



APPENDIX A

Crash Analysis

Crash Analysis – Erickson Avenue Area Study

Crash Severity

Table 1 summarizes crash severity by intersection along the study area over the last five years of crash data analyzed, from September 1, 2019 through August 31, 2024. Crashes that occurred within 250 feet of the center of an intersection were identified as having occurred within the intersection. All other crashes were identified as corridor crashes. One crash is within the 250-foot intersection radius for the intersection of Pear Street and Pleasant Hill Road but is actually on S High Street; this crash was counted as a corridor crash along S High Street, not as within the intersection.

Table 1: Summary of Crash Severity by Intersection

Intersection	Property Damage Only	Injury	Fatal Injury	Total Crashes
S High Street & Erickson Avenue	32	13	0	45
S High Street & Pear Street	4	2	0	6
Pleasant Hill Road & Pear Street	2	0	0	2
Pleasant Hill Road & Willow Hill Drive	2	0	0	2
Pleasant Hill Road & Central Avenue	1	0	0	1
Pear Street & Erickson Avenue	20	7	0	27
Pear Street & Russell Drive	0	0	0	0
Pear Street & Cobblers Court	0	0	0	0
Pear Street & Ruby Drive	1	1	0	2
Pear Street & W Mosby Road	2	1	0	3
W Mosby Road & Mosby Court	1	1	0	2
S Main Street & W Mosby Road	22	11	0	33
S Main Street & Erickson Avenue/Stone Spring Road	44	18	1	63
S Main Street & Pleasant Hill Road	13	6	0	19
Totals	144	60	1	205

The most intersection crashes occurred at the intersection of S Main Street and Erickson Avenue/Stone Spring Road, with 63 crashes. The majority of these crashes resulted in property damage only (44 crashes). There were 45 crashes at the intersection of S High Street and Erickson

Avenue, the second highest number of crashes, with most of these resulting in property damage only (32 crashes). There were 33 crashes at the intersection of S Main Street and W Mosby Road, 27 crashes at the intersection of Pear Street and Erickson Avenue, and 19 crashes at S Main Street and Pleasant Hill Road. The majority of crashes at each of these intersections also resulted in property damage only. The remaining study intersections each recorded six or fewer crashes.

One crash resulting in a fatality was reported during the study period, occurring at 6:33 AM at the intersection of S Main Street and Erickson Avenue/Stone Spring Road. Virginia Crash Map data identified one of the drivers as failing to maintain proper control due to falling asleep, resulting in the head-on crash.

A summary of crash severity along corridor segments within the study area over the same five-year period is provided in **Table 2**. Corridor crashes were identified as those occurring along a corridor excluding crashes occurring within 250 feet from the center of an intersection. **Attachment 1** provides maps of the study area showing all reported crashes during the five-year study period.

The highest number of corridor crashes occurred along S Main Street between W Mosby Road and Erickson Avenue, with 26 crashes reported. Most of these resulted in property damage only (23 crashes). Note that this segment of S Main Street has been identified for the construction of a raised median, which is intended to manage access to the many driveways through this stretch of roadway and will contribute to the reduction of crashes involving vehicle maneuvers to and from these access points. The segment of Erickson Avenue between Pear Street and S Main Street had 11 reported crashes, with a majority resulting in injury. The segment of S Main Street between Erickson Avenue and Pleasant Hill Road had 11 reported crashes, with the majority of crashes along this corridor segment resulting in property damage only. The remaining corridor segments within the study area recorded six or fewer crashes during the study period. Intersections and corridor segments with a significant number of crashes are discussed further in the following sections.

The AM, PM, and Off peak hours are referenced in the following sections. The network AM peak hour is 7:30 to 8:30 AM, and the PM network peak hour is 4:30 PM to 5:30 PM. Off peak refers to all other times of day.

Table 2: Summary of Crashes by Corridor Segment

Corridor Segment	Property Damage Only	Injury	Fatal Injury	Total Crashes
Erickson Avenue between Pear Street and S Main Street	5	6	0	11
Pleasant Hill Road between Willow Hill Drive and Central Avenue	1	0	0	1
S High Street between Erickson Avenue and Pear Street	4	0	0	4
S Main Street between W Mosby Road and Erickson Avenue	23	3	0	26
S Main Street between Erickson Avenue and Pleasant Hill Road	8	3	0	11
S Pear Street between Pleasant Hill Road and Erickson Avenue	1	0	0	1
S Pear Street between Cobblers Court and Ruby Drive	1	0	0	1
W Mosby Road between Pear Street and Mosby Court	3	0	0	3
W Mosby Road at Dukes Plaza Eastern Driveway	4	1	0	5
W Mosby Road at Dukes Plaza Western Driveway	6	0	0	6
Totals	56	13	0	69

INTERSECTION ANALYSIS

S Main Street and Erickson Avenue/Stone Spring Road

The intersection of S Main Street and Erickson Avenue/Stone Spring Road recorded the most crashes within the study area with 63 crashes, one of which resulted in the single fatality recorded within the study area over the five-year period. The fatality was the result of a head-on crash occurring on May 23, 2023, at 6:33 AM. Virginia Crash Map data identified one of the drivers as failing to maintain proper control due to falling asleep. Weather and lighting conditions do not appear to have been a factor in the crash and alcohol was not involved. The characteristics of this crash do not appear to be representative of a larger crash pattern at the intersection.

Figure 1 summarizes the crash types at this study intersection. There were 23 rear-end crashes, 22 angle crashes, and five each of sideswipe-same-direction and head-on crashes. Three crashes involved deer. Other crash types were reported two or less times. Many of the rear end crashes occurred on the westbound approach of Stone Spring Road where there is vertical curvature in the road due to the bridge over the railroad.

Most crashes occurred under daylight conditions and during off-peak hours, as summarized in **Figure 2** and **Figure 3**, which suggests that traffic congestion was not a factor in the crash frequency.

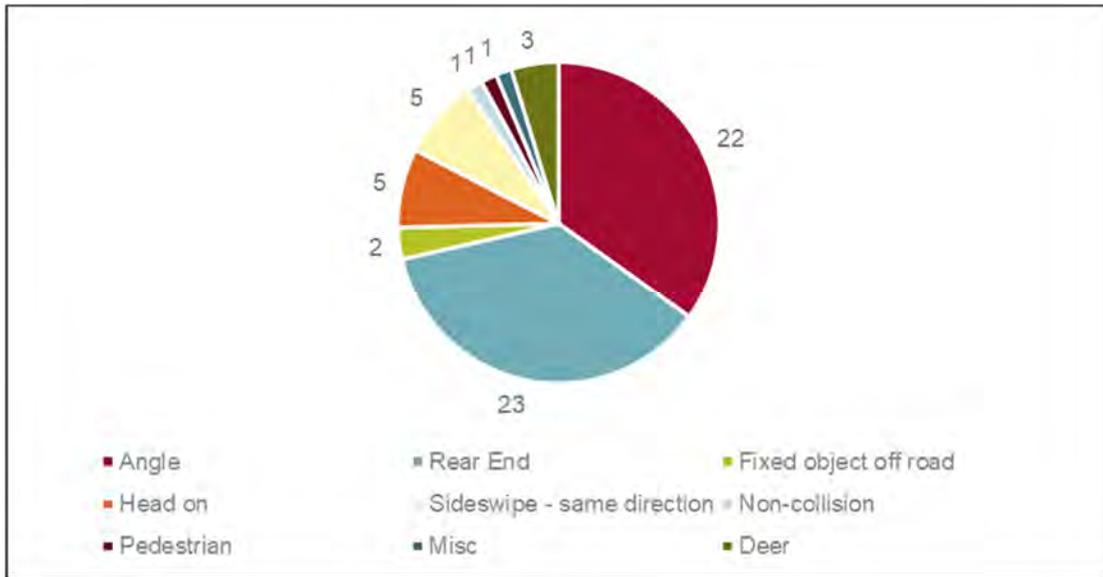


Figure 1: Crash Type at S Main Street and Erickson Avenue/Stone Spring Road

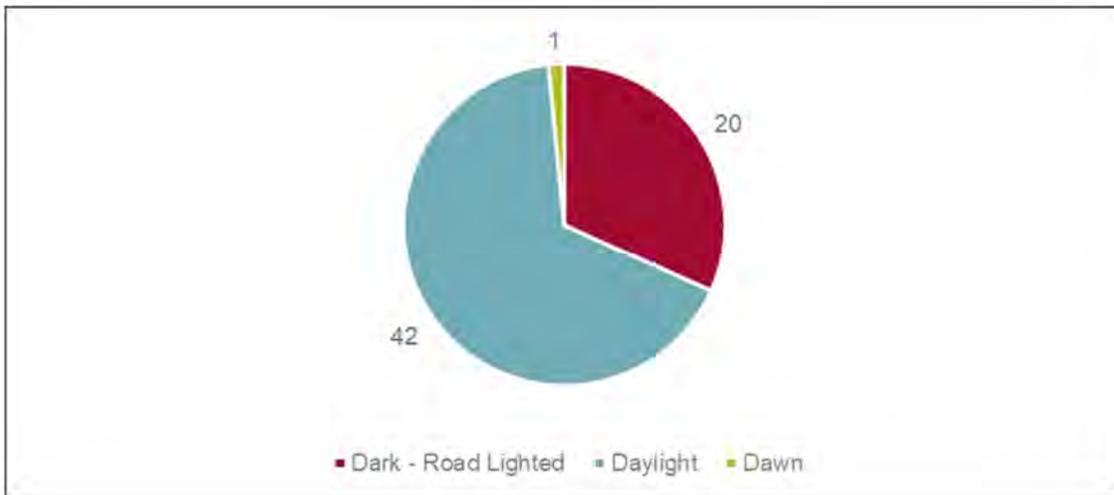


Figure 2: Light Conditions at S Main Street and Erickson Avenue/Stone Spring Road

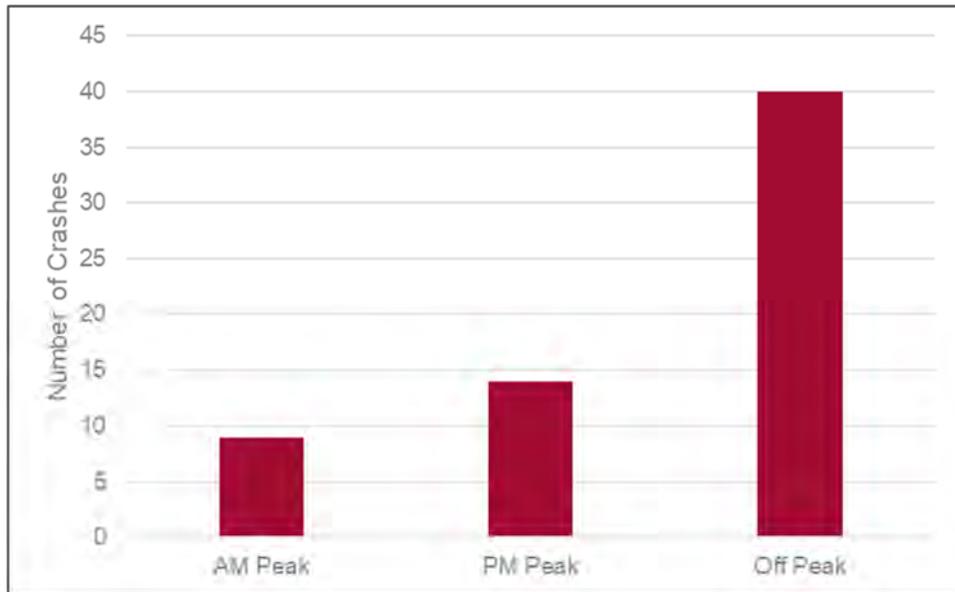


Figure 3: Crash by Time of Day at S Main Street and Erickson Avenue/Stone Spring Road

S High Street and Erickson Avenue

There were a total of 45 reported crashes at the intersection of S High Street and Erickson Avenue. **Figure 4** summarizes the crash types at this study intersection. Most of the crashes reported at this intersection were angle and rear-end crashes, which totaled 16 and 14 crashes, respectively. There were six sideswipe-same-direction crashes and three or less head-on, sideswipe-opposite-direction, fixed object off road, and fixed object in road crashes. Most crashes occurred in daylight conditions, as summarized in **Figure 5**. An evaluation of crashes by time of day shows crashes mostly occurred during PM peak and off-peak hours, as summarized in **Figure 6**.

The prevalence of angle crashes occurring in daylight conditions suggests the crash pattern may be attributed to constants at the intersection, such as geometry, topography, or operations. The crash records reviewed do not provide information regarding direction of travel for the vehicles involved. A review of existing conditions indicates the following could be contributing factors to the frequency of angle crashes at the intersection:

- Each left-turn lane offers a yield-on-flashing-yellow-arrow phase, which may be misjudged by drivers attempting to make that movement opposing oncoming traffic. Crash data identified drivers involved in multiple angle crashes as not having the right-of-way.
- The west leg approaches the intersection uphill, creating a vertical curve, which may limit intersection sight distance for westbound left-turning drivers.
- Access points on the south side of the west leg may contribute to angle crashes, as drivers attempt to make a left turn into one of these access points without an adequate gap.

The rear end crashes all occurred during daylight conditions, and multiple involved a driver following too closely.

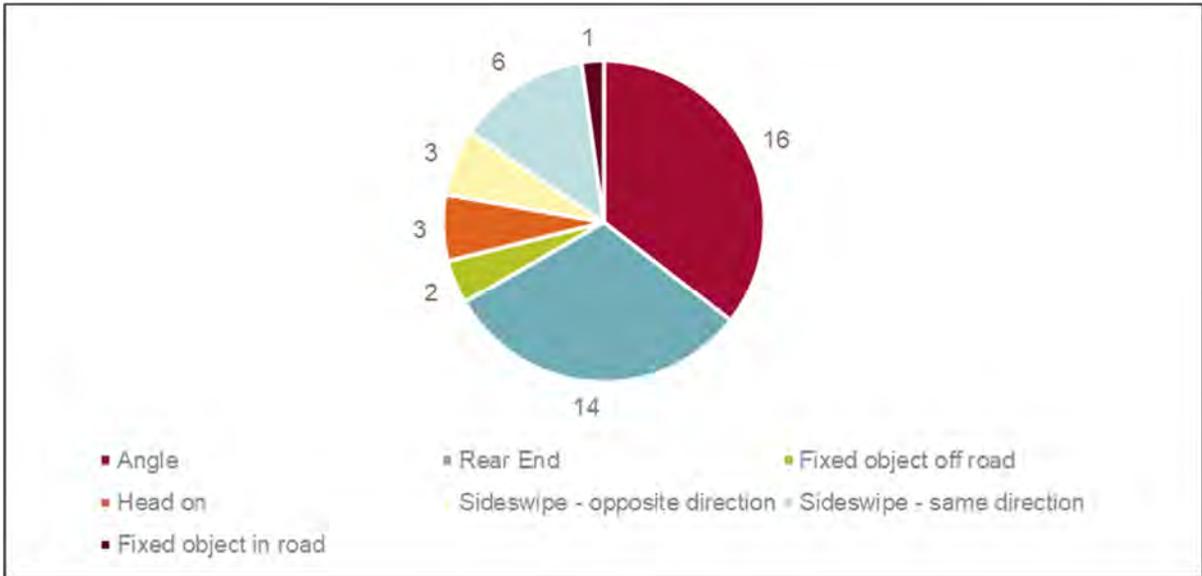


Figure 4: Crash Type at S High Street and Erickson Avenue

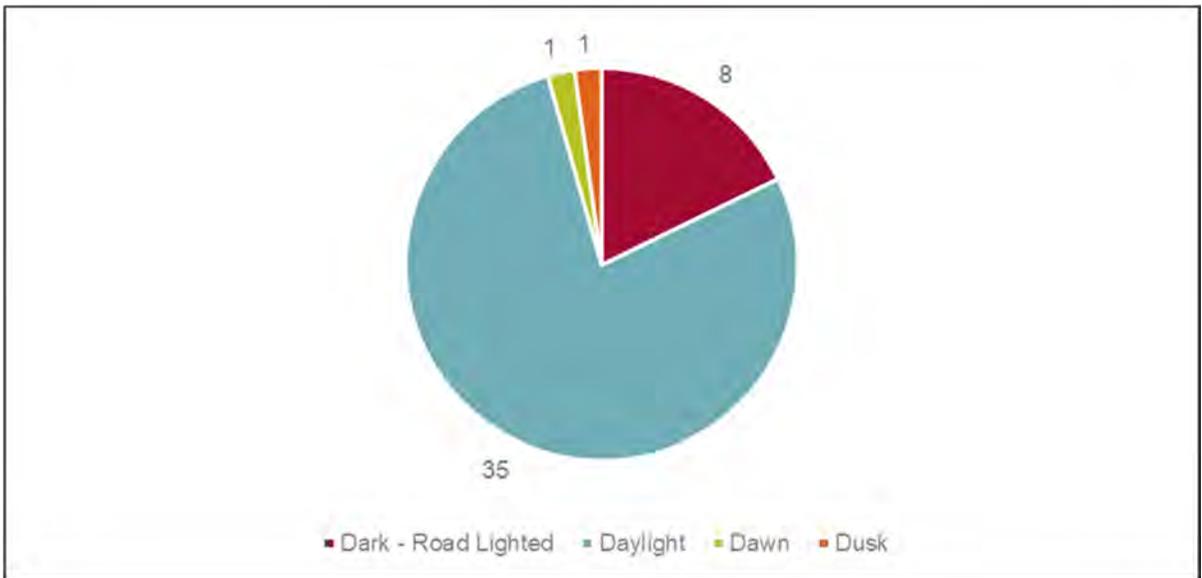


Figure 5: Light Conditions at S High Street and Erickson Avenue

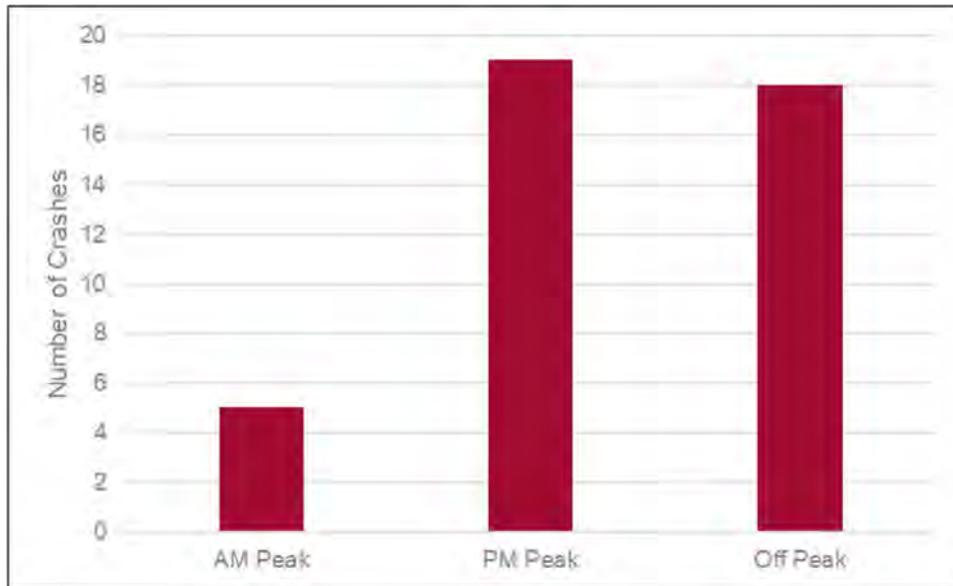


Figure 6: Crashes by Time of Day at S High Street and Erickson Avenue

S Main Street and Mosby Road

There were a total of 33 reported crashes at the intersection of S Main Street and Mosby Road. **Figure 7** summarizes the crash types at this study intersection. There were 12 angle crashes, 11 rear-end crashes, four sideswipe-same-direction crashes, and two or less of head-on, fixed object off road, sideswipe-opposite-direction, backed-into, and pedestrian crashes. Nearly all crashes occurred in daylight conditions, as shown in **Figure 8**. Most crashes occurred during off-peak hours, as shown in **Figure 9**. The occurrence of primarily off-peak period and daylight crashes may be attributed to the increase in volume associated with midday commercial retail and restaurant activity rather than morning and evening commuters. Unlike commuters who likely travel the corridor on a daily basis, midday traffic is more likely to consist of drivers less familiar with the area, which could make drivers more prone to being involved in a crash.

The prevalence of angle crashes occurring in daylight conditions suggests the crash pattern may be attributed to constants at the intersection, such as geometry, topography, or operations. The crash records reviewed do not provide information regarding direction of travel for the vehicles involved. A review of existing conditions indicates the following could be contributing factors to the frequency of angle crashes at the intersection:

- The northbound and southbound approaches along S Main Street do not have a sign directing left-turning drivers to yield to opposing traffic. Multiple angle crashes were noted to have involved a driver disregarding the traffic signal.
- The single lane westbound approach of Mosby Road does not allow for a protected left-turn phase.

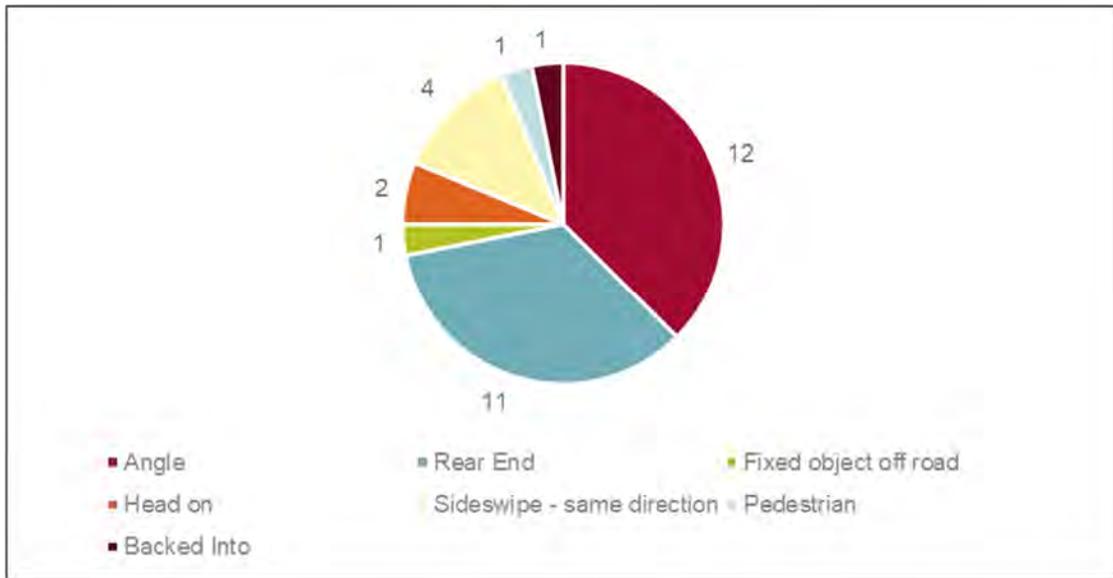


Figure 7: Crash Type at S Main Street and Mosby Road

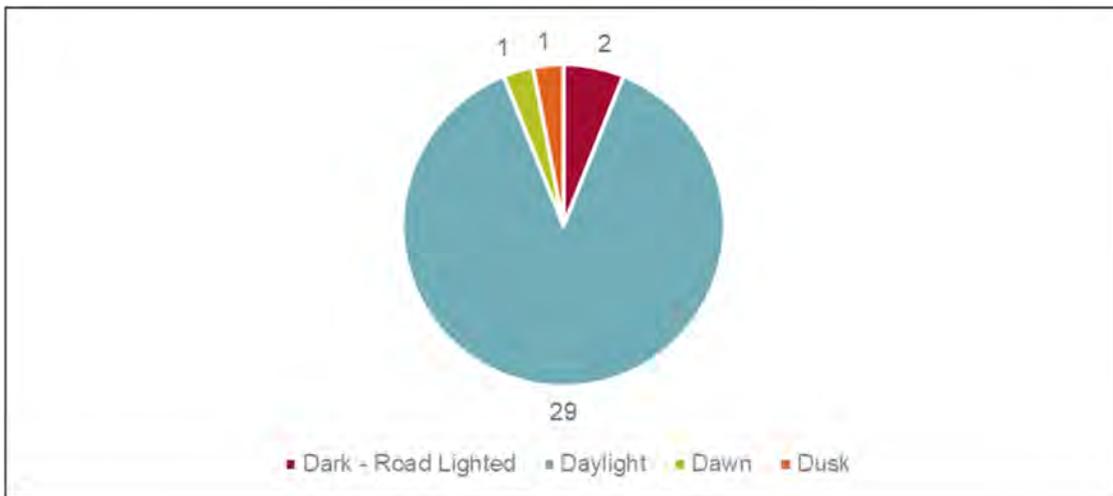


Figure 8: Light Condition at S Main Street and Mosby Road

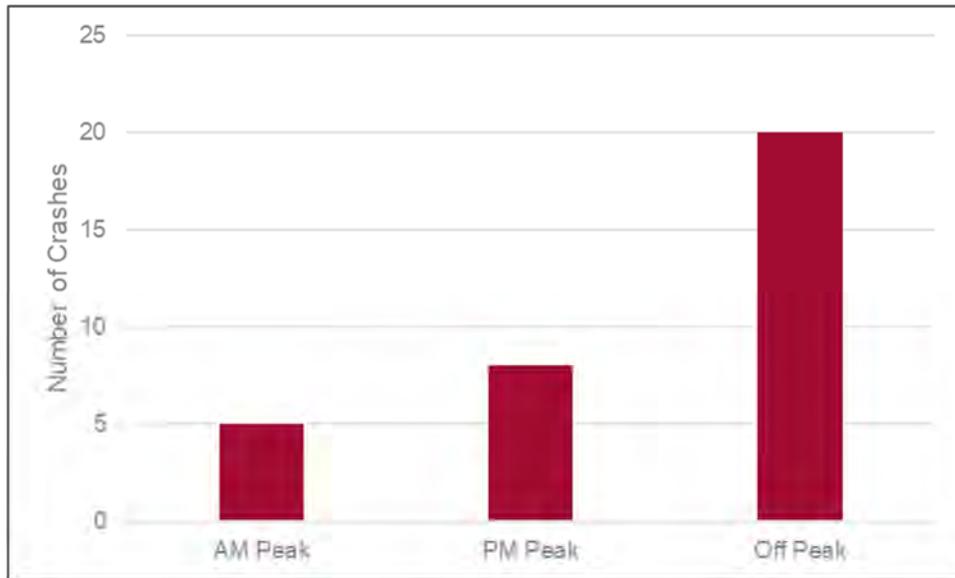


Figure 9: Crash by Time of Day at S Main Street and Mosby Road

Pear Street and Erickson Avenue

There were a total of 27 reported crashes at the intersection of Pear Street and Erickson Avenue. **Figure 10** summarizes the crash types at this study intersection. There were 21 angle crashes, 5 rear-end crashes, and a single sideswipe-same-direction crash. Most crashes occurred in daylight conditions, as shown in **Figure 11**. Most crashes occurred during the PM peak or off-peak hours, as shown in **Figure 12**.

The intersection is unsignalized, with stop control at the Pear Street approaches. A review of Virginia Crash Map data shows multiple angle crashes at this location involve a driver not having the right-of-way or disregarding the stop sign. All crashes occurred along Erickson Avenue, not on Pear Street.

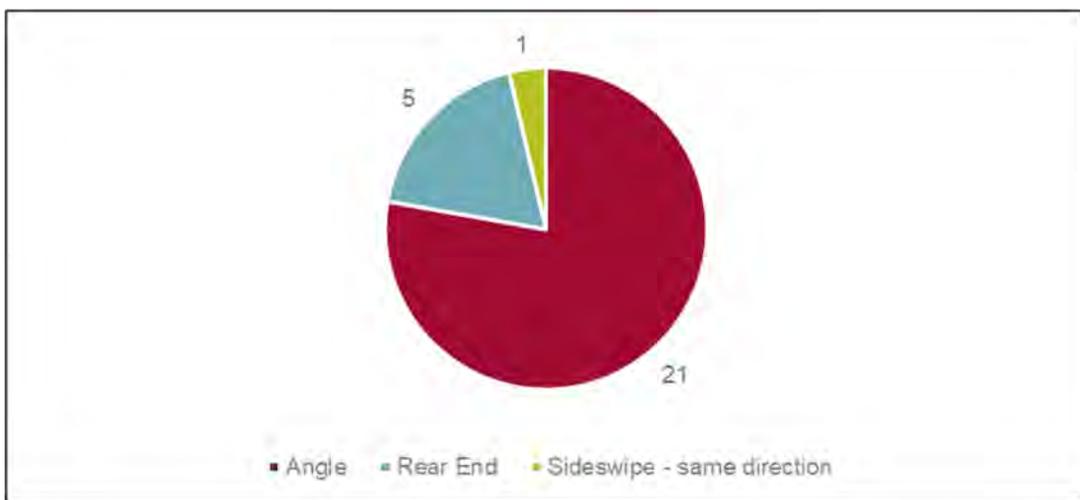


Figure 10: Crash Type at Pear Street and Erickson Avenue

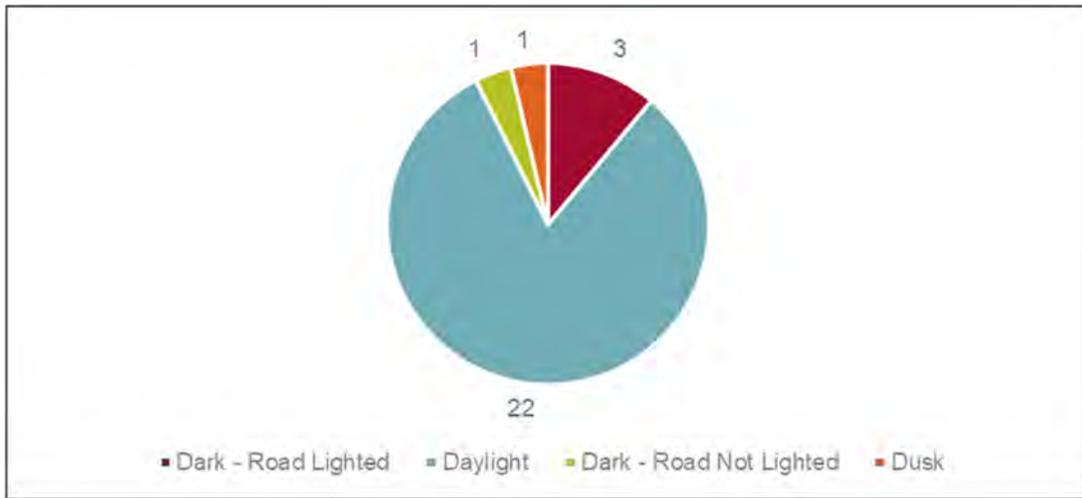


Figure 11: Light Conditions at Pear Street and Erickson Avenue

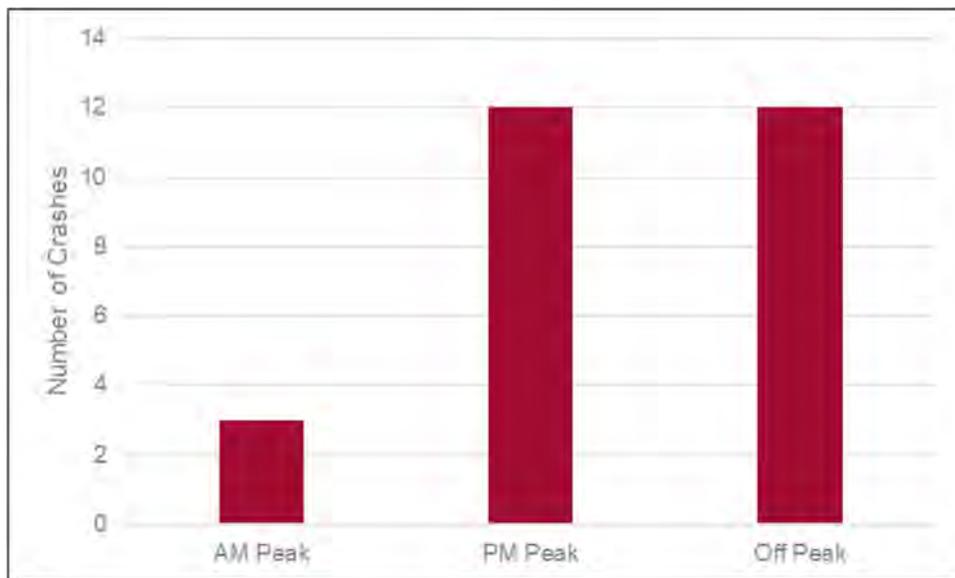


Figure 12: Crash by Time of Day at Pear Street and Erickson Avenue

S Main Street and Pleasant Hill Road

There were a total of 19 reported crashes at the intersection of S Main Street and Pleasant Hill Road. **Figure 13** summarizes the crash types at this study intersection. There were 10 angle crashes, three sideswipe-same-direction crashes, two each of rear-end crashes, fixed object off road crashes, and a single head-on crash. Most crashes occurred in daylight conditions, as shown in **Figure 14**. Most crashes occurred during the off-peak hours, as shown in **Figure 15**.

The number of angle crashes at this intersection may be attributed to the lack of signs at each approach directing left-turning drivers to yield to opposing traffic. As well, there is a vertical curve on the southbound approach that limits sight distance. Several of the angle crashes occurred on the westbound approach and could be attributed to non-compliance with access management guidelines.

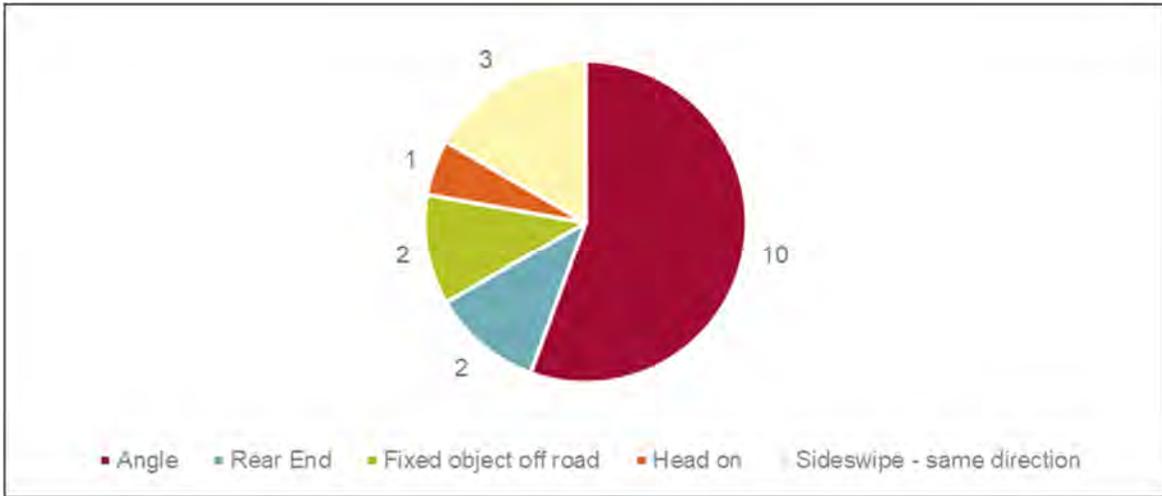


Figure 13: Crash Type at S Main Street and Pleasant Hill Road

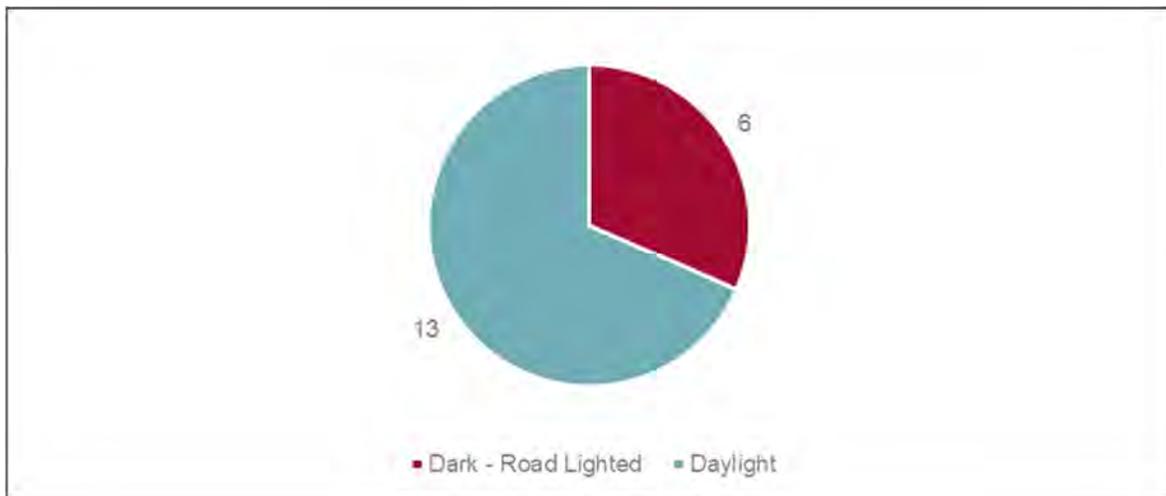


Figure 14: Light Condition at S Main Street and Pleasant Hill Road

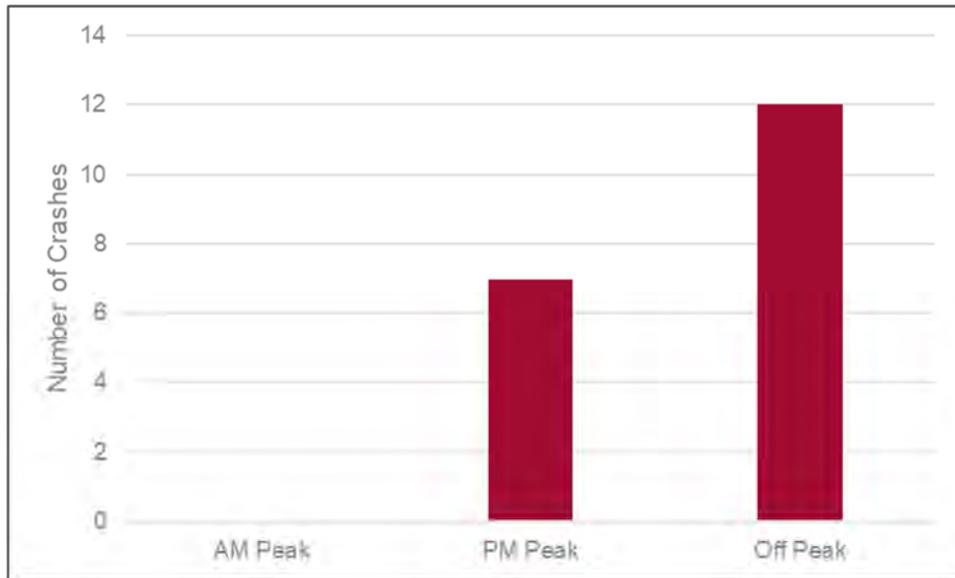


Figure 15: Crash by Time of Day at S Main Street and Pleasant Hill Road

CORRIDOR ANALYSIS

S Main Street between W Mosby Road and Erickson Avenue

The segment of S Main Street between W Mosby Road and Erickson Avenue recorded the most crashes of any corridor segment within the study area with 26 crashes during the five-year study period. **Figure 16** summarizes the crash types at this study intersection. There were 10 angle crashes, three sideswipe-same-direction crashes, and two each of rear-end crashes, fixed object off road crashes, and a single head-on crash. All the crashes occurred in daylight conditions. Most crashes occurred during the PM and off-peak hours, as shown in **Figure 17**.

Adverse conditions do not appear to have contributed to the crash history along this segment. The prevalence of rear-end and angle crashes may be contributed by the number of closely spaced commercial driveways along southbound S Main Street that vehicles may be entering and exiting during the PM peak and off-peak hours. As noted, this segment is slated for access management improvements with the construction of a raised median along S Main Street. Multiple angle crashes were cited as involving a driver that was attempting to make a movement without having the right-of-way.

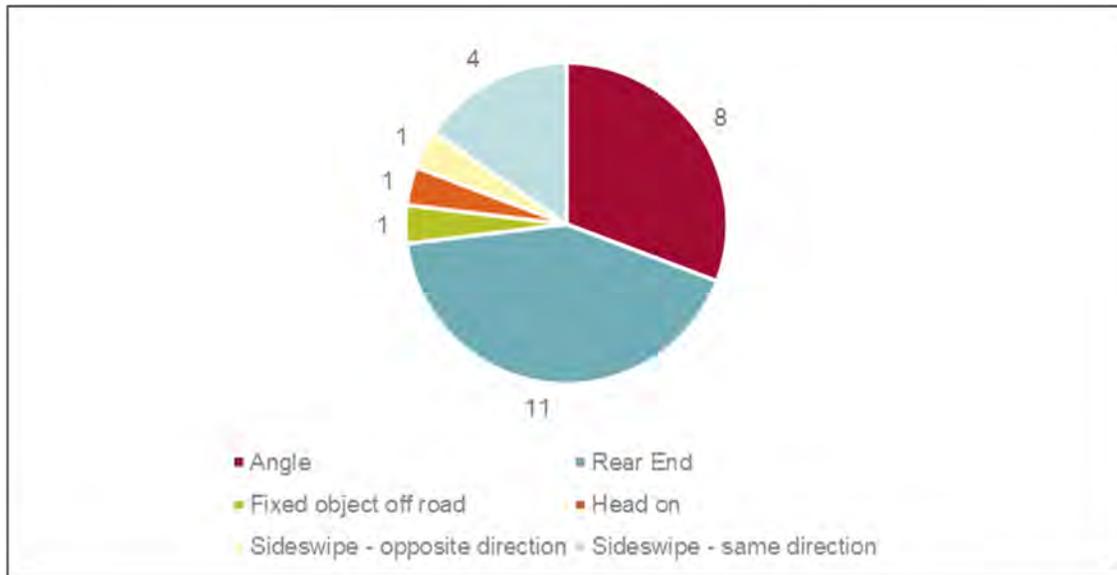


Figure 16: Crash Type S Main Street between W Mosby Road and Erickson Avenue

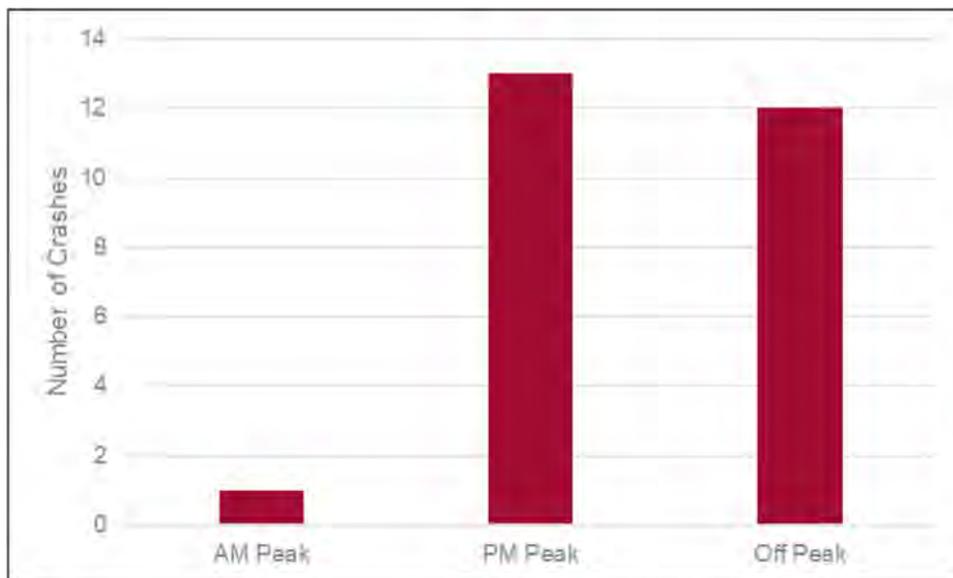


Figure 17: Crash by Time of Day at S High Street and Erickson Avenue

Erickson Avenue between Pear Street and S Main Street

The segment of Erickson Avenue between Pear Street and S Main Street recorded 11 crashes during the five-year study period. **Figure 18** summarizes the crash types at this study intersection. Most crashes occurred in daylight conditions, as shown in **Figure 19**. Most crashes occurred during the off-peak hours, as shown in **Figure 20**.

