	560.00	100.00	100.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	42	373	20	21	301	333	280	161	62	100	299	100
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.0000	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600	1.0000	1.0000	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	23	0	0	28	71	42	0	12	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	10	0	0	362	0	0	67	0	0	98
Total Hourly Volume [veh/h]	90	754	10	21	618	362	591	161	67	100	299	98
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	205	3	6	168	98	161	44	18	27	81	27
Total Analysis Volume [veh/h]	98	820	11	23	672	393	642	175	73	109	325	107
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	25	10	0	5	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	2.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	7	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	7	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	3.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12	22	0	9	19	0	10	19	0	10	19	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	3.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	30	24	24	30	22	22	21	13	13	21	11	11
g / C, Green / Cycle	0.50	0.41	0.41	0.50	0.36	0.36	0.35	0.22	0.22	0.35	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.13	0.23	0.01	0.03	0.19	0.25	0.26	0.05	0.05	0.08	0.09	0.07
s, saturation flow rate [veh/h]	782	3560	1589	795	3560	1589	2465	3560	1589	1323	3560	1589
c, Capacity [veh/h]	493	1445	645	461	1300	581	942	763	340	594	655	293
d1, Uniform Delay [s]	8.74	13.76	10.67	8.58	14.90	16.06	16.40	19.48	19.42	13.53	21.98	21.41
k, delay calibration	0.31	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.55	1.62	0.05	0.21	1.47	6.23	0.88	0.15	0.31	0.15	0.58	0.76
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.57	0.02	0.05	0.52	0.68	0.68	0.23	0.21	0.18	0.50	0.37
d, Delay for Lane Group [s/veh]	9.29	15.38	10.71	8.78	16.37	22.29	17.27	19.63	19.73	13.68	22.56	22.18
Lane Group LOS	A	B	B	A	B	C	B	B	B	B	C	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.57	3.71	0.08	0.14	3.18	4.67	2.97	0.89	0.76	0.94	1.97	1.29
50th-Percentile Queue Length [ft/ln]	14.33	92.71	1.98	3.45	79.40	116.83	74.22	22.29	18.94	23.60	49.16	32.24
95th-Percentile Queue Length [veh/ln]	1.03	6.68	0.14	0.25	5.72	8.22	5.34	1.61	1.36	1.70	3.54	2.32
95th-Percentile Queue Length [ft/ln]	25.79	166.88	3.56	6.21	142.91	205.46	133.59	40.13	34.09	42.48	88.48	58.03

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.29	15.38	10.71	8.78	16.37	22.29	17.27	19.63	19.73	13.68	22.56	22.18
Movement LOS	A	B	B	A	B	C	B	B	B	B	C	C
d_A, Approach Delay [s/veh]	14.68			18.35			17.94			20.69		
Approach LOS	B			B			B			C		
d_I, Intersection Delay [s/veh]	17.62											
Intersection LOS	B											
Intersection V/C	0.517											

Emissions

Vehicle Miles Traveled [mph]	59.40	496.99	6.67	21.45	626.76	366.54	96.85	26.40	11.01	6.53	19.48	6.41
Stops [stops/h]	34.39	445.02	4.74	8.28	381.10	280.40	356.24	107.01	45.45	56.64	235.95	77.37
Fuel consumption [US gal/h]	2.65	25.14	0.31	0.88	28.46	17.83	10.01	2.93	1.24	0.89	3.60	1.17
CO [g/h]	185.16	1757.00	21.77	61.47	1989.44	1246.54	699.42	205.14	86.38	61.89	251.48	82.09
NOx [g/h]	36.03	341.85	4.24	11.96	387.07	242.53	136.08	39.91	16.81	12.04	48.93	15.97
VOC [g/h]	42.91	407.20	5.05	14.25	461.07	288.90	162.10	47.54	20.02	14.34	58.28	19.03

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	21.68	20.01	20.01
l_p,int, Pedestrian LOS Score for Intersectio	2.940	3.908	3.168	2.723
Crosswalk LOS	C	D	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	567	467	500	500
d_b, Bicycle Delay [s]	15.41	17.63	16.88	16.88
l_b,int, Bicycle LOS Score for Intersection	2.334	2.756	2.349	2.087
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	12.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.432

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	100.00	235.00	100.00	100.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	45	2	10	55	2	137	51	290	15	3	359	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	8	0	121	119	46	0	0	73	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	183	0	0	8	0	0	12
Total Hourly Volume [veh/h]	45	2	5	106	2	182	210	562	7	3	712	12
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	1	1	29	1	49	57	153	2	1	193	3
Total Analysis Volume [veh/h]	49	2	5	115	2	198	228	611	8	3	774	13
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	5	10	0	3	10	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.2	0.0	0.0	2.2	0.0	3.3	3.3	0.0	3.3	3.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	35	0	0	35	0	13	44	0	11	42	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	39	39	39	39	39	39	39	39	39	39
L, Total Lost Time per Cycle [s]	4.20	4.20	4.20	4.20	5.30	5.30	5.30	5.30	5.30	5.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.20	2.20	2.20	2.20	0.00	3.30	3.30	0.00	3.30	3.30
g_i, Effective Green Time [s]	10	10	10	10	20	14	14	20	10	10
g / C, Green / Cycle	0.25	0.25	0.25	0.25	0.51	0.37	0.37	0.51	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.04	0.00	0.08	0.13	0.20	0.17	0.01	0.00	0.22	0.01
s, saturation flow rate [veh/h]	1182	1661	1408	1592	1122	3560	1589	979	3560	1589
c, Capacity [veh/h]	302	412	463	395	712	1307	583	670	910	406
d1, Uniform Delay [s]	16.54	11.11	13.69	12.65	6.51	9.46	7.87	5.04	13.84	10.92
k, delay calibration	0.11	0.11	0.11	0.11	0.18	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.25	0.02	0.28	1.01	0.44	0.26	0.01	0.00	2.34	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.02	0.25	0.51	0.32	0.47	0.01	0.00	0.85	0.03
d, Delay for Lane Group [s/veh]	16.79	11.12	13.97	13.65	6.95	9.72	7.88	5.05	16.18	10.95
Lane Group LOS	B	B	B	B	A	A	A	A	B	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.36	0.04	0.74	1.27	0.55	1.26	0.03	0.01	2.53	0.06
50th-Percentile Queue Length [ft/ln]	9.04	0.93	18.41	31.67	13.70	31.56	0.70	0.14	63.20	1.57
95th-Percentile Queue Length [veh/ln]	0.65	0.07	1.33	2.28	0.99	2.27	0.05	0.01	4.55	0.11
95th-Percentile Queue Length [ft/ln]	16.28	1.68	33.14	57.00	24.66	56.80	1.26	0.26	113.75	2.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.79	11.12	11.12	13.97	13.65	13.65	6.95	9.72	7.88	5.05	16.18	10.95
Movement LOS	B	B	B	B	B	B	A	A	A	A	B	B
d_A, Approach Delay [s/veh]	16.08			13.77			8.96			16.06		
Approach LOS	B			B			A			B		
d_I, Intersection Delay [s/veh]	12.70											
Intersection LOS	B											
Intersection V/C	0.432											

Emissions

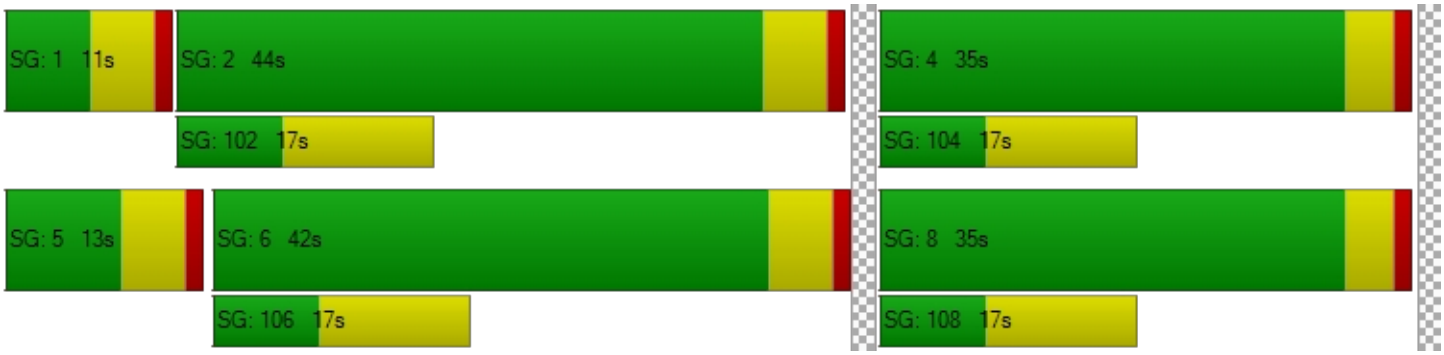
Vehicle Miles Traveled [mph]	2.22	0.32	98.36	171.05	91.90	246.28	3.22	0.45	116.77	1.96
Stops [stops/h]	33.32	3.45	67.84	116.68	50.48	232.56	2.58	0.53	465.71	5.78
Fuel consumption [US gal/h]	0.50	0.05	4.59	7.95	4.10	12.54	0.16	0.03	12.34	0.17
CO [g/h]	35.14	3.76	320.57	555.94	286.62	876.67	10.86	1.76	862.73	11.75
NOx [g/h]	6.84	0.73	62.37	108.17	55.77	170.57	2.11	0.34	167.86	2.29
VOC [g/h]	8.14	0.87	74.30	128.84	66.43	203.18	2.52	0.41	199.95	2.72

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	10.09	10.09	10.09	10.09
l_p,int, Pedestrian LOS Score for Intersectio	1.930	2.536	2.986	3.046
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1576	1576	1981	1878
d_b, Bicycle Delay [s]	0.88	0.88	0.00	0.07
l_b,int, Bicycle LOS Score for Intersection	1.660	2.381	2.265	2.221
Bicycle LOS	A	B	B	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	14.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.416

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	50	5	10	63	5	151	48	276	20	10	481	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.7800	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	38	16	161	0	0	191	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	154	0	0	10	0	0	12
Total Hourly Volume [veh/h]	50	5	5	116	9	153	101	652	10	10	1047	11
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	1	1	29	2	38	25	177	3	3	285	3
Total Analysis Volume [veh/h]	54	5	5	116	9	153	101	709	11	11	1138	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	64	23	0	0	23	0	0	37	0	0	37	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	31	31	31	31	31	31	31	31	31	31	31	31
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	3.20	3.20	3.20	3.20	4.30	4.30	4.30	4.30	4.30	4.30
g_i, Effective Green Time [s]	9	9	9	9	9	9	10	10	10	10	10	10
g / C, Green / Cycle	0.30	0.30	0.30	0.30	0.30	0.30	0.33	0.33	0.33	0.33	0.33	0.33
(v / s)_i Volume / Saturation Flow Rate	0.04	0.00	0.00	0.08	0.00	0.10	0.21	0.20	0.01	0.02	0.32	0.01
s, saturation flow rate [veh/h]	1224	3560	1589	1405	3560	1589	489	3560	1589	732	3560	1589
c, Capacity [veh/h]	536	1066	476	582	1066	476	250	1160	518	323	1160	518
d1, Uniform Delay [s]	9.12	7.54	7.55	9.48	7.55	8.33	15.27	8.71	7.02	12.06	10.25	7.02
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.08	0.00	0.01	0.17	0.00	0.39	1.05	0.53	0.02	0.04	8.62	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.10	0.00	0.01	0.20	0.01	0.32	0.40	0.61	0.02	0.03	0.98	0.02
d, Delay for Lane Group [s/veh]	9.20	7.54	7.56	9.65	7.55	8.72	16.32	9.24	7.04	12.10	18.88	7.04
Lane Group LOS	A	A	A	A	A	A	B	A	A	B	B	A
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.21	0.01	0.02	0.47	0.01	0.57	0.65	1.04	0.03	0.05	3.20	0.03
50th-Percentile Queue Length [ft/ln]	5.30	0.20	0.42	11.85	0.36	14.35	16.29	26.08	0.66	1.19	80.00	0.66
95th-Percentile Queue Length [veh/ln]	0.38	0.01	0.03	0.85	0.03	1.03	1.17	1.88	0.05	0.09	5.76	0.05
95th-Percentile Queue Length [ft/ln]	9.55	0.36	0.75	21.32	0.65	25.82	29.33	46.94	1.18	2.14	144.01	1.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.20	7.54	7.56	9.65	7.55	8.72	16.32	9.24	7.04	12.10	18.88	7.04
Movement LOS	A	A	A	A	A	A	B	A	A	B	B	A
d_A, Approach Delay [s/veh]	8.94			9.07			10.08			18.70		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	14.23											
Intersection LOS	B											
Intersection V/C	0.416											

Emissions

Vehicle Miles Traveled [mph]	2.94	0.27	0.27	116.86	9.07	154.13	40.40	283.63	4.40	4.43	458.70	4.43
Stops [stops/h]	24.93	1.88	1.96	55.70	3.38	67.45	76.60	245.20	3.09	5.59	752.26	3.09
Fuel consumption [US gal/h]	0.36	0.03	0.03	5.35	0.41	6.99	2.67	14.10	0.21	0.25	29.45	0.21
CO [g/h]	25.16	2.05	2.08	373.70	28.36	488.55	186.84	985.83	14.33	17.38	2058.43	14.41
NOx [g/h]	4.90	0.40	0.40	72.71	5.52	95.05	36.35	191.81	2.79	3.38	400.49	2.80
VOC [g/h]	5.83	0.47	0.48	86.61	6.57	113.23	43.30	228.48	3.32	4.03	477.06	3.34

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	6.29	6.29	6.29	6.29
l_p,int, Pedestrian LOS Score for Intersectio	2.425	2.838	3.043	3.055
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1162	1162	2005	2005
d_b, Bicycle Delay [s]	2.69	2.69	0.00	0.00
l_b,int, Bicycle LOS Score for Intersection	1.617	1.916	2.245	2.527
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	37.4
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.600

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	100	10	15	16	10	190	53	301	25	15	622	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.7800	1.7800	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	177	0	0	229	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	169	0	0	13	0	0	3
Total Hourly Volume [veh/h]	100	10	7	28	10	169	94	713	12	27	1336	2
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	3	2	8	3	46	26	194	3	7	363	1
Total Analysis Volume [veh/h]	100	10	7	30	10	184	102	775	12	27	1452	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	8	0	9	10	0	5	10	0	2	10	0
Amber [s]	3.2	3.2	0.0	3.2	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	5	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	26	0	10	26	0	0	16	0	0	16	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.2	3.2	0.0	3.2	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	14	42	0	16	44	0	12	41	0	41	70	0
Lead / Lag	Lead	-	-	Lag	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	10	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.20	3.20	0.00	3.20	3.20	0.00	4.30	4.30	0.00	4.30	4.30
g_i, Effective Green Time [s]	37	37	37	40	40	40	76	66	66	76	64	64
g / C, Green / Cycle	0.26	0.26	0.26	0.28	0.28	0.28	0.54	0.47	0.47	0.54	0.46	0.46
(v / s)_i Volume / Saturation Flow Rate	0.07	0.01	0.00	0.02	0.01	0.12	0.18	0.22	0.01	0.03	0.41	0.00
s, saturation flow rate [veh/h]	1369	1870	1589	1571	1870	1589	553	3560	1589	799	3560	1589
c, Capacity [veh/h]	432	492	418	445	529	449	239	1680	750	404	1621	724
d1, Uniform Delay [s]	40.30	38.24	38.20	38.71	36.20	40.72	28.82	24.96	19.68	16.67	35.09	20.80
k, delay calibration	0.38	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.96	0.08	0.07	0.29	0.07	2.75	5.50	0.91	0.04	0.07	8.15	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.02	0.02	0.07	0.02	0.41	0.43	0.46	0.02	0.07	0.90	0.00
d, Delay for Lane Group [s/veh]	41.26	38.32	38.28	39.00	36.27	43.47	34.32	25.88	19.72	16.73	43.23	20.81
Lane Group LOS	D	D	D	D	D	D	C	C	B	B	D	C
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.85	0.27	0.19	0.80	0.26	5.55	1.91	8.61	0.21	0.40	23.44	0.04
50th-Percentile Queue Length [ft/ln]	71.18	6.74	4.74	19.98	6.53	138.65	47.79	215.37	5.33	9.99	586.04	0.92
95th-Percentile Queue Length [veh/ln]	5.12	0.49	0.34	1.44	0.47	9.41	3.44	13.43	0.38	0.72	31.38	0.07
95th-Percentile Queue Length [ft/ln]	128.12	12.13	8.54	35.96	11.75	235.21	86.01	335.71	9.59	17.98	784.55	1.65

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	41.26	38.32	38.28	39.00	36.27	43.47	34.32	25.88	19.72	16.73	43.23	20.81
Movement LOS	D	D	D	D	D	D	C	C	B	B	D	C
d_A, Approach Delay [s/veh]	40.83			42.55			26.76			42.72		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	37.39											
Intersection LOS	D											
Intersection V/C	0.600											

Emissions

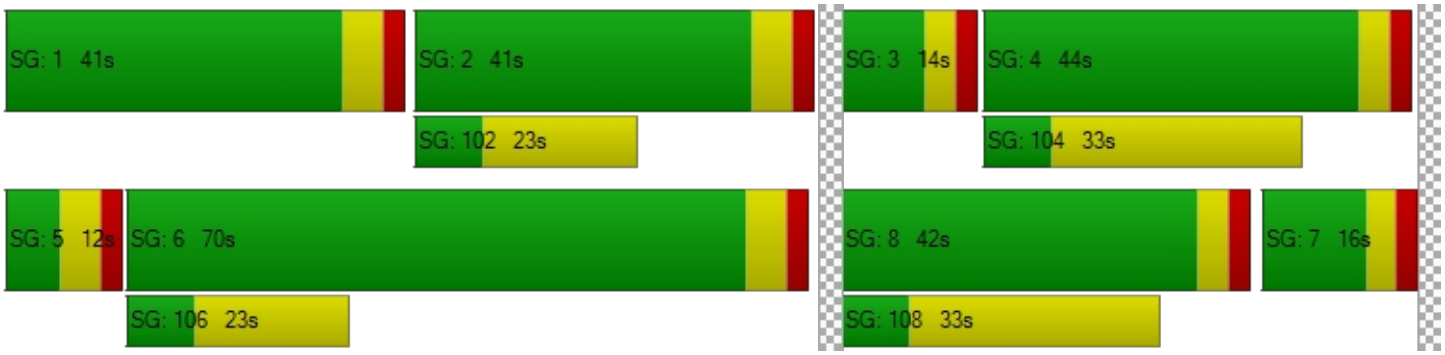
Vehicle Miles Traveled [mph]	4.58	0.46	0.32	4.89	1.63	30.02	39.08	296.93	4.60	10.80	580.85	0.80
Stops [stops/h]	73.21	6.93	4.88	20.55	6.71	142.62	49.15	443.05	5.48	10.27	1205.57	0.94
Fuel consumption [US gal/h]	1.43	0.14	0.09	0.55	0.18	3.65	2.66	19.77	0.27	0.59	47.67	0.05
CO [g/h]	100.15	9.45	6.62	38.66	12.45	255.23	186.15	1381.77	19.15	41.24	3332.35	3.33
NOx [g/h]	19.49	1.84	1.29	7.52	2.42	49.66	36.22	268.84	3.73	8.02	648.35	0.65
VOC [g/h]	23.21	2.19	1.53	8.96	2.88	59.15	43.14	320.24	4.44	9.56	772.30	0.77

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	59.43	59.43	59.43	59.43
l_p,int, Pedestrian LOS Score for Intersectio	2.228	2.585	3.203	3.077
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	526	554	496	910
d_b, Bicycle Delay [s]	38.04	36.58	39.60	20.79
l_b,int, Bicycle LOS Score for Intersection	1.766	2.208	2.304	2.784
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	30.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.725

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	820.00	1110.00	100.00	1070.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	502	295	59	491	618	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.6900	1.6900	1.6900	1.6900	1.6900	1.6900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	84	177	0	129	229	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	338	0	0	0	168
Total Hourly Volume [veh/h]	932	338	100	959	1273	168
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	253	92	27	261	346	46
Total Analysis Volume [veh/h]	1013	367	109	1042	1384	183
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	36	0	11	47	43	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	Yes		No	Yes	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	29	29	40	40	37	37
g / C, Green / Cycle	0.33	0.33	0.44	0.44	0.41	0.41
(v / s)_i Volume / Saturation Flow Rate	0.28	0.23	0.16	0.29	0.40	0.12
s, saturation flow rate [veh/h]	3560	1589	695	3560	3459	1589
c, Capacity [veh/h]	1159	517	323	1582	1422	653
d1, Uniform Delay [s]	28.61	26.62	19.20	19.64	26.02	17.64
k, delay calibration	0.50	0.50	0.20	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.27	8.00	1.12	2.16	6.49	0.23
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.87	0.71	0.34	0.66	0.97	0.28
d, Delay for Lane Group [s/veh]	37.88	34.62	20.32	21.80	32.50	17.87
Lane Group LOS	D	C	C	C	C	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	10.57	7.27	1.25	7.74	14.15	2.35
50th-Percentile Queue Length [ft/ln]	264.32	181.78	31.15	193.60	353.81	58.74
95th-Percentile Queue Length [veh/ln]	15.91	11.69	2.24	12.31	20.32	4.23
95th-Percentile Queue Length [ft/ln]	397.63	292.34	56.06	307.69	508.05	105.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	37.88	34.62	20.32	21.80	32.50	17.87
Movement LOS	D	C	C	C	C	B
d_A, Approach Delay [s/veh]	37.01		21.66		30.79	
Approach LOS	D		C		C	
d_I, Intersection Delay [s/veh]	30.32					
Intersection LOS	C					
Intersection V/C	0.725					

Emissions

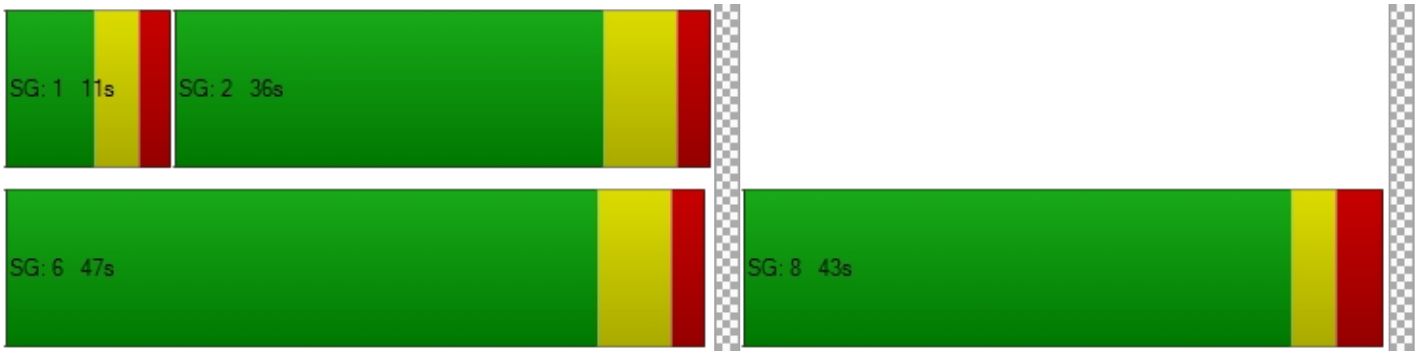
Vehicle Miles Traveled [mph]	189.46	68.64	121.95	1165.78	530.26	70.11
Stops [stops/h]	845.82	290.85	49.83	619.51	1132.20	93.98
Fuel consumption [US gal/h]	29.86	10.28	5.46	55.13	41.41	4.24
CO [g/h]	2087.00	718.85	381.35	3853.36	2894.39	296.18
NOx [g/h]	406.05	139.86	74.20	749.72	563.14	57.63
VOC [g/h]	483.68	166.60	88.38	893.05	670.80	68.64

Other Modes

g_Walk,mi, Effective Walk Time [s]	37.0	37.0	29.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.61	15.61	20.67
l_p,int, Pedestrian LOS Score for Intersectio	4.230	3.166	3.317
Crosswalk LOS	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	644	889	822
d_b, Bicycle Delay [s]	20.67	13.89	15.61
l_b,int, Bicycle LOS Score for Intersection	2.977	2.509	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Fontaine Bl/Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	8.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	225	0	0	551	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	250	0	23	0	0	0	0	144	148	16	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	0	0	0	74	0	0	0
Total Hourly Volume [veh/h]	250	0	11	0	0	0	0	402	74	16	796	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	0	3	0	0	0	0	109	20	4	216	0
Total Analysis Volume [veh/h]	272	0	12	0	0	0	0	437	80	17	865	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	28	0	0	0	10	0	0	10	0	0	10	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	0	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	41	0	0	0	41	0	0	19	0	0	19	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14	14	14	38	38	38	38
g / C, Green / Cycle	0.23	0.23	0.23	0.64	0.64	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.19	0.01	0.00	0.12	0.05	0.02	0.24
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	884	3560
c, Capacity [veh/h]	418	364	489	2270	1013	583	2270
d1, Uniform Delay [s]	22.11	17.96	0.00	4.49	4.15	6.95	5.21
k, delay calibration	0.11	0.11	0.11	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.72	0.04	0.00	0.19	0.15	0.09	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.65	0.03	0.00	0.19	0.08	0.03	0.38
d, Delay for Lane Group [s/veh]	23.83	18.00	0.00	4.68	4.30	7.04	5.70
Lane Group LOS	C	B	A	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	3.57	0.12	0.00	0.78	0.29	0.10	1.81
50th-Percentile Queue Length [ft/ln]	89.18	3.11	0.00	19.57	7.19	2.46	45.32
95th-Percentile Queue Length [veh/ln]	6.42	0.22	0.00	1.41	0.52	0.18	3.26
95th-Percentile Queue Length [ft/ln]	160.52	5.60	0.00	35.23	12.94	4.43	81.58

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.83	0.00	18.00	0.00	0.00	0.00	0.00	4.68	4.30	7.04	5.70	0.00
Movement LOS	C		B	A	A	A		A	A	A	A	
d_A, Approach Delay [s/veh]	23.58			0.00			4.62			5.72		
Approach LOS	C			A			A			A		
d_I, Intersection Delay [s/veh]	8.40											
Intersection LOS	A											
Intersection V/C	0.435											

Emissions

Vehicle Miles Traveled [mph]	22.65	1.00	0.00	82.23	15.05	9.03	459.45
Stops [stops/h]	214.03	7.47	0.00	93.96	17.25	5.90	217.56
Fuel consumption [US gal/h]	3.43	0.13	0.00	4.26	0.77	0.41	20.15
CO [g/h]	240.02	8.83	0.00	297.61	54.08	28.87	1408.61
NOx [g/h]	46.70	1.72	0.00	57.90	10.52	5.62	274.06
VOC [g/h]	55.63	2.05	0.00	68.97	12.53	6.69	326.46

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1233	1233	500	500
d_b, Bicycle Delay [s]	4.41	4.41	16.88	16.88
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.047	2.287
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Fontaine Bl/Community Arterial 1

Control Type:	Signalized	Delay (sec / veh):	11.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.322

Intersection Setup

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	225	0	0	551	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	161	0	30	0	0	0	0	54	113	13	19	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	15	0	0	0	0	0	57	0	0	0
Total Hourly Volume [veh/h]	161	0	15	0	0	0	0	312	56	13	650	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	0	4	0	0	0	0	85	15	4	177	0
Total Analysis Volume [veh/h]	175	0	16	0	0	0	0	339	61	14	707	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	17	0	0	0	10	0	0	21	0	0	21	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	0	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	29	0	0	0	29	0	0	31	0	0	31	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	25	25	25	27	27	27	27
g / C, Green / Cycle	0.42	0.42	0.42	0.45	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.00	0.10	0.04	0.01	0.20
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	985	3560
c, Capacity [veh/h]	663	662	839	1602	715	473	1602
d1, Uniform Delay [s]	11.70	10.31	0.00	10.03	9.44	12.51	11.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.97	0.07	0.00	0.30	0.23	0.12	0.88
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.02	0.00	0.21	0.09	0.03	0.44
d, Delay for Lane Group [s/veh]	12.67	10.38	0.00	10.33	9.67	12.63	12.21
Lane Group LOS	B	B	A	B	A	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.55	0.12	0.00	1.20	0.43	0.12	2.87
50th-Percentile Queue Length [ft/ln]	38.73	3.07	0.00	30.04	10.77	3.07	71.70
95th-Percentile Queue Length [veh/ln]	2.79	0.22	0.00	2.16	0.78	0.22	5.16
95th-Percentile Queue Length [ft/ln]	69.72	5.53	0.00	54.07	19.38	5.53	129.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.67	0.00	10.38	0.00	0.00	0.00	0.00	10.33	9.67	12.63	12.21	0.00
Movement LOS	B		B	A	A	A		B	A	B	B	
d_A, Approach Delay [s/veh]	12.48			0.00			10.23			12.22		
Approach LOS	B			A			B			B		
d_I, Intersection Delay [s/veh]	11.65											
Intersection LOS	B											
Intersection V/C	0.322											

Emissions

Vehicle Miles Traveled [mph]	11.49	1.05	0.00	180.06	32.40	3.73	188.56
Stops [stops/h]	92.95	7.37	0.00	144.18	25.84	7.37	344.15
Fuel consumption [US gal/h]	1.44	0.12	0.00	8.66	1.55	0.23	11.53
CO [g/h]	100.49	8.23	0.00	605.38	108.31	16.34	806.10
NOx [g/h]	19.55	1.60	0.00	117.78	21.07	3.18	156.84
VOC [g/h]	23.29	1.91	0.00	140.30	25.10	3.79	186.82

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	833	833	900	900
d_b, Bicycle Delay [s]	10.21	10.21	9.08	9.08
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.937	2.154
Bicycle LOS	A	A	A	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Autumn Glen Ave/Road A

Control Type:	Two-way stop	Delay (sec / veh):	18.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.242

Intersection Setup

Name	Autumn Glen Ave.			New Intersection			Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Autumn Glen Ave.			New Intersection			Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	6	26	7	90	11	16	47	4	18	19	2	131
Diverted Trips [veh/h]	0	0	0	39	0	12	34	20	0	0	11	59
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	26	7	129	11	28	81	24	18	19	13	190
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	7	2	35	3	8	22	7	5	5	4	52
Total Analysis Volume [veh/h]	6	26	7	140	11	30	88	26	18	19	14	207
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.09	0.00	0.00	0.24	0.05	0.02	0.04	0.03	0.20
d_M, Delay for Movement [s/veh]	7.30	0.00	0.00	7.50	0.00	0.00	18.65	15.67	12.17	13.63	13.45	9.85
Movement LOS	A	A	A	A	A	A	C	C	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.01	0.01	0.01	0.29	0.29	0.29	1.30	1.30	1.30	1.06	1.06	1.06
95th-Percentile Queue Length [ft/ln]	0.26	0.26	0.26	7.33	7.33	7.33	32.47	32.47	32.47	26.50	26.50	26.50
d_A, Approach Delay [s/veh]	1.12			5.80			17.18			10.36		
Approach LOS	A			A			C			B		
d_I, Intersection Delay [s/veh]	9.88											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 16: Road A/Collector #3

Control Type:	Two-way stop	Delay (sec / veh):	30.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name	Spring Glen Drive						Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive						Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	51	4	66	5	10	11	4	20	63	75	25	2
Diverted Trips [veh/h]	201	12	89	4	17	14	1	9	27	55	93	1
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	252	16	155	9	27	25	5	29	90	130	118	3
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	68	4	42	2	7	7	1	8	24	35	32	1
Total Analysis Volume [veh/h]	274	17	168	10	29	27	5	32	98	141	128	3
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.68	0.04	0.16	0.03	0.07	0.03	0.00	0.00	0.00	0.10	0.00	0.00
d_M, Delay for Movement [s/veh]	30.77	13.29	9.12	18.02	15.20	10.06	7.48	0.00	0.00	7.74	0.00	0.00
Movement LOS	D	B	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	4.87	0.12	0.57	0.47	0.47	0.47	0.01	0.01	0.00	0.32	0.00	0.00
95th-Percentile Queue Length [ft/ln]	121.75	2.93	14.34	11.63	11.63	11.63	0.21	0.21	0.00	8.03	0.00	0.00
d_A, Approach Delay [s/veh]	22.20			13.53			0.28			4.01		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	13.10											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 22: Community Arterial 1/Road A

Control Type:	Roundabout	Delay (sec / veh):	4.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Community Arterial 1			Community Arterial 1			Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Community Arterial 1			Community Arterial 1			Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	44	18	43	49	41	27	40	23	62	26	10	44
Diverted Trips [veh/h]	43	27	70	28	47	39	44	0	59	15	0	21
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	87	45	113	77	88	66	84	23	121	41	10	65
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	12	31	21	24	18	23	6	33	11	3	18
Total Analysis Volume [veh/h]	95	49	123	84	96	72	91	25	132	45	11	71
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	2			2			2			2		
Circulating Flow Rate [veh/h]	204			154			230			240		
Exiting Flow Rate [veh/h]	278			215			182			237		
Demand Flow Rate [veh/h]	87	45	113	77	88	66	84	23	121	41	10	65
Adjusted Demand Flow Rate [veh/h]	95	49	123	84	96	72	91	25	132	45	11	71

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1350.00	1420.00	1350.00	1420.00	1420.00	1420.00
B (coefficient)	0.00092	0.00085	0.00092	0.00085	0.00085	0.00085
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	128	145	121	137	253	130
Capacity of Entry and Bypass Lanes [veh/h]	1119	1194	1172	1246	1169	1159
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1098	1171	1149	1222	1146	1136
X, volume / capacity	0.11	0.12	0.10	0.11	0.22	0.11

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.39	0.41	0.34	0.37	0.82	0.38
95th-Percentile Queue Length [ft]	9.66	10.28	8.60	9.18	20.57	9.42
Approach Delay [s/veh]	4.18		3.93		5.09	4.13
Approach LOS	A		A		A	A
Intersection Delay [s/veh]	4.36					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 23: Coomunity Arterial Rd/Access 2

Control Type:	Two-way stop	Delay (sec / veh):	14.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.079

Intersection Setup

Name			Community Arterial 1			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			Community Arterial 1			
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	104	126	3	1	7
Diverted Trips [veh/h]	81	110	86	35	30	50
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	92	214	212	38	31	57
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	58	58	10	8	15
Total Analysis Volume [veh/h]	100	233	230	41	34	62
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.08	0.00	0.00	0.00	0.08	0.07
d_M, Delay for Movement [s/veh]	8.03	0.00	0.00	0.00	14.06	9.22
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.25	0.00	0.00	0.00	0.26	0.22
95th-Percentile Queue Length [ft/ln]	6.30	0.00	0.00	0.00	6.39	5.44
d_A, Approach Delay [s/veh]	2.41		0.00		10.93	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.65					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 25: Marksheffel Rd/East Access

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.062

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	1	0	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Base Volume Input [veh/h]	0	690	426	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	60	46	44	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1412	881	44	0	30
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	384	239	12	0	8
Total Analysis Volume [veh/h]	0	1535	958	48	0	33
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	12.20
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.20
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	4.94
d_A, Approach Delay [s/veh]	0.00		0.00		12.20	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.16					
Intersection LOS	B					

Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	1047	552	10
2	1016	535	10
3	995	524	10
4	932	491	9
5	827	436	8
6	817	431	8
7	806	425	8
8	733	386	7
9	722	381	7
10	712	375	7
11	618	326	6
12	576	304	6
13	565	298	5
14	419	221	4
15	419	221	4
16	293	155	3
17	168	88	2
18	168	88	2
19	94	50	1
20	52	28	1
21	31	17	0
22	10	6	0
23	10	6	0
24	10	6	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1599	1	10	No	No	No	No	No	No	No	No	No	No
2	3	1551	1	10	No	No	No	No	No	No	No	No	No	No
3	3	1519	1	10	No	No	No	No	No	No	No	No	No	No
4	3	1423	1	9	No	No	No	No	No	No	No	No	No	No
5	3	1263	1	8	No	No	No	No	No	No	No	No	No	No
6	3	1248	1	8	No	No	No	No	No	No	No	No	No	No
7	3	1231	1	8	No	No	No	No	No	No	No	No	No	No
8	3	1119	1	7	No	No	No	No	No	No	No	No	No	No
9	3	1103	1	7	No	No	No	No	No	No	No	No	No	No
10	3	1087	1	7	No	No	No	No	No	No	No	No	No	No
11	3	944	1	6	No	No	No	No	No	No	No	No	No	No
12	3	880	1	6	No	No	No	No	No	No	No	No	No	No
13	3	863	1	5	No	No	No	No	No	No	No	No	No	No
14	3	640	1	4	No	No	No	No	No	No	No	No	No	No
15	3	640	1	4	No	No	No	No	No	No	No	No	No	No
16	3	448	1	3	No	No	No	No	No	No	No	No	No	No
17	3	256	1	2	No	No	No	No	No	No	No	No	No	No
18	3	256	1	2	No	No	No	No	No	No	No	No	No	No
19	3	144	1	1	No	No	No	No	No	No	No	No	No	No
20	3	80	1	1	No	No	No	No	No	No	No	No	No	No
21	3	48	1	0	No	No	No	No	No	No	No	No	No	No
22	3	16	1	0	No	No	No	No	No	No	No	No	No	No
23	3	16	1	0	No	No	No	No	No	No	No	No	No	No
24	3	16	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	24.1
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	10
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1609
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 13: Autumn Glen Ave/Road A

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	168	39	222	123
2	163	38	215	119
3	160	37	211	117
4	150	35	198	109
5	133	31	175	97
6	131	30	173	96
7	129	30	171	95
8	118	27	155	86
9	116	27	153	85
10	114	27	151	84
11	99	23	131	73
12	92	21	122	68
13	91	21	120	66
14	67	16	89	49
15	67	16	89	49
16	47	11	62	34
17	27	6	36	20
18	27	6	36	20
19	15	4	20	11
20	8	2	11	6
21	5	1	7	4
22	2	0	2	1
23	2	0	2	1
24	2	0	2	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	207	1	222	No	No	No	No	No	No	No	No	No	No
2	1	201	1	215	No	No	No	No	No	No	No	No	No	No
3	1	197	1	211	No	No	No	No	No	No	No	No	No	No
4	1	185	1	198	No	No	No	No	No	No	No	No	No	No
5	1	164	1	175	No	No	No	No	No	No	No	No	No	No
6	1	161	1	173	No	No	No	No	No	No	No	No	No	No
7	1	159	1	171	No	No	No	No	No	No	No	No	No	No
8	1	145	1	155	No	No	No	No	No	No	No	No	No	No
9	1	143	1	153	No	No	No	No	No	No	No	No	No	No
10	1	141	1	151	No	No	No	No	No	No	No	No	No	No
11	1	122	1	131	No	No	No	No	No	No	No	No	No	No
12	1	113	1	122	No	No	No	No	No	No	No	No	No	No
13	1	112	1	120	No	No	No	No	No	No	No	No	No	No
14	1	83	1	89	No	No	No	No	No	No	No	No	No	No
15	1	83	1	89	No	No	No	No	No	No	No	No	No	No
16	1	58	1	62	No	No	No	No	No	No	No	No	No	No
17	1	33	1	36	No	No	No	No	No	No	No	No	No	No
18	1	33	1	36	No	No	No	No	No	No	No	No	No	No
19	1	19	1	20	No	No	No	No	No	No	No	No	No	No
20	1	10	1	11	No	No	No	No	No	No	No	No	No	No
21	1	6	1	7	No	No	No	No	No	No	No	No	No	No
22	1	2	1	2	No	No	No	No	No	No	No	No	No	No
23	1	2	1	2	No	No	No	No	No	No	No	No	No	No
24	1	2	1	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.4	17.2
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:38	0:35
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	222	123
High Minor Volume Condition Met	Yes	Yes
Total Entering Volume on All Approaches During Same Hour	552	552
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 16: Road A/Collector #3

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	251	124	61	423
2	243	120	59	410
3	238	118	58	402
4	223	110	54	376
5	198	98	48	334
6	196	97	48	330
7	193	95	47	326
8	176	87	43	296
9	173	86	42	292
10	171	84	41	288
11	148	73	36	250
12	138	68	34	233
13	136	67	33	228
14	100	50	24	169
15	100	50	24	169
16	70	35	17	118
17	40	20	10	68
18	40	20	10	68
19	23	11	5	38
20	13	6	3	21
21	8	4	2	13
22	3	1	1	4
23	3	1	1	4
24	3	1	1	4

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	375	3	423	No	No	No	Yes	No	No	No	No	No	No
2	2	363	3	410	No	No	No	Yes	No	No	No	No	No	No
3	2	356	3	402	No	No	No	Yes	No	No	No	No	No	No
4	2	333	3	376	No	No	No	No	No	No	No	No	No	No
5	2	296	3	334	No	No	No	No	No	No	No	No	No	No
6	2	293	3	330	No	No	No	No	No	No	No	No	No	No
7	2	288	3	326	No	No	No	No	No	No	No	No	No	No
8	2	263	3	296	No	No	No	No	No	No	No	No	No	No
9	2	259	3	292	No	No	No	No	No	No	No	No	No	No
10	2	255	3	288	No	No	No	No	No	No	No	No	No	No
11	2	221	3	250	No	No	No	No	No	No	No	No	No	No
12	2	206	3	233	No	No	No	No	No	No	No	No	No	No
13	2	203	3	228	No	No	No	No	No	No	No	No	No	No
14	2	150	3	169	No	No	No	No	No	No	No	No	No	No
15	2	150	3	169	No	No	No	No	No	No	No	No	No	No
16	2	105	3	118	No	No	No	No	No	No	No	No	No	No
17	2	60	3	68	No	No	No	No	No	No	No	No	No	No
18	2	60	3	68	No	No	No	No	No	No	No	No	No	No
19	2	34	3	38	No	No	No	No	No	No	No	No	No	No
20	2	19	3	21	No	No	No	No	No	No	No	No	No	No
21	2	12	3	13	No	No	No	No	No	No	No	No	No	No
22	2	4	3	4	No	No	No	No	No	No	No	No	No	No
23	2	4	3	4	No	No	No	No	No	No	No	No	No	No
24	2	4	3	4	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	3	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	13.5	22.2
Number of Lanes on Minor Street Approach	1	3
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:13	2:36
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	61	423
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	859	859
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 23: Coomunity Arterial Rd/Access 2

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	W
1	306	250	88
2	297	243	85
3	291	238	84
4	272	223	78
5	242	198	70
6	239	195	69
7	236	193	68
8	214	175	62
9	211	173	61
10	208	170	60
11	181	148	52
12	168	138	48
13	165	135	48
14	122	100	35
15	122	100	35
16	86	70	25
17	49	40	14
18	49	40	14
19	28	23	8
20	15	13	4
21	9	8	3
22	3	3	1
23	3	3	1
24	3	3	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	556	2	88	No	No	No	No	No	No	No	Yes	No	No
2	3	540	2	85	No	No	No	No	No	No	No	Yes	No	No
3	3	529	2	84	No	No	No	No	No	No	No	Yes	No	No
4	3	495	2	78	No	No	No	No	No	No	No	No	No	No
5	3	440	2	70	No	No	No	No	No	No	No	No	No	No
6	3	434	2	69	No	No	No	No	No	No	No	No	No	No
7	3	429	2	68	No	No	No	No	No	No	No	No	No	No
8	3	389	2	62	No	No	No	No	No	No	No	No	No	No
9	3	384	2	61	No	No	No	No	No	No	No	No	No	No
10	3	378	2	60	No	No	No	No	No	No	No	No	No	No
11	3	329	2	52	No	No	No	No	No	No	No	No	No	No
12	3	306	2	48	No	No	No	No	No	No	No	No	No	No
13	3	300	2	48	No	No	No	No	No	No	No	No	No	No
14	3	222	2	35	No	No	No	No	No	No	No	No	No	No
15	3	222	2	35	No	No	No	No	No	No	No	No	No	No
16	3	156	2	25	No	No	No	No	No	No	No	No	No	No
17	3	89	2	14	No	No	No	No	No	No	No	No	No	No
18	3	89	2	14	No	No	No	No	No	No	No	No	No	No
19	3	51	2	8	No	No	No	No	No	No	No	No	No	No
20	3	28	2	4	No	No	No	No	No	No	No	No	No	No
21	3	17	2	3	No	No	No	No	No	No	No	No	No	No
22	3	6	2	1	No	No	No	No	No	No	No	No	No	No
23	3	6	2	1	No	No	No	No	No	No	No	No	No	No
24	3	6	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	3	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.9
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:16
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	88
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	644
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 25: Marksheffel Rd/East Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	925	1412	30
2	897	1370	29
3	879	1341	29
4	823	1257	27
5	731	1115	24
6	722	1101	23
7	712	1087	23
8	648	988	21
9	638	974	21
10	629	960	20
11	546	833	18
12	509	777	17
13	500	762	16
14	370	565	12
15	370	565	12
16	259	395	8
17	148	226	5
18	148	226	5
19	83	127	3
20	46	71	2
21	28	42	1
22	9	14	0
23	9	14	0
24	9	14	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2337	1	30	No	No	No	No	No	No	No	No	No	No
2	3	2267	1	29	No	No	No	No	No	No	No	No	No	No
3	3	2220	1	29	No	No	No	No	No	No	No	No	No	No
4	3	2080	1	27	No	No	No	No	No	No	No	No	No	No
5	3	1846	1	24	No	No	No	No	No	No	No	No	No	No
6	3	1823	1	23	No	No	No	No	No	No	No	No	No	No
7	3	1799	1	23	No	No	No	No	No	No	No	No	No	No
8	3	1636	1	21	No	No	No	No	No	No	No	No	No	No
9	3	1612	1	21	No	No	No	No	No	No	No	No	No	No
10	3	1589	1	20	No	No	No	No	No	No	No	No	No	No
11	3	1379	1	18	No	No	No	No	No	No	No	No	No	No
12	3	1286	1	17	No	No	No	No	No	No	No	No	No	No
13	3	1262	1	16	No	No	No	No	No	No	No	No	No	No
14	3	935	1	12	No	No	No	No	No	No	No	No	No	No
15	3	935	1	12	No	No	No	No	No	No	No	No	No	No
16	3	654	1	8	No	No	No	No	No	No	No	No	No	No
17	3	374	1	5	No	No	No	No	No	No	No	No	No	No
18	3	374	1	5	No	No	No	No	No	No	No	No	No	No
19	3	210	1	3	No	No	No	No	No	No	No	No	No	No
20	3	117	1	2	No	No	No	No	No	No	No	No	No	No
21	3	70	1	1	No	No	No	No	No	No	No	No	No	No
22	3	23	1	0	No	No	No	No	No	No	No	No	No	No
23	3	23	1	0	No	No	No	No	No	No	No	No	No	No
24	3	23	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	12.2
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	30
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2367
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	29.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.591

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	920.00	100.00	820.00	1265.00	100.00	820.00	665.00	100.00	435.00	740.00	100.00	435.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	1180.00	0.00	0.00	1180.00	0.00	0.00	550.00	0.00	0.00	550.00
Speed [mph]	55.00			55.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	58	629	171	142	585	234	138	236	82	121	140	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	164	252	0	0	0	44	0	114	36	208
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	180	0	0	134	0	0	47	0	0	134
Total Hourly Volume [veh/h]	66	721	180	415	670	134	158	314	47	253	196	134
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	196	49	113	182	36	43	85	13	69	53	36
Total Analysis Volume [veh/h]	72	784	196	451	728	146	172	341	51	275	213	146
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	7	0	0	7	0	0	25	0	0	25	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12	31	0	18	37	0	12	39	0	12	39	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	Yes		No	Yes	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	55	37	37	55	44	44	32	20	20	32	20	20
g / C, Green / Cycle	0.55	0.37	0.37	0.55	0.44	0.44	0.32	0.20	0.20	0.32	0.20	0.20
(v / s)_i Volume / Saturation Flow Rate	0.09	0.22	0.12	0.49	0.20	0.09	0.14	0.10	0.03	0.22	0.06	0.09
s, saturation flow rate [veh/h]	816	3560	1589	927	3560	1589	1260	3560	1589	1240	3560	1589
c, Capacity [veh/h]	460	1305	583	510	1565	699	460	707	316	421	707	316
d1, Uniform Delay [s]	11.95	25.73	22.89	18.59	19.74	17.29	25.84	35.52	33.18	29.63	34.16	35.37
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.44	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	2.05	1.56	19.68	1.00	0.68	0.51	0.51	0.24	6.80	0.24	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.16	0.60	0.34	0.88	0.47	0.21	0.37	0.48	0.16	0.65	0.30	0.46
d, Delay for Lane Group [s/veh]	12.67	27.79	24.45	38.27	20.73	17.97	26.35	36.03	33.42	36.43	34.40	36.42
Lane Group LOS	B	C	C	D	C	B	C	D	C	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.74	7.19	3.29	7.96	5.50	1.99	2.99	3.58	1.01	5.79	2.14	3.10
50th-Percentile Queue Length [ft/ln]	18.39	179.83	82.15	199.04	137.40	49.67	74.78	89.44	25.16	144.87	53.56	77.50
95th-Percentile Queue Length [veh/ln]	1.32	11.59	5.91	12.59	9.34	3.58	5.38	6.44	1.81	9.74	3.86	5.58
95th-Percentile Queue Length [ft/ln]	33.10	289.79	147.86	314.73	233.51	89.41	134.61	160.98	45.29	243.57	96.40	139.50

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	12.67	27.79	24.45	38.27	20.73	17.97	26.35	36.03	33.42	36.43	34.40	36.42
Movement LOS	B	C	C	D	C	B	C	D	C	D	C	D
d_A, Approach Delay [s/veh]	26.13			26.40			32.84			35.75		
Approach LOS	C			C			C			D		
d_I, Intersection Delay [s/veh]	28.99											
Intersection LOS	C											
Intersection V/C	0.591											

Emissions

Vehicle Miles Traveled [mph]	80.55	877.13	219.28	732.19	1181.89	237.03	95.82	189.98	28.41	75.39	58.40	40.03
Stops [stops/h]	26.48	517.91	118.29	286.62	395.70	71.52	107.68	257.57	36.23	208.62	154.24	111.60
Fuel consumption [US gal/h]	3.37	43.39	10.51	33.33	49.96	9.79	5.55	12.21	1.77	7.22	5.41	3.84
CO [g/h]	235.71	3033.28	734.49	2329.69	3492.05	684.42	387.65	853.81	123.81	504.45	378.19	268.54
NOx [g/h]	45.86	590.17	142.91	453.27	679.43	133.16	75.42	166.12	24.09	98.15	73.58	52.25
VOC [g/h]	54.63	702.99	170.23	539.93	809.32	158.62	89.84	197.88	28.69	116.91	87.65	62.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	39.61	39.61	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersectio	3.538	3.531	2.858	3.442
Crosswalk LOS	D	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	480	600	650	650
d_b, Bicycle Delay [s]	28.88	24.50	22.78	22.78
l_b,int, Bicycle LOS Score for Intersection	2.576	2.763	2.064	2.193
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	39.1
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.009

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	380.00	380.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	1	2	524	5	0	306
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1460	1.1460	1.1460	1.1460	1.1460	1.1460
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	460	0	0	358
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	1061	6	0	709
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	288	2	0	193
Total Analysis Volume [veh/h]	1	2	1153	7	0	771
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	39.08	13.05	0.00	0.00	11.02	0.00
Movement LOS	E	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.04	1.04	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.73		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.03					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	26.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.618

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	17	31	15	0	40	29	22	21	60	27	17	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	176	0	0	57	0	0	86	0	0	154
Total Hourly Volume [veh/h]	127	637	176	502	1134	56	100	799	86	176	403	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	173	48	136	308	15	27	217	23	48	110	42
Total Analysis Volume [veh/h]	138	692	191	546	1233	61	109	868	93	191	438	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Free Running (No Pattern)
Coordination Type	*Free Running*
Actuation Type	*Fully actuated*
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	0	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	45	0	0	45	0	0	40	0	0	40	0
Amber [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	5.5	0.0	0.0	5.5	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Free Running (No Pattern)

Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	20	0	0	20	0	0	12	0	0	12	0
Vehicle Extension [s]	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0	0.0	1.5	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	91	91	91	91	91	91	91	91	91	91	91	91
L, Total Lost Time per Cycle [s]	7.50	7.50	7.50	7.50	7.50	7.50	7.00	7.00	7.00	7.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	5.50	5.50	5.50	5.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00	5.00
g_i, Effective Green Time [s]	45	45	45	45	45	45	32	32	32	32	32	32
g / C, Green / Cycle	0.49	0.49	0.49	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35
(v / s)_i Volume / Saturation Flow Rate	0.17	0.19	0.12	0.45	0.35	0.04	0.07	0.17	0.06	0.17	0.12	0.11
s, saturation flow rate [veh/h]	828	3560	1589	1221	3560	1589	1582	5094	1589	1135	3560	1589
c, Capacity [veh/h]	248	1753	782	505	1753	782	447	1778	555	295	1243	555
d1, Uniform Delay [s]	34.70	14.63	13.39	32.23	18.03	12.25	28.89	23.34	20.57	36.02	22.08	21.64
k, delay calibration	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.72	0.05	0.06	39.67	0.19	0.02	0.10	0.08	0.05	0.89	0.06	0.11
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.56	0.39	0.24	1.08	0.70	0.08	0.24	0.49	0.17	0.65	0.35	0.30
d, Delay for Lane Group [s/veh]	35.42	14.68	13.45	71.90	18.22	12.27	28.99	23.42	20.62	36.91	22.14	21.75
Lane Group LOS	D	B	B	F	B	B	C	C	C	D	C	C
Critical Lane Group	No	No	No	Yes	No	No	No	Yes	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.40	4.02	2.04	8.30	8.84	0.60	0.94	4.53	1.29	1.99	3.25	2.44
50th-Percentile Queue Length [ft/ln]	35.05	100.46	50.94	207.50	221.08	14.88	23.45	113.34	32.21	49.69	81.20	60.90
95th-Percentile Queue Length [veh/ln]	2.52	7.23	3.67	13.68	13.72	1.07	1.69	8.03	2.32	3.58	5.85	4.39
95th-Percentile Queue Length [ft/ln]	63.09	180.84	91.69	342.10	343.01	26.78	42.21	200.64	57.98	89.45	146.16	109.63

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	35.42	14.68	13.45	71.90	18.22	12.27	28.99	23.42	20.62	36.91	22.14	21.75
Movement LOS	D	B	B	F	B	B	C	C	C	D	C	C
d_A, Approach Delay [s/veh]	17.25			33.95			23.74			25.60		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	26.63											
Intersection LOS	C											
Intersection V/C	0.618											

Emissions

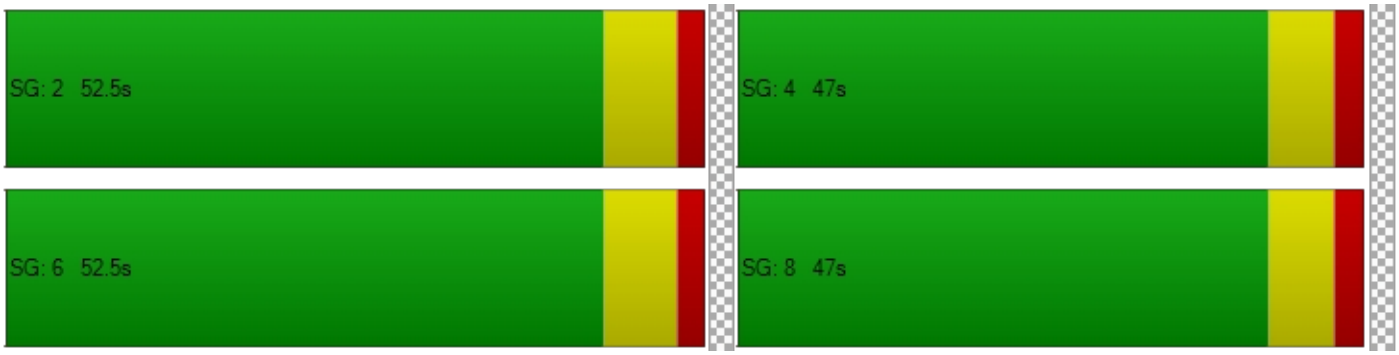
Vehicle Miles Traveled [mph]	30.13	151.09	41.70	100.18	226.22	11.19	27.15	216.18	23.16	37.94	87.01	33.18
Stops [stops/h]	110.43	316.53	80.25	653.74	696.55	23.43	73.88	535.64	50.74	156.56	255.83	95.94
Fuel consumption [US gal/h]	3.40	11.18	2.95	19.55	20.99	0.83	2.49	18.21	1.82	4.68	8.14	3.07
CO [g/h]	237.69	781.62	206.21	1366.55	1466.98	57.83	174.21	1272.63	126.88	327.26	568.78	214.54
NOx [g/h]	46.25	152.07	40.12	265.88	285.42	11.25	33.89	247.61	24.69	63.67	110.66	41.74
VOC [g/h]	55.09	181.15	47.79	316.71	339.99	13.40	40.37	294.94	29.40	75.85	131.82	49.72

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	985	985	875	875
d_b, Bicycle Delay [s]	11.78	11.78	14.46	14.46
l_b,int, Bicycle LOS Score for Intersection	2.547	3.125	2.195	2.343
Bicycle LOS	B	C	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	25.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.867

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	2	0	0
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	235.00	100.00	100.00	435.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd								
Base Volume Input [veh/h]	0	491	287	140	551	0	0	0	0	106	0	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	109	6	0	5	49	41	56	10	69	0	15	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	50	-50	0	0	-44	44	46	0	42	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	282	0	0	43	0	0	56	0	0	62
Total Hourly Volume [veh/h]	159	918	281	279	1085	42	102	10	55	208	15	62
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	249	76	76	295	11	28	3	15	57	4	17
Total Analysis Volume [veh/h]	173	998	305	303	1179	46	111	11	60	226	16	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	0	2	0	0	6	0	0	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	88	0	0	88	0	0	19	0	13	32	0
Lead / Lag	-	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No			No		No	No	
Maximum Recall		No			No			No		No	No	
Pedestrian Recall		No			No			No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	L	C
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	84	84	84	84	84	84	15	15	9	28
g / C, Green / Cycle	0.70	0.70	0.70	0.70	0.70	0.70	0.13	0.13	0.08	0.23
(v / s)_i Volume / Saturation Flow Rate	0.38	0.28	0.19	0.72	0.33	0.03	0.08	0.04	0.07	0.05
s, saturation flow rate [veh/h]	455	3560	1589	423	3560	1589	1315	1627	3459	1637
c, Capacity [veh/h]	303	2492	1113	299	2492	1113	149	203	259	382
d1, Uniform Delay [s]	20.95	7.50	6.68	32.82	8.07	5.56	56.77	48.03	54.93	37.15
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.57	0.48	0.61	55.14	0.65	0.07	28.59	4.67	30.70	1.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.40	0.27	1.01	0.47	0.04	0.75	0.35	0.87	0.22
d, Delay for Lane Group [s/veh]	28.52	7.98	7.29	87.96	8.72	5.63	85.37	52.70	85.62	38.45
Lane Group LOS	C	A	A	F	A	A	F	D	F	D
Critical Lane Group	No	No	No	Yes	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.97	4.63	2.62	13.50	5.90	0.33	4.51	2.18	4.46	2.10
50th-Percentile Queue Length [ft/ln]	99.27	115.71	65.43	337.41	147.38	8.16	112.74	54.54	111.44	52.52
95th-Percentile Queue Length [veh/ln]	7.15	8.16	4.71	19.72	9.88	0.59	7.99	3.93	7.92	3.78
95th-Percentile Queue Length [ft/ln]	178.69	203.91	117.77	492.90	246.93	14.69	199.81	98.16	198.00	94.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.52	7.98	7.29	87.96	8.72	5.63	85.37	52.70	52.70	85.62	38.45	38.45
Movement LOS	C	A	A	F	A	A	F	D	D	F	D	D
d_A, Approach Delay [s/veh]	10.25			24.34			72.62			72.95		
Approach LOS	B			C			E			E		
d_I, Intersection Delay [s/veh]	25.20											
Intersection LOS	C											
Intersection V/C	0.867											

Emissions

Vehicle Miles Traveled [mph]	161.35	930.82	284.47	54.12	210.58	8.22	16.58	10.61	38.94	14.30
Stops [stops/h]	119.13	277.70	78.51	404.90	353.71	9.79	135.29	65.44	267.46	63.02
Fuel consumption [US gal/h]	8.02	36.98	11.18	12.31	13.71	0.46	3.85	1.78	7.43	1.67
CO [g/h]	560.32	2584.96	781.47	860.64	958.21	31.88	269.19	124.72	519.57	116.63
NOx [g/h]	109.02	502.94	152.04	167.45	186.43	6.20	52.37	24.27	101.09	22.69
VOC [g/h]	129.86	599.09	181.11	199.46	222.07	7.39	62.39	28.90	120.42	27.03

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.669	3.372	2.640	3.027
Crosswalk LOS	D	C	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1400	1400	250	467
d_b, Bicycle Delay [s]	5.40	5.40	45.94	35.27
l_b,int, Bicycle LOS Score for Intersection	3.010	2.856	1.952	2.172
Bicycle LOS	C	C	A	B

Sequence

Ring 1	-	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.587

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	2	0	0	1	0	1
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	560.00	100.00	100.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	62	338	40	80	355	249	468	280	38	60	241	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.9600	1.9600	1.0000	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	34	0	0	28	90	81	0	8	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	289	0	0	41	0	0	40
Total Hourly Volume [veh/h]	132	696	20	80	724	289	998	280	41	60	241	40
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	189	5	22	197	79	271	76	11	16	65	11
Total Analysis Volume [veh/h]	143	757	22	87	787	314	1085	304	45	65	262	43
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	25	10	0	5	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	2.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	7	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	7	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	3.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	22	0	9	22	0	17	30	0	9	22	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	3.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	34	26	26	34	25	25	27	19	19	27	10	10
g / C, Green / Cycle	0.49	0.37	0.37	0.49	0.36	0.36	0.39	0.28	0.28	0.39	0.14	0.14
(v / s)_i Volume / Saturation Flow Rate	0.19	0.21	0.01	0.10	0.22	0.20	0.38	0.09	0.03	0.05	0.07	0.03
s, saturation flow rate [veh/h]	769	3560	1589	889	3560	1589	2846	3560	1589	1187	3560	1589
c, Capacity [veh/h]	428	1313	586	460	1273	568	1175	991	443	549	514	229
d1, Uniform Delay [s]	11.90	17.72	14.15	11.08	18.55	18.00	20.78	19.92	18.75	13.79	27.67	26.34
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.09	1.85	0.12	0.91	2.26	3.84	3.63	0.17	0.10	0.10	0.79	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.58	0.04	0.19	0.62	0.55	0.92	0.31	0.10	0.12	0.51	0.19
d, Delay for Lane Group [s/veh]	13.99	19.57	14.27	11.99	20.81	21.84	24.41	20.10	18.85	13.88	28.45	26.73
Lane Group LOS	B	B	B	B	C	C	C	C	B	B	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.25	4.52	0.21	0.71	4.90	4.09	7.21	1.77	0.50	0.58	1.91	0.60
50th-Percentile Queue Length [ft/ln]	31.27	112.88	5.33	17.65	122.44	102.25	180.19	44.14	12.44	14.48	47.68	15.09
95th-Percentile Queue Length [veh/ln]	2.25	8.00	0.38	1.27	8.53	7.36	11.61	3.18	0.90	1.04	3.43	1.09
95th-Percentile Queue Length [ft/ln]	56.29	200.00	9.60	31.77	213.18	184.05	290.26	79.45	22.39	26.06	85.83	27.16

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	13.99	19.57	14.27	11.99	20.81	21.84	24.41	20.10	18.85	13.88	28.45	26.73
Movement LOS	B	B	B	B	C	C	C	C	B	B	C	C
d_A, Approach Delay [s/veh]	18.58			20.43			23.32			25.69		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	21.55											
Intersection LOS	C											
Intersection V/C	0.587											

Emissions

Vehicle Miles Traveled [mph]	86.67	458.81	13.33	81.14	734.02	292.86	163.68	45.86	6.79	2.35	9.47	1.55
Stops [stops/h]	64.33	464.42	10.97	36.31	503.76	210.35	741.34	181.60	25.59	29.78	196.17	31.04
Fuel consumption [US gal/h]	4.18	24.52	0.66	3.45	34.76	14.05	20.22	5.07	0.72	0.63	4.28	0.67
CO [g/h]	292.04	1713.64	45.95	240.81	2429.48	982.08	1413.21	354.63	50.57	44.35	299.23	47.05
NOx [g/h]	56.82	333.41	8.94	46.85	472.69	191.08	274.96	69.00	9.84	8.63	58.22	9.15
VOC [g/h]	67.68	397.15	10.65	55.81	563.06	227.61	327.53	82.19	11.72	10.28	69.35	10.90

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersectio	2.957	4.031	3.236	2.751
Crosswalk LOS	C	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	486	486	743	514
d_b, Bicycle Delay [s]	20.06	20.06	13.83	19.31
l_b,int, Bicycle LOS Score for Intersection	2.337	2.778	2.776	1.898
Bicycle LOS	B	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	17.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.376

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	100.00	235.00	100.00	100.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	29	4	6	25	4	67	143	479	50	10	278	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	0	73	102	84	0	0	95	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	3	0	0	96	0	0	25	0	0	27
Total Hourly Volume [veh/h]	29	4	3	50	4	96	357	937	25	10	590	27
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	1	1	14	1	26	97	255	7	3	160	7
Total Analysis Volume [veh/h]	32	4	3	54	4	104	388	1018	27	11	641	29
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	0	8	0	0	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	8	0	0	10	0	5	10	0	2	10	0
Amber [s]	0.0	3.2	0.0	0.0	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
All red [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	3.2	0.0	0.0	3.2	0.0	4.3	4.3	0.0	4.3	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0	25	0	0	25	0	12	33	0	12	33	0
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	0	10	0	0	10	0	5	10	0	5	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		Yes			Yes		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	3.20	3.20	0.00	4.30	4.30	0.00	4.30	4.30
g_i, Effective Green Time [s]	20	20	20	20	39	31	31	39	27	27
g / C, Green / Cycle	0.28	0.28	0.28	0.28	0.55	0.45	0.45	0.55	0.38	0.38
(v / s)_i Volume / Saturation Flow Rate	0.02	0.00	0.04	0.07	0.38	0.29	0.02	0.02	0.18	0.02
s, saturation flow rate [veh/h]	1285	1738	1408	1598	1029	3560	1589	713	3560	1589
c, Capacity [veh/h]	363	492	457	452	619	1591	710	424	1358	606
d1, Uniform Delay [s]	22.83	18.07	20.40	19.30	10.25	14.99	10.89	8.94	16.33	13.64
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.48	0.05	0.53	1.25	4.76	1.98	0.10	0.02	1.18	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.09	0.01	0.12	0.24	0.63	0.64	0.04	0.03	0.47	0.05
d, Delay for Lane Group [s/veh]	23.31	18.13	20.92	20.55	15.01	16.97	10.99	8.97	17.51	13.79
Lane Group LOS	C	B	C	C	B	B	B	A	B	B
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.46	0.08	0.71	1.41	3.36	5.55	0.22	0.06	3.53	0.28
50th-Percentile Queue Length [ft/ln]	11.38	2.08	17.74	35.28	84.07	138.68	5.42	1.49	88.25	6.88
95th-Percentile Queue Length [veh/ln]	0.82	0.15	1.28	2.54	6.05	9.41	0.39	0.11	6.35	0.50
95th-Percentile Queue Length [ft/ln]	20.48	3.75	31.93	63.50	151.32	235.25	9.75	2.68	158.86	12.38

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.31	18.13	18.13	20.92	20.55	20.55	15.01	16.97	10.99	8.97	17.51	13.79
Movement LOS	C	B	B	C	C	C	B	B	B	A	B	B
d_A, Approach Delay [s/veh]	22.38			20.67			16.33			17.21		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	17.00											
Intersection LOS	B											
Intersection V/C	0.376											

Emissions

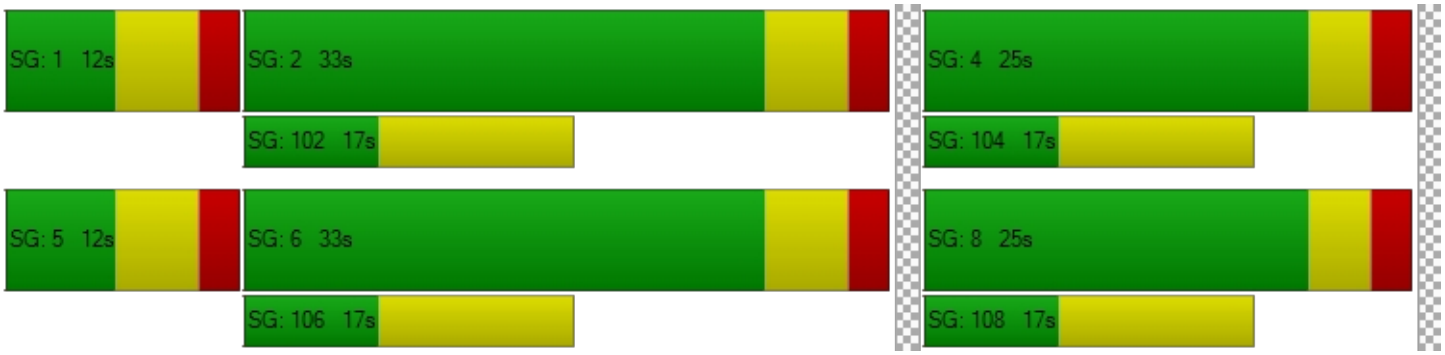
Vehicle Miles Traveled [mph]	1.04	0.23	46.18	92.37	156.03	409.39	10.86	1.66	96.70	4.37
Stops [stops/h]	23.40	4.29	36.49	72.58	172.94	570.59	11.14	3.07	363.11	14.15
Fuel consumption [US gal/h]	0.37	0.07	2.26	4.52	8.68	24.64	0.57	0.12	10.11	0.41
CO [g/h]	25.68	4.66	158.31	315.83	607.02	1722.60	39.92	8.05	706.95	28.47
NOx [g/h]	5.00	0.91	30.80	61.45	118.10	335.15	7.77	1.57	137.55	5.54
VOC [g/h]	5.95	1.08	36.69	73.20	140.68	399.23	9.25	1.86	163.84	6.60

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	24.86	24.86	24.86	24.86
l_p,int, Pedestrian LOS Score for Intersectio	1.979	2.557	3.088	3.068
Crosswalk LOS	A	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	566	566	763	763
d_b, Bicycle Delay [s]	18.00	18.00	13.39	13.39
l_b,int, Bicycle LOS Score for Intersection	1.629	1.985	2.762	2.144
Bicycle LOS	A	A	C	B

Sequence

Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	8.7
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.511

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	25	50	25	29	30	84	157	601	60	20	301	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	21	32	183	0	0	163	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	86	0	0	30	0	0	40
Total Hourly Volume [veh/h]	25	50	12	55	30	85	311	1253	30	20	699	40
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	7	13	3	14	8	21	78	340	8	5	190	10
Total Analysis Volume [veh/h]	27	50	13	55	30	85	311	1362	33	22	760	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	4	0	0	8	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Amber [s]	3.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
All red [s]	1.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.2	0.0	0.0	3.2	0.0	0.0	4.3	0.0	0.0	4.3	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	94	66	0	0	66	0	0	24	0	0	24	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	5.20	5.20	5.20	5.20	5.20	5.20	6.30	6.30	6.30	6.30	6.30	6.30
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	3.20	3.20	3.20	3.20	3.20	3.20	4.30	4.30	4.30	4.30	4.30	4.30
g_i, Effective Green Time [s]	10	10	10	10	10	10	69	69	69	69	69	69
g / C, Green / Cycle	0.11	0.11	0.11	0.11	0.11	0.11	0.76	0.76	0.76	0.76	0.76	0.76
(v / s)_i Volume / Saturation Flow Rate	0.02	0.01	0.01	0.04	0.01	0.05	0.46	0.38	0.02	0.06	0.21	0.03
s, saturation flow rate [veh/h]	1277	3560	1589	1339	3560	1589	680	3560	1589	387	3560	1589
c, Capacity [veh/h]	193	398	178	192	398	178	528	2708	1209	302	2708	1209
d1, Uniform Delay [s]	38.21	36.01	35.80	39.41	35.81	37.51	9.60	4.18	2.64	8.72	3.28	2.65
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	0.14	0.17	0.81	0.08	1.99	4.75	0.67	0.04	0.47	0.26	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.13	0.07	0.29	0.08	0.48	0.59	0.50	0.03	0.07	0.28	0.03
d, Delay for Lane Group [s/veh]	38.54	36.15	35.97	40.23	35.89	39.50	14.35	4.85	2.68	9.19	3.54	2.70
Lane Group LOS	D	D	D	D	D	D	B	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.56	0.49	0.26	1.18	0.29	1.82	3.51	2.89	0.09	0.20	1.25	0.12
50th-Percentile Queue Length [ft/ln]	14.03	12.32	6.48	29.51	7.34	45.39	87.83	72.35	2.37	5.12	31.37	2.88
95th-Percentile Queue Length [veh/ln]	1.01	0.89	0.47	2.12	0.53	3.27	6.32	5.21	0.17	0.37	2.26	0.21
95th-Percentile Queue Length [ft/ln]	25.25	22.17	11.66	53.12	13.22	81.70	158.09	130.22	4.26	9.22	56.46	5.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	38.54	36.15	35.97	40.23	35.89	39.50	14.35	4.85	2.68	9.19	3.54	2.70
Movement LOS	D	D	D	D	D	D	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	36.84			39.10			6.54			3.65		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	8.65											
Intersection LOS	A											
Intersection V/C	0.511											

Emissions

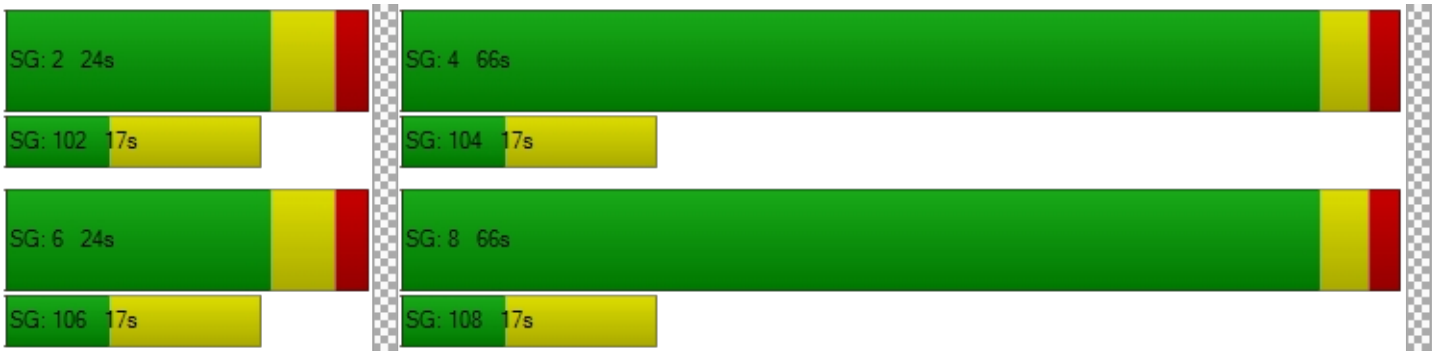
Vehicle Miles Traveled [mph]	1.13	2.09	0.54	55.42	30.23	85.66	124.70	546.10	13.23	8.85	305.63	16.09
Stops [stops/h]	22.45	39.41	10.37	47.22	23.50	72.63	140.53	231.51	3.79	8.19	100.37	4.62
Fuel consumption [US gal/h]	0.42	0.74	0.19	2.92	1.55	4.49	6.93	22.94	0.52	0.45	12.27	0.63
CO [g/h]	29.61	52.01	13.55	203.96	108.21	314.16	484.40	1603.68	36.25	31.19	857.82	44.09
NOx [g/h]	5.76	10.12	2.64	39.68	21.05	61.12	94.25	312.02	7.05	6.07	166.90	8.58
VOC [g/h]	6.86	12.05	3.14	47.27	25.08	72.81	112.26	371.67	8.40	7.23	198.81	10.22

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersectio	2.543	3.149	3.190	3.149
Crosswalk LOS	B	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1351	1351	393	393
d_b, Bicycle Delay [s]	4.74	4.74	29.04	29.04
l_b,int, Bicycle LOS Score for Intersection	1.645	1.771	2.992	2.271
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	22.5
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.605

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	150	5	15	13	5	94	177	750	65	40	365	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.7800	1.0000	1.7800	1.7800	1.7800	1.0000	1.0000	1.7800	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	215	0	0	184	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	84	0	0	33	0	0	21
Total Hourly Volume [veh/h]	150	5	7	23	5	83	315	1550	32	40	834	20
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	1	2	6	1	23	86	421	8	10	227	5
Total Analysis Volume [veh/h]	150	5	7	25	5	90	342	1685	32	40	907	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	4	9	0	4	9	0	4	10	0	4	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	0	0	0	2	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	15	0	0	15	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9	21	0	9	21	0	16	41	0	9	34	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	26	20	20	26	17	17	46	39	39	46	32	32
g / C, Green / Cycle	0.33	0.25	0.25	0.33	0.21	0.21	0.57	0.49	0.49	0.57	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.10	0.00	0.00	0.02	0.00	0.06	0.37	0.47	0.02	0.09	0.25	0.01
s, saturation flow rate [veh/h]	1434	1870	1589	1462	1870	1589	918	3560	1589	445	3560	1589
c, Capacity [veh/h]	598	466	396	609	394	335	536	1735	774	258	1407	628
d1, Uniform Delay [s]	19.85	22.61	22.65	18.43	24.99	26.42	12.91	19.97	10.74	17.26	19.64	14.84
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.29	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.00	0.04	0.08	0.13	0.06	1.97	3.32	5.37	0.02	1.27	0.50	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.01	0.02	0.04	0.01	0.27	0.64	0.97	0.04	0.15	0.64	0.04
d, Delay for Lane Group [s/veh]	20.85	22.65	22.73	18.56	25.05	28.39	16.23	25.34	10.76	18.53	20.14	14.86
Lane Group LOS	C	C	C	B	C	C	B	C	B	B	C	B
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	2.15	0.07	0.11	0.33	0.08	1.58	2.99	13.81	0.26	0.33	6.10	0.22
50th-Percentile Queue Length [ft/ln]	53.72	1.87	2.65	8.21	2.00	39.49	74.71	345.20	6.50	8.31	152.51	5.60
95th-Percentile Queue Length [veh/ln]	3.87	0.13	0.19	0.59	0.14	2.84	5.38	19.90	0.47	0.60	10.15	0.40
95th-Percentile Queue Length [ft/ln]	96.70	3.36	4.77	14.77	3.59	71.09	134.48	497.55	11.71	14.96	253.78	10.08

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.85	22.65	22.73	18.56	25.05	28.39	16.23	25.34	10.76	18.53	20.14	14.86
Movement LOS	C	C	C	B	C	C	B	C	B	B	C	B
d_A, Approach Delay [s/veh]	20.99			26.20			23.60			19.95		
Approach LOS	C			C			C			B		
d_I, Intersection Delay [s/veh]	22.50											
Intersection LOS	C											
Intersection V/C	0.605											