Crashes along this segment did not occur during adverse weather or lighting conditions. Four of the crashes occurred at the first horizontal curve north of S Main Street, although there does not appear to be a common, discernible pattern.

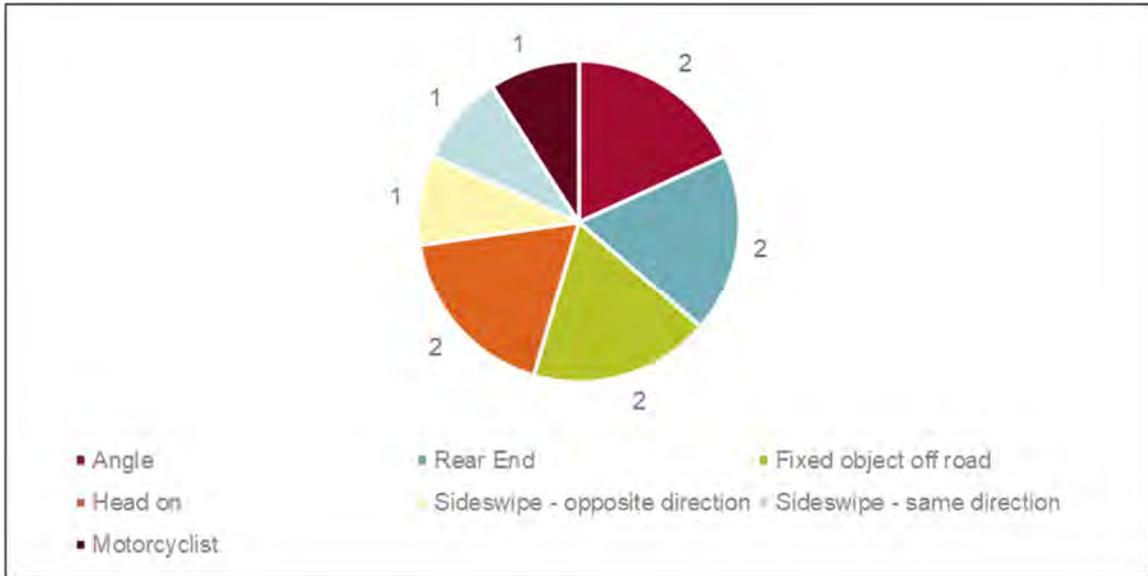


Figure 18: Crash Type at Erickson Avenue between Pear Street and S Main Street

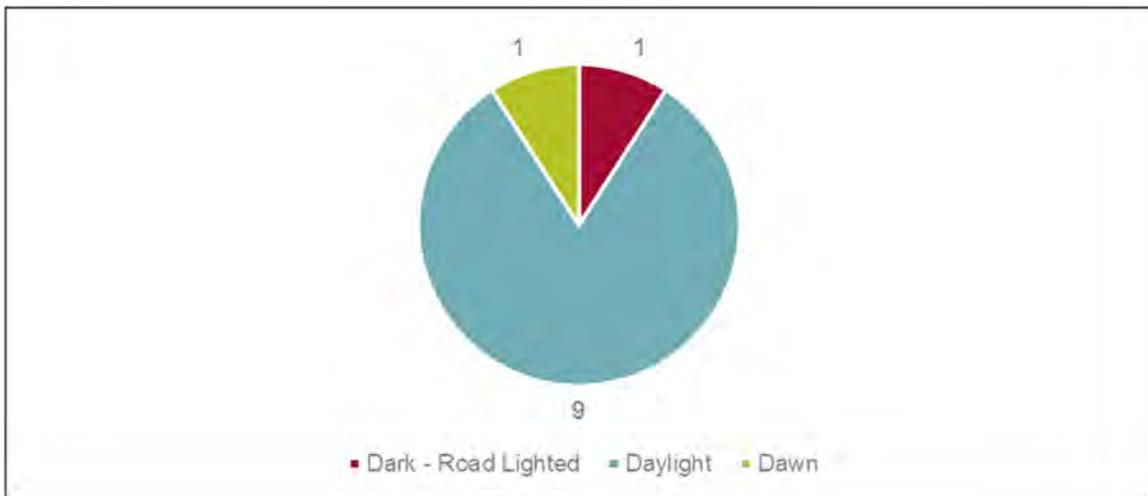


Figure 19: Light Condition at Erickson Avenue between Pear Street and S Main Street

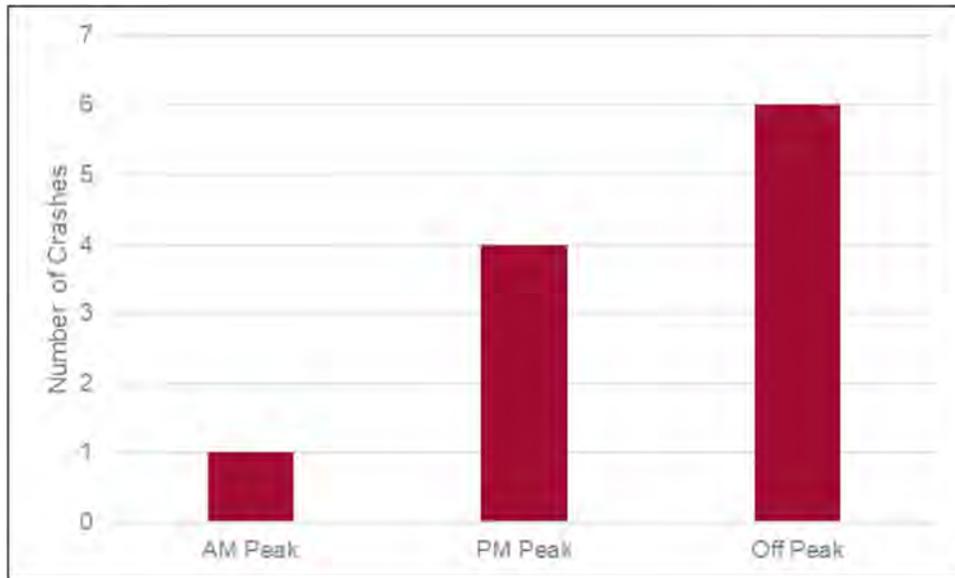


Figure 20: Crash by Time of Day at Erickson Avenue between Pear Street and S Main Street

S Main Street between Erickson Avenue and Pleasant Hill Road

The segment of S Main Street between Erickson Avenue and Pleasant Hill Road recorded 11 crashes during the five-year study period. **Figure 21** summarizes the crash types at this study intersection. There were six angle crashes, three rear-end crashes, one sideswipe-same-direction, and a crash involving a deer. Most crashes occurred in daylight conditions, as shown in **Figure 22**. Most crashes occurred during the PM peak, as shown in **Figure 23**.

Most of the crashes along this segment were located near commercial driveways along S Main Street. Multiple crashes were cited as involving a driver who attempted to make a movement without having the right-of-way.

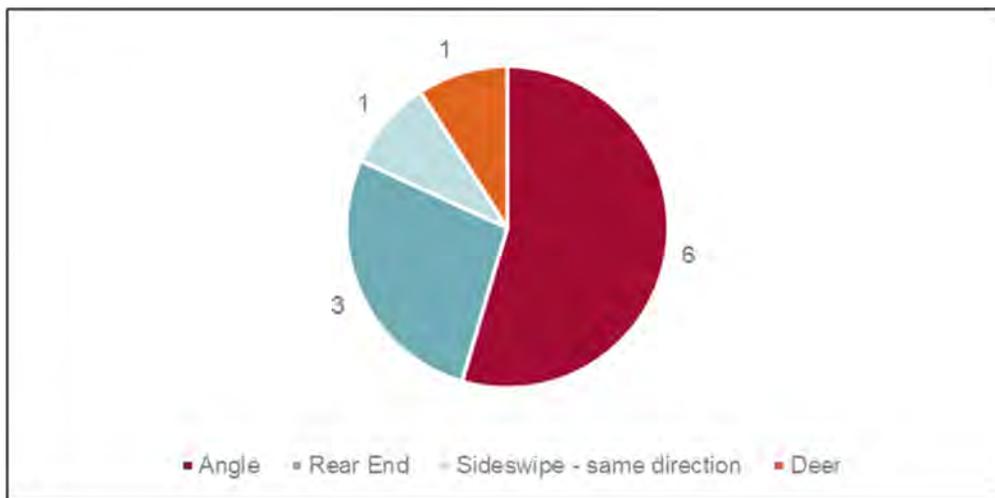


Figure 21: Crash Type at S Main Street between Erickson Avenue and Pleasant Hill Road

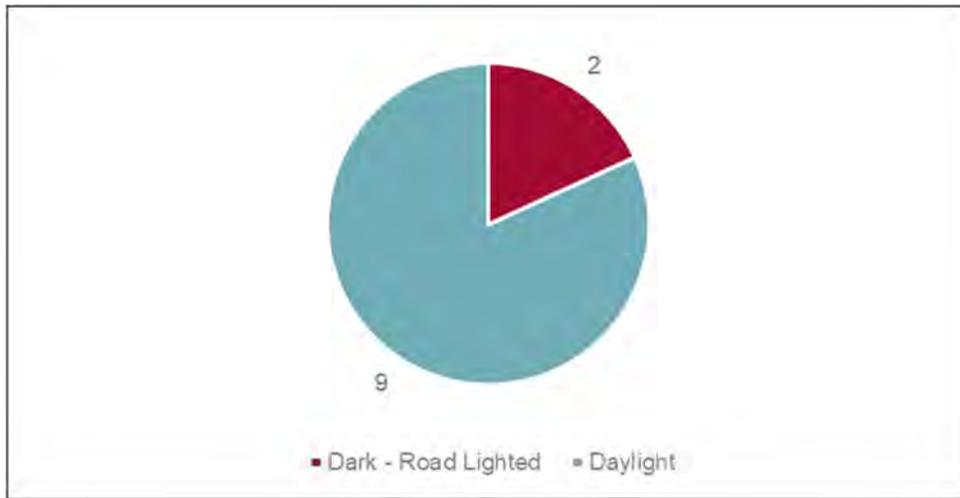


Figure 22: Light Condition at S Main Street between Erickson Avenue and Pleasant Hill Road

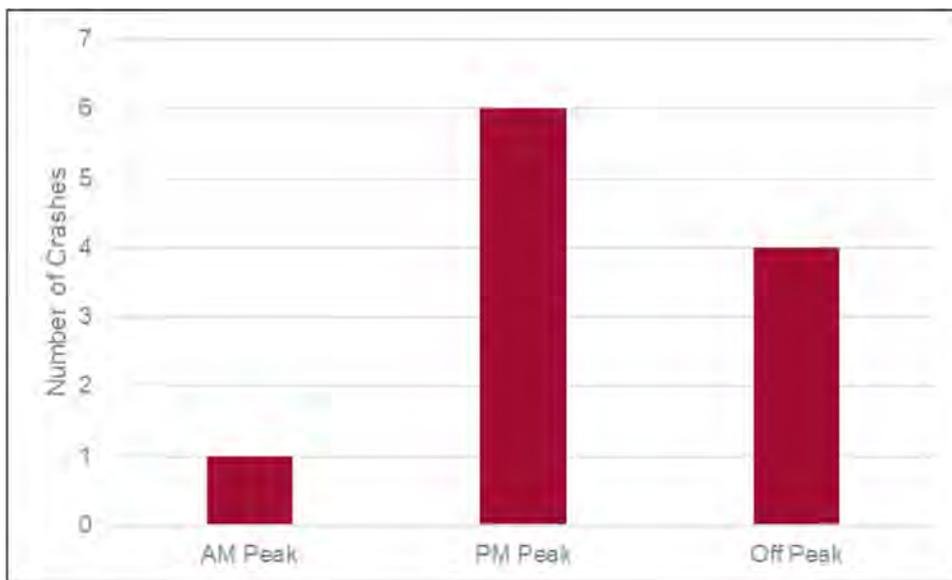


Figure 23: Crash by Time of Day at S Main Street between Erickson Avenue and Pleasant Hill Road

W Mosby Road at Dukes Plaza Driveways

The eastern and western driveways at Dukes Plaza along W Mosby Road recorded five and six crashes, respectively. All five of the crashes at the eastern driveway were angle crashes. The western driveway also recorded five angle crashes, in addition to a single head-on crash. All of these crashes occurred during daylight conditions and a majority occurred during PM peak hours.

Figure 24 and **Figure 25** summarize the time of day during which crashes occurred.

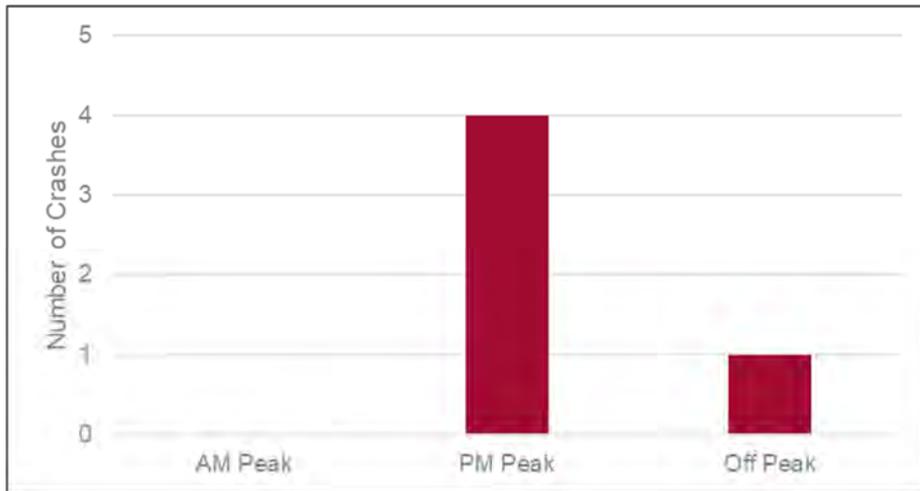


Figure 24: W Mosby Road at Dukes Plaza Eastern Driveway

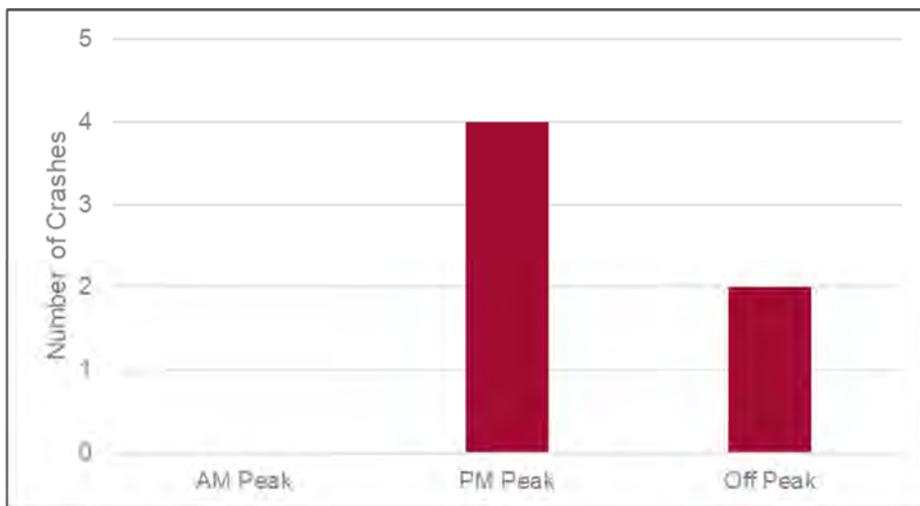


Figure 25: W Mosby Road at Dukes Plaza Western Driveway

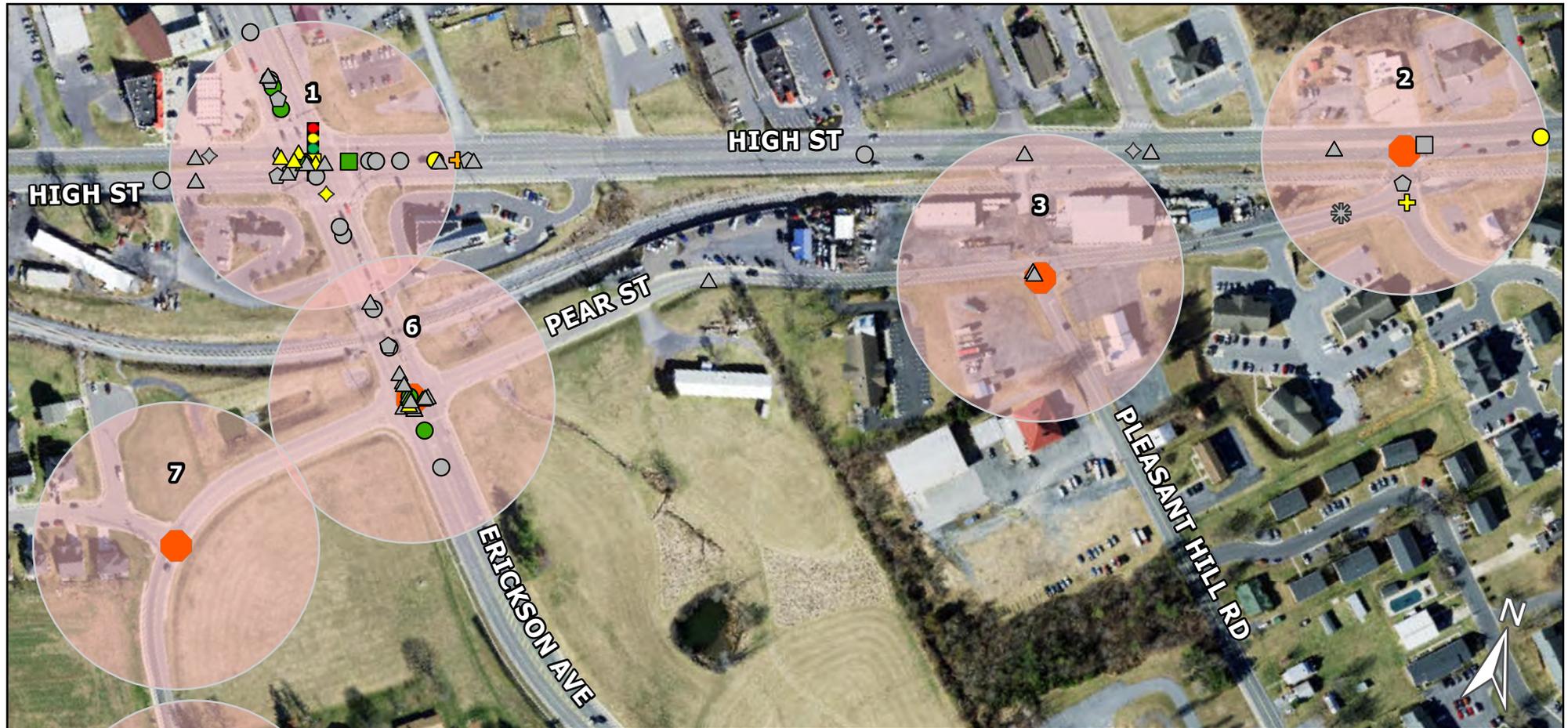
Each of the angle crashes at the eastern driveway were cited in Virginia Crash Map data as involving a vehicle not having the right-of-way. Four of these crashes involved a vehicle attempting to turn onto W Mosby Road from the plaza parking lot. The storage length of the left-turn lane of the eastbound approach at the intersection of W Mosby Road and S Main Street is approximately 150 feet, beginning closely to where the eastern driveway is located. During peak hours when the storage lane may be closer to capacity, drivers attempting to turn left when exiting the plaza parking lot may have limited sight distance with regard to vehicles traveling along westbound W Mosby Road.

Three of the crashes at the western driveway exhibit a similar pattern of vehicles attempting to turn onto W Mosby Road from the plaza parking lot and not having the right-of-way. Two of the crashes at this location are cited as involving a vehicle attempting to make a left-turn and not having the right-of-way.

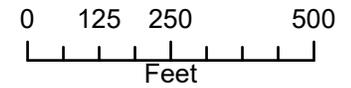


ATTACHMENT 1

Crash Maps



Matchline F-F (See Sheet 5)



Erickson Avenue Area Study

S High Street and Pear Street

Legend

Collision Type

- Rear End
- ▲ Angle
- Head On
- ◀ Sideswipe - Same Direction
- ⊕ Sideswipe - Opposite Direction

- ◆ Fixed Object in Road
- ⊕ Non-Collision
- ◆ Fixed Object - Off Road
- ♠ Deer
- ★ Ped
- ⊙ 14. Motorcyclist
- ⊙ Backed Into
- * Other

Crash Severity

- K - Fatal Injury
- A - Serious Visible Injury
- B - Minor Visible Injury
- C - Nonvisible Injury
- O - Property Damage Only

250ft Intersection Buffer

Intersection Type

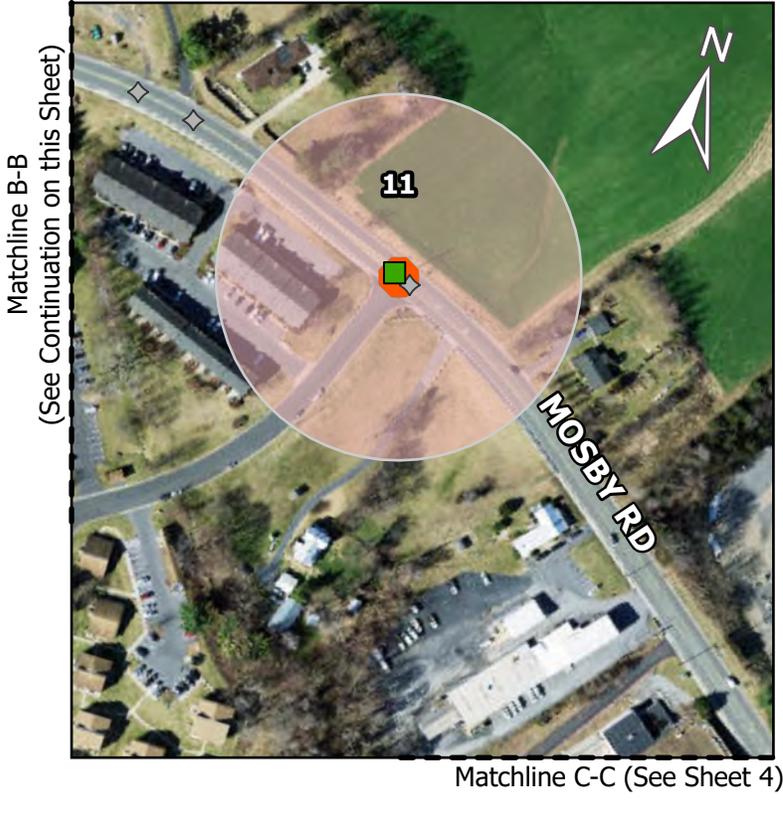
- 🚦 Signalized
- Unsignalized

Matchline A-A (See Sheet 2)

Sources: Commonwealth of Virginia, Maxar, VDOT

Erickson Avenue Area Study

Pear Street and Mosby Road



Matchline A-A (See Sheet 1)



Legend

Collision Type

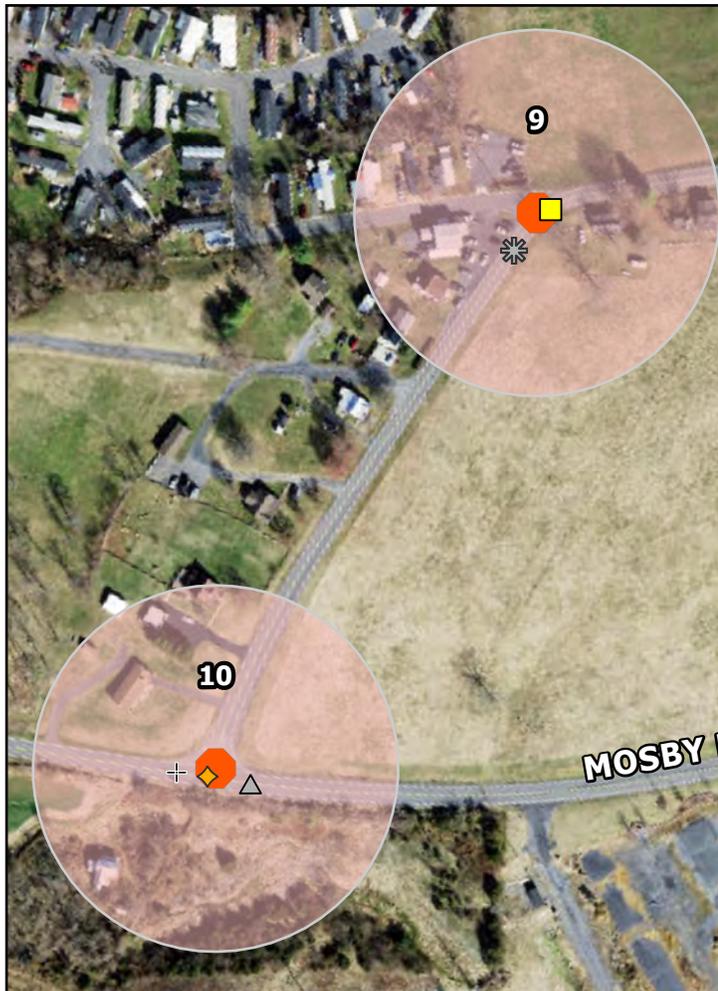
- Rear End
- ▲ Angle
- Head On
- ◆ Sideswipe - Same Direction
- ⊕ Sideswipe - Opposite Direction
- ◆ Fixed Object in Road
- + Non-Collision
- ◆ Fixed Object - Off Road
- Deer
- ★ Ped
- 14. Motorcyclist
- ⊗ Backed Into
- * Other

Crash Severity

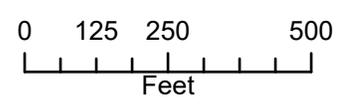
- K - Fatal Injury
- A - Serious Visible Injury
- B - Minor Visible Injury
- C - Nonvisible Injury
- O - Property Damage Only
- 250ft Intersection Buffer

Intersection Type

- Signalized
- Unsignalized



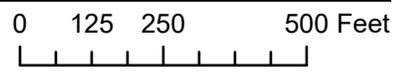
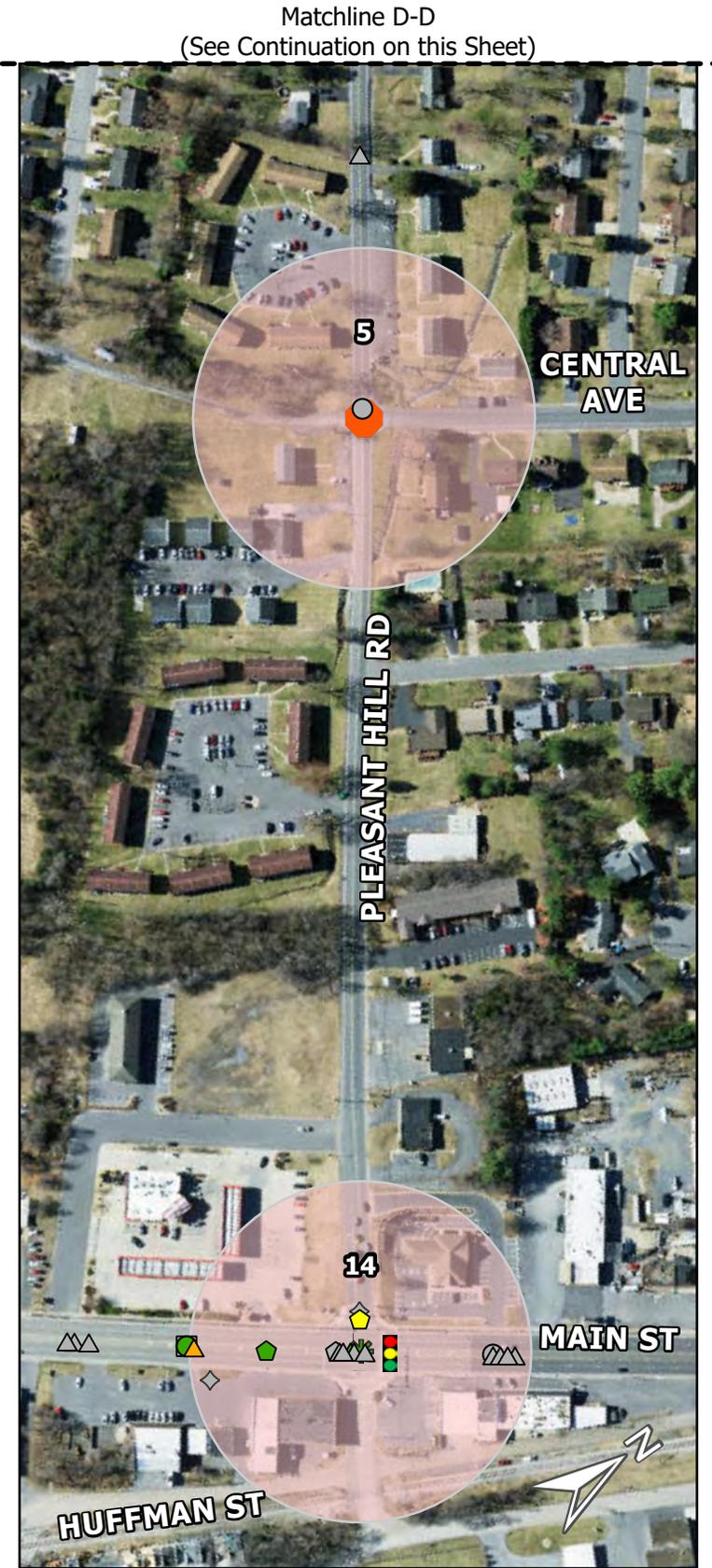
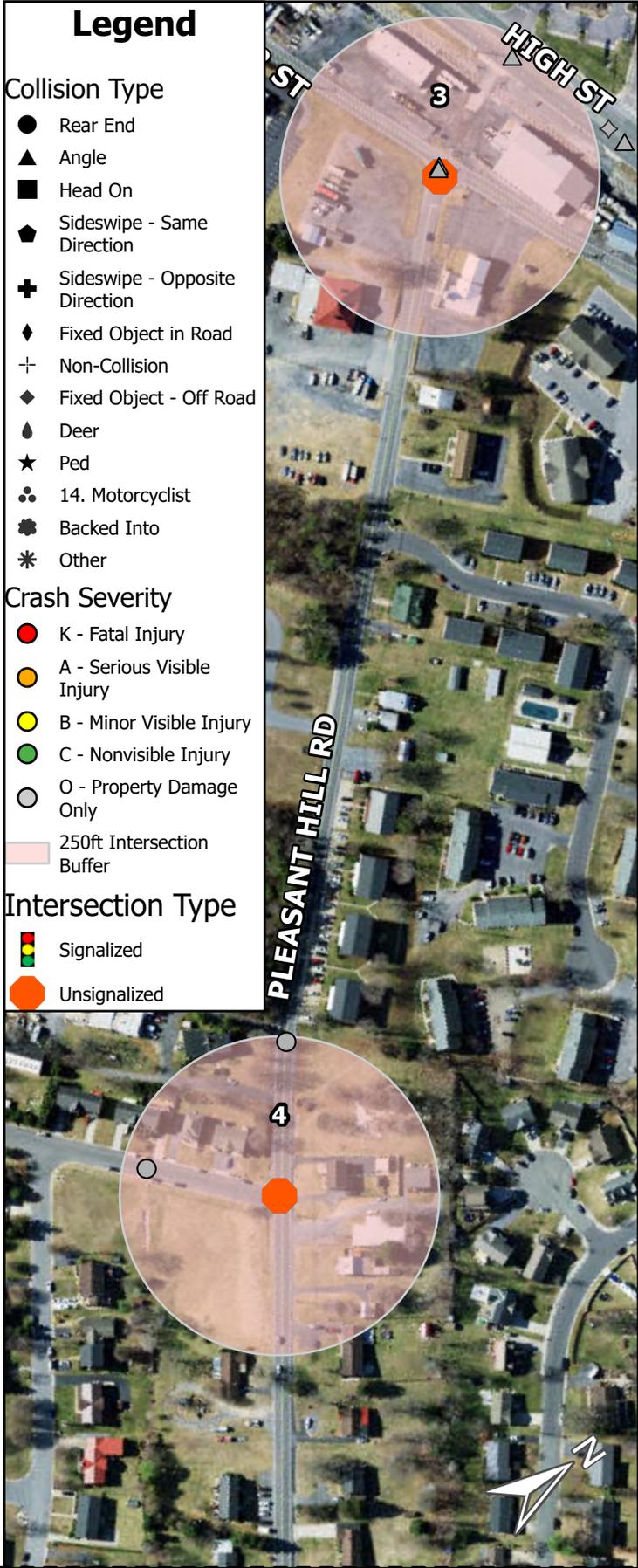
Matchline B-B
(See Continuation on this Sheet)



Sources: Commonwealth of Virginia, Maxar, VDOT

Erickson Avenue Area Study

Pleasant Hill Road



Matchline C-C (See Sheet 2)

Matchline G-G (See Sheet 5)



Matchline E-E
(See Continuation on this Sheet)

Legend

Collision Type

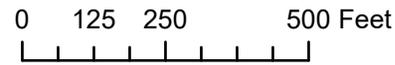
- Rear End
- ▲ Angle
- Head On
- ◆ Sideswipe - Same Direction
- ⊕ Sideswipe - Opposite Direction
- ◆ Fixed Object in Road
- + Non-Collision
- ◆ Fixed Object - Off Road
- ♠ Deer
- ★ Ped
- ⋯ 14. Motorcyclist
- ⊙ Backed Into
- * Other

Crash Severity

- K - Fatal Injury
- A - Serious Visible Injury
- B - Minor Visible Injury
- C - Nonvisible Injury
- O - Property Damage Only
- 250ft Intersection Buffer

Intersection Type

- 🚦 Signalized
- 🛑 Unsignalized

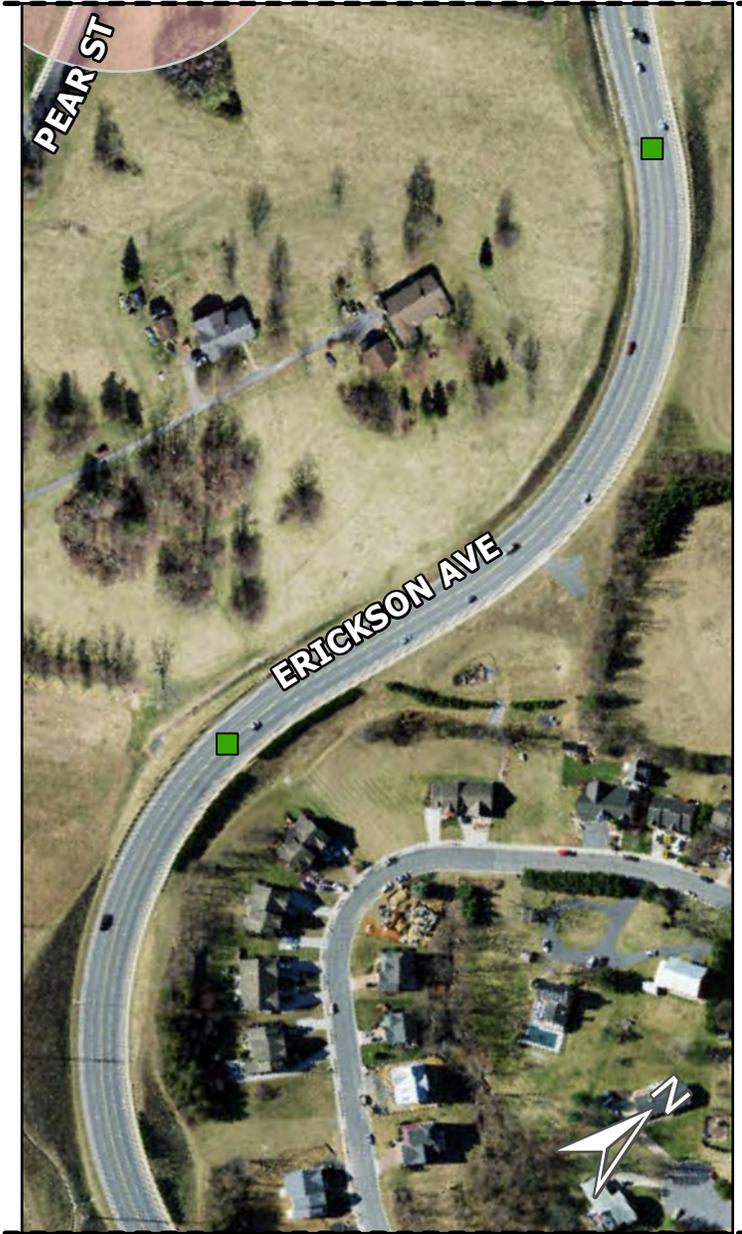


Erickson Avenue Area Study

S Main Street

Sources: Commonwealth of Virginia, Maxar, VDOT

Matchline F-F
(See Sheet 1)



Matchline H-H
(See Continuation on this Sheet)



Matchline H-H
(See Continuation on this Sheet)

Matchline G-G
(See Sheet 4)

Erickson Avenue Area Study

Erickson Avenue



Legend			
Collision Type	◆ Fixed Object in Road	Crash Severity	250ft Intersection Buffer
● Rear End	+ Non-Collision	● K - Fatal Injury	Intersection Type
▲ Angle	◆ Fixed Object - Off Road	● A - Serious Visible Injury	● Signalized
■ Head On	● Deer	● B - Minor Visible Injury	● Unsignalized
◆ Sideswipe - Same Direction	★ Ped	● C - Nonvisible Injury	
◆ Sideswipe - Opposite Direction	● 14. Motorcyclist	○ O - Property Damage Only	
+	● Backed Into		
	● Other		

Sources: Commonwealth of Virginia, Maxar, VDOT

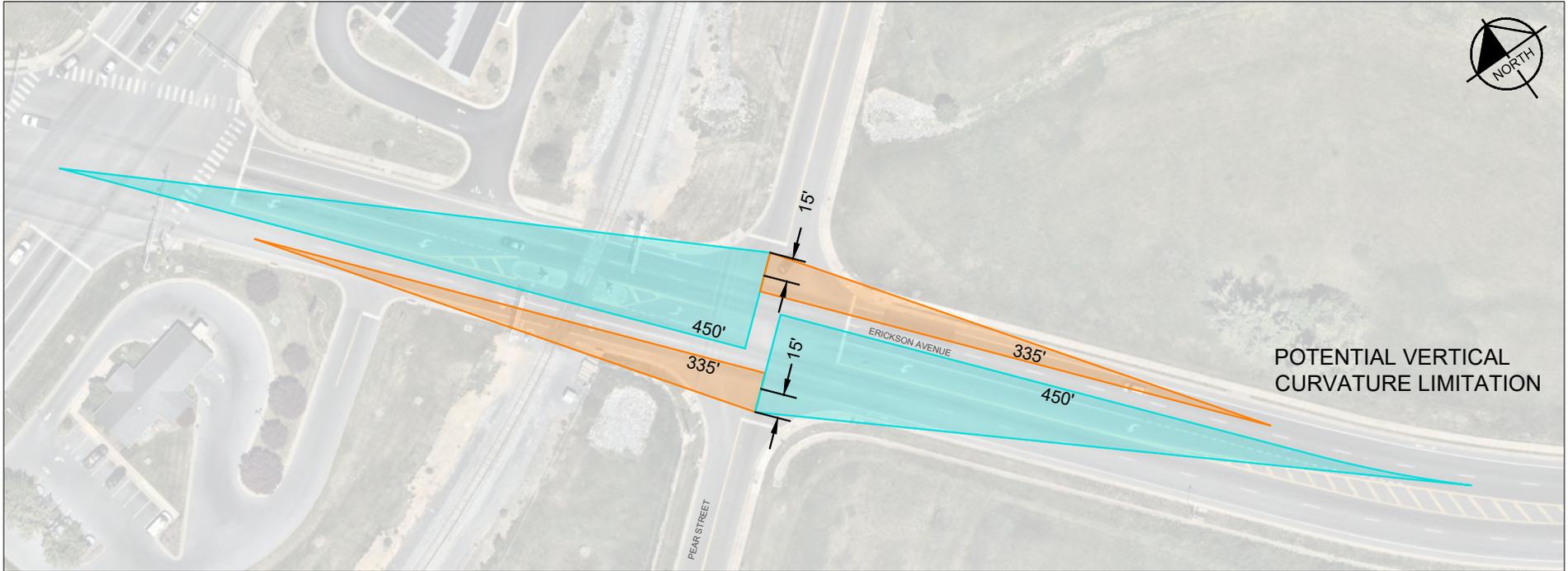


APPENDIX B

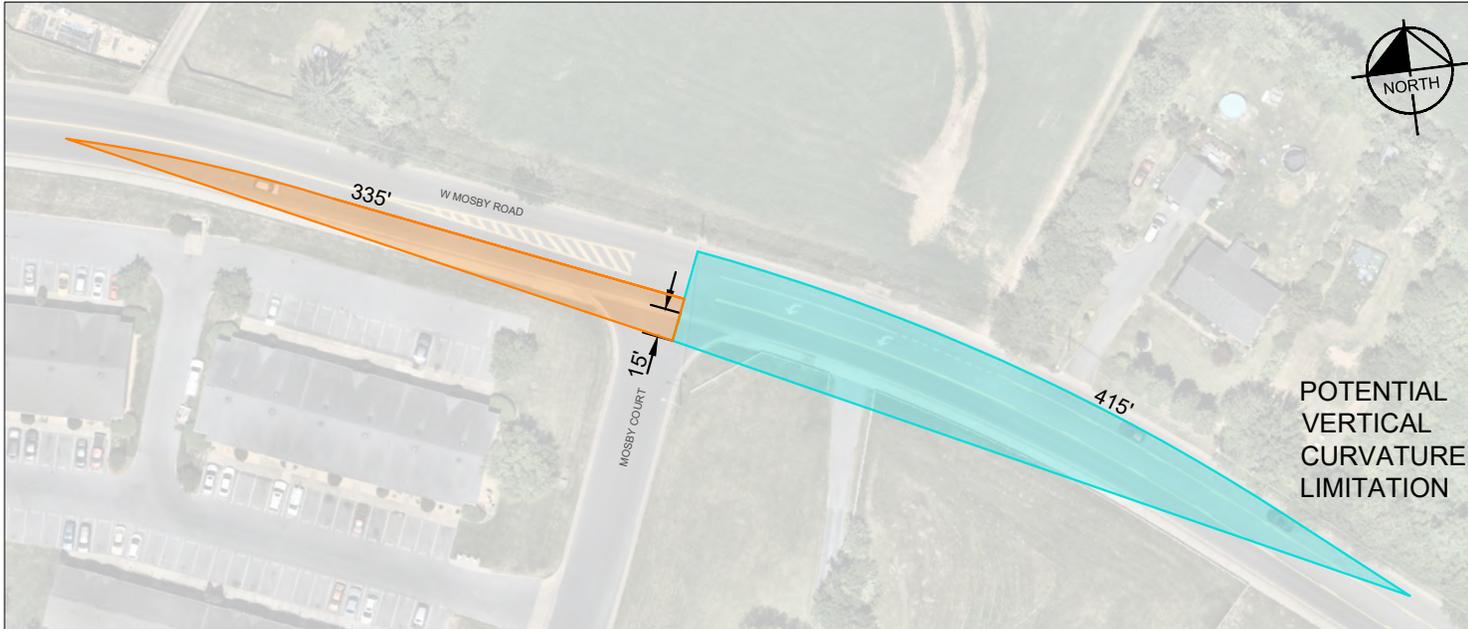
Intersection Sight Distance Exhibits

INTERSECTION SIGHT DISTANCE EXHIBIT 1 OF 5

PEAR STREET TURNING ONTO ERICKSON AVENUE



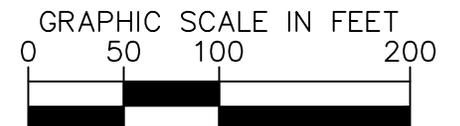
MOSBY COURT TURNING ONTO W MOSBY ROAD



NOTE: INTERSECTION SIGHT DISTANCE CALCULATIONS ASSUME ZERO TO 3% APPROACH GRADE. ANY APPROACH UPGRADE GREATER THAN 3% REQUIRES ADDITIONAL SIGHT DISTANCE.