Emissions

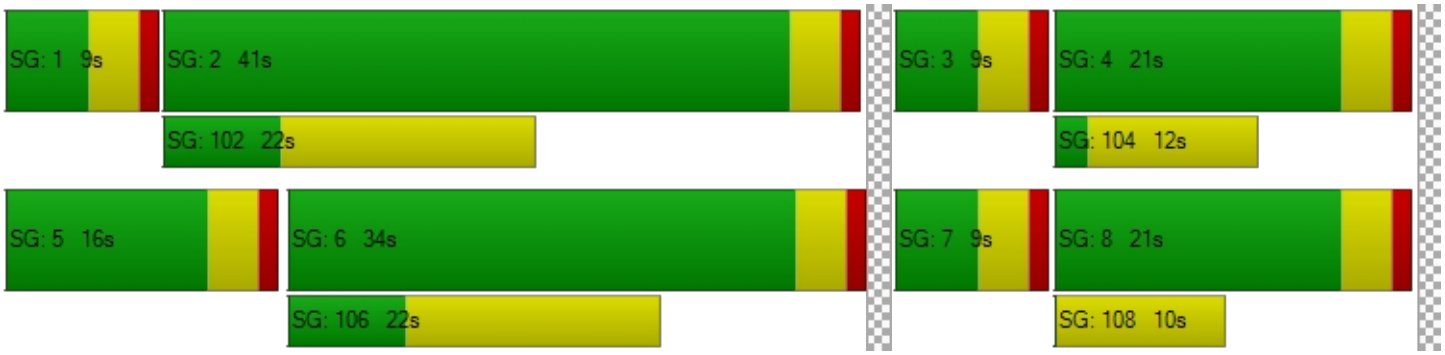
Vehicle Miles Traveled [mph]	6.35	0.21	0.30	4.08	0.82	14.68	131.03	645.58	12.26	16.04	363.67	8.82
Stops [stops/h]	96.70	3.36	4.77	14.77	3.59	71.09	134.48	1242.71	11.71	14.96	549.04	10.08
Fuel consumption [US gal/h]	1.43	0.05	0.07	0.34	0.08	1.52	7.29	46.27	0.64	0.89	23.01	0.49
CO [g/h]	100.11	3.52	4.96	24.04	5.52	106.05	509.80	3234.32	44.45	61.97	1608.33	34.55
NOx [g/h]	19.48	0.68	0.96	4.68	1.07	20.63	99.19	629.28	8.65	12.06	312.92	6.72
VOC [g/h]	23.20	0.82	1.15	5.57	1.28	24.58	118.15	749.59	10.30	14.36	372.75	8.01

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	6.0	4.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	34.23	36.10
l_p,int, Pedestrian LOS Score for Intersectio	2.233	2.593	3.359	3.155
Crosswalk LOS	B	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	425	425	925	750
d_b, Bicycle Delay [s]	24.81	24.81	11.56	15.63
l_b,int, Bicycle LOS Score for Intersection	1.840	1.896	3.286	2.376
Bicycle LOS	A	A	C	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.832

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	2	0
Entry Pocket Length [ft]	100.00	385.00	1110.00	100.00	1070.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	778	735	171	609	354	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	1.6900	1.6900	1.6900	1.6900	1.6900	1.6900
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	164	215	0	114	184	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	729	0	0	0	92
Total Hourly Volume [veh/h]	1479	728	289	1143	782	92
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	402	198	79	311	213	25
Total Analysis Volume [veh/h]	1608	791	314	1242	850	100
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Signal Group	2	0	1	6	8	0
Auxiliary Signal Groups						
Maximum Green [s]	50	0	20	50	40	0
Amber [s]	5.0	0.0	3.0	5.0	3.0	0.0
All red [s]	2.0	0.0	2.0	2.0	3.0	0.0
Walk [s]	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	0.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	50	0	12	62	28	0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	0	6	25	6	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	Yes	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	5.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	43	43	55	55	22	22
g / C, Green / Cycle	0.48	0.48	0.61	0.61	0.24	0.24
(v / s)_i Volume / Saturation Flow Rate	0.45	0.50	0.71	0.35	0.25	0.06
s, saturation flow rate [veh/h]	3560	1589	443	3560	3459	1589
c, Capacity [veh/h]	1701	759	328	2176	845	389
d1, Uniform Delay [s]	22.38	23.50	32.35	10.45	34.00	27.41
k, delay calibration	0.11	0.35	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.46	38.94	39.78	0.24	32.28	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.95	1.04	0.96	0.57	1.01	0.26
d, Delay for Lane Group [s/veh]	25.84	62.44	72.13	10.69	66.28	29.01
Lane Group LOS	C	F	E	B	F	C
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.06	21.35	5.80	5.51	12.36	1.81
50th-Percentile Queue Length [ft/ln]	351.61	533.81	145.02	137.73	309.08	45.19
95th-Percentile Queue Length [veh/ln]	20.21	29.83	9.75	9.36	18.19	3.25
95th-Percentile Queue Length [ft/ln]	505.37	745.83	243.77	233.96	454.65	81.35

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	25.84	62.44	72.13	10.69	66.28	29.01
Movement LOS	C	F	E	B	F	C
d_A, Approach Delay [s/veh]	37.91		23.09		62.35	
Approach LOS	D		C		E	
d_I, Intersection Delay [s/veh]	37.94					
Intersection LOS	D					
Intersection V/C	0.832					

Emissions

Vehicle Miles Traveled [mph]	300.74	147.94	351.30	1389.54	325.67	38.31
Stops [stops/h]	1125.15	854.10	232.04	440.73	989.06	72.31
Fuel consumption [US gal/h]	39.42	30.86	20.67	57.37	34.92	2.80
CO [g/h]	2755.14	2157.32	1444.83	4010.20	2441.17	195.91
NOx [g/h]	536.05	419.74	281.11	780.24	474.96	38.12
VOC [g/h]	638.53	499.98	334.85	929.40	565.76	45.40

Other Modes

g_Walk,mi, Effective Walk Time [s]	22.0	22.0	43.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	25.69	25.69	12.27
l_p,int, Pedestrian LOS Score for Intersectio	5.032	3.487	3.453
Crosswalk LOS	F	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	956	1222	489
d_b, Bicycle Delay [s]	12.27	6.81	25.69
l_b,int, Bicycle LOS Score for Intersection	4.140	2.843	1.560
Bicycle LOS	D	C	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Fontaine Bl/Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	10.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.378

Intersection Setup

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	235.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	380.00	380.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	526	0	0	306	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	144	0	20	0	0	0	0	268	192	31	213	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	8	0	14	0	0	0	0	-15	15	9	-9	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	17	0	0	0	0	0	104	0	0	0
Total Hourly Volume [veh/h]	152	0	17	0	0	0	0	856	103	40	555	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	0	5	0	0	0	0	233	28	11	151	0
Total Analysis Volume [veh/h]	165	0	18	0	0	0	0	930	112	43	603	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	23	0	0	0	10	0	0	45	0	0	45	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	0	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25	0	0	0	25	0	0	35	0	0	35	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21	21	21	31	31	31	31
g / C, Green / Cycle	0.35	0.35	0.35	0.52	0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.00	0.26	0.07	0.08	0.17
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	541	3560
c, Capacity [veh/h]	569	556	714	1840	821	289	1840
d1, Uniform Delay [s]	14.40	12.82	0.00	9.49	7.54	15.41	8.44
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.29	0.11	0.00	1.00	0.35	1.08	0.48
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.03	0.00	0.51	0.14	0.15	0.33
d, Delay for Lane Group [s/veh]	15.69	12.93	0.00	10.48	7.89	16.49	8.91
Lane Group LOS	B	B	A	B	A	B	A
Critical Lane Group	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.69	0.16	0.00	3.08	0.62	0.46	1.75
50th-Percentile Queue Length [ft/ln]	42.32	4.04	0.00	77.02	15.50	11.40	43.79
95th-Percentile Queue Length [veh/ln]	3.05	0.29	0.00	5.55	1.12	0.82	3.15
95th-Percentile Queue Length [ft/ln]	76.18	7.26	0.00	138.64	27.90	20.51	78.82

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.69	0.00	12.93	0.00	0.00	0.00	0.00	10.48	7.89	16.49	8.91	0.00
Movement LOS	B		B	A	A	A		B	A	B	A	
d_A, Approach Delay [s/veh]	15.42			0.00			10.20			9.42		
Approach LOS	B			A			B			A		
d_I, Intersection Delay [s/veh]	10.44											
Intersection LOS	B											
Intersection V/C	0.378											

Emissions

Vehicle Miles Traveled [mph]	13.74	1.50	0.00	175.01	21.08	22.84	320.29
Stops [stops/h]	101.57	9.69	0.00	369.69	37.20	27.35	210.20
Fuel consumption [US gal/h]	1.65	0.16	0.00	12.58	1.36	1.27	14.69
CO [g/h]	115.59	11.36	0.00	879.30	95.39	88.58	1026.56
NOx [g/h]	22.49	2.21	0.00	171.08	18.56	17.23	199.73
VOC [g/h]	26.79	2.63	0.00	203.79	22.11	20.53	237.92

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	1033	1033
d_b, Bicycle Delay [s]	12.68	12.68	7.01	7.01
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.505	2.093
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Fontaine Bl/Community Arterial 1

Control Type:	Signalized	Delay (sec / veh):	11.1
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.364

Intersection Setup

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	235.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	380.00	380.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	526	0	0	306	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000	1.1460	1.1460	1.1460	1.1460	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	203	0	28	0	0	0	0	74	214	22	41	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	8	0	14	0	0	0	0	-15	15	9	-9	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	21	0	0	0	0	0	115	0	0	0
Total Hourly Volume [veh/h]	211	0	21	0	0	0	0	662	114	31	383	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	0	6	0	0	0	0	180	31	8	104	0
Total Analysis Volume [veh/h]	229	0	23	0	0	0	0	720	124	34	416	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	25	0	0	0	10	0	0	33	0	0	33	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5	0	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	10	0	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	27	0	0	0	27	0	0	33	0	0	33	0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23	23	23	29	29	29	29
g / C, Green / Cycle	0.38	0.38	0.38	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.16	0.01	0.00	0.20	0.08	0.05	0.12
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	652	3560
c, Capacity [veh/h]	616	609	777	1721	768	328	1721
d1, Uniform Delay [s]	13.67	11.58	0.00	10.04	8.69	14.68	9.07
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.72	0.12	0.00	0.75	0.45	0.63	0.33
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.37	0.04	0.00	0.42	0.16	0.10	0.24
d, Delay for Lane Group [s/veh]	15.39	11.69	0.00	10.79	9.14	15.31	9.40
Lane Group LOS	B	B	A	B	A	B	A
Critical Lane Group	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.32	0.19	0.00	2.46	0.77	0.34	1.27
50th-Percentile Queue Length [ft/ln]	58.02	4.80	0.00	61.41	19.37	8.42	31.70
95th-Percentile Queue Length [veh/ln]	4.18	0.35	0.00	4.42	1.39	0.61	2.28
95th-Percentile Queue Length [ft/ln]	104.43	8.65	0.00	110.54	34.86	15.16	57.06

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	15.39	0.00	11.69	0.00	0.00	0.00	0.00	10.79	9.14	15.31	9.40	0.00
Movement LOS	B		B	A	A	A		B	A	B	A	
d_A, Approach Delay [s/veh]	15.05			0.00			10.55			9.85		
Approach LOS	B			A			B			A		
d_I, Intersection Delay [s/veh]	11.08											
Intersection LOS	B											
Intersection V/C	0.364											

Emissions

Vehicle Miles Traveled [mph]	15.03	1.51	0.00	382.43	65.86	9.07	110.95
Stops [stops/h]	139.25	11.53	0.00	294.76	46.49	20.22	152.17
Fuel consumption [US gal/h]	2.11	0.18	0.00	18.35	3.07	0.67	6.49
CO [g/h]	147.15	12.62	0.00	1283.00	214.33	46.70	453.72
NOx [g/h]	28.63	2.46	0.00	249.63	41.70	9.09	88.28
VOC [g/h]	34.10	2.93	0.00	297.35	49.67	10.82	105.15

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	967	967
d_b, Bicycle Delay [s]	11.41	11.41	8.01	8.01
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.351	1.931
Bicycle LOS	A	A	B	A

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 13: Autumn Glen Ave/Road A

Control Type:	Two-way stop	Delay (sec / veh):	15.1
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Autumn Glen Ave.			New Intersection			Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Autumn Glen Ave.			New Intersection			Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	18	14	75	23	36	25	2	9	8	4	56
Diverted Trips [veh/h]	0	0	0	46	0	37	23	9	0	0	14	34
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	18	14	121	23	73	48	11	9	8	18	90
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	5	4	33	6	20	13	3	2	2	5	24
Total Analysis Volume [veh/h]	14	18	14	132	23	79	52	12	9	8	20	98
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.08	0.00	0.00	0.13	0.02	0.01	0.02	0.04	0.09
d_M, Delay for Movement [s/veh]	7.43	0.00	0.00	7.49	0.00	0.00	15.12	13.75	10.06	13.01	13.37	9.20
Movement LOS	A	A	A	A	A	A	C	B	B	B	B	A
95th-Percentile Queue Length [veh/ln]	0.03	0.03	0.03	0.28	0.28	0.28	0.56	0.56	0.56	0.53	0.53	0.53
95th-Percentile Queue Length [ft/ln]	0.64	0.64	0.64	6.93	6.93	6.93	13.95	13.95	13.95	13.31	13.31	13.31
d_A, Approach Delay [s/veh]	2.26			4.23			14.27			10.10		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	7.11											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 16: Road A/Collector #3

Control Type:	Two-way stop	Delay (sec / veh):	14.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.013

Intersection Setup

Name	Spring Glen Drive						Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Spring Glen Drive						Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	8	86	3	5	6	8	23	15	60	21	4
Diverted Trips [veh/h]	66	20	56	2	12	5	5	4	26	42	23	3
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	84	28	142	5	17	11	13	27	41	102	44	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	23	8	39	1	5	3	4	7	11	28	12	2
Total Analysis Volume [veh/h]	91	30	154	5	18	12	14	29	45	111	48	8
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane		No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.06	0.15	0.01	0.04	0.01	0.01	0.00	0.00	0.07	0.00	0.00
d_M, Delay for Movement [s/veh]	13.11	12.09	9.04	14.66	12.45	8.94	7.34	0.00	0.00	7.54	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.61	0.18	0.52	0.19	0.19	0.19	0.02	0.02	0.00	0.24	0.00	0.00
95th-Percentile Queue Length [ft/ln]	15.23	4.42	12.89	4.77	4.77	4.77	0.59	0.59	0.00	5.88	0.00	0.00
d_A, Approach Delay [s/veh]	10.72			11.56			1.17			5.01		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	7.60											
Intersection LOS	B											

Intersection Level Of Service Report
Intersection 22: Community Arterial 1/Road A

Control Type:	Roundabout	Delay (sec / veh):	5.1
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Community Arterial 1			Community Arterial 1			Road A			Road A		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Community Arterial 1			Community Arterial 1			Road A			Road A		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	37	37	75	87	25	36	35	41	29	68	29	118
Diverted Trips [veh/h]	85	28	83	33	27	30	20	0	29	31	0	45
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	122	65	158	120	52	66	55	41	58	99	29	163
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	18	43	33	14	18	15	11	16	27	8	44
Total Analysis Volume [veh/h]	133	71	172	130	57	72	60	45	63	108	32	177
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	2			2			2			2		
Circulating Flow Rate [veh/h]	240			278			301			269		
Exiting Flow Rate [veh/h]	233			314			242			354		
Demand Flow Rate [veh/h]	122	65	158	120	52	66	55	41	58	99	29	163
Adjusted Demand Flow Rate [veh/h]	133	71	172	130	57	72	60	45	63	108	32	177

Lanes

Overwrite Calculated Critical Headway	No	No	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00	3.00	3.00
A (intercept)	1350.00	1420.00	1350.00	1420.00	1420.00	1420.00
B (coefficient)	0.00092	0.00085	0.00092	0.00085	0.00085	0.00085
HV Adjustment Factor	0.98	0.98	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	181	204	133	132	172	324
Capacity of Entry and Bypass Lanes [veh/h]	1083	1159	1045	1121	1100	1130
Pedestrian Impedance	1.00	1.00	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1062	1136	1025	1099	1078	1108
X, volume / capacity	0.17	0.18	0.13	0.12	0.16	0.29

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.60	0.64	0.43	0.40	0.55	1.19
95th-Percentile Queue Length [ft]	14.90	15.88	10.86	9.94	13.78	29.72
Approach Delay [s/veh]	4.81		4.48		4.73	5.98
Approach LOS	A		A		A	A
Intersection Delay [s/veh]	5.05					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 23: Coomunity Arterial Rd/Access 2

Control Type:	Two-way stop	Delay (sec / veh):	12.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.031

Intersection Setup

Name			Community Arterial 1			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	0.00	0.00	0.00
Speed [mph]	40.00		40.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name			Community Arterial 1			
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	18	147	118	4	4	17
Diverted Trips [veh/h]	27	186	76	11	10	27
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	45	333	194	15	14	44
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	90	53	4	4	12
Total Analysis Volume [veh/h]	49	362	211	16	15	48
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.00	0.00	0.00	0.03	0.05
d_M, Delay for Movement [s/veh]	7.79	0.00	0.00	0.00	12.60	9.09
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.11	0.00	0.00	0.00	0.09	0.16
95th-Percentile Queue Length [ft/ln]	2.85	0.00	0.00	0.00	2.37	4.08
d_A, Approach Delay [s/veh]	0.93		0.00		9.92	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.44					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 25: Marksheffel Rd/East Access

Control Type:	Two-way stop	Delay (sec / veh):	17.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.216

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	1	0	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	0	0	0
Exit Pocket Length [ft]	0.00	965.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Base Volume Input [veh/h]	0	537	691	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.9600	1.9600	1.9600	1.0000	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	63	47	80	0	48
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-27	27	0	23
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1116	1374	107	0	71
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	303	373	29	0	19
Total Analysis Volume [veh/h]	0	1213	1493	116	0	77
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.00	0.22
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	17.89
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.81
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	20.25
d_A, Approach Delay [s/veh]	0.00		0.00		17.89	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.48					
Intersection LOS	C					

Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	709	1067	3
2	688	1035	3
3	674	1014	3
4	631	950	3
5	560	843	2
6	553	832	2
7	546	822	2
8	496	747	2
9	489	736	2
10	482	726	2
11	418	630	2
12	390	587	2
13	383	576	2
14	284	427	1
15	284	427	1
16	199	299	1
17	113	171	0
18	113	171	0
19	64	96	0
20	35	53	0
21	21	32	0
22	7	11	0
23	7	11	0
24	7	11	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1776	1	3	No	No	No	No	No	No	No	No	No	No
2	3	1723	1	3	No	No	No	No	No	No	No	No	No	No
3	3	1688	1	3	No	No	No	No	No	No	No	No	No	No
4	3	1581	1	3	No	No	No	No	No	No	No	No	No	No
5	3	1403	1	2	No	No	No	No	No	No	No	No	No	No
6	3	1385	1	2	No	No	No	No	No	No	No	No	No	No
7	3	1368	1	2	No	No	No	No	No	No	No	No	No	No
8	3	1243	1	2	No	No	No	No	No	No	No	No	No	No
9	3	1225	1	2	No	No	No	No	No	No	No	No	No	No
10	3	1208	1	2	No	No	No	No	No	No	No	No	No	No
11	3	1048	1	2	No	No	No	No	No	No	No	No	No	No
12	3	977	1	2	No	No	No	No	No	No	No	No	No	No
13	3	959	1	2	No	No	No	No	No	No	No	No	No	No
14	3	711	1	1	No	No	No	No	No	No	No	No	No	No
15	3	711	1	1	No	No	No	No	No	No	No	No	No	No
16	3	498	1	1	No	No	No	No	No	No	No	No	No	No
17	3	284	1	0	No	No	No	No	No	No	No	No	No	No
18	3	284	1	0	No	No	No	No	No	No	No	No	No	No
19	3	160	1	0	No	No	No	No	No	No	No	No	No	No
20	3	88	1	0	No	No	No	No	No	No	No	No	No	No
21	3	53	1	0	No	No	No	No	No	No	No	No	No	No
22	3	18	1	0	No	No	No	No	No	No	No	No	No	No
23	3	18	1	0	No	No	No	No	No	No	No	No	No	No
24	3	18	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	21.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	3
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1779
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 13: Autumn Glen Ave/Road A

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	E, W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	N	S	E	W
1	217	46	116	68
2	210	45	113	66
3	206	44	110	65
4	193	41	103	61
5	171	36	92	54
6	169	36	90	53
7	167	35	89	52
8	152	32	81	48
9	150	32	80	47
10	148	31	79	46
11	128	27	68	40
12	119	25	64	37
13	117	25	63	37
14	87	18	46	27
15	87	18	46	27
16	61	13	32	19
17	35	7	19	11
18	35	7	19	11
19	20	4	10	6
20	11	2	6	3
21	7	1	3	2
22	2	0	1	1
23	2	0	1	1
24	2	0	1	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	1	263	1	116	No	No	No	No	No	No	No	No	No	No
2	1	255	1	113	No	No	No	No	No	No	No	No	No	No
3	1	250	1	110	No	No	No	No	No	No	No	No	No	No
4	1	234	1	103	No	No	No	No	No	No	No	No	No	No
5	1	207	1	92	No	No	No	No	No	No	No	No	No	No
6	1	205	1	90	No	No	No	No	No	No	No	No	No	No
7	1	202	1	89	No	No	No	No	No	No	No	No	No	No
8	1	184	1	81	No	No	No	No	No	No	No	No	No	No
9	1	182	1	80	No	No	No	No	No	No	No	No	No	No
10	1	179	1	79	No	No	No	No	No	No	No	No	No	No
11	1	155	1	68	No	No	No	No	No	No	No	No	No	No
12	1	144	1	64	No	No	No	No	No	No	No	No	No	No
13	1	142	1	63	No	No	No	No	No	No	No	No	No	No
14	1	105	1	46	No	No	No	No	No	No	No	No	No	No
15	1	105	1	46	No	No	No	No	No	No	No	No	No	No
16	1	74	1	32	No	No	No	No	No	No	No	No	No	No
17	1	42	1	19	No	No	No	No	No	No	No	No	No	No
18	1	42	1	19	No	No	No	No	No	No	No	No	No	No
19	1	24	1	10	No	No	No	No	No	No	No	No	No	No
20	1	13	1	6	No	No	No	No	No	No	No	No	No	No
21	1	8	1	3	No	No	No	No	No	No	No	No	No	No
22	1	2	1	1	No	No	No	No	No	No	No	No	No	No
23	1	2	1	1	No	No	No	No	No	No	No	No	No	No
24	1	2	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	E	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	10.1	14.3
Number of Lanes on Minor Street Approach	1	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:19	0:16
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	116	68
High Minor Volume Condition Met	Yes	No
Total Entering Volume on All Approaches During Same Hour	447	447
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 16: Road A/Collector #3

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	153	81	33	254
2	148	79	32	246
3	145	77	31	241
4	136	72	29	226
5	121	64	26	201
6	119	63	26	198
7	118	62	25	196
8	107	57	23	178
9	106	56	23	175
10	104	55	22	173
11	90	48	19	150
12	84	45	18	140
13	83	44	18	137
14	61	32	13	102
15	61	32	13	102
16	43	23	9	71
17	24	13	5	41
18	24	13	5	41
19	14	7	3	23
20	8	4	2	13
21	5	2	1	8
22	2	1	0	3
23	2	1	0	3
24	2	1	0	3

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	2	234	3	254	No	No	No	No	No	No	No	No	No	No
2	2	227	3	246	No	No	No	No	No	No	No	No	No	No
3	2	222	3	241	No	No	No	No	No	No	No	No	No	No
4	2	208	3	226	No	No	No	No	No	No	No	No	No	No
5	2	185	3	201	No	No	No	No	No	No	No	No	No	No
6	2	182	3	198	No	No	No	No	No	No	No	No	No	No
7	2	180	3	196	No	No	No	No	No	No	No	No	No	No
8	2	164	3	178	No	No	No	No	No	No	No	No	No	No
9	2	162	3	175	No	No	No	No	No	No	No	No	No	No
10	2	159	3	173	No	No	No	No	No	No	No	No	No	No
11	2	138	3	150	No	No	No	No	No	No	No	No	No	No
12	2	129	3	140	No	No	No	No	No	No	No	No	No	No
13	2	127	3	137	No	No	No	No	No	No	No	No	No	No
14	2	93	3	102	No	No	No	No	No	No	No	No	No	No
15	2	93	3	102	No	No	No	No	No	No	No	No	No	No
16	2	66	3	71	No	No	No	No	No	No	No	No	No	No
17	2	37	3	41	No	No	No	No	No	No	No	No	No	No
18	2	37	3	41	No	No	No	No	No	No	No	No	No	No
19	2	21	3	23	No	No	No	No	No	No	No	No	No	No
20	2	12	3	13	No	No	No	No	No	No	No	No	No	No
21	2	7	3	8	No	No	No	No	No	No	No	No	No	No
22	2	3	3	3	No	No	No	No	No	No	No	No	No	No
23	2	3	3	3	No	No	No	No	No	No	No	No	No	No
24	2	3	3	3	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	11.6	10.7
Number of Lanes on Minor Street Approach	1	3
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:06	0:45
Delay Condition Met	No	No
Volume on Minor Street Approach During Same Hour	33	254
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	521	521
Number of Approaches on Intersection	4	4
Total Volume Condition Met	No	No
Warrant Met for Approach	No	No
Warrant Met for Intersection	**No**	

Signal Warrants Report For Intersection 23: Coomunity Arterial Rd/Access 2

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	S, N
Minor Approaches	W
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	S	N	W
1	378	209	58
2	367	203	56
3	359	199	55
4	336	186	52
5	299	165	46
6	295	163	45
7	291	161	45
8	265	146	41
9	261	144	40
10	257	142	39
11	223	123	34
12	208	115	32
13	204	113	31
14	151	84	23
15	151	84	23
16	106	59	16
17	60	33	9
18	60	33	9
19	34	19	5
20	19	10	3
21	11	6	2
22	4	2	1
23	4	2	1
24	4	2	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	587	2	58	No	No	No	No	No	No	No	Yes	No	No
2	3	570	2	56	No	No	No	No	No	No	No	Yes	No	No
3	3	558	2	55	No	No	No	No	No	No	No	No	No	No
4	3	522	2	52	No	No	No	No	No	No	No	No	No	No
5	3	464	2	46	No	No	No	No	No	No	No	No	No	No
6	3	458	2	45	No	No	No	No	No	No	No	No	No	No
7	3	452	2	45	No	No	No	No	No	No	No	No	No	No
8	3	411	2	41	No	No	No	No	No	No	No	No	No	No
9	3	405	2	40	No	No	No	No	No	No	No	No	No	No
10	3	399	2	39	No	No	No	No	No	No	No	No	No	No
11	3	346	2	34	No	No	No	No	No	No	No	No	No	No
12	3	323	2	32	No	No	No	No	No	No	No	No	No	No
13	3	317	2	31	No	No	No	No	No	No	No	No	No	No
14	3	235	2	23	No	No	No	No	No	No	No	No	No	No
15	3	235	2	23	No	No	No	No	No	No	No	No	No	No
16	3	165	2	16	No	No	No	No	No	No	No	No	No	No
17	3	93	2	9	No	No	No	No	No	No	No	No	No	No
18	3	93	2	9	No	No	No	No	No	No	No	No	No	No
19	3	53	2	5	No	No	No	No	No	No	No	No	No	No
20	3	29	2	3	No	No	No	No	No	No	No	No	No	No
21	3	17	2	2	No	No	No	No	No	No	No	No	No	No
22	3	6	2	1	No	No	No	No	No	No	No	No	No	No
23	3	6	2	1	No	No	No	No	No	No	No	No	No	No
24	3	6	2	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	2	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	9.9
Number of Lanes on Minor Street Approach	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	58
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	645
Number of Approaches on Intersection	3
Total Volume Condition Met	No
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 25: Marksheffel Rd/East Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1481	1116	71
2	1437	1083	69
3	1407	1060	67
4	1318	993	63
5	1170	882	56
6	1155	870	55
7	1140	859	55
8	1037	781	50
9	1022	770	49
10	1007	759	48
11	874	658	42
12	815	614	39
13	800	603	38
14	592	446	28
15	592	446	28
16	415	312	20
17	237	179	11
18	237	179	11
19	133	100	6
20	74	56	4
21	44	33	2
22	15	11	1
23	15	11	1
24	15	11	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2597	1	71	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	3	2520	1	69	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	3	2467	1	67	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	3	2311	1	63	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	3	2052	1	56	No	No	No	No	No	No	Yes	Yes	No	No
6	3	2025	1	55	No	No	No	No	No	No	Yes	Yes	No	No
7	3	1999	1	55	No	No	No	No	No	No	Yes	Yes	No	No
8	3	1818	1	50	No	No	No	No	No	No	No	Yes	No	No
9	3	1792	1	49	No	No	No	No	No	No	No	Yes	No	No
10	3	1766	1	48	No	No	No	No	No	No	No	Yes	No	No
11	3	1532	1	42	No	No	No	No	No	No	No	Yes	No	No
12	3	1429	1	39	No	No	No	No	No	No	No	No	No	No
13	3	1403	1	38	No	No	No	No	No	No	No	No	No	No
14	3	1038	1	28	No	No	No	No	No	No	No	No	No	No
15	3	1038	1	28	No	No	No	No	No	No	No	No	No	No
16	3	727	1	20	No	No	No	No	No	No	No	No	No	No
17	3	416	1	11	No	No	No	No	No	No	No	No	No	No
18	3	416	1	11	No	No	No	No	No	No	No	No	No	No
19	3	233	1	6	No	No	No	No	No	No	No	No	No	No
20	3	130	1	4	No	No	No	No	No	No	No	No	No	No
21	3	77	1	2	No	No	No	No	No	No	No	No	No	No
22	3	26	1	1	No	No	No	No	No	No	No	No	No	No
23	3	26	1	1	No	No	No	No	No	No	No	No	No	No
24	3	26	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	4	7	11	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	17.9
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:21
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	71
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2668
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Intersection 11: Fontaine Bl/Community Arterial 1 4

Signal Warrants Report For Intersection 10: Fontaine Bl/Autumn Glen Ave

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	595	1063	0	186
2	577	1031	0	180
3	565	1010	0	177
4	530	946	0	166
5	470	840	0	147
6	464	829	0	145
7	458	819	0	143
8	417	744	0	130
9	411	733	0	128
10	405	723	0	126
11	351	627	0	110
12	327	585	0	102
13	321	574	0	100
14	238	425	0	74
15	238	425	0	74
16	167	298	0	52
17	95	170	0	30
18	95	170	0	30
19	54	96	0	17
20	30	53	0	9
21	18	32	0	6
22	6	11	0	2
23	6	11	0	2
24	6	11	0	2

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1658	2	186	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	3	1608	2	180	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	3	1575	2	177	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	3	1476	2	166	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	3	1310	2	147	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	3	1293	2	145	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	3	1277	2	143	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	3	1161	2	130	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	3	1144	2	128	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
10	3	1128	2	126	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
11	3	978	2	110	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
12	3	912	2	102	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
13	3	895	2	100	No	No	No	No	No	Yes	Yes	Yes	Yes	No
14	3	663	2	74	No	No	No	No	No	No	Yes	Yes	No	No
15	3	663	2	74	No	No	No	No	No	No	Yes	Yes	No	No
16	3	465	2	52	No	No	No	No	No	No	No	No	No	No
17	3	265	2	30	No	No	No	No	No	No	No	No	No	No
18	3	265	2	30	No	No	No	No	No	No	No	No	No	No
19	3	150	2	17	No	No	No	No	No	No	No	No	No	No
20	3	83	2	9	No	No	No	No	No	No	No	No	No	No
21	3	50	2	6	No	No	No	No	No	No	No	No	No	No
22	3	17	2	2	No	No	No	No	No	No	No	No	No	No
23	3	17	2	2	No	No	No	No	No	No	No	No	No	No
24	3	17	2	2	No	No	No	No	No	No	No	No	No	No
Hours Met					0	4	7	10	12	13	15	15	13	10

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	33.3	293.3
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	15:09
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	0	186
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1844	1844
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	**Yes**	

Signal Warrants Report For Intersection 11: Fontaine Bl/Community Arterial 1

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	Yes
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	Yes

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	N, S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets	
	E	W	N	S
1	414	891	0	253
2	402	864	0	245
3	393	846	0	240
4	368	793	0	225
5	327	704	0	200
6	323	695	0	197
7	319	686	0	195
8	290	624	0	177
9	286	615	0	175
10	282	606	0	172
11	244	526	0	149
12	228	490	0	139
13	224	481	0	137
14	166	356	0	101
15	166	356	0	101
16	116	249	0	71
17	66	143	0	40
18	66	143	0	40
19	37	80	0	23
20	21	45	0	13
21	12	27	0	8
22	4	9	0	3
23	4	9	0	3
24	4	9	0	3

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1305	2	253	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2	3	1266	2	245	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3	3	1239	2	240	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4	3	1161	2	225	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5	3	1031	2	200	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6	3	1018	2	197	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7	3	1005	2	195	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
8	3	914	2	177	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
9	3	901	2	175	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
10	3	888	2	172	No	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
11	3	770	2	149	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	No
12	3	718	2	139	No	No	No	Yes	No	No	Yes	Yes	Yes	No
13	3	705	2	137	No	No	No	Yes	No	No	Yes	Yes	Yes	No
14	3	522	2	101	No	No	No	No	No	No	No	Yes	No	No
15	3	522	2	101	No	No	No	No	No	No	No	Yes	No	No
16	3	365	2	71	No	No	No	No	No	No	No	No	No	No
17	3	209	2	40	No	No	No	No	No	No	No	No	No	No
18	3	209	2	40	No	No	No	No	No	No	No	No	No	No
19	3	117	2	23	No	No	No	No	No	No	No	No	No	No
20	3	66	2	13	No	No	No	No	No	No	No	No	No	No
21	3	39	2	8	No	No	No	No	No	No	No	No	No	No
22	3	13	2	3	No	No	No	No	No	No	No	No	No	No
23	3	13	2	3	No	No	No	No	No	No	No	No	No	No
24	3	13	2	3	No	No	No	No	No	No	No	No	No	No
Hours Met					5	10	11	13	9	11	13	15	13	8

Warrant 3 Condition A

Orientation	N	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	21.6	154.9
Number of Lanes on Minor Street Approach	1	2
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:00	10:52
Delay Condition Met	No	Yes
Volume on Minor Street Approach During Same Hour	0	253
High Minor Volume Condition Met	No	Yes
Total Entering Volume on All Approaches During Same Hour	1558	1558
Number of Approaches on Intersection	4	4
Total Volume Condition Met	Yes	Yes
Warrant Met for Approach	No	Yes
Warrant Met for Intersection	**Yes**	

Appendix E – Horizon Conditions Analyses

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	30.8
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.681

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	67	539	45	78	350	123	202	93	33	160	279	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	41	0	0	111	0	0	30	0	0	50
Total Hourly Volume [veh/h]	121	973	40	141	632	111	365	168	30	289	504	49
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	264	11	38	172	30	99	46	8	79	137	13
Total Analysis Volume [veh/h]	132	1058	43	153	687	121	397	183	33	314	548	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	13.0	33.0	0.0	12.0	32.0	0.0	14.0	23.0	0.0	12.0	21.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	38.0	26.7	26.7	38.0	26.8	26.8	28.5	16.5	16.5	28.5	14.5	14.5
g / C, Green / Cycle	0.48	0.33	0.33	0.48	0.33	0.33	0.36	0.21	0.21	0.36	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.14	0.30	0.03	0.19	0.19	0.08	0.32	0.05	0.02	0.23	0.15	0.03
s, saturation flow rate [veh/h]	945	3560	1589	824	3560	1589	1223	3560	1589	1381	3560	1589
c, Capacity [veh/h]	473	1186	530	381	1189	531	449	734	328	577	645	288
d1, Uniform Delay [s]	13.23	25.30	18.28	16.44	22.00	19.21	24.59	26.57	25.74	20.53	31.69	27.74
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.46	10.32	0.30	3.14	2.05	1.00	21.70	0.18	0.13	3.67	3.24	0.30
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.28	0.89	0.08	0.40	0.58	0.23	0.88	0.25	0.10	0.54	0.85	0.18
d, Delay for Lane Group [s/veh]	14.70	35.62	18.58	19.58	24.05	20.21	46.29	26.74	25.87	24.20	34.93	28.04
Lane Group LOS	B	D	B	B	C	C	D	C	C	C	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.28	9.82	0.52	1.61	4.92	1.56	8.42	1.42	0.50	4.86	5.18	0.85
50th-Percentile Queue Length [ft/ln]	32.06	245.55	13.03	40.29	123.04	38.94	210.60	35.48	12.54	121.38	129.38	21.28
95th-Percentile Queue Length [veh/ln]	2.31	14.96	0.94	2.90	8.56	2.80	13.18	2.55	0.90	8.47	8.91	1.53
95th-Percentile Queue Length [ft/ln]	57.71	374.04	23.45	72.52	214.00	70.09	329.60	63.87	22.58	211.72	222.65	38.31

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.70	35.62	18.58	19.58	24.05	20.21	46.29	26.74	25.87	24.20	34.93	28.04
Movement LOS	B	D	B	B	C	C	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	32.79			22.85			39.35			30.85		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.83											
Intersection LOS	C											
Intersection V/C	0.681											

Emissions

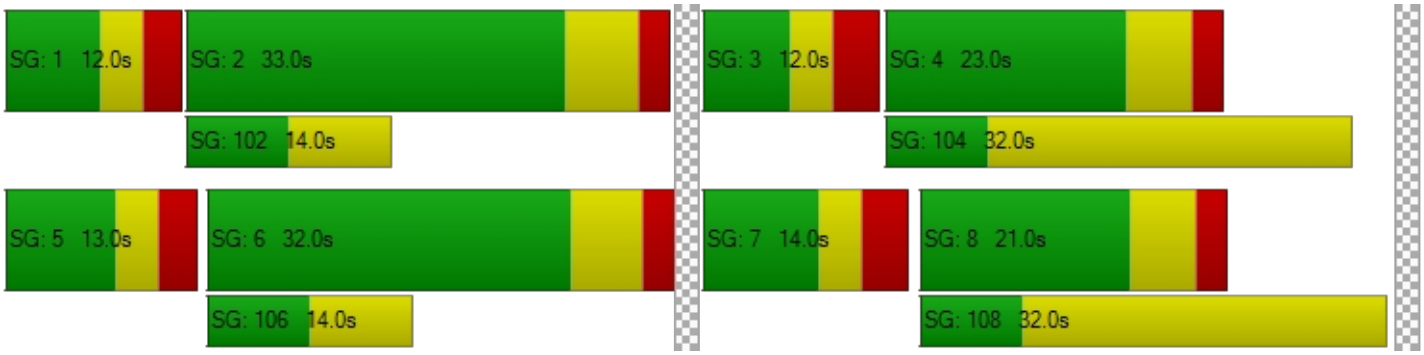
Vehicle Miles Traveled [mph]	147.68	1183.68	48.11	248.39	1115.32	196.44	221.17	101.95	18.38	86.09	150.24	14.53
Stops [stops/h]	57.71	883.98	23.45	72.52	442.95	70.09	379.09	127.73	22.58	218.48	465.75	38.31
Fuel consumption [US gal/h]	6.41	63.69	2.21	10.27	48.90	8.37	15.02	5.84	1.04	6.47	13.12	1.14
CO [g/h]	447.84	4451.59	154.30	717.58	3418.05	585.12	1049.94	408.40	72.99	452.30	917.42	80.00
NOx [g/h]	87.13	866.12	30.02	139.62	665.03	113.84	204.28	79.46	14.20	88.00	178.50	15.56
VOC [g/h]	103.79	1031.70	35.76	166.31	792.17	135.61	243.33	94.65	16.92	104.82	212.62	18.54

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	29.76	29.76	29.76	29.76
l_p,int, Pedestrian LOS Score for Intersectio	3.403	3.538	2.851	2.961
Crosswalk LOS	C	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	650	625	413	363
d_b, Bicycle Delay [s]	18.23	18.91	25.20	26.81
l_b,int, Bicycle LOS Score for Intersection	2.611	2.444	2.090	2.356
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	20.6
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.057

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	8	1	224	3	1	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.6734	1.6734	1.8060	1.6734	1.6734	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	2	405	5	2	995
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	110	1	1	270
Total Analysis Volume [veh/h]	14	2	440	5	2	1082
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

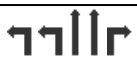
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	20.56	10.44	0.00	0.00	8.24	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.19	0.19	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	4.74	4.74	0.00	0.00	0.14	0.00
d_A, Approach Delay [s/veh]	19.30		0.00		0.02	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	47.7
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.782

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	3.0860	3.0860	1.9600	3.0860	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	91	0	0	25	0	0	60	0	0	498
Total Hourly Volume [veh/h]	148	1694	91	184	614	24	96	319	60	368	829	498
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	40	460	25	50	167	7	26	87	16	100	225	135
Total Analysis Volume [veh/h]	161	1841	99	200	667	26	104	347	65	400	901	541
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna
Flashing Yellow Arrow												
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	31.0	0.0	0.0	31.0	0.0	0.0	31.0	0.0	0.0	31.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	14.0	62.0	0.0	11.0	59.0	0.0	9.0	19.0	0.0	18.0	28.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Calculated Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	4.00	7.50	4.00	7.50	4.00	7.00	4.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	2.00	5.50	2.00	5.00	2.00	5.00
g_i, Effective Green Time [s]	7.2	54.0	7.0	53.9	5.0	12.1	14.4	21.4
g / C, Green / Cycle	0.07	0.49	0.06	0.49	0.05	0.11	0.13	0.19
(v / s)_i Volume / Saturation Flow Rate	0.05	0.52	0.06	0.19	0.03	0.07	0.12	0.18
s, saturation flow rate [veh/h]	3459	3560	3459	3560	3459	5094	3459	5094
c, Capacity [veh/h]	227	1749	220	1741	158	561	451	993
d1, Uniform Delay [s]	50.35	27.98	51.18	17.66	51.63	46.73	47.03	43.31
k, delay calibration	0.11	0.50	0.11	0.50	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.03	36.91	13.29	0.64	4.57	5.04	6.05	13.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.71	1.05	0.91	0.38	0.66	0.62	0.89	0.91
d, Delay for Lane Group [s/veh]	54.38	64.90	64.47	18.30	56.21	51.77	53.08	56.78
Lane Group LOS	D	F	E	B	E	D	D	E
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.24	29.57	3.02	4.90	1.50	3.25	5.58	8.91
50th-Percentile Queue Length [ft/ln]	55.96	739.15	75.41	122.60	37.42	81.30	139.44	222.80
95th-Percentile Queue Length [veh/ln]	4.03	40.06	5.43	8.54	2.69	5.85	9.45	13.81
95th-Percentile Queue Length [ft/ln]	100.73	1001.58	135.73	213.39	67.36	146.34	236.27	345.20

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.38	64.90	0.00	64.47	18.30	0.00	56.21	51.77	0.00	53.08	56.78	0.00
Movement LOS	D	F		E	B		E	D		D	E	
d_A, Approach Delay [s/veh]	61.27			28.18			46.59			40.24		
Approach LOS	E			C			D			D		
d_I, Intersection Delay [s/veh]	47.71											
Intersection LOS	D											
Intersection V/C	0.782											

Emissions

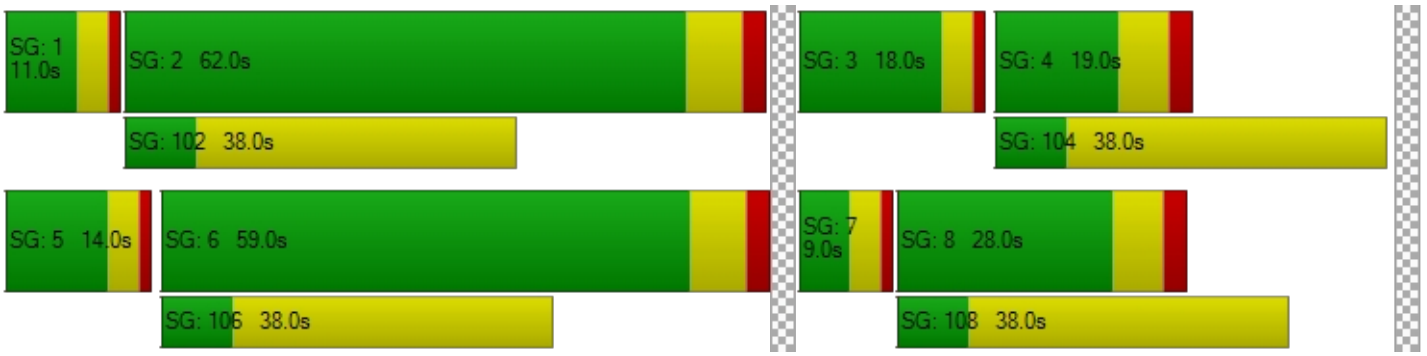
Vehicle Miles Traveled [mph]	35.15	401.97	36.69	122.38	25.90	86.42	79.46	178.99
Stops [stops/h]	146.51	1935.22	197.43	320.98	97.98	319.29	365.09	875.00
Fuel consumption [US gal/h]	4.81	62.15	7.52	12.54	2.91	9.35	11.58	27.42
CO [g/h]	336.10	4344.40	525.53	876.57	203.66	653.59	809.67	1917.01
NOx [g/h]	65.39	845.26	102.25	170.55	39.63	127.17	157.53	372.98
VOC [g/h]	77.89	1006.86	121.80	203.15	47.20	151.48	187.65	444.28

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersectio	3.296	3.363	3.050	3.159
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	991	936	218	382
d_b, Bicycle Delay [s]	14.00	15.56	43.65	36.00
l_b,int, Bicycle LOS Score for Intersection	3.211	2.275	1.808	2.275
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	20.9
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.696

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	475.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd			
Base Volume Input [veh/h]	587	119	29	398	209	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	3.0860	1.9600	1.9600	3.0860	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	117	0	0	0	107
Total Hourly Volume [veh/h]	1811	116	57	1062	410	107
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	492	32	15	289	111	29
Total Analysis Volume [veh/h]	1968	126	62	1154	446	116
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Flashing Yellow Arrow			No			
Signal Group	2	0	1	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	10	0	5	10	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	5.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	10.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	44.0	0.0	9.0	53.0	17.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	5	10	5	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	40.0	40.0	49.0	49.0	13.0	13.0
g / C, Green / Cycle	0.57	0.57	0.70	0.70	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.55	0.08	0.15	0.32	0.13	0.07
s, saturation flow rate [veh/h]	3560	1589	423	3560	3459	1589
c, Capacity [veh/h]	2035	908	346	2492	642	295
d1, Uniform Delay [s]	14.37	6.98	15.32	4.66	26.64	25.03
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	13.60	0.32	1.13	0.62	6.10	3.89
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	0.14	0.18	0.46	0.69	0.39
d, Delay for Lane Group [s/veh]	27.97	7.30	16.45	5.28	32.74	28.93
Lane Group LOS	C	A	B	A	C	C
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	14.33	0.73	0.25	2.15	3.80	1.91
50th-Percentile Queue Length [ft/ln]	358.34	18.32	6.37	53.79	95.03	47.78
95th-Percentile Queue Length [veh/ln]	20.54	1.32	0.46	3.87	6.84	3.44
95th-Percentile Queue Length [ft/ln]	513.56	32.98	11.46	96.81	171.05	86.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.97	7.30	16.45	5.28	32.74	28.93
Movement LOS	C	A	B	A	C	C
d_A, Approach Delay [s/veh]	26.73		5.85		31.95	
Approach LOS	C		A		C	
d_I, Intersection Delay [s/veh]	20.93					
Intersection LOS	C					
Intersection V/C	0.696					

Emissions

Vehicle Miles Traveled [mph]	1835.52	117.52	11.07	206.11	76.84	19.99
Stops [stops/h]	1474.29	37.70	13.10	221.29	390.97	98.29
Fuel consumption [US gal/h]	92.45	4.68	0.75	11.06	8.84	2.18
CO [g/h]	6462.33	327.42	52.42	772.87	617.97	152.65
NOx [g/h]	1257.33	63.70	10.20	150.37	120.23	29.70
VOC [g/h]	1497.71	75.88	12.15	179.12	143.22	35.38

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.58	26.58	26.58
l_p,int, Pedestrian LOS Score for Intersectio	3.570	3.272	2.602
Crosswalk LOS	D	C	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1143	1400	371
d_b, Bicycle Delay [s]	6.43	3.15	23.21
l_b,int, Bicycle LOS Score for Intersection	3.384	2.563	1.560
Bicycle LOS	C	B	A

Sequence

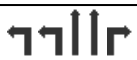
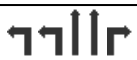
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	54.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.713

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	400.00	100.00	100.00	100.00	100.00	840.00	500.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	42	373	25	26	301	333	280	202	62	125	375	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.2190	1.2190	3.0860	3.0860	3.0860	1.2190	3.0860	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	15	0	0	514	0	0	96	0	0	76
Total Hourly Volume [veh/h]	130	1151	15	32	929	514	864	246	95	152	457	76
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	35	313	4	9	252	140	235	67	26	41	124	21
Total Analysis Volume [veh/h]	141	1251	16	35	1010	559	939	267	103	165	497	83
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	140
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow				No								
Signal Group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	5	10	0	25	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	2.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	5.0	0.0	7.0	5.0	0.0
Pedestrian Clearance [s]	0.0	26.0	0.0	0.0	26.0	0.0	0.0	30.0	0.0	7.0	30.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	14.0	61.0	0.0	9.0	56.0	0.0	31.0	50.0	0.0	20.0	39.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	140	140	140	140	140	140	140	140	140	140	140	140
L, Total Lost Time per Cycle [s]	4.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.00	3.00	0.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	10.0	56.0	56.0	65.0	51.0	51.0	27.0	46.0	46.0	15.0	35.0	35.0
g / C, Green / Cycle	0.07	0.40	0.40	0.46	0.36	0.36	0.19	0.33	0.33	0.11	0.25	0.25
(v / s)_i Volume / Saturation Flow Rate	0.04	0.35	0.01	0.06	0.28	0.35	0.18	0.07	0.06	0.05	0.14	0.05
s, saturation flow rate [veh/h]	3459	3560	1589	582	3560	1589	5188	3560	1589	3459	3560	1589
c, Capacity [veh/h]	247	1424	636	205	1297	579	1001	1170	522	371	890	397
d1, Uniform Delay [s]	62.92	38.85	25.46	28.53	39.49	43.64	55.68	34.12	33.74	58.60	45.76	41.54
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.25	7.97	0.07	1.80	4.67	29.78	17.01	0.45	0.84	3.84	2.52	1.19
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.88	0.03	0.17	0.78	0.97	0.94	0.23	0.20	0.45	0.56	0.21
d, Delay for Lane Group [s/veh]	72.17	46.82	25.53	30.33	44.16	73.42	72.69	34.57	34.59	62.44	48.29	42.74
Lane Group LOS	E	D	C	C	D	E	E	C	C	E	D	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.71	20.64	0.33	0.72	15.76	23.03	12.21	3.33	2.61	2.96	7.90	2.43
50th-Percentile Queue Length [ft/ln]	67.73	515.99	8.31	17.97	393.90	575.82	305.23	83.19	65.14	73.90	197.57	60.83
95th-Percentile Queue Length [veh/ln]	4.88	28.09	0.60	1.29	22.27	30.90	17.94	5.99	4.69	5.32	12.51	4.38
95th-Percentile Queue Length [ft/ln]	121.92	702.25	14.96	32.35	556.64	772.59	448.49	149.75	117.26	133.01	312.83	109.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	72.17	46.82	25.53	30.33	44.16	73.42	72.69	34.57	34.59	62.44	48.29	42.74
Movement LOS	E	D	C	C	D	E	E	C	C	E	D	D
d_A, Approach Delay [s/veh]	49.12			54.05			61.92			50.80		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	54.23											
Intersection LOS	D											
Intersection V/C	0.713											

Emissions

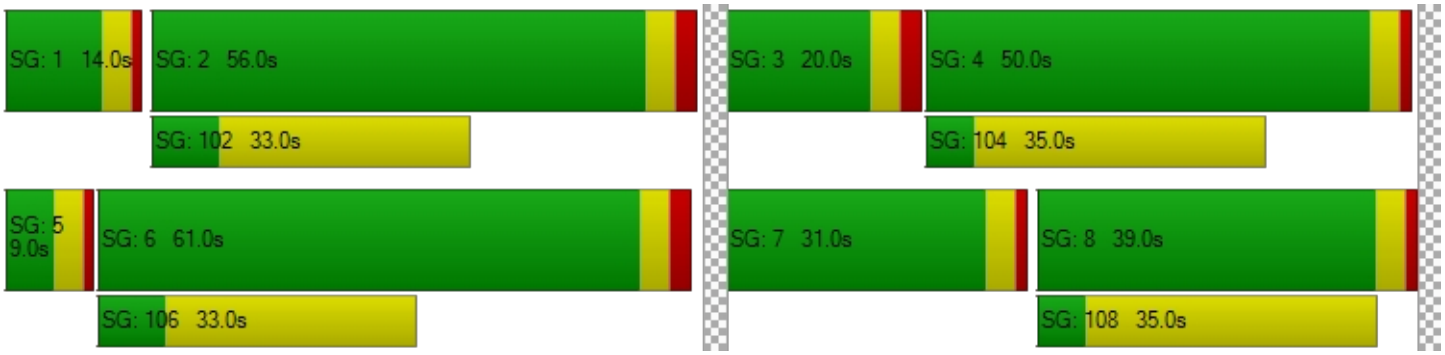
Vehicle Miles Traveled [mph]	85.46	758.21	9.70	32.64	942.01	521.37	141.66	40.28	15.54	10.08	30.36	5.07
Stops [stops/h]	139.33	1061.46	8.55	18.49	810.30	592.27	941.84	171.14	67.00	152.02	406.43	62.57
Fuel consumption [US gal/h]	6.73	51.11	0.52	1.56	51.44	33.59	30.45	5.39	2.09	3.35	8.38	1.28
CO [g/h]	470.58	3572.29	36.47	109.38	3595.64	2347.66	2128.75	376.53	146.14	234.24	585.66	89.20
NOx [g/h]	91.56	695.04	7.10	21.28	699.58	456.77	414.18	73.26	28.43	45.57	113.95	17.36
VOC [g/h]	109.06	827.91	8.45	25.35	833.33	544.09	493.36	87.27	33.87	54.29	135.73	20.67

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.29	61.29	59.43	59.43
l_p,int, Pedestrian LOS Score for Intersectio	3.280	4.281	3.453	2.904
Crosswalk LOS	C	E	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	729	657	500
d_b, Bicycle Delay [s]	25.20	28.29	31.56	39.38
l_b,int, Bicycle LOS Score for Intersection	2.734	3.307	2.719	2.237
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	11.0
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.391

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	670.00	100.00	100.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	56	2	12	55	2	137	51	290	19	4	359	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2189	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	122	0	0	12	0	0	9
Total Hourly Volume [veh/h]	68	2	7	98	2	122	91	812	11	5	1005	9
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	1	2	27	1	33	25	221	3	1	273	2
Total Analysis Volume [veh/h]	74	2	8	107	2	133	99	883	12	5	1092	10
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	16	0	0	16	0	0	36	0	0	36	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	23.0	0.0	0.0	23.0	0.0	0.0	37.0	0.0	0.0	37.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	19.0	19.0	19.0	19.0	33.0	33.0	33.0	33.0	33.0	33.0
g / C, Green / Cycle	0.32	0.32	0.32	0.32	0.55	0.55	0.55	0.55	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.06	0.01	0.08	0.08	0.19	0.25	0.01	0.01	0.31	0.01
s, saturation flow rate [veh/h]	1254	1639	1405	1593	511	3560	1589	622	3560	1589
c, Capacity [veh/h]	396	519	512	504	282	1958	874	349	1958	874
d1, Uniform Delay [s]	19.39	14.09	16.87	15.31	17.32	8.08	6.12	12.07	8.76	6.11
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.04	0.07	0.93	1.30	3.40	0.75	0.03	0.07	1.15	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.02	0.21	0.27	0.35	0.45	0.01	0.01	0.56	0.01
d, Delay for Lane Group [s/veh]	20.43	14.16	17.80	16.60	20.72	8.83	6.15	12.14	9.91	6.14
Lane Group LOS	C	B	B	B	C	A	A	B	A	A
Critical Lane Group	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	0.89	0.09	1.16	1.40	1.23	2.51	0.05	0.04	3.41	0.05
50th-Percentile Queue Length [ft/ln]	22.30	2.33	29.07	35.08	30.63	62.87	1.36	1.06	85.31	1.13
95th-Percentile Queue Length [veh/ln]	1.61	0.17	2.09	2.53	2.21	4.53	0.10	0.08	6.14	0.08
95th-Percentile Queue Length [ft/ln]	40.15	4.19	52.33	63.14	55.14	113.17	2.45	1.91	153.55	2.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	20.43	14.16	14.16	17.80	16.60	16.60	20.72	8.83	6.15	12.14	9.91	6.14
Movement LOS	C	B	B	B	B	B	C	A	A	B	A	A
d_A, Approach Delay [s/veh]	19.69			17.13			9.98			9.89		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	10.99											
Intersection LOS	B											
Intersection V/C	0.391											

Emissions

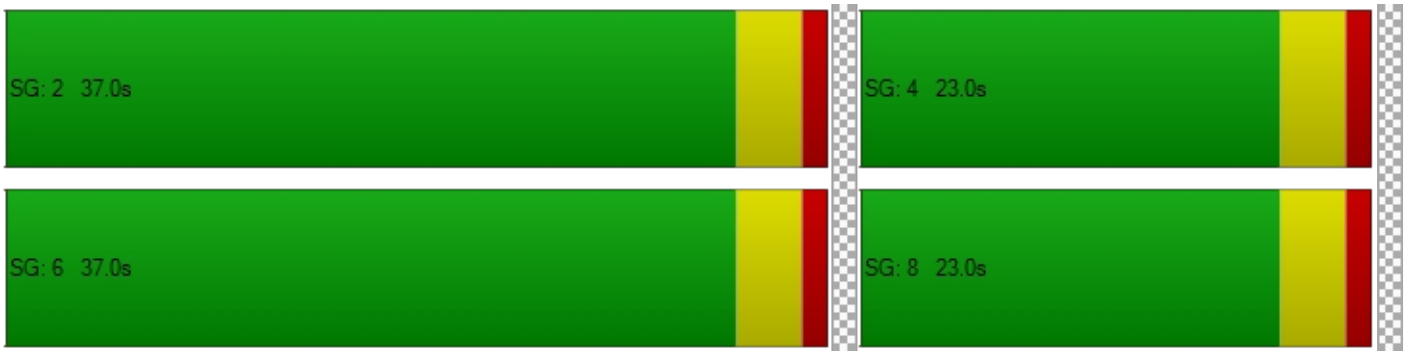
Vehicle Miles Traveled [mph]	2.09	0.28	91.51	115.46	39.90	355.91	4.84	0.75	164.74	1.51
Stops [stops/h]	53.53	5.59	69.78	84.18	73.52	301.79	3.27	2.54	409.47	2.72
Fuel consumption [US gal/h]	0.79	0.08	4.40	5.49	2.70	17.54	0.22	0.07	12.94	0.10
CO [g/h]	55.23	5.71	307.61	383.77	188.69	1225.99	15.48	4.88	904.62	6.85
NOx [g/h]	10.75	1.11	59.85	74.67	36.71	238.53	3.01	0.95	176.01	1.33
VOC [g/h]	12.80	1.32	71.29	88.94	43.73	284.13	3.59	1.13	209.65	1.59

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	633	633	1100	1100
d_b, Bicycle Delay [s]	14.01	14.01	6.08	6.08
l_b,int, Bicycle LOS Score for Intersection	1.711	2.160	2.390	2.480
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	9.4
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	520.00	100.00	100.00	530.00	100.00	100.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	63	6	13	63	6	151	48	276	25	13	481	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	135	0	0	15	0	0	11
Total Hourly Volume [veh/h]	77	7	8	112	7	134	85	772	15	16	1346	10
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	2	2	30	2	36	23	210	4	4	366	3
Total Analysis Volume [veh/h]	84	8	9	122	8	146	92	839	16	17	1463	11
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	11	0	0	11	0	0	41	0	0	41	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	17.0	0.0	0.0	17.0	0.0	0.0	43.0	0.0	0.0	43.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	13.0	13.0	13.0	13.0	13.0	13.0	39.0	39.0	39.0	39.0	39.0	39.0
g / C, Green / Cycle	0.22	0.22	0.22	0.22	0.22	0.22	0.65	0.65	0.65	0.65	0.65	0.65
(v / s)_i Volume / Saturation Flow Rate	0.07	0.00	0.01	0.09	0.00	0.09	0.26	0.24	0.01	0.03	0.41	0.01
s, saturation flow rate [veh/h]	1233	3560	1589	1396	3560	1589	359	3560	1589	645	3560	1589
c, Capacity [veh/h]	344	771	344	373	771	344	254	2314	1033	448	2314	1033
d1, Uniform Delay [s]	21.56	18.45	18.51	22.02	18.45	20.27	15.89	4.81	3.71	7.44	6.24	3.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.68	0.02	0.14	2.32	0.02	3.79	3.98	0.44	0.03	0.16	1.33	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.24	0.01	0.03	0.33	0.01	0.42	0.36	0.36	0.02	0.04	0.63	0.01
d, Delay for Lane Group [s/veh]	23.25	18.47	18.65	24.34	18.47	24.06	19.87	5.25	3.74	7.59	7.56	3.72
Lane Group LOS	C	B	B	C	B	C	B	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.11	0.04	0.10	1.65	0.04	1.96	1.13	1.39	0.04	0.10	3.24	0.03
50th-Percentile Queue Length [ft/ln]	27.75	1.06	2.59	41.21	1.06	49.04	28.34	34.67	1.11	2.51	81.07	0.76
95th-Percentile Queue Length [veh/ln]	2.00	0.08	0.19	2.97	0.08	3.53	2.04	2.50	0.08	0.18	5.84	0.05
95th-Percentile Queue Length [ft/ln]	49.95	1.91	4.65	74.18	1.91	88.27	51.01	62.41	2.00	4.52	145.93	1.37

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.25	18.47	18.65	24.34	18.47	24.06	19.87	5.25	3.74	7.59	7.56	3.72
Movement LOS	C	B	B	C	B	C	B	A	A	A	A	A
d_A, Approach Delay [s/veh]	22.46			24.02			6.64			7.54		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	9.39											
Intersection LOS	A											
Intersection V/C	0.503											

Emissions

Vehicle Miles Traveled [mph]	5.30	0.50	0.57	122.90	8.06	147.08	36.80	335.63	6.40	6.85	589.70	4.43
Stops [stops/h]	66.60	5.10	6.21	98.91	5.10	117.69	68.01	166.42	2.67	6.02	389.13	1.83
Fuel consumption [US gal/h]	1.10	0.09	0.10	6.03	0.38	7.21	2.48	14.47	0.26	0.34	27.30	0.18
CO [g/h]	76.91	6.13	7.16	421.70	26.26	503.72	173.30	1011.47	18.51	23.49	1908.55	12.80
NOx [g/h]	14.96	1.19	1.39	82.05	5.11	98.01	33.72	196.80	3.60	4.57	371.33	2.49
VOC [g/h]	17.83	1.42	1.66	97.73	6.08	116.74	40.16	234.42	4.29	5.44	442.32	2.97

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	433	433	1300	1300
d_b, Bicycle Delay [s]	18.41	18.41	3.68	3.68
l_b,int, Bicycle LOS Score for Intersection	1.650	1.899	2.353	2.799
Bicycle LOS	A	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	11.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	520.00	100.00	100.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	126	6	32	16	6	190	53	301	32	44	622	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	169	0	0	20	0	0	5
Total Hourly Volume [veh/h]	154	7	19	28	7	169	94	842	19	54	1741	4
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	2	5	8	2	46	26	229	5	15	473	1
Total Analysis Volume [veh/h]	167	8	21	30	8	184	102	915	21	59	1892	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	21	0	0	21	0	0	31	0	0	31	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	14.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	15.0	0.0	0.0	15.0	0.0	0.0	45.0	0.0	0.0	45.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11.0	11.0	11.0	11.0	11.0	11.0	41.0	41.0	41.0	41.0	41.0	41.0
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.18	0.18	0.68	0.68	0.68	0.68	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.14	0.00	0.01	0.02	0.00	0.12	0.43	0.26	0.01	0.10	0.53	0.00
s, saturation flow rate [veh/h]	1191	1870	1589	1381	1870	1589	238	3560	1589	598	3560	1589
c, Capacity [veh/h]	294	343	291	322	343	291	189	2433	1086	443	2433	1086
d1, Uniform Delay [s]	25.42	20.09	20.28	22.34	20.09	22.63	24.07	4.05	3.05	7.03	6.42	3.02
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.71	0.13	0.48	0.57	0.13	9.98	10.57	0.45	0.03	0.62	2.52	0.01
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.57	0.02	0.07	0.09	0.02	0.63	0.54	0.38	0.02	0.13	0.78	0.00
d, Delay for Lane Group [s/veh]	33.12	20.22	20.76	22.91	20.22	32.61	34.64	4.49	3.08	7.65	8.94	3.02
Lane Group LOS	C	C	C	C	C	C	C	A	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	No	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.83	0.10	0.27	0.40	0.10	3.04	1.89	1.21	0.05	0.34	4.31	0.01
50th-Percentile Queue Length [ft/ln]	70.83	2.45	6.68	9.98	2.45	76.00	47.30	30.13	1.16	8.61	107.76	0.22
95th-Percentile Queue Length [veh/ln]	5.10	0.18	0.48	0.72	0.18	5.47	3.41	2.17	0.08	0.62	7.72	0.02
95th-Percentile Queue Length [ft/ln]	127.49	4.42	12.02	17.96	4.42	136.80	85.14	54.23	2.08	15.51	192.88	0.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	33.12	20.22	20.76	22.91	20.22	32.61	34.64	4.49	3.08	7.65	8.94	3.02
Movement LOS	C	C	C	C	C	C	C	A	A	A	A	A
d_A, Approach Delay [s/veh]	31.27			30.85			7.43			8.89		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	11.16											
Intersection LOS	B											
Intersection V/C	0.672											

Emissions

Vehicle Miles Traveled [mph]	10.86	0.52	1.37	4.89	1.31	30.02	39.08	350.57	8.05	23.60	756.87	1.60
Stops [stops/h]	169.99	5.89	16.02	23.94	5.89	182.41	113.53	144.60	2.78	20.68	517.24	0.52
Fuel consumption [US gal/h]	2.51	0.09	0.23	0.47	0.12	3.46	3.47	14.65	0.32	1.16	35.82	0.06
CO [g/h]	175.59	6.07	16.32	33.11	8.33	242.18	242.56	1024.14	22.61	80.94	2503.71	4.46
NOx [g/h]	34.16	1.18	3.17	6.44	1.62	47.12	47.19	199.26	4.40	15.75	487.13	0.87
VOC [g/h]	40.69	1.41	3.78	7.67	1.93	56.13	56.21	237.35	5.24	18.76	580.26	1.03

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	2.303	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1367	1367
d_b, Bicycle Delay [s]	20.01	20.01	3.01	3.01
l_b,int, Bicycle LOS Score for Intersection	1.916	2.205	2.432	3.177
Bicycle LOS	A	B	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	37.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.835

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	2	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	1180.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	502	295	59	491	618	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.6600	2.6600	2.6600	2.6600	2.6600	2.6600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	393	0	0	0	265
Total Hourly Volume [veh/h]	1335	785	157	1306	1644	264
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	363	213	43	355	447	72
Total Analysis Volume [veh/h]	1451	853	171	1420	1787	287
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	ProtPerm	Permissive	Permissive	Permissive
Flashing Yellow Arrow			No			
Signal Group	2	8	1	6	8	0
Auxiliary Signal Groups		2,8				
Maximum Green [s]	50	40	20	50	40	0
Amber [s]	5.0	3.0	3.0	5.0	3.0	0.0
All red [s]	2.0	3.0	2.0	2.0	3.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	4.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	47.0	72.0	11.0	58.0	72.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	6	6	25	6	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	Yes	No	No	Yes	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	7.00	6.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	0.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	40.0	113.0	51.0	51.0	66.0	66.0
g / C, Green / Cycle	0.31	0.87	0.39	0.39	0.51	0.51
(v / s)_i Volume / Saturation Flow Rate	0.28	0.30	0.20	0.28	0.52	0.18
s, saturation flow rate [veh/h]	5094	2813	865	5094	3459	1589
c, Capacity [veh/h]	1567	2445	364	1998	1756	807
d1, Uniform Delay [s]	43.56	1.60	31.72	33.28	32.00	19.23
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.82	0.39	4.30	2.18	14.82	0.27
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.35	0.47	0.71	1.02	0.36
d, Delay for Lane Group [s/veh]	54.38	1.99	36.03	35.46	46.82	19.49
Lane Group LOS	D	A	D	D	F	B
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	15.76	0.56	1.83	12.17	28.96	5.04
50th-Percentile Queue Length [ft/ln]	393.97	14.08	45.74	304.14	723.99	125.94
95th-Percentile Queue Length [veh/ln]	22.27	1.01	3.29	17.89	38.33	8.72
95th-Percentile Queue Length [ft/ln]	556.73	25.34	82.34	447.14	958.24	217.96

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.38	1.99	36.03	35.46	46.82	19.49
Movement LOS	D	A	D	D	F	B
d_A, Approach Delay [s/veh]	34.99		35.52		43.04	
Approach LOS	C		D		D	
d_I, Intersection Delay [s/veh]	37.92					
Intersection LOS	D					
Intersection V/C	0.835					

Emissions

Vehicle Miles Traveled [mph]	271.37	159.53	191.31	1588.69	684.66	109.96
Stops [stops/h]	1309.20	31.19	101.34	1010.67	1603.92	139.50
Fuel consumption [US gal/h]	49.45	6.26	9.54	82.16	60.44	6.64
CO [g/h]	3456.70	437.65	666.54	5743.15	4224.43	464.27
NOx [g/h]	672.55	85.15	129.68	1117.41	821.92	90.33
VOC [g/h]	801.12	101.43	154.48	1331.03	979.05	107.60

Other Modes

g_Walk,mi, Effective Walk Time [s]	66.0	66.0	40.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	15.75	15.75	31.15
l_p,int, Pedestrian LOS Score for Intersectio	4.572	3.496	3.849
Crosswalk LOS	E	C	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	615	785	1015
d_b, Bicycle Delay [s]	31.15	24.00	15.75
l_b,int, Bicycle LOS Score for Intersection	3.043	2.435	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	997	410	15
2	967	398	15
3	947	390	14
4	887	365	13
5	788	324	12
6	778	320	12
7	768	316	12
8	698	287	11
9	688	283	10
10	678	279	10
11	588	242	9
12	548	226	8
13	538	221	8
14	399	164	6
15	399	164	6
16	279	115	4
17	160	66	2
18	160	66	2
19	90	37	1
20	50	21	1
21	30	12	0
22	10	4	0
23	10	4	0
24	10	4	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1407	1	15	No	No	No	No	No	No	No	No	No	No
2	3	1365	1	15	No	No	No	No	No	No	No	No	No	No
3	3	1337	1	14	No	No	No	No	No	No	No	No	No	No
4	3	1252	1	13	No	No	No	No	No	No	No	No	No	No
5	3	1112	1	12	No	No	No	No	No	No	No	No	No	No
6	3	1098	1	12	No	No	No	No	No	No	No	No	No	No
7	3	1084	1	12	No	No	No	No	No	No	No	No	No	No
8	3	985	1	11	No	No	No	No	No	No	No	No	No	No
9	3	971	1	10	No	No	No	No	No	No	No	No	No	No
10	3	957	1	10	No	No	No	No	No	No	No	No	No	No
11	3	830	1	9	No	No	No	No	No	No	No	No	No	No
12	3	774	1	8	No	No	No	No	No	No	No	No	No	No
13	3	759	1	8	No	No	No	No	No	No	No	No	No	No
14	3	563	1	6	No	No	No	No	No	No	No	No	No	No
15	3	563	1	6	No	No	No	No	No	No	No	No	No	No
16	3	394	1	4	No	No	No	No	No	No	No	No	No	No
17	3	226	1	2	No	No	No	No	No	No	No	No	No	No
18	3	226	1	2	No	No	No	No	No	No	No	No	No	No
19	3	127	1	1	No	No	No	No	No	No	No	No	No	No
20	3	71	1	1	No	No	No	No	No	No	No	No	No	No
21	3	42	1	0	No	No	No	No	No	No	No	No	No	No
22	3	14	1	0	No	No	No	No	No	No	No	No	No	No
23	3	14	1	0	No	No	No	No	No	No	No	No	No	No
24	3	14	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	19.3
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:04
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	15
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1422
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.678

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	795.00	100.00	685.00	405.00	100.00	670.00	425.00	100.00	660.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	640.00	0.00	0.00	500.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	58	629	171	142	585	234	138	236	82	121	140	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	155	0	0	212	0	0	74	0	0	47
Total Hourly Volume [veh/h]	105	1136	154	256	1057	211	249	426	74	219	253	47
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	309	42	70	287	57	68	116	20	60	69	13
Total Analysis Volume [veh/h]	114	1235	167	278	1149	229	271	463	80	238	275	51
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12.0	41.0	0.0	12.0	41.0	0.0	12.0	25.0	0.0	12.0	25.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	7.00	7.00	6.50	6.50	6.50	6.50	6.50	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	5.00	0.00	5.00	5.00	0.00	4.50	4.50	0.00	4.50	4.50
g_i, Effective Green Time [s]	50.1	35.2	35.2	50.1	38.9	38.9	26.4	14.4	14.4	26.4	14.4	14.4
g / C, Green / Cycle	0.56	0.39	0.39	0.56	0.43	0.43	0.29	0.16	0.16	0.29	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.18	0.35	0.11	0.37	0.32	0.14	0.20	0.13	0.05	0.20	0.08	0.03
s, saturation flow rate [veh/h]	647	3560	1589	743	3560	1589	1329	3560	1589	1210	3560	1589
c, Capacity [veh/h]	372	1392	622	410	1539	687	438	571	255	369	571	255
d1, Uniform Delay [s]	14.25	25.55	18.65	17.66	21.42	16.95	27.53	36.46	33.40	26.85	34.37	32.77
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.34	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.13	8.67	1.06	8.75	3.35	1.30	4.44	2.82	0.70	8.44	0.63	0.38
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.89	0.27	0.68	0.75	0.33	0.62	0.81	0.31	0.65	0.48	0.20
d, Delay for Lane Group [s/veh]	16.38	34.22	19.71	26.41	24.78	18.26	31.97	39.28	34.09	35.28	35.00	33.15
Lane Group LOS	B	C	B	C	C	B	C	D	C	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.08	12.28	2.28	3.32	9.34	2.97	5.19	4.98	1.56	4.86	2.71	0.97
50th-Percentile Queue Length [ft/ln]	27.02	306.95	56.89	83.11	233.55	74.24	129.77	124.56	38.89	121.52	67.87	24.23
95th-Percentile Queue Length [veh/ln]	1.95	18.02	4.10	5.98	14.35	5.35	8.93	8.64	2.80	8.48	4.89	1.74
95th-Percentile Queue Length [ft/ln]	48.63	450.61	102.39	149.60	358.87	133.64	223.18	216.07	70.01	211.92	122.16	43.61

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.38	34.22	19.71	26.41	24.78	18.26	31.97	39.28	34.09	35.28	35.00	33.15
Movement LOS	B	C	B	C	C	B	C	D	C	D	D	C
d_A, Approach Delay [s/veh]	31.28			24.15			36.34			34.95		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	30.04											
Intersection LOS	C											
Intersection V/C	0.678											

Emissions

Vehicle Miles Traveled [mph]	127.54	1381.71	186.84	451.32	1865.37	371.77	150.98	257.94	44.57	65.25	75.39	13.98
Stops [stops/h]	43.23	982.23	91.02	132.98	747.36	118.79	207.63	398.58	62.23	194.44	217.17	38.77
Fuel consumption [US gal/h]	5.45	73.07	8.61	19.06	82.07	15.49	9.08	16.53	2.72	5.66	6.47	1.17
CO [g/h]	380.92	5107.28	601.87	1332.38	5737.02	1083.01	634.65	1155.46	190.26	395.51	451.96	81.68
NOx [g/h]	74.11	993.69	117.10	259.23	1116.21	210.72	123.48	224.81	37.02	76.95	87.94	15.89
VOC [g/h]	88.28	1183.66	139.49	308.79	1329.61	251.00	147.09	267.79	44.09	91.66	104.75	18.93

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	34.67	34.67	34.67	34.67
l_p,int, Pedestrian LOS Score for Intersectio	3.725	3.852	2.957	3.096
Crosswalk LOS	D	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	756	756	411	411
d_b, Bicycle Delay [s]	17.42	17.42	28.40	28.40
l_b,int, Bicycle LOS Score for Intersection	2.938	3.101	2.292	2.064
Bicycle LOS	C	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	29.9
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	1	2	524	5	0	306
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.6734	1.6734	1.8060	1.6734	1.6734	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	3	946	8	0	553
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	257	2	0	150
Total Analysis Volume [veh/h]	2	3	1028	9	0	601
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

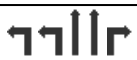
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	29.87	12.40	0.00	0.00	10.40	0.00
Movement LOS	D	B	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.06	0.06	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.50	1.50	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	19.39		0.00		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.06					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	44.0
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.793

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	700.00	100.00	700.00	560.00	100.00	560.00	500.00	100.00	275.00	515.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	100.00	0.00	0.00	100.00	0.00	0.00	500.00	0.00	0.00	0.00
Speed [mph]	45.00			55.00			35.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	3.0860	3.0860	1.9600	3.0860	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	169	0	0	67	0	0	88	0	0	154
Total Hourly Volume [veh/h]	173	954	168	502	1722	66	123	778	88	149	386	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	47	259	46	136	468	18	33	211	24	40	105	42
Total Analysis Volume [veh/h]	188	1037	183	546	1872	72	134	846	96	162	420	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow												
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	11.0	43.0	0.0	39.0	71.0	0.0	10.0	28.0	0.0	10.0	28.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	7.50	7.50	4.00	7.50	7.50	4.00	7.00	7.00	4.00	7.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	5.50	2.00	5.50	5.50	2.00	5.00	5.00	2.00	5.00	5.00
g_i, Effective Green Time [s]	7.0	48.6	48.6	21.9	63.5	63.5	6.0	21.0	21.0	6.0	21.0	21.0
g / C, Green / Cycle	0.06	0.41	0.41	0.18	0.53	0.53	0.05	0.18	0.18	0.05	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.05	0.29	0.12	0.16	0.53	0.05	0.04	0.17	0.06	0.05	0.08	0.11
s, saturation flow rate [veh/h]	3459	3560	1589	3459	3560	1589	3459	5094	1589	3459	5094	1589
c, Capacity [veh/h]	202	1440	643	633	1884	841	173	891	278	173	891	278
d1, Uniform Delay [s]	56.26	30.03	24.05	47.55	28.05	13.93	56.33	48.97	43.46	56.81	44.51	45.63
k, delay calibration	0.11	0.04	0.04	0.11	0.04	0.04	0.11	0.50	0.50	0.11	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.97	0.26	0.09	3.64	4.58	0.02	7.23	20.06	3.37	19.70	1.79	9.25
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.93	0.72	0.28	0.86	0.99	0.09	0.77	0.95	0.35	0.94	0.47	0.60
d, Delay for Lane Group [s/veh]	73.23	30.28	24.14	51.19	32.63	13.95	63.56	69.03	46.83	76.51	46.29	54.88
Lane Group LOS	E	C	C	D	C	B	E	E	D	E	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	3.24	11.95	3.38	7.85	24.24	0.88	2.16	9.90	2.75	2.86	3.80	5.18
50th-Percentile Queue Length [ft/ln]	81.03	298.70	84.47	196.31	605.98	22.10	54.10	247.58	68.81	71.53	94.98	129.52
95th-Percentile Queue Length [veh/ln]	5.83	17.62	6.08	12.45	32.31	1.59	3.90	15.06	4.95	5.15	6.84	8.91
95th-Percentile Queue Length [ft/ln]	145.86	440.42	152.05	311.20	807.84	39.79	97.38	376.61	123.86	128.75	170.97	222.84

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	73.23	30.28	24.14	51.19	32.63	13.95	63.56	69.03	46.83	76.51	46.29	54.88
Movement LOS	E	C	C	D	C	B	E	E	D	E	D	D
d_A, Approach Delay [s/veh]	35.22			36.16			66.37			54.74		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	44.04											
Intersection LOS	D											
Intersection V/C	0.793											