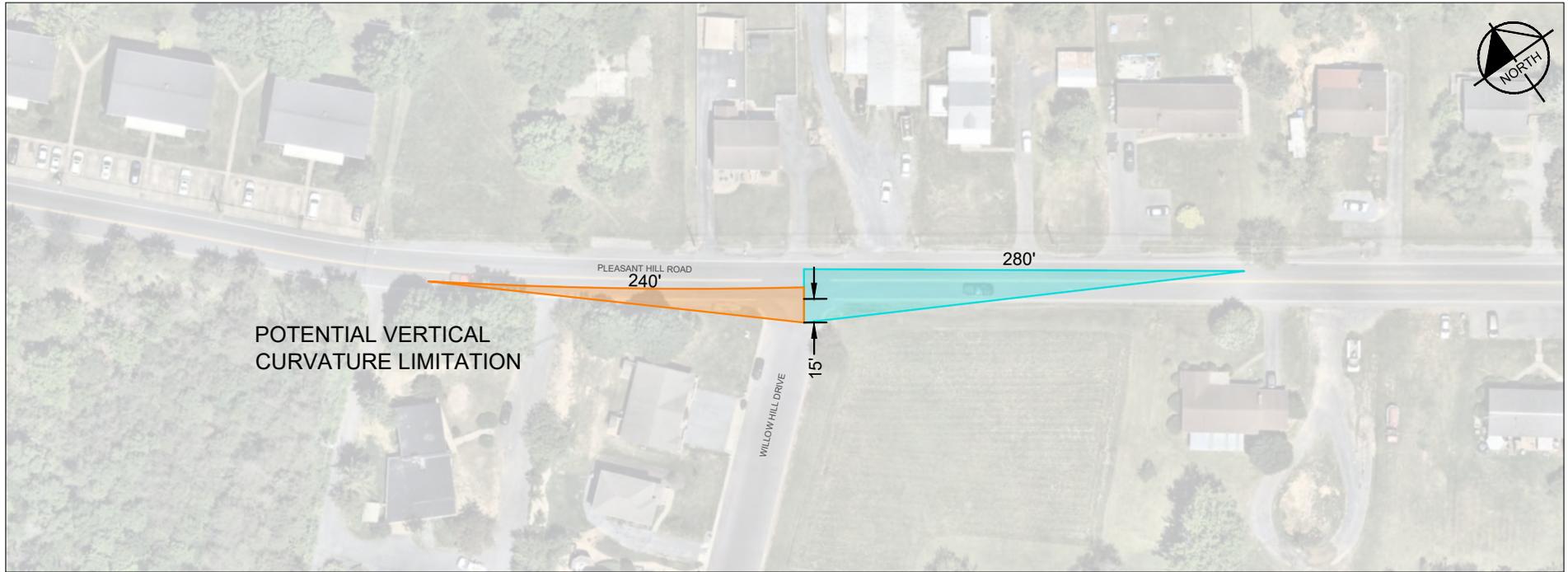
LEGEND

- RIGHT TURN SIGHT DISTANCE
- LEFT TURN SIGHT DISTANCE

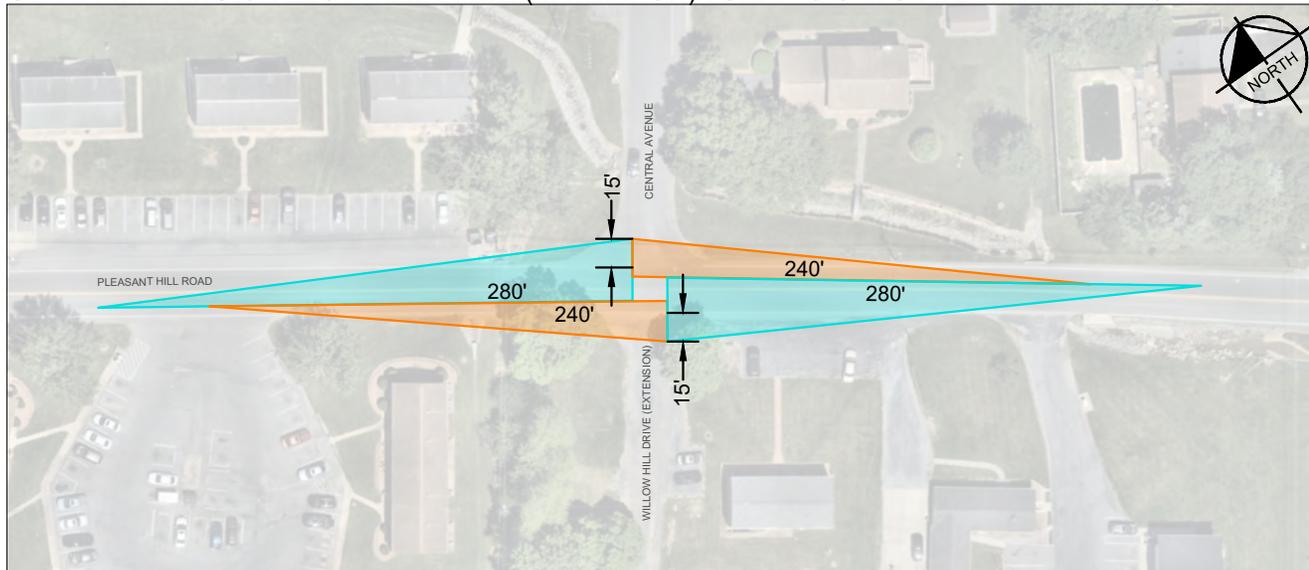


INTERSECTION SIGHT DISTANCE EXHIBIT 2 OF 5

WILLOW HILL DRIVE TURNING ONTO PLEASANT HILL ROAD



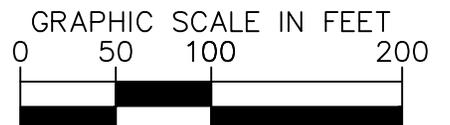
CENTRAL AVENUE/WILLOW HILL DRIVE (EXTENSION) TURNING ONTO PLEASANT HILL ROAD



NOTE: INTERSECTION SIGHT DISTANCE CALCULATIONS ASSUME ZERO TO 3% APPROACH GRADE. ANY APPROACH UPGRADE GREATER THAN 3% REQUIRES ADDITIONAL SIGHT DISTANCE.

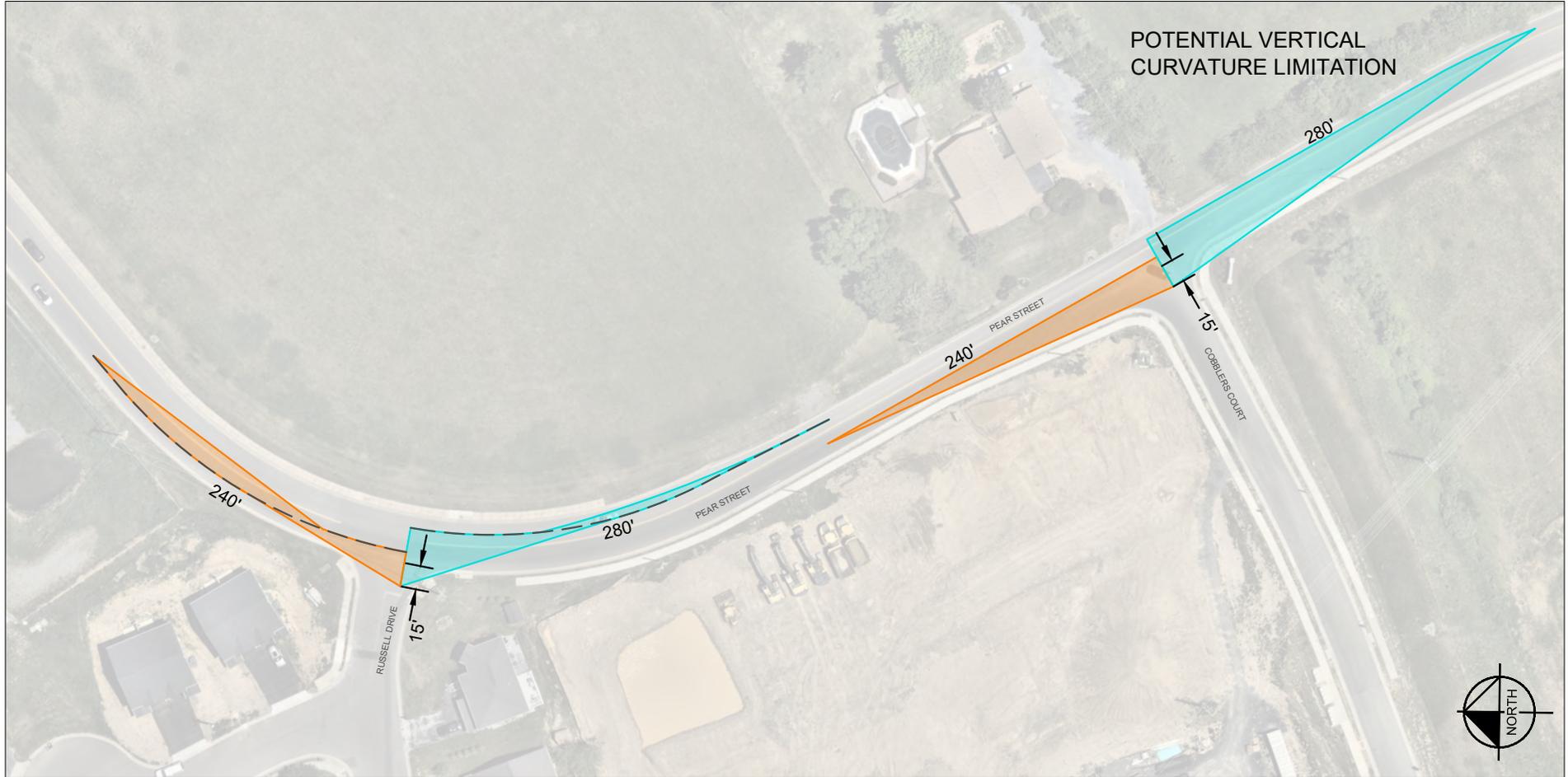
LEGEND

- RIGHT TURN SIGHT DISTANCE
- LEFT TURN SIGHT DISTANCE



INTERSECTION SIGHT DISTANCE EXHIBIT 3 OF 5

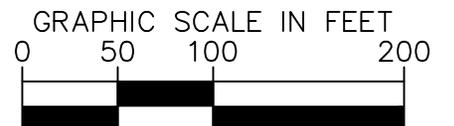
RUSSELL DRIVE AND COBBLERS COURT TURNING ONTO PEAR STREET



NOTE: INTERSECTION SIGHT DISTANCE CALCULATIONS ASSUME ZERO TO 3% APPROACH GRADE. ANY APPROACH UPGRADE GREATER THAN 3% REQUIRES ADDITIONAL SIGHT DISTANCE.

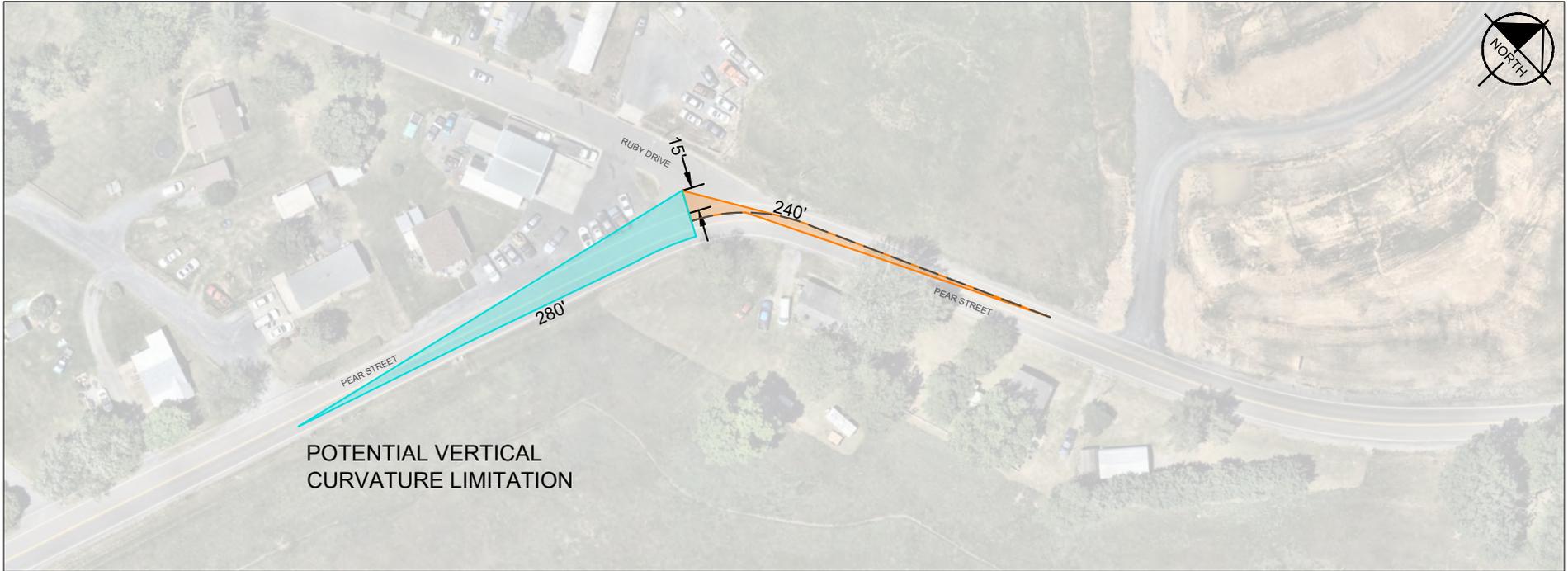
LEGEND

- RIGHT TURN SIGHT DISTANCE
- LEFT TURN SIGHT DISTANCE

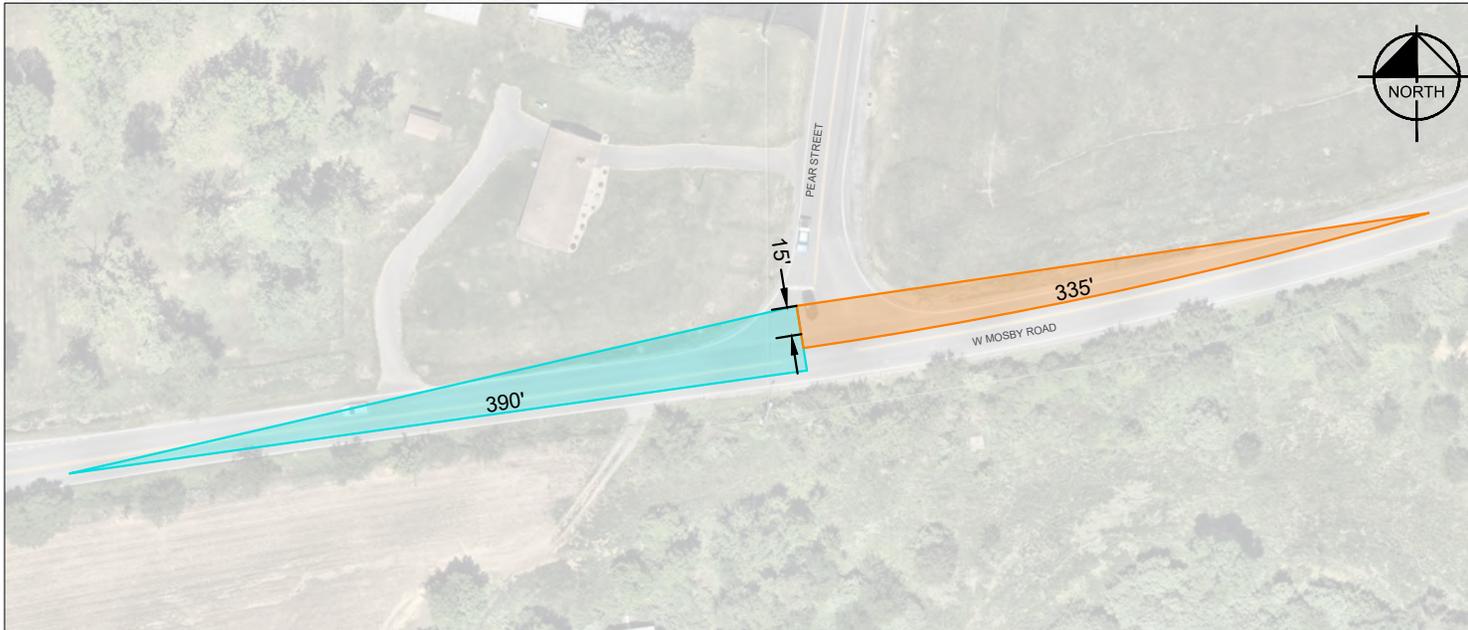


INTERSECTION SIGHT DISTANCE EXHIBIT 4 OF 5

RUBY DRIVE TURNING ONTO PEAR STREET



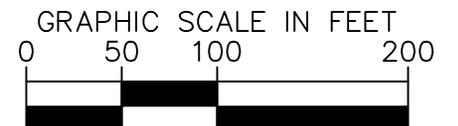
PEAR STREET TURNING ONTO W MOSBY ROAD



NOTE: INTERSECTION SIGHT DISTANCE CALCULATIONS ASSUME ZERO TO 3% APPROACH GRADE. ANY APPROACH UPGRADE GREATER THAN 3% REQUIRES ADDITIONAL SIGHT DISTANCE.

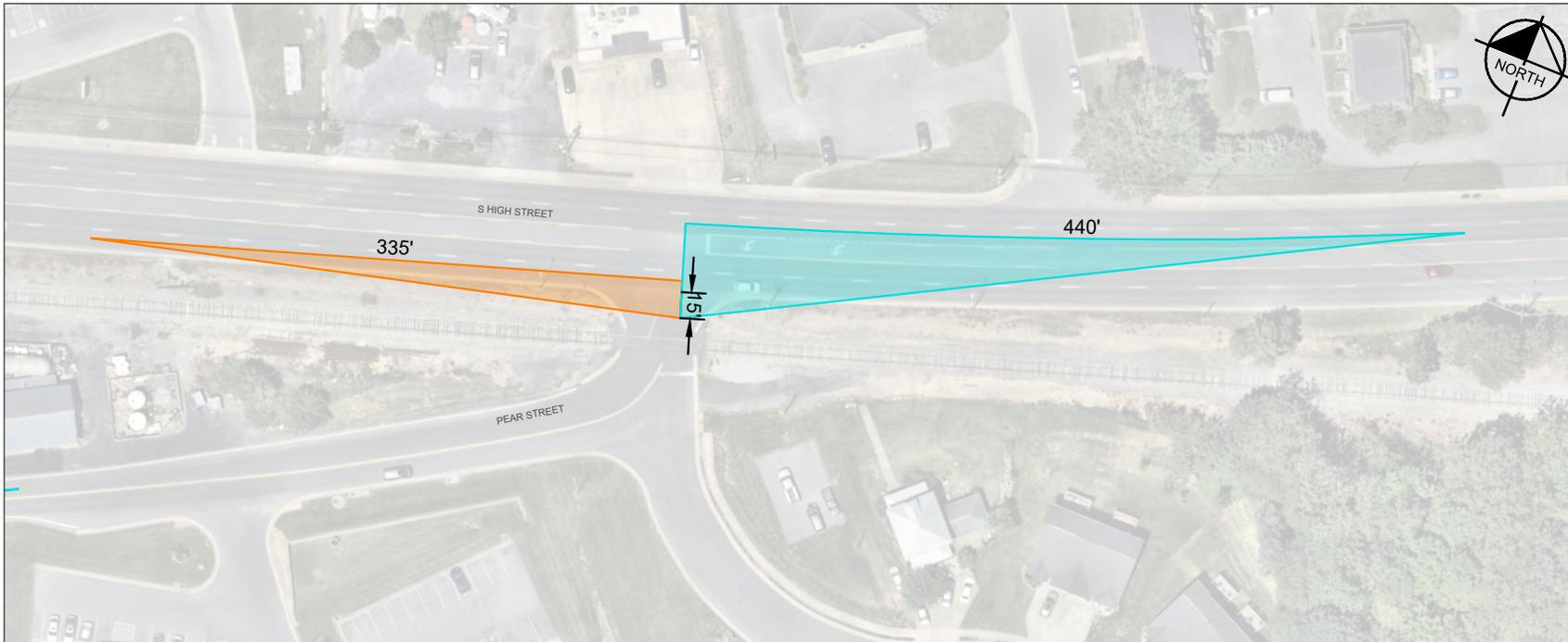
LEGEND

- RIGHT TURN SIGHT DISTANCE
- LEFT TURN SIGHT DISTANCE

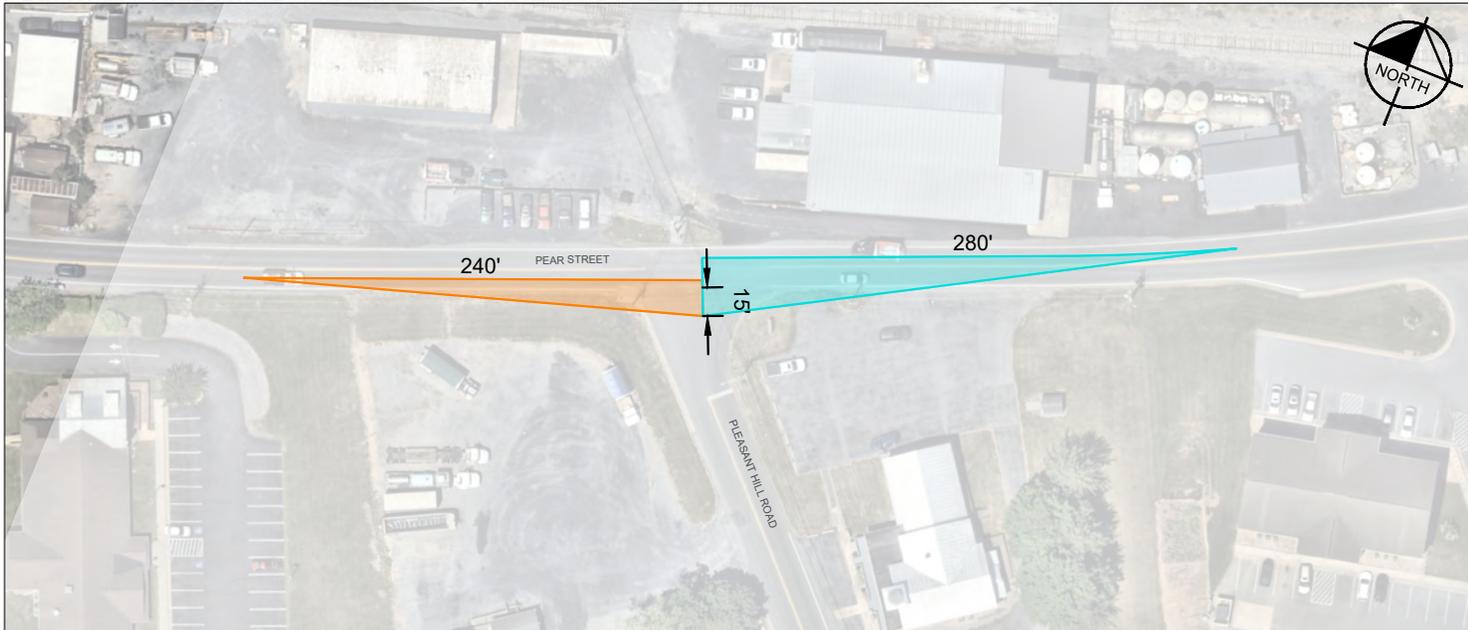


INTERSECTION SIGHT DISTANCE EXHIBIT 5 OF 5

PEAR STREET TURNING ONTO S HIGH STREET



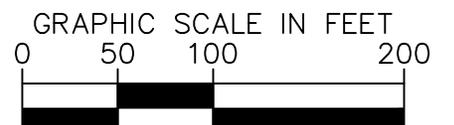
PLEASANT HILL ROAD TURNING ONTO PEAR STREET



NOTE: INTERSECTION SIGHT DISTANCE CALCULATIONS ASSUME ZERO TO 3% APPROACH GRADE. ANY APPROACH UPGRADE GREATER THAN 3% REQUIRES ADDITIONAL SIGHT DISTANCE.

LEGEND

-  RIGHT TURN SIGHT DISTANCE
-  LEFT TURN SIGHT DISTANCE





APPENDIX C

Synchro MOE Reports

Queues
1: S High Street & Erickson Avenue

Existing Conditions
Timing Plan: AM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	141	533	172	515	15	463	177	205	376	138
v/c Ratio	0.47	0.77	0.56	0.71	0.04	0.60	0.23	0.57	0.29	0.14
Control Delay	25.3	45.5	27.8	37.7	18.4	39.6	4.8	26.9	25.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	45.5	27.8	37.7	18.4	39.6	4.8	26.9	25.2	2.4
Queue Length 50th (ft)	58	166	72	141	5	143	8	83	79	0
Queue Length 95th (ft)	96	226	115	192	19	205	47	144	151	26
Internal Link Dist (ft)		616		345		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	304	728	355	836	397	778	818	375	1287	965
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.73	0.48	0.62	0.04	0.60	0.22	0.55	0.29	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Existing Conditions
Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	130	471	19	158	338	136	2	12	426	163	189	346
Future Volume (vph)	130	471	19	158	338	136	2	12	426	163	189	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2				10.0	10.0	7.2	10.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00	0.95	1.00	0.95
Fr _t	1.00	0.99		1.00	0.96				1.00	1.00	0.85	1.00
Fl _t Protected	0.95	1.00		0.95	1.00				0.95	1.00	1.00	0.95
Satd. Flow (prot)	1703	3488		1719	3199				1632	3438	1553	1671
Fl _t Permitted	0.32	1.00		0.28	1.00				0.53	1.00	1.00	0.44
Satd. Flow (perm)	565	3488		508	3199				908	3438	1553	775
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	141	512	21	172	367	148	2	13	463	177	205	376
RTOR Reduction (vph)	0	3	0	0	46	0	0	0	0	102	0	0
Lane Group Flow (vph)	141	530	0	172	469	0	0	15	463	75	205	376
Heavy Vehicles (%)	6%	3%	0%	5%	8%	8%	0%	8%	5%	4%	8%	6%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2	2	
Actuated Green, G (s)	31.8	19.9		31.8	21.3			33.8	22.6	34.5	33.8	31.8
Effective Green, g (s)	31.8	19.9		31.8	21.3			33.8	22.6	34.5	33.8	31.8
Actuated g/C Ratio	0.32	0.20		0.32	0.21			0.34	0.23	0.34	0.34	0.32
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Vehicle Extension (s)	5.0	5.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	299	694		305	681			321	776	535	362	1083
v/s Ratio Prot	0.05	c0.15		c0.07	0.15			0.00	c0.13	0.02	c0.06	c0.11
v/s Ratio Perm	0.10			0.11				0.01		0.03	0.13	
v/c Ratio	0.47	0.76		0.56	0.69			0.05	0.60	0.14	0.57	0.35
Uniform Delay, d ₁	25.6	37.8		26.2	36.3			22.1	34.6	22.5	25.0	26.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	2.4	5.9		2.4	2.9			0.1	3.4	0.1	2.0	0.9
Delay (s)	28.1	43.7		28.6	39.2			22.2	38.0	22.7	27.0	27.0
Level of Service	C	D		C	D			C	D	C	C	C
Approach Delay (s)		40.4			36.6				33.5			25.2
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			33.8	HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0	Sum of lost time (s)				34.4				
Intersection Capacity Utilization			73.3%	ICU Level of Service				D				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Existing Conditions
 Timing Plan: AM Peak

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	127
Future Volume (vph)	127
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1538
Flt Permitted	1.00
Satd. Flow (perm)	1538
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	138
RTOR Reduction (vph)	80
Lane Group Flow (vph)	58
Heavy Vehicles (%)	5%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	42.3
Effective Green, g (s)	42.3
Actuated g/C Ratio	0.42
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	650
v/s Ratio Prot	0.01
v/s Ratio Perm	0.03
v/c Ratio	0.09
Uniform Delay, d1	17.3
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	17.4
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Existing Conditions
Timing Plan: AM Peak

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	11	0	79	0	652	11	53	603	0
Future Vol, veh/h	0	0	0	11	0	79	0	652	11	53	603	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	0	2	2	6	6	18	3	6	6
Mvmt Flow	0	0	0	12	0	87	0	716	12	58	663	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1137	1507	332	1170	1501	364	-	0	0	728	0	0
Stage 1	779	779	-	722	722	-	-	-	-	-	-	-
Stage 2	358	728	-	448	779	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.5	6.54	6.94	-	-	-	4.16	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.5	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.5	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.5	4.02	3.32	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	157	120	664	150	121	633	0	-	-	865	-	-
Stage 1	355	404	-	389	429	-	0	-	-	-	-	-
Stage 2	633	427	-	565	404	-	0	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	129	112	664	142	113	633	-	-	-	865	-	-
Mov Cap-2 Maneuver	244	221	-	267	234	-	-	-	-	-	-	-
Stage 1	355	377	-	389	429	-	-	-	-	-	-	-
Stage 2	546	427	-	527	377	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	13.1	0	0.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	542	865	-
HCM Lane V/C Ratio	-	-	-	0.182	0.067	-
HCM Control Delay (s)	-	-	0	13.1	9.5	-
HCM Lane LOS	-	-	A	B	A	-
HCM 95th %tile Q(veh)	-	-	-	0.7	0.2	-

Intersection						
Int Delay, s/veh	5.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	51	40	41	31	60	19
Future Vol, veh/h	51	40	41	31	60	19
Conflicting Peds, #/hr	0	4	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	13	7	2	6	11	5
Mvmt Flow	62	49	50	38	73	23

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	238	73	0	0	88
Stage 1	69	-	-	-	-
Stage 2	169	-	-	-	-
Critical Hdwy	6.53	6.27	-	-	4.21
Critical Hdwy Stg 1	5.53	-	-	-	-
Critical Hdwy Stg 2	5.53	-	-	-	-
Follow-up Hdwy	3.617	3.363	-	-	2.299
Pot Cap-1 Maneuver	727	975	-	-	1453
Stage 1	927	-	-	-	-
Stage 2	835	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	690	971	-	-	1453
Mov Cap-2 Maneuver	690	-	-	-	-
Stage 1	927	-	-	-	-
Stage 2	792	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.3	0	5.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	791	1453
HCM Lane V/C Ratio	-	-	0.14	0.05
HCM Control Delay (s)	-	-	10.3	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	100	10	10	76	0	16	0	25	1	0	0
Future Vol, veh/h	0	100	10	10	76	0	16	0	25	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	8	7	20	10	11	11	6	7	8	0	0	0
Mvmt Flow	0	127	13	13	96	0	20	0	32	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	96	0	0	140	0	0	256	256	134	272	262	96
Stage 1	-	-	-	-	-	-	134	134	-	122	122	-
Stage 2	-	-	-	-	-	-	122	122	-	150	140	-
Critical Hdwy	4.18	-	-	4.2	-	-	7.16	6.57	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.57	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.57	-	6.1	5.5	-
Follow-up Hdwy	2.272	-	-	2.29	-	-	3.554	4.063	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1461	-	-	1395	-	-	689	639	899	685	646	966
Stage 1	-	-	-	-	-	-	860	776	-	887	799	-
Stage 2	-	-	-	-	-	-	873	785	-	857	785	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1461	-	-	1395	-	-	683	633	899	656	640	966
Mov Cap-2 Maneuver	-	-	-	-	-	-	683	633	-	656	640	-
Stage 1	-	-	-	-	-	-	860	776	-	887	791	-
Stage 2	-	-	-	-	-	-	864	777	-	827	785	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			9.8			10.5		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	800	1461	-	-	1395	-	-	656
HCM Lane V/C Ratio	0.065	-	-	-	0.009	-	-	0.002
HCM Control Delay (s)	9.8	0	-	-	7.6	0	-	10.5
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

HCM 6th TWSC
5: Driveway/Central Avenue & Pleasant Hill Road

Existing Conditions
Timing Plan: AM Peak

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	123	0	0	70	15	0	0	0	52	0	20
Future Vol, veh/h	10	123	0	0	70	15	0	0	0	52	0	20
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	20	5	6	10	10	13	2	2	2	0	2	10
Mvmt Flow	12	152	0	0	86	19	0	0	0	64	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	105	0	0	153	0	0	285	282	153	272	273	96
Stage 1	-	-	-	-	-	-	177	177	-	96	96	-
Stage 2	-	-	-	-	-	-	108	105	-	176	177	-
Critical Hdwy	4.3	-	-	4.2	-	-	7.12	6.52	6.22	7.1	6.52	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.38	-	-	2.29	-	-	3.518	4.018	3.318	3.5	4.018	3.39
Pot Cap-1 Maneuver	1381	-	-	1380	-	-	667	627	893	685	634	939
Stage 1	-	-	-	-	-	-	825	753	-	916	815	-
Stage 2	-	-	-	-	-	-	897	808	-	831	753	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	1381	-	-	1379	-	-	644	621	892	680	628	939
Mov Cap-2 Maneuver	-	-	-	-	-	-	644	621	-	680	628	-
Stage 1	-	-	-	-	-	-	817	745	-	908	815	-
Stage 2	-	-	-	-	-	-	873	808	-	824	745	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0			0			10.6		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1381	-	-	1379	-	-	736
HCM Lane V/C Ratio	-	0.009	-	-	-	-	-	0.121
HCM Control Delay (s)	0	7.6	0	-	0	-	-	10.6
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0.4

HCM 6th TWSC
6: Pear Street & Erickson Avenue

Existing Conditions
Timing Plan: AM Peak

Intersection												
Int Delay, s/veh	9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	36	695	92	24	520	12	62	30	23	2	9	52
Future Vol, veh/h	36	695	92	24	520	12	62	30	23	2	9	52
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	50	-	-	270	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	11	4	8	25	7	0	4	0	0	0	11	9
Mvmt Flow	38	732	97	25	547	13	65	32	24	2	9	55

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	829	0	0	1185	1467	415	1062	1509	280
Stage 1	-	-	-	-	-	-	857	857	-	604	604	-
Stage 2	-	-	-	-	-	-	328	610	-	458	905	-
Critical Hdwy	4.32	-	-	4.6	-	-	7.58	6.5	6.9	7.5	6.72	7.08
Critical Hdwy Stg 1	-	-	-	-	-	-	6.58	5.5	-	6.5	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.58	5.5	-	6.5	5.72	-
Follow-up Hdwy	2.31	-	-	2.45	-	-	3.54	4	3.3	3.5	4.11	3.39
Pot Cap-1 Maneuver	947	-	-	667	-	-	142	129	592	180	110	697
Stage 1	-	-	-	-	-	-	314	377	-	457	464	-
Stage 2	-	-	-	-	-	-	653	488	-	557	334	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	947	-	-	667	-	-	115	119	592	130	102	697
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	119	-	130	102	-
Stage 1	-	-	-	-	-	-	301	362	-	439	447	-
Stage 2	-	-	-	-	-	-	567	470	-	468	321	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.4			0.5			106.7			17.5		
HCM LOS							F			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	139	947	-	-	667	-	-	353
HCM Lane V/C Ratio	0.871	0.04	-	-	0.038	-	-	0.188
HCM Control Delay (s)	106.7	9	-	-	10.6	-	-	17.5
HCM Lane LOS	F	A	-	-	B	-	-	C
HCM 95th %tile Q(veh)	5.7	0.1	-	-	0.1	-	-	0.7

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	15	8	4	101	115	9
Future Vol, veh/h	15	8	4	101	115	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	6	37	25	1	10	33
Mvmt Flow	18	10	5	123	140	11

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	279	146	151	0	0
Stage 1	146	-	-	-	-
Stage 2	133	-	-	-	-
Critical Hdwy	6.46	6.57	4.35	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-
Follow-up Hdwy	3.554	3.633	2.425	-	-
Pot Cap-1 Maneuver	702	816	1301	-	-
Stage 1	872	-	-	-	-
Stage 2	883	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	699	816	1301	-	-
Mov Cap-2 Maneuver	699	-	-	-	-
Stage 1	869	-	-	-	-
Stage 2	883	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1301	-	736	-	-
HCM Lane V/C Ratio	0.004	-	0.038	-	-
HCM Control Delay (s)	7.8	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Existing Conditions
Timing Plan: AM Peak

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	58	0	27	0	0	1	27	45	0	0	81	43
Future Vol, veh/h	58	0	27	0	0	1	27	45	0	0	81	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	1	1	0	0	0	0	7	4	5	12	11	13
Mvmt Flow	67	0	31	0	0	1	31	52	0	0	94	50

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	209	208	94	249	258	52	144	0	0	52	0	0
Stage 1	94	94	-	114	114	-	-	-	-	-	-	-
Stage 2	115	114	-	135	144	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.2	7.1	6.5	6.2	4.17	-	-	4.22	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.3	3.5	4	3.3	2.263	-	-	2.308	-	-
Pot Cap-1 Maneuver	750	691	968	709	650	1021	1408	-	-	1492	-	-
Stage 1	915	819	-	896	805	-	-	-	-	-	-	-
Stage 2	892	803	-	873	782	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	736	675	968	674	635	1021	1408	-	-	1492	-	-
Mov Cap-2 Maneuver	736	675	-	674	635	-	-	-	-	-	-	-
Stage 1	894	819	-	875	786	-	-	-	-	-	-	-
Stage 2	870	785	-	845	782	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	10.2		8.5		2.9		0			
HCM LOS	B		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1408	-	-	797	1021	1492	-	-
HCM Lane V/C Ratio	0.022	-	-	0.124	0.001	-	-	-
HCM Control Delay (s)	7.6	0	-	10.2	8.5	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	0	-	-

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	14	19	17	59	96	16
Future Vol, veh/h	14	19	17	59	96	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	3	3	6	6	7	7
Mvmt Flow	16	22	20	69	113	19

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	232	123	132	0	0
Stage 1	123	-	-	-	-
Stage 2	109	-	-	-	-
Critical Hdwy	6.43	6.23	4.16	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.254	-	-
Pot Cap-1 Maneuver	754	925	1429	-	-
Stage 1	900	-	-	-	-
Stage 2	913	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	743	925	1429	-	-
Mov Cap-2 Maneuver	743	-	-	-	-
Stage 1	887	-	-	-	-
Stage 2	913	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	838	-	-
HCM Lane V/C Ratio	0.014	-	0.046	-	-
HCM Control Delay (s)	7.6	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	22	219	139	54	63	51
Future Vol, veh/h	22	219	139	54	63	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	9	3	7	5	9	1
Mvmt Flow	24	235	149	58	68	55

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	207	0	-	0	461 178
Stage 1	-	-	-	-	178 -
Stage 2	-	-	-	-	283 -
Critical Hdwy	4.19	-	-	-	6.49 6.21
Critical Hdwy Stg 1	-	-	-	-	5.49 -
Critical Hdwy Stg 2	-	-	-	-	5.49 -
Follow-up Hdwy	2.281	-	-	-	3.581 3.309
Pot Cap-1 Maneuver	1323	-	-	-	546 868
Stage 1	-	-	-	-	836 -
Stage 2	-	-	-	-	749 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1323	-	-	-	535 868
Mov Cap-2 Maneuver	-	-	-	-	535 -
Stage 1	-	-	-	-	818 -
Stage 2	-	-	-	-	749 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1323	-	-	-	646
HCM Lane V/C Ratio	0.018	-	-	-	0.19
HCM Control Delay (s)	7.8	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	280	6	8	177	3	20
Future Vol, veh/h	280	6	8	177	3	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	33	25	7	0	25
Mvmt Flow	292	6	8	184	3	21

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	298	0	495 295
Stage 1	-	-	-	-	295 -
Stage 2	-	-	-	-	200 -
Critical Hdwy	-	-	4.35	-	6.4 6.45
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.425	-	3.5 3.525
Pot Cap-1 Maneuver	-	-	1143	-	537 693
Stage 1	-	-	-	-	760 -
Stage 2	-	-	-	-	838 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1143	-	533 693
Mov Cap-2 Maneuver	-	-	-	-	533 -
Stage 1	-	-	-	-	760 -
Stage 2	-	-	-	-	832 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	667	-	-	1143	-
HCM Lane V/C Ratio	0.036	-	-	0.007	-
HCM Control Delay (s)	10.6	-	-	8.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Existing Conditions
 Timing Plan: AM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	240	128	24	100	805	34	1213
v/c Ratio	0.87	0.32	0.07	0.44	0.42	0.09	0.66
Control Delay	79.3	10.1	0.3	14.5	15.6	6.4	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.3	10.1	0.3	14.5	15.6	6.4	15.9
Queue Length 50th (ft)	193	3	0	28	208	6	271
Queue Length 95th (ft)	#298	52	0	49	251	m11	306
Internal Link Dist (ft)		1327	452		1032		1169
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	309	428	438	227	1935	382	1847
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.30	0.05	0.44	0.42	0.09	0.66

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Existing Conditions
 Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	209	4	107	6	0	15	87	686	14	30	935	120
Future Volume (vph)	209	4	107	6	0	15	87	686	14	30	935	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.86			0.90		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1507			1416		1572	3165		1573	3253	
Flt Permitted	0.74	1.00			0.92		0.16	1.00		0.31	1.00	
Satd. Flow (perm)	1402	1507			1315		266	3165		515	3253	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	240	5	123	7	0	17	100	789	16	34	1075	138
RTOR Reduction (vph)	0	99	0	0	19	0	0	1	0	0	7	0
Lane Group Flow (vph)	240	29	0	0	5	0	100	804	0	34	1206	0
Heavy Vehicles (%)	3%	0%	11%	0%	19%	26%	16%	15%	7%	13%	8%	3%
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	25.6	25.6			25.6		79.9	76.1		79.9	73.5	
Effective Green, g (s)	25.6	25.6			25.6		79.9	76.1		79.9	73.5	
Actuated g/C Ratio	0.20	0.20			0.20		0.61	0.59		0.61	0.57	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	276	296			258		227	1852		347	1839	
v/s Ratio Prot		0.02					0.02	c0.25		0.00	c0.37	
v/s Ratio Perm	c0.17				0.00		0.25			0.06		
v/c Ratio	0.87	0.10			0.02		0.44	0.43		0.10	0.66	
Uniform Delay, d1	50.6	42.8			42.1		12.9	15.0		13.8	19.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.70	0.72	
Incremental Delay, d2	24.0	0.1			0.0		1.4	0.7		0.1	1.5	
Delay (s)	74.5	42.9			42.1		14.3	15.7		9.8	15.5	
Level of Service	E	D			D		B	B		A	B	
Approach Delay (s)		63.5			42.1			15.6			15.3	
Approach LOS		E			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			22.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			73.2%				ICU Level of Service			D		
Analysis Period (min)			15									

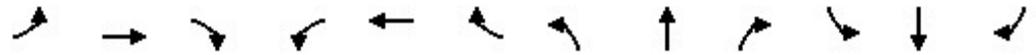
c Critical Lane Group

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Existing Conditions

Timing Plan: AM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	48	413	296	349	371	218	185	476	289	138	515	42
v/c Ratio	0.13	0.81	0.56	0.86	0.34	0.28	0.51	0.46	0.33	0.35	0.50	0.06
Control Delay	24.5	67.3	11.6	64.4	36.1	2.8	20.7	26.2	2.2	20.2	33.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	67.3	11.6	64.4	36.1	2.8	20.7	26.2	2.2	20.2	33.7	0.4
Queue Length 50th (ft)	24	178	39	214	127	0	60	115	3	41	194	1
Queue Length 95th (ft)	50	237	79	#338	173	34	m79	158	m30	63	262	0
Internal Link Dist (ft)		853			1394			1169			1357	
Turn Bay Length (ft)	350		300	500		200	190		330	190		160
Base Capacity (vph)	365	541	565	430	1102	779	407	1043	896	393	1023	710
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.76	0.52	0.81	0.34	0.28	0.45	0.46	0.32	0.35	0.50	0.06

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Existing Conditions
 Timing Plan: AM Peak

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	46	396	284	1	334	356	209	178	457	277	132	494
Future Volume (vph)	46	396	284	1	334	356	209	178	457	277	132	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%				-8%			-3%			-2%
Total Lost time (s)	8.6	8.6	8.3		8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1850	3628	1547		1755	3610	1630	1607	3214	1478	1720	3345
Flt Permitted	0.50	1.00	1.00		0.32	1.00	1.00	0.36	1.00	1.00	0.41	1.00
Satd. Flow (perm)	972	3628	1547		595	3610	1630	617	3214	1478	736	3345
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	48	412	296	1	348	371	218	185	476	289	138	515
RTOR Reduction (vph)	0	0	140	0	0	0	132	0	0	131	0	0
Lane Group Flow (vph)	48	413	156	0	349	371	86	185	476	158	138	515
Confl. Peds. (#/hr)	1						1			1	1	
Heavy Vehicles (%)	0%	2%	7%	0%	7%	4%	2%	14%	14%	10%	6%	9%
Turn Type	D.P+P	NA	pm+ov	D.P+P	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	3	8	5	7!	7	4	1	5	2	7!	1	6
Permitted Phases	4		8	8	8		4	6		2	2	
Actuated Green, G (s)	44.0	18.3	32.4		44.0	39.7	51.4	52.2	40.5	66.2	52.2	38.1
Effective Green, g (s)	44.0	18.3	32.4		44.0	39.7	51.4	52.2	40.5	66.2	52.2	38.1
Actuated g/C Ratio	0.34	0.14	0.25		0.34	0.31	0.40	0.40	0.31	0.51	0.40	0.29
Clearance Time (s)	8.6	8.6	8.3		8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	358	510	385		430	1102	644	355	1001	850	384	980
v/s Ratio Prot	0.00	0.11	0.04		c0.16	0.10	0.01	0.06	c0.15	0.04	0.03	c0.15
v/s Ratio Perm	0.04		0.06		c0.11		0.04	0.15		0.07	0.11	
v/c Ratio	0.13	0.81	0.41		0.81	0.34	0.13	0.52	0.48	0.19	0.36	0.53
Uniform Delay, d1	29.2	54.2	40.8		42.4	35.0	25.1	26.6	36.2	17.3	32.2	38.4
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	0.75	0.69	0.61	0.74	0.82
Incremental Delay, d2	0.2	9.2	0.7		11.1	0.2	0.1	1.2	1.4	0.1	0.6	2.0
Delay (s)	29.4	63.4	41.5		53.5	35.1	25.2	21.2	26.6	10.7	24.3	33.5
Level of Service	C	E	D		D	D	C	C	C	B	C	C
Approach Delay (s)		52.7				39.6			20.7			31.5
Approach LOS		D				D			C			C

Intersection Summary			
HCM 2000 Control Delay	35.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	33.8
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Existing Conditions
 Timing Plan: AM Peak

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	40
Future Volume (vph)	40
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	8.6
Lane Util. Factor	1.00
Frbp, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1456
Flt Permitted	1.00
Satd. Flow (perm)	1456
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	42
RTOR Reduction (vph)	28
Lane Group Flow (vph)	14
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	12%
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Actuated Green, G (s)	42.4
Effective Green, g (s)	42.4
Actuated g/C Ratio	0.33
Clearance Time (s)	8.6
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	474
v/s Ratio Prot	0.00
v/s Ratio Perm	0.01
v/c Ratio	0.03
Uniform Delay, d1	29.8
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	29.8
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
14: S Main Street & Pleasant Hill Road

Existing Conditions
Timing Plan: AM Peak



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	70	143	7	54	612	2	550
v/c Ratio	0.51	0.44	0.10	0.09	0.25	0.00	0.24
Control Delay	68.8	5.0	61.6	2.6	2.7	6.0	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	5.0	61.6	2.6	2.7	6.0	9.6
Queue Length 50th (ft)	57	0	6	4	26	0	83
Queue Length 95th (ft)	105	8	22	14	67	4	164
Internal Link Dist (ft)	1324		115		1357		1543
Turn Bay Length (ft)		220		190		140	
Base Capacity (vph)	217	392	84	625	2445	656	2281
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.36	0.08	0.09	0.25	0.00	0.24
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Existing Conditions
 Timing Plan: AM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	1	136	5	2	0	51	570	11	2	492	30
Future Volume (vph)	66	1	136	5	2	0	51	570	11	2	492	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%			1%	
Total Lost time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		1.00		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1644	1576		1233		1717	3231		1796	3329	
Flt Permitted		0.95	1.00		0.97		0.43	1.00		0.41	1.00	
Satd. Flow (perm)		1644	1576		1233		781	3231		778	3329	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	69	1	143	5	2	0	54	600	12	2	518	32
RTOR Reduction (vph)	0	0	131	0	0	0	0	1	0	0	3	0
Lane Group Flow (vph)	0	70	12	0	7	0	54	611	0	2	547	0
Heavy Vehicles (%)	12%	0%	4%	20%	100%	42%	3%	9%	18%	0%	7%	6%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		11.0	11.0		1.6		88.7	87.6		88.7	78.2	
Effective Green, g (s)		11.0	11.0		1.6		88.7	87.6		88.7	78.2	
Actuated g/C Ratio		0.08	0.08		0.01		0.68	0.67		0.68	0.60	
Clearance Time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		139	133		15		608	2177		539	2002	
v/s Ratio Prot		c0.04			c0.01		0.01	c0.19		0.00	c0.16	
v/s Ratio Perm			0.01				0.05			0.00		
v/c Ratio		0.50	0.09		0.47		0.09	0.28		0.00	0.27	
Uniform Delay, d1		56.9	54.9		63.8		7.9	8.5		6.6	12.4	
Progression Factor		1.00	0.88		1.00		0.44	0.38		1.00	1.00	
Incremental Delay, d2		2.9	0.3		21.2		0.1	0.3		0.0	0.3	
Delay (s)		59.8	48.7		85.0		3.5	3.5		6.6	12.7	
Level of Service		E	D		F		A	A		A	B	
Approach Delay (s)		52.3			85.0			3.5			12.7	
Approach LOS		D			F			A			B	
Intersection Summary												
HCM 2000 Control Delay			14.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			49.5%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

Queues
1: S High Street & Erickson Avenue

Existing Conditions
Timing Plan: PM Peak



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	141	319	245	602	47	499	239	237	551	185
v/c Ratio	0.53	0.55	0.60	0.80	0.13	0.50	0.27	0.56	0.42	0.19
Control Delay	32.2	48.9	33.4	49.3	20.0	40.1	9.0	26.2	31.7	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.2	48.9	33.4	49.3	20.0	40.1	9.0	26.2	31.7	2.5
Queue Length 50th (ft)	73	118	136	217	19	172	44	107	175	0
Queue Length 95th (ft)	110	164	187	265	46	249	98	183	245	34
Internal Link Dist (ft)		616		345		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	275	581	531	935	352	995	995	452	1311	981
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.55	0.46	0.64	0.13	0.50	0.24	0.52	0.42	0.19

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Existing Conditions
Timing Plan: PM Peak

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	138	297	16	240	421	169	10	36	489	234	232	540
Future Volume (vph)	138	297	16	240	421	169	10	36	489	234	232	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.95	1.00	1.00	0.95
Fr _t	1.00	0.99		1.00	0.96			1.00	1.00	0.85	1.00	1.00
Fl _t Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1805	3484		1770	3397			1708	3539	1583	1770	3539
Fl _t Permitted	0.21	1.00		0.47	1.00			0.39	1.00	1.00	0.40	1.00
Satd. Flow (perm)	393	3484		878	3397			710	3539	1583	751	3539
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	141	303	16	245	430	172	10	37	499	239	237	551
RTOR Reduction (vph)	0	3	0	0	38	0	0	0	0	74	0	0
Lane Group Flow (vph)	141	316	0	245	564	0	0	47	499	165	237	551
Heavy Vehicles (%)	0%	3%	0%	2%	2%	1%	10%	0%	2%	2%	2%	2%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2	2	
Actuated Green, G (s)	37.6	19.9		37.6	25.4			48.0	33.7	51.4	48.0	42.5
Effective Green, g (s)	37.6	19.9		37.6	25.4			48.0	33.7	51.4	48.0	42.5
Actuated g/C Ratio	0.31	0.17		0.31	0.21			0.40	0.28	0.43	0.40	0.35
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Vehicle Extension (s)	5.0	5.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	266	577		406	719			329	993	678	421	1253
v/s Ratio Prot	0.05	0.09		c0.09	c0.17			0.01	0.14	0.04	c0.07	c0.16
v/s Ratio Perm	0.11			0.10				0.05		0.07	c0.16	
v/c Ratio	0.53	0.55		0.60	0.78			0.14	0.50	0.24	0.56	0.44
Uniform Delay, d ₁	31.5	45.9		32.9	44.7			22.3	36.1	21.9	25.1	29.6
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	3.7	1.9		2.5	5.6			0.2	1.8	0.2	1.7	1.1
Delay (s)	35.2	47.8		35.4	50.3			22.5	37.9	22.1	26.8	30.8
Level of Service	D	D		D	D			C	D	C	C	C
Approach Delay (s)		43.9			46.0				32.2			27.5
Approach LOS		D			D				C			C
Intersection Summary												
HCM 2000 Control Delay			36.3	HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)				34.4				
Intersection Capacity Utilization			79.7%	ICU Level of Service				D				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Existing Conditions
 Timing Plan: PM Peak

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	181
Future Volume (vph)	181
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1599
Flt Permitted	1.00
Satd. Flow (perm)	1599
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	185
RTOR Reduction (vph)	101
Lane Group Flow (vph)	84
Heavy Vehicles (%)	1%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	54.7
Effective Green, g (s)	54.7
Actuated g/C Ratio	0.46
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	728
v/s Ratio Prot	0.01
v/s Ratio Perm	0.04
v/c Ratio	0.12
Uniform Delay, d1	18.8
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	18.9
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Existing Conditions
Timing Plan: PM Peak

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	1	0	2	17	1	93	1	738	30	71	873	4
Future Vol, veh/h	1	0	2	17	1	93	1	738	30	71	873	4
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	3	0	1	0	1	2	0
Mvmt Flow	1	0	2	18	1	98	1	777	32	75	919	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1464	1884	464	1405	1870	405	925	0	0	809	0	0
Stage 1	1073	1073	-	795	795	-	-	-	-	-	-	-
Stage 2	391	811	-	610	1075	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.21	-	-
Pot Cap-1 Maneuver	91	72	550	101	73	592	747	-	-	819	-	-
Stage 1	239	299	-	351	402	-	-	-	-	-	-	-
Stage 2	610	396	-	453	298	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	70	65	549	93	66	592	746	-	-	819	-	-
Mov Cap-2 Maneuver	70	65	-	93	66	-	-	-	-	-	-	-
Stage 1	238	271	-	350	401	-	-	-	-	-	-	-
Stage 2	507	395	-	410	270	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	27	23.2	0	0.7
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	746	-	-	167	313	819	-	-
HCM Lane V/C Ratio	0.001	-	-	0.019	0.373	0.091	-	-
HCM Control Delay (s)	9.8	-	-	27	23.2	9.8	-	-
HCM Lane LOS	A	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.7	0.3	-	-

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	37	61	52	44	73	12
Future Vol, veh/h	37	61	52	44	73	12
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	0	3	3	0	1	8
Mvmt Flow	43	70	60	51	84	14

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	268	87	0	0	111
Stage 1	86	-	-	-	-
Stage 2	182	-	-	-	-
Critical Hdwy	6.4	6.23	-	-	4.11
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.327	-	-	2.209
Pot Cap-1 Maneuver	726	969	-	-	1485
Stage 1	942	-	-	-	-
Stage 2	854	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	685	968	-	-	1485
Mov Cap-2 Maneuver	685	-	-	-	-
Stage 1	942	-	-	-	-
Stage 2	805	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10	0	6.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	837	1485
HCM Lane V/C Ratio	-	-	0.135	0.057
HCM Control Delay (s)	-	-	10	7.6
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.2

HCM 6th TWSC
4: Willow Hill Drive/Driveway & Pleasant Hill Road

Existing Conditions
Timing Plan: PM Peak

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	91	19	28	100	0	8	0	17	0	0	0
Future Vol, veh/h	0	91	19	28	100	0	8	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	0	100	21	31	110	0	9	0	19	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	110	0	0	121	0	0	283	283	111	292	293	110
Stage 1	-	-	-	-	-	-	111	111	-	172	172	-
Stage 2	-	-	-	-	-	-	172	172	-	120	121	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1493	-	-	1479	-	-	673	629	948	664	621	949
Stage 1	-	-	-	-	-	-	899	807	-	835	760	-
Stage 2	-	-	-	-	-	-	835	760	-	889	800	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1493	-	-	1479	-	-	662	615	948	640	607	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	662	615	-	640	607	-
Stage 1	-	-	-	-	-	-	899	807	-	835	743	-
Stage 2	-	-	-	-	-	-	817	743	-	871	800	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			1.6			9.5			0		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	833	1493	-	-	1479	-	-	-
HCM Lane V/C Ratio	0.033	-	-	-	0.021	-	-	-
HCM Control Delay (s)	9.5	0	-	-	7.5	0	-	0
HCM Lane LOS	A	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

HCM 6th TWSC
5: Driveway/Central Avenue & Pleasant Hill Road

Existing Conditions
Timing Plan: PM Peak

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	98	1	0	124	68	0	0	1	47	0	13
Future Vol, veh/h	17	98	1	0	124	68	0	0	1	47	0	13
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	0	0	0	0	0	0	0	0	2	1	0
Mvmt Flow	18	105	1	0	133	73	0	0	1	51	0	14

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	207	0	0	106	0	0	320	349	106	313	313	172
Stage 1	-	-	-	-	-	-	142	142	-	171	171	-
Stage 2	-	-	-	-	-	-	178	207	-	142	142	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.5	6.2	7.12	6.51	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.51	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.51	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4	3.3	3.518	4.009	3.3
Pot Cap-1 Maneuver	1346	-	-	1498	-	-	637	578	954	640	604	877
Stage 1	-	-	-	-	-	-	866	783	-	831	759	-
Stage 2	-	-	-	-	-	-	828	734	-	861	781	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1345	-	-	1498	-	-	620	569	954	632	595	875
Mov Cap-2 Maneuver	-	-	-	-	-	-	620	569	-	632	595	-
Stage 1	-	-	-	-	-	-	854	772	-	819	758	-
Stage 2	-	-	-	-	-	-	814	733	-	848	770	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0			8.8			10.9		
HCM LOS							A			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	954	1345	-	-	1498	-	-	672
HCM Lane V/C Ratio	0.001	0.014	-	-	-	-	-	0.096
HCM Control Delay (s)	8.8	7.7	0	-	0	-	-	10.9
HCM Lane LOS	A	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0.3

Intersection												
Int Delay, s/veh	20.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	49	610	104	22	735	20	71	33	39	3	8	37
Future Vol, veh/h	49	610	104	22	735	20	71	33	39	3	8	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	50	-	-	270	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	3	0	4	2	5	1	6	2	0	12	2
Mvmt Flow	53	656	112	24	790	22	76	35	42	3	9	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	812	0	0	768	0	0	1266	1678	384	1301	1723	406
Stage 1	-	-	-	-	-	-	818	818	-	849	849	-
Stage 2	-	-	-	-	-	-	448	860	-	452	874	-
Critical Hdwy	4.1	-	-	4.18	-	-	7.52	6.62	6.94	7.5	6.74	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.62	-	6.5	5.74	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.62	-	6.5	5.74	-
Follow-up Hdwy	2.2	-	-	2.24	-	-	3.51	4.06	3.32	3.5	4.12	3.32
Pot Cap-1 Maneuver	823	-	-	829	-	-	127	90	614	121	80	594
Stage 1	-	-	-	-	-	-	338	379	-	326	353	-
Stage 2	-	-	-	-	-	-	562	362	-	562	343	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	823	-	-	829	-	-	100	82	614	70	73	594
Mov Cap-2 Maneuver	-	-	-	-	-	-	100	82	-	70	73	-
Stage 1	-	-	-	-	-	-	316	355	-	305	343	-
Stage 2	-	-	-	-	-	-	496	352	-	441	321	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.3			235.1			25.8		
HCM LOS							F			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	122	823	-	-	829	-	-	224
HCM Lane V/C Ratio	1.26	0.064	-	-	0.029	-	-	0.23
HCM Control Delay (s)	235.1	9.7	-	-	9.5	-	-	25.8
HCM Lane LOS	F	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	9.8	0.2	-	-	0.1	-	-	0.9

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	13	5	5	128	122	14
Future Vol, veh/h	13	5	5	128	122	14
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	0	40	0	3	1	0
Mvmt Flow	16	6	6	156	149	17

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	328	160	168	0	0
Stage 1	160	-	-	-	-
Stage 2	168	-	-	-	-
Critical Hdwy	6.4	6.6	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.66	2.2	-	-
Pot Cap-1 Maneuver	671	795	1422	-	-
Stage 1	874	-	-	-	-
Stage 2	867	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	665	793	1419	-	-
Mov Cap-2 Maneuver	665	-	-	-	-
Stage 1	868	-	-	-	-
Stage 2	865	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.3	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1419	-	696	-	-
HCM Lane V/C Ratio	0.004	-	0.032	-	-
HCM Control Delay (s)	7.5	0	10.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Existing Conditions
Timing Plan: PM Peak

Intersection													
Int Delay, s/veh	2.9												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕			↕			↕	↕
Traffic Vol, veh/h	1	55	0	11	0	0	2	13	76	0	1	76	50
Future Vol, veh/h	1	55	0	11	0	0	2	13	76	0	1	76	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Free	Free	Free	Free	Free	Free						
RT Channelized	-	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	0	1	2	9	50	50	50	0	2	2	100	2	2
Mvmt Flow	1	67	0	13	0	0	2	16	93	0	1	93	61

Major/Minor	Minor2	Minor1			Major1			Major2					
Conflicting Flow All	0	221	220	93	257	281	93	154	0	0	93	0	0
Stage 1	0	95	95	-	125	125	-	-	-	-	-	-	-
Stage 2	0	126	125	-	132	156	-	-	-	-	-	-	-
Critical Hdwy	-	7.11	6.52	6.29	7.6	7	6.7	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	-	6.11	5.52	-	6.6	6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	6.11	5.52	-	6.6	6	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.509	4.018	3.381	3.95	4.45	3.75	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	0	737	678	945	608	554	847	1439	-	-	1059	-	-
Stage 1	0	914	816	-	776	709	-	-	-	-	-	-	-
Stage 2	0	880	792	-	769	686	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	727	669	945	593	547	847	1439	-	-	1059	-	-
Mov Cap-2 Maneuver	0	727	669	-	593	547	-	-	-	-	-	-	-
Stage 1	0	903	815	-	767	700	-	-	-	-	-	-	-
Stage 2	0	867	782	-	757	685	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	9.3	1.1	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1439	-	-	756	847	1059	-	-
HCM Lane V/C Ratio	0.011	-	-	0.106	0.003	0.001	-	-
HCM Control Delay (s)	7.5	0	-	10.3	9.3	8.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

Intersection						
Int Delay, s/veh	1.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	20	6	11	68	69	20
Future Vol, veh/h	20	6	11	68	69	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	2	2	4	4
Mvmt Flow	22	7	12	76	77	22

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	188	88	99	0	0
Stage 1	88	-	-	-	-
Stage 2	100	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-
Pot Cap-1 Maneuver	806	976	1494	-	-
Stage 1	940	-	-	-	-
Stage 2	929	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	800	976	1494	-	-
Mov Cap-2 Maneuver	800	-	-	-	-
Stage 1	932	-	-	-	-
Stage 2	929	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1494	-	835	-	-
HCM Lane V/C Ratio	0.008	-	0.035	-	-
HCM Control Delay (s)	7.4	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	16	236	228	67	65	10
Future Vol, veh/h	16	236	228	67	65	10
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	1	1	2	6	0
Mvmt Flow	17	254	245	72	70	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	317	0	-	0	570
Stage 1	-	-	-	-	281
Stage 2	-	-	-	-	289
Critical Hdwy	4.1	-	-	-	6.46
Critical Hdwy Stg 1	-	-	-	-	5.46
Critical Hdwy Stg 2	-	-	-	-	5.46
Follow-up Hdwy	2.2	-	-	-	3.554
Pot Cap-1 Maneuver	1255	-	-	-	476
Stage 1	-	-	-	-	757
Stage 2	-	-	-	-	751
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1255	-	-	-	468
Mov Cap-2 Maneuver	-	-	-	-	468
Stage 1	-	-	-	-	745
Stage 2	-	-	-	-	751

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	13.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1255	-	-	-	493
HCM Lane V/C Ratio	0.014	-	-	-	0.164
HCM Control Delay (s)	7.9	0	-	-	13.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.6

Intersection						
Int Delay, s/veh	1.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	11	38	295	17	24
Future Vol, veh/h	301	11	38	295	17	24
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	3	0	2	1	5	4
Mvmt Flow	338	12	43	331	19	27

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	353	0	764 347
Stage 1	-	-	-	-	347 -
Stage 2	-	-	-	-	417 -
Critical Hdwy	-	-	4.12	-	6.45 6.24
Critical Hdwy Stg 1	-	-	-	-	5.45 -
Critical Hdwy Stg 2	-	-	-	-	5.45 -
Follow-up Hdwy	-	-	2.218	-	3.545 3.336
Pot Cap-1 Maneuver	-	-	1206	-	368 692
Stage 1	-	-	-	-	709 -
Stage 2	-	-	-	-	659 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1203	-	354 690
Mov Cap-2 Maneuver	-	-	-	-	354 -
Stage 1	-	-	-	-	707 -
Stage 2	-	-	-	-	635 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	495	-	-	1203	-
HCM Lane V/C Ratio	0.093	-	-	0.035	-
HCM Control Delay (s)	13	-	-	8.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Existing Conditions
 Timing Plan: PM Peak



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	329	93	79	103	1186	14	1116
v/c Ratio	0.95	0.20	0.62	0.39	0.57	0.06	0.67
Control Delay	85.6	10.9	60.0	15.3	20.7	11.3	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.6	10.9	60.0	15.3	20.7	11.3	21.6
Queue Length 50th (ft)	270	7	42	35	303	2	272
Queue Length 95th (ft)	#378	51	99	62	482	m7	m411
Internal Link Dist (ft)		1327	452		1032		1169
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	346	477	144	289	2088	248	1677
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.19	0.55	0.36	0.57	0.06	0.67

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Existing Conditions
 Timing Plan: PM Peak

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	303	9	76	19	15	39	95	1079	12	13	803	224
Future Volume (vph)	303	9	76	19	15	39	95	1079	12	13	803	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.87			0.93		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1850	1549			1683		1787	3569		1778	3287	
Flt Permitted	0.68	1.00			0.88		0.17	1.00		0.16	1.00	
Satd. Flow (perm)	1321	1549			1499		311	3569		300	3287	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	329	10	83	21	16	42	103	1173	13	14	873	243
RTOR Reduction (vph)	0	62	0	0	30	0	0	0	0	0	17	0
Lane Group Flow (vph)	329	31	0	0	49	0	103	1186	0	14	1099	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	0%	0%	10%	5%	0%	2%	2%	2%	0%	0%	5%	1%
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	28.9	36.2			9.2		79.3	76.7		79.3	70.7	
Effective Green, g (s)	28.9	36.2			9.2		79.3	76.7		79.3	70.7	
Actuated g/C Ratio	0.21	0.26			0.07		0.57	0.55		0.57	0.51	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	400			98		266	1955		197	1659	
v/s Ratio Prot	c0.13	0.02					0.02	c0.33		0.00	c0.33	
v/s Ratio Perm	c0.06				0.03		0.20			0.04		
v/c Ratio	0.95	0.08			0.50		0.39	0.61		0.07	0.66	
Uniform Delay, d1	54.2	39.3			63.2		16.8	21.4		27.1	25.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.96	0.78	
Incremental Delay, d2	34.6	0.1			4.0		0.9	1.4		0.1	1.5	
Delay (s)	88.8	39.4			67.2		17.7	22.8		26.2	21.7	
Level of Service	F	D			E		B	C		C	C	
Approach Delay (s)		77.9			67.2			22.4			21.7	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		31.8			
Intersection Capacity Utilization			78.5%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Existing Conditions

Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	435	187	411	448	216	296	721	525	267	591	62
v/c Ratio	0.24	0.83	0.33	0.92	0.41	0.26	0.73	0.75	0.56	0.73	0.61	0.10
Control Delay	28.4	71.9	4.5	76.1	40.9	4.1	35.0	44.4	15.5	41.6	34.1	1.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	71.9	4.5	76.1	40.9	4.1	35.0	44.4	15.5	41.6	34.1	1.9
Queue Length 50th (ft)	42	203	5	284	172	15	120	223	116	140	250	5
Queue Length 95th (ft)	77	265	31	#501	225	48	m190	m306	m214	240	334	18
Internal Link Dist (ft)		853			1394			1169			1357	
Turn Bay Length (ft)	350		300	500		200	190		330	190		160
Base Capacity (vph)	318	560	626	446	1089	830	474	967	936	366	961	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.78	0.30	0.92	0.41	0.26	0.62	0.75	0.56	0.73	0.61	0.10

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Existing Conditions
 Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	71	413	178	390	426	205	281	685	499	254	561	59	
Future Volume (vph)	71	413	178	390	426	205	281	685	499	254	561	59	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			-8%			-3%			-2%		
Total Lost time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1813	3664	1547	1859	3681	1648	1796	3592	1623	1823	3506	1609	
Flt Permitted	0.42	1.00	1.00	0.28	1.00	1.00	0.28	1.00	1.00	0.19	1.00	1.00	
Satd. Flow (perm)	799	3664	1547	548	3681	1648	538	3592	1623	359	3506	1609	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	75	435	187	411	448	216	296	721	525	267	591	62	
RTOR Reduction (vph)	0	0	123	0	0	96	0	0	93	0	0	42	
Lane Group Flow (vph)	75	435	64	411	448	120	296	721	432	267	591	20	
Confl. Peds. (#/hr)	1					1	4					4	
Heavy Vehicles (%)	2%	1%	7%	1%	2%	1%	2%	2%	1%	0%	4%	0%	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	
Protected Phases	3	8	5	7	4	1	5	2	7	1	6	3	
Permitted Phases	4		8	8		4	6		2	2		6	
Actuated Green, G (s)	47.8	20.2	40.2	47.8	41.4	62.1	58.4	37.7	65.3	58.4	38.4	44.8	
Effective Green, g (s)	47.8	20.2	40.2	47.8	41.4	62.1	58.4	37.7	65.3	58.4	38.4	44.8	
Actuated g/C Ratio	0.34	0.14	0.29	0.34	0.30	0.44	0.42	0.27	0.47	0.42	0.27	0.32	
Clearance Time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	319	528	444	445	1088	731	404	967	856	366	961	514	
v/s Ratio Prot	0.01	0.12	0.02	c0.18	0.12	0.02	0.10	c0.20	0.10	0.11	0.17	0.00	
v/s Ratio Perm	0.07		0.02	c0.13		0.05	c0.20		0.17	0.20		0.01	
v/c Ratio	0.24	0.82	0.14	0.92	0.41	0.16	0.73	0.75	0.50	0.73	0.61	0.04	
Uniform Delay, d1	31.8	58.2	37.1	48.0	39.5	23.4	29.4	46.8	26.1	45.8	44.3	32.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.10	0.86	0.94	0.67	0.69	1.00	
Incremental Delay, d2	0.4	10.1	0.1	24.8	0.3	0.1	5.2	4.0	0.4	6.8	2.8	0.0	
Delay (s)	32.2	68.2	37.2	72.8	39.8	23.5	37.4	44.0	24.8	37.5	33.3	32.8	
Level of Service	C	E	D	E	D	C	D	D	C	D	C	C	
Approach Delay (s)		56.1			49.1			36.2			34.5		
Approach LOS		E			D			D			C		
Intersection Summary													
HCM 2000 Control Delay			42.4									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	33.8
Intersection Capacity Utilization			112.6%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues
14: S Main Street & Pleasant Hill Road

Existing Conditions
Timing Plan: PM Peak



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	86	95	17	1	133	846	816
v/c Ratio	0.55	0.30	0.19	0.00	0.25	0.32	0.40
Control Delay	74.8	2.4	68.1	0.0	3.8	1.8	17.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.8	2.4	68.1	0.0	3.8	1.8	17.7
Queue Length 50th (ft)	76	0	15	0	4	13	177
Queue Length 95th (ft)	m130	m0	41	0	m22	63	310
Internal Link Dist (ft)	1324		115			1357	1543
Turn Bay Length (ft)		220			190		
Base Capacity (vph)	223	370	104	293	540	2676	2047
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.26	0.16	0.00	0.25	0.32	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Existing Conditions
 Timing Plan: PM Peak

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	80	1	89	14	2	1	125	791	5	0	719	48	
Future Volume (vph)	80	1	89	14	2	1	125	791	5	0	719	48	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-3%			8%			4%			1%		
Total Lost time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4		
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95			0.95		
Frbp, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00			1.00		
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00		
Frt		1.00	0.85		1.00	0.85	1.00	1.00			0.99		
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00			1.00		
Satd. Flow (prot)		1820	1607		1645	1521	1767	3499			3485		
Flt Permitted		0.95	1.00		0.96	1.00	0.29	1.00			1.00		
Satd. Flow (perm)		1820	1607		1645	1521	543	3499			3485		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	
Adj. Flow (vph)	85	1	95	15	2	1	133	841	5	0	765	51	
RTOR Reduction (vph)	0	0	87	0	0	1	0	0	0	0	3	0	
Lane Group Flow (vph)	0	86	8	0	17	0	133	846	0	0	813	0	
Confl. Peds. (#/hr)	5					5	5		2	2		5	
Heavy Vehicles (%)	1%	0%	2%	7%	0%	0%	0%	1%	0%	2%	2%	0%	
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA		
Protected Phases	8	8		4	4		5	2		1	6		
Permitted Phases			8			4	6			2			
Actuated Green, G (s)		11.9	11.9		3.3	3.3	96.1	103.5			78.5		
Effective Green, g (s)		11.9	11.9		3.3	3.3	96.1	103.5			78.5		
Actuated g/C Ratio		0.09	0.09		0.02	0.02	0.69	0.74			0.56		
Clearance Time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4		
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0			3.0		
Lane Grp Cap (vph)		154	136		38	35	526	2586			1954		
v/s Ratio Prot		c0.05			c0.01		0.03	c0.24			c0.23		
v/s Ratio Perm			0.01			0.00	0.14						
v/c Ratio		0.56	0.06		0.45	0.00	0.25	0.33			0.42		
Uniform Delay, d1		61.5	58.9		67.5	66.7	14.0	6.3			17.6		
Progression Factor		1.01	1.00		1.00	1.00	0.38	0.26			1.00		
Incremental Delay, d2		4.3	0.2		8.2	0.0	0.2	0.3			0.7		
Delay (s)		66.2	59.1		75.6	66.7	5.6	1.9			18.3		
Level of Service		E	E		E	E	A	A			B		
Approach Delay (s)		62.5			75.1			2.4			18.3		
Approach LOS		E			E			A			B		
Intersection Summary													
HCM 2000 Control Delay			15.0		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			140.0		Sum of lost time (s)						28.7		
Intersection Capacity Utilization			58.3%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

Queues
1: S High Street & Erickson Avenue

Future - No Build
Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	684	270	694	18	571	261	348	463	170
v/c Ratio	0.65	0.94	0.84	0.84	0.05	0.92	0.35	1.16	0.40	0.19
Control Delay	31.2	61.8	47.8	43.4	19.1	62.9	9.1	130.6	28.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	61.8	47.8	43.4	19.1	62.9	9.1	130.6	28.0	3.0
Queue Length 50th (ft)	69	226	116	204	7	190	41	~206	105	0
Queue Length 95th (ft)	#118	#343	#250	#294	21	#292	96	#378	186	35
Internal Link Dist (ft)		616		200		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	270	725	329	836	331	618	753	299	1172	917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.94	0.82	0.83	0.05	0.92	0.35	1.16	0.40	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Future - No Build
Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	606	23	248	458	180	2	15	525	240	320	426
Future Volume (vph)	160	606	23	248	458	180	2	15	525	240	320	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.95	1.00	1.00	0.95
Fr _t	1.00	0.99		1.00	0.96			1.00	1.00	0.85	1.00	1.00
Fl _t Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	3457		1736	3201			1629	3438	1553	1687	3406
Fl _t Permitted	0.20	1.00		0.19	1.00			0.47	1.00	1.00	0.28	1.00
Satd. Flow (perm)	354	3457		350	3201			797	3438	1553	499	3406
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	659	25	270	498	196	2	16	571	261	348	463
RTOR Reduction (vph)	0	2	0	0	42	0	0	0	0	105	0	0
Lane Group Flow (vph)	174	682	0	270	652	0	0	18	571	156	348	463
Heavy Vehicles (%)	6%	4%	0%	4%	8%	8%	0%	8%	5%	4%	7%	6%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2	2	
Actuated Green, G (s)	35.2	20.9		35.2	24.5			30.4	18.0	32.3	30.4	28.4
Effective Green, g (s)	35.2	20.9		35.2	24.5			30.4	18.0	32.3	30.4	28.4
Actuated g/C Ratio	0.35	0.21		0.35	0.24			0.30	0.18	0.32	0.30	0.28
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	268	722		321	784			258	618	501	299	967
v/s Ratio Prot	0.07	c0.20		c0.12	c0.20			0.00	0.17	0.04	c0.14	c0.14
v/s Ratio Perm	0.16			0.18				0.02		0.06	c0.21	
v/c Ratio	0.65	0.94		0.84	0.83			0.07	0.92	0.31	1.16	0.48
Uniform Delay, d ₁	24.3	39.0		26.0	35.8			24.5	40.3	25.5	31.3	29.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	7.2	20.8		17.7	7.5			0.1	21.7	0.4	104.0	1.7
Delay (s)	31.6	59.8		43.7	43.3			24.6	62.0	25.8	135.4	31.4
Level of Service	C	E		D	D			C	E	C	F	C
Approach Delay (s)		54.1			43.4				50.1			66.2
Approach LOS		D			D				D			E
Intersection Summary												
HCM 2000 Control Delay	53.6			HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio	1.04											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)				34.4				
Intersection Capacity Utilization	92.1%			ICU Level of Service				F				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - No Build
 Timing Plan: AM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	156
Future Volume (vph)	156
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1524
Flt Permitted	1.00
Satd. Flow (perm)	1524
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	170
RTOR Reduction (vph)	104
Lane Group Flow (vph)	66
Heavy Vehicles (%)	6%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	39.1
Effective Green, g (s)	39.1
Actuated g/C Ratio	0.39
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	595
v/s Ratio Prot	0.01
v/s Ratio Perm	0.03
v/c Ratio	0.11
Uniform Delay, d1	19.4
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	19.6
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - No Build
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	11	0	271	0	815	11	95	830	0
Future Vol, veh/h	0	0	0	11	0	271	0	815	11	95	830	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	7	18	3	6	0
Mvmt Flow	0	0	0	12	0	295	0	886	12	103	902	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1551	2006	451	1549	2000	449	-	0	0	898	0	0
Stage 1	1108	1108	-	892	892	-	-	-	-	-	-	-
Stage 2	443	898	-	657	1108	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.94	-	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.32	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	79	60	561	79	61	557	0	-	-	746	-	-
Stage 1	227	288	-	307	363	-	0	-	-	-	-	-
Stage 2	569	361	-	425	288	-	0	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	33	52	561	71	53	557	-	-	-	746	-	-
Mov Cap-2 Maneuver	102	139	-	184	158	-	-	-	-	-	-	-
Stage 1	227	248	-	307	363	-	-	-	-	-	-	-
Stage 2	268	361	-	366	248	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	21.7	0	1.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	516	746	-
HCM Lane V/C Ratio	-	-	-	0.594	0.138	-
HCM Control Delay (s)	-	-	0	21.7	10.6	-
HCM Lane LOS	-	-	A	C	B	-
HCM 95th %tile Q(veh)	-	-	-	3.8	0.5	-

Intersection						
Int Delay, s/veh	5.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	100	174	73	96	25
Future Vol, veh/h	62	100	174	73	96	25
Conflicting Peds, #/hr	0	4	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	4	2	4	8	4
Mvmt Flow	67	109	189	79	104	27

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	464	233	0	0	268	0
Stage 1	229	-	-	-	-	-
Stage 2	235	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	538	801	-	-	1262	-
Stage 1	786	-	-	-	-	-
Stage 2	781	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	493	798	-	-	1262	-
Mov Cap-2 Maneuver	493	-	-	-	-	-
Stage 1	786	-	-	-	-	-
Stage 2	715	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	6.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	645	1262
HCM Lane V/C Ratio	-	-	0.273	0.083
HCM Control Delay (s)	-	-	12.7	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.1	0.3

HCM 6th TWSC
 4: Willow Hill Drive/Driveway & Pleasant Hill Road

Future - No Build
 Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	216	10	10	134	0	16	0	25	1	0	0
Future Vol, veh/h	0	216	10	10	134	0	16	0	25	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	20	10	8	0	6	0	8	0	0	0
Mvmt Flow	0	235	11	11	146	0	17	0	27	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	246	0	0	409	409	241	422	414	146
Stage 1	-	-	-	-	-	-	241	241	-	168	168	-
Stage 2	-	-	-	-	-	-	168	168	-	254	246	-
Critical Hdwy	4.1	-	-	4.2	-	-	7.16	6.5	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.29	-	-	3.554	4	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1448	-	-	1275	-	-	546	535	783	546	532	906
Stage 1	-	-	-	-	-	-	754	710	-	839	763	-
Stage 2	-	-	-	-	-	-	825	763	-	755	706	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1448	-	-	1275	-	-	542	530	783	524	527	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	542	530	-	524	527	-
Stage 1	-	-	-	-	-	-	754	710	-	839	756	-
Stage 2	-	-	-	-	-	-	818	756	-	729	706	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			10.8			11.9		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	667	1448	-	-	1275	-	-	524
HCM Lane V/C Ratio	0.067	-	-	-	0.009	-	-	0.002
HCM Control Delay (s)	10.8	0	-	-	7.8	0	-	11.9
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

HCM 6th TWSC
5: Driveway/Central Avenue & Pleasant Hill Road

Future - No Build
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	212	10	12	96	34	29	6	34	73	2	23
Future Vol, veh/h	27	212	10	12	96	34	29	6	34	73	2	23
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	9	4	0	0	8	7	0	0	0	1	0	9
Mvmt Flow	29	230	11	13	104	37	32	7	37	79	2	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	141	0	0	242	0	0	457	462	237	465	449	123
Stage 1	-	-	-	-	-	-	295	295	-	149	149	-
Stage 2	-	-	-	-	-	-	162	167	-	316	300	-
Critical Hdwy	4.19	-	-	4.1	-	-	7.1	6.5	6.2	7.11	6.5	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Follow-up Hdwy	2.281	-	-	2.2	-	-	3.5	4	3.3	3.509	4	3.381
Pot Cap-1 Maneuver	1400	-	-	1336	-	-	517	500	807	509	508	909
Stage 1	-	-	-	-	-	-	718	673	-	856	778	-
Stage 2	-	-	-	-	-	-	845	764	-	697	669	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1400	-	-	1335	-	-	488	482	806	468	490	909
Mov Cap-2 Maneuver	-	-	-	-	-	-	488	482	-	468	490	-
Stage 1	-	-	-	-	-	-	700	656	-	835	769	-
Stage 2	-	-	-	-	-	-	810	756	-	643	652	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0.7			11.8			13.5		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	605	1400	-	-	1335	-	-	529
HCM Lane V/C Ratio	0.124	0.021	-	-	0.01	-	-	0.201
HCM Control Delay (s)	11.8	7.6	0	-	7.7	0	-	13.5
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-	-	0.7

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	15	8	4	391	232	9
Future Vol, veh/h	15	8	4	391	232	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	38	25	2	7	33
Mvmt Flow	16	9	4	425	252	10

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	690	257	262	0	0
Stage 1	257	-	-	-	-
Stage 2	433	-	-	-	-
Critical Hdwy	6.47	6.58	4.35	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.642	2.425	-	-
Pot Cap-1 Maneuver	403	702	1180	-	-
Stage 1	774	-	-	-	-
Stage 2	643	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	401	702	1180	-	-
Mov Cap-2 Maneuver	401	-	-	-	-
Stage 1	771	-	-	-	-
Stage 2	643	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1180	-	471	-	-
HCM Lane V/C Ratio	0.004	-	0.053	-	-
HCM Control Delay (s)	8.1	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - No Build
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	58	0	27	0	0	1	27	322	0	0	190	43
Future Vol, veh/h	58	0	27	0	0	1	27	322	0	0	190	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	0	0	0	7	2	0	0	7	14
Mvmt Flow	63	0	29	0	0	1	29	350	0	0	207	47

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	616	615	207	653	662	350	254	0	0	350	0	0
Stage 1	207	207	-	408	408	-	-	-	-	-	-	-
Stage 2	409	408	-	245	254	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.17	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.263	-	-	2.2	-	-
Pot Cap-1 Maneuver	403	409	839	383	385	698	1282	-	-	1220	-	-
Stage 1	795	734	-	624	600	-	-	-	-	-	-	-
Stage 2	619	600	-	763	701	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	394	398	839	362	374	698	1282	-	-	1220	-	-
Mov Cap-2 Maneuver	394	398	-	362	374	-	-	-	-	-	-	-
Stage 1	773	734	-	607	583	-	-	-	-	-	-	-
Stage 2	601	583	-	736	701	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.4		10.2		0.6		0	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1282	-	-	474	698	1220	-	-
HCM Lane V/C Ratio	0.023	-	-	0.195	0.002	-	-	-
HCM Control Delay (s)	7.9	0	-	14.4	10.2	0	-	-
HCM Lane LOS	A	A	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0	0	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	14	19	17	215	203	16
Future Vol, veh/h	14	19	17	215	203	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	4	5	6
Mvmt Flow	15	21	18	234	221	17

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	500	230	238	0	0
Stage 1	230	-	-	-	-
Stage 2	270	-	-	-	-
Critical Hdwy	6.47	6.2	4.1	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.2	-	-
Pot Cap-1 Maneuver	522	814	1341	-	-
Stage 1	797	-	-	-	-
Stage 2	764	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	514	814	1341	-	-
Mov Cap-2 Maneuver	514	-	-	-	-
Stage 1	785	-	-	-	-
Stage 2	764	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.8	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1341	-	652	-	-
HCM Lane V/C Ratio	0.014	-	0.055	-	-
HCM Control Delay (s)	7.7	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	5.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	288	196	201	152	74
Future Vol, veh/h	35	288	196	201	152	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	3	7	3	6	2
Mvmt Flow	38	310	211	216	163	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	427	0	0	705	319
Stage 1	-	-	-	319	-
Stage 2	-	-	-	386	-
Critical Hdwy	4.17	-	-	6.46	6.22
Critical Hdwy Stg 1	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	5.46	-
Follow-up Hdwy	2.263	-	-	3.554	3.318
Pot Cap-1 Maneuver	1106	-	-	397	722
Stage 1	-	-	-	728	-
Stage 2	-	-	-	678	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1106	-	-	381	722
Mov Cap-2 Maneuver	-	-	-	381	-
Stage 1	-	-	-	698	-
Stage 2	-	-	-	678	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	21.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1106	-	-	-	451
HCM Lane V/C Ratio	0.034	-	-	-	0.539
HCM Control Delay (s)	8.4	0	-	-	21.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3.1

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	560	6	8	323	3	20
Future Vol, veh/h	560	6	8	323	3	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	33	25	6	0	25
Mvmt Flow	583	6	8	336	3	21

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	589	0	938 586
Stage 1	-	-	-	-	586 -
Stage 2	-	-	-	-	352 -
Critical Hdwy	-	-	4.35	-	6.4 6.45
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	-	-	2.425	-	3.5 3.525
Pot Cap-1 Maneuver	-	-	883	-	296 470
Stage 1	-	-	-	-	560 -
Stage 2	-	-	-	-	716 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	883	-	293 470
Mov Cap-2 Maneuver	-	-	-	-	293 -
Stage 1	-	-	-	-	560 -
Stage 2	-	-	-	-	710 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	436	-	-	883	-
HCM Lane V/C Ratio	0.055	-	-	0.009	-
HCM Control Delay (s)	13.7	-	-	9.1	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Future - No Build
 Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	464	201	23	140	980	33	1535
v/c Ratio	1.50	0.45	0.06	0.97	0.53	0.11	0.88
Control Delay	277.8	17.5	0.3	93.8	18.3	7.6	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	277.8	17.5	0.3	93.8	18.3	7.6	21.5
Queue Length 50th (ft)	~541	41	0	61	277	5	381
Queue Length 95th (ft)	#753	116	0	#198	341	m9	m449
Internal Link Dist (ft)		1327	452		1032		679
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	309	447	434	144	1862	298	1751
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.50	0.45	0.05	0.97	0.53	0.11	0.88