Emissions

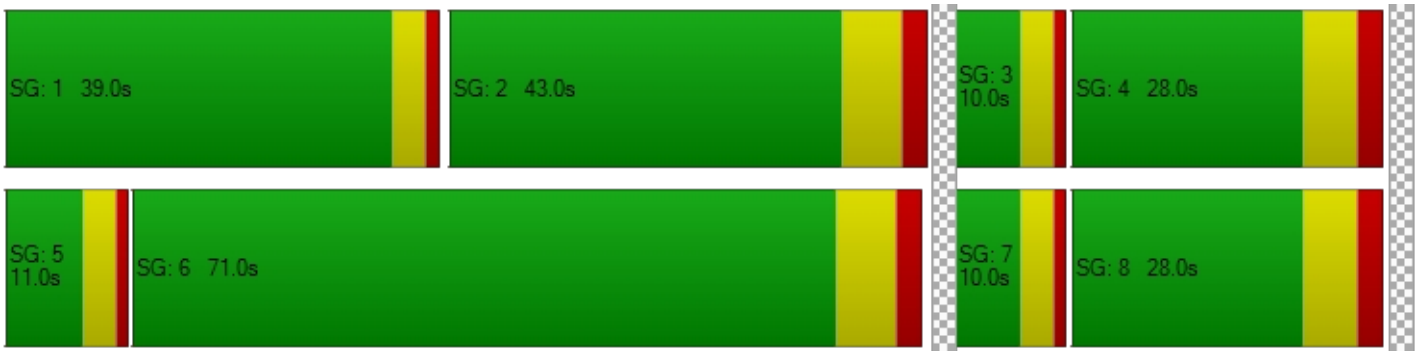
Vehicle Miles Traveled [mph]	41.05	226.42	39.96	100.18	343.46	13.21	33.37	210.70	23.91	32.18	83.44	33.18
Stops [stops/h]	194.47	716.87	101.37	471.15	1454.36	26.52	129.83	891.30	82.57	171.67	341.94	155.42
Fuel consumption [US gal/h]	6.63	23.06	3.53	17.79	50.93	1.14	3.98	26.62	2.45	5.76	11.07	4.93
CO [g/h]	463.18	1612.22	246.67	1243.51	3560.20	79.61	278.30	1860.54	171.06	402.59	773.64	344.92
NOx [g/h]	90.12	313.68	47.99	241.94	692.69	15.49	54.15	361.99	33.28	78.33	150.52	67.11
VOC [g/h]	107.35	373.65	57.17	288.20	825.11	18.45	64.50	431.20	39.64	93.30	179.30	79.94

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	592	1058	350	350
d_b, Bicycle Delay [s]	29.75	13.30	40.84	40.84
l_b,int, Bicycle LOS Score for Intersection	2.861	3.669	2.200	2.056
Bicycle LOS	C	D	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	11.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.570

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	1	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	475.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		35.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Marksheffel Rd		Marksheffel Rd			
Base Volume Input [veh/h]	491	287	140	551	106	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	3.0860	1.9600	1.9600	3.0860	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-166	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	282	0	0	0	61
Total Hourly Volume [veh/h]	1515	281	274	1534	208	61
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	412	76	74	417	57	17
Total Analysis Volume [veh/h]	1647	305	298	1667	226	66
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Permissive	ProtPerm	Permissive	Permissive	Permissive
Flashing Yellow Arrow			No			
Signal Group	2	0	1	6	4	0
Auxiliary Signal Groups						
Maximum Green [s]	10	0	5	5	5	0
Amber [s]	3.0	0.0	3.0	3.0	3.0	0.0
All red [s]	1.0	0.0	1.0	1.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	77.0	0.0	10.0	87.0	13.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	10	0	5	5	5	0
Vehicle Extension [s]	3.0	0.0	3.0	3.0	3.0	0.0
Minimum Recall	No		No	No	No	
Maximum Recall	No		No	No	No	
Pedestrian Recall	No		No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	73.0	73.0	83.0	83.0	9.0	9.0
g / C, Green / Cycle	0.73	0.73	0.83	0.83	0.09	0.09
(v / s)_i Volume / Saturation Flow Rate	0.46	0.19	0.79	0.47	0.07	0.04
s, saturation flow rate [veh/h]	3560	1589	376	3560	3459	1589
c, Capacity [veh/h]	2599	1160	367	2955	311	143
d1, Uniform Delay [s]	6.78	4.51	22.23	2.72	44.30	43.20
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.19	0.55	17.57	0.79	13.78	10.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.26	0.81	0.56	0.73	0.46
d, Delay for Lane Group [s/veh]	7.97	5.06	39.81	3.50	58.08	53.54
Lane Group LOS	A	A	D	A	E	D
Critical Lane Group	Yes	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	6.46	1.66	2.21	2.14	3.28	1.94
50th-Percentile Queue Length [ft/ln]	161.47	41.58	55.13	53.40	81.90	48.43
95th-Percentile Queue Length [veh/ln]	10.63	2.99	3.97	3.84	5.90	3.49
95th-Percentile Queue Length [ft/ln]	265.67	74.84	99.23	96.11	147.42	87.17

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	7.97	5.06	39.81	3.50	58.08	53.54
Movement LOS	A	A	D	A	E	D
d_A, Approach Delay [s/veh]	7.52		9.01		57.06	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	11.65					
Intersection LOS	B					
Intersection V/C	0.570					

Emissions

Vehicle Miles Traveled [mph]	1536.13	284.47	53.22	297.73	38.94	11.37
Stops [stops/h]	465.04	59.87	79.38	153.78	235.87	69.74
Fuel consumption [US gal/h]	61.11	10.81	5.22	13.31	5.93	1.68
CO [g/h]	4271.53	755.59	365.22	930.07	414.45	117.22
NOx [g/h]	831.09	147.01	71.06	180.96	80.64	22.81
VOC [g/h]	989.97	175.12	84.64	215.55	96.05	27.17

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	41.41	41.41	41.41
l_p,int, Pedestrian LOS Score for Intersectio	3.915	3.371	2.894
Crosswalk LOS	D	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1460	1660	180
d_b, Bicycle Delay [s]	3.65	1.45	41.41
l_b,int, Bicycle LOS Score for Intersection	3.403	3.181	1.560
Bicycle LOS	C	C	A

Sequence

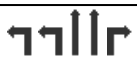
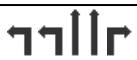
Ring 1	1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	48.8
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.787

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	400.00	100.00	100.00	100.00	100.00	840.00	500.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	62	338	40	80	355	249	468	280	38	60	241	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.2190	1.2190	3.0860	3.0860	3.0860	1.2190	3.0860	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	384	0	0	59	0	0	49
Total Hourly Volume [veh/h]	191	1043	24	98	1096	384	1444	341	58	73	294	49
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	283	7	27	298	104	392	93	16	20	80	13
Total Analysis Volume [veh/h]	208	1134	26	107	1191	417	1570	371	63	79	320	53
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow				No								
Signal Group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	5	10	0	25	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	2.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	5.0	0.0	7.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	7.0	0.0	0.0	10.0	0.0	7.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12.0	42.0	0.0	9.0	39.0	0.0	34.0	39.0	0.0	10.0	15.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	5.00	5.00	5.00	5.00	5.00	4.00	4.00	4.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.00	3.00	0.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	8.0	37.0	37.0	46.0	34.0	34.0	30.0	35.0	35.0	5.0	11.0	11.0
g / C, Green / Cycle	0.08	0.37	0.37	0.46	0.34	0.34	0.30	0.35	0.35	0.05	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.06	0.32	0.02	0.16	0.33	0.26	0.30	0.10	0.04	0.02	0.09	0.03
s, saturation flow rate [veh/h]	3459	3560	1589	681	3560	1589	5188	3560	1589	3459	3560	1589
c, Capacity [veh/h]	277	1317	588	279	1211	540	1556	1246	556	173	392	175
d1, Uniform Delay [s]	45.03	29.12	20.18	21.08	32.73	29.53	35.00	23.58	22.00	46.18	43.52	40.97
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	17.09	7.54	0.14	3.97	22.28	10.23	24.97	0.61	0.41	8.46	17.01	4.42
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.75	0.86	0.04	0.38	0.98	0.77	1.01	0.30	0.11	0.46	0.82	0.30
d, Delay for Lane Group [s/veh]	62.12	36.66	20.32	25.05	55.01	39.76	59.97	24.19	22.41	54.64	60.53	45.39
Lane Group LOS	E	D	C	C	E	D	F	C	C	D	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.09	12.97	0.39	1.61	16.96	9.88	15.37	3.11	1.01	1.15	4.76	1.41
50th-Percentile Queue Length [ft/ln]	77.25	324.34	9.79	40.23	424.03	247.12	384.17	77.66	25.36	28.83	119.11	35.30
95th-Percentile Queue Length [veh/ln]	5.56	18.88	0.70	2.90	23.72	15.04	21.92	5.59	1.83	2.08	8.34	2.54
95th-Percentile Queue Length [ft/ln]	139.05	472.02	17.62	72.41	592.88	376.03	547.93	139.79	45.65	51.90	208.61	63.53

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	62.12	36.66	20.32	25.05	55.01	39.76	59.97	24.19	22.41	54.64	60.53	45.39
Movement LOS	E	D	C	C	E	D	F	C	C	D	E	D
d_A, Approach Delay [s/veh]	40.22			49.43			52.17			57.72		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	48.82											
Intersection LOS	D											
Intersection V/C	0.787											

Emissions

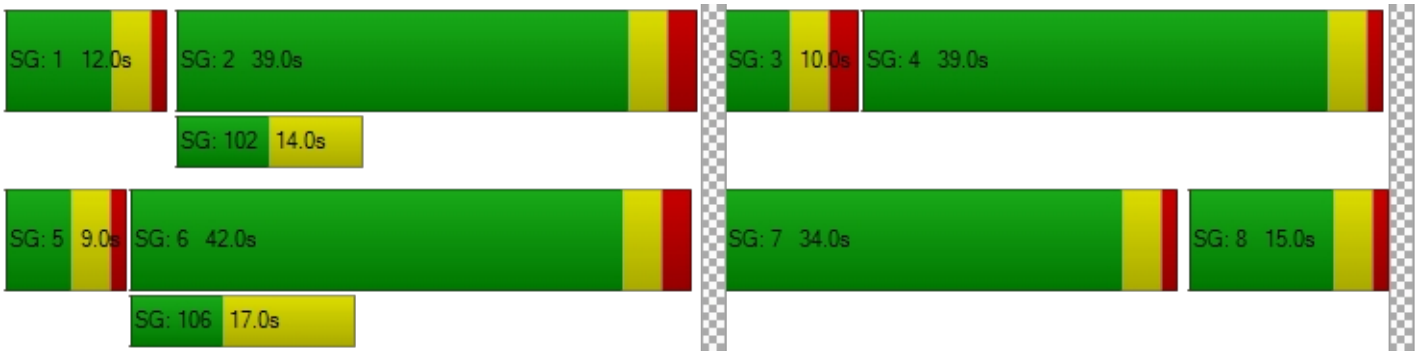
Vehicle Miles Traveled [mph]	126.07	687.30	15.76	99.80	1110.83	388.93	236.85	55.97	9.50	3.94	15.96	2.64
Stops [stops/h]	222.48	934.10	14.09	57.93	1221.19	355.86	1659.63	223.66	36.52	83.04	343.04	50.83
Fuel consumption [US gal/h]	9.72	43.63	0.82	4.69	66.59	21.13	47.91	6.53	1.07	1.50	6.49	0.88
CO [g/h]	679.18	3049.97	57.52	327.59	4654.73	1476.99	3349.05	456.16	74.59	104.81	453.89	61.45
NOx [g/h]	132.14	593.41	11.19	63.74	905.64	287.37	651.60	88.75	14.51	20.39	88.31	11.96
VOC [g/h]	157.41	706.86	13.33	75.92	1078.78	342.31	776.17	105.72	17.29	24.29	105.19	14.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	3.434	2.871
Crosswalk LOS	F	F	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	740	680	700	220
d_b, Bicycle Delay [s]	19.85	21.78	21.13	39.61
l_b,int, Bicycle LOS Score for Intersection	2.709	3.291	3.262	1.973
Bicycle LOS	B	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	9.5
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.480

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	670.00	100.00	100.00	100.00	100.00	410.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	37	5	8	25	5	67	143	479	63	13	278	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2189	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	60	0	0	39	0	0	24
Total Hourly Volume [veh/h]	45	6	5	45	6	59	255	1340	38	16	778	24
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	1	12	2	16	69	364	10	4	211	7
Total Analysis Volume [veh/h]	49	7	5	49	7	64	277	1457	41	17	846	26
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	11	0	0	11	0	0	41	0	0	41	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	18.0	0.0	0.0	18.0	0.0	0.0	42.0	0.0	0.0	42.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14.0	14.0	14.0	14.0	38.0	38.0	38.0	38.0	38.0	38.0
g / C, Green / Cycle	0.23	0.23	0.23	0.23	0.63	0.63	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.04	0.01	0.03	0.04	0.44	0.41	0.03	0.05	0.24	0.02
s, saturation flow rate [veh/h]	1329	1742	1402	1613	635	3560	1589	351	3560	1589
c, Capacity [veh/h]	339	406	393	376	429	2255	1007	241	2255	1007
d1, Uniform Delay [s]	21.73	17.76	20.16	18.45	14.07	6.83	4.14	13.48	5.29	4.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.90	0.13	0.65	1.11	7.34	1.44	0.08	0.56	0.48	0.05
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.14	0.03	0.12	0.19	0.65	0.65	0.04	0.07	0.38	0.03
d, Delay for Lane Group [s/veh]	22.63	17.89	20.81	19.55	21.41	8.27	4.22	14.05	5.77	4.15
Lane Group LOS	C	B	C	B	C	A	A	B	A	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.63	0.13	0.59	0.83	3.33	3.59	0.13	0.17	1.56	0.08
50th-Percentile Queue Length [ft/ln]	15.86	3.30	14.87	20.85	83.31	89.80	3.21	4.22	39.06	2.01
95th-Percentile Queue Length [veh/ln]	1.14	0.24	1.07	1.50	6.00	6.47	0.23	0.30	2.81	0.14
95th-Percentile Queue Length [ft/ln]	28.54	5.94	26.76	37.52	149.96	161.64	5.78	7.60	70.31	3.62

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.63	17.89	17.89	20.81	19.55	19.55	21.41	8.27	4.22	14.05	5.77	4.15
Movement LOS	C	B	B	C	B	B	C	A	A	B	A	A
d_A, Approach Delay [s/veh]	21.70			20.07			10.23			5.88		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	9.53											
Intersection LOS	A											
Intersection V/C	0.480											

Emissions

Vehicle Miles Traveled [mph]	1.39	0.34	41.91	60.72	111.65	587.28	16.53	2.56	127.63	3.92
Stops [stops/h]	38.06	7.92	35.68	50.03	199.95	431.03	7.70	10.13	187.50	4.83
Fuel consumption [US gal/h]	0.56	0.12	2.07	2.97	7.52	27.94	0.70	0.26	7.70	0.22
CO [g/h]	39.47	8.12	144.92	207.84	525.65	1953.18	48.75	18.35	538.19	15.13
NOx [g/h]	7.68	1.58	28.20	40.44	102.27	380.02	9.48	3.57	104.71	2.94
VOC [g/h]	9.15	1.88	33.59	48.17	121.83	452.67	11.30	4.25	124.73	3.51

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	467	1267	1267
d_b, Bicycle Delay [s]	17.63	17.63	4.03	4.03
l_b,int, Bicycle LOS Score for Intersection	1.669	1.857	3.056	2.313
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	10.6
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.567

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	520.00	100.00	100.00	530.00	100.00	100.00	100.00	100.00	450.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	32	63	32	29	38	84	157	601	76	25	301	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	75	0	0	47	0	0	38
Total Hourly Volume [veh/h]	39	77	19	52	46	75	279	1682	46	30	842	37
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	21	5	14	13	20	76	457	13	8	229	10
Total Analysis Volume [veh/h]	42	84	21	57	50	82	303	1828	50	33	915	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	11	0	0	11	0	0	51	0	0	51	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	16.0	0.0	0.0	16.0	0.0	0.0	44.0	0.0	0.0	44.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12.0	12.0	12.0	12.0	12.0	12.0	40.0	40.0	40.0	40.0	40.0	40.0
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.20	0.20	0.67	0.67	0.67	0.67	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.01	0.04	0.01	0.05	0.52	0.51	0.03	0.14	0.26	0.03
s, saturation flow rate [veh/h]	1258	3560	1589	1289	3560	1589	588	3560	1589	243	3560	1589
c, Capacity [veh/h]	315	712	318	310	712	318	424	2374	1060	188	2374	1060
d1, Uniform Delay [s]	22.15	19.66	19.46	22.82	19.47	20.24	14.39	6.85	3.44	17.92	4.49	3.42
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.88	0.34	0.40	1.30	0.19	1.96	9.83	2.48	0.08	2.02	0.47	0.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.13	0.12	0.07	0.18	0.07	0.26	0.71	0.77	0.05	0.18	0.39	0.04
d, Delay for Lane Group [s/veh]	23.02	20.00	19.86	24.12	19.66	22.20	24.22	9.33	3.53	19.94	4.96	3.49
Lane Group LOS	C	C	B	C	B	C	C	A	A	B	A	A
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.55	0.47	0.25	0.77	0.28	1.06	3.95	4.56	0.13	0.43	1.38	0.10
50th-Percentile Queue Length [ft/ln]	13.83	11.83	6.32	19.36	6.95	26.42	98.85	113.92	3.19	10.67	34.55	2.53
95th-Percentile Queue Length [veh/ln]	1.00	0.85	0.46	1.39	0.50	1.90	7.12	8.06	0.23	0.77	2.49	0.18
95th-Percentile Queue Length [ft/ln]	24.90	21.29	11.38	34.84	12.51	47.55	177.94	201.44	5.74	19.21	62.20	4.56

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	23.02	20.00	19.86	24.12	19.66	22.20	24.22	9.33	3.53	19.94	4.96	3.49
Movement LOS	C	C	B	C	B	C	C	A	A	B	A	A
d_A, Approach Delay [s/veh]	20.84			22.11			11.27			5.40		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.60											
Intersection LOS	B											
Intersection V/C	0.567											

Emissions

Vehicle Miles Traveled [mph]	2.50	5.01	1.25	57.42	50.37	82.61	121.21	731.27	20.00	13.30	368.81	16.12
Stops [stops/h]	33.20	56.78	15.17	46.46	33.37	63.40	237.25	546.82	7.65	25.61	165.86	6.08
Fuel consumption [US gal/h]	0.54	0.96	0.25	2.82	2.37	4.00	8.60	35.34	0.82	0.91	15.63	0.66
CO [g/h]	37.88	67.09	17.24	196.98	165.73	279.32	601.02	2470.03	57.08	63.49	1092.40	45.90
NOx [g/h]	7.37	13.05	3.36	38.32	32.25	54.35	116.94	480.58	11.11	12.35	212.54	8.93
VOC [g/h]	8.78	15.55	4.00	45.65	38.41	64.74	139.29	572.45	13.23	14.71	253.18	10.64

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400	1333	1333
d_b, Bicycle Delay [s]	19.20	19.20	3.33	3.33
l_b,int, Bicycle LOS Score for Intersection	1.697	1.777	3.398	2.406
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	18.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.880

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	0	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	520.00	100.00	100.00	100.00	100.00	470.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	188	6	19	13	6	94	177	750	82	50	365	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	84	0	0	50	0	0	21
Total Hourly Volume [veh/h]	229	7	11	23	7	83	315	2099	50	61	1021	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	62	2	3	6	2	23	86	570	14	17	277	5
Total Analysis Volume [veh/h]	249	8	12	25	8	90	342	2282	54	66	1110	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	92	0	0	92	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	14.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	15.0	0.0	0.0	15.0	0.0	0.0	45.0	0.0	0.0	45.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11.0	11.0	11.0	11.0	11.0	11.0	41.0	41.0	41.0	41.0	41.0	41.0
g / C, Green / Cycle	0.18	0.18	0.18	0.18	0.18	0.18	0.68	0.68	0.68	0.68	0.68	0.68
(v / s)_i Volume / Saturation Flow Rate	0.19	0.00	0.01	0.02	0.00	0.06	0.69	0.64	0.03	0.43	0.31	0.01
s, saturation flow rate [veh/h]	1297	1870	1589	1392	1870	1589	497	3560	1589	155	3560	1589
c, Capacity [veh/h]	310	343	291	324	343	291	372	2433	1086	133	2433	1086
d1, Uniform Delay [s]	26.65	20.09	20.16	22.25	20.09	21.21	18.81	8.38	3.11	29.50	4.37	3.05
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	19.44	0.13	0.27	0.46	0.13	2.74	30.21	8.56	0.09	12.60	0.62	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.02	0.04	0.08	0.02	0.31	0.92	0.94	0.05	0.50	0.46	0.02
d, Delay for Lane Group [s/veh]	46.08	20.22	20.43	22.72	20.22	23.95	49.02	16.94	3.20	42.10	4.99	3.08
Lane Group LOS	D	C	C	C	C	C	D	B	A	D	A	A
Critical Lane Group	Yes	No	No	No	No	No	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	5.11	0.10	0.15	0.33	0.10	1.24	7.60	8.33	0.12	1.33	1.59	0.05
50th-Percentile Queue Length [ft/ln]	127.64	2.45	3.78	8.26	2.45	31.12	190.03	208.37	3.05	33.27	39.76	1.21
95th-Percentile Queue Length [veh/ln]	8.81	0.18	0.27	0.59	0.18	2.24	12.12	13.07	0.22	2.40	2.86	0.09
95th-Percentile Queue Length [ft/ln]	220.28	4.42	6.80	14.87	4.42	56.02	303.06	326.73	5.49	59.88	71.57	2.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	46.08	20.22	20.43	22.72	20.22	23.95	49.02	16.94	3.20	42.10	4.99	3.08
Movement LOS	D	C	C	C	C	C	D	B	A	D	A	A
d_A, Approach Delay [s/veh]	44.17			23.45			20.76			7.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	18.45											
Intersection LOS	B											
Intersection V/C	0.880											

Emissions

Vehicle Miles Traveled [mph]	12.03	0.39	0.58	4.08	1.31	14.68	131.03	874.32	20.69	26.40	444.04	8.80
Stops [stops/h]	306.33	5.89	9.07	19.83	5.89	74.69	456.06	1000.16	7.31	79.84	190.84	2.91
Fuel consumption [US gal/h]	4.52	0.08	0.12	0.39	0.12	1.46	13.57	50.27	0.84	2.46	18.72	0.35
CO [g/h]	316.14	5.69	8.66	27.47	8.33	101.76	948.79	3513.91	58.39	172.17	1308.59	24.58
NOx [g/h]	61.51	1.11	1.68	5.35	1.62	19.80	184.60	683.68	11.36	33.50	254.60	4.78
VOC [g/h]	73.27	1.32	2.01	6.37	1.93	23.58	219.89	814.38	13.53	39.90	303.28	5.70

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	21.68	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	2.335	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	367	367	1367	1367
d_b, Bicycle Delay [s]	20.01	20.01	3.01	3.01
l_b,int, Bicycle LOS Score for Intersection	2.023	1.901	3.810	2.565
Bicycle LOS	B	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	32.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.882

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	2	1	0	1	0
Entry Pocket Length [ft]	100.00	385.00	1275.00	100.00	440.00	100.00
No. of Lanes in Exit Pocket	0	0	0	1	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	820.00	0.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	778	735	171	609	354	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.6600	2.6600	2.6600	2.6600	2.6600	2.6600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	978	0	0	0	145
Total Hourly Volume [veh/h]	2069	1955	455	1620	942	145
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	562	531	124	440	256	39
Total Analysis Volume [veh/h]	2249	2125	495	1761	1024	158
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	ProtPerm	Permissive	Permissive	Permissive
Flashing Yellow Arrow			No			
Signal Group	2	8	1	6	8	0
Auxiliary Signal Groups		2,8				
Maximum Green [s]	50	40	20	50	40	0
Amber [s]	5.0	3.0	3.0	5.0	3.0	0.0
All red [s]	2.0	3.0	2.0	2.0	3.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	4.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	56.0	39.0	15.0	71.0	39.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	6	6	25	6	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	Yes	No	No	Yes	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	7.00	6.00	7.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	0.00	0.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	49.0	89.0	64.0	64.0	33.0	33.0
g / C, Green / Cycle	0.45	0.81	0.58	0.58	0.30	0.30
(v / s)_i Volume / Saturation Flow Rate	0.44	0.76	0.68	0.35	0.30	0.10
s, saturation flow rate [veh/h]	5094	2813	732	5094	3459	1589
c, Capacity [veh/h]	2269	2276	538	2964	1038	477
d1, Uniform Delay [s]	30.28	8.19	33.96	14.70	38.29	29.92
k, delay calibration	0.50	0.50	0.50	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	16.93	8.62	23.26	0.89	10.29	0.40
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.99	0.93	0.92	0.59	0.99	0.33
d, Delay for Lane Group [s/veh]	47.21	16.81	57.22	15.59	48.58	30.33
Lane Group LOS	D	B	E	B	D	C
Critical Lane Group	No	Yes	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	20.90	10.60	4.27	8.10	14.45	3.18
50th-Percentile Queue Length [ft/ln]	522.59	264.92	106.71	202.48	361.18	79.51
95th-Percentile Queue Length [veh/ln]	28.40	15.94	7.66	12.77	20.68	5.72
95th-Percentile Queue Length [ft/ln]	710.05	398.38	191.42	319.17	517.02	143.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	47.21	16.81	57.22	15.59	48.58	30.33
Movement LOS	D	B	E	B	D	C
d_A, Approach Delay [s/veh]	32.44		24.72		46.14	
Approach LOS	C		C		D	
d_I, Intersection Delay [s/veh]	32.28					
Intersection LOS	C					
Intersection V/C	0.882					

Emissions

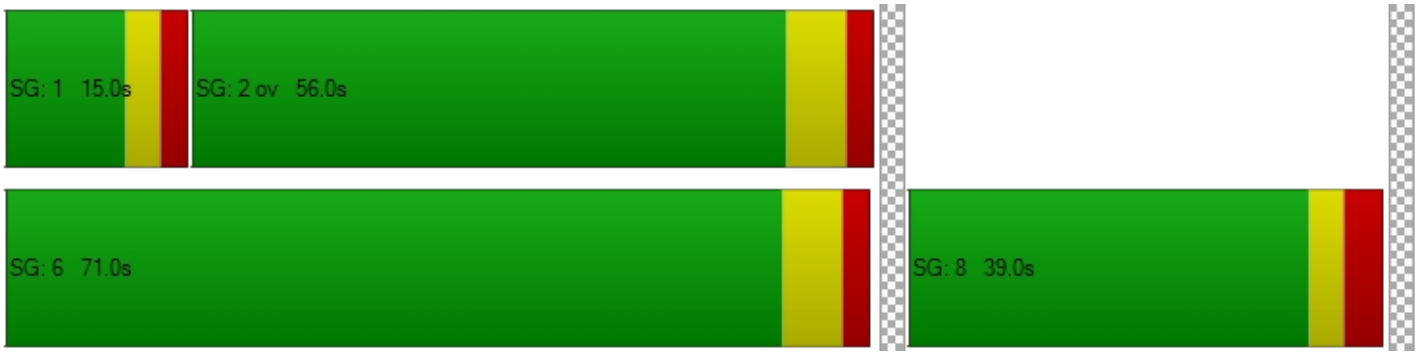
Vehicle Miles Traveled [mph]	420.62	397.43	553.80	1970.20	392.33	60.54
Stops [stops/h]	2052.36	693.60	279.40	795.20	945.63	104.09
Fuel consumption [US gal/h]	73.80	33.45	29.48	86.26	35.33	4.34
CO [g/h]	5158.43	2338.05	2060.50	6029.73	2469.38	303.67
NOx [g/h]	1003.64	454.90	400.90	1173.17	480.45	59.08
VOC [g/h]	1195.51	541.87	477.54	1397.45	572.30	70.38

Other Modes

g_Walk,mi, Effective Walk Time [s]	33.0	33.0	49.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	26.95	26.95	16.91
l_p,int, Pedestrian LOS Score for Intersectio	5.924	3.789	4.244
Crosswalk LOS	F	D	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	891	1164	600
d_b, Bicycle Delay [s]	16.91	9.62	26.95
l_b,int, Bicycle LOS Score for Intersection	4.503	2.800	1.560
Bicycle LOS	E	C	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	553	954	5
2	536	925	5
3	525	906	5
4	492	849	4
5	437	754	4
6	431	744	4
7	426	735	4
8	387	668	4
9	382	658	3
10	376	649	3
11	326	563	3
12	304	525	3
13	299	515	3
14	221	382	2
15	221	382	2
16	155	267	1
17	88	153	1
18	88	153	1
19	50	86	0
20	28	48	0
21	17	29	0
22	6	10	0
23	6	10	0
24	6	10	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	1507	1	5	No	No	No	No	No	No	No	No	No	No
2	3	1461	1	5	No	No	No	No	No	No	No	No	No	No
3	3	1431	1	5	No	No	No	No	No	No	No	No	No	No
4	3	1341	1	4	No	No	No	No	No	No	No	No	No	No
5	3	1191	1	4	No	No	No	No	No	No	No	No	No	No
6	3	1175	1	4	No	No	No	No	No	No	No	No	No	No
7	3	1161	1	4	No	No	No	No	No	No	No	No	No	No
8	3	1055	1	4	No	No	No	No	No	No	No	No	No	No
9	3	1040	1	3	No	No	No	No	No	No	No	No	No	No
10	3	1025	1	3	No	No	No	No	No	No	No	No	No	No
11	3	889	1	3	No	No	No	No	No	No	No	No	No	No
12	3	829	1	3	No	No	No	No	No	No	No	No	No	No
13	3	814	1	3	No	No	No	No	No	No	No	No	No	No
14	3	603	1	2	No	No	No	No	No	No	No	No	No	No
15	3	603	1	2	No	No	No	No	No	No	No	No	No	No
16	3	422	1	1	No	No	No	No	No	No	No	No	No	No
17	3	241	1	1	No	No	No	No	No	No	No	No	No	No
18	3	241	1	1	No	No	No	No	No	No	No	No	No	No
19	3	136	1	0	No	No	No	No	No	No	No	No	No	No
20	3	76	1	0	No	No	No	No	No	No	No	No	No	No
21	3	46	1	0	No	No	No	No	No	No	No	No	No	No
22	3	16	1	0	No	No	No	No	No	No	No	No	No	No
23	3	16	1	0	No	No	No	No	No	No	No	No	No	No
24	3	16	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	19.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:01
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	5
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	1512
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

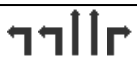
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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	34.2
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.702

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	1195.00	100.00	820.00	800.00	100.00	435.00	640.00	100.00	435.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	1180.00	0.00	0.00	550.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	67	539	45	78	350	123	202	93	33	160	279	55
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	84	177	0	0	0	31	0	127	40	246
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	83	0	0	111	0	0	30	0	0	173
Total Hourly Volume [veh/h]	121	973	82	318	632	111	365	199	30	416	544	172
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	264	22	86	172	30	99	54	8	113	148	47
Total Analysis Volume [veh/h]	132	1058	89	346	687	121	397	216	33	452	591	187
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	110
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Unsigna	ProtPer	Permiss	Unsigna	ProtPer	Permiss	Unsigna	Protecte	Permiss	Unsigna
Flashing Yellow Arrow	No			No			No					
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	12.0	31.0	0.0	12.0	31.0	0.0	22.0	39.0	0.0	28.0	45.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Calculated Cycle Length [s]	110	110	110	110	110	110	110	110
L, Total Lost Time per Cycle [s]	7.00	7.00	7.00	7.00	6.50	6.50	6.00	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	5.00	0.00	5.00	0.00	4.50	4.00	4.50
g_i, Effective Green Time [s]	53.4	38.8	53.4	41.3	43.1	20.3	16.8	21.1
g / C, Green / Cycle	0.49	0.35	0.49	0.38	0.39	0.18	0.15	0.19
(v / s)_i Volume / Saturation Flow Rate	0.14	0.30	0.22	0.19	0.31	0.06	0.13	0.17
s, saturation flow rate [veh/h]	951	3560	1608	3560	1269	3560	3459	3560
c, Capacity [veh/h]	440	1256	621	1334	469	657	528	683
d1, Uniform Delay [s]	17.39	32.79	22.32	26.64	28.24	38.94	45.41	43.08
k, delay calibration	0.50	0.50	0.11	0.50	0.36	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.74	6.99	0.78	1.42	12.79	0.29	4.10	3.47
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.84	0.56	0.51	0.85	0.33	0.86	0.87
d, Delay for Lane Group [s/veh]	19.13	39.78	23.11	28.06	41.03	39.23	49.51	46.54
Lane Group LOS	B	D	C	C	D	D	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.88	13.07	2.31	6.68	9.58	2.53	6.22	7.98
50th-Percentile Queue Length [ft/ln]	46.99	326.83	57.86	166.89	239.41	63.37	155.59	199.51
95th-Percentile Queue Length [veh/ln]	3.38	19.00	4.17	10.91	14.65	4.56	10.31	12.61
95th-Percentile Queue Length [ft/ln]	84.58	475.07	104.16	272.82	366.28	114.06	257.87	315.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	19.13	39.78	0.00	23.11	28.06	0.00	41.03	39.23	0.00	49.51	46.54	0.00
Movement LOS	B	D		C	C		D	D		D	D	
d_A, Approach Delay [s/veh]	35.07			23.84			38.51			41.06		
Approach LOS	D			C			D			D		
d_I, Intersection Delay [s/veh]	34.23											
Intersection LOS	C											
Intersection V/C	0.702											

Emissions

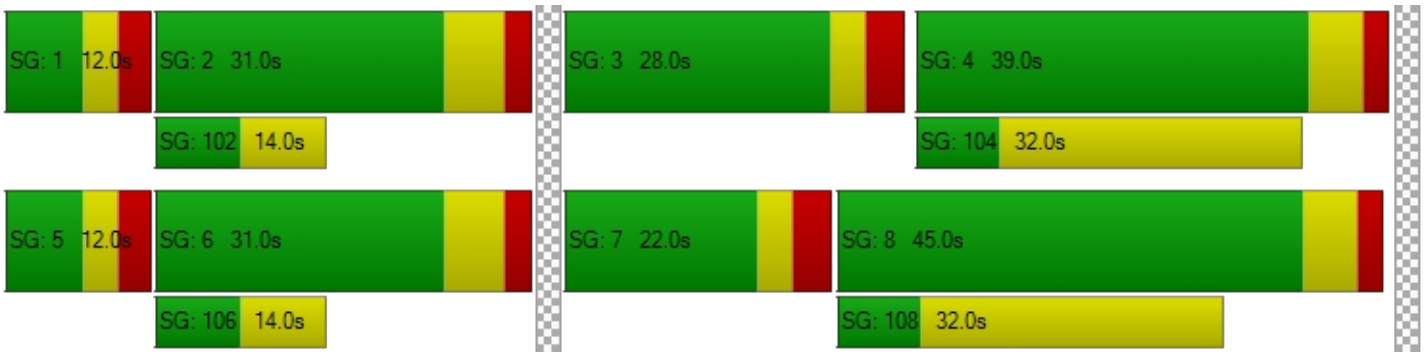
Vehicle Miles Traveled [mph]	147.68	1183.68	561.72	1115.32	221.17	120.34	123.92	162.03
Stops [stops/h]	61.51	855.70	151.50	436.95	313.40	165.90	407.36	522.36
Fuel consumption [US gal/h]	6.60	64.05	23.23	49.35	14.10	7.56	12.34	15.70
CO [g/h]	461.10	4477.41	1623.87	3449.47	985.71	528.37	862.63	1097.53
NOx [g/h]	89.71	871.14	315.95	671.14	191.78	102.80	167.84	213.54
VOC [g/h]	106.86	1037.68	376.35	799.45	228.45	122.45	199.92	254.36

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	44.55	44.55	44.55	44.55
l_p,int, Pedestrian LOS Score for Intersectio	3.156	3.409	2.790	3.146
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	436	436	591	700
d_b, Bicycle Delay [s]	33.62	33.62	27.30	23.24
l_b,int, Bicycle LOS Score for Intersection	2.541	2.412	2.065	2.420
Bicycle LOS	B	B	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	42.9
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.130

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	380.00	380.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		45.00		45.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	8	1	224	3	1	551
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.6734	1.6734	1.8060	1.6734	1.6734	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	292	0	0	413
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	2	697	5	2	1408
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	1	189	1	1	383
Total Analysis Volume [veh/h]	14	2	758	5	2	1530
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

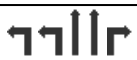
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.13	0.00	0.01	0.00	0.00	0.02
d_M, Delay for Movement [s/veh]	42.87	15.35	0.00	0.00	9.27	0.00
Movement LOS	E	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.44	0.44	0.00	0.00	0.01	0.00
95th-Percentile Queue Length [ft/ln]	11.12	11.12	0.00	0.00	0.18	0.00
d_A, Approach Delay [s/veh]	39.43		0.00		0.01	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.28					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	41.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.802

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	550.00	0.00	0.00	550.00	0.00	0.00	550.00	0.00	0.00	550.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	3.0860	3.0860	1.9600	3.0860	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	32	9	0	33	15	30	11	37	11	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	96	0	0	32	0	0	79	0	0	498
Total Hourly Volume [veh/h]	158	1726	95	184	647	32	126	330	78	379	833	498
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	43	469	26	50	176	9	34	90	21	103	226	135
Total Analysis Volume [veh/h]	172	1876	103	200	703	35	137	359	85	412	905	541
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna
Flashing Yellow Arrow												
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	15.0	70.0	0.0	12.0	67.0	0.0	9.0	19.0	0.0	19.0	29.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	7.50	4.00	7.50	4.00	7.00	4.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	2.00	5.50	2.00	5.00	2.00	5.00
g_i, Effective Green Time [s]	8.0	62.5	8.0	62.5	5.0	12.0	15.0	22.0
g / C, Green / Cycle	0.07	0.52	0.07	0.52	0.04	0.10	0.13	0.18
(v / s)_i Volume / Saturation Flow Rate	0.05	0.53	0.06	0.20	0.04	0.07	0.12	0.18
s, saturation flow rate [veh/h]	3459	3560	3459	3560	3459	5094	3459	5094
c, Capacity [veh/h]	234	1854	231	1851	144	509	432	934
d1, Uniform Delay [s]	54.89	28.75	55.47	17.23	57.38	52.28	52.15	48.66
k, delay calibration	0.11	0.04	0.11	0.04	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.46	9.12	9.52	0.05	24.65	7.96	11.73	22.86
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.74	1.01	0.87	0.38	0.95	0.70	0.95	0.97
d, Delay for Lane Group [s/veh]	59.35	37.87	64.99	17.28	82.02	60.24	63.88	71.52
Lane Group LOS	E	F	E	B	F	E	E	E
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.64	26.36	3.23	5.45	2.52	3.78	6.69	10.66
50th-Percentile Queue Length [ft/ln]	65.92	658.92	80.71	136.26	62.94	94.47	167.29	266.38
95th-Percentile Queue Length [veh/ln]	4.75	35.11	5.81	9.28	4.53	6.80	10.93	16.01
95th-Percentile Queue Length [ft/ln]	118.66	877.67	145.28	231.98	113.29	170.04	273.35	400.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.35	37.87	0.00	64.99	17.28	0.00	82.02	60.24	0.00	63.88	71.52	0.00
Movement LOS	E	F		E	B		F	E		E	E	
d_A, Approach Delay [s/veh]	37.91			26.90			57.26			50.16		
Approach LOS	D			C			E			D		
d_I, Intersection Delay [s/veh]	41.23											
Intersection LOS	D											
Intersection V/C	0.802											

Emissions

Vehicle Miles Traveled [mph]	37.56	409.61	36.69	128.98	34.12	89.41	81.85	179.79
Stops [stops/h]	158.21	1581.40	193.71	327.02	151.05	340.08	401.49	958.96
Fuel consumption [US gal/h]	5.33	48.16	6.31	10.96	5.33	11.69	13.15	31.26
CO [g/h]	372.67	3366.35	441.14	766.06	372.85	817.39	919.38	2184.81
NOx [g/h]	72.51	654.97	85.83	149.05	72.54	159.04	178.88	425.08
VOC [g/h]	86.37	780.18	102.24	177.54	86.41	189.44	213.08	506.35