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - No Build
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	4	181	6	0	15	129	888	14	30	1190	223
Future Volume (vph)	427	4	181	6	0	15	129	888	14	30	1190	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Fr _t	1.00	0.85			0.91		1.00	1.00		1.00	0.98	
Fl _t Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1527			1413		1599	3167		1573	3213	
Fl _t Permitted	0.74	1.00			0.90		0.07	1.00		0.24	1.00	
Satd. Flow (perm)	1404	1527			1294		122	3167		389	3213	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	464	4	197	7	0	16	140	965	15	33	1293	242
RTOR Reduction (vph)	0	111	0	0	18	0	0	1	0	0	12	0
Lane Group Flow (vph)	464	90	0	0	5	0	140	979	0	33	1523	0
Heavy Vehicles (%)	3%	0%	9%	0%	0%	27%	14%	15%	7%	13%	9%	3%
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	28.7	28.7			28.7		76.8	73.0		76.8	70.4	
Effective Green, g (s)	28.7	28.7			28.7		76.8	73.0		76.8	70.4	
Actuated g/C Ratio	0.22	0.22			0.22		0.59	0.56		0.59	0.54	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	309	337			285		144	1778		264	1739	
v/s Ratio Prot		0.06					0.05	c0.31		0.00	0.47	
v/s Ratio Perm	c0.33				0.00		c0.52			0.07		
v/c Ratio	1.50	0.27			0.02		0.97	0.55		0.12	0.88	
Uniform Delay, d ₁	50.6	42.0			39.6		27.9	18.1		18.8	26.0	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.78	0.68	
Incremental Delay, d ₂	242.0	0.4			0.0		66.2	1.2		0.1	3.6	
Delay (s)	292.6	42.4			39.6		94.1	19.3		14.8	21.3	
Level of Service	F	D			D		F	B		B	C	
Approach Delay (s)		217.0			39.6			28.7			21.1	
Approach LOS		F			D			C			C	
Intersection Summary												
HCM 2000 Control Delay			62.3				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			97.9%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

Queues
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - No Build
 Timing Plan: AM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	176	555	391	465	503	294	261	705	425	224	721	71
v/c Ratio	0.59	1.03	0.68	1.17	0.46	0.39	0.88	0.71	0.51	0.78	0.81	0.11
Control Delay	38.0	99.3	17.3	141.0	38.4	7.5	52.9	32.2	7.7	48.7	45.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	99.3	17.3	141.0	38.4	7.5	52.9	32.2	7.7	48.7	45.0	0.7
Queue Length 50th (ft)	96	~262	74	~415	180	40	151	206	49	80	302	2
Queue Length 95th (ft)	150	#380	135	#632	234	88	m192	m235	m87	#188	382	0
Internal Link Dist (ft)		853			1394			410			1357	
Turn Bay Length (ft)	350		300	500		200			330	190		160
Base Capacity (vph)	300	541	577	399	1094	750	304	999	838	288	889	666
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	1.03	0.68	1.17	0.46	0.39	0.86	0.71	0.51	0.78	0.81	0.11

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - No Build
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	169	533	375	1	445	483	282	251	677	408	215	692
Future Volume (vph)	169	533	375	1	445	483	282	251	677	408	215	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%				-8%			-3%			-2%
Total Lost time (s)	8.6	8.6	8.3		8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3
Lane Util. Factor	1.00	0.95	1.00		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95
Frbp, ped/bikes	1.00	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1832	3628	1547		1755	3610	1614	1621	3272	1492	1736	3376
Flt Permitted	0.38	1.00	1.00		0.21	1.00	1.00	0.19	1.00	1.00	0.24	1.00
Satd. Flow (perm)	740	3628	1547		381	3610	1614	320	3272	1492	434	3376
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	176	555	391	1	464	503	294	261	705	425	224	721
RTOR Reduction (vph)	0	0	134	0	0	0	113	0	0	94	0	0
Lane Group Flow (vph)	176	555	257	0	465	503	181	261	705	331	224	721
Confl. Peds. (#/hr)	1						1			1	1	
Heavy Vehicles (%)	1%	2%	7%	0%	7%	4%	3%	13%	12%	9%	5%	8%
Turn Type	D.P+P	NA	pm+ov	D.P+P	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	3	8	5	7!	7	4	1	5	2	7!	1	6
Permitted Phases	4		8	8	8		4	6		2	2	
Actuated Green, G (s)	44.8	19.4	36.5		44.8	39.4	51.1	51.4	39.7	65.1	51.4	34.3
Effective Green, g (s)	44.8	19.4	36.5		44.8	39.4	51.1	51.4	39.7	65.1	51.4	34.3
Actuated g/C Ratio	0.34	0.15	0.28		0.34	0.30	0.39	0.40	0.31	0.50	0.40	0.26
Clearance Time (s)	8.6	8.6	8.3		8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	300	541	434		399	1094	634	297	999	845	288	890
v/s Ratio Prot	0.02	0.15	0.08		c0.23	0.14	0.03	0.12	0.22	0.08	0.07	0.21
v/s Ratio Perm	0.18		0.09		c0.17		0.09	c0.23		0.15	c0.24	
v/c Ratio	0.59	1.03	0.59		1.17	0.46	0.29	0.88	0.71	0.39	0.78	0.81
Uniform Delay, d1	34.1	55.3	40.3		47.9	36.7	27.0	30.2	40.0	20.1	43.7	44.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.28	0.74	0.74	0.78	0.82
Incremental Delay, d2	2.9	45.4	2.2		98.5	0.3	0.2	14.8	2.3	0.2	11.8	7.5
Delay (s)	37.0	100.7	42.5		146.3	37.0	27.2	53.5	31.9	15.0	46.1	44.4
Level of Service	D	F	D		F	D	C	D	C	B	D	D
Approach Delay (s)		70.4				75.0			30.8			43.9
Approach LOS		E				E			C			D

Intersection Summary	
HCM 2000 Control Delay	54.5
HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04
Actuated Cycle Length (s)	130.0
Sum of lost time (s)	33.8
Intersection Capacity Utilization	115.4%
ICU Level of Service	H
Analysis Period (min)	15

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - No Build
 Timing Plan: AM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	68
Future Volume (vph)	68
Ideal Flow (vphpl)	1900
Grade (%)	
Total Lost time (s)	8.6
Lane Util. Factor	1.00
Frbp, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1483
Flt Permitted	1.00
Satd. Flow (perm)	1483
Peak-hour factor, PHF	0.96
Adj. Flow (vph)	71
RTOR Reduction (vph)	49
Lane Group Flow (vph)	22
Confl. Peds. (#/hr)	
Heavy Vehicles (%)	10%
Turn Type	pm+ov
Protected Phases	3
Permitted Phases	6
Actuated Green, G (s)	39.7
Effective Green, g (s)	39.7
Actuated g/C Ratio	0.31
Clearance Time (s)	8.6
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	452
v/s Ratio Prot	0.00
v/s Ratio Perm	0.01
v/c Ratio	0.05
Uniform Delay, d1	31.8
Progression Factor	1.00
Incremental Delay, d2	0.0
Delay (s)	31.9
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Queues
14: S Main Street & Pleasant Hill Road

Future - No Build
Timing Plan: AM PEAK



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	119	213	7	78	904	2	779
v/c Ratio	0.66	0.60	0.10	0.17	0.38	0.00	0.35
Control Delay	72.7	13.9	61.6	4.1	4.4	6.5	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.7	13.9	61.6	4.1	4.4	6.5	11.8
Queue Length 50th (ft)	98	0	6	8	47	0	141
Queue Length 95th (ft)	160	74	22	m22	155	4	254
Internal Link Dist (ft)	1324		115		1357		1543
Turn Bay Length (ft)		220		190		140	
Base Capacity (vph)	225	393	84	471	2399	471	2206
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.54	0.08	0.17	0.38	0.00	0.35

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - No Build
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	112	1	202	5	2	0	74	847	11	2	680	60
Future Volume (vph)	112	1	202	5	2	0	74	847	11	2	680	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%			1%	
Total Lost time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		1.00		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1702	1576		1233		1717	3265		1796	3324	
Flt Permitted		0.95	1.00		0.97		0.32	1.00		0.28	1.00	
Satd. Flow (perm)		1702	1576		1233		570	3265		534	3324	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	118	1	213	5	2	0	78	892	12	2	716	63
RTOR Reduction (vph)	0	0	190	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	119	23	0	7	0	78	904	0	2	775	0
Heavy Vehicles (%)	8%	0%	4%	20%	100%	0%	3%	8%	18%	0%	7%	4%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		13.8	13.8		1.6		85.9	84.7		85.9	75.4	
Effective Green, g (s)		13.8	13.8		1.6		85.9	84.7		85.9	75.4	
Actuated g/C Ratio		0.11	0.11		0.01		0.66	0.65		0.66	0.58	
Clearance Time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		180	167		15		469	2127		364	1927	
v/s Ratio Prot		c0.07			c0.01		0.01	c0.28		0.00	c0.23	
v/s Ratio Perm			0.01				0.10			0.00		
v/c Ratio		0.66	0.14		0.47		0.17	0.42		0.01	0.40	
Uniform Delay, d1		55.9	52.7		63.8		12.2	10.9		7.8	15.0	
Progression Factor		1.00	1.00		1.00		0.53	0.48		1.00	1.00	
Incremental Delay, d2		8.8	0.4		21.2		0.1	0.5		0.0	0.6	
Delay (s)		64.6	53.1		85.0		6.5	5.8		7.8	15.6	
Level of Service		E	D		F		A	A		A	B	
Approach Delay (s)		57.2			85.0			5.8			15.6	
Approach LOS		E			F			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			59.7%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - No Build
 Timing Plan: AM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑							↑	↑	
Traffic Volume (veh/h)	0	979	178	0	0	0	0	0	402	55	0
Future Volume (Veh/h)	0	979	178	0	0	0	0	0	402	55	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.95
Hourly flow rate (vph)	0	1031	187	0	0	0	0	0	423	220	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1218			1234	1124	609	1218	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1218			1234	1124	609	1218	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	6.8	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.2	3.3
p0 queue free %	100			100			0	100	3	0	100
cM capacity (veh/h)	1636			580			0	207	438	162	1091
Direction, Lane #	EB 1	EB 2	NB 1	SW 1							
Volume Total	687	531	423	220							
Volume Left	0	0	0	0							
Volume Right	0	187	423	0							
cSH	1700	1700	438	162							
Volume to Capacity	0.40	0.31	0.97	1.36							
Queue Length 95th (ft)	0	0	292	336							
Control Delay (s)	0.0	0.0	65.7	250.3							
Lane LOS			F	F							
Approach Delay (s)	0.0		65.7	250.3							
Approach LOS			F	F							
Intersection Summary											
Average Delay			44.5								
Intersection Capacity Utilization			64.3%		ICU Level of Service				C		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	801	363
v/c Ratio	0.53	0.60
Control Delay	9.1	11.6
Queue Delay	0.0	0.0
Total Delay	9.1	11.6
Queue Length 50th (ft)	50	31
Queue Length 95th (ft)	119	108
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2928	1044
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.27	0.35
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - No Build
 Timing Plan: AM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↑	
Traffic Volume (vph)	0	0	0	761	345	0
Future Volume (vph)	0	0	0	761	345	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3374	1736	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3374	1736	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	801	363	0
RTOR Reduction (vph)	0	0	0	0	103	0
Lane Group Flow (vph)	0	0	0	801	260	0
Heavy Vehicles (%)	0%	0%	0%	7%	4%	0%
Turn Type				NA	Prot	
Protected Phases				2	1	
Permitted Phases						
Actuated Green, G (s)				16.3	10.5	
Effective Green, g (s)				16.3	10.5	
Actuated g/C Ratio				0.46	0.29	
Clearance Time (s)				4.5	4.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				1536	509	
v/s Ratio Prot				c0.24	c0.15	
v/s Ratio Perm						
v/c Ratio				0.52	0.51	
Uniform Delay, d1				7.0	10.5	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.3	0.9	
Delay (s)				7.3	11.4	
Level of Service				A	B	
Approach Delay (s)	0.0			7.3	11.4	
Approach LOS	A			A	B	
Intersection Summary						
HCM 2000 Control Delay			8.6	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.52			
Actuated Cycle Length (s)			35.8	Sum of lost time (s)		9.0
Intersection Capacity Utilization			80.6%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	805	246	0	82
Future Vol, veh/h	0	0	805	246	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	3	0	8
Mvmt Flow	0	0	847	259	0	86

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

Approach	WB	SB
HCM Control Delay, s	0	14.6
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	462
HCM Lane V/C Ratio	-	-	0.187
HCM Control Delay (s)	-	-	14.6
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.7

Queues
1: S High Street & Erickson Avenue

Future - No Build
Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	173	438	363	821	55	614	362	442	679	228
v/c Ratio	0.70	0.78	0.82	0.91	0.22	0.83	0.43	1.26	0.59	0.25
Control Delay	40.9	58.6	43.5	55.3	23.2	56.6	13.4	166.7	37.4	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	58.6	43.5	55.3	23.2	56.6	13.4	166.7	37.4	4.5
Queue Length 50th (ft)	83	172	197	301	25	241	106	~368	243	13
Queue Length 95th (ft)	#164	#270	304	#409	52	#326	172	#581	310	57
Internal Link Dist (ft)		616		200		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	253	565	498	934	250	737	889	350	1159	917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.78	0.73	0.88	0.22	0.83	0.41	1.26	0.59	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - No Build
 Timing Plan: PM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (vph)	170	410	20	356	556	249	10	44	602	355	433	665	
Future Volume (vph)	170	410	20	356	556	249	10	44	602	355	433	665	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12	
Total Lost time (s)	7.2	7.2		7.2	7.2				10.0	10.0	7.2	10.0	
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00	0.95	1.00	0.95	
Fr _t	1.00	0.99		1.00	0.95				1.00	1.00	0.85	1.00	
Fl _t Protected	0.95	1.00		0.95	1.00				0.95	1.00	1.00	0.95	
Satd. Flow (prot)	1787	3485		1770	3362				1714	3539	1583	1770	
Fl _t Permitted	0.13	1.00		0.30	1.00				0.29	1.00	1.00	0.24	
Satd. Flow (perm)	246	3485		565	3362				514	3539	1583	444	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	173	418	20	363	567	254	10	45	614	362	442	679	
RTOR Reduction (vph)	0	3	0	0	43	0	0	0	0	77	0	0	
Lane Group Flow (vph)	173	435	0	363	778	0	0	55	614	285	442	679	
Heavy Vehicles (%)	1%	3%	0%	2%	3%	1%	10%	0%	2%	2%	2%	3%	
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	7	4		3	8		5	5	2	3	1	6	
Permitted Phases	8			4			6	6		2	2		
Actuated Green, G (s)	43.1	19.4		43.1	30.6			42.5	25.0	48.7	42.5	37.7	
Effective Green, g (s)	43.1	19.4		43.1	30.6			42.5	25.0	48.7	42.5	37.7	
Actuated g/C Ratio	0.36	0.16		0.36	0.26			0.35	0.21	0.41	0.35	0.31	
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0	
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	248	563		440	857			230	737	642	350	1101	
v/s Ratio Prot	0.07	0.12		c0.16	c0.23			0.01	0.17	0.09	c0.18	0.19	
v/s Ratio Perm	0.18			0.13				0.08		0.09	c0.26		
v/c Ratio	0.70	0.77		0.82	0.91			0.24	0.83	0.44	1.26	0.62	
Uniform Delay, d ₁	29.6	48.2		31.4	43.3			26.3	45.5	25.8	33.2	35.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂	10.4	6.5		11.9	13.2			0.5	10.7	0.5	139.3	2.6	
Delay (s)	40.0	54.7		43.3	56.5			26.9	56.2	26.3	172.5	37.6	
Level of Service	D	D		D	E			C	E	C	F	D	
Approach Delay (s)		50.6			52.5				44.1			79.2	
Approach LOS		D			D				D			E	
Intersection Summary													
HCM 2000 Control Delay			58.8									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.12										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	34.4
Intersection Capacity Utilization			102.0%									ICU Level of Service	G
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - No Build
 Timing Plan: PM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	223
Future Volume (vph)	223
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	228
RTOR Reduction (vph)	113
Lane Group Flow (vph)	115
Heavy Vehicles (%)	2%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	50.2
Effective Green, g (s)	50.2
Actuated g/C Ratio	0.42
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	662
v/s Ratio Prot	0.02
v/s Ratio Perm	0.05
v/c Ratio	0.17
Uniform Delay, d1	21.9
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	22.1
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

Intersection												
Int Delay, s/veh	14.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	↕
Traffic Vol, veh/h	1	0	2	17	1	235	1	950	30	144	1223	4
Future Vol, veh/h	1	0	2	17	1	235	1	950	30	144	1223	4
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	2	0	2	0	2	3	0
Mvmt Flow	1	0	2	18	1	247	1	1000	32	152	1287	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2098	2629	648	1966	2615	516	1293	0	0	1032	0	0
Stage 1	1595	1595	-	1018	1018	-	-	-	-	-	-	-
Stage 2	503	1034	-	948	1597	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.94	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.32	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	30	24	418	38	25	504	543	-	-	669	-	-
Stage 1	114	168	-	258	317	-	-	-	-	-	-	-
Stage 2	524	312	-	284	168	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	12	18	417	31	19	504	542	-	-	669	-	-
Mov Cap-2 Maneuver	12	18	-	31	19	-	-	-	-	-	-	-
Stage 1	113	130	-	257	316	-	-	-	-	-	-	-
Stage 2	265	311	-	218	130	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	121.5		140		0		1.3	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	542	-	-	34	237	669	-	-
HCM Lane V/C Ratio	0.002	-	-	0.093	1.124	0.227	-	-
HCM Control Delay (s)	11.7	-	-	121.5	140	12	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	12	0.9	-	-

Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	61	116	138	129	135	23
Future Vol, veh/h	61	116	138	129	135	23
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	3	1	2	5
Mvmt Flow	66	126	150	140	147	25

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	539	221	0	0	290
Stage 1	220	-	-	-	-
Stage 2	319	-	-	-	-
Critical Hdwy	6.41	6.23	-	-	4.12
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.327	-	-	2.218
Pot Cap-1 Maneuver	505	816	-	-	1272
Stage 1	819	-	-	-	-
Stage 2	739	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	446	815	-	-	1272
Mov Cap-2 Maneuver	446	-	-	-	-
Stage 1	819	-	-	-	-
Stage 2	653	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.1	0	7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	634	1272
HCM Lane V/C Ratio	-	-	0.303	0.115
HCM Control Delay (s)	-	-	13.1	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.3	0.4

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	237	19	28	203	0	8	0	17	0	0	0
Future Vol, veh/h	0	237	19	28	203	0	8	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	0	258	21	30	221	0	9	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	221	0	0	279	0	0	550	550	269	559	560	221
Stage 1	-	-	-	-	-	-	269	269	-	281	281	-
Stage 2	-	-	-	-	-	-	281	281	-	278	279	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1360	-	-	1295	-	-	449	446	775	443	440	824
Stage 1	-	-	-	-	-	-	741	690	-	730	682	-
Stage 2	-	-	-	-	-	-	730	682	-	733	683	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1360	-	-	1295	-	-	440	434	775	424	429	824
Mov Cap-2 Maneuver	-	-	-	-	-	-	440	434	-	424	429	-
Stage 1	-	-	-	-	-	-	741	690	-	730	664	-
Stage 2	-	-	-	-	-	-	711	664	-	716	683	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1	11	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	623	1360	-	-	1295	-	-	-
HCM Lane V/C Ratio	0.044	-	-	-	0.024	-	-	-
HCM Control Delay (s)	11	0	-	-	7.8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

HCM 6th TWSC
5: Driveway/Central Avenue & Pleasant Hill Road

Future - No Build
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	28	212	22	36	207	91	15	3	23	81	4	19
Future Vol, veh/h	28	212	22	36	207	91	15	3	23	81	4	19
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	4	1	2	0	1	1	0	0	2	2	0	1
Mvmt Flow	30	228	24	39	223	98	16	3	25	87	4	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	322	0	0	252	0	0	663	700	240	665	663	274
Stage 1	-	-	-	-	-	-	300	300	-	351	351	-
Stage 2	-	-	-	-	-	-	363	400	-	314	312	-
Critical Hdwy	4.14	-	-	4.1	-	-	7.1	6.5	6.22	7.12	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.236	-	-	2.2	-	-	3.5	4	3.318	3.518	4	3.309
Pot Cap-1 Maneuver	1227	-	-	1325	-	-	377	366	799	374	384	767
Stage 1	-	-	-	-	-	-	713	669	-	666	636	-
Stage 2	-	-	-	-	-	-	660	605	-	697	661	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1226	-	-	1325	-	-	346	342	799	342	359	766
Mov Cap-2 Maneuver	-	-	-	-	-	-	346	342	-	342	359	-
Stage 1	-	-	-	-	-	-	692	650	-	646	612	-
Stage 2	-	-	-	-	-	-	614	583	-	653	642	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.8			12.8			18.3		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	507	1226	-	-	1325	-	-	381
HCM Lane V/C Ratio	0.087	0.025	-	-	0.029	-	-	0.294
HCM Control Delay (s)	12.8	8	0	-	7.8	0	-	18.3
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0.1	-	-	1.2

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	13	5	5	352	310	14
Future Vol, veh/h	13	5	5	352	310	14
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	40	0	3	2	0
Mvmt Flow	14	5	5	383	337	15

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	740	347	354	0	-	0
Stage 1	347	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Critical Hdwy	6.4	6.6	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.66	2.2	-	-	-
Pot Cap-1 Maneuver	387	618	1216	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	384	617	1214	-	-	-
Mov Cap-2 Maneuver	384	-	-	-	-	-
Stage 1	715	-	-	-	-	-
Stage 2	685	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.8	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1214	-	429	-	-
HCM Lane V/C Ratio	0.004	-	0.046	-	-
HCM Control Delay (s)	8	0	13.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - No Build
Timing Plan: PM PEAK

Intersection													
Int Delay, s/veh	1.7												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕			↕			↕	↕
Traffic Vol, veh/h	1	55	0	11	0	0	2	13	288	0	1	254	50
Future Vol, veh/h	1	55	0	11	0	0	2	13	288	0	1	254	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Free	Free	Free	Free	Free	Free						
RT Channelized	-	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	9	0	0	50	0	2	0	100	2	2
Mvmt Flow	1	60	0	12	0	0	2	14	313	0	1	276	54

Major/Minor	Minor2	Minor1				Major1				Major2			
Conflicting Flow All	0	620	619	276	652	673	313	330	0	0	313	0	0
Stage 1	0	278	278	-	341	341	-	-	-	-	-	-	-
Stage 2	0	342	341	-	311	332	-	-	-	-	-	-	-
Critical Hdwy	-	7.12	6.5	6.29	7.1	6.5	6.7	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.518	4	3.381	3.5	4	3.75	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	0	400	407	746	384	379	628	1241	-	-	850	-	-
Stage 1	0	728	684	-	678	642	-	-	-	-	-	-	-
Stage 2	0	673	642	-	704	648	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	394	401	746	374	373	628	1241	-	-	850	-	-
Mov Cap-2 Maneuver	0	394	401	-	374	373	-	-	-	-	-	-	-
Stage 1	0	718	683	-	669	633	-	-	-	-	-	-	-
Stage 2	0	661	633	-	692	647	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	10.8	0.3	0
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1241	-	-	428	628	850	-	-
HCM Lane V/C Ratio	0.011	-	-	0.168	0.003	0.001	-	-
HCM Control Delay (s)	7.9	0	-	15.1	10.8	9.2	0	-
HCM Lane LOS	A	A	-	C	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0	0	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	20	6	11	261	178	20
Future Vol, veh/h	20	6	11	261	178	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	4	0
Mvmt Flow	22	7	12	284	193	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	512	204	215	0	-	0
Stage 1	204	-	-	-	-	-
Stage 2	308	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	525	842	1367	-	-	-
Stage 1	835	-	-	-	-	-
Stage 2	750	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	520	842	1367	-	-	-
Mov Cap-2 Maneuver	520	-	-	-	-	-
Stage 1	827	-	-	-	-	-
Stage 2	750	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1367	-	570	-	-
HCM Lane V/C Ratio	0.009	-	0.05	-	-
HCM Control Delay (s)	7.7	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	33	322	307	247	166	19
Future Vol, veh/h	33	322	307	247	166	19
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	2	4	1
Mvmt Flow	35	346	330	266	178	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	596	0	0	880	464
Stage 1	-	-	-	463	-
Stage 2	-	-	-	417	-
Critical Hdwy	4.11	-	-	6.44	6.21
Critical Hdwy Stg 1	-	-	-	5.44	-
Critical Hdwy Stg 2	-	-	-	5.44	-
Follow-up Hdwy	2.209	-	-	3.536	3.309
Pot Cap-1 Maneuver	985	-	-	315	600
Stage 1	-	-	-	629	-
Stage 2	-	-	-	661	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	985	-	-	301	599
Mov Cap-2 Maneuver	-	-	-	301	-
Stage 1	-	-	-	601	-
Stage 2	-	-	-	661	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	33.7
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	985	-	-	-	317
HCM Lane V/C Ratio	0.036	-	-	-	0.628
HCM Control Delay (s)	8.8	0	-	-	33.7
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	4

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑		↑	↑	↑	↑
Traffic Vol, veh/h	529	11	37	660	17	24
Future Vol, veh/h	529	11	37	660	17	24
Conflicting Peds, #/hr	0	3	3	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	170	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	0	3	2	6	4
Mvmt Flow	575	12	40	717	18	26

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	590	0	1381 584
Stage 1	-	-	-	-	584 -
Stage 2	-	-	-	-	797 -
Critical Hdwy	-	-	4.13	-	6.46 6.24
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	-	-	2.227	-	3.554 3.336
Pot Cap-1 Maneuver	-	-	981	-	156 508
Stage 1	-	-	-	-	550 -
Stage 2	-	-	-	-	437 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	978	-	149 507
Mov Cap-2 Maneuver	-	-	-	-	149 -
Stage 1	-	-	-	-	548 -
Stage 2	-	-	-	-	419 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	22.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	254	-	-	978	-
HCM Lane V/C Ratio	0.175	-	-	0.041	-
HCM Control Delay (s)	22.2	-	-	8.8	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Future - No Build
 Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	558	142	79	167	1539	14	1663
v/c Ratio	1.46	0.28	0.21	0.90	0.76	0.10	1.04
Control Delay	258.2	9.0	22.5	78.7	26.9	14.8	69.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	258.2	9.0	22.5	78.7	26.9	14.8	69.1
Queue Length 50th (ft)	~693	7	27	101	473	5	~843
Queue Length 95th (ft)	#924	60	70	#242	731	14	#984
Internal Link Dist (ft)		1327	452		1032		679
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	382	513	440	186	2031	150	1593
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.46	0.28	0.18	0.90	0.76	0.09	1.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - No Build
 Timing Plan: PM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	513	9	121	19	15	39	154	1404	12	13	1054	476
Future Volume (vph)	513	9	121	19	15	39	154	1404	12	13	1054	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	0.99	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.93		1.00	1.00		1.00	0.95	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1832	1547			1674		1787	3536		1778	3234	
Flt Permitted	0.74	1.00			0.90		0.06	1.00		0.07	1.00	
Satd. Flow (perm)	1419	1547			1528		112	3536		128	3234	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	558	10	132	21	16	42	167	1526	13	14	1146	517
RTOR Reduction (vph)	0	96	0	0	29	0	0	0	0	0	37	0
Lane Group Flow (vph)	558	46	0	0	50	0	167	1539	0	14	1626	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	1%	0%	9%	5%	0%	3%	2%	3%	0%	0%	5%	2%
Turn Type	Perm	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			6			2		
Actuated Green, G (s)	37.7	37.7			37.7		77.8	75.2		77.8	67.4	
Effective Green, g (s)	37.7	37.7			37.7		77.8	75.2		77.8	67.4	
Actuated g/C Ratio	0.27	0.27			0.27		0.56	0.54		0.56	0.48	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	382	416			411		186	1899		101	1556	
v/s Ratio Prot		0.03					0.07	c0.44		0.00	c0.50	
v/s Ratio Perm	c0.39				0.03		0.43			0.07		
v/c Ratio	1.46	0.11			0.12		0.90	0.81		0.14	1.04	
Uniform Delay, d1	51.1	38.5			38.6		41.4	26.6		42.5	36.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	221.3	0.1			0.1		38.3	3.9		0.6	35.5	
Delay (s)	272.5	38.6			38.8		79.7	30.4		43.1	71.8	
Level of Service	F	D			D		E	C		D	E	
Approach Delay (s)		225.0			38.8			35.2			71.5	
Approach LOS		F			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			81.9				HCM 2000 Level of Service				F	
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			24.5		
Intersection Capacity Utilization			108.4%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Future - No Build

Timing Plan: PM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	234	569	275	567	629	313	439	1000	692	412	981	113
v/c Ratio	0.98	1.03	0.43	1.41	0.58	0.38	1.16	1.03	0.76	1.28	1.20	0.20
Control Delay	91.3	102.6	8.6	237.6	44.6	7.7	135.5	87.5	25.8	181.2	135.9	2.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.3	102.6	8.6	237.6	44.6	7.7	135.5	87.5	25.8	181.2	135.9	2.5
Queue Length 50th (ft)	145	~290	33	~642	257	51	~421	~513	376	~425	~572	15
Queue Length 95th (ft)	#310	#411	69	#876	322	99	#639	#651	549	#585	#698	18
Internal Link Dist (ft)		853			1394			410			1357	
Turn Bay Length (ft)	350		300	500		200			330	190		160
Base Capacity (vph)	239	554	643	402	1077	823	379	967	915	321	818	568
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	1.03	0.43	1.41	0.58	0.38	1.16	1.03	0.76	1.28	1.20	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - No Build
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	541	261	539	598	297	417	950	657	391	932	107
Future Volume (vph)	222	541	261	539	598	297	417	950	657	391	932	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-8%			-3%			-2%	
Total Lost time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1814	3628	1562	1840	3645	1632	1779	3592	1607	1805	3506	1594
Flt Permitted	0.28	1.00	1.00	0.19	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	529	3628	1562	362	3645	1632	229	3592	1607	202	3506	1594
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	234	569	275	567	629	313	439	1000	692	412	981	113
RTOR Reduction (vph)	0	0	115	0	0	96	0	0	95	0	0	81
Lane Group Flow (vph)	234	569	160	567	629	217	439	1000	597	412	981	32
Confl. Peds. (#/hr)	1					1	4					4
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%	3%	2%	2%	1%	4%	1%
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	3	8	5	7	4	1	5	2	7!	1	6	3
Permitted Phases	4		8	8		4	6		2	2		6
Actuated Green, G (s)	47.8	21.4	47.1	47.8	41.4	62.1	58.4	37.7	64.1	58.4	32.7	39.1
Effective Green, g (s)	47.8	21.4	47.1	47.8	41.4	62.1	58.4	37.7	64.1	58.4	32.7	39.1
Actuated g/C Ratio	0.34	0.15	0.34	0.34	0.30	0.44	0.42	0.27	0.46	0.42	0.23	0.28
Clearance Time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	239	554	525	402	1077	723	380	967	834	321	818	445
v/s Ratio Prot	0.04	0.16	0.06	c0.27	0.17	0.04	0.21	0.28	0.13	0.19	c0.28	0.00
v/s Ratio Perm	0.29		0.05	c0.22		0.09	0.27		0.24	c0.35		0.02
v/c Ratio	0.98	1.03	0.31	1.41	0.58	0.30	1.16	1.03	0.72	1.28	1.20	0.07
Uniform Delay, d1	44.9	59.3	34.3	52.4	42.0	25.0	43.6	51.1	30.6	56.2	53.6	37.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.73	4.58
Incremental Delay, d2	51.7	45.3	0.3	199.0	0.8	0.2	95.6	38.1	2.9	147.2	100.2	0.1
Delay (s)	96.6	104.6	34.7	251.4	42.8	25.2	139.2	89.2	33.6	188.1	139.5	170.0
Level of Service	F	F	C	F	D	C	F	F	C	F	F	F
Approach Delay (s)		85.0			117.5			81.5			155.1	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	108.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.38		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	33.8
Intersection Capacity Utilization	135.6%	ICU Level of Service	H
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Queues
14: S Main Street & Pleasant Hill Road

Future - No Build
Timing Plan: PM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	117	173	17	1	165	1167	1177
v/c Ratio	0.65	0.51	0.19	0.00	0.42	0.45	0.60
Control Delay	77.4	10.3	68.1	0.0	9.8	2.5	22.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.4	10.3	68.1	0.0	9.8	2.5	22.5
Queue Length 50th (ft)	104	0	15	0	36	40	314
Queue Length 95th (ft)	168	49	41	0	m44	m103	514
Internal Link Dist (ft)	1324		115			1357	1543
Turn Bay Length (ft)		220			190		
Base Capacity (vph)	223	370	104	293	392	2604	1971
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.47	0.16	0.00	0.42	0.45	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - No Build
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	1	163	14	2	1	155	1092	5	0	1007	100
Future Volume (vph)	109	1	163	14	2	1	155	1092	5	0	1007	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%				1%
Total Lost time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95			0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00			0.99	
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1819	1607		1645	1521	1769	3466			3436	
Flt Permitted		0.95	1.00		0.96	1.00	0.16	1.00			1.00	
Satd. Flow (perm)		1819	1607		1645	1521	296	3466			3436	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	116	1	173	15	2	1	165	1162	5	0	1071	106
RTOR Reduction (vph)	0	0	156	0	0	1	0	0	0	0	5	0
Lane Group Flow (vph)	0	117	17	0	17	0	165	1167	0	0	1172	0
Confl. Peds. (#/hr)	5					5	5		2	2		5
Heavy Vehicles (%)	1%	0%	2%	7%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		13.8	13.8		3.3	3.3	94.2	101.6			76.6	
Effective Green, g (s)		13.8	13.8		3.3	3.3	94.2	101.6			76.6	
Actuated g/C Ratio		0.10	0.10		0.02	0.02	0.67	0.73			0.55	
Clearance Time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		179	158		38	35	384	2515			1879	
v/s Ratio Prot		c0.06			c0.01		0.05	c0.34			c0.34	
v/s Ratio Perm			0.01			0.00	0.23					
v/c Ratio		0.65	0.11		0.45	0.00	0.43	0.46			0.62	
Uniform Delay, d1		60.8	57.5		67.5	66.7	29.1	7.9			21.8	
Progression Factor		1.00	1.00		1.00	1.00	0.48	0.28			1.00	
Incremental Delay, d2		8.3	0.3		8.2	0.0	0.3	0.3			1.6	
Delay (s)		69.1	57.8		75.6	66.7	14.4	2.5			23.4	
Level of Service		E	E		E	E	B	A			C	
Approach Delay (s)		62.4			75.1			4.0			23.4	
Approach LOS		E			E			A			C	
Intersection Summary												
HCM 2000 Control Delay			18.6				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			71.2%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - No Build
 Timing Plan: PM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑						↑		↑	
Traffic Volume (veh/h)	0	958	227	0	0	0	0	0	363	88	0
Future Volume (Veh/h)	0	958	227	0	0	0	0	0	363	88	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.25	0.93
Hourly flow rate (vph)	0	1030	244	0	0	0	0	0	390	352	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1274			1328	1152	637	1274	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1274			1328	1152	637	1274	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	6.6	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.0	3.3
p0 queue free %	100			100			0	100	7	0	100
cM capacity (veh/h)	1636			552			0	199	420	165	1091
Direction, Lane #											
	EB 1	EB 2	NB 1	SW 1							
Volume Total	687	587	390	352							
Volume Left	0	0	0	0							
Volume Right	0	244	390	0							
cSH	1700	1700	420	165							
Volume to Capacity	0.40	0.35	0.93	2.14							
Queue Length 95th (ft)	0	0	259	703							
Control Delay (s)	0.0	0.0	59.5	577.8							
Lane LOS			F	F							
Approach Delay (s)	0.0		59.5	577.8							
Approach LOS			F	F							
Intersection Summary											
Average Delay			112.4								
Intersection Capacity Utilization			62.9%		ICU Level of Service				B		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	1220	354
v/c Ratio	0.66	0.66
Control Delay	10.9	20.6
Queue Delay	0.0	0.0
Total Delay	10.9	20.6
Queue Length 50th (ft)	115	72
Queue Length 95th (ft)	214	164
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2405	772
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.51	0.46
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - No Build
 Timing Plan: PM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↘	
Traffic Volume (vph)	0	0	0	1135	329	0
Future Volume (vph)	0	0	0	1135	329	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	1770	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	1770	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	0	1220	354	0
RTOR Reduction (vph)	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	1220	320	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Turn Type				NA	Prot	
Protected Phases				2	1	
Permitted Phases						
Actuated Green, G (s)				25.3	13.7	
Effective Green, g (s)				25.3	13.7	
Actuated g/C Ratio				0.53	0.29	
Clearance Time (s)				4.5	4.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				1865	505	
v/s Ratio Prot				c0.34	c0.18	
v/s Ratio Perm						
v/c Ratio				0.65	0.63	
Uniform Delay, d1				8.2	15.0	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.8	2.6	
Delay (s)				9.0	17.5	
Level of Service				A	B	
Approach Delay (s)	0.0			9.0	17.5	
Approach LOS	A			A	B	
Intersection Summary						
HCM 2000 Control Delay			10.9	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.65			
Actuated Cycle Length (s)			48.0	Sum of lost time (s)		9.0
Intersection Capacity Utilization			88.4%	ICU Level of Service		E
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	1117	259	0	62
Future Vol, veh/h	0	0	1117	259	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	2	0	4
Mvmt Flow	0	0	1201	278	0	67

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

Approach	WB	SB
HCM Control Delay, s	0	17.5
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	355
HCM Lane V/C Ratio	-	-	0.188
HCM Control Delay (s)	-	-	17.5
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Queues
1: S High Street & Erickson Avenue

Future - Build
Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	684	270	694	18	571	261	341	463	170
v/c Ratio	0.65	0.94	0.84	0.84	0.05	0.92	0.35	1.14	0.40	0.19
Control Delay	31.2	61.8	47.8	43.4	19.1	62.9	9.1	122.3	28.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	61.8	47.8	43.4	19.1	62.9	9.1	122.3	28.0	3.0
Queue Length 50th (ft)	69	226	116	204	7	190	41	~197	105	0
Queue Length 95th (ft)	#118	#343	#250	#294	21	#292	96	#368	186	35
Internal Link Dist (ft)		616		200		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	270	725	329	836	331	618	753	299	1172	917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.94	0.82	0.83	0.05	0.92	0.35	1.14	0.40	0.19

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Future - Build
Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	606	23	248	458	180	2	15	525	240	314	426
Future Volume (vph)	160	606	23	248	458	180	2	15	525	240	314	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2				10.0	10.0	7.2	10.0
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00	0.95	1.00	0.95
Fr _t	1.00	0.99		1.00	0.96				1.00	1.00	0.85	1.00
Fl _t Protected	0.95	1.00		0.95	1.00				0.95	1.00	1.00	0.95
Satd. Flow (prot)	1703	3457		1736	3201				1629	3438	1553	1687
Fl _t Permitted	0.20	1.00		0.19	1.00				0.47	1.00	1.00	0.28
Satd. Flow (perm)	354	3457		350	3201				797	3438	1553	499
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	659	25	270	498	196	2	16	571	261	341	463
RTOR Reduction (vph)	0	2	0	0	42	0	0	0	0	105	0	0
Lane Group Flow (vph)	174	682	0	270	652	0	0	18	571	156	341	463
Heavy Vehicles (%)	6%	4%	0%	4%	8%	8%	0%	8%	5%	4%	7%	6%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2	2	
Actuated Green, G (s)	35.2	20.9		35.2	24.5			30.4	18.0	32.3	30.4	28.4
Effective Green, g (s)	35.2	20.9		35.2	24.5			30.4	18.0	32.3	30.4	28.4
Actuated g/C Ratio	0.35	0.21		0.35	0.24			0.30	0.18	0.32	0.30	0.28
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	268	722		321	784			258	618	501	299	967
v/s Ratio Prot	0.07	c0.20		c0.12	c0.20			0.00	0.17	0.04	c0.14	c0.14
v/s Ratio Perm	0.16			0.18				0.02		0.06	c0.21	
v/c Ratio	0.65	0.94		0.84	0.83			0.07	0.92	0.31	1.14	0.48
Uniform Delay, d ₁	24.3	39.0		26.0	35.8			24.5	40.3	25.5	31.3	29.7
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	7.2	20.8		17.7	7.5			0.1	21.7	0.4	95.5	1.7
Delay (s)	31.6	59.8		43.7	43.3			24.6	62.0	25.8	126.9	31.4
Level of Service	C	E		D	D			C	E	C	F	C
Approach Delay (s)		54.1			43.4				50.1			62.7
Approach LOS		D			D				D			E
Intersection Summary												
HCM 2000 Control Delay	52.6			HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio	1.03											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)				34.4				
Intersection Capacity Utilization	91.8%			ICU Level of Service				F				
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - Build
 Timing Plan: AM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	156
Future Volume (vph)	156
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1524
Flt Permitted	1.00
Satd. Flow (perm)	1524
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	170
RTOR Reduction (vph)	104
Lane Group Flow (vph)	66
Heavy Vehicles (%)	6%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	39.1
Effective Green, g (s)	39.1
Actuated g/C Ratio	0.39
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	595
v/s Ratio Prot	0.01
v/s Ratio Perm	0.03
v/c Ratio	0.11
Uniform Delay, d1	19.4
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	19.6
Level of Service	B
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Build
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↑↑		↗	↑↑	
Traffic Vol, veh/h	0	0	0	11	0	250	0	815	11	93	824	0
Future Vol, veh/h	0	0	0	11	0	250	0	815	11	93	824	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	7	18	3	6	0
Mvmt Flow	0	0	0	12	0	272	0	886	12	101	896	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1541	1996	448	1542	1990	449	-	0	0	898	0	0
Stage 1	1098	1098	-	892	892	-	-	-	-	-	-	-
Stage 2	443	898	-	650	1098	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.94	-	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.32	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	80	61	564	80	61	557	0	-	-	746	-	-
Stage 1	230	291	-	307	363	-	0	-	-	-	-	-
Stage 2	569	361	-	429	291	-	0	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	37	53	564	72	53	557	-	-	-	746	-	-
Mov Cap-2 Maneuver	112	141	-	186	159	-	-	-	-	-	-	-
Stage 1	230	252	-	307	363	-	-	-	-	-	-	-
Stage 2	291	361	-	371	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	20.3	0	1.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	514	746	-
HCM Lane V/C Ratio	-	-	-	0.552	0.136	-
HCM Control Delay (s)	-	-	0	20.3	10.6	-
HCM Lane LOS	-	-	A	C	B	-
HCM 95th %tile Q(veh)	-	-	-	3.3	0.5	-

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	95	157	45	93	25
Future Vol, veh/h	62	95	157	45	93	25
Conflicting Peds, #/hr	0	4	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	4	2	5	8	4
Mvmt Flow	67	103	171	49	101	27

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	425	200	0	0	220	0
Stage 1	196	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	567	836	-	-	1314	-
Stage 1	814	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	523	833	-	-	1314	-
Mov Cap-2 Maneuver	523	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	6.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	675	1314
HCM Lane V/C Ratio	-	-	0.253	0.077
HCM Control Delay (s)	-	-	12.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1	0.2

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	206	10	10	134	0	16	0	25	1	0	0
Future Vol, veh/h	0	206	10	10	134	0	16	0	25	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	20	10	8	0	6	0	8	0	0	0
Mvmt Flow	0	224	11	11	146	0	17	0	27	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	235	0	0	398	398	230	411	403	146
Stage 1	-	-	-	-	-	-	230	230	-	168	168	-
Stage 2	-	-	-	-	-	-	168	168	-	243	235	-
Critical Hdwy	4.1	-	-	4.2	-	-	7.16	6.5	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.29	-	-	3.554	4	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1448	-	-	1287	-	-	555	543	795	555	539	906
Stage 1	-	-	-	-	-	-	764	718	-	839	763	-
Stage 2	-	-	-	-	-	-	825	763	-	765	714	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1448	-	-	1287	-	-	551	538	795	532	534	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	551	538	-	532	534	-
Stage 1	-	-	-	-	-	-	764	718	-	839	756	-
Stage 2	-	-	-	-	-	-	818	756	-	739	714	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			10.7			11.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1448	-	-	1287	-	-	532
HCM Lane V/C Ratio	0.066	-	-	-	0.008	-	-	0.002
HCM Control Delay (s)	10.7	0	-	-	7.8	0	-	11.8
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

HCM 6th TWSC
 5: Willow Hill Drive/Central Avenue & Pleasant Hill Road

Future - Build
 Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	185	33	21	92	19	30	60	100	62	23	26
Future Vol, veh/h	21	185	33	21	92	19	30	60	100	62	23	26
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	4	2	2	8	11	2	2	2	0	2	8
Mvmt Flow	23	201	36	23	100	21	33	65	109	67	25	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	121	0	0	238	0	0	449	433	220	509	441	111
Stage 1	-	-	-	-	-	-	266	266	-	157	157	-
Stage 2	-	-	-	-	-	-	183	167	-	352	284	-
Critical Hdwy	4.21	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.299	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.372
Pot Cap-1 Maneuver	1412	-	-	1329	-	-	520	516	820	478	510	926
Stage 1	-	-	-	-	-	-	739	689	-	850	768	-
Stage 2	-	-	-	-	-	-	819	760	-	669	676	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1412	-	-	1328	-	-	470	496	819	362	490	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	470	496	-	362	490	-
Stage 1	-	-	-	-	-	-	724	675	-	834	753	-
Stage 2	-	-	-	-	-	-	753	746	-	514	662	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			1.2			13.7			15.9		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	619	1412	-	-	1328	-	-	451
HCM Lane V/C Ratio	0.334	0.016	-	-	0.017	-	-	0.268
HCM Control Delay (s)	13.7	7.6	0	-	7.8	0	-	15.9
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.5	0	-	-	0.1	-	-	1.1

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	15	8	4	196	186	9
Future Vol, veh/h	15	8	4	196	186	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	38	25	2	8	33
Mvmt Flow	16	9	4	213	202	10

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	428	207	212	0	0
Stage 1	207	-	-	-	-
Stage 2	221	-	-	-	-
Critical Hdwy	6.47	6.58	4.35	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.642	2.425	-	-
Pot Cap-1 Maneuver	574	750	1233	-	-
Stage 1	816	-	-	-	-
Stage 2	804	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	572	750	1233	-	-
Mov Cap-2 Maneuver	572	-	-	-	-
Stage 1	813	-	-	-	-
Stage 2	804	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1233	-	623	-	-
HCM Lane V/C Ratio	0.004	-	0.04	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - Build
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	58	0	27	0	0	1	27	127	0	0	144	43
Future Vol, veh/h	58	0	27	0	0	1	27	127	0	0	144	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	0	0	0	7	3	0	0	8	14
Mvmt Flow	63	0	29	0	0	1	29	138	0	0	157	47

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	354	353	157	391	400	138	204	0	0	138	0	0
Stage 1	157	157	-	196	196	-	-	-	-	-	-	-
Stage 2	197	196	-	195	204	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.17	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.263	-	-	2.2	-	-
Pot Cap-1 Maneuver	601	575	894	572	541	916	1338	-	-	1458	-	-
Stage 1	845	772	-	810	742	-	-	-	-	-	-	-
Stage 2	805	742	-	811	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	590	562	894	543	529	916	1338	-	-	1458	-	-
Mov Cap-2 Maneuver	590	562	-	543	529	-	-	-	-	-	-	-
Stage 1	826	772	-	791	725	-	-	-	-	-	-	-
Stage 2	786	725	-	784	737	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.3		8.9		1.4		0	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1338	-	-	661	916	1458	-	-
HCM Lane V/C Ratio	0.022	-	-	0.14	0.001	-	-	-
HCM Control Delay (s)	7.8	0	-	11.3	8.9	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	0	-	-

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	14	19	17	91	140	16
Future Vol, veh/h	14	19	17	91	140	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	7	6	6
Mvmt Flow	15	21	18	99	152	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	296	161	169	0	-	0
Stage 1	161	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.47	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	685	889	1421	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	676	889	1421	-	-	-
Mov Cap-2 Maneuver	676	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1421	-	784	-	-
HCM Lane V/C Ratio	0.013	-	0.046	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	288	196	77	89	74
Future Vol, veh/h	35	288	196	77	89	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	3	7	5	9	2
Mvmt Flow	38	310	211	83	96	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	294	0	0	639	253
Stage 1	-	-	-	253	-
Stage 2	-	-	-	386	-
Critical Hdwy	4.17	-	-	6.49	6.22
Critical Hdwy Stg 1	-	-	-	5.49	-
Critical Hdwy Stg 2	-	-	-	5.49	-
Follow-up Hdwy	2.263	-	-	3.581	3.318
Pot Cap-1 Maneuver	1239	-	-	429	786
Stage 1	-	-	-	773	-
Stage 2	-	-	-	672	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1239	-	-	413	786
Mov Cap-2 Maneuver	-	-	-	413	-
Stage 1	-	-	-	744	-
Stage 2	-	-	-	672	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1239	-	-	-	526
HCM Lane V/C Ratio	0.03	-	-	-	0.333
HCM Control Delay (s)	8	0	-	-	15.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

HCM 6th TWSC
 11: Mosby Court/North-South Connector & W Mosby Road

Future - Build
 Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	214	188	6	8	147	28	3	0	20	44	0	116
Future Vol, veh/h	214	188	6	8	147	28	3	0	20	44	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	170	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	4	4	33	25	7	2	0	0	25	2	0	2
Mvmt Flow	223	196	6	8	153	29	3	0	21	46	0	121

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	202	0	0	889	843	199	840	832	168
Stage 1	-	-	-	-	-	-	645	645	-	184	184	-
Stage 2	-	-	-	-	-	-	244	198	-	656	648	-
Critical Hdwy	4.14	-	-	4.35	-	-	7.1	6.5	6.45	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.236	-	-	2.425	-	-	3.5	4	3.525	3.518	4	3.318
Pot Cap-1 Maneuver	1381	-	-	1244	-	-	266	303	787	285	307	876
Stage 1	-	-	-	-	-	-	464	471	-	818	751	-
Stage 2	-	-	-	-	-	-	764	741	-	454	469	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1381	-	-	1244	-	-	196	246	787	237	250	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	196	246	-	237	250	-
Stage 1	-	-	-	-	-	-	380	385	-	669	746	-
Stage 2	-	-	-	-	-	-	654	737	-	362	384	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.3			0.3			11.7			15.7		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	565	1381	-	-	1244	-	-	503
HCM Lane V/C Ratio	0.042	0.161	-	-	0.007	-	-	0.331
HCM Control Delay (s)	11.7	8.1	0	-	7.9	-	-	15.7
HCM Lane LOS	B	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-	-	1.4

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Build
 Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	214	23	148	973	33	1348
v/c Ratio	0.38	0.61	0.08	0.64	0.47	0.09	0.67
Control Delay	51.1	22.2	0.5	22.0	15.7	6.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.1	22.2	0.5	22.0	15.7	6.7	13.0
Queue Length 50th (ft)	62	42	0	38	267	5	278
Queue Length 95th (ft)	107	119	0	#79	354	m10	m372
Internal Link Dist (ft)		1327	452		1032		679
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	317	493	292	232	2062	381	2001
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.43	0.08	0.64	0.47	0.09	0.67

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Build
 Timing Plan: AM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	4	193	6	0	15	136	881	14	30	1180	60
Future Volume (vph)	79	4	193	6	0	15	136	881	14	30	1180	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	5.5	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Flt	1.00	0.85			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1779	1540			1413		1613	3167		1573	3247	
Flt Permitted	0.95	1.00			0.82		0.13	1.00		0.25	1.00	
Satd. Flow (perm)	1783	1540			1176		228	3167		413	3247	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	4	210	7	0	16	148	958	15	33	1283	65
RTOR Reduction (vph)	0	131	0	0	22	0	0	1	0	0	2	0
Lane Group Flow (vph)	86	83	0	0	1	0	148	972	0	33	1346	0
Heavy Vehicles (%)	4%	0%	8%	0%	0%	27%	13%	15%	7%	13%	9%	3%
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	15.5	21.0			4.2		84.5	78.3		84.5	77.1	
Effective Green, g (s)	15.5	21.0			4.2		84.5	78.3		84.5	77.1	
Actuated g/C Ratio	0.12	0.16			0.03		0.65	0.60		0.65	0.59	
Clearance Time (s)	5.5	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	212	248			37		227	1907		323	1925	
v/s Ratio Prot	0.04	c0.05					0.04	c0.31		0.00	c0.41	
v/s Ratio Perm	0.01				0.00		0.39			0.06		
v/c Ratio	0.41	0.34			0.02		0.65	0.51		0.10	0.70	
Uniform Delay, d1	53.0	48.3			60.9		13.3	14.8		13.6	18.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.86	0.65	
Incremental Delay, d2	1.3	0.8			0.2		6.6	1.0		0.1	1.2	
Delay (s)	54.3	49.1			61.1		19.8	15.8		11.7	13.2	
Level of Service	D	D			E		B	B		B	B	
Approach Delay (s)		50.6			61.1			16.3			13.2	
Approach LOS		D			E			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues
13: S Main Street & Erickson Avenue

Future - Build
Timing Plan: AM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	169	843	385	360	613	288	245	610	168	195	670	78
v/c Ratio	0.60	1.19	0.61	1.04	0.56	0.40	0.82	0.62	0.21	0.66	0.80	0.12
Control Delay	35.9	144.4	13.7	107.6	40.4	7.5	59.9	33.2	3.3	34.2	43.4	1.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	144.4	13.7	107.6	40.4	7.5	59.9	33.2	3.3	34.2	43.4	1.1
Queue Length 50th (ft)	89	~450	67	~277	228	38	99	110	0	55	282	5
Queue Length 95th (ft)	141	#581	125	#476	290	85	#237	176	40	91	348	0
Internal Link Dist (ft)		878			1394			410			1357	
Turn Bay Length (ft)	350		300	500		200			330	190		160
Base Capacity (vph)	280	708	640	345	1094	728	311	981	791	294	842	676
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	1.19	0.60	1.04	0.56	0.40	0.79	0.62	0.21	0.66	0.80	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
13: S Main Street & Erickson Avenue

Future - Build
Timing Plan: AM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	162	809	370	346	588	276	235	586	161	187	643	75	
Future Volume (vph)	162	809	370	346	588	276	235	586	161	187	643	75	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			-8%			-3%			-2%		
Total Lost time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1832	3628	1547	1754	3610	1614	1621	3214	1478	1720	3345	1496	
Flt Permitted	0.30	1.00	1.00	0.16	1.00	1.00	0.21	1.00	1.00	0.30	1.00	1.00	
Satd. Flow (perm)	580	3628	1547	291	3610	1614	360	3214	1478	545	3345	1496	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	169	843	385	360	612	288	245	610	168	195	670	78	
RTOR Reduction (vph)	0	0	126	0	0	116	0	0	89	0	0	54	
Lane Group Flow (vph)	169	843	259	360	613	172	245	610	79	195	670	24	
Confl. Peds. (#/hr)	1					1			1	1			
Heavy Vehicles (%)	1%	2%	7%	7%	4%	3%	13%	14%	10%	6%	9%	9%	
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	
Protected Phases	3	8	5	7	4	1	5	2	7	1	6	3	
Permitted Phases	4		8	8		4	6		2	2		6	
Actuated Green, G (s)	46.8	25.4	42.0	46.8	39.4	49.1	49.4	39.7	61.1	49.4	32.8	40.2	
Effective Green, g (s)	46.8	25.4	42.0	46.8	39.4	49.1	49.4	39.7	61.1	49.4	32.8	40.2	
Actuated g/C Ratio	0.36	0.20	0.32	0.36	0.30	0.38	0.38	0.31	0.47	0.38	0.25	0.31	
Clearance Time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	280	708	499	345	1094	609	297	981	792	294	843	462	
v/s Ratio Prot	0.03	c0.23	0.07	c0.17	0.17	0.02	0.11	0.19	0.02	0.05	0.20	0.00	
v/s Ratio Perm	0.18		0.10	0.20		0.09	c0.21		0.04	c0.20		0.01	
v/c Ratio	0.60	1.19	0.52	1.04	0.56	0.28	0.82	0.62	0.10	0.66	0.79	0.05	
Uniform Delay, d1	31.1	52.3	35.8	50.9	38.0	28.2	30.9	38.7	19.2	42.7	45.5	31.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.52	0.78	1.89	0.68	0.78	1.00	
Incremental Delay, d2	3.6	99.5	0.9	60.2	0.7	0.3	15.5	2.7	0.1	5.3	7.3	0.0	
Delay (s)	34.8	151.8	36.7	111.1	38.7	28.4	62.3	32.9	36.3	34.4	42.7	31.6	
Level of Service	C	F	D	F	D	C	E	C	D	C	D	C	
Approach Delay (s)		105.9			57.0			40.5			40.1		
Approach LOS		F			E			D			D		
Intersection Summary													
HCM 2000 Control Delay			64.7									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.98										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	33.8
Intersection Capacity Utilization			115.9%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues
14: S Main Street & Pleasant Hill Road

Future - Build
Timing Plan: AM PEAK



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	194	158	7	54	815	2	773
v/c Ratio	0.78	0.39	0.10	0.12	0.36	0.00	0.37
Control Delay	74.0	4.6	61.6	6.2	6.5	8.5	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.0	4.6	61.6	6.2	6.5	8.5	14.3
Queue Length 50th (ft)	158	0	6	9	74	0	158
Queue Length 95th (ft)	240	20	22	m21	166	4	274
Internal Link Dist (ft)	1324		115		1357		1543
Turn Bay Length (ft)		220		190		140	
Base Capacity (vph)	296	444	84	437	2254	483	2078
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.36	0.08	0.12	0.36	0.00	0.37

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - Build
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	183	1	150	5	2	0	51	763	11	2	664	70
Future Volume (vph)	183	1	150	5	2	0	51	763	11	2	664	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%				1%
Total Lost time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		1.00		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1734	1576		1233		1701	3235		1796	3318	
Flt Permitted		0.95	1.00		0.97		0.31	1.00		0.31	1.00	
Satd. Flow (perm)		1734	1576		1233		551	3235		583	3318	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	193	1	158	5	2	0	54	803	12	2	699	74
RTOR Reduction (vph)	0	0	135	0	0	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	194	23	0	7	0	54	814	0	2	767	0
Heavy Vehicles (%)	6%	0%	4%	20%	100%	0%	4%	9%	18%	0%	7%	4%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		18.8	18.8		1.6		80.9	79.7		80.9	70.3	
Effective Green, g (s)		18.8	18.8		1.6		80.9	79.7		80.9	70.3	
Actuated g/C Ratio		0.14	0.14		0.01		0.62	0.61		0.62	0.54	
Clearance Time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		250	227		15		436	1983		374	1794	
v/s Ratio Prot		c0.11			c0.01		0.01	c0.25		0.00	c0.23	
v/s Ratio Perm			0.01				0.07			0.00		
v/c Ratio		0.78	0.10		0.47		0.12	0.41		0.01	0.43	
Uniform Delay, d1		53.6	48.3		63.8		14.7	13.0		9.6	17.8	
Progression Factor		1.00	1.00		1.00		0.69	0.60		1.00	1.00	
Incremental Delay, d2		14.0	0.2		21.2		0.1	0.5		0.0	0.7	
Delay (s)		67.5	48.5		85.0		10.2	8.4		9.6	18.6	
Level of Service		E	D		F		B	A		A	B	
Approach Delay (s)		59.0			85.0			8.5			18.6	
Approach LOS		E			F			A			B	
Intersection Summary												
HCM 2000 Control Delay			21.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			61.3%				ICU Level of Service			B		
Analysis Period (min)			15									

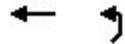
c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - Build
 Timing Plan: AM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑						↑		↑	
Traffic Volume (veh/h)	0	994	157	0	0	0	0	0	207	30	0
Future Volume (Veh/h)	0	994	157	0	0	0	0	0	207	30	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1046	165	0	0	0	0	0	218	32	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1211			1144	1128	606	1211	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1211			1144	1128	606	1211	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.0	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.2	3.3
p0 queue free %	100			100			100	100	51	79	100
cM capacity (veh/h)	1636			583			131	206	440	151	1091
Direction, Lane #	EB 1	EB 2	NB 1	SW 1							
Volume Total	697	514	218	32							
Volume Left	0	0	0	0							
Volume Right	0	165	218	0							
cSH	1700	1700	440	151							
Volume to Capacity	0.41	0.30	0.49	0.21							
Queue Length 95th (ft)	0	0	67	19							
Control Delay (s)	0.0	0.0	20.9	35.1							
Lane LOS			C	E							
Approach Delay (s)	0.0		20.9	35.1							
Approach LOS			C	E							
Intersection Summary											
Average Delay			3.9								
Intersection Capacity Utilization			52.0%		ICU Level of Service				A		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	869	238
v/c Ratio	0.43	0.64
Control Delay	6.5	16.7
Queue Delay	0.0	0.0
Total Delay	6.5	16.7
Queue Length 50th (ft)	64	24
Queue Length 95th (ft)	98	76
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2043	407
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.58
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - Build
 Timing Plan: AM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↘	
Traffic Volume (vph)	0	0	0	826	226	0
Future Volume (vph)	0	0	0	826	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3374	1736	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3374	1736	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	869	238	0
RTOR Reduction (vph)	0	0	0	0	126	0
Lane Group Flow (vph)	0	0	0	869	112	0
Heavy Vehicles (%)	0%	0%	0%	7%	4%	0%
Turn Type				NA	Prot	
Protected Phases				8	5	
Permitted Phases						
Actuated Green, G (s)				31.6	7.5	
Effective Green, g (s)				31.6	7.5	
Actuated g/C Ratio				0.61	0.14	
Clearance Time (s)				6.5	6.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				2046	249	
v/s Ratio Prot				c0.26	c0.06	
v/s Ratio Perm						
v/c Ratio				0.42	0.45	
Uniform Delay, d1				5.4	20.4	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.6	1.3	
Delay (s)				6.1	21.7	
Level of Service				A	C	
Approach Delay (s)	0.0			6.1	21.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			9.4	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			52.1	Sum of lost time (s)		13.0
Intersection Capacity Utilization			74.0%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	805	217	0	82
Future Vol, veh/h	0	0	805	217	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	3	0	8
Mvmt Flow	0	0	847	228	0	86

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

Approach	WB	SB
HCM Control Delay, s	0	14.3
HCM LOS		B

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	472
HCM Lane V/C Ratio	-	-	0.183
HCM Control Delay (s)	-	-	14.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.7

Queues
20: North-South Connector & Erickson Avenue

Future - Build
Timing Plan: AM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	1006	17	145	778	13	95	136	341	49	65
v/c Ratio	0.01	0.62	0.02	0.44	0.37	0.01	0.30	0.42	0.58	0.16	0.25
Control Delay	9.2	20.8	0.1	13.5	11.8	0.0	24.6	35.7	15.9	22.4	30.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.2	20.8	0.1	13.5	11.8	0.0	24.6	35.7	15.9	22.4	30.1
Queue Length 50th (ft)	1	218	0	32	105	0	37	67	70	18	26
Queue Length 95th (ft)	6	317	0	67	226	0	72	121	153	43	61
Internal Link Dist (ft)		210			878			496			1072
Turn Bay Length (ft)	150		150	150		150	150			150	
Base Capacity (vph)	464	1630	840	341	2126	1071	325	469	591	327	457
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.62	0.02	0.43	0.37	0.01	0.29	0.29	0.58	0.15	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
20: North-South Connector & Erickson Avenue

Future - Build
Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	966	16	139	747	12	91	131	327	47	52	11
Future Volume (vph)	4	966	16	139	747	12	91	131	327	47	52	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			0%			0%	
Total Lost time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.6	5.7	5.6	5.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1814	3558	1623	1770	3343	1583	1770	1863	1583	1770	1815	
Flt Permitted	0.31	1.00	1.00	0.20	1.00	1.00	0.71	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	586	3558	1623	364	3343	1583	1331	1863	1583	1189	1815	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	4	1006	17	145	778	12	95	136	341	49	54	11
RTOR Reduction (vph)	0	0	9	0	0	6	0	0	134	0	9	0
Lane Group Flow (vph)	4	1006	8	145	778	7	95	136	207	49	56	0
Heavy Vehicles (%)	2%	4%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	6		2	2		6	4		8	8		
Actuated Green, G (s)	48.6	40.9	40.9	48.1	47.6	47.6	15.2	11.2	18.4	15.2	9.7	
Effective Green, g (s)	48.6	40.9	40.9	48.1	47.6	47.6	15.2	11.2	18.4	15.2	9.7	
Actuated g/C Ratio	0.56	0.47	0.47	0.56	0.55	0.55	0.18	0.13	0.21	0.18	0.11	
Clearance Time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.6	5.7	5.6	5.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	344	1688	770	320	1846	874	262	242	337	236	204	
v/s Ratio Prot	0.00	c0.28		0.04	c0.23		c0.02	0.07	c0.05	0.01	0.03	
v/s Ratio Perm	0.01		0.00	0.21		0.00	0.04		0.08	0.03		
v/c Ratio	0.01	0.60	0.01	0.45	0.42	0.01	0.36	0.56	0.61	0.21	0.28	
Uniform Delay, d1	8.5	16.6	12.0	10.5	11.3	8.7	30.9	35.2	30.7	30.1	35.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.0	1.6	0.0	1.0	0.7	0.0	0.9	3.0	3.3	0.4	0.7	
Delay (s)	8.5	18.2	12.0	11.5	12.0	8.7	31.8	38.2	34.0	30.5	35.8	
Level of Service	A	B	B	B	B	A	C	D	C	C	D	
Approach Delay (s)		18.0			11.9			34.6			33.5	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			20.1				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			86.2				Sum of lost time (s)			22.9		
Intersection Capacity Utilization			65.5%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	140	149	5	52	100	5
Future Vol, veh/h	140	149	5	52	100	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	2	2	5	2
Mvmt Flow	152	162	5	57	109	5

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	314	0	300	233
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	-	-	4.12	-	6.45	6.22
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.218	-	3.545	3.318
Pot Cap-1 Maneuver	-	-	1246	-	685	806
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1246	-	682	806
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	687	-	-	1246	-
HCM Lane V/C Ratio	0.166	-	-	0.004	-
HCM Control Delay (s)	11.3	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Queues
1: S High Street & Erickson Avenue

Future - Build
Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	173	438	363	821	55	614	362	434	679	228
v/c Ratio	0.70	0.78	0.82	0.91	0.22	0.83	0.43	1.24	0.59	0.25
Control Delay	40.9	58.6	43.5	55.3	23.2	56.6	13.4	157.7	37.4	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.9	58.6	43.5	55.3	23.2	56.6	13.4	157.7	37.4	4.5
Queue Length 50th (ft)	83	172	197	301	25	241	106	~356	243	13
Queue Length 95th (ft)	#164	#270	304	#409	52	#326	172	#568	310	57
Internal Link Dist (ft)		616		200		1390			1400	
Turn Bay Length (ft)	235		150		130		240	150		390
Base Capacity (vph)	253	565	498	934	250	737	889	350	1159	917
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.78	0.73	0.88	0.22	0.83	0.41	1.24	0.59	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Future - Build
Timing Plan: PM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	
Lane Configurations													
Traffic Volume (vph)	170	410	20	356	556	249	10	44	602	355	425	665	
Future Volume (vph)	170	410	20	356	556	249	10	44	602	355	425	665	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12	
Total Lost time (s)	7.2	7.2		7.2	7.2				10.0	10.0	7.2	10.0	
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00	0.95	1.00	0.95	
Fr _t	1.00	0.99		1.00	0.95				1.00	1.00	0.85	1.00	
Fl _t Protected	0.95	1.00		0.95	1.00				0.95	1.00	1.00	0.95	
Satd. Flow (prot)	1787	3485		1770	3362				1714	3539	1583	1770	
Fl _t Permitted	0.13	1.00		0.30	1.00				0.29	1.00	1.00	0.24	
Satd. Flow (perm)	246	3485		565	3362				514	3539	1583	444	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	173	418	20	363	567	254	10	45	614	362	434	679	
RTOR Reduction (vph)	0	3	0	0	43	0	0	0	0	77	0	0	
Lane Group Flow (vph)	173	435	0	363	778	0	0	55	614	285	434	679	
Heavy Vehicles (%)	1%	3%	0%	2%	3%	1%	10%	0%	2%	2%	2%	3%	
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	7	4		3	8		5	5	2	3	1	6	
Permitted Phases	8			4			6	6		2	2		
Actuated Green, G (s)	43.1	19.4		43.1	30.6			42.5	25.0	48.7	42.5	37.7	
Effective Green, g (s)	43.1	19.4		43.1	30.6			42.5	25.0	48.7	42.5	37.7	
Actuated g/C Ratio	0.36	0.16		0.36	0.26			0.35	0.21	0.41	0.35	0.31	
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0	
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	248	563		440	857			230	737	642	350	1101	
v/s Ratio Prot	0.07	0.12		c0.16	c0.23			0.01	0.17	0.09	c0.18	0.19	
v/s Ratio Perm	0.18			0.13				0.08		0.09	c0.26		
v/c Ratio	0.70	0.77		0.82	0.91			0.24	0.83	0.44	1.24	0.62	
Uniform Delay, d ₁	29.6	48.2		31.4	43.3			26.3	45.5	25.8	33.2	35.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d ₂	10.4	6.5		11.9	13.2			0.5	10.7	0.5	130.1	2.6	
Delay (s)	40.0	54.7		43.3	56.5			26.9	56.2	26.3	163.3	37.6	
Level of Service	D	D		D	E			C	E	C	F	D	
Approach Delay (s)		50.6			52.5				44.1			75.7	
Approach LOS		D			D				D			E	
Intersection Summary													
HCM 2000 Control Delay	57.6			HCM 2000 Level of Service					E				
HCM 2000 Volume to Capacity ratio	1.10												
Actuated Cycle Length (s)	120.0			Sum of lost time (s)					34.4				
Intersection Capacity Utilization	101.6%			ICU Level of Service					G				
Analysis Period (min)	15												

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - Build
 Timing Plan: PM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	223
Future Volume (vph)	223
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	228
RTOR Reduction (vph)	113
Lane Group Flow (vph)	115
Heavy Vehicles (%)	2%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	50.2
Effective Green, g (s)	50.2
Actuated g/C Ratio	0.42
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	662
v/s Ratio Prot	0.02
v/s Ratio Perm	0.05
v/c Ratio	0.17
Uniform Delay, d1	21.9
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	22.1
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Build
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	1	0	2	17	1	224	1	950	30	140	1215	4
Future Vol, veh/h	1	0	2	17	1	224	1	950	30	140	1215	4
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	2	3	0
Mvmt Flow	1	0	2	18	1	236	1	1000	32	147	1279	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2080	2611	644	1952	2597	516	1285	0	0	1032	0	0
Stage 1	1577	1577	-	1018	1018	-	-	-	-	-	-	-
Stage 2	503	1034	-	934	1579	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	25	420	39	25	501	547	-	-	669	-	-
Stage 1	117	171	-	258	317	-	-	-	-	-	-	-
Stage 2	524	312	-	290	171	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	19	419	32	19	501	546	-	-	669	-	-
Mov Cap-2 Maneuver	13	19	-	32	19	-	-	-	-	-	-	-
Stage 1	116	133	-	257	316	-	-	-	-	-	-	-
Stage 2	275	311	-	225	133	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	111.2		127.7		0		1.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	546	-	-	37	235	669	-	-
HCM Lane V/C Ratio	0.002	-	-	0.085	1.084	0.22	-	-
HCM Control Delay (s)	11.6	-	-	111.2	127.7	11.9	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	11.1	0.8	-	-

HCM 6th TWSC
3: Pear Street & Pleasant Hill Road

Future - Build
Timing Plan: PM PEAK

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	65	120	123	90	131	23
Future Vol, veh/h	65	120	123	90	131	23
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	3	1	2	5
Mvmt Flow	71	130	134	98	142	25

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	492	184	0	0	232
Stage 1	183	-	-	-	-
Stage 2	309	-	-	-	-
Critical Hdwy	6.41	6.23	-	-	4.12
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.327	-	-	2.218
Pot Cap-1 Maneuver	538	856	-	-	1336
Stage 1	851	-	-	-	-
Stage 2	747	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	480	855	-	-	1336
Mov Cap-2 Maneuver	480	-	-	-	-
Stage 1	851	-	-	-	-
Stage 2	666	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	6.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	671	1336
HCM Lane V/C Ratio	-	-	0.3	0.107
HCM Control Delay (s)	-	-	12.6	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.3	0.4

HCM 6th TWSC
4: Willow Hill Drive/Driveway & Pleasant Hill Road

Future - Build
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	225	19	28	218	0	8	0	17	0	0	0
Future Vol, veh/h	0	225	19	28	218	0	8	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	0	245	21	30	237	0	9	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	237	0	0	266	0	0	553	553	256	562	563	237
Stage 1	-	-	-	-	-	-	256	256	-	297	297	-
Stage 2	-	-	-	-	-	-	297	297	-	265	266	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1342	-	-	1310	-	-	447	444	788	441	438	807
Stage 1	-	-	-	-	-	-	753	699	-	716	671	-
Stage 2	-	-	-	-	-	-	716	671	-	745	692	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1342	-	-	1310	-	-	438	432	788	422	427	807
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	432	-	422	427	-
Stage 1	-	-	-	-	-	-	753	699	-	716	654	-
Stage 2	-	-	-	-	-	-	697	654	-	728	692	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.9	11	0
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	628	1342	-	-	1310	-	-	-
HCM Lane V/C Ratio	0.043	-	-	-	0.023	-	-	-
HCM Control Delay (s)	11	0	-	-	7.8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

HCM 6th TWSC
5: Willow Hill Drive/Central Avenue & Pleasant Hill Road

Future - Build
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	6.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	178	47	52	201	82	31	33	72	63	40	23
Future Vol, veh/h	25	178	47	52	201	82	31	33	72	63	40	23
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	1	2	2	1	0	2	2	2	2	2	1
Mvmt Flow	27	191	51	56	216	88	33	35	77	68	43	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	305	0	0	242	0	0	678	688	217	700	669	262
Stage 1	-	-	-	-	-	-	271	271	-	373	373	-
Stage 2	-	-	-	-	-	-	407	417	-	327	296	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.309
Pot Cap-1 Maneuver	1239	-	-	1324	-	-	366	369	823	354	379	779
Stage 1	-	-	-	-	-	-	735	685	-	648	618	-
Stage 2	-	-	-	-	-	-	621	591	-	686	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1238	-	-	1324	-	-	303	341	823	278	350	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	303	341	-	278	350	-
Stage 1	-	-	-	-	-	-	717	668	-	631	585	-
Stage 2	-	-	-	-	-	-	528	560	-	574	651	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1.2			15.9			22.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	475	1238	-	-	1324	-	-	340
HCM Lane V/C Ratio	0.308	0.022	-	-	0.042	-	-	0.398
HCM Control Delay (s)	15.9	8	0	-	7.8	0	-	22.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.3	0.1	-	-	0.1	-	-	1.9

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	13	5	5	209	215	14
Future Vol, veh/h	13	5	5	209	215	14
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	40	0	3	2	0
Mvmt Flow	14	5	5	227	234	15

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	481	244	251	0	0
Stage 1	244	-	-	-	-
Stage 2	237	-	-	-	-
Critical Hdwy	6.4	6.6	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.66	2.2	-	-
Pot Cap-1 Maneuver	548	710	1326	-	-
Stage 1	801	-	-	-	-
Stage 2	807	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	544	709	1323	-	-
Mov Cap-2 Maneuver	544	-	-	-	-
Stage 1	796	-	-	-	-
Stage 2	805	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	582	-	-
HCM Lane V/C Ratio	0.004	-	0.034	-	-
HCM Control Delay (s)	7.7	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - Build
Timing Plan: PM PEAK

Intersection													
Int Delay, s/veh	2												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕			↕			↕	↕
Traffic Vol, veh/h	1	55	0	11	0	0	2	13	145	0	1	159	50
Future Vol, veh/h	1	55	0	11	0	0	2	13	145	0	1	159	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Free	Free	Free	Free	Free	Free						
RT Channelized	-	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	9	0	0	50	0	2	0	100	2	2
Mvmt Flow	1	60	0	12	0	0	2	14	158	0	1	173	54

Major/Minor	Minor2	Minor1				Major1			Major2				
Conflicting Flow All	0	362	361	173	394	415	158	227	0	0	158	0	0
Stage 1	0	175	175	-	186	186	-	-	-	-	-	-	-
Stage 2	0	187	186	-	208	229	-	-	-	-	-	-	-
Critical Hdwy	-	7.12	6.5	6.29	7.1	6.5	6.7	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.518	4	3.381	3.5	4	3.75	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	0	594	569	853	569	531	776	1353	-	-	993	-	-
Stage 1	0	827	758	-	820	750	-	-	-	-	-	-	-
Stage 2	0	815	750	-	799	718	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	587	562	853	556	525	776	1353	-	-	993	-	-
Mov Cap-2 Maneuver	0	587	562	-	556	525	-	-	-	-	-	-	-
Stage 1	0	818	757	-	811	742	-	-	-	-	-	-	-
Stage 2	0	804	742	-	787	717	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	9.7	0.6	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1353	-	-	619	776	993	-	-
HCM Lane V/C Ratio	0.01	-	-	0.116	0.003	0.001	-	-
HCM Control Delay (s)	7.7	0	-	11.6	9.7	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	20	6	11	128	99	20
Future Vol, veh/h	20	6	11	128	99	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	5	0
Mvmt Flow	22	7	12	139	108	22

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	282	119	130	0	0
Stage 1	119	-	-	-	-
Stage 2	163	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	712	938	1468	-	-
Stage 1	911	-	-	-	-
Stage 2	871	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	706	938	1468	-	-
Mov Cap-2 Maneuver	706	-	-	-	-
Stage 1	903	-	-	-	-
Stage 2	871	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	749	-	-
HCM Lane V/C Ratio	0.008	-	0.038	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	33	322	307	114	87	19
Future Vol, veh/h	33	322	307	114	87	19
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	3	6	1
Mvmt Flow	35	346	330	123	94	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	453	0	-	0	809 393
Stage 1	-	-	-	-	392 -
Stage 2	-	-	-	-	417 -
Critical Hdwy	4.11	-	-	-	6.46 6.21
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.209	-	-	-	3.554 3.309
Pot Cap-1 Maneuver	1113	-	-	-	344 658
Stage 1	-	-	-	-	674 -
Stage 2	-	-	-	-	657 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1113	-	-	-	331 657
Mov Cap-2 Maneuver	-	-	-	-	331 -
Stage 1	-	-	-	-	648 -
Stage 2	-	-	-	-	657 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	19.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1113	-	-	-	363
HCM Lane V/C Ratio	0.032	-	-	-	0.314
HCM Control Delay (s)	8.3	0	-	-	19.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

HCM 6th TWSC
 11: Mosby Court/North-South Connector & W Mosby Road

Future - Build
 Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	169	274	11	37	315	90	17	0	24	43	0	165
Future Vol, veh/h	169	274	11	37	315	90	17	0	24	43	0	165
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	170	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	3	0	3	2	2	6	0	4	2	0	2
Mvmt Flow	184	298	12	40	342	98	18	0	26	47	0	179

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	440	0	0	313	0	0	1236	1195	307	1156	1152	391
Stage 1	-	-	-	-	-	-	675	675	-	471	471	-
Stage 2	-	-	-	-	-	-	561	520	-	685	681	-
Critical Hdwy	4.12	-	-	4.13	-	-	7.16	6.5	6.24	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.227	-	-	3.554	4	3.336	3.518	4	3.318
Pot Cap-1 Maneuver	1120	-	-	1242	-	-	150	188	728	174	199	658
Stage 1	-	-	-	-	-	-	437	456	-	573	563	-
Stage 2	-	-	-	-	-	-	505	535	-	438	453	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1120	-	-	1238	-	-	90	145	726	139	154	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	145	-	139	154	-
Stage 1	-	-	-	-	-	-	349	364	-	459	545	-
Stage 2	-	-	-	-	-	-	355	518	-	338	362	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.3			0.7			30.5			28.7		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	185	1120	-	-	1238	-	-	371
HCM Lane V/C Ratio	0.241	0.164	-	-	0.032	-	-	0.609
HCM Control Delay (s)	30.5	8.8	0	-	8	-	-	28.7
HCM Lane LOS	D	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0.6	-	-	0.1	-	-	3.9

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Build
 Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	291	148	79	180	1526	14	1337
v/c Ratio	0.78	0.30	0.63	0.81	0.73	0.09	0.80
Control Delay	60.4	9.0	60.9	49.1	25.1	10.9	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	9.0	60.9	49.1	25.1	10.9	23.8
Queue Length 50th (ft)	229	7	42	74	460	3	334
Queue Length 95th (ft)	325	61	99	#203	721	m3	m323
Internal Link Dist (ft)		1327	452		1032		679
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	384	520	141	224	2089	163	1664
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.28	0.56	0.80	0.73	0.09	0.80

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Build
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	9	127	19	15	39	166	1392	12	13	1047	183
Future Volume (vph)	268	9	127	19	15	39	166	1392	12	13	1047	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	5.5	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1832	1559			1674		1787	3536		1778	3314	
Flt Permitted	0.68	1.00			0.86		0.10	1.00		0.08	1.00	
Satd. Flow (perm)	1308	1559			1460		184	3536		146	3314	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	10	138	21	16	42	180	1513	13	14	1138	199
RTOR Reduction (vph)	0	103	0	0	30	0	0	0	0	0	10	0
Lane Group Flow (vph)	291	45	0	0	49	0	180	1526	0	14	1327	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	1%	0%	8%	5%	0%	3%	2%	3%	0%	0%	5%	2%
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	29.9	35.4			9.2		80.1	77.5		80.1	69.9	
Effective Green, g (s)	29.9	35.4			9.2		80.1	77.5		80.1	69.9	
Actuated g/C Ratio	0.21	0.25			0.07		0.57	0.55		0.57	0.50	
Clearance Time (s)	5.5	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	356	394			95		222	1957		113	1654	
v/s Ratio Prot	c0.12	0.03					0.06	c0.43		0.00	0.40	
v/s Ratio Perm	c0.05				0.03		c0.40			0.07		
v/c Ratio	0.82	0.11			0.52		0.81	0.78		0.12	0.80	
Uniform Delay, d1	51.5	40.2			63.3		23.1	24.5		38.6	29.3	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.82	0.75	
Incremental Delay, d2	13.5	0.1			4.7		19.6	3.2		0.2	1.3	
Delay (s)	65.1	40.4			67.9		42.8	27.7		31.9	23.4	
Level of Service	E	D			E		D	C		C	C	
Approach Delay (s)		56.7			67.9			29.3			23.5	
Approach LOS		E			E			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)		30.0			
Intersection Capacity Utilization			85.9%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues
13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Build
Timing Plan: PM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	232	763	274	406	801	300	403	943	515	395	857	180
v/c Ratio	1.10	1.21	0.41	1.12	0.85	0.38	1.06	1.00	0.59	1.18	1.06	0.29
Control Delay	123.7	155.7	7.9	132.3	58.6	7.7	111.3	83.0	28.4	142.5	85.4	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.7	155.7	7.9	132.3	58.6	7.7	111.3	83.0	28.4	142.5	85.4	3.2
Queue Length 50th (ft)	~176	~444	33	~372	366	45	~348	~410	258	~381	~450	38
Queue Length 95th (ft)	#352	#574	69	#584	447	89	#564	#597	348	#578	#570	10
Internal Link Dist (ft)		878			1394			410			1357	
Turn Bay Length (ft)	350		300	500		200			330	190		160
Base Capacity (vph)	211	632	673	362	947	782	379	941	874	334	810	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	1.21	0.41	1.12	0.85	0.38	1.06	1.00	0.59	1.18	1.06	0.29

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Build
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	220	725	260	386	761	285	383	896	489	375	814	171
Future Volume (vph)	220	725	260	386	761	285	383	896	489	375	814	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			-8%			-3%			-2%	
Total Lost time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1814	3628	1562	1840	3645	1633	1779	3592	1607	1805	3472	1596
Flt Permitted	0.13	1.00	1.00	0.16	1.00	1.00	0.12	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	244	3628	1562	318	3645	1633	229	3592	1607	207	3472	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	232	763	274	406	801	300	403	943	515	395	857	180
RTOR Reduction (vph)	0	0	111	0	0	101	0	0	100	0	0	120
Lane Group Flow (vph)	232	763	163	406	801	199	403	943	415	395	857	60
Confl. Peds. (#/hr)	1					1	4					4
Heavy Vehicles (%)	2%	2%	6%	2%	3%	2%	3%	2%	2%	1%	5%	1%
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov	D.P+P	NA	pm+ov
Protected Phases	3	8	5	7	4	1	5	2	7	1	6	3
Permitted Phases	4		8	8		4	6		2	2		6
Actuated Green, G (s)	47.8	24.4	50.1	47.8	36.4	58.1	58.4	36.7	60.1	58.4	32.7	44.1
Effective Green, g (s)	47.8	24.4	50.1	47.8	36.4	58.1	58.4	36.7	60.1	58.4	32.7	44.1
Actuated g/C Ratio	0.34	0.17	0.36	0.34	0.26	0.42	0.42	0.26	0.43	0.42	0.23	0.32
Clearance Time (s)	8.6	8.6	8.3	8.6	8.6	8.3	8.3	8.3	8.6	8.3	8.3	8.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	632	558	362	947	677	380	941	788	334	810	502
v/s Ratio Prot	0.09	c0.21	0.05	0.19	0.22	0.05	0.19	0.26	0.09	0.18	0.25	0.01
v/s Ratio Perm	c0.29		0.05	0.20		0.08	c0.25		0.17	c0.31		0.03
v/c Ratio	1.10	1.21	0.29	1.12	0.85	0.29	1.06	1.00	0.53	1.18	1.06	0.12
Uniform Delay, d1	38.5	57.8	32.2	54.8	49.1	27.3	43.5	51.6	29.5	55.0	53.6	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.44	1.15	1.61	0.74	0.74	0.47
Incremental Delay, d2	91.1	107.6	0.3	84.4	7.0	0.2	54.9	24.6	0.4	106.4	46.5	0.1
Delay (s)	129.6	165.4	32.5	139.3	56.2	27.5	117.5	84.1	47.8	146.9	86.1	16.1
Level of Service	F	F	C	F	E	C	F	F	D	F	F	B
Approach Delay (s)		130.2			72.9			81.3			94.1	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			92.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			33.8			
Intersection Capacity Utilization			126.6%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
14: S Main Street & Pleasant Hill Road

Future - Build
Timing Plan: PM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	153	116	17	1	135	1121	1168
v/c Ratio	0.77	0.33	0.19	0.00	0.35	0.44	0.61
Control Delay	84.5	2.5	68.1	0.0	10.6	4.0	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	2.5	68.1	0.0	10.6	4.0	23.4
Queue Length 50th (ft)	136	0	15	0	18	80	328
Queue Length 95th (ft)	#225	0	41	0	m27	m120	508
Internal Link Dist (ft)	1324		115			1357	1543
Turn Bay Length (ft)		220			190		
Base Capacity (vph)	221	370	104	293	386	2561	1926
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.31	0.16	0.00	0.35	0.44	0.61

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - Build
 Timing Plan: PM PEAK