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1042	992	200	367
d_b, Bicycle Delay [s]	13.78	15.25	48.60	40.02
l_b,int, Bicycle LOS Score for Intersection	3.249	2.305	1.832	2.284
Bicycle LOS	C	B	A	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	26.4
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.721

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	315.00	100.00	315.00	475.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd								
Base Volume Input [veh/h]	0	587	119	29	398	0	0	0	0	209	0	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	68	5	0	2	36	34	44	12	75	0	11	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	117	0	0	17	0	0	38	0	0	108
Total Hourly Volume [veh/h]	68	1816	116	59	1264	17	44	12	37	410	11	108
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	493	32	16	343	5	12	3	10	111	3	29
Total Analysis Volume [veh/h]	74	1974	126	64	1374	18	48	13	40	446	12	117
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	130
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow	No			No			No					
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	35	0	5	35	0	5	17	0	5	17	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	46.0	0.0	9.0	46.0	0.0	12.0	50.0	0.0	25.0	63.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Calculated Cycle Length [s]	130	130	130	130	130	130	130	130	130	130	130
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	90.6	82.0	82.0	90.6	81.9	81.9	31.4	8.6	8.6	18.8	23.3
g / C, Green / Cycle	0.70	0.63	0.63	0.70	0.63	0.63	0.24	0.07	0.07	0.14	0.18
(v / s)_i Volume / Saturation Flow Rate	0.15	0.55	0.08	0.21	0.39	0.01	0.04	0.01	0.03	0.13	0.08
s, saturation flow rate [veh/h]	491	3560	1589	309	3560	1589	1362	1870	1589	3459	1612
c, Capacity [veh/h]	330	2245	1002	206	2241	1000	329	125	106	501	290
d1, Uniform Delay [s]	11.01	19.91	9.64	27.28	14.54	9.03	38.63	57.01	58.08	54.55	47.52
k, delay calibration	0.11	0.50	0.50	0.50	0.50	0.50	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.34	5.32	0.26	3.89	1.26	0.03	0.20	0.36	2.21	5.60	1.07
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.22	0.88	0.13	0.31	0.61	0.02	0.15	0.10	0.38	0.89	0.44
d, Delay for Lane Group [s/veh]	11.35	25.23	9.89	31.17	15.80	9.06	38.84	57.38	60.28	60.16	48.59
Lane Group LOS	B	C	A	C	B	A	D	E	E	E	D
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.60	23.27	1.41	0.71	11.35	0.19	1.20	0.41	1.31	7.50	3.81
50th-Percentile Queue Length [ft/ln]	15.05	581.65	35.17	17.83	283.82	4.69	30.11	10.26	32.79	187.46	95.13
95th-Percentile Queue Length [veh/ln]	1.08	31.18	2.53	1.28	16.88	0.34	2.17	0.74	2.36	11.99	6.85
95th-Percentile Queue Length [ft/ln]	27.09	779.41	63.30	32.09	421.97	8.44	54.19	18.46	59.03	299.74	171.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	11.35	25.23	9.89	31.17	15.80	9.06	38.84	57.38	60.28	60.16	48.59	48.59
Movement LOS	B	C	A	C	B	A	D	E	E	E	D	D
d_A, Approach Delay [s/veh]	23.87			16.39			49.72			57.56		
Approach LOS	C			B			D			E		
d_I, Intersection Delay [s/veh]	26.45											
Intersection LOS	C											
Intersection V/C	0.721											

Emissions

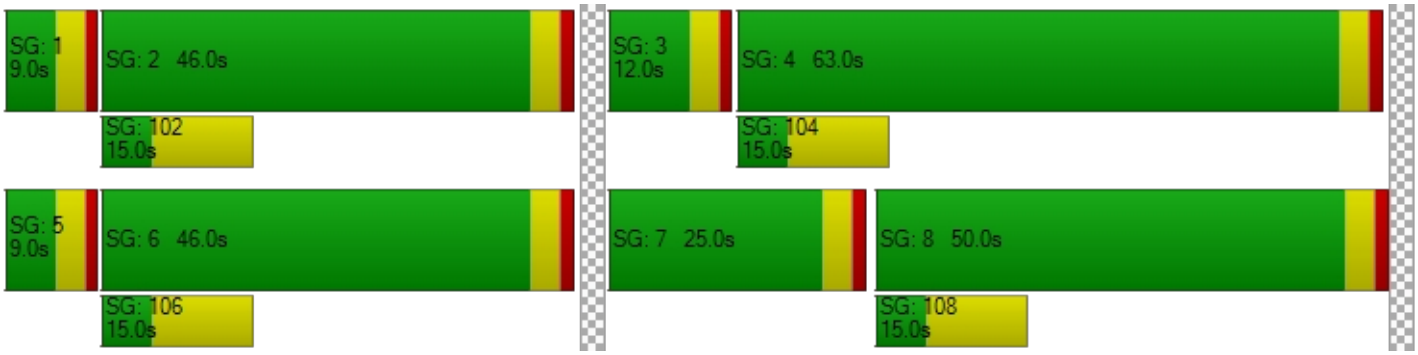
Vehicle Miles Traveled [mph]	69.02	1841.12	117.52	7.86	168.78	2.21	7.17	1.94	5.98	76.84	22.23
Stops [stops/h]	16.67	1288.57	38.96	19.75	628.78	5.19	33.35	11.36	36.32	415.30	105.37
Fuel consumption [US gal/h]	2.74	89.27	4.77	0.92	18.02	0.17	0.96	0.33	1.06	11.51	2.92
CO [g/h]	191.80	6239.62	333.16	64.37	1259.70	12.13	67.37	23.27	74.20	804.65	203.76
NOx [g/h]	37.32	1214.00	64.82	12.52	245.09	2.36	13.11	4.53	14.44	156.56	39.64
VOC [g/h]	44.45	1446.09	77.21	14.92	291.95	2.81	15.61	5.39	17.20	186.49	47.22

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	56.31	56.31	56.31	56.31
l_p,int, Pedestrian LOS Score for Intersectio	3.659	3.416	2.508	2.648
Crosswalk LOS	D	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	646	646	708	908
d_b, Bicycle Delay [s]	29.78	29.78	27.14	19.39
l_b,int, Bicycle LOS Score for Intersection	3.450	2.775	1.789	2.687
Bicycle LOS	C	C	A	B

Sequence

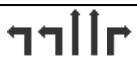
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	31.3
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	0	1	0	1
Entry Pocket Length [ft]	560.00	100.00	380.00	380.00	100.00	580.00	740.00	100.00	100.00	560.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	42	373	25	26	301	333	280	202	62	125	375	125
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.2190	1.2190	3.0860	3.0860	3.0860	1.2190	3.7619	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	23	0	11	28	72	42	9	12	0	7	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	15	0	0	550	0	0	123	0	0	80
Total Hourly Volume [veh/h]	138	1174	15	43	957	550	906	255	122	152	464	80
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	38	319	4	12	260	149	246	69	33	41	126	22
Total Analysis Volume [veh/h]	150	1276	16	47	1040	598	985	277	133	165	504	87
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	ProtPer	Permiss	Permiss
Flashing Yellow Arrow	No			No						No		
Signal Group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	5	10	0	25	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	2.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	5.0	0.0	7.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	7.0	0.0	0.0	10.0	0.0	7.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	45.0	0.0	9.0	45.0	0.0	46.0	20.0	0.0	46.0	20.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	4.00	5.00	5.00	4.00	5.00	5.00	4.00	0.00	0.00	4.00	0.00	0.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	3.00	2.00	0.00	0.00	2.00	0.00	0.00
g_i, Effective Green Time [s]	49.0	40.0	40.0	49.0	40.0	40.0	42.0	0.0	0.0	41.0	0.0	0.0
g / C, Green / Cycle	0.49	0.40	0.40	0.49	0.40	0.40	0.42	0.00	0.00	0.41	0.00	0.00
(v / s)_i Volume / Saturation Flow Rate	0.21	0.36	0.01	0.11	0.29	0.38	0.41	0.08	0.08	0.09	0.14	0.05
s, saturation flow rate [veh/h]	731	3560	1589	426	3560	1589	2405	3560	1589	1894	3560	1589
c, Capacity [veh/h]	431	1424	636	249	1424	636	1034	0	0	811	0	0
d1, Uniform Delay [s]	19.68	28.05	18.18	20.64	25.43	28.86	30.47	0.00	0.00	20.38	0.00	0.00
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.21	9.11	0.07	1.67	3.33	23.74	18.69	0.00	0.00	0.57	0.00	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.90	0.03	0.19	0.73	0.94	0.95	10000.0	10000.0	0.20	10000.0	10000.0
d, Delay for Lane Group [s/veh]	21.89	37.16	18.26	22.31	28.76	52.59	49.16	0.00	0.00	20.95	0.00	0.00
Lane Group LOS	C	D	B	C	C	D	D	F	F	C	F	F
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.96	14.83	0.22	0.63	10.28	16.75	9.08	0.00	0.00	1.33	0.00	0.00
50th-Percentile Queue Length [ft/ln]	24.09	370.75	5.62	15.69	257.07	418.80	226.90	0.00	0.00	33.36	0.00	0.00
95th-Percentile Queue Length [veh/ln]	1.73	21.15	0.40	1.13	15.54	23.46	14.02	0.00	0.00	2.40	0.00	0.00
95th-Percentile Queue Length [ft/ln]	43.36	528.64	10.11	28.23	388.54	586.61	350.41	0.00	0.00	60.05	0.00	0.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	21.89	37.16	18.26	22.31	28.76	52.59	49.16	0.00	0.00	20.95	0.00	0.00
Movement LOS	C	D	B	C	C	D	D	A	A	C	A	A
d_A, Approach Delay [s/veh]	35.37			37.04			34.71			4.57		
Approach LOS	D			D			C			A		
d_I, Intersection Delay [s/veh]	31.32											
Intersection LOS	C											
Intersection V/C	0.811											

Emissions

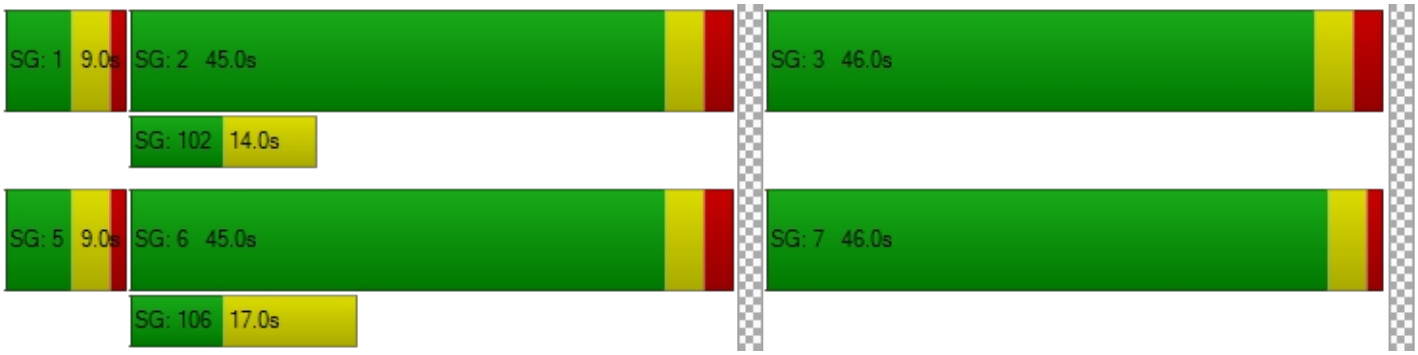
Vehicle Miles Traveled [mph]	90.91	773.37	9.70	43.84	969.99	557.75	148.60	41.79	20.06	9.73	29.71	5.13
Stops [stops/h]	69.38	1067.75	8.09	22.59	740.35	603.07	980.20	0.00	0.00	96.08	0.00	0.00
Fuel consumption [US gal/h]	4.65	49.44	0.49	2.00	48.54	33.02	27.13	1.43	0.69	1.63	1.22	0.21
CO [g/h]	324.83	3455.52	34.42	139.58	3392.97	2307.82	1896.73	100.13	48.07	114.26	85.50	14.76
NOx [g/h]	63.20	672.32	6.70	27.16	660.15	449.02	369.03	19.48	9.35	22.23	16.63	2.87
VOC [g/h]	75.28	800.85	7.98	32.35	786.35	534.86	439.58	23.21	11.14	26.48	19.81	3.42

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	3.602	2.907
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	800	800	0	0
d_b, Bicycle Delay [s]	18.00	18.00	50.00	50.00
l_b,int, Bicycle LOS Score for Intersection	2.762	3.403	2.812	2.249
Bicycle LOS	C	C	C	B

Sequence

Ring 1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	11.4
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.611

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	100.00	235.00	100.00	100.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	56	2	12	55	2	137	51	290	19	4	359	10
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2189	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	14	0	122	119	49	0	0	75	12
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	183	0	0	12	0	0	15
Total Hourly Volume [veh/h]	68	2	7	112	2	183	210	861	11	5	1080	15
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	1	2	30	1	50	57	234	3	1	293	4
Total Analysis Volume [veh/h]	74	2	8	122	2	199	228	936	12	5	1174	16
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	11	0	0	11	0	0	41	0	0	41	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	18.0	0.0	0.0	18.0	0.0	0.0	42.0	0.0	0.0	42.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	14.0	14.0	14.0	14.0	38.0	38.0	38.0	38.0	38.0	38.0
g / C, Green / Cycle	0.23	0.23	0.23	0.23	0.63	0.63	0.63	0.63	0.63	0.63
(v / s)_i Volume / Saturation Flow Rate	0.06	0.01	0.09	0.13	0.48	0.26	0.01	0.01	0.33	0.01
s, saturation flow rate [veh/h]	1181	1639	1405	1592	471	3560	1589	591	3560	1589
c, Capacity [veh/h]	225	382	394	371	317	2255	1007	398	2255	1007
d1, Uniform Delay [s]	26.55	17.74	21.27	20.18	19.10	5.47	4.06	8.52	6.02	4.07
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.86	0.13	2.03	5.57	13.10	0.57	0.02	0.06	0.86	0.03
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.03	0.31	0.54	0.72	0.42	0.01	0.01	0.52	0.02
d, Delay for Lane Group [s/veh]	30.41	17.87	23.31	25.75	32.20	6.04	4.09	8.58	6.88	4.10
Lane Group LOS	C	B	C	C	C	A	A	A	A	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.21	0.11	1.63	2.85	3.86	1.79	0.04	0.03	2.50	0.05
50th-Percentile Queue Length [ft/ln]	30.30	2.82	40.73	71.25	96.42	44.84	0.92	0.82	62.50	1.23
95th-Percentile Queue Length [veh/ln]	2.18	0.20	2.93	5.13	6.94	3.23	0.07	0.06	4.50	0.09
95th-Percentile Queue Length [ft/ln]	54.54	5.08	73.31	128.26	173.56	80.71	1.66	1.48	112.51	2.22

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	30.41	17.87	17.87	23.31	25.75	25.75	32.20	6.04	4.09	8.58	6.88	4.10
Movement LOS	C	B	B	C	C	C	C	A	A	A	A	A
d_A, Approach Delay [s/veh]	28.91			24.83			11.09			6.85		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	11.40											
Intersection LOS	B											
Intersection V/C	0.611											

Emissions

Vehicle Miles Traveled [mph]	2.09	0.28	104.34	171.91	91.94	377.43	4.84	0.75	177.11	2.41
Stops [stops/h]	72.72	6.78	97.75	171.01	231.41	215.22	2.21	1.98	300.02	2.95
Fuel consumption [US gal/h]	0.95	0.09	5.41	9.07	7.52	16.76	0.20	0.06	11.45	0.13
CO [g/h]	66.11	5.97	378.45	634.34	525.84	1171.77	14.21	4.14	800.03	9.28
NOx [g/h]	12.86	1.16	73.63	123.42	102.31	227.98	2.77	0.81	155.66	1.81
VOC [g/h]	15.32	1.38	87.71	147.01	121.87	271.57	3.29	0.96	185.42	2.15

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	467	467	1267	1267
d_b, Bicycle Delay [s]	17.63	17.63	4.03	4.03
l_b,int, Bicycle LOS Score for Intersection	1.711	2.395	2.540	2.558
Bicycle LOS	A	B	B	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.566

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	63	6	13	63	6	151	48	276	25	13	481	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	7	0	37	16	162	0	0	194	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	8	0	0	153	0	0	15	0	0	12
Total Hourly Volume [veh/h]	77	7	8	119	7	153	101	934	15	16	1540	12
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	2	2	30	2	38	25	254	4	4	418	3
Total Analysis Volume [veh/h]	84	7	9	119	7	153	101	1015	16	17	1674	12
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	42	0	0	42	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	16.0	0.0	0.0	16.0	0.0	0.0	44.0	0.0	0.0	44.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	12.0	12.0	12.0	12.0	12.0	12.0	40.0	40.0	40.0	40.0	40.0	40.0
g / C, Green / Cycle	0.20	0.20	0.20	0.20	0.20	0.20	0.67	0.67	0.67	0.67	0.67	0.67
(v / s)_i Volume / Saturation Flow Rate	0.07	0.00	0.01	0.09	0.00	0.10	0.35	0.29	0.01	0.03	0.47	0.01
s, saturation flow rate [veh/h]	1226	3560	1589	1397	3560	1589	292	3560	1589	547	3560	1589
c, Capacity [veh/h]	322	712	318	351	712	318	219	2374	1060	394	2374	1060
d1, Uniform Delay [s]	22.45	19.24	19.31	22.86	19.24	21.24	20.11	4.66	3.37	7.73	6.29	3.36
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.96	0.03	0.16	2.61	0.03	5.14	6.87	0.57	0.03	0.21	1.79	0.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.26	0.01	0.03	0.34	0.01	0.48	0.46	0.43	0.02	0.04	0.71	0.01
d, Delay for Lane Group [s/veh]	24.41	19.26	19.47	25.47	19.26	26.39	26.98	5.23	3.39	7.93	8.08	3.38
Lane Group LOS	C	B	B	C	B	C	C	A	A	A	A	A
Critical Lane Group	No	No	No	No	No	Yes	No	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.17	0.04	0.11	1.69	0.04	2.22	1.57	1.60	0.04	0.11	3.73	0.03
50th-Percentile Queue Length [ft/ln]	29.25	0.98	2.73	42.24	0.98	55.57	39.27	39.98	1.00	2.65	93.37	0.74
95th-Percentile Queue Length [veh/ln]	2.11	0.07	0.20	3.04	0.07	4.00	2.83	2.88	0.07	0.19	6.72	0.05
95th-Percentile Queue Length [ft/ln]	52.65	1.76	4.91	76.03	1.76	100.03	70.69	71.97	1.79	4.77	168.06	1.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.41	19.26	19.47	25.47	19.26	26.39	26.98	5.23	3.39	7.93	8.08	3.38
Movement LOS	C	B	B	C	B	C	C	A	A	A	A	A
d_A, Approach Delay [s/veh]	23.60			25.82			7.14			8.05		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	9.76											
Intersection LOS	A											
Intersection V/C	0.566											

Emissions

Vehicle Miles Traveled [mph]	3.30	0.27	0.35	119.91	7.05	154.17	40.39	405.87	6.40	6.86	675.02	4.84
Stops [stops/h]	70.19	4.70	6.55	101.37	4.70	133.38	94.26	191.92	2.39	6.37	448.16	1.79
Fuel consumption [US gal/h]	0.94	0.06	0.09	6.11	0.34	7.91	3.11	17.38	0.26	0.34	31.46	0.20
CO [g/h]	65.76	4.52	6.04	427.32	24.03	552.57	217.45	1214.75	18.18	23.88	2199.30	13.72
NOx [g/h]	12.80	0.88	1.18	83.14	4.68	107.51	42.31	236.35	3.54	4.65	427.90	2.67
VOC [g/h]	15.24	1.05	1.40	99.04	5.57	128.06	50.40	281.53	4.21	5.53	509.71	3.18

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	400	400	1333	1333
d_b, Bicycle Delay [s]	19.20	19.20	3.33	3.33
l_b,int, Bicycle LOS Score for Intersection	1.649	1.916	2.506	2.974
Bicycle LOS	A	A	B	C

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	37.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.780

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	126	6	32	16	6	190	53	301	32	44	622	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	178	0	0	232	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	169	0	0	20	0	0	5
Total Hourly Volume [veh/h]	154	7	19	28	7	169	94	1020	19	54	1973	4
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	39	2	5	8	2	46	26	277	5	14	536	1
Total Analysis Volume [veh/h]	154	7	19	30	7	184	102	1109	19	54	2145	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	220
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	29	32	0	30	37	0	5	131	0	56	182	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	21.0	0.0	0.0	21.0	0.0	0.0	14.0	0.0	0.0	14.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	56.0	0.0	9.0	56.0	0.0	11.0	146.0	0.0	9.0	144.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	220	220	220	220	220	220	220	220	220	220	220	220
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	61.1	52.9	52.9	61.1	52.0	52.0	150.9	142.1	142.1	150.9	139.9	139.9
g / C, Green / Cycle	0.28	0.24	0.24	0.28	0.24	0.24	0.69	0.65	0.65	0.69	0.64	0.64
(v / s)_i Volume / Saturation Flow Rate	0.12	0.00	0.01	0.02	0.00	0.12	0.36	0.31	0.01	0.10	0.60	0.00
s, saturation flow rate [veh/h]	1260	1870	1589	1425	1870	1589	281	3560	1589	557	3560	1589
c, Capacity [veh/h]	395	449	381	440	442	376	140	2299	1026	351	2264	1011
d1, Uniform Delay [s]	63.97	63.78	64.31	58.37	64.35	72.51	66.24	20.05	13.97	14.34	36.68	14.62
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.15	0.11	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.87	0.06	0.25	0.30	0.07	4.50	9.65	0.16	0.01	0.93	2.77	0.00
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.02	0.05	0.07	0.02	0.49	0.73	0.48	0.02	0.15	0.95	0.00
d, Delay for Lane Group [s/veh]	66.84	63.84	64.55	58.67	64.42	77.01	75.89	20.21	13.98	15.26	39.45	14.62
Lane Group LOS	E	E	E	E	E	E	E	C	B	B	D	B
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	7.27	0.31	0.86	1.30	0.32	9.58	2.07	14.61	0.35	0.96	51.28	0.08
50th-Percentile Queue Length [ft/ln]	181.75	7.85	21.59	32.38	7.89	239.47	51.65	365.33	8.74	24.03	1282.07	1.88
95th-Percentile Queue Length [veh/ln]	11.69	0.56	1.55	2.33	0.57	14.65	3.72	20.88	0.63	1.73	63.03	0.14
95th-Percentile Queue Length [ft/ln]	292.30	14.12	38.86	58.29	14.20	366.37	92.97	522.06	15.74	43.25	1575.67	3.39

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	66.84	63.84	64.55	58.67	64.42	77.01	75.89	20.21	13.98	15.26	39.45	14.62
Movement LOS	E	E	E	E	E	E	E	C	B	B	D	B
d_A, Approach Delay [s/veh]	66.48			74.12			24.73			38.81		
Approach LOS	E			E			C			D		
d_I, Intersection Delay [s/veh]	37.63											
Intersection LOS	D											
Intersection V/C	0.780											

Emissions

Vehicle Miles Traveled [mph]	7.28	0.33	0.90	4.89	1.14	30.02	39.08	424.90	7.28	21.59	857.72	1.60
Stops [stops/h]	118.96	5.14	14.13	21.20	5.16	156.75	33.81	478.25	5.72	15.73	1678.34	1.23
Fuel consumption [US gal/h]	3.05	0.13	0.36	0.68	0.17	4.98	3.33	25.07	0.37	1.10	67.49	0.08
CO [g/h]	213.27	9.29	25.48	47.30	11.69	348.44	233.10	1752.47	26.19	77.13	4717.27	5.74
NOx [g/h]	41.49	1.81	4.96	9.20	2.28	67.79	45.35	340.97	5.10	15.01	917.81	1.12
VOC [g/h]	49.43	2.15	5.91	10.96	2.71	80.75	54.02	406.15	6.07	17.88	1093.27	1.33

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	101.18	101.18	101.18	101.18
l_p,int, Pedestrian LOS Score for Intersectio	2.325	2.631	3.595	3.362
Crosswalk LOS	B	B	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	473	473	1291	1273
d_b, Bicycle Delay [s]	64.15	64.15	13.83	14.55
l_b,int, Bicycle LOS Score for Intersection	1.890	2.203	2.591	3.381
Bicycle LOS	A	B	B	C

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	39.5
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.004

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	2	3	0	1	1
Entry Pocket Length [ft]	100.00	820.00	1550.00	100.00	440.00	1500.00
No. of Lanes in Exit Pocket	0	0	0	1	1	0
Exit Pocket Length [ft]	0.00	0.00	0.00	550.00	712.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	502	295	59	491	618	199
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.6600	2.6600	2.6600	2.6600	2.6600	2.6600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	84	177	1	127	231	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	265
Total Hourly Volume [veh/h]	1419	962	158	1433	1875	265
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	386	261	43	389	510	72
Total Analysis Volume [veh/h]	1542	1046	172	1558	2038	288
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Semi-actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Flashing Yellow Arrow						
Signal Group	2	8	1	6	8	0
Auxiliary Signal Groups		2,8				
Maximum Green [s]	50	40	20	50	40	0
Amber [s]	5.0	3.0	3.0	5.0	3.0	0.0
All red [s]	2.0	3.0	2.0	2.0	3.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	5.0	4.0	3.0	5.0	4.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	32.0	41.0	17.0	49.0	41.0	0.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	6	6	25	6	0
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	0.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	Yes	No	No	Yes	No	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	7.00	5.00	5.00	7.00	6.00	6.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	4.25	3.00	5.00	4.00	4.00
g_i, Effective Green Time [s]	25.0	100.0	12.0	42.0	35.0	35.0
g / C, Green / Cycle	0.28	1.11	0.13	0.47	0.39	0.39
(v / s)_i Volume / Saturation Flow Rate	0.30	0.37	0.16	0.31	0.39	0.18
s, saturation flow rate [veh/h]	5094	2813	1047	5094	5188	1589
c, Capacity [veh/h]	1415	3126	167	2377	2018	618
d1, Uniform Delay [s]	32.50	0.00	40.14	18.44	27.50	20.52
k, delay calibration	0.50	0.50	0.11	0.50	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	52.33	0.29	39.76	1.43	11.92	0.55
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	1.09	0.33	1.03	0.66	1.01	0.47
d, Delay for Lane Group [s/veh]	84.83	0.29	79.90	19.87	39.42	21.07
Lane Group LOS	F	A	F	B	F	C
Critical Lane Group	Yes	Yes	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	16.02	0.13	2.69	7.28	15.12	4.21
50th-Percentile Queue Length [ft/ln]	400.53	3.14	67.15	182.04	377.91	105.34
95th-Percentile Queue Length [veh/ln]	23.75	0.23	4.83	11.71	21.64	7.58
95th-Percentile Queue Length [ft/ln]	593.78	5.65	120.87	292.67	541.08	189.51

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	84.83	0.29	79.90	19.87	39.42	21.07
Movement LOS	F	A	F	B	F	C
d_A, Approach Delay [s/veh]	50.66		25.84		37.15	
Approach LOS	D		C		D	
d_I, Intersection Delay [s/veh]	39.47					
Intersection LOS	D					
Intersection V/C	1.004					

Emissions

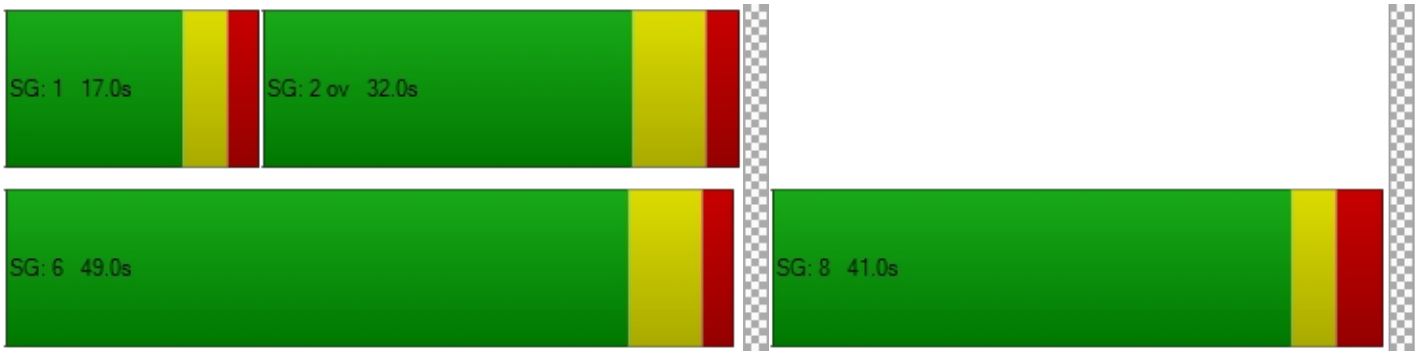
Vehicle Miles Traveled [mph]	288.39	195.63	192.43	1743.08	780.83	110.34
Stops [stops/h]	1922.54	10.05	214.89	873.78	1813.97	168.55
Fuel consumption [US gal/h]	71.97	6.79	13.22	80.84	65.67	7.11
CO [g/h]	5030.90	474.78	924.42	5650.58	4590.20	497.20
NOx [g/h]	978.83	92.38	179.86	1099.40	893.09	96.74
VOC [g/h]	1165.96	110.04	214.24	1309.58	1063.82	115.23

Other Modes

g_Walk,mi, Effective Walk Time [s]	35.0	35.0	25.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	16.81	16.81	23.47
l_p,int, Pedestrian LOS Score for Intersectio	4.078	3.551	3.995
Crosswalk LOS	D	D	D
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	556	933	778
d_b, Bicycle Delay [s]	23.47	12.80	16.81
l_b,int, Bicycle LOS Score for Intersection	2.983	2.511	1.560
Bicycle LOS	C	B	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Fontaine Bl/Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	13.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.545

Intersection Setup

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	225	0	0	551	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	248	0	21	0	0	0	0	144	149	15	165	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	11	0	0	0	0	0	75	0	0	0
Total Hourly Volume [veh/h]	248	0	10	0	0	0	0	550	74	15	1160	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	67	0	3	0	0	0	0	149	20	4	315	0
Total Analysis Volume [veh/h]	270	0	11	0	0	0	0	598	80	16	1261	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No									No		
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	19	0	0	0	10	0	0	29	0	0	29	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	27.0	0.0	0.0	0.0	27.0	0.0	0.0	33.0	0.0	0.0	33.0	0.0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23.0	23.0	23.0	29.0	29.0	29.0	29.0
g / C, Green / Cycle	0.38	0.38	0.38	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.19	0.01	0.00	0.17	0.05	0.02	0.35
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	761	3560
c, Capacity [veh/h]	616	609	777	1721	768	383	1721
d1, Uniform Delay [s]	14.16	11.49	0.00	9.62	8.43	13.12	12.40
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.26	0.05	0.00	0.56	0.27	0.20	2.80
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.02	0.00	0.35	0.10	0.04	0.73
d, Delay for Lane Group [s/veh]	16.42	11.54	0.00	10.18	8.70	13.32	15.20
Lane Group LOS	B	B	A	B	A	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.86	0.09	0.00	2.11	0.52	0.15	6.04
50th-Percentile Queue Length [ft/ln]	71.54	2.28	0.00	52.74	13.04	3.73	150.99
95th-Percentile Queue Length [veh/ln]	5.15	0.16	0.00	3.80	0.94	0.27	10.07
95th-Percentile Queue Length [ft/ln]	128.78	4.10	0.00	94.93	23.46	6.71	251.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	16.42	0.00	11.54	0.00	0.00	0.00	0.00	10.18	8.70	13.32	15.20	0.00
Movement LOS	B		B	A	A	A		B	A	B	B	
d_A, Approach Delay [s/veh]	16.23			0.00			10.01			15.18		
Approach LOS	B			A			B			B		
d_I, Intersection Delay [s/veh]	13.74											
Intersection LOS	B											
Intersection V/C	0.545											

Emissions

Vehicle Miles Traveled [mph]	22.48	0.92	0.00	112.53	15.05	8.50	669.79
Stops [stops/h]	171.70	5.47	0.00	253.14	31.29	8.95	724.76
Fuel consumption [US gal/h]	2.78	0.09	0.00	7.43	0.95	0.43	34.88
CO [g/h]	194.06	6.55	0.00	519.51	66.46	30.38	2438.30
NOx [g/h]	37.76	1.27	0.00	101.08	12.93	5.91	474.41
VOC [g/h]	44.98	1.52	0.00	120.40	15.40	7.04	565.10

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	967	967
d_b, Bicycle Delay [s]	11.41	11.41	8.01	8.01
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.181	2.613
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Fontaine Bl/Community Arterial 1

Control Type:	Signalized	Delay (sec / veh):	12.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.433

Intersection Setup

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	225	0	0	551	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	162	0	25	0	0	0	0	52	113	11	18	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	13	0	0	0	0	0	57	0	0	0
Total Hourly Volume [veh/h]	162	0	12	0	0	0	0	458	56	11	1013	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	44	0	3	0	0	0	0	124	15	3	275	0
Total Analysis Volume [veh/h]	176	0	13	0	0	0	0	498	61	12	1101	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No									No		
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	14	0	0	0	10	0	0	24	0	0	24	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	27.0	0.0	0.0	0.0	27.0	0.0	0.0	33.0	0.0	0.0	33.0	0.0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	23.0	23.0	23.0	29.0	29.0	29.0	29.0
g / C, Green / Cycle	0.38	0.38	0.38	0.48	0.48	0.48	0.48
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.00	0.14	0.04	0.01	0.31
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	850	3560
c, Capacity [veh/h]	616	609	777	1721	768	431	1721
d1, Uniform Delay [s]	13.08	11.50	0.00	9.31	8.33	12.23	11.59
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.16	0.06	0.00	0.43	0.20	0.12	1.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.29	0.02	0.00	0.29	0.08	0.03	0.64
d, Delay for Lane Group [s/veh]	14.25	11.57	0.00	9.74	8.53	12.35	13.43
Lane Group LOS	B	B	A	A	A	B	B
Critical Lane Group	Yes	No	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.69	0.11	0.00	1.69	0.39	0.11	4.82
50th-Percentile Queue Length [ft/ln]	42.26	2.70	0.00	42.35	9.80	2.63	120.56
95th-Percentile Queue Length [veh/ln]	3.04	0.19	0.00	3.05	0.71	0.19	8.42
95th-Percentile Queue Length [ft/ln]	76.07	4.85	0.00	76.23	17.64	4.73	210.60

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	14.25	0.00	11.57	0.00	0.00	0.00	0.00	9.74	8.53	12.35	13.43	0.00
Movement LOS	B		B	A	A	A		A	A	B	B	
d_A, Approach Delay [s/veh]	14.06			0.00			9.60			13.42		
Approach LOS	B			A			A			B		
d_I, Intersection Delay [s/veh]	12.34											
Intersection LOS	B											
Intersection V/C	0.433											

Emissions

Vehicle Miles Traveled [mph]	11.55	0.85	0.00	264.52	32.40	3.20	293.64
Stops [stops/h]	101.42	6.47	0.00	203.28	23.52	6.30	578.70
Fuel consumption [US gal/h]	1.55	0.10	0.00	12.60	1.52	0.20	18.55
CO [g/h]	108.08	7.09	0.00	880.61	106.10	13.95	1296.96
NOx [g/h]	21.03	1.38	0.00	171.34	20.64	2.71	252.34
VOC [g/h]	25.05	1.64	0.00	204.09	24.59	3.23	300.58

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	767	767	967	967
d_b, Bicycle Delay [s]	11.41	11.41	8.01	8.01
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.068	2.478
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Marksheffel Rd/East Access

Control Type:	Two-way stop	Delay (sec / veh):	16.0
Analysis Method:	HCM 7th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.097

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	1	0	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	100.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Base Volume Input [veh/h]	0	690	426	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	3.0860	3.0860	3.0860	1.0000	3.0860
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	50	40	40	0	32
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2179	1355	40	0	32
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	592	368	11	0	9
Total Analysis Volume [veh/h]	0	2368	1473	43	0	35
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.00	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	16.03
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	0.32
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	7.99
d_A, Approach Delay [s/veh]	0.00		0.00		16.03	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.14					
Intersection LOS	C					

Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	1410	702	15
2	1368	681	15
3	1340	667	14
4	1255	625	13
5	1114	555	12
6	1100	548	12
7	1086	541	12
8	987	491	11
9	973	484	10
10	959	477	10
11	832	414	9
12	776	386	8
13	761	379	8
14	564	281	6
15	564	281	6
16	395	197	4
17	226	112	2
18	226	112	2
19	127	63	1
20	71	35	1
21	42	21	0
22	14	7	0
23	14	7	0
24	14	7	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2112	1	15	No	No	No	No	No	No	No	No	No	No
2	3	2049	1	15	No	No	No	No	No	No	No	No	No	No
3	3	2007	1	14	No	No	No	No	No	No	No	No	No	No
4	3	1880	1	13	No	No	No	No	No	No	No	No	No	No
5	3	1669	1	12	No	No	No	No	No	No	No	No	No	No
6	3	1648	1	12	No	No	No	No	No	No	No	No	No	No
7	3	1627	1	12	No	No	No	No	No	No	No	No	No	No
8	3	1478	1	11	No	No	No	No	No	No	No	No	No	No
9	3	1457	1	10	No	No	No	No	No	No	No	No	No	No
10	3	1436	1	10	No	No	No	No	No	No	No	No	No	No
11	3	1246	1	9	No	No	No	No	No	No	No	No	No	No
12	3	1162	1	8	No	No	No	No	No	No	No	No	No	No
13	3	1140	1	8	No	No	No	No	No	No	No	No	No	No
14	3	845	1	6	No	No	No	No	No	No	No	No	No	No
15	3	845	1	6	No	No	No	No	No	No	No	No	No	No
16	3	592	1	4	No	No	No	No	No	No	No	No	No	No
17	3	338	1	2	No	No	No	No	No	No	No	No	No	No
18	3	338	1	2	No	No	No	No	No	No	No	No	No	No
19	3	190	1	1	No	No	No	No	No	No	No	No	No	No
20	3	106	1	1	No	No	No	No	No	No	No	No	No	No
21	3	63	1	0	No	No	No	No	No	No	No	No	No	No
22	3	21	1	0	No	No	No	No	No	No	No	No	No	No
23	3	21	1	0	No	No	No	No	No	No	No	No	No	No
24	3	21	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	39.4
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:09
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	15
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2127
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 25: Marksheffel Rd/East Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	1395	2179	32
2	1353	2114	31
3	1325	2070	30
4	1242	1939	28
5	1102	1721	25
6	1088	1700	25
7	1074	1678	25
8	976	1525	22
9	963	1504	22
10	949	1482	22
11	823	1286	19
12	767	1198	18
13	753	1177	17
14	558	872	13
15	558	872	13
16	391	610	9
17	223	349	5
18	223	349	5
19	126	196	3
20	70	109	2
21	42	65	1
22	14	22	0
23	14	22	0
24	14	22	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	3574	1	32	No	No	No	No	No	No	No	No	No	No
2	3	3467	1	31	No	No	No	No	No	No	No	No	No	No
3	3	3395	1	30	No	No	No	No	No	No	No	No	No	No
4	3	3181	1	28	No	No	No	No	No	No	No	No	No	No
5	3	2823	1	25	No	No	No	No	No	No	No	No	No	No
6	3	2788	1	25	No	No	No	No	No	No	No	No	No	No
7	3	2752	1	25	No	No	No	No	No	No	No	No	No	No
8	3	2501	1	22	No	No	No	No	No	No	No	No	No	No
9	3	2467	1	22	No	No	No	No	No	No	No	No	No	No
10	3	2431	1	22	No	No	No	No	No	No	No	No	No	No
11	3	2109	1	19	No	No	No	No	No	No	No	No	No	No
12	3	1965	1	18	No	No	No	No	No	No	No	No	No	No
13	3	1930	1	17	No	No	No	No	No	No	No	No	No	No
14	3	1430	1	13	No	No	No	No	No	No	No	No	No	No
15	3	1430	1	13	No	No	No	No	No	No	No	No	No	No
16	3	1001	1	9	No	No	No	No	No	No	No	No	No	No
17	3	572	1	5	No	No	No	No	No	No	No	No	No	No
18	3	572	1	5	No	No	No	No	No	No	No	No	No	No
19	3	322	1	3	No	No	No	No	No	No	No	No	No	No
20	3	179	1	2	No	No	No	No	No	No	No	No	No	No
21	3	107	1	1	No	No	No	No	No	No	No	No	No	No
22	3	36	1	0	No	No	No	No	No	No	No	No	No	No
23	3	36	1	0	No	No	No	No	No	No	No	No	No	No
24	3	36	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	16
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:08
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	32
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	3606
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

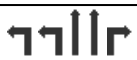
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Intersection Level Of Service Report
Intersection 1: Powers Bl/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	47.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.755

Intersection Setup

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	965.00	100.00	860.00	1195.00	100.00	820.00	800.00	100.00	435.00	640.00	100.00	435.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	1180.00	0.00	0.00	550.00	0.00	0.00	760.00
Speed [mph]	55.00			55.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Powers Bl			Powers Bl			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	58	629	171	142	585	234	138	236	82	121	140	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	164	252	0	0	0	44	0	115	36	208
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	237	0	0	212	0	0	74	0	0	151
Total Hourly Volume [veh/h]	105	1136	236	508	1057	211	249	470	74	334	289	151
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	309	64	138	287	57	68	128	20	91	79	41
Total Analysis Volume [veh/h]	114	1235	257	552	1149	229	271	511	80	363	314	164
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	ProtPer	Permiss	Unsigna	Protecte	Permiss	Unsigna
Flashing Yellow Arrow							No					
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	20	40	0	20	40	0	20	34	0	20	34	0
Amber [s]	3.0	5.0	0.0	3.0	5.0	0.0	3.0	4.5	0.0	3.0	4.5	0.0
All red [s]	2.5	2.0	0.0	2.5	2.0	0.0	3.0	2.0	0.0	3.0	2.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0	0.0	7.0	0.0
Pedestrian Clearance [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	25.0	0.0	0.0	25.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	3.5	5.0	0.0	3.5	5.0	0.0	4.0	4.5	0.0	4.0	4.5	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	16.0	37.0	0.0	25.0	46.0	0.0	19.0	39.0	0.0	19.0	39.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	6	24	0	6	24	0	6	8	0	6	8	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	5.50	7.00	5.50	7.00	6.50	6.50	6.00	6.50
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	3.50	5.00	3.50	5.00	0.00	4.50	4.00	4.50
g_i, Effective Green Time [s]	9.5	39.7	21.9	52.1	39.4	20.4	13.0	20.4
g / C, Green / Cycle	0.08	0.33	0.18	0.43	0.33	0.17	0.11	0.17
(v / s)_i Volume / Saturation Flow Rate	0.06	0.35	0.16	0.32	0.20	0.14	0.10	0.09
s, saturation flow rate [veh/h]	1781	3560	3459	3560	1373	3560	3459	3560
c, Capacity [veh/h]	141	1178	629	1543	465	608	375	608
d1, Uniform Delay [s]	54.35	40.15	47.80	28.45	32.27	48.16	53.30	45.24
k, delay calibration	0.11	0.50	0.11	0.50	0.22	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.34	39.97	4.15	3.31	2.33	3.22	15.39	0.68
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	1.05	0.88	0.74	0.58	0.84	0.97	0.52
d, Delay for Lane Group [s/veh]	64.68	80.12	51.95	31.77	34.60	51.38	68.68	45.92
Lane Group LOS	E	F	D	C	C	D	E	D
Critical Lane Group	No	Yes	Yes	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.65	22.62	7.99	13.30	6.46	7.60	6.20	4.29
50th-Percentile Queue Length [ft/ln]	91.35	565.49	199.83	332.51	161.55	189.91	154.93	107.13
95th-Percentile Queue Length [veh/ln]	6.58	31.40	12.63	19.28	10.63	12.12	10.28	7.68
95th-Percentile Queue Length [ft/ln]	164.43	785.12	315.75	482.03	265.78	302.91	256.99	192.00

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	64.68	80.12	0.00	51.95	31.77	0.00	34.60	51.38	0.00	68.68	45.92	0.00
Movement LOS	E	F		D	C		C	D		E	D	
d_A, Approach Delay [s/veh]	67.08			34.09			41.63			47.53		
Approach LOS	E			C			D			D		
d_I, Intersection Delay [s/veh]	47.28											
Intersection LOS	D											
Intersection V/C	0.755											

Emissions

Vehicle Miles Traveled [mph]	127.54	1381.71	896.16	1865.37	150.98	284.69	99.52	86.09
Stops [stops/h]	109.62	1357.18	479.60	798.01	193.86	455.79	371.82	257.11
Fuel consumption [US gal/h]	7.80	91.56	44.72	84.65	9.12	19.62	11.66	8.15
CO [g/h]	545.43	6400.30	3125.99	5917.01	637.53	1371.55	815.23	569.62
NOx [g/h]	106.12	1245.27	608.20	1151.23	124.04	266.85	158.61	110.83
VOC [g/h]	126.41	1483.33	724.48	1371.32	147.75	317.87	188.94	132.01

Other Modes

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	49.50	49.50	49.50	49.50
l_p,int, Pedestrian LOS Score for Intersectio	3.319	3.528	2.696	2.987
Crosswalk LOS	C	D	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	500	650	542	542
d_b, Bicycle Delay [s]	33.75	27.34	31.90	31.90
l_b,int, Bicycle LOS Score for Intersection	2.673	2.963	2.205	2.118
Bicycle LOS	B	C	B	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 2: Fontaine Bl/Rolling View Dr

Control Type:	Two-way stop	Delay (sec / veh):	78.4
Analysis Method:	HCM 7th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name			Fontaine Bl		Fontaine Bl	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	0	0	1	1	0
Entry Pocket Length [ft]	100.00	100.00	100.00	380.00	380.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		35.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name			Fontaine Bl		Fontaine Bl	
Base Volume Input [veh/h]	1	2	524	5	0	306
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.6734	1.6734	1.8060	1.6734	1.6734	1.8060
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	460	0	0	359
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	3	1406	8	0	912
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	382	2	0	248
Total Analysis Volume [veh/h]	2	3	1528	9	0	991
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

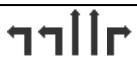
Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.01	0.02	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	78.43	17.16	0.00	0.00	13.40	0.00
Movement LOS	F	C	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.77	3.77	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	41.67		0.00		0.00	
Approach LOS	E		A		A	
d_I, Intersection Delay [s/veh]	0.08					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Marksheffel Rd/Fontaine Bl

Control Type:	Signalized	Delay (sec / veh):	49.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.821

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	2	0	1	2	0	1	2	0	1	2	0	0
Entry Pocket Length [ft]	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	380.00	560.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	1	0	0	1	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	550.00	0.00	0.00	550.00	0.00	0.00	550.00	0.00	0.00	550.00
Speed [mph]	45.00			45.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	3.0860	3.0860	1.9600	3.0860	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	31	11	0	40	29	22	13	62	21	7	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	174	0	0	81	0	0	119	0	0	154
Total Hourly Volume [veh/h]	192	985	174	502	1762	81	145	791	119	170	393	154
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	52	268	47	136	479	22	39	215	32	46	107	42
Total Analysis Volume [veh/h]	209	1071	189	546	1915	88	158	860	129	185	427	167
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	160
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna
Flashing Yellow Arrow												
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	5.5	0.0	2.0	5.5	0.0	2.0	5.0	0.0	2.0	5.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	15.0	58.0	0.0	54.0	97.0	0.0	27.0	35.0	0.0	13.0	21.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Vehicle Extension [s]	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0	3.0	1.5	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	L	C
C, Calculated Cycle Length [s]	160	160	160	160	160	160	160	160
L, Total Lost Time per Cycle [s]	4.00	7.50	4.00	7.50	4.00	7.00	4.00	7.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	5.50	2.00	5.50	2.00	5.00	2.00	5.00
g_i, Effective Green Time [s]	11.0	70.1	28.3	87.4	9.6	28.6	10.5	29.5
g / C, Green / Cycle	0.07	0.44	0.18	0.55	0.06	0.18	0.07	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.30	0.16	0.54	0.05	0.17	0.05	0.08
s, saturation flow rate [veh/h]	3459	3560	3459	3560	3459	5094	3459	5094
c, Capacity [veh/h]	238	1559	613	1945	209	912	226	936
d1, Uniform Delay [s]	73.84	36.17	64.30	35.64	73.99	64.86	73.85	58.17
k, delay calibration	0.11	0.04	0.11	0.04	0.11	0.50	0.11	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.03	0.20	4.71	3.23	5.45	18.80	7.19	1.60
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.88	0.69	0.89	0.98	0.75	0.94	0.82	0.46
d, Delay for Lane Group [s/veh]	83.87	36.37	69.00	38.86	79.44	83.66	81.03	59.77
Lane Group LOS	F	D	E	D	E	F	F	E
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	4.54	16.44	11.10	35.27	3.32	12.94	3.94	5.22
50th-Percentile Queue Length [ft/ln]	113.45	411.00	277.60	881.63	83.04	323.59	98.41	130.42
95th-Percentile Queue Length [veh/ln]	8.03	23.09	16.57	45.00	5.98	18.84	7.09	8.96
95th-Percentile Queue Length [ft/ln]	200.79	577.24	414.22	1125.10	149.47	471.10	177.13	224.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	83.87	36.37	0.00	69.00	38.86	0.00	79.44	83.66	0.00	81.03	59.77	0.00
Movement LOS	F	D		E	D		E	F		F	E	
d_A, Approach Delay [s/veh]	38.85			44.10			74.32			52.89		
Approach LOS	D			D			E			D		
d_I, Intersection Delay [s/veh]	49.58											
Intersection LOS	D											
Intersection V/C	0.821											

Emissions

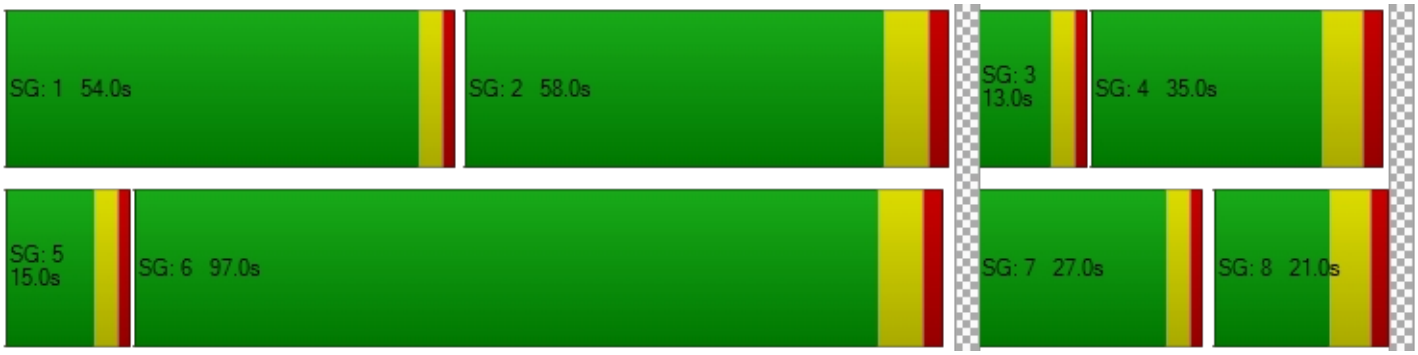
Vehicle Miles Traveled [mph]	45.63	233.85	100.18	351.35	39.35	214.18	36.75	84.83
Stops [stops/h]	204.21	739.80	499.67	1586.93	149.47	873.70	177.13	352.14
Fuel consumption [US gal/h]	7.67	25.14	17.31	46.92	5.76	32.84	6.51	12.48
CO [g/h]	536.13	1757.36	1210.15	3279.60	402.69	2295.83	455.22	872.29
NOx [g/h]	104.31	341.92	235.45	638.09	78.35	446.69	88.57	169.72
VOC [g/h]	124.25	407.29	280.46	760.08	93.33	532.08	105.50	202.16

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	631	1119	350	175
d_b, Bicycle Delay [s]	37.47	15.53	54.45	66.61
l_b,int, Bicycle LOS Score for Intersection	2.616	3.590	2.120	1.896
Bicycle LOS	B	D	B	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 4: Marksheffel Rd/Lorson Blvd

Control Type:	Signalized	Delay (sec / veh):	37.1
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.667

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	380.00	100.00	380.00	380.00	100.00	380.00	315.00	100.00	315.00	475.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			40.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd								
Base Volume Input [veh/h]	0	491	287	140	551	0	0	0	0	106	0	62
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.9600	1.9600	3.0860	3.0860	1.9600	1.9600	1.9600	1.9600	1.9600	1.9600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	114	8	0	5	52	37	52	10	71	0	15	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	50	-50	0	0	-44	44	46	0	42	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	282	0	0	41	0	0	57	0	0	62
Total Hourly Volume [veh/h]	164	1473	281	279	1708	40	98	10	56	208	15	62
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	400	76	76	464	11	27	3	15	57	4	17
Total Analysis Volume [veh/h]	178	1601	305	303	1857	43	107	11	61	226	16	67
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow	No			No			No					
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	42	0	5	42	0	5	10	0	5	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	63.0	0.0	18.0	72.0	0.0	9.0	19.0	0.0	20.0	30.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	77.0	59.0	59.0	77.0	68.0	68.0	35.0	15.0	15.0	16.0	26.0
g / C, Green / Cycle	0.64	0.49	0.49	0.64	0.57	0.57	0.29	0.13	0.13	0.13	0.22
(v / s)_i Volume / Saturation Flow Rate	0.47	0.45	0.19	0.54	0.52	0.03	0.08	0.01	0.04	0.07	0.05
s, saturation flow rate [veh/h]	378	3560	1589	557	3560	1589	1408	1870	1589	3459	1637
c, Capacity [veh/h]	220	1751	781	349	2018	901	445	234	199	461	355
d1, Uniform Delay [s]	32.75	28.17	19.19	37.41	23.55	11.58	32.14	46.21	47.77	48.22	38.78
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	26.55	8.93	1.47	24.11	8.36	0.10	1.27	0.38	3.96	3.69	1.54
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.81	0.91	0.39	0.87	0.92	0.05	0.24	0.05	0.31	0.49	0.23
d, Delay for Lane Group [s/veh]	59.30	37.10	20.65	61.52	31.91	11.68	33.42	46.59	51.73	51.91	40.33
Lane Group LOS	E	D	C	E	C	B	C	D	D	D	D
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	3.28	21.63	5.37	5.40	23.46	0.51	2.47	0.31	1.86	3.35	2.16
50th-Percentile Queue Length [ft/ln]	81.97	540.82	134.20	134.94	586.43	12.65	61.64	7.76	46.43	83.83	54.08
95th-Percentile Queue Length [veh/ln]	5.90	29.26	9.17	9.21	31.40	0.91	4.44	0.56	3.34	6.04	3.89
95th-Percentile Queue Length [ft/ln]	147.55	731.52	229.19	230.20	785.01	22.76	110.95	13.97	83.57	150.89	97.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	59.30	37.10	20.65	61.52	31.91	11.68	33.42	46.59	51.73	51.91	40.33	40.33
Movement LOS	E	D	C	E	C	B	C	D	D	D	D	D
d_A, Approach Delay [s/veh]	36.59			35.59			40.47			48.80		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.07											
Intersection LOS	D											
Intersection V/C	0.667											

Emissions

Vehicle Miles Traveled [mph]	166.02	1493.23	284.47	40.89	250.59	5.80	15.99	1.64	9.11	38.94	14.30
Stops [stops/h]	98.37	1297.97	161.04	161.93	1407.44	15.18	73.96	9.31	55.72	201.18	64.89
Fuel consumption [US gal/h]	9.06	79.41	13.04	7.21	38.15	0.49	2.03	0.25	1.52	5.38	1.71
CO [g/h]	633.40	5550.82	911.15	503.81	2666.58	34.24	141.67	17.80	105.96	376.37	119.82
NOx [g/h]	123.24	1079.99	177.28	98.02	518.82	6.66	27.56	3.46	20.62	73.23	23.31
VOC [g/h]	146.80	1286.46	211.17	116.76	618.00	7.93	32.83	4.13	24.56	87.23	27.77

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	51.34	51.34	51.34
l_p,int, Pedestrian LOS Score for Intersectio	3.982	3.556	2.678	2.815
Crosswalk LOS	D	D	B	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	983	1133	250	433
d_b, Bicycle Delay [s]	15.50	11.27	45.94	36.82
l_b,int, Bicycle LOS Score for Intersection	3.512	3.411	1.949	2.172
Bicycle LOS	D	C	A	B

Sequence

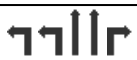
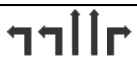
Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 5: Makrsheffel Rd/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	48.2
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.794

Intersection Setup

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	560.00	100.00	380.00	380.00	100.00	580.00	740.00	100.00	380.00	560.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	45.00			45.00			45.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			Yes			Yes		

Volumes

Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Base Volume Input [veh/h]	62	338	40	80	355	249	468	280	38	60	241	80
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	3.0860	3.0860	1.2190	1.2190	3.0860	3.0860	3.0860	1.2190	3.7619	1.2189	1.2189	1.2189
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	34	0	5	28	89	81	3	8	0	4	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	25	0	0	429	0	0	76	0	0	53
Total Hourly Volume [veh/h]	201	1077	24	103	1124	428	1525	344	75	73	298	52
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	55	293	7	28	305	116	414	93	20	20	81	14
Total Analysis Volume [veh/h]	218	1171	26	112	1222	465	1658	374	82	79	324	57
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	100
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Flashing Yellow Arrow	No			No								
Signal Group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	5	10	0	25	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	2.0	1.0	0.0
Walk [s]	0.0	7.0	0.0	0.0	7.0	0.0	0.0	5.0	0.0	7.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	7.0	0.0	0.0	10.0	0.0	7.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.0	0.0	2.0	3.0	0.0	2.0	2.0	0.0	3.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	40.0	0.0	9.0	40.0	0.0	36.0	41.0	0.0	10.0	15.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	100	100	100	100	100	100	100	100	100	100	100	100
L, Total Lost Time per Cycle [s]	5.00	5.00	5.00	4.00	5.00	5.00	4.00	4.00	4.00	5.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	3.00	3.00	0.00	3.00	3.00	2.00	2.00	2.00	3.00	2.00	2.00
g_i, Effective Green Time [s]	44.0	35.0	35.0	44.0	35.0	35.0	32.0	37.0	37.0	5.0	11.0	11.0
g / C, Green / Cycle	0.44	0.35	0.35	0.44	0.35	0.35	0.32	0.37	0.37	0.05	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.21	0.33	0.02	0.17	0.34	0.29	0.32	0.11	0.05	0.02	0.09	0.04
s, saturation flow rate [veh/h]	1027	3560	1589	676	3560	1589	5188	3560	1589	3459	3560	1589
c, Capacity [veh/h]	400	1246	556	256	1246	556	1660	1317	588	173	392	175
d1, Uniform Delay [s]	23.46	31.48	21.48	23.02	32.16	29.86	33.98	22.17	20.92	46.18	43.57	41.08
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.24	14.62	0.16	5.34	21.26	13.87	21.79	0.54	0.50	8.46	17.89	4.90
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.54	0.94	0.05	0.44	0.98	0.84	1.00	0.28	0.14	0.46	0.83	0.33
d, Delay for Lane Group [s/veh]	28.70	46.10	21.63	28.36	53.42	43.73	55.77	22.72	21.42	54.64	61.46	45.98
Lane Group LOS	C	D	C	C	D	D	E	C	C	D	E	D
Critical Lane Group	Yes	No	No	No	Yes	No	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.69	15.17	0.41	1.81	17.16	11.67	15.80	3.01	1.29	1.15	4.87	1.53
50th-Percentile Queue Length [ft/ln]	42.15	379.33	10.19	45.33	429.00	291.70	394.91	75.27	32.14	28.83	121.63	38.23
95th-Percentile Queue Length [veh/ln]	3.04	21.56	0.73	3.26	23.95	17.27	22.31	5.42	2.31	2.08	8.48	2.75
95th-Percentile Queue Length [ft/ln]	75.88	539.04	18.34	81.59	598.84	431.75	557.86	135.48	57.86	51.90	212.07	68.81

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.70	46.10	21.63	28.36	53.42	43.73	55.77	22.72	21.42	54.64	61.46	45.98
Movement LOS	C	D	C	C	D	D	E	C	C	D	E	D
d_A, Approach Delay [s/veh]	42.97			49.36			48.59			58.37		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	48.23											
Intersection LOS	D											
Intersection V/C	0.794											

Emissions

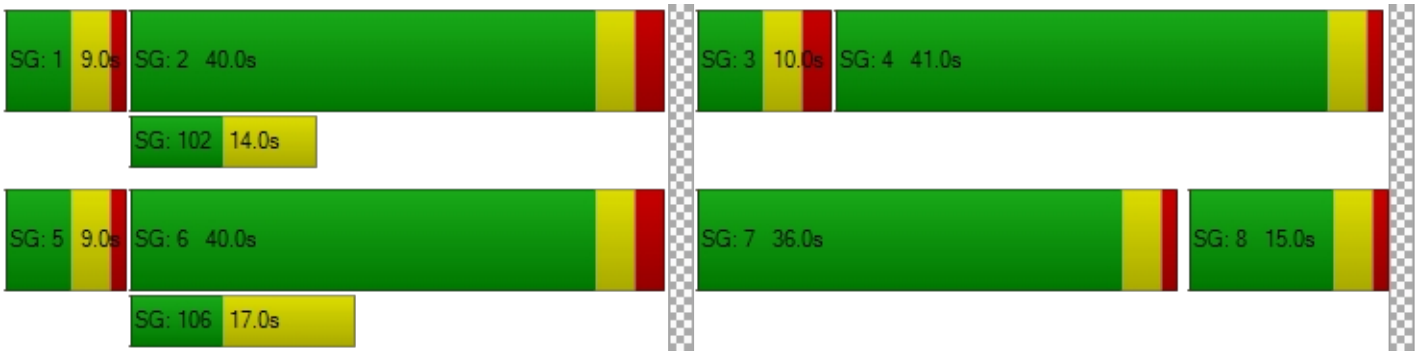
Vehicle Miles Traveled [mph]	132.13	709.73	15.76	104.46	1139.74	433.70	250.13	56.42	12.37	4.01	16.46	2.90
Stops [stops/h]	121.40	1092.48	14.67	65.27	1235.51	420.05	1706.00	216.77	46.29	83.04	350.30	55.05
Fuel consumption [US gal/h]	7.31	48.90	0.84	5.04	67.71	24.23	48.60	6.36	1.36	1.50	6.66	0.96
CO [g/h]	511.07	3417.87	58.51	352.20	4733.18	1693.45	3397.18	444.42	94.85	105.01	465.88	66.87
NOx [g/h]	99.43	664.99	11.38	68.52	920.90	329.48	660.97	86.47	18.45	20.43	90.64	13.01
VOC [g/h]	118.44	792.12	13.56	81.62	1096.96	392.47	787.33	103.00	21.98	24.34	107.97	15.50

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	11.0	11.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	39.61	39.61
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	3.616	2.879
Crosswalk LOS	F	F	D	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	740	220
d_b, Bicycle Delay [s]	21.13	21.13	19.85	39.61
l_b,int, Bicycle LOS Score for Intersection	2.748	3.398	3.366	1.983
Bicycle LOS	B	C	C	A

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Mesa Ridge P./Spring Glen Dr

Control Type:	Signalized	Delay (sec / veh):	9.8
Analysis Method:	HCM 7th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.745

Intersection Setup

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	100.00	100.00	100.00	100.00	380.00	100.00	380.00	235.00	100.00	235.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Spring Glen Drive			Spring Glen Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	37	5	8	25	5	67	143	479	63	13	278	27
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2189	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	6	0	74	102	85	0	0	95	8
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	5	0	0	97	0	0	39	0	0	28
Total Hourly Volume [veh/h]	45	6	5	51	6	96	357	1425	38	16	873	28
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	12	2	1	14	2	26	97	387	10	4	237	8
Total Analysis Volume [veh/h]	49	7	5	55	7	104	388	1549	41	17	949	30
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	10	0	0	10	0	0	72	0	0	72	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	15.0	0.0	0.0	15.0	0.0	0.0	75.0	0.0	0.0	75.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	R
C, Calculated Cycle Length [s]	90	90	90	90	90	90	90	90	90	90
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11.0	11.0	11.0	11.0	71.0	71.0	71.0	71.0	71.0	71.0
g / C, Green / Cycle	0.12	0.12	0.12	0.12	0.79	0.79	0.79	0.79	0.79	0.79
(v / s)_i Volume / Saturation Flow Rate	0.04	0.01	0.04	0.07	0.68	0.44	0.03	0.05	0.27	0.02
s, saturation flow rate [veh/h]	1282	1742	1402	1605	574	3560	1589	321	3560	1589
c, Capacity [veh/h]	125	213	212	196	476	2809	1254	274	2809	1254
d1, Uniform Delay [s]	43.58	34.91	38.45	37.25	13.33	3.55	2.06	7.45	2.73	2.04
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	9.07	0.50	2.96	11.31	14.18	0.78	0.05	0.43	0.33	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.06	0.26	0.57	0.81	0.55	0.03	0.06	0.34	0.02
d, Delay for Lane Group [s/veh]	52.65	35.42	41.41	48.56	27.51	4.33	2.11	7.88	3.06	2.08
Lane Group LOS	D	D	D	D	C	A	A	A	A	A
Critical Lane Group	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	1.38	0.26	1.29	2.86	6.88	2.65	0.09	0.15	1.24	0.06
50th-Percentile Queue Length [ft/ln]	34.62	6.44	32.32	71.55	172.01	66.35	2.22	3.67	30.89	1.62
95th-Percentile Queue Length [veh/ln]	2.49	0.46	2.33	5.15	11.18	4.78	0.16	0.26	2.22	0.12
95th-Percentile Queue Length [ft/ln]	62.31	11.58	58.17	128.80	279.55	119.44	4.00	6.60	55.59	2.91

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	52.65	35.42	35.42	41.41	48.56	48.56	27.51	4.33	2.11	7.88	3.06	2.08
Movement LOS	D	D	D	D	D	D	C	A	A	A	A	A
d_A, Approach Delay [s/veh]	49.26			46.19			8.83			3.11		
Approach LOS	D			D			A			A		
d_I, Intersection Delay [s/veh]	9.76											
Intersection LOS	A											
Intersection V/C	0.745											

Emissions

Vehicle Miles Traveled [mph]	2.05	0.50	47.04	94.93	156.39	624.36	16.53	2.56	143.17	4.53
Stops [stops/h]	55.39	10.30	51.71	114.49	275.21	212.34	3.56	5.87	98.83	2.58
Fuel consumption [US gal/h]	1.02	0.18	2.65	5.58	10.95	25.41	0.63	0.19	6.73	0.20
CO [g/h]	71.28	12.80	184.91	389.80	765.73	1776.03	43.92	13.15	470.25	13.98
NOx [g/h]	13.87	2.49	35.98	75.84	148.98	345.55	8.54	2.56	91.49	2.72
VOC [g/h]	16.52	2.97	42.85	90.34	177.47	411.61	10.18	3.05	108.99	3.24

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	244	244	1578	1578
d_b, Bicycle Delay [s]	34.67	34.67	2.01	2.01
l_b,int, Bicycle LOS Score for Intersection	1.669	1.994	3.224	2.404
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: Mesa Ridge P./Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	10.7
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.679

Intersection Setup

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	35.00			35.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			Autumn Glen Ave.			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	32	63	32	29	38	84	157	601	76	25	301	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	4	0	21	32	183	0	0	163	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	86	0	0	47	0	0	40
Total Hourly Volume [veh/h]	39	77	19	56	46	85	311	1865	46	30	1005	40
Peak Hour Factor	0.9200	1.0000	0.9200	1.0000	1.0000	1.0000	1.0000	0.9200	0.9200	0.9200	0.9200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	19	5	14	12	21	78	507	13	8	273	10
Total Analysis Volume [veh/h]	42	77	21	56	46	85	311	2027	50	33	1092	40
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	70
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	0	8	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	0	23	0	0	23	0	0	29	0	0	29	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	0.0	15.0	0.0	0.0	15.0	0.0	0.0	55.0	0.0	0.0	55.0	0.0
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	10	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	70	70	70	70	70	70	70	70	70	70	70	70
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00	2.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	11.0	11.0	11.0	11.0	11.0	11.0	51.0	51.0	51.0	51.0	51.0	51.0
g / C, Green / Cycle	0.16	0.16	0.16	0.16	0.16	0.16	0.73	0.73	0.73	0.73	0.73	0.73
(v / s)_i Volume / Saturation Flow Rate	0.03	0.02	0.01	0.04	0.01	0.05	0.63	0.57	0.03	0.17	0.31	0.03
s, saturation flow rate [veh/h]	1259	3560	1589	1297	3560	1589	497	3560	1589	200	3560	1589
c, Capacity [veh/h]	251	559	250	245	559	250	391	2594	1158	171	2594	1158
d1, Uniform Delay [s]	28.20	25.41	25.20	28.98	25.19	26.27	16.18	5.99	2.66	18.20	3.72	2.65
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.44	0.51	0.66	2.15	0.29	3.67	15.31	2.42	0.07	2.50	0.50	0.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.17	0.14	0.08	0.23	0.08	0.34	0.80	0.78	0.04	0.19	0.42	0.03
d, Delay for Lane Group [s/veh]	29.63	25.93	25.86	31.13	25.48	29.94	31.49	8.41	2.73	20.70	4.22	2.70
Lane Group LOS	C	C	C	C	C	C	C	A	A	C	A	A
Critical Lane Group	No	No	No	No	No	Yes	Yes	No	No	No	No	No
50th-Percentile Queue Length [veh/ln]	0.71	0.56	0.33	0.98	0.33	1.45	5.49	4.90	0.11	0.48	1.53	0.09
50th-Percentile Queue Length [ft/ln]	17.76	14.06	8.21	24.44	8.29	36.18	137.16	122.56	2.77	12.11	38.26	2.20
95th-Percentile Queue Length [veh/ln]	1.28	1.01	0.59	1.76	0.60	2.60	9.33	8.53	0.20	0.87	2.75	0.16
95th-Percentile Queue Length [ft/ln]	31.98	25.31	14.78	44.00	14.93	65.12	233.20	213.34	4.99	21.79	68.86	3.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.63	25.93	25.86	31.13	25.48	29.94	31.49	8.41	2.73	20.70	4.22	2.70
Movement LOS	C	C	C	C	C	C	C	A	A	C	A	A
d_A, Approach Delay [s/veh]	27.03			29.20			11.30			4.64		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	10.73											
Intersection LOS	B											
Intersection V/C	0.679											

Emissions

Vehicle Miles Traveled [mph]	1.63	2.99	0.81	56.41	46.34	85.63	124.41	810.88	20.00	13.30	440.16	16.12
Stops [stops/h]	36.54	57.84	16.89	50.28	34.13	74.43	282.17	504.26	5.71	24.91	157.39	4.53
Fuel consumption [US gal/h]	0.59	0.96	0.27	2.88	2.26	4.34	9.77	37.53	0.78	0.90	17.98	0.63
CO [g/h]	41.26	66.77	18.77	201.54	158.08	303.48	682.64	2623.56	54.83	63.24	1257.01	44.11
NOx [g/h]	8.03	12.99	3.65	39.21	30.76	59.05	132.82	510.45	10.67	12.30	244.57	8.58
VOC [g/h]	9.56	15.47	4.35	46.71	36.64	70.33	158.21	608.03	12.71	14.66	291.32	10.22

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	314	314	1457	1457
d_b, Bicycle Delay [s]	24.86	24.86	2.58	2.58
l_b,int, Bicycle LOS Score for Intersection	1.692	1.785	3.568	2.554
Bicycle LOS	A	A	D	B

Sequence

Ring 1	-	2	-	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 8: Mesa Ridge P./Wayfarer Dr

Control Type:	Signalized	Delay (sec / veh):	39.6
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.849

Intersection Setup

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	1	1	0	1	1	0	1	1	0	1
Entry Pocket Length [ft]	235.00	100.00	235.00	235.00	100.00	235.00	380.00	100.00	380.00	380.00	100.00	380.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	1
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	100.00
Speed [mph]	30.00			30.00			45.00			45.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			No			No			No		

Volumes

Name				Wayfarer Drive			Mesa Ridge Parkway			Mesa Ridge Parkway		
Base Volume Input [veh/h]	188	6	19	13	6	94	177	750	82	50	365	23
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.2189	1.2189	1.2189	1.7800	1.2190	1.7800	1.7800	2.7983	1.2190	1.2190	2.7983	1.7800
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	216	0	0	185	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	12	0	0	84	0	0	50	0	0	21
Total Hourly Volume [veh/h]	229	7	11	23	7	83	315	2315	50	61	1206	20
Peak Hour Factor	1.0000	1.0000	1.0000	0.9200	1.0000	0.9200	0.9200	0.9200	1.0000	1.0000	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	2	3	6	2	23	86	629	13	15	328	5
Total Analysis Volume [veh/h]	229	7	11	25	7	90	342	2516	50	61	1311	22
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	120
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Flashing Yellow Arrow	No			No			No			No		
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Maximum Green [s]	5	19	0	5	19	0	5	33	0	5	33	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	0.0	10.0	0.0	0.0	10.0	0.0	0.0	14.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	9.0	16.0	0.0	11.0	18.0	0.0	10.0	84.0	0.0	9.0	83.0	0.0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Calculated Cycle Length [s]	120	120	120	120	120	120	120	120	120	120	120	120
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	23.0	16.1	16.1	23.0	14.0	14.0	89.0	80.6	80.6	89.0	79.0	79.0
g / C, Green / Cycle	0.19	0.13	0.13	0.19	0.12	0.12	0.74	0.67	0.67	0.74	0.66	0.66
(v / s)_i Volume / Saturation Flow Rate	0.16	0.00	0.01	0.02	0.00	0.06	0.64	0.71	0.03	0.25	0.37	0.01
s, saturation flow rate [veh/h]	1445	1870	1589	1478	1870	1589	534	3560	1589	241	3560	1589
c, Capacity [veh/h]	362	250	212	365	218	185	404	2392	1068	186	2344	1046
d1, Uniform Delay [s]	45.87	45.20	45.34	39.76	46.99	49.63	15.96	19.68	6.67	32.56	11.09	7.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.13	0.21	0.46	0.36	0.27	8.82	19.25	33.78	0.08	4.64	0.97	0.04
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, 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
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.63	0.03	0.05	0.07	0.03	0.49	0.85	1.05	0.05	0.33	0.56	0.02
d, Delay for Lane Group [s/veh]	54.00	45.41	45.81	40.13	47.27	58.44	35.21	53.46	6.75	37.20	12.06	7.14
Lane Group LOS	D	D	D	D	D	E	D	F	A	D	B	A
Critical Lane Group	Yes	No	No	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	7.14	0.20	0.31	0.65	0.20	2.99	4.30	38.09	0.40	0.56	8.43	0.19
50th-Percentile Queue Length [ft/ln]	178.53	4.92	7.87	16.17	5.08	74.70	107.39	952.21	10.12	13.97	210.83	4.63
95th-Percentile Queue Length [veh/ln]	11.52	0.35	0.57	1.16	0.37	5.38	7.69	50.42	0.73	1.01	13.20	0.33
95th-Percentile Queue Length [ft/ln]	288.10	8.86	14.17	29.11	9.14	134.46	192.37	1260.62	18.22	25.14	329.89	8.34

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	54.00	45.41	45.81	40.13	47.27	58.44	35.21	53.46	6.75	37.20	12.06	7.14
Movement LOS	D	D	D	D	D	E	D	F	A	D	B	A
d_A, Approach Delay [s/veh]	53.39			54.05			50.51			13.08		
Approach LOS	D			D			D			B		
d_I, Intersection Delay [s/veh]	39.59											
Intersection LOS	D											
Intersection V/C	0.849											

Emissions

Vehicle Miles Traveled [mph]	8.44	0.26	0.41	4.08	1.14	14.68	131.03	963.97	19.16	24.40	524.45	8.80
Stops [stops/h]	214.24	5.91	9.45	19.41	6.10	89.64	128.87	2285.31	12.15	16.76	505.99	5.56
Fuel consumption [US gal/h]	4.05	0.11	0.17	0.48	0.15	2.17	8.54	88.83	0.88	1.51	27.48	0.40
CO [g/h]	282.91	7.54	11.98	33.50	10.35	151.69	597.24	6209.08	61.26	105.31	1921.19	28.15
NOx [g/h]	55.04	1.47	2.33	6.52	2.01	29.51	116.20	1208.06	11.92	20.49	373.79	5.48
VOC [g/h]	65.57	1.75	2.78	7.76	2.40	35.15	138.42	1439.01	14.20	24.41	445.25	6.52

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	51.34	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	2.327	0.000	0.000	0.000
Crosswalk LOS	B	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	200	233	1333	1317
d_b, Bicycle Delay [s]	48.60	46.82	6.67	7.00
l_b,int, Bicycle LOS Score for Intersection	1.987	1.900	4.000	2.727
Bicycle LOS	A	A	D	B

Sequence

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 9: Powers Bl/Mesa Ridge Pkwy

Control Type:	Signalized	Delay (sec / veh):	52.3
Analysis Method:	HCM 7th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	2	3	0	1	1
Entry Pocket Length [ft]	100.00	820.00	1555.00	100.00	440.00	1500.00
No. of Lanes in Exit Pocket	0	0	0	1	1	0
Exit Pocket Length [ft]	0.00	0.00	0.00	550.00	712.00	0.00
Speed [mph]	55.00		55.00		45.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	No		No		No	

Volumes

Name	Mesa Rdige Parkway		Powers Bl		Mesa Ridge Parkway	
Base Volume Input [veh/h]	778	735	171	609	354	109
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00					
Growth Factor	2.6600	2.6600	2.6600	2.6600	2.6600	2.6600
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	164	215	1	115	184	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	0	0	0	146
Total Hourly Volume [veh/h]	2233	2170	456	1735	1126	145
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	607	590	124	471	306	39
Total Analysis Volume [veh/h]	2427	2359	496	1886	1224	158
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	180
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Offset [s]	97.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permissive	Overlap	Protected	Permissive	Permissive	Permissive
Flashing Yellow Arrow						
Signal Group	2	8	1	6	8	1
Auxiliary Signal Groups		2,8				
Maximum Green [s]	25	37	25	50	37	25
Amber [s]	5.0	3.0	3.0	5.0	3.0	3.0
All red [s]	2.0	2.0	2.0	2.0	2.0	2.0
Walk [s]	0.0	0.0	0.0	0.0	0.0	0.0
Pedestrian Clearance [s]	0.0	0.0	0.0	0.0	0.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No			No	No	
I1, Start-Up Lost Time [s]	2.0	2.0	2.0	2.0	2.0	2.0
I2, Clearance Lost Time [s]	5.0	3.0	3.0	5.0	3.0	3.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	90.0	51.0	39.0	129.0	51.0	39.0
Lead / Lag	-	-	Lead	-	Lead	-
Minimum Green [s]	25	6	6	25	6	6
Vehicle Extension [s]	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Recall	No	No	No	No	No	
Maximum Recall	No	Yes	No	Yes	Yes	
Pedestrian Recall	No	No	No	No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	L	R
C, Calculated Cycle Length [s]	180	180	180	180	180	180
L, Total Lost Time per Cycle [s]	7.00	5.00	5.00	7.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	5.00	0.00	3.00	5.00	3.00	3.00
g_i, Effective Green Time [s]	88.7	141.7	28.3	122.0	46.0	46.0
g / C, Green / Cycle	0.49	0.79	0.16	0.68	0.26	0.26
(v / s)_i Volume / Saturation Flow Rate	0.48	0.84	0.14	0.37	0.24	0.10
s, saturation flow rate [veh/h]	5094	2813	3459	5094	5188	1589
c, Capacity [veh/h]	2509	2214	545	3452	1326	406
d1, Uniform Delay [s]	44.28	19.18	74.57	14.84	65.28	55.38
k, delay calibration	0.50	0.50	0.11	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	11.81	39.39	6.28	0.63	12.09	2.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.97	1.07	0.91	0.55	0.92	0.39
d, Delay for Lane Group [s/veh]	56.09	58.57	80.85	15.46	77.37	58.18
Lane Group LOS	E	F	F	B	E	E
Critical Lane Group	No	Yes	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	35.72	46.51	11.51	12.27	19.46	6.22
50th-Percentile Queue Length [ft/ln]	893.10	1162.68	287.75	306.74	486.42	155.50
95th-Percentile Queue Length [veh/ln]	45.53	61.26	17.07	18.01	26.69	10.31
95th-Percentile Queue Length [ft/ln]	1138.16	1531.46	426.85	450.36	667.28	257.75