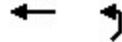
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	1	109	14	2	1	127	1049	5	0	984	114
Future Volume (vph)	143	1	109	14	2	1	127	1049	5	0	984	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%				1%
Total Lost time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95			0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00			0.98	
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1801	1607		1645	1521	1769	3466			3428	
Flt Permitted		0.95	1.00		0.96	1.00	0.16	1.00			1.00	
Satd. Flow (perm)		1801	1607		1645	1521	292	3466			3428	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	152	1	116	15	2	1	135	1116	5	0	1047	121
RTOR Reduction (vph)	0	0	103	0	0	1	0	0	0	0	6	0
Lane Group Flow (vph)	0	153	13	0	17	0	135	1121	0	0	1162	0
Confl. Peds. (#/hr)	5					5	5		2	2		5
Heavy Vehicles (%)	2%	0%	2%	7%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		15.5	15.5		3.3	3.3	92.5	99.9			74.9	
Effective Green, g (s)		15.5	15.5		3.3	3.3	92.5	99.9			74.9	
Actuated g/C Ratio		0.11	0.11		0.02	0.02	0.66	0.71			0.54	
Clearance Time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		199	177		38	35	378	2473			1833	
v/s Ratio Prot		c0.08			c0.01		0.04	c0.32			c0.34	
v/s Ratio Perm			0.01			0.00	0.19					
v/c Ratio		0.77	0.07		0.45	0.00	0.36	0.45			0.63	
Uniform Delay, d1		60.5	55.8		67.5	66.7	27.8	8.5			22.9	
Progression Factor		1.00	1.00		1.00	1.00	0.63	0.46			1.00	
Incremental Delay, d2		16.2	0.2		8.2	0.0	0.3	0.3			1.7	
Delay (s)		76.7	56.0		75.6	66.7	17.7	4.2			24.6	
Level of Service		E	E		E	E	B	A			C	
Approach Delay (s)		67.8			75.1			5.6			24.6	
Approach LOS		E			E			A			C	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			71.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - Build
 Timing Plan: PM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑						↑		↑	
Traffic Volume (veh/h)	0	986	193	0	0	0	0	0	219	27	0
Future Volume (Veh/h)	0	986	193	0	0	0	0	0	219	27	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.95
Hourly flow rate (vph)	0	1060	208	0	0	0	0	0	235	29	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1268			1178	1164	634	1268	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1268			1178	1164	634	1268	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	6.6	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.0	3.3
p0 queue free %	100			100			100	100	44	82	100
cM capacity (veh/h)	1636			555			128	196	422	163	1091
Direction, Lane #	EB 1	EB 2	NB 1	SW 1							
Volume Total	707	561	235	29							
Volume Left	0	0	0	0							
Volume Right	0	208	235	0							
cSH	1700	1700	422	163							
Volume to Capacity	0.42	0.33	0.56	0.18							
Queue Length 95th (ft)	0	0	83	16							
Control Delay (s)	0.0	0.0	23.7	31.8							
Lane LOS			C	D							
Approach Delay (s)	0.0		23.7	31.8							
Approach LOS			C	D							
Intersection Summary											
Average Delay			4.2								
Intersection Capacity Utilization			53.6%		ICU Level of Service				A		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	1217	256
v/c Ratio	0.58	0.78
Control Delay	8.2	33.9
Queue Delay	0.0	0.0
Total Delay	8.2	33.9
Queue Length 50th (ft)	105	53
Queue Length 95th (ft)	153	#147
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2104	340
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.58	0.75

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - Build
 Timing Plan: PM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↘	
Traffic Volume (vph)	0	0	0	1132	238	0
Future Volume (vph)	0	0	0	1132	238	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	1770	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	1770	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.95
Adj. Flow (vph)	0	0	0	1217	256	0
RTOR Reduction (vph)	0	0	0	0	53	0
Lane Group Flow (vph)	0	0	0	1217	203	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Turn Type				NA	Prot	
Protected Phases				8	5	
Permitted Phases						
Actuated Green, G (s)				31.4	8.3	
Effective Green, g (s)				31.4	8.3	
Actuated g/C Ratio				0.60	0.16	
Clearance Time (s)				6.5	6.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				2108	278	
v/s Ratio Prot				c0.34	c0.11	
v/s Ratio Perm						
v/c Ratio				0.58	0.73	
Uniform Delay, d1				6.6	21.1	
Progression Factor				1.00	1.00	
Incremental Delay, d2				1.2	9.2	
Delay (s)				7.7	30.4	
Level of Service				A	C	
Approach Delay (s)	0.0			7.7	30.4	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			11.7	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			52.7	Sum of lost time (s)		13.0
Intersection Capacity Utilization			83.3%	ICU Level of Service		E
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	1117	226	0	62
Future Vol, veh/h	0	0	1117	226	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	3	0	4
Mvmt Flow	0	0	1201	243	0	67

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

Approach	WB	SB
HCM Control Delay, s	0	17.1
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	365
HCM Lane V/C Ratio	-	-	0.183
HCM Control Delay (s)	-	-	17.1
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Queues
20: North-South Connector & Erickson Avenue

Future - Build
Timing Plan: PM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	8	997	28	266	1109	36	64	120	239	35	138
v/c Ratio	0.03	0.67	0.04	0.67	0.51	0.03	0.26	0.42	0.36	0.13	0.58
Control Delay	7.4	23.9	0.1	20.5	11.6	0.1	28.5	39.2	10.4	26.3	45.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	23.9	0.1	20.5	11.6	0.1	28.5	39.2	10.4	26.3	45.8
Queue Length 50th (ft)	2	235	0	61	158	0	27	62	38	14	71
Queue Length 95th (ft)	7	326	0	137	306	0	60	118	93	39	132
Internal Link Dist (ft)		210			878			496			1072
Turn Bay Length (ft)	150		150	150		150	150			150	
Base Capacity (vph)	426	1496	780	470	2185	1045	243	318	731	274	282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.67	0.04	0.57	0.51	0.03	0.26	0.38	0.33	0.13	0.49

Intersection Summary

HCM Signalized Intersection Capacity Analysis

20: North-South Connector & Erickson Avenue

Future - Build
Timing Plan: PM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	8	947	27	253	1054	34	61	114	227	33	125	6	
Future Volume (vph)	8	947	27	253	1054	34	61	114	227	33	125	6	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			0%			0%			0%		
Total Lost time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.7	5.7	5.6	5.6		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1814	3592	1623	1770	3539	1583	1770	1863	1583	1770	1851		
Flt Permitted	0.19	1.00	1.00	0.18	1.00	1.00	0.61	1.00	1.00	0.68	1.00		
Satd. Flow (perm)	355	3592	1623	338	3539	1583	1146	1863	1583	1266	1851		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	8	997	28	266	1109	36	64	120	239	35	132	6	
RTOR Reduction (vph)	0	0	16	0	0	16	0	0	101	0	2	0	
Lane Group Flow (vph)	8	997	12	266	1109	20	64	120	138	35	136	0	
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA		
Protected Phases	5	2		1	6		3	8	1	7	4		
Permitted Phases	6		2	2		6	4		8	8			
Actuated Green, G (s)	52.2	39.9	39.9	51.7	51.1	51.1	15.7	12.6	24.4	15.6	11.6		
Effective Green, g (s)	52.2	39.9	39.9	51.7	51.1	51.1	15.7	12.6	24.4	15.6	11.6		
Actuated g/C Ratio	0.58	0.44	0.44	0.57	0.57	0.57	0.17	0.14	0.27	0.17	0.13		
Clearance Time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.7	5.7	5.6	5.6		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	222	1587	717	380	2002	895	227	259	527	235	237		
v/s Ratio Prot	0.00	0.28		c0.09	0.31		c0.01	0.06	0.03	0.00	c0.07		
v/s Ratio Perm	0.02		0.01	c0.31		0.01	0.04		0.05	0.02			
v/c Ratio	0.04	0.63	0.02	0.70	0.55	0.02	0.28	0.46	0.26	0.15	0.57		
Uniform Delay, d1	9.2	19.5	14.2	12.1	12.4	8.6	32.0	35.7	25.9	31.5	37.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.1	1.9	0.0	5.6	1.1	0.0	0.7	1.3	0.3	0.3	3.4		
Delay (s)	9.3	21.4	14.2	17.7	13.5	8.7	32.7	37.1	26.1	31.8	40.4		
Level of Service	A	C	B	B	B	A	C	D	C	C	D		
Approach Delay (s)		21.1			14.2			30.2			38.6		
Approach LOS		C			B			C			D		
Intersection Summary													
HCM 2000 Control Delay			20.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			90.3									Sum of lost time (s)	23.0
Intersection Capacity Utilization			70.4%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	119	5	124	142	5
Future Vol, veh/h	119	119	5	124	142	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	2	2
Mvmt Flow	129	129	5	135	154	5

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	258	0	339
Stage 1	-	-	-	-	194
Stage 2	-	-	-	-	145
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1307	-	657
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	882
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1307	-	654
Mov Cap-2 Maneuver	-	-	-	-	654
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	878

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	659	-	-	1307	-
HCM Lane V/C Ratio	0.242	-	-	0.004	-
HCM Control Delay (s)	12.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Queues
1: S High Street & Erickson Avenue

Future - Mitigation
Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	684	270	694	18	571	261	341	463	170
v/c Ratio	0.72	0.89	0.87	0.72	0.06	0.88	0.35	0.95	0.40	0.20
Control Delay	38.4	52.6	52.7	33.6	19.8	56.9	9.4	81.2	28.7	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.4	52.6	52.7	33.6	19.8	56.9	9.4	81.2	28.7	3.6
Queue Length 50th (ft)	68	221	116	188	7	190	41	112	107	0
Queue Length 95th (ft)	#135	#317	#259	254	21	#292	98	#200	189	39
Internal Link Dist (ft)		616		200		1390			454	
Turn Bay Length (ft)	235		150		130		240	390		390
Base Capacity (vph)	241	790	312	995	326	646	750	360	1151	855
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.87	0.87	0.70	0.06	0.88	0.35	0.95	0.40	0.20

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Future - Mitigation
Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	160	606	23	248	458	180	2	15	525	240	314	426
Future Volume (vph)	160	606	23	248	458	180	2	15	525	240	314	426
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	0.95	1.00	0.97	0.95
Fr _t	1.00	0.99		1.00	0.96			1.00	1.00	0.85	1.00	1.00
Fl _t Protected	0.95	1.00		0.95	1.00			0.95	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1703	3457		1736	3201			1629	3438	1553	3273	3406
Fl _t Permitted	0.24	1.00		0.18	1.00			0.46	1.00	1.00	0.95	1.00
Satd. Flow (perm)	434	3457		329	3201			794	3438	1553	3273	3406
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	174	659	25	270	498	196	2	16	571	261	341	463
RTOR Reduction (vph)	0	2	0	0	42	0	0	0	0	105	0	0
Lane Group Flow (vph)	174	682	0	270	652	0	0	18	571	156	341	463
Heavy Vehicles (%)	6%	4%	0%	4%	8%	8%	0%	8%	5%	4%	7%	6%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2		
Actuated Green, G (s)	35.8	22.2		35.8	29.0			29.8	18.8	32.4	11.0	27.8
Effective Green, g (s)	35.8	22.2		35.8	29.0			29.8	18.8	32.4	11.0	27.8
Actuated g/C Ratio	0.36	0.22		0.36	0.29			0.30	0.19	0.32	0.11	0.28
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	10.0	10.0
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	241	767		309	928			253	646	503	360	946
v/s Ratio Prot	0.05	c0.20		c0.12	0.20			0.00	c0.17	0.04	c0.10	c0.14
v/s Ratio Perm	c0.21			0.19				0.02		0.06		
v/c Ratio	0.72	0.89		0.87	0.70			0.07	0.88	0.31	0.95	0.49
Uniform Delay, d ₁	24.4	37.7		25.6	31.7			24.9	39.5	25.4	44.2	30.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d ₂	12.4	12.2		22.8	2.4			0.1	16.2	0.4	33.6	1.8
Delay (s)	36.8	49.9		48.4	34.1			25.0	55.7	25.8	77.8	32.0
Level of Service	D	D		D	C			C	E	C	E	C
Approach Delay (s)		47.2			38.1				45.9			46.4
Approach LOS		D			D				D			D
Intersection Summary												
HCM 2000 Control Delay	44.3			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio	0.94											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			34.4					
Intersection Capacity Utilization	83.4%			ICU Level of Service			E					
Analysis Period (min)	15											

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - Mitigation
 Timing Plan: AM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	156
Future Volume (vph)	156
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1524
Flt Permitted	1.00
Satd. Flow (perm)	1524
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	170
RTOR Reduction (vph)	111
Lane Group Flow (vph)	59
Heavy Vehicles (%)	6%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	34.6
Effective Green, g (s)	34.6
Actuated g/C Ratio	0.35
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	527
v/s Ratio Prot	0.01
v/s Ratio Perm	0.03
v/c Ratio	0.11
Uniform Delay, d1	22.2
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	22.4
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Mitigation
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	11	0	250	0	815	11	93	824	0
Future Vol, veh/h	0	0	0	11	0	250	0	815	11	93	824	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	7	18	3	6	0
Mvmt Flow	0	0	0	12	0	272	0	886	12	101	896	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1541	1996	448	1542	1990	449	-	0	0	898	0	0
Stage 1	1098	1098	-	892	892	-	-	-	-	-	-	-
Stage 2	443	898	-	650	1098	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.94	-	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.32	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	80	61	564	80	61	557	0	-	-	746	-	-
Stage 1	230	291	-	307	363	-	0	-	-	-	-	-
Stage 2	569	361	-	429	291	-	0	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	37	53	564	72	53	557	-	-	-	746	-	-
Mov Cap-2 Maneuver	112	141	-	186	159	-	-	-	-	-	-	-
Stage 1	230	252	-	307	363	-	-	-	-	-	-	-
Stage 2	291	361	-	371	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	20.3	0	1.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	514	746	-
HCM Lane V/C Ratio	-	-	-	0.552	0.136	-
HCM Control Delay (s)	-	-	0	20.3	10.6	-
HCM Lane LOS	-	-	A	C	B	-
HCM 95th %tile Q(veh)	-	-	-	3.3	0.5	-

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	95	157	45	93	25
Future Vol, veh/h	62	95	157	45	93	25
Conflicting Peds, #/hr	0	4	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	12	4	2	5	8	4
Mvmt Flow	67	103	171	49	101	27

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	425	200	0	0	220	0
Stage 1	196	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	6.52	6.24	-	-	4.18	-
Critical Hdwy Stg 1	5.52	-	-	-	-	-
Critical Hdwy Stg 2	5.52	-	-	-	-	-
Follow-up Hdwy	3.608	3.336	-	-	2.272	-
Pot Cap-1 Maneuver	567	836	-	-	1314	-
Stage 1	814	-	-	-	-	-
Stage 2	786	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	523	833	-	-	1314	-
Mov Cap-2 Maneuver	523	-	-	-	-	-
Stage 1	814	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	6.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	675	1314
HCM Lane V/C Ratio	-	-	0.253	0.077
HCM Control Delay (s)	-	-	12.1	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1	0.2

HCM 6th TWSC
4: Willow Hill Drive/Driveway & Pleasant Hill Road

Future - Mitigation
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	206	10	10	134	0	16	0	25	1	0	0
Future Vol, veh/h	0	206	10	10	134	0	16	0	25	1	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	4	20	10	8	0	6	0	8	0	0	0
Mvmt Flow	0	224	11	11	146	0	17	0	27	1	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	146	0	0	235	0	0	398	398	230	411	403	146
Stage 1	-	-	-	-	-	-	230	230	-	168	168	-
Stage 2	-	-	-	-	-	-	168	168	-	243	235	-
Critical Hdwy	4.1	-	-	4.2	-	-	7.16	6.5	6.28	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.29	-	-	3.554	4	3.372	3.5	4	3.3
Pot Cap-1 Maneuver	1448	-	-	1287	-	-	555	543	795	555	539	906
Stage 1	-	-	-	-	-	-	764	718	-	839	763	-
Stage 2	-	-	-	-	-	-	825	763	-	765	714	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1448	-	-	1287	-	-	551	538	795	532	534	906
Mov Cap-2 Maneuver	-	-	-	-	-	-	551	538	-	532	534	-
Stage 1	-	-	-	-	-	-	764	718	-	839	756	-
Stage 2	-	-	-	-	-	-	818	756	-	739	714	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.5			10.7			11.8		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	678	1448	-	-	1287	-	-	532
HCM Lane V/C Ratio	0.066	-	-	-	0.008	-	-	0.002
HCM Control Delay (s)	10.7	0	-	-	7.8	0	-	11.8
HCM Lane LOS	B	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

HCM 6th TWSC
 5: Willow Hill Drive/Central Avenue & Pleasant Hill Road

Future - Mitigation
 Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	185	33	15	92	19	30	60	54	62	23	26
Future Vol, veh/h	21	185	33	15	92	19	30	60	54	62	23	26
Conflicting Peds, #/hr	0	0	1	1	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	11	4	2	2	8	11	2	2	2	0	2	8
Mvmt Flow	23	201	36	16	100	21	33	65	59	67	25	28

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	121	0	0	238	0	0	435	419	220	470	427	111
Stage 1	-	-	-	-	-	-	266	266	-	143	143	-
Stage 2	-	-	-	-	-	-	169	153	-	327	284	-
Critical Hdwy	4.21	-	-	4.12	-	-	7.12	6.52	6.22	7.1	6.52	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.52	-
Follow-up Hdwy	2.299	-	-	2.218	-	-	3.518	4.018	3.318	3.5	4.018	3.372
Pot Cap-1 Maneuver	1412	-	-	1329	-	-	531	525	820	507	520	926
Stage 1	-	-	-	-	-	-	739	689	-	865	779	-
Stage 2	-	-	-	-	-	-	833	771	-	690	676	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1412	-	-	1328	-	-	483	508	819	414	503	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	483	508	-	414	503	-
Stage 1	-	-	-	-	-	-	724	675	-	849	769	-
Stage 2	-	-	-	-	-	-	771	761	-	568	662	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0.9			13.4			14.6		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	585	1412	-	-	1328	-	-	497
HCM Lane V/C Ratio	0.268	0.016	-	-	0.012	-	-	0.243
HCM Control Delay (s)	13.4	7.6	0	-	7.7	0	-	14.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	1.1	0	-	-	0	-	-	0.9

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	15	8	4	196	186	9
Future Vol, veh/h	15	8	4	196	186	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	38	25	2	8	33
Mvmt Flow	16	9	4	213	202	10

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	428	207	212	0	0
Stage 1	207	-	-	-	-
Stage 2	221	-	-	-	-
Critical Hdwy	6.47	6.58	4.35	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-
Follow-up Hdwy	3.563	3.642	2.425	-	-
Pot Cap-1 Maneuver	574	750	1233	-	-
Stage 1	816	-	-	-	-
Stage 2	804	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	572	750	1233	-	-
Mov Cap-2 Maneuver	572	-	-	-	-
Stage 1	813	-	-	-	-
Stage 2	804	-	-	-	-

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

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1233	-	623	-	-
HCM Lane V/C Ratio	0.004	-	0.04	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - Mitigation
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	↕
Traffic Vol, veh/h	58	0	27	0	0	1	27	127	0	0	144	43
Future Vol, veh/h	58	0	27	0	0	1	27	127	0	0	144	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	0	0	0	7	3	0	0	8	14
Mvmt Flow	63	0	29	0	0	1	29	138	0	0	157	47

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	354	353	157	391	400	138	204	0	0	138	0	0
Stage 1	157	157	-	196	196	-	-	-	-	-	-	-
Stage 2	197	196	-	195	204	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.5	6.2	7.1	6.5	6.2	4.17	-	-	4.1	-	-
Critical Hdwy Stg 1	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4	3.3	3.5	4	3.3	2.263	-	-	2.2	-	-
Pot Cap-1 Maneuver	601	575	894	572	541	916	1338	-	-	1458	-	-
Stage 1	845	772	-	810	742	-	-	-	-	-	-	-
Stage 2	805	742	-	811	737	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	590	562	894	543	529	916	1338	-	-	1458	-	-
Mov Cap-2 Maneuver	590	562	-	543	529	-	-	-	-	-	-	-
Stage 1	826	772	-	791	725	-	-	-	-	-	-	-
Stage 2	786	725	-	784	737	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.3		8.9		1.4		0	
HCM LOS	B		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1338	-	-	661	916	1458	-	-
HCM Lane V/C Ratio	0.022	-	-	0.14	0.001	-	-	-
HCM Control Delay (s)	7.8	0	-	11.3	8.9	0	-	-
HCM Lane LOS	A	A	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	0	-	-

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	14	19	17	91	140	16
Future Vol, veh/h	14	19	17	91	140	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	7	0	0	7	6	6
Mvmt Flow	15	21	18	99	152	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	296	161	169	0	-	0
Stage 1	161	-	-	-	-	-
Stage 2	135	-	-	-	-	-
Critical Hdwy	6.47	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.47	-	-	-	-	-
Critical Hdwy Stg 2	5.47	-	-	-	-	-
Follow-up Hdwy	3.563	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	685	889	1421	-	-	-
Stage 1	856	-	-	-	-	-
Stage 2	879	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	676	889	1421	-	-	-
Mov Cap-2 Maneuver	676	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	879	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1421	-	784	-	-
HCM Lane V/C Ratio	0.013	-	0.046	-	-
HCM Control Delay (s)	7.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	35	288	196	77	89	74
Future Vol, veh/h	35	288	196	77	89	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	7	3	7	5	9	2
Mvmt Flow	38	310	211	83	96	80

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	294	0	-	0	639 253
Stage 1	-	-	-	-	253 -
Stage 2	-	-	-	-	386 -
Critical Hdwy	4.17	-	-	-	6.49 6.22
Critical Hdwy Stg 1	-	-	-	-	5.49 -
Critical Hdwy Stg 2	-	-	-	-	5.49 -
Follow-up Hdwy	2.263	-	-	-	3.581 3.318
Pot Cap-1 Maneuver	1239	-	-	-	429 786
Stage 1	-	-	-	-	773 -
Stage 2	-	-	-	-	672 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1239	-	-	-	413 786
Mov Cap-2 Maneuver	-	-	-	-	413 -
Stage 1	-	-	-	-	744 -
Stage 2	-	-	-	-	672 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1239	-	-	-	526
HCM Lane V/C Ratio	0.03	-	-	-	0.333
HCM Control Delay (s)	8	0	-	-	15.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.5

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	214	188	6	8	147	28	3	0	20	44	0	116
Future Vol, veh/h	214	188	6	8	147	28	3	0	20	44	0	116
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	170	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	2	4	33	25	7	2	0	0	25	2	0	2
Mvmt Flow	223	196	6	8	153	29	3	0	21	46	0	121

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	182	0	0	202	0	0	889	843	199	840	832	168
Stage 1	-	-	-	-	-	-	645	645	-	184	184	-
Stage 2	-	-	-	-	-	-	244	198	-	656	648	-
Critical Hdwy	4.12	-	-	4.35	-	-	7.1	6.5	6.45	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.425	-	-	3.5	4	3.525	3.518	4	3.318
Pot Cap-1 Maneuver	1393	-	-	1244	-	-	266	303	787	285	307	876
Stage 1	-	-	-	-	-	-	464	471	-	818	751	-
Stage 2	-	-	-	-	-	-	764	741	-	454	469	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1393	-	-	1244	-	-	197	247	787	238	250	876
Mov Cap-2 Maneuver	-	-	-	-	-	-	197	247	-	238	250	-
Stage 1	-	-	-	-	-	-	380	386	-	671	746	-
Stage 2	-	-	-	-	-	-	654	737	-	362	385	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	4.2			0.3			11.6			15.6		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	566	1393	-	-	1244	-	-	504
HCM Lane V/C Ratio	0.042	0.16	-	-	0.007	-	-	0.331
HCM Control Delay (s)	11.6	8.1	0	-	7.9	-	-	15.6
HCM Lane LOS	B	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-	-	1.4

Queues
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Mitigation
 Timing Plan: AM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	214	23	148	973	33	1356
v/c Ratio	0.42	0.59	0.08	0.66	0.49	0.09	0.69
Control Delay	52.5	20.7	0.5	25.0	17.7	5.0	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.5	20.7	0.5	25.0	17.7	5.0	9.7
Queue Length 50th (ft)	62	41	0	40	287	5	140
Queue Length 95th (ft)	107	116	0	#90	378	m8	164
Internal Link Dist (ft)		1327	452		1032		1169
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	286	493	307	224	1998	389	1964
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.43	0.07	0.66	0.49	0.08	0.69

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Mitigation
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	4	193	6	0	15	136	881	14	30	1180	67
Future Volume (vph)	79	4	193	6	0	15	136	881	14	30	1180	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Flt	1.00	0.85			0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1779	1540			1413		1613	3167		1573	3246	
Flt Permitted	0.95	1.00			0.82		0.13	1.00		0.24	1.00	
Satd. Flow (perm)	1783	1540			1176		218	3167		404	3246	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	4	210	7	0	16	148	958	15	33	1283	73
RTOR Reduction (vph)	0	129	0	0	22	0	0	1	0	0	3	0
Lane Group Flow (vph)	86	85	0	0	1	0	148	972	0	33	1353	0
Heavy Vehicles (%)	4%	0%	8%	0%	0%	27%	13%	15%	7%	13%	9%	3%
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	15.2	22.5			4.2		83.0	75.6		83.0	75.6	
Effective Green, g (s)	15.2	22.5			4.2		83.0	75.6		83.0	75.6	
Actuated g/C Ratio	0.12	0.17			0.03		0.64	0.58		0.64	0.58	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	208	266			37		218	1841		324	1887	
v/s Ratio Prot	0.03	c0.06					0.04	c0.31		0.01	c0.42	
v/s Ratio Perm	0.01				0.00		0.39			0.06		
v/c Ratio	0.41	0.32			0.02		0.68	0.53		0.10	0.72	
Uniform Delay, d1	53.3	47.0			60.9		14.4	16.4		14.9	19.5	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.58	0.42	
Incremental Delay, d2	1.3	0.7			0.2		8.1	1.1		0.1	1.7	
Delay (s)	54.6	47.7			61.1		22.5	17.5		8.7	10.0	
Level of Service	D	D			E		C	B		A	B	
Approach Delay (s)		49.7			61.1			18.2			10.0	
Approach LOS		D			E			B			A	
Intersection Summary												
HCM 2000 Control Delay			17.8				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			31.8		
Intersection Capacity Utilization			74.9%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation

Timing Plan: AM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	835	379	973	290	245	610	168	201	1022	70
v/c Ratio	0.81	0.48	0.65	0.43	0.81	0.42	0.23	0.47	0.76	0.11
Control Delay	50.1	17.3	42.0	12.3	45.1	12.6	2.1	14.0	28.0	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Total Delay	50.1	17.3	42.0	12.3	45.1	12.6	2.1	14.0	28.2	0.4
Queue Length 50th (ft)	345	146	262	64	99	114	8	54	218	0
Queue Length 95th (ft)	394	209	289	130	#269	83	3	m79	272	m0
Internal Link Dist (ft)	351		1394			1169			515	
Turn Bay Length (ft)		300		200	400		330	250		175
Base Capacity (vph)	1211	790	1771	682	301	1442	723	431	1345	666
Starvation Cap Reductn	0	0	0	0	0	0	0	0	33	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.48	0.55	0.43	0.81	0.42	0.23	0.47	0.78	0.11

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation
 Timing Plan: AM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑↑	↗	↗	↑↑	↗	↗	↑↑	↗	
Traffic Volume (vph)	0	802	364	0	934	278	235	586	161	193	981	67	
Future Volume (vph)	0	802	364	0	934	278	235	586	161	193	981	67	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			-8%			-3%			-2%		
Total Lost time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3	8.3	
Lane Util. Factor		0.95	1.00		0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3628	1547		5187	1612	1621	3214	1469	1736	3345	1483	
Flt Permitted		1.00	1.00		1.00	1.00	0.15	1.00	1.00	0.37	1.00	1.00	
Satd. Flow (perm)		3628	1547		5187	1612	251	3214	1469	674	3345	1483	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	835	379	0	973	290	245	610	168	201	1022	70	
RTOR Reduction (vph)	0	0	68	0	0	102	0	0	64	0	0	42	
Lane Group Flow (vph)	0	835	311	0	973	188	245	610	104	201	1022	28	
Confl. Peds. (#/hr)	1					1			1	1			
Heavy Vehicles (%)	0%	2%	7%	0%	4%	3%	13%	14%	10%	5%	9%	10%	
Turn Type		NA	pm+ov		NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	Perm	
Protected Phases		8	5		4	1	5	2		1	6		
Permitted Phases			8			4	6		2	2		6	
Actuated Green, G (s)		36.8	52.8		37.8	47.4	68.3	58.4	58.4	68.0	52.3	52.3	
Effective Green, g (s)		36.8	52.8		37.8	47.4	68.3	58.4	58.4	68.0	52.3	52.3	
Actuated g/C Ratio		0.28	0.41		0.29	0.36	0.53	0.45	0.45	0.52	0.40	0.40	
Clearance Time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3	8.3	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1027	723		1508	587	300	1443	659	430	1345	596	
v/s Ratio Prot		c0.23	0.05		0.19	0.02	c0.10	0.19		0.03	0.31		
v/s Ratio Perm			0.15			0.09	c0.33		0.07	0.21		0.02	
v/c Ratio		0.81	0.43		0.65	0.32	0.82	0.42	0.16	0.47	0.76	0.05	
Uniform Delay, d1		43.4	27.8		40.2	29.7	40.5	24.3	21.2	17.0	33.4	23.7	
Progression Factor		1.00	1.00		1.00	1.00	0.63	0.46	0.17	0.70	0.70	0.20	
Incremental Delay, d2		5.0	0.4		1.0	0.3	14.3	0.8	0.5	0.7	3.5	0.1	
Delay (s)		48.4	28.2		41.2	30.0	39.9	12.1	4.1	12.7	26.9	4.9	
Level of Service		D	C		D	C	D	B	A	B	C	A	
Approach Delay (s)		42.1			38.6			17.5			23.5		
Approach LOS		D			D			B			C		
Intersection Summary													
HCM 2000 Control Delay			30.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.82										
Actuated Cycle Length (s)			130.0									Sum of lost time (s)	25.2
Intersection Capacity Utilization			83.1%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

Queues
14: S Main Street & Pleasant Hill Road

Future - Mitigation
Timing Plan: AM PEAK



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	144	158	7	54	866	2	772
v/c Ratio	0.67	0.41	0.10	0.11	0.37	0.00	0.37
Control Delay	68.7	5.0	61.6	6.7	7.5	8.0	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.7	5.0	61.6	6.7	7.5	8.0	15.3
Queue Length 50th (ft)	118	0	6	7	86	0	161
Queue Length 95th (ft)	180	20	22	24	254	4	296
Internal Link Dist (ft)	1324		115		381		1543
Turn Bay Length (ft)		220		190		140	
Base Capacity (vph)	306	455	84	482	2336	474	2059
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.35	0.08	0.11	0.37	0.00	0.37
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - Mitigation
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	136	1	150	5	2	0	51	811	11	2	670	64
Future Volume (vph)	136	1	150	5	2	0	51	811	11	2	670	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%			1%	
Total Lost time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		1.00		1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00		0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1718	1576		1233		1701	3265		1796	3321	
Flt Permitted		0.95	1.00		0.97		0.31	1.00		0.29	1.00	
Satd. Flow (perm)		1718	1576		1233		549	3265		552	3321	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	143	1	158	5	2	0	54	854	12	2	705	67
RTOR Reduction (vph)	0	0	138	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	144	20	0	7	0	54	866	0	2	767	0
Heavy Vehicles (%)	7%	0%	4%	20%	100%	0%	4%	8%	18%	0%	7%	4%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		16.3	16.3		1.6		83.4	82.2		83.4	69.7	
Effective Green, g (s)		16.3	16.3		1.6		83.4	82.2		83.4	69.7	
Actuated g/C Ratio		0.13	0.13		0.01		0.64	0.63		0.64	0.54	
Clearance Time (s)		7.8	7.8		6.1		7.4	7.4		7.4	7.4	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		215	197		15		473	2064		365	1780	
v/s Ratio Prot		c0.08			c0.01		0.01	c0.27		0.00	c0.23	
v/s Ratio Perm			0.01				0.06			0.00		
v/c Ratio		0.67	0.10		0.47		0.11	0.42		0.01	0.43	
Uniform Delay, d1		54.3	50.4		63.8		13.5	12.0		8.7	18.2	
Progression Factor		1.00	1.00		1.00		0.79	0.74		1.00	1.00	
Incremental Delay, d2		7.7	0.2		21.2		0.1	0.6		0.0	0.8	
Delay (s)		62.0	50.6		85.0		10.8	9.4		8.7	19.0	
Level of Service		E	D		F		B	A		A	B	
Approach Delay (s)		56.0			85.0			9.5			18.9	
Approach LOS		E			F			A			B	
Intersection Summary												
HCM 2000 Control Delay			20.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			130.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			60.0%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - Mitigation
 Timing Plan: AM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑						↑		↑	
Traffic Volume (veh/h)	0	994	157	0	0	0	0	0	207	30	0
Future Volume (Veh/h)	0	994	157	0	0	0	0	0	207	30	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	0	1046	165	0	0	0	0	0	218	32	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1211			1144	1128	606	1211	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1211			1144	1128	606	1211	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.0	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.2	3.3
p0 queue free %	100			100			100	100	51	79	100
cM capacity (veh/h)	1636			583			131	206	440	151	1091
Direction, Lane #	EB 1	EB 2	NB 1	SW 1							
Volume Total	697	514	218	32							
Volume Left	0	0	0	0							
Volume Right	0	165	218	0							
cSH	1700	1700	440	151							
Volume to Capacity	0.41	0.30	0.49	0.21							
Queue Length 95th (ft)	0	0	67	19							
Control Delay (s)	0.0	0.0	20.9	35.1							
Lane LOS			C	E							
Approach Delay (s)	0.0		20.9	35.1							
Approach LOS			C	E							
Intersection Summary											
Average Delay			3.9								
Intersection Capacity Utilization			52.0%		ICU Level of Service				A		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	869	238
v/c Ratio	0.43	0.64
Control Delay	6.5	16.7
Queue Delay	0.0	0.0
Total Delay	6.5	16.7
Queue Length 50th (ft)	64	24
Queue Length 95th (ft)	98	76
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2043	407
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.43	0.58
Intersection Summary		

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - Mitigation
 Timing Plan: AM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↘	
Traffic Volume (vph)	0	0	0	826	226	0
Future Volume (vph)	0	0	0	826	226	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3374	1736	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3374	1736	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	869	238	0
RTOR Reduction (vph)	0	0	0	0	126	0
Lane Group Flow (vph)	0	0	0	869	112	0
Heavy Vehicles (%)	0%	0%	0%	7%	4%	0%
Turn Type				NA	Prot	
Protected Phases				8	5	
Permitted Phases						
Actuated Green, G (s)				31.6	7.5	
Effective Green, g (s)				31.6	7.5	
Actuated g/C Ratio				0.61	0.14	
Clearance Time (s)				6.5	6.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				2046	249	
v/s Ratio Prot				c0.26	c0.06	
v/s Ratio Perm						
v/c Ratio				0.42	0.45	
Uniform Delay, d1				5.4	20.4	
Progression Factor				1.00	1.00	
Incremental Delay, d2				0.6	1.3	
Delay (s)				6.1	21.7	
Level of Service				A	C	
Approach Delay (s)	0.0			6.1	21.7	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			9.4	HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.43			
Actuated Cycle Length (s)			52.1	Sum of lost time (s)		13.0
Intersection Capacity Utilization			74.0%	ICU Level of Service		D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	805	217	0	82
Future Vol, veh/h	0	0	805	217	0	82
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	7	3	0	19
Mvmt Flow	0	0	847	228	0	86

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

Approach	WB	SB
HCM Control Delay, s	0	15
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	446
HCM Lane V/C Ratio	-	-	0.194
HCM Control Delay (s)	-	-	15
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Queues
20: North-South Connector/QRI Road & Erickson Avenue

Future - Mitigation
Timing Plan: AM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	124	886	17	148	760	8	95	185	292	35	87
v/c Ratio	0.30	0.60	0.02	0.41	0.48	0.01	0.31	0.60	0.43	0.13	0.40
Control Delay	10.7	21.5	0.1	12.0	18.7	0.0	25.8	42.6	9.8	23.3	34.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.7	21.5	0.1	12.0	18.7	0.0	25.8	42.6	9.8	23.3	34.1
Queue Length 50th (ft)	28	192	0	34	156	0	37	93	36	13	32
Queue Length 95th (ft)	54	273	0	62	225	0	76	#189	101	36	79
Internal Link Dist (ft)		210			447			496			455
Turn Bay Length (ft)	150		150	150		150	150			150	
Base Capacity (vph)	584	1489	777	489	1570	832	346	330	775	285	234
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.60	0.02	0.30	0.48	0.01	0.27	0.56	0.38	0.12	0.37

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 20: North-South Connector/QRI Road & Erickson Avenue

Future - Mitigation
 Timing Plan: AM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	119	851	16	142	730	8	91	178	280	34	57	27
Future Volume (vph)	119	851	16	142	730	8	91	178	280	34	57	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			0%			0%	
Total Lost time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.6	5.7	5.6	5.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1814	3558	1623	1770	3343	1583	1770	1863	1583	1770	1773	
Flt Permitted	0.28	1.00	1.00	0.22	1.00	1.00	0.70	1.00	1.00	0.52	1.00	
Satd. Flow (perm)	537	3558	1623	409	3343	1583	1305	1863	1583	970	1773	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	124	886	17	148	760	8	95	185	292	35	59	28
RTOR Reduction (vph)	0	0	10	0	0	4	0	0	146	0	18	0
Lane Group Flow (vph)	124	886	7	148	760	4	95	185	146	35	69	0
Heavy Vehicles (%)	2%	4%	2%	2%	8%	2%	2%	2%	2%	2%	2%	2%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	6		2	2		6	4		8	8		
Actuated Green, G (s)	44.1	35.0	35.0	43.6	37.5	37.5	17.2	13.2	21.8	17.2	10.2	
Effective Green, g (s)	44.1	35.0	35.0	43.6	37.5	37.5	17.2	13.2	21.8	17.2	10.2	
Actuated g/C Ratio	0.53	0.42	0.42	0.52	0.45	0.45	0.21	0.16	0.26	0.21	0.12	
Clearance Time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.6	5.7	5.6	5.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	383	1487	678	352	1497	709	307	293	412	237	216	
v/s Ratio Prot	0.03	c0.25		c0.04	0.23		c0.03	c0.10	0.04	0.01	0.04	
v/s Ratio Perm	0.14		0.00	0.18		0.00	0.04		0.06	0.02		
v/c Ratio	0.32	0.60	0.01	0.42	0.51	0.01	0.31	0.63	0.36	0.15	0.32	
Uniform Delay, d1	10.6	18.9	14.2	11.4	16.5	12.8	27.9	33.0	25.2	27.0	33.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	1.8	0.0	0.8	1.2	0.0	0.6	4.4	0.5	0.3	0.9	
Delay (s)	11.1	20.6	14.3	12.3	17.7	12.8	28.5	37.4	25.8	27.3	34.4	
Level of Service	B	C	B	B	B	B	C	D	C	C	C	
Approach Delay (s)		19.4			16.8			30.0			32.4	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			21.4				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			83.7				Sum of lost time (s)			22.9		
Intersection Capacity Utilization			64.0%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

Intersection						
Int Delay, s/veh	2.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	140	149	5	52	100	5
Future Vol, veh/h	140	149	5	52	100	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	7	2	2	5	2
Mvmt Flow	152	162	5	57	109	5

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	314	0	300	233
Stage 1	-	-	-	-	233	-
Stage 2	-	-	-	-	67	-
Critical Hdwy	-	-	4.12	-	6.45	6.22
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.218	-	3.545	3.318
Pot Cap-1 Maneuver	-	-	1246	-	685	806
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	948	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1246	-	682	806
Mov Cap-2 Maneuver	-	-	-	-	682	-
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	944	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	687	-	-	1246	-
HCM Lane V/C Ratio	0.166	-	-	0.004	-
HCM Control Delay (s)	11.3	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0	-

Queues
22: S Main Street & QRI Road

Future - Mitigation
Timing Plan: AM PEAK



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	177	387	23	915	915	35
v/c Ratio	0.71	0.69	0.05	0.36	0.47	0.03
Control Delay	67.7	38.3	4.5	5.0	9.8	0.5
Queue Delay	0.0	13.1	0.0	0.1	0.0	0.0
Total Delay	67.7	51.4	4.5	5.1	9.8	0.5
Queue Length 50th (ft)	144	246	3	97	243	1
Queue Length 95th (ft)	212	317	m10	134	84	1
Internal Link Dist (ft)	339			515	301	
Turn Bay Length (ft)	270		250			300
Base Capacity (vph)	577	560	479	2551	1938	1485
Starvation Cap Reductn	0	153	0	459	0	0
Spillback Cap Reductn	0	0	0	0	30	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.95	0.05	0.44	0.48	0.02

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

22: S Main Street & QRI Road

Future - Mitigation
Timing Plan: AM PEAK



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	163	356	21	842	842	32
Future Volume (vph)	163	356	21	842	842	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			4%	-2%	
Total Lost time (s)	7.6	8.0	8.0	8.3	8.3	7.6
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1734	3468	3575	1599
Flt Permitted	0.95	1.00	0.25	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	461	3468	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	177	387	23	915	915	35
RTOR Reduction (vph)	0	36	0	0	0	11
Lane Group Flow (vph)	177	351	23	915	915	24
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type	Prot	pm+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	5	5	2	6	4
Permitted Phases		4	6			6
Actuated Green, G (s)	18.5	35.6	87.6	95.6	70.5	89.0
Effective Green, g (s)	18.5	35.6	87.6	95.6	70.5	89.0
Actuated g/C Ratio	0.14	0.27	0.67	0.74	0.54	0.68
Clearance Time (s)	7.6	8.0	8.0	8.3	8.3	7.6
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	251	433	478	2550	1938	1094
v/s Ratio Prot	0.10	c0.11	0.01	0.26	c0.26	0.00
v/s Ratio Perm		0.12	0.03			0.01
v/c Ratio	0.71	0.81	0.05	0.36	0.47	0.02
Uniform Delay, d1	53.2	44.0	7.7	6.2	18.3	6.6
Progression Factor	1.00	1.00	0.73	0.69	0.46	0.26
Incremental Delay, d2	8.7	10.7	0.0	0.4	0.8	0.0
Delay (s)	61.8	54.7	5.7	4.7	9.1	1.7
Level of Service	E	D	A	A	A	A
Approach Delay (s)	57.0			4.7	8.9	
Approach LOS	E			A	A	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues
1: S High Street & Erickson Avenue

Future - Mitigation
Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	173	438	363	821	55	614	362	434	679	228
v/c Ratio	0.87	0.83	0.85	0.85	0.22	0.73	0.40	0.77	0.55	0.25
Control Delay	64.2	63.6	47.5	47.2	22.8	49.2	10.2	57.5	35.4	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.2	63.6	47.5	47.2	22.8	49.2	10.2	57.5	35.4	4.9
Queue Length 50th (ft)	83	171	197	285	25	241	79	166	240	14
Queue Length 95th (ft)	#200	#257	#318	364	52	#351	152	219	306	60
Internal Link Dist (ft)		616		200		1390			429	
Turn Bay Length (ft)	235		150		130		240	390		390
Base Capacity (vph)	198	535	473	1046	253	845	945	643	1224	897
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.82	0.77	0.78	0.22	0.73	0.38	0.67	0.55	0.25

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
1: S High Street & Erickson Avenue

Future - Mitigation
Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Traffic Volume (vph)	170	410	20	356	556	249	10	44	602	355	425	665
Future Volume (vph)	170	410	20	356	556	249	10	44	602	355	425	665
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	11	12	12	12	12
Total Lost time (s)	7.2	7.2		7.2	7.2				10.0	10.0	7.2	5.5
Lane Util. Factor	1.00	0.95		1.00	0.95				1.00	0.95	1.00	0.97
Flt	1.00	0.99		1.00	0.95				1.00	1.00	0.85	1.00
Flt Protected	0.95	1.00		0.95	1.00				0.95	1.00	1.00	0.95
Satd. Flow (prot)	1787	3485		1770	3362				1714	3539	1583	3433
Flt Permitted	0.13	1.00		0.28	1.00				0.30	1.00	1.00	0.95
Satd. Flow (perm)	246	3485		529	3362				535	3539	1583	3433
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	173	418	20	363	567	254	10	45	614	362	434	679
RTOR Reduction (vph)	0	3	0	0	44	0	0	0	0	101	0	0
Lane Group Flow (vph)	173	435	0	363	777	0	0	55	614	261	434	679
Heavy Vehicles (%)	1%	3%	0%	2%	3%	1%	10%	0%	2%	2%	2%	3%
Turn Type	D.P+P	NA		D.P+P	NA		D.P+P	D.P+P	NA	pm+ov	Prot	NA
Protected Phases	7	4		3	8		5	5	2	3	1	6
Permitted Phases	8			4			6	6		2		
Actuated Green, G (s)	41.7	18.1		41.7	32.9			43.9	28.7	52.3	19.7	39.9
Effective Green, g (s)	41.7	18.1		41.7	32.9			43.9	28.7	52.3	19.7	39.9
Actuated g/C Ratio	0.35	0.15		0.35	0.27			0.37	0.24	0.44	0.16	0.33
Clearance Time (s)	7.2	7.2		7.2	7.2			10.0	10.0	7.2	5.5	10.0
Vehicle Extension (s)	5.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	198	525		427	921			235	846	689	563	1165
v/s Ratio Prot	0.06	0.12		c0.17	0.23			0.01	c0.17	0.07	c0.13	0.19
v/s Ratio Perm	c0.24			0.13				0.08		0.09		
v/c Ratio	0.87	0.83		0.85	0.84			0.23	0.73	0.38	0.77	0.58
Uniform Delay, d1	30.6	49.5		32.6	41.1			25.4	42.0	22.9	48.0	33.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	34.0	10.4		14.9	7.1			0.5	5.4	0.4	6.5	2.1
Delay (s)	64.6	59.9		47.4	48.2			25.9	47.4	23.2	54.4	35.3
Level of Service	E	E		D	D			C	D	C	D	D
Approach Delay (s)		61.2			48.0				37.8			39.4
Approach LOS		E			D				D			D
Intersection Summary												
HCM 2000 Control Delay			44.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			34.4			
Intersection Capacity Utilization			86.4%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: S High Street & Erickson Avenue