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	56.09	58.57	80.85	15.46	77.37	58.18
Movement LOS	E	F	F	B	E	E
d_A, Approach Delay [s/veh]	57.31		29.08		75.18	
Approach LOS	E		C		E	
d_I, Intersection Delay [s/veh]	52.33					
Intersection LOS	D					
Intersection V/C	0.675					

Emissions

Vehicle Miles Traveled [mph]	1049.73	1020.32	554.92	2110.04	468.96	60.54
Stops [stops/h]	2143.45	1860.29	460.40	736.18	1167.42	124.40
Fuel consumption [US gal/h]	102.63	96.80	35.27	90.19	49.86	5.49
CO [g/h]	7173.81	6766.11	2465.66	6304.55	3485.17	383.89
NOx [g/h]	1395.76	1316.44	479.73	1226.64	678.09	74.69
VOC [g/h]	1662.60	1568.11	571.44	1461.14	807.72	88.97

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000
Crosswalk LOS	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	922	1356	511
d_b, Bicycle Delay [s]	26.14	9.34	49.88
l_b,int, Bicycle LOS Score for Intersection	4.192	2.870	1.560
Bicycle LOS	D	C	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 10: Fontaine Bl/Autumn Glen Ave

Control Type:	Signalized	Delay (sec / veh):	10.2
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.485

Intersection Setup

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	235.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	380.00	380.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	New Intersection			New Intersection			Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	526	0	0	306	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	145	0	17	0	0	0	0	268	192	26	214	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	8	0	14	0	0	0	0	-15	15	9	-9	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	16	0	0	0	0	0	104	0	0	0
Total Hourly Volume [veh/h]	153	0	15	0	0	0	0	1203	103	35	758	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	0	4	0	0	0	0	327	28	10	206	0
Total Analysis Volume [veh/h]	166	0	16	0	0	0	0	1308	112	38	824	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No									No		
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	14	0	0	0	10	0	0	44	0	0	44	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	22.0	0.0	0.0	0.0	22.0	0.0	0.0	38.0	0.0	0.0	38.0	0.0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	18.0	18.0	18.0	34.0	34.0	34.0	34.0
g / C, Green / Cycle	0.30	0.30	0.30	0.57	0.57	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.00	0.37	0.07	0.10	0.23
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	378	3560
c, Capacity [veh/h]	498	477	621	2018	901	226	2018
d1, Uniform Delay [s]	16.71	14.85	0.00	8.90	6.06	17.21	7.33
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.80	0.13	0.00	1.63	0.28	1.60	0.61
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.03	0.00	0.65	0.12	0.17	0.41
d, Delay for Lane Group [s/veh]	18.51	14.98	0.00	10.53	6.34	18.81	7.94
Lane Group LOS	B	B	A	B	A	B	A
Critical Lane Group	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	1.90	0.16	0.00	4.71	0.57	0.47	2.38
50th-Percentile Queue Length [ft/ln]	47.62	3.98	0.00	117.66	14.16	11.87	59.41
95th-Percentile Queue Length [veh/ln]	3.43	0.29	0.00	8.26	1.02	0.85	4.28
95th-Percentile Queue Length [ft/ln]	85.72	7.17	0.00	206.61	25.49	21.37	106.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	18.51	0.00	14.98	0.00	0.00	0.00	0.00	10.53	6.34	18.81	7.94	0.00
Movement LOS	B		B	A	A	A		B	A	B	A	
d_A, Approach Delay [s/veh]	18.20			0.00			10.20			8.42		
Approach LOS	B			A			B			A		
d_I, Intersection Delay [s/veh]	10.17											
Intersection LOS	B											
Intersection V/C	0.485											

Emissions

Vehicle Miles Traveled [mph]	13.82	1.33	0.00	246.14	21.08	20.18	437.49
Stops [stops/h]	114.29	9.56	0.00	564.78	33.98	28.49	285.14
Fuel consumption [US gal/h]	1.83	0.16	0.00	16.43	1.20	1.13	20.15
CO [g/h]	127.62	10.93	0.00	1148.70	84.13	78.90	1408.66
NOx [g/h]	24.83	2.13	0.00	223.49	16.37	15.35	274.07
VOC [g/h]	29.58	2.53	0.00	266.22	19.50	18.29	326.47

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	600	600	1133	1133
d_b, Bicycle Delay [s]	14.70	14.70	5.63	5.63
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.817	2.271
Bicycle LOS	A	A	C	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 11: Fontaine Bl/Community Arterial 1

Control Type:	Signalized	Delay (sec / veh):	11.3
Analysis Method:	HCM 7th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.469

Intersection Setup

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	1	0	0	0	0	0	0	0	1	1	0	0
Entry Pocket Length [ft]	235.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	385.00	385.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			35.00			35.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Community Arterial 1						Fontaine Bl			Fontaine Bl		
Base Volume Input [veh/h]	0	0	0	0	0	0	0	526	0	0	306	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Proportion of CAVs [%]	0.00											
Growth Factor	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000	1.8060	1.8060	1.8060	1.8060	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	204	0	25	0	0	0	0	71	214	20	36	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	8	0	14	0	0	0	0	-15	15	9	-9	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right Turn on Red Volume [veh/h]	0	0	20	0	0	0	0	0	115	0	0	0
Total Hourly Volume [veh/h]	212	0	19	0	0	0	0	1006	114	29	580	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	58	0	5	0	0	0	0	273	31	8	158	0
Total Analysis Volume [veh/h]	230	0	21	0	0	0	0	1093	124	32	630	0
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	60
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Flashing Yellow Arrow	No									No		
Signal Group	3	0	0	0	4	0	0	2	0	0	6	0
Auxiliary Signal Groups												
Maximum Green [s]	17	0	0	0	10	0	0	21	0	0	21	0
Amber [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	1.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Walk [s]	5.0	0.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	5.0	0.0
Pedestrian Clearance [s]	10.0	0.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0	0.0	10.0	0.0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk	No				No			No			No	
I1, Start-Up Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Advanced Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Phasing & Timing: Pattern 1

Split [s]	25.0	0.0	0.0	0.0	25.0	0.0	0.0	35.0	0.0	0.0	35.0	0.0
Lead / Lag	Lead	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	5	0	0	0	10	0	0	10	0	0	10	0
Vehicle Extension [s]	3.0	0.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Minimum Recall	No				No			No			No	
Maximum Recall	No				No			No			No	
Pedestrian Recall	No				No			No			No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	R	L	C
C, Calculated Cycle Length [s]	60	60	60	60	60	60	60
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	2.00	0.00	2.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	21.0	21.0	21.0	31.0	31.0	31.0	31.0
g / C, Green / Cycle	0.35	0.35	0.35	0.52	0.52	0.52	0.52
(v / s)_i Volume / Saturation Flow Rate	0.16	0.01	0.00	0.31	0.08	0.07	0.18
s, saturation flow rate [veh/h]	1417	1589	1870	3560	1589	459	3560
c, Capacity [veh/h]	569	556	714	1840	821	243	1840
d1, Uniform Delay [s]	15.20	12.84	0.00	10.11	7.60	17.22	8.52
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.13	0.13	0.00	1.42	0.39	1.12	0.51
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.04	0.00	0.59	0.15	0.13	0.34
d, Delay for Lane Group [s/veh]	17.33	12.97	0.00	11.53	7.99	18.34	9.02
Lane Group LOS	B	B	A	B	A	B	A
Critical Lane Group	Yes	No	No	Yes	No	No	No
50th-Percentile Queue Length [veh/ln]	2.53	0.19	0.00	4.26	0.75	0.39	2.02
50th-Percentile Queue Length [ft/ln]	63.16	4.72	0.00	106.56	18.85	9.69	50.56
95th-Percentile Queue Length [veh/ln]	4.55	0.34	0.00	7.65	1.36	0.70	3.64
95th-Percentile Queue Length [ft/ln]	113.70	8.49	0.00	191.21	33.92	17.43	91.01

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	17.33	0.00	12.97	0.00	0.00	0.00	0.00	11.53	7.99	18.34	9.02	0.00
Movement LOS	B		B	A	A	A		B	A	B	A	
d_A, Approach Delay [s/veh]	16.96			0.00			11.17			9.47		
Approach LOS	B			A			B			A		
d_I, Intersection Delay [s/veh]	11.33											
Intersection LOS	B											
Intersection V/C	0.469											

Emissions

Vehicle Miles Traveled [mph]	15.08	1.38	0.00	580.31	65.84	8.54	168.17
Stops [stops/h]	151.60	11.33	0.00	511.51	45.23	23.24	242.70
Fuel consumption [US gal/h]	2.27	0.17	0.00	28.53	3.05	0.62	9.39
CO [g/h]	158.63	12.21	0.00	1994.41	213.29	43.33	656.53
NOx [g/h]	30.86	2.38	0.00	388.04	41.50	8.43	127.74
VOC [g/h]	36.76	2.83	0.00	462.22	49.43	10.04	152.16

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0	0.0	0.0	0.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	0.00	0.00	0.00	0.00
l_p,int, Pedestrian LOS Score for Intersectio	0.000	0.000	0.000	0.000
Crosswalk LOS	F	F	F	F
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	700	700	1033	1033
d_b, Bicycle Delay [s]	12.68	12.68	7.01	7.01
l_b,int, Bicycle LOS Score for Intersection	1.560	1.560	2.659	2.106
Bicycle LOS	A	A	B	B

Sequence

Ring 1	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 25: Marksheffel Rd/East Access

Control Type:	Two-way stop	Delay (sec / veh):	37.5
Analysis Method:	HCM 7th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.419

Intersection Setup

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	1	0	0
Entry Pocket Length [ft]	100.00	565.00	600.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	1	0	1	0	0
Exit Pocket Length [ft]	0.00	550.00	0.00	100.00	0.00	0.00
Speed [mph]	45.00		45.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Marksheffel Rd		Marksheffel Rd		East Access	
Base Volume Input [veh/h]	0	537	691	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	3.0860	3.0860	3.0860	1.0000	3.0860
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	61	44	78	0	49
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	-27	27	0	23
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1718	2149	105	0	72
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	467	584	29	0	20
Total Analysis Volume [veh/h]	0	1867	2336	114	0	78
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.02	0.00	0.00	0.42
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	37.55
Movement LOS		A	A	A		E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.00	0.00	0.00	1.89
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.00	0.00	0.00	47.36
d_A, Approach Delay [s/veh]	0.00		0.00		37.55	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	0.67					
Intersection LOS	E					

Signal Warrants Report For Intersection 2: Fontaine Bl/Rolling View Dr

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	No
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	E, W
Minor Approaches	S
Speed > 40mph	No
Population < 10,000	No
Warrant Factor	100%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	E	W	S
1	912	1414	5
2	885	1372	5
3	866	1343	5
4	812	1258	4
5	720	1117	4
6	711	1103	4
7	702	1089	4
8	638	990	4
9	629	976	3
10	620	962	3
11	538	834	3
12	502	778	3
13	492	764	3
14	365	566	2
15	365	566	2
16	255	396	1
17	146	226	1
18	146	226	1
19	82	127	0
20	46	71	0
21	27	42	0
22	9	14	0
23	9	14	0
24	9	14	0

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	2326	1	5	No	No	No	No	No	No	No	No	No	No
2	3	2257	1	5	No	No	No	No	No	No	No	No	No	No
3	3	2209	1	5	No	No	No	No	No	No	No	No	No	No
4	3	2070	1	4	No	No	No	No	No	No	No	No	No	No
5	3	1837	1	4	No	No	No	No	No	No	No	No	No	No
6	3	1814	1	4	No	No	No	No	No	No	No	No	No	No
7	3	1791	1	4	No	No	No	No	No	No	No	No	No	No
8	3	1628	1	4	No	No	No	No	No	No	No	No	No	No
9	3	1605	1	3	No	No	No	No	No	No	No	No	No	No
10	3	1582	1	3	No	No	No	No	No	No	No	No	No	No
11	3	1372	1	3	No	No	No	No	No	No	No	No	No	No
12	3	1280	1	3	No	No	No	No	No	No	No	No	No	No
13	3	1256	1	3	No	No	No	No	No	No	No	No	No	No
14	3	931	1	2	No	No	No	No	No	No	No	No	No	No
15	3	931	1	2	No	No	No	No	No	No	No	No	No	No
16	3	651	1	1	No	No	No	No	No	No	No	No	No	No
17	3	372	1	1	No	No	No	No	No	No	No	No	No	No
18	3	372	1	1	No	No	No	No	No	No	No	No	No	No
19	3	209	1	0	No	No	No	No	No	No	No	No	No	No
20	3	117	1	0	No	No	No	No	No	No	No	No	No	No
21	3	69	1	0	No	No	No	No	No	No	No	No	No	No
22	3	23	1	0	No	No	No	No	No	No	No	No	No	No
23	3	23	1	0	No	No	No	No	No	No	No	No	No	No
24	3	23	1	0	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	0	0	0	0	0

Warrant 3 Condition A

Orientation	S
Total Stopped Delay Per Vehicle on Minor Approach (s)	41.7
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:03
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	5
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	2331
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Signal Warrants Report For Intersection 25: Marksheffel Rd/East Access

Warrants Summary

Warrant	Name	Met?
#1	Eight Hour Vehicular Volume	No
#2	Four Hour Vehicular Volume	Yes
#3	Peak Hour	No

Intersection Warrants Parameters

Major Approaches	N, S
Minor Approaches	W
Speed > 40mph	Yes
Population < 10,000	No
Warrant Factor	70%

Warrant Analysis Traffic Volumes

Hour	Major Streets		Minor Streets
	N	S	W
1	2254	1718	72
2	2186	1666	70
3	2141	1632	68
4	2006	1529	64
5	1781	1357	57
6	1758	1340	56
7	1736	1323	55
8	1578	1203	50
9	1555	1185	50
10	1533	1168	49
11	1330	1014	42
12	1240	945	40
13	1217	928	39
14	902	687	29
15	902	687	29
16	631	481	20
17	361	275	12
18	361	275	12
19	203	155	6
20	113	86	4
21	68	52	2
22	23	17	1
23	23	17	1
24	23	17	1

Warrant Analysis by Hour

Hour	Major Streets		Minor Street		Warrant 1 Condition A				Warrant 1 Condition B				Warrant 2	Warrant 3
	Number	Volume	Number	Volume	100%	80%	70%	56%	100%	80%	70%	56%		Condition B
1	3	3972	1	72	No	No	No	No	No	Yes	Yes	Yes	Yes	No
2	3	3852	1	70	No	No	No	No	No	Yes	Yes	Yes	Yes	No
3	3	3773	1	68	No	No	No	No	No	Yes	Yes	Yes	Yes	No
4	3	3535	1	64	No	No	No	No	No	Yes	Yes	Yes	Yes	No
5	3	3138	1	57	No	No	No	No	No	No	Yes	Yes	No	No
6	3	3098	1	56	No	No	No	No	No	No	Yes	Yes	No	No
7	3	3059	1	55	No	No	No	No	No	No	Yes	Yes	No	No
8	3	2781	1	50	No	No	No	No	No	No	No	Yes	No	No
9	3	2740	1	50	No	No	No	No	No	No	No	Yes	No	No
10	3	2701	1	49	No	No	No	No	No	No	No	Yes	No	No
11	3	2344	1	42	No	No	No	No	No	No	No	Yes	No	No
12	3	2185	1	40	No	No	No	No	No	No	No	No	No	No
13	3	2145	1	39	No	No	No	No	No	No	No	No	No	No
14	3	1589	1	29	No	No	No	No	No	No	No	No	No	No
15	3	1589	1	29	No	No	No	No	No	No	No	No	No	No
16	3	1112	1	20	No	No	No	No	No	No	No	No	No	No
17	3	636	1	12	No	No	No	No	No	No	No	No	No	No
18	3	636	1	12	No	No	No	No	No	No	No	No	No	No
19	3	358	1	6	No	No	No	No	No	No	No	No	No	No
20	3	199	1	4	No	No	No	No	No	No	No	No	No	No
21	3	120	1	2	No	No	No	No	No	No	No	No	No	No
22	3	40	1	1	No	No	No	No	No	No	No	No	No	No
23	3	40	1	1	No	No	No	No	No	No	No	No	No	No
24	3	40	1	1	No	No	No	No	No	No	No	No	No	No
Hours Met					0	0	0	0	0	4	7	11	4	0

Warrant 3 Condition A

Orientation	W
Total Stopped Delay Per Vehicle on Minor Approach (s)	37.5
Number of Lanes on Minor Street Approach	1
VehicleHours of Stopped Delay on Minor Approach ([h]h:mm)	0:45
Delay Condition Met	No
Volume on Minor Street Approach During Same Hour	72
High Minor Volume Condition Met	No
Total Entering Volume on All Approaches During Same Hour	4044
Number of Approaches on Intersection	3
Total Volume Condition Met	Yes
Warrant Met for Approach	No
Warrant Met for Intersection	**No**

Appendix F – Supporting Documents

Option 1: Marksheffel is a 6-lane Roadway

Number	4											
Intersection	Marksheffel Rd/Lorson Blvd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	587	119	29	398	0	0	0	0	209	0	109
Total Analysis Volume [veh/h]	68	1974	126	64	1371	16	47	13	38	446	10	117

Intersection Settings

Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	35	0	5	35	0	5	17	0	5	17	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	9	19	0	9	19	0	9	29	0	23	43	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	Yes		No	Yes		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.60	0.51	0.51	0.60	0.51	0.51	0.30	0.09	0.09	0.16	0.20
(v / s)_i Volume / Saturation Flow Rate	0.12	0.39	0.08	0.17	0.27	0.01	0.03	0.01	0.02	0.13	0.08
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	560	5004	1580	286	5004	1580	1378	1870	1580	2459	1608

s, saturation flow rate [veh/h]	560	5094	1589	386	5094	1589	1378	1870	1589	3459	1608
c, Capacity [veh/h]	396	2578	804	304	2571	802	467	162	138	553	331
X, volume / capacity	0.17	0.77	0.16	0.21	0.53	0.02	0.10	0.08	0.28	0.81	0.38
d, Delay for Lane Group [s/veh]	9.32	18.17	11.02	14.40	14.22	9.96	20.58	33.82	35.27	35.25	28.13
Lane Group LOS	A	B	B	B	B	A	C	C	D	D	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.47	8.47	1.10	0.48	4.83	0.13	0.61	0.23	0.70	4.20	2.07
50th-Percentile Queue Length [ft/ln]	11.81	211.78	27.60	11.99	120.68	3.25	15.17	5.79	17.55	105.05	51.87
95th-Percentile Queue Length [veh/ln]	0.85	13.24	1.99	0.86	8.43	0.23	1.09	0.42	1.26	7.56	3.73
95th-Percentile Queue Length [ft/ln]	21.26	331.11	49.67	21.58	210.77	5.85	27.31	10.43	31.60	189.08	93.36

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	9.32	18.17	11.02	14.40	14.22	9.96	20.58	33.82	35.27	35.25	28.13	28.13
Movement LOS	A	B	B	B	B	A	C	C	D	D	C	C
Critical Movement	No	No	No	No	No	No	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	17.48			14.18			28.03			33.67		
Approach LOS	B			B			C			C		
d_I, Intersection Delay [s/veh]	18.77											
Intersection LOS	B											
Intersection V/C	0.557											

Option 1: Marksheffel Rd is a 6-lane Roadway

Number	4											
Intersection	Marksheffel Rd/Lorson Blvd											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name	Marksheffel Rd			Marksheffel Rd								
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	0	491	287	140	551	0	0	0	0	106	0	62
Total Analysis Volume [veh/h]	210	1583	305	303	1845	54	137	11	77	226	18	67

Intersection Settings

Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Maximum Green [s]	5	42	0	5	42	0	5	10	0	5	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0	1.0	1.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	9	38	0	12	41	0	9	15	0	15	21	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.58	0.43	0.43	0.58	0.46	0.46	0.33	0.14	0.14	0.14	0.21
(v / s)_i Volume / Saturation Flow Rate	0.44	0.31	0.19	0.53	0.36	0.03	0.10	0.01	0.05	0.07	0.05
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3	
s, saturation flow rate [veh/h]	472	5004	1589	575	5004	1589	1429	1870	1589	2459	1642

s, saturation flow rate [veh/h]	472	5094	1589	575	5094	1589	1439	1870	1589	3459	1642
c, Capacity [veh/h]	334	2165	676	403	2356	735	546	257	219	476	349
X, volume / capacity	0.63	0.73	0.45	0.75	0.78	0.07	0.25	0.04	0.35	0.48	0.24
d, Delay for Lane Group [s/veh]	24.90	21.41	18.54	27.93	20.80	12.16	20.93	30.24	35.68	35.22	27.82
Lane Group LOS	C	C	B	C	C	B	C	C	D	D	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.21	7.50	3.89	3.51	8.67	0.51	1.90	0.20	1.55	2.16	1.45
50th-Percentile Queue Length [ft/ln]	55.17	187.46	97.13	87.82	216.64	12.70	47.45	4.94	38.72	54.11	36.25
95th-Percentile Queue Length [veh/ln]	3.97	11.99	6.99	6.32	13.49	0.91	3.42	0.36	2.79	3.90	2.61
95th-Percentile Queue Length [ft/ln]	99.30	299.73	174.83	158.08	337.33	22.86	85.41	8.89	69.70	97.40	65.26

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	24.90	21.41	18.54	27.93	20.80	12.16	20.93	30.24	35.68	35.22	27.82	27.82
Movement LOS	C	C	B	C	C	B	C	C	D	D	C	C
Critical Movement	No	No	No	No	No	No	No	No	Yes	No	No	No
d_A, Approach Delay [s/veh]	21.34			21.57			26.43			33.19		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	22.45											
Intersection LOS	C											
Intersection V/C	0.536											

Option 1: Marksheffel is a 6-lane roadway

Number	3											
Intersection	Marksheffel Rd/Fontaine Bl											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	48	549	93	94	199	16	31	163	39	188	423	508
Total Analysis Volume [veh/h]	172	1874	104	200	701	33	134	357	84	411	905	541

Intersection Settings

Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	15	43	0	12	40	0	16	19	0	16	19	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.07	0.39	0.08	0.39	0.06	0.14	0.14	0.22
(v / s)_i Volume / Saturation Flow Rate	0.05	0.37	0.06	0.14	0.04	0.07	0.12	0.18
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3		3	
s, saturation flow rate [veh/h]	3459	5004	3459	5004	3459	5004	3459	5004

s, saturation flow rate [veh/h]	3459	5094	3459	5094	3459	5094	3459	5094
c, Capacity [veh/h]	252	1976	273	2007	214	731	483	1127
X, volume / capacity	0.68	0.95	0.73	0.35	0.63	0.49	0.85	0.80
d, Delay for Lane Group [s/veh]	43.94	27.93	44.28	19.20	44.20	37.84	42.14	39.29
Lane Group LOS	D	C	D	B	D	D	D	D
Critical Lane Group	No	Yes	Yes	No	Yes	No	No	Yes
50th-Percentile Queue Length [veh/ln]	1.89	11.83	2.16	3.02	1.51	2.50	4.47	6.46
50th-Percentile Queue Length [ft/ln]	47.24	295.69	54.01	75.46	37.72	62.51	111.86	161.54
95th-Percentile Queue Length [veh/ln]	3.40	17.47	3.89	5.43	2.72	4.50	7.94	10.63
95th-Percentile Queue Length [ft/ln]	85.04	436.69	97.22	135.82	67.89	112.52	198.58	265.76

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	43.94	27.93	0.00	44.28	19.20	0.00	44.20	37.84	0.00	42.14	39.29	0.00
Movement LOS	D	C		D	B		D	D		D	D	
Critical Movement	No	No	No	Yes	No	No	No	No	No	No	No	No
d_A, Approach Delay [s/veh]	27.97			23.97			34.21			29.15		
Approach LOS	C			C			C			C		
d_I, Intersection Delay [s/veh]	28.18											
Intersection LOS	C											
Intersection V/C	0.642											

Option 1: Marksheffel is a 6-lane Roadwat

Number	3											
Intersection	Marksheffel Rd/Fontaine Bl											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name	Marksheffel Rd			Marksheffel Rd			Fontaine Bl			Fontaine Bl		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	56	309	172	256	558	43	40	397	57	76	197	157
Total Analysis Volume [veh/h]	212	1074	189	546	1920	89	160	863	132	186	430	167

Intersection Settings

Cycle Length [s]	80
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fully actuated
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna	Protecte	Permiss	Unsigna
Signal Group	5	2	0	1	6	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	45	0	5	45	0	5	40	0	5	40	0
Amber [s]	3.0	5.5	0.0	3.0	5.5	0.0	3.0	5.0	0.0	3.0	5.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	10	29	0	20	39	0	11	22	0	9	20	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	20	0	5	20	0	5	12	0	5	12	0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

g / C, Green / Cycle	0.08	0.28	0.18	0.39	0.07	0.19	0.06	0.18
(v / s)_i Volume / Saturation Flow Rate	0.06	0.21	0.16	0.38	0.05	0.17	0.05	0.08
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3		3		3		3	
c, saturation flow rate [veh/h]	3459	5004	3459	5004	3459	5004	3459	5004

s, saturation flow rate [veh/h]	3459	5094	3459	5094	3459	5094	3459	5094
c, Capacity [veh/h]	259	1447	636	2002	245	956	218	916
X, volume / capacity	0.82	0.74	0.86	0.96	0.65	0.90	0.85	0.47
d, Delay for Lane Group [s/veh]	42.69	26.27	35.13	25.21	39.14	45.10	46.28	31.11
Lane Group LOS	D	C	D	C	D	D	D	C
Critical Lane Group	Yes	No	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	2.14	5.63	4.89	10.01	1.57	6.36	1.97	2.44
50th-Percentile Queue Length [ft/ln]	53.58	140.79	122.25	250.35	39.32	158.89	49.33	60.94
95th-Percentile Queue Length [veh/ln]	3.86	9.52	8.52	15.20	2.83	10.49	3.55	4.39
95th-Percentile Queue Length [ft/ln]	96.44	238.08	212.92	380.09	70.77	262.25	88.79	109.69

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	42.69	26.27	0.00	35.13	25.21	0.00	39.14	45.10	0.00	46.28	31.11	0.00
Movement LOS	D	C		D	C		D	D		D	C	
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	25.52			26.52			39.50			28.55		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	28.98											
Intersection LOS	C											
Intersection V/C	0.661											

Option 1: Marksheffel is a Six Lane Roadway

Number	5											
Intersection	Makrsheffel Rd/Mesa Ridge Pkwy											
Control Type	Signalized											
Analysis Method	HCM 7th Edition											
Name	Marksheffel Rd			Marksheffel Rd			Mesa Ridge Parkway					
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	62	338	40	80	355	249	468	280	38	60	241	80
Total Analysis Volume [veh/h]	220	1173	26	113	1225	472	1666	375	82	79	325	58

Intersection Settings

Cycle Length [s]	90
Active Pattern	Pattern 1
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Lost time [s]	0.00

Phasing & Timing (Basic)

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal Group	1	6	0	5	2	0	7	4	0	3	8	0
Auxiliary Signal Groups												
Maximum Green [s]	5	25	0	5	25	0	5	10	0	25	10	0
Amber [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	1.0	0.0	2.0	1.0	0.0
Walk [s]	0	7	0	0	7	0	0	5	0	7	5	0
Pedestrian Clearance [s]	0	10	0	0	7	0	0	10	0	7	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
l1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0

Phasing & Timing: Pattern 1

Split [s]	9	34	0	9	34	0	33	37	0	10	14	0
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	5	10	0	5	10	0	5	10	0	5	10	0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

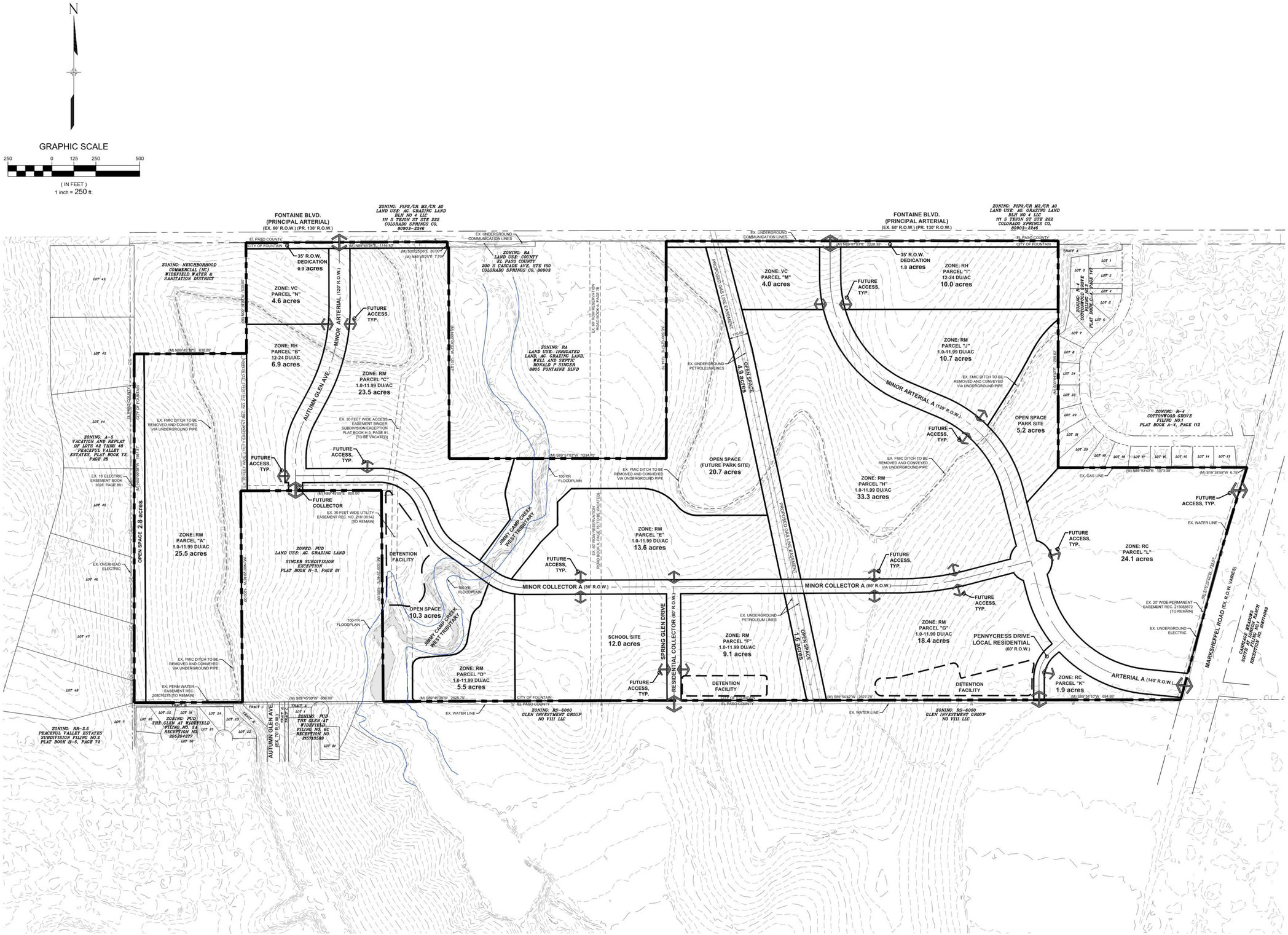
Lane Group Calculations

g / C, Green / Cycle	0.42	0.32	0.32	0.42	0.32	0.32	0.32	0.37	0.37	0.06	0.11	0.11
(v / s)_i Volume / Saturation Flow Rate	0.20	0.23	0.02	0.16	0.24	0.30	0.32	0.11	0.05	0.02	0.09	0.04
so, Base Saturation Flow per Lane [pc/h/ln]	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3			3			3			3		
s, saturation flow rate [veh/h]	1995	5004	1580	700	5004	1580	5188	3560	1580	3459	3560	1580

s, saturation flow rate [veh/h]	1695	5094	1589	709	5094	1589	5188	3560	1589	3459	3560	1589
c, Capacity [veh/h]	499	1641	512	324	1641	512	1672	1305	583	192	396	177
X, volume / capacity	0.44	0.71	0.05	0.35	0.75	0.92	1.00	0.29	0.14	0.41	0.82	0.33
d, Delay for Lane Group [s/veh]	22.26	29.55	21.20	21.42	30.36	53.82	51.68	20.73	19.54	47.46	56.37	41.81
Lane Group LOS	C	C	C	C	C	D	D	C	B	D	E	D
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No	No	Yes	No
50th-Percentile Queue Length [veh/ln]	1.47	7.21	0.38	1.58	7.67	12.46	14.23	2.67	1.14	1.01	4.41	1.40
50th-Percentile Queue Length [ft/ln]	36.83	180.13	9.51	39.44	191.76	311.39	355.76	66.79	28.56	25.21	110.14	35.12
95th-Percentile Queue Length [veh/ln]	2.65	11.61	0.68	2.84	12.21	18.24	20.42	4.81	2.06	1.81	7.85	2.53
95th-Percentile Queue Length [ft/ln]	66.29	290.19	17.12	70.99	305.31	456.09	510.43	120.23	51.41	45.37	196.19	63.21

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	22.26	29.55	21.20	21.42	30.36	53.82	51.68	20.73	19.54	47.46	56.37	41.81
Movement LOS	C	C	C	C	C	D	D	C	B	D	E	D
Critical Movement	No	No	No	No	No	No	No	No	No	No	Yes	No
d_A, Approach Delay [s/veh]	28.26			35.92			44.97			53.02		
Approach LOS	C			D			D			D		
d_I, Intersection Delay [s/veh]	38.71											
Intersection LOS	D											
Intersection V/C	0.751											


N
GRAPHIC SCALE
250 0 125 250 500
(IN FEET)
1 inch = 250 ft.
FONTAINE BLVD. (PRINCIPAL ARTERIAL) (EX. 60' R.O.W.) (PR. 130' R.O.W.)
EL PASO COUNTY
CITY OF FOUNTAIN
35' R.O.W. DEDICATION 0.9 acres
35' R.O.W. DEDICATION 1.8 acres
ZONING: NEIGHBORHOOD COMMERCIAL (NC) WIDEFIELD WATER & SANITATION DISTRICT
ZONING: PIP2/CR M2/CR A0 LAND USE: AC. GRAZING LAND BLH N0 4 LLC 111 S TEJON ST STE 222 COLORADO SPRINGS CO, 80903-2246
ZONING: RA LAND USE: COUNTY EL PASO COUNTY 200 S CASCADE AVE. STE 150 COLORADO SPRINGS CO. 80903
ZONING: RA LAND USE: IRRIGATED LAND, AG. GRAZING LAND, WELL AND SEPTIC RONALD P SINGER 8805 FONTAINE BLVD
ZONE: VC PARCEL "N" 4.6 acres
ZONE: RH PARCEL "B" 12-24 DU/AC 6.9 acres
ZONE: RM PARCEL "C" 1.0-11.99 DU/AC 23.5 acres
ZONE: VC PARCEL "M" 4.0 acres
ZONE: RH PARCEL "I" 12-24 DU/AC 10.0 acres
ZONE: RM PARCEL "J" 1.0-11.99 DU/AC 10.7 acres
ZONE: RM PARCEL "H" 1.0-11.99 DU/AC 33.3 acres
ZONE: RM PARCEL "A" 1.0-11.99 DU/AC 25.5 acres
ZONE: RM PARCEL "E" 1.0-11.99 DU/AC 13.6 acres
ZONE: RM PARCEL "D" 1.0-11.99 DU/AC 5.5 acres
ZONE: RM PARCEL "F" 1.0-11.99 DU/AC 9.1 acres
ZONE: RM PARCEL "G" 1.0-11.99 DU/AC 18.4 acres
ZONE: RC PARCEL "K" 1.9 acres
ZONE: RC PARCEL "L" 24.1 acres
ZONE: A-5 VACATION AND REPLAT OF LOTS 42 THRU 48 PEACEFUL VALLEY ESTATES, PLAT BOOK Y2, PAGE 28
ZONE: RR-2.5 PEACEFUL VALLEY ESTATES SUBDIVISION FILING NO.2 PLAT BOOK H-5, PAGE 72
ZONED: PUD LAND USE: AG. GRAZING LAND SINGER SUBDIVISION EXCEPTION PLAT BOOK H-3, PAGE 81
ZONING: PUD THE GLEN AT WIDEFIELD FILING NO. 5A RECEPTION NO. 205204377
ZONING: PUD THE GLEN AT WIDEFIELD FILING NO. 6C RECEPTION NO. 215713549
ZONING: R5-6000 GLEN INVESTMENT GROUP NO VIII LLC
ZONING: R-4 COTTONWOOD GROVE FILING NO.1 PLAT BOOK A-4, PAGE 112
OPEN SPACE 2.8 acres
OPEN SPACE 10.3 acres
OPEN SPACE (FUTURE PARK SITE) 20.7 acres
OPEN SPACE 4.9 acres
OPEN SPACE 1.6 acres
OPEN SPACE PARK SITE 5.2 acres
SCHOOL SITE 12.0 acres
DETENTION FACILITY
MINOR ARTERIAL (120' R.O.W.)
AUTUMN GLEN AVE
MINOR ARTERIAL A (120' R.O.W.)
MINOR COLLECTOR A (80' R.O.W.)
RESIDENTIAL COLLECTOR (80' R.O.W.)
SPRING GLEN DRIVE
PENNYCRESS DRIVE LOCAL RESIDENTIAL (60' R.O.W.)
ARTERIAL A (140' R.O.W.)
MARKSHEFFEL ROAD (EX. R.O.W. VARIES)
FUTURE COLLECTOR
FUTURE ACCESS, TYP.
JIMMY CAMP CREEK WEST TRIBUTARY
100-YR FLOODPLAIN
EX. FMIC DITCH TO BE REMOVED AND CONVEYED VIA UNDERGROUND PIPE
EX. UNDERGROUND COMMUNICATION LINES
EX. UNDERGROUND PETROLEUM LINES
EX. UNDERGROUND ELECTRIC
EX. WATER LINE
EX. GAS LINE
EX. OVERHEAD ELECTRIC
EX. 19' ELECTRIC EASEMENT BOOK 3028, PAGE 851
EX. 30 FEET WIDE ACCESS EASEMENT SINGER SUBDIVISION EXCEPTION PLAT BOOK H-3, PAGE 81. [TO BE VACATED]
EX. 30 FEET WIDE UTILITY EASEMENT REC. NO. 218130142 [TO REMAIN]
EX. 20' WIDE PERMANENT EASEMENT REC. 215058872 [TO REMAIN]
EX. PERM WATER EASEMENT REC. 208076275 [TO REMAIN]
EX. 60' ROW RESERVATION BOOK 2, PAGE 76
PROPOSED GAS LINE EASEMENT
CABLEVUE BEARCATS SOUTH 87.5 DEGREES EAST 1,320.00 FEET RECEPTION NO. 88014165
M) N89°45'25"E 1142.43'
(M) S00°25'30"E 30.00'
(M) N89°45'25"E 1170'
(M) N89°45'25"E 638.89'
(M) S89°43'00"W 800.00'
(M) S89°43'00"W 2625.79'
(M) S89°37'03"W 1234.75'
(M) S89°54'42"W 2627.78'
(M) S89°54'10"W 694.89'
(M) N89°57'03"E 2228.32'
(M) N89°57'40"E 1073.39'
(M) S19°35'59"W 6.75'
(M) N00°25'30"W 1318.68'
(M) S00°25'30"E 1318.68