Future - Mitigation
 Timing Plan: PM PEAK

Movement	SBR
Lane Configurations	
Traffic Volume (vph)	223
Future Volume (vph)	223
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	7.2
Lane Util. Factor	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	228
RTOR Reduction (vph)	116
Lane Group Flow (vph)	112
Heavy Vehicles (%)	2%
Turn Type	pm+ov
Protected Phases	7
Permitted Phases	6
Actuated Green, G (s)	48.7
Effective Green, g (s)	48.7
Actuated g/C Ratio	0.41
Clearance Time (s)	7.2
Vehicle Extension (s)	5.0
Lane Grp Cap (vph)	642
v/s Ratio Prot	0.01
v/s Ratio Perm	0.06
v/c Ratio	0.17
Uniform Delay, d1	22.8
Progression Factor	1.00
Incremental Delay, d2	0.3
Delay (s)	23.1
Level of Service	C
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Mitigation
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	12.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	↕
Traffic Vol, veh/h	1	0	2	17	1	224	1	950	30	140	1215	4
Future Vol, veh/h	1	0	2	17	1	224	1	950	30	140	1215	4
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	2	3	0
Mvmt Flow	1	0	2	18	1	236	1	1000	32	147	1279	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2080	2611	644	1952	2597	516	1285	0	0	1032	0	0
Stage 1	1577	1577	-	1018	1018	-	-	-	-	-	-	-
Stage 2	503	1034	-	934	1579	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	25	420	39	25	501	547	-	-	669	-	-
Stage 1	117	171	-	258	317	-	-	-	-	-	-	-
Stage 2	524	312	-	290	171	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	19	419	32	19	501	546	-	-	669	-	-
Mov Cap-2 Maneuver	13	19	-	32	19	-	-	-	-	-	-	-
Stage 1	116	133	-	257	316	-	-	-	-	-	-	-
Stage 2	275	311	-	225	133	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	111.2		127.7		0		1.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	546	-	-	37	235	669	-	-
HCM Lane V/C Ratio	0.002	-	-	0.085	1.084	0.22	-	-
HCM Control Delay (s)	11.6	-	-	111.2	127.7	11.9	-	-
HCM Lane LOS	B	-	-	F	F	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	11.1	0.8	-	-

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	64	120	123	90	131	23
Future Vol, veh/h	64	120	123	90	131	23
Conflicting Peds, #/hr	0	1	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	3	3	1	2	5
Mvmt Flow	70	130	134	98	142	25

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	492	184	0	0	232
Stage 1	183	-	-	-	-
Stage 2	309	-	-	-	-
Critical Hdwy	6.41	6.23	-	-	4.12
Critical Hdwy Stg 1	5.41	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-
Follow-up Hdwy	3.509	3.327	-	-	2.218
Pot Cap-1 Maneuver	538	856	-	-	1336
Stage 1	851	-	-	-	-
Stage 2	747	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	480	855	-	-	1336
Mov Cap-2 Maneuver	480	-	-	-	-
Stage 1	851	-	-	-	-
Stage 2	666	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.6	0	6.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	672	1336
HCM Lane V/C Ratio	-	-	0.298	0.107
HCM Control Delay (s)	-	-	12.6	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	1.2	0.4

HCM 6th TWSC
 4: Willow Hill Drive/Driveway & Pleasant Hill Road

Future - Mitigation
 Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	225	19	28	217	0	8	0	17	0	0	0
Future Vol, veh/h	0	225	19	28	217	0	8	0	17	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	0	2	0	0	0	0	0	0	0
Mvmt Flow	0	245	21	30	236	0	9	0	18	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	236	0	0	266	0	0	552	552	256	561	562	236
Stage 1	-	-	-	-	-	-	256	256	-	296	296	-
Stage 2	-	-	-	-	-	-	296	296	-	265	266	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1343	-	-	1310	-	-	447	444	788	441	439	808
Stage 1	-	-	-	-	-	-	753	699	-	717	672	-
Stage 2	-	-	-	-	-	-	717	672	-	745	692	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1343	-	-	1310	-	-	438	432	788	422	428	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	438	432	-	422	428	-
Stage 1	-	-	-	-	-	-	753	699	-	717	655	-
Stage 2	-	-	-	-	-	-	698	655	-	728	692	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.9			11			0		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	628	1343	-	-	1310	-	-	-
HCM Lane V/C Ratio	0.043	-	-	-	0.023	-	-	-
HCM Control Delay (s)	11	0	-	-	7.8	0	-	0
HCM Lane LOS	B	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.1	0	-	-	0.1	-	-	-

HCM 6th TWSC
 5: Willow Hill Drive/Central Avenue & Pleasant Hill Road

Future - Mitigation
 Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	178	47	43	201	82	31	33	61	63	40	23
Future Vol, veh/h	25	178	47	43	201	82	31	33	61	63	40	23
Conflicting Peds, #/hr	1	0	0	0	0	1	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	5	1	2	2	1	0	2	2	2	2	2	1
Mvmt Flow	27	191	51	46	216	88	33	35	66	68	43	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	305	0	0	242	0	0	658	668	217	674	649	262
Stage 1	-	-	-	-	-	-	271	271	-	353	353	-
Stage 2	-	-	-	-	-	-	387	397	-	321	296	-
Critical Hdwy	4.15	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.245	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.309
Pot Cap-1 Maneuver	1239	-	-	1324	-	-	378	379	823	368	389	779
Stage 1	-	-	-	-	-	-	735	685	-	664	631	-
Stage 2	-	-	-	-	-	-	637	603	-	691	668	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1238	-	-	1324	-	-	316	354	823	297	363	778
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	354	-	297	363	-
Stage 1	-	-	-	-	-	-	717	668	-	647	604	-
Stage 2	-	-	-	-	-	-	548	577	-	587	651	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			1			15.7			21.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	471	1238	-	-	1324	-	-	358
HCM Lane V/C Ratio	0.285	0.022	-	-	0.035	-	-	0.378
HCM Control Delay (s)	15.7	8	0	-	7.8	0	-	21.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0.1	-	-	1.7

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		T
Traffic Vol, veh/h	13	5	5	209	215	14
Future Vol, veh/h	13	5	5	209	215	14
Conflicting Peds, #/hr	0	0	2	0	0	2
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	40	0	3	2	0
Mvmt Flow	14	5	5	227	234	15

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	481	244	251	0	0
Stage 1	244	-	-	-	-
Stage 2	237	-	-	-	-
Critical Hdwy	6.4	6.6	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.66	2.2	-	-
Pot Cap-1 Maneuver	548	710	1326	-	-
Stage 1	801	-	-	-	-
Stage 2	807	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	544	709	1323	-	-
Mov Cap-2 Maneuver	544	-	-	-	-
Stage 1	796	-	-	-	-
Stage 2	805	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.4	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1323	-	582	-	-
HCM Lane V/C Ratio	0.004	-	0.034	-	-
HCM Control Delay (s)	7.7	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

HCM 6th TWSC
8: Pear Street & Cobblers Court/Driveway

Future - Mitigation
Timing Plan: PM PEAK

Intersection													
Int Delay, s/veh	2												
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↕			↕			↕			↕	↕
Traffic Vol, veh/h	1	55	0	11	0	0	2	13	145	0	1	159	50
Future Vol, veh/h	1	55	0	11	0	0	2	13	145	0	1	159	50
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Free	Free	Free	Free	Free	Free						
RT Channelized	-	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-	65
Veh in Median Storage, #	-	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	2	0	9	0	0	50	0	2	0	100	2	2
Mvmt Flow	1	60	0	12	0	0	2	14	158	0	1	173	54

Major/Minor	Minor2	Minor1				Major1				Major2			
Conflicting Flow All	0	362	361	173	394	415	158	227	0	0	158	0	0
Stage 1	0	175	175	-	186	186	-	-	-	-	-	-	-
Stage 2	0	187	186	-	208	229	-	-	-	-	-	-	-
Critical Hdwy	-	7.12	6.5	6.29	7.1	6.5	6.7	4.1	-	-	5.1	-	-
Critical Hdwy Stg 1	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	6.12	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.518	4	3.381	3.5	4	3.75	2.2	-	-	3.1	-	-
Pot Cap-1 Maneuver	0	594	569	853	569	531	776	1353	-	-	993	-	-
Stage 1	0	827	758	-	820	750	-	-	-	-	-	-	-
Stage 2	0	815	750	-	799	718	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	587	562	853	556	525	776	1353	-	-	993	-	-
Mov Cap-2 Maneuver	0	587	562	-	556	525	-	-	-	-	-	-	-
Stage 1	0	818	757	-	811	742	-	-	-	-	-	-	-
Stage 2	0	804	742	-	787	717	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.6	9.7	0.6	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1353	-	-	619	776	993	-	-
HCM Lane V/C Ratio	0.01	-	-	0.116	0.003	0.001	-	-
HCM Control Delay (s)	7.7	0	-	11.6	9.7	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0	0	-	-

Intersection						
Int Delay, s/veh	1.2					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T		T		T	
Traffic Vol, veh/h	20	6	11	128	99	20
Future Vol, veh/h	20	6	11	128	99	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	3	5	0
Mvmt Flow	22	7	12	139	108	22

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	282	119	130	0	0
Stage 1	119	-	-	-	-
Stage 2	163	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	712	938	1468	-	-
Stage 1	911	-	-	-	-
Stage 2	871	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	706	938	1468	-	-
Mov Cap-2 Maneuver	706	-	-	-	-
Stage 1	903	-	-	-	-
Stage 2	871	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1468	-	749	-	-
HCM Lane V/C Ratio	0.008	-	0.038	-	-
HCM Control Delay (s)	7.5	0	10	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	2.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	33	322	307	114	87	19
Future Vol, veh/h	33	322	307	114	87	19
Conflicting Peds, #/hr	0	0	0	0	1	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	1	2	1	3	6	1
Mvmt Flow	35	346	330	123	94	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	453	0	-	0	809 393
Stage 1	-	-	-	-	392 -
Stage 2	-	-	-	-	417 -
Critical Hdwy	4.11	-	-	-	6.46 6.21
Critical Hdwy Stg 1	-	-	-	-	5.46 -
Critical Hdwy Stg 2	-	-	-	-	5.46 -
Follow-up Hdwy	2.209	-	-	-	3.554 3.309
Pot Cap-1 Maneuver	1113	-	-	-	344 658
Stage 1	-	-	-	-	674 -
Stage 2	-	-	-	-	657 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1113	-	-	-	331 657
Mov Cap-2 Maneuver	-	-	-	-	331 -
Stage 1	-	-	-	-	648 -
Stage 2	-	-	-	-	657 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	19.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1113	-	-	-	363
HCM Lane V/C Ratio	0.032	-	-	-	0.314
HCM Control Delay (s)	8.3	0	-	-	19.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	169	274	11	37	315	90	17	0	24	43	0	165
Future Vol, veh/h	169	274	11	37	315	90	17	0	24	43	0	165
Conflicting Peds, #/hr	0	0	3	3	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	170	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	3	0	3	2	2	6	0	4	2	0	2
Mvmt Flow	184	298	12	40	342	98	18	0	26	47	0	179

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	440	0	0	313	0	0	1236	1195	307	1156	1152	391
Stage 1	-	-	-	-	-	-	675	675	-	471	471	-
Stage 2	-	-	-	-	-	-	561	520	-	685	681	-
Critical Hdwy	4.12	-	-	4.13	-	-	7.16	6.5	6.24	7.12	6.5	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.16	5.5	-	6.12	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.16	5.5	-	6.12	5.5	-
Follow-up Hdwy	2.218	-	-	2.227	-	-	3.554	4	3.336	3.518	4	3.318
Pot Cap-1 Maneuver	1120	-	-	1242	-	-	150	188	728	174	199	658
Stage 1	-	-	-	-	-	-	437	456	-	573	563	-
Stage 2	-	-	-	-	-	-	505	535	-	438	453	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1120	-	-	1238	-	-	90	145	726	139	154	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	90	145	-	139	154	-
Stage 1	-	-	-	-	-	-	349	364	-	459	545	-
Stage 2	-	-	-	-	-	-	355	518	-	338	362	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.3			0.7			30.5			28.7		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	185	1120	-	-	1238	-	-	371
HCM Lane V/C Ratio	0.241	0.164	-	-	0.032	-	-	0.609
HCM Control Delay (s)	30.5	8.8	0	-	8	-	-	28.7
HCM Lane LOS	D	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.9	0.6	-	-	0.1	-	-	3.9

Queues
12: S Main Street & W Mosby Road/E Mosby Road

Future - Mitigation
Timing Plan: PM PEAK



Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	291	148	79	180	1526	14	1349
v/c Ratio	0.81	0.29	0.69	0.83	0.75	0.09	0.84
Control Delay	63.6	8.8	69.6	55.0	27.4	6.2	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	8.8	69.6	55.0	27.4	6.2	11.6
Queue Length 50th (ft)	229	7	43	89	476	2	108
Queue Length 95th (ft)	#343	60	#120	#216	755	m3	m126
Internal Link Dist (ft)		1327	452		1032		679
Turn Bay Length (ft)	160			150		190	
Base Capacity (vph)	373	530	119	223	2025	176	1603
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.28	0.66	0.81	0.75	0.08	0.84

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 12: S Main Street & W Mosby Road/E Mosby Road

Future - Mitigation
 Timing Plan: PM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	268	9	127	19	15	39	166	1392	12	13	1047	194
Future Volume (vph)	268	9	127	19	15	39	166	1392	12	13	1047	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			2%			-2%			3%	
Total Lost time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Lane Util. Factor	1.00	1.00			1.00		1.00	0.95		1.00	0.95	
Frbp, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86			0.93		1.00	1.00		1.00	0.98	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1832	1559			1674		1787	3536		1778	3310	
Flt Permitted	0.67	1.00			0.86		0.09	1.00		0.07	1.00	
Satd. Flow (perm)	1292	1559			1460		161	3536		131	3310	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	10	138	21	16	42	180	1513	13	14	1138	211
RTOR Reduction (vph)	0	101	0	0	29	0	0	0	0	0	10	0
Lane Group Flow (vph)	291	47	0	0	50	0	180	1526	0	14	1339	0
Confl. Peds. (#/hr)							1					1
Heavy Vehicles (%)	1%	0%	8%	5%	0%	3%	2%	3%	0%	0%	5%	2%
Turn Type	D.P+P	NA		Perm	NA		D.P+P	NA		D.P+P	NA	
Protected Phases	3	8			4		5	2		1	6	
Permitted Phases	4			4			6			2		
Actuated Green, G (s)	29.9	37.2			8.3		78.3	74.9		78.3	67.3	
Effective Green, g (s)	29.9	37.2			8.3		78.3	74.9		78.3	67.3	
Actuated g/C Ratio	0.21	0.27			0.06		0.56	0.54		0.56	0.48	
Clearance Time (s)	7.3	7.3			7.3		8.6	8.6		8.6	8.6	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	359	414			86		217	1891		113	1591	
v/s Ratio Prot	c0.12	0.03					0.06	c0.43		0.00	c0.40	
v/s Ratio Perm	c0.05				0.03		0.40			0.07		
v/c Ratio	0.81	0.11			0.58		0.83	0.81		0.12	0.84	
Uniform Delay, d1	51.5	38.9			64.2		28.6	26.6		41.6	31.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.40	0.25	
Incremental Delay, d2	13.0	0.1			9.1		22.3	3.8		0.3	3.5	
Delay (s)	64.5	39.0			73.3		50.9	30.4		16.8	11.3	
Level of Service	E	D			E		D	C		B	B	
Approach Delay (s)		55.9			73.3			32.6			11.4	
Approach LOS		E			E			C			B	
Intersection Summary												
HCM 2000 Control Delay			28.3				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			31.8		
Intersection Capacity Utilization			86.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation

Timing Plan: PM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	754	268	1204	304	403	943	515	398	1221	106
v/c Ratio	0.93	0.32	0.99	0.41	0.93	0.65	0.72	0.83	0.92	0.16
Control Delay	71.3	13.3	77.9	15.8	57.8	23.4	21.1	39.4	38.3	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0
Total Delay	71.3	13.3	77.9	15.8	57.8	23.4	21.1	39.4	43.7	4.0
Queue Length 50th (ft)	356	82	404	106	314	382	345	129	462	0
Queue Length 95th (ft)	#475	145	#510	165	#522	397	480	279	#590	m17
Internal Link Dist (ft)	381		1394			410			510	
Turn Bay Length (ft)		300		200			330	250		160
Base Capacity (vph)	813	826	1211	798	434	1456	716	543	1331	672
Starvation Cap Reductn	0	0	0	0	0	0	0	0	80	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.32	0.99	0.38	0.93	0.65	0.72	0.73	0.98	0.16

Intersection Summary

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

Queue shown is maximum after two cycles.

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

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation
 Timing Plan: PM PEAK

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑↑	↗		↑↑	↗	↘	↑↑	↗	
Traffic Volume (vph)	0	716	255	0	1144	289	383	896	489	378	1160	101	
Future Volume (vph)	0	716	255	0	1144	289	383	896	489	378	1160	101	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			-8%			-3%			-2%		
Total Lost time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3	8.3	
Lane Util. Factor		0.95	1.00		0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00	0.98	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)		3628	1547		5237	1635	1779	3592	1607	1805	3472	1579	
Flt Permitted		1.00	1.00		1.00	1.00	0.07	1.00	1.00	0.18	1.00	1.00	
Satd. Flow (perm)		3628	1547		5237	1635	139	3592	1607	339	3472	1579	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	754	268	0	1204	304	403	943	515	398	1221	106	
RTOR Reduction (vph)	0	0	60	0	0	61	0	0	64	0	0	65	
Lane Group Flow (vph)	0	754	208	0	1204	243	403	943	451	398	1221	41	
Confl. Peds. (#/hr)	1					1	4					4	
Heavy Vehicles (%)	0%	2%	7%	0%	3%	2%	3%	2%	2%	1%	5%	1%	
Turn Type		NA	pm+ov		NA	pm+ov	D.P+P	NA	Perm	D.P+P	NA	Perm	
Protected Phases		8	5		4	1	5	2		1	6		
Permitted Phases			8			4	6		2	2		6	
Actuated Green, G (s)		31.4	61.4		32.4	59.0	83.7	56.8	56.8	83.4	53.7	53.7	
Effective Green, g (s)		31.4	61.4		32.4	59.0	83.7	56.8	56.8	83.4	53.7	53.7	
Actuated g/C Ratio		0.22	0.44		0.23	0.42	0.60	0.41	0.41	0.60	0.38	0.38	
Clearance Time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3	8.3	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		813	766		1211	689	434	1457	651	480	1331	605	
v/s Ratio Prot		0.21	0.06		c0.23	0.07	c0.20	0.26		0.16	0.35		
v/s Ratio Perm			0.08			0.08	c0.35		0.28	c0.34		0.03	
v/c Ratio		0.93	0.27		0.99	0.35	0.93	0.65	0.69	0.83	0.92	0.07	
Uniform Delay, d1		53.2	25.1		53.7	27.5	46.5	33.5	34.4	24.9	41.0	27.3	
Progression Factor		1.00	1.00		1.00	1.00	0.73	0.63	0.58	1.15	0.71	0.77	
Incremental Delay, d2		16.4	0.2		24.3	0.3	20.0	1.5	4.2	8.5	8.9	0.2	
Delay (s)		69.6	25.2		78.0	27.8	54.2	22.6	24.2	37.0	37.8	21.2	
Level of Service		E	C		E	C	D	C	C	D	D	C	
Approach Delay (s)		58.0			67.9			29.9			36.6		
Approach LOS		E			E			C			D		
Intersection Summary													
HCM 2000 Control Delay			45.9									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	25.2
Intersection Capacity Utilization			95.7%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

Queues
14: S Main Street & Pleasant Hill Road

Future - Mitigation
Timing Plan: PM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT
Lane Group Flow (vph)	130	118	17	1	135	1144	1167
v/c Ratio	0.70	0.34	0.19	0.00	0.35	0.44	0.60
Control Delay	79.9	2.7	68.1	0.0	22.2	12.7	22.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.9	2.7	68.1	0.0	22.2	12.7	22.8
Queue Length 50th (ft)	115	0	15	0	38	174	316
Queue Length 95th (ft)	186	0	41	0	96	357	507
Internal Link Dist (ft)	1324		115			394	1543
Turn Bay Length (ft)		220			190		
Base Capacity (vph)	221	370	104	293	391	2586	1955
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.32	0.16	0.00	0.35	0.44	0.60
Intersection Summary							

HCM Signalized Intersection Capacity Analysis
 14: S Main Street & Pleasant Hill Road

Future - Mitigation
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	1	111	14	2	1	127	1071	5	0	992	105
Future Volume (vph)	121	1	111	14	2	1	127	1071	5	0	992	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			8%			4%			1%	
Total Lost time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	0.95			0.95	
Frbp, ped/bikes		1.00	1.00		1.00	0.98	1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00			1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00			0.99	
Flt Protected		0.95	1.00		0.96	1.00	0.95	1.00			1.00	
Satd. Flow (prot)		1802	1607		1645	1521	1769	3466			3432	
Flt Permitted		0.95	1.00		0.96	1.00	0.16	1.00			1.00	
Satd. Flow (perm)		1802	1607		1645	1521	298	3466			3432	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	129	1	118	15	2	1	135	1139	5	0	1055	112
RTOR Reduction (vph)	0	0	106	0	0	1	0	0	0	0	5	0
Lane Group Flow (vph)	0	130	12	0	17	0	135	1144	0	0	1162	0
Confl. Peds. (#/hr)	5					5	5		2	2		5
Heavy Vehicles (%)	2%	0%	2%	7%	0%	0%	0%	2%	0%	0%	3%	1%
Turn Type	Split	NA	Perm	Split	NA	Perm	D.P+P	NA		D.P+P	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	6			2		
Actuated Green, G (s)		14.5	14.5		3.3	3.3	93.5	100.9			75.9	
Effective Green, g (s)		14.5	14.5		3.3	3.3	93.5	100.9			75.9	
Actuated g/C Ratio		0.10	0.10		0.02	0.02	0.67	0.72			0.54	
Clearance Time (s)		7.8	7.8		6.1	6.1	7.4	7.4			7.4	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)		186	166		38	35	383	2497			1860	
v/s Ratio Prot		c0.07			c0.01		0.04	c0.33			c0.34	
v/s Ratio Perm			0.01			0.00	0.19					
v/c Ratio		0.70	0.07		0.45	0.00	0.35	0.46			0.62	
Uniform Delay, d1		60.6	56.7		67.5	66.7	26.6	8.2			22.2	
Progression Factor		1.00	1.00		1.00	1.00	1.38	1.54			1.00	
Incremental Delay, d2		10.9	0.2		8.2	0.0	0.5	0.5			1.6	
Delay (s)		71.5	56.9		75.6	66.7	37.2	13.1			23.8	
Level of Service		E	E		E	E	D	B			C	
Approach Delay (s)		64.6			75.1			15.6			23.8	
Approach LOS		E			E			B			C	
Intersection Summary												
HCM 2000 Control Delay			24.0				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			140.0				Sum of lost time (s)			28.7		
Intersection Capacity Utilization			70.1%				ICU Level of Service			C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis
 15: Pear Street & Erickson Avenue & RCUT

Future - Mitigation
 Timing Plan: PM PEAK



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations		↑↑						↑		↑	
Traffic Volume (veh/h)	0	986	193	0	0	0	0	0	219	27	0
Future Volume (Veh/h)	0	986	193	0	0	0	0	0	219	27	0
Sign Control		Free			Free		Stop			Stop	
Grade		0%			0%		0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.95
Hourly flow rate (vph)	0	1060	208	0	0	0	0	0	235	29	0
Pedestrians											
Lane Width (ft)											
Walking Speed (ft/s)											
Percent Blockage											
Right turn flare (veh)											
Median type		None			None						
Median storage (veh)											
Upstream signal (ft)											
pX, platoon unblocked											
vC, conflicting volume	0			1268			1178	1164	634	1268	0
vC1, stage 1 conf vol											
vC2, stage 2 conf vol											
vCu, unblocked vol	0			1268			1178	1164	634	1268	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	6.6	6.9
tC, 2 stage (s)											
tF (s)	2.2			2.2			3.5	4.0	3.3	4.0	3.3
p0 queue free %	100			100			100	100	44	82	100
cM capacity (veh/h)	1636			555			128	196	422	163	1091
Direction, Lane #	EB 1	EB 2	NB 1	SW 1							
Volume Total	707	561	235	29							
Volume Left	0	0	0	0							
Volume Right	0	208	235	0							
cSH	1700	1700	422	163							
Volume to Capacity	0.42	0.33	0.56	0.18							
Queue Length 95th (ft)	0	0	83	16							
Control Delay (s)	0.0	0.0	23.7	31.8							
Lane LOS			C	D							
Approach Delay (s)	0.0		23.7	31.8							
Approach LOS			C	D							
Intersection Summary											
Average Delay			4.2								
Intersection Capacity Utilization			53.6%		ICU Level of Service				A		
Analysis Period (min)			15								



Lane Group	WBT	NEL
Lane Group Flow (vph)	1217	256
v/c Ratio	0.58	0.78
Control Delay	8.2	33.9
Queue Delay	0.0	0.0
Total Delay	8.2	33.9
Queue Length 50th (ft)	105	53
Queue Length 95th (ft)	153	#147
Internal Link Dist (ft)	217	69
Turn Bay Length (ft)		
Base Capacity (vph)	2104	340
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.58	0.75

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: RCUT & Erickson Avenue

Future - Mitigation
 Timing Plan: PM PEAK



Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations				↑↑	↘	
Traffic Volume (vph)	0	0	0	1132	238	0
Future Volume (vph)	0	0	0	1132	238	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)				6.5	6.5	
Lane Util. Factor				0.95	1.00	
Frt				1.00	1.00	
Flt Protected				1.00	0.95	
Satd. Flow (prot)				3539	1770	
Flt Permitted				1.00	0.95	
Satd. Flow (perm)				3539	1770	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.95
Adj. Flow (vph)	0	0	0	1217	256	0
RTOR Reduction (vph)	0	0	0	0	53	0
Lane Group Flow (vph)	0	0	0	1217	203	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Turn Type				NA	Prot	
Protected Phases				8	5	
Permitted Phases						
Actuated Green, G (s)				31.4	8.3	
Effective Green, g (s)				31.4	8.3	
Actuated g/C Ratio				0.60	0.16	
Clearance Time (s)				6.5	6.5	
Vehicle Extension (s)				3.0	3.0	
Lane Grp Cap (vph)				2108	278	
v/s Ratio Prot				c0.34	c0.11	
v/s Ratio Perm						
v/c Ratio				0.58	0.73	
Uniform Delay, d1				6.6	21.1	
Progression Factor				1.00	1.00	
Incremental Delay, d2				1.2	9.2	
Delay (s)				7.7	30.4	
Level of Service				A	C	
Approach Delay (s)	0.0			7.7	30.4	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			11.7	HCM 2000 Level of Service		B
HCM 2000 Volume to Capacity ratio			0.61			
Actuated Cycle Length (s)			52.7	Sum of lost time (s)		13.0
Intersection Capacity Utilization			83.3%	ICU Level of Service		E
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↑↑			↑
Traffic Vol, veh/h	0	0	1117	226	0	62
Future Vol, veh/h	0	0	1117	226	0	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	1	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	2	3	0	16
Mvmt Flow	0	0	1201	243	0	67

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

Approach	WB	SB
HCM Control Delay, s	0	18.2
HCM LOS		C

Minor Lane/Major Mvmt	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	339
HCM Lane V/C Ratio	-	-	0.197
HCM Control Delay (s)	-	-	18.2
HCM Lane LOS	-	-	C
HCM 95th %tile Q(veh)	-	-	0.7

Queues
20: North-South Connector/QRI Road & Erickson Avenue

Future - Mitigation
Timing Plan: PM PEAK



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	202	803	28	268	1052	27	64	158	200	20	203
v/c Ratio	0.61	0.52	0.03	0.60	0.64	0.03	0.31	0.48	0.28	0.07	0.82
Control Delay	18.6	20.9	0.1	13.8	20.9	0.1	30.6	39.5	5.4	26.5	61.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	20.9	0.1	13.8	20.9	0.1	30.6	39.5	5.4	26.5	61.0
Queue Length 50th (ft)	45	171	0	61	235	0	28	72	7	8	100
Queue Length 95th (ft)	99	258	0	98	315	0	61	#171	50	27	#223
Internal Link Dist (ft)		1842			416			496			444
Turn Bay Length (ft)	150		150	150		150	150			150	
Base Capacity (vph)	375	1544	838	575	1637	828	205	341	824	267	256
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.52	0.03	0.47	0.64	0.03	0.31	0.46	0.24	0.07	0.79

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 20: North-South Connector/QRI Road & Erickson Avenue

Future - Mitigation
 Timing Plan: PM PEAK

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (vph)	192	763	27	255	999	26	61	150	190	19	132	61
Future Volume (vph)	192	763	27	255	999	26	61	150	190	19	132	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-5%			0%			0%				0%
Total Lost time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.7	5.7	5.6	5.6	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1814	3592	1623	1770	3539	1583	1770	1863	1583	1770	1775	
Flt Permitted	0.15	1.00	1.00	0.25	1.00	1.00	0.44	1.00	1.00	0.60	1.00	
Satd. Flow (perm)	294	3592	1623	473	3539	1583	817	1863	1583	1111	1775	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	202	803	28	268	1052	27	64	158	200	20	139	64
RTOR Reduction (vph)	0	0	16	0	0	15	0	0	123	0	18	0
Lane Group Flow (vph)	202	803	12	268	1052	12	64	158	77	20	185	0
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	D.P+P	NA	Perm	D.P+P	NA	Perm	D.P+P	NA	pm+ov	D.P+P	NA	
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	6		2	2		6	4		8	8		
Actuated Green, G (s)	49.1	36.8	36.8	48.6	39.6	39.6	17.4	15.2	27.0	17.3	13.2	
Effective Green, g (s)	49.1	36.8	36.8	48.6	39.6	39.6	17.4	15.2	27.0	17.3	13.2	
Actuated g/C Ratio	0.55	0.41	0.41	0.55	0.45	0.45	0.20	0.17	0.30	0.19	0.15	
Clearance Time (s)	6.5	6.0	6.0	5.7	4.7	4.7	5.6	5.7	5.7	5.6	5.6	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	324	1486	671	430	1576	705	204	318	582	231	263	
v/s Ratio Prot	0.07	0.22		c0.08	c0.30		c0.01	0.08	0.02	0.00	c0.10	
v/s Ratio Perm	0.28		0.01	0.26		0.01	0.05		0.03	0.01		
v/c Ratio	0.62	0.54	0.02	0.62	0.67	0.02	0.31	0.50	0.13	0.09	0.70	
Uniform Delay, d1	12.7	19.7	15.4	11.7	19.5	13.8	29.9	33.4	22.4	29.2	36.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.7	1.4	0.0	2.8	2.3	0.0	0.9	1.2	0.1	0.2	8.3	
Delay (s)	16.5	21.1	15.4	14.5	21.7	13.8	30.8	34.6	22.6	29.3	44.3	
Level of Service	B	C	B	B	C	B	C	C	C	C	D	
Approach Delay (s)		20.0			20.1			28.3			42.9	
Approach LOS		C			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			88.9	Sum of lost time (s)					23.0			
Intersection Capacity Utilization			71.7%	ICU Level of Service			C					
Analysis Period (min)			15									

c Critical Lane Group

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	119	119	5	124	142	5
Future Vol, veh/h	119	119	5	124	142	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	3	2	2	2	2
Mvmt Flow	129	129	5	135	154	5

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	258	0	339
Stage 1	-	-	-	-	194
Stage 2	-	-	-	-	145
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1307	-	657
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	882
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1307	-	654
Mov Cap-2 Maneuver	-	-	-	-	654
Stage 1	-	-	-	-	839
Stage 2	-	-	-	-	878

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	659	-	-	1307	-
HCM Lane V/C Ratio	0.242	-	-	0.004	-
HCM Control Delay (s)	12.2	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0	-

Queues
22: S Main Street & QRI Road

Future - Mitigation
Timing Plan: PM PEAK



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	197	472	39	1236	1235	57
v/c Ratio	0.70	0.71	0.09	0.49	0.74	0.05
Control Delay	67.5	39.1	5.1	4.8	17.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.6	0.0
Total Delay	67.5	39.1	5.1	4.9	17.7	0.3
Queue Length 50th (ft)	173	351	6	102	472	0
Queue Length 95th (ft)	235	414	m10	120	548	m1
Internal Link Dist (ft)	324			510	293	
Turn Bay Length (ft)	270		250			300
Base Capacity (vph)	536	889	441	2517	1676	1118
Starvation Cap Reductn	0	0	0	167	0	0
Spillback Cap Reductn	0	0	0	0	151	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.53	0.09	0.53	0.81	0.05

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
22: S Main Street & QRI Road

Future - Mitigation
Timing Plan: PM PEAK



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	181	434	36	1137	1136	52
Future Volume (vph)	181	434	36	1137	1136	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			4%	-2%	
Total Lost time (s)	7.6	7.6	8.0	8.3	8.3	7.6
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1583	1734	3468	3575	1599
Flt Permitted	0.95	1.00	0.11	1.00	1.00	1.00
Satd. Flow (perm)	1770	1583	201	3468	3575	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	197	472	39	1236	1235	57
RTOR Reduction (vph)	0	4	0	0	0	21
Lane Group Flow (vph)	197	468	39	1236	1235	36
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Turn Type	Prot	pt+ov	D.P+P	NA	NA	pm+ov
Protected Phases	4	4 5	5	2	6	4
Permitted Phases		4	6			6
Actuated Green, G (s)	22.5	58.5	93.6	101.6	65.6	88.1
Effective Green, g (s)	22.5	50.5	93.6	101.6	65.6	88.1
Actuated g/C Ratio	0.16	0.36	0.67	0.73	0.47	0.63
Clearance Time (s)	7.6		8.0	8.3	8.3	7.6
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	284	571	440	2516	1675	1093
v/s Ratio Prot	0.11	c0.30	0.02	0.36	c0.35	0.01
v/s Ratio Perm			0.04			0.02
v/c Ratio	0.69	0.82	0.09	0.49	0.74	0.03
Uniform Delay, d1	55.5	40.6	25.3	8.2	30.2	9.8
Progression Factor	1.00	1.00	0.48	0.47	0.45	0.11
Incremental Delay, d2	7.1	9.0	0.1	0.6	2.6	0.0
Delay (s)	62.6	49.6	12.1	4.4	16.1	1.1
Level of Service	E	D	B	A	B	A
Approach Delay (s)	53.5			4.6	15.4	
Approach LOS	D			A	B	

Intersection Summary

HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	23.9
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

LANE SUMMARY

Site: 101 [Build AM_W Mosby and N-S Connector (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	[HV] %						[Veh	[Dist] ft				
South: Mosby Court													
Lane 1 ^d	25	20.9	639	0.039	100	6.1	LOS A	0.2	5.5	Full	600	0.0	0.0
Approach	25	20.9		0.039		6.1	LOS A	0.2	5.5				
East: W Mosby Road													
Lane 1 ^d	191	7.0	942	0.202	100	5.8	LOS A	1.1	29.5	Full	1300	0.0	0.0
Approach	191	7.0		0.202		5.8	LOS A	1.1	29.5				
North: N-S Connector													
Lane 1 ^d	168	2.0	1042	0.161	100	4.9	LOS A	0.9	22.9	Full	1600	0.0	0.0
Approach	168	2.0		0.161		4.9	LOS A	0.9	22.9				
West: W Mosby Road													
Lane 1 ^d	425	3.4	1159	0.367	100	6.7	LOS A	2.6	66.0	Full	1800	0.0	0.0
Approach	425	3.4		0.367		6.7	LOS A	2.6	66.0				
Intersection	808	4.5		0.367		6.1	LOS A	2.6	66.0				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Mosby Court											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E				v/c	%	%	%	No.
Lane 1	3	1	21	25	20.9	639	0.039	100	NA	NA	
Approach	3	1	21	25	20.9		0.039				
East: W Mosby Road											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From E						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N				v/c	%	%	%	No.
Lane 1	8	153	29	191	7.0	942	0.202	100	NA	NA	

Approach	8	153	29	191	7.0		0.202				
North: N-S Connector											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From N To Exit:	E	S	W			Cap. veh/h	v/c	%	%		
Lane 1	46	1	121	168	2.0	1042	0.161	100	NA	NA	
Approach	46	1	121	168	2.0		0.161				
West: W Mosby Road											
Mov.	L2	T1	R2	Total	%HV		Deg. Satn	Lane Util.	Prob. SL Ov.	Ov. Lane No.	
From W To Exit:	N	E	S			Cap. veh/h	v/c	%	%		
Lane 1	223	196	6	425	3.4	1159	0.367	100	NA	NA	
Approach	223	196	6	425	3.4		0.367				
Total %HV Deg.Satn (v/c)											
Intersection	808	4.5			0.367						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Mosby Court Merge Type: Not Applied												
Full Length Lane	1											
East Exit: W Mosby Road Merge Type: Not Applied												
Full Length Lane	1											
North Exit: N-S Connector Merge Type: Not Applied												
Full Length Lane	1											
West Exit: W Mosby Road Merge Type: Not Applied												
Full Length Lane	1											

LANE SUMMARY

Site: 101 [Build PM_W Mosby and N-S Connector (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Lane Use and Performance													
	DEMAND FLOWS		Cap. veh/h	Deg. Satn v/c	Lane Util. %	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Lane Config	Lane Length ft	Cap. Adj. %	Prob. Block. %
	[Total veh/h	[HV] %						[Veh	[Dist] ft				
South: Mosby Court													
Lane 1 ^d	46	4.8	731	0.062	100	5.6	LOS A	0.3	8.6	Full	600	0.0	0.0
Approach	46	4.8		0.062		5.6	LOS A	0.3	8.6				
East: W Mosby Road													
Lane 1 ^d	480	2.1	1014	0.474	100	9.1	LOS A	3.5	88.3	Full	1300	0.0	0.0
Approach	480	2.1		0.474		9.1	LOS A	3.5	88.3				
North: N-S Connector													
Lane 1 ^d	227	2.0	835	0.272	100	7.3	LOS A	1.7	42.4	Full	1600	0.0	0.0
Approach	227	2.0		0.272		7.3	LOS A	1.7	42.4				
West: W Mosby Road													
Lane 1 ^d	493	2.6	1129	0.437	100	7.8	LOS A	3.3	83.9	Full	1800	0.0	0.0
Approach	493	2.6		0.437		7.8	LOS A	3.3	83.9				
Intersection	1247	2.4		0.474		8.1	LOS A	3.5	88.3				

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.

LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: HCM Delay Formula (Geometric Delay is not included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

^d Dominant lane on roundabout approach

Approach Lane Flows (veh/h)											
South: Mosby Court											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From S						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	W	N	E				v/c	%	%	%	No.
Lane 1	18	1	26	46	4.8	731	0.062	100	NA	NA	
Approach	18	1	26	46	4.8		0.062				
East: W Mosby Road											
Mov.	L2	T1	R2	Total	%HV	Cap.	Deg.	Lane	Prob.	Ov.	
From E						veh/h	Satn	Util.	SL	Ov.	Lane
To Exit:	S	W	N				v/c	%	%	%	No.
Lane 1	40	342	98	480	2.1	1014	0.474	100	NA	NA	

Approach	40	342	98	480	2.1		0.474				
North: N-S Connector											
Mov.	L2	T1	R2	Total	%HV			Deg.	Lane	Prob.	Ov.
From N								Satn	Util.	SL	Lane
To Exit:	E	S	W			Cap.		v/c	%	%	No.
						veh/h					
Lane 1	47	1	179	227	2.0	835		0.272	100	NA	NA
Approach	47	1	179	227	2.0			0.272			
West: W Mosby Road											
Mov.	L2	T1	R2	Total	%HV			Deg.	Lane	Prob.	Ov.
From W								Satn	Util.	SL	Lane
To Exit:	N	E	S			Cap.		v/c	%	%	No.
						veh/h					
Lane 1	184	298	12	493	2.6	1129		0.437	100	NA	NA
Approach	184	298	12	493	2.6			0.437			
Total %HV Deg.Satn (v/c)											
Intersection	1247	2.4			0.474						

Lane flow rates given in this report are based on the arrival flow rates subject to upstream capacity constraint where applicable.

Merge Analysis												
	Exit Lane Number	Short Lane Length ft	Percent Opng in Lane %	Opposing Flow Rate veh/h	Critical Gap pcu/h	Follow-up Headway sec	Lane Flow Rate veh/h	Capacity veh/h	Deg. Satn v/c	Min. Delay sec	Merge Delay sec	
South Exit: Mosby Court Merge Type: Not Applied												
Full Length Lane	1										Merge Analysis not applied.	
East Exit: W Mosby Road Merge Type: Not Applied												
Full Length Lane	1										Merge Analysis not applied.	
North Exit: N-S Connector Merge Type: Not Applied												
Full Length Lane	1										Merge Analysis not applied.	
West Exit: W Mosby Road Merge Type: Not Applied												
Full Length Lane	1										Merge Analysis not applied.	

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Mitigation - No WBL
Timing Plan: AM PEAK

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	
Traffic Vol, veh/h	0	0	0	0	0	250	0	815	11	93	824	0
Future Vol, veh/h	0	0	0	0	0	250	0	815	11	93	824	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	2	0	7	18	3	6	0
Mvmt Flow	0	0	0	0	0	272	0	886	12	101	896	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1541	1996	448	1542	1990	449	-	0	0	898	0	0
Stage 1	1098	1098	-	892	892	-	-	-	-	-	-	-
Stage 2	443	898	-	650	1098	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.94	-	-	-	4.16	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.32	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	80	61	564	80	61	557	0	-	-	746	-	-
Stage 1	230	291	-	307	363	-	0	-	-	-	-	-
Stage 2	569	361	-	429	291	-	0	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	37	53	564	72	53	557	-	-	-	746	-	-
Mov Cap-2 Maneuver	112	141	-	186	159	-	-	-	-	-	-	-
Stage 1	230	252	-	307	363	-	-	-	-	-	-	-
Stage 2	291	361	-	371	252	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	17.5	0	1.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	557	746	-
HCM Lane V/C Ratio	-	-	-	0.488	0.136	-
HCM Control Delay (s)	-	-	0	17.5	10.6	-
HCM Lane LOS	-	-	A	C	B	-
HCM 95th %tile Q(veh)	-	-	-	2.7	0.5	-

HCM 6th TWSC
2: S High Street & Driveway/Pear Street

Future - Mitigation - No WBL
Timing Plan: PM PEAK

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕		↕	↕	↕
Traffic Vol, veh/h	1	0	2	0	1	224	1	950	30	140	1215	4
Future Vol, veh/h	1	0	2	0	1	224	1	950	30	140	1215	4
Conflicting Peds, #/hr	0	0	0	0	0	0	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	90	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	3	0	2	0	2	3	0
Mvmt Flow	1	0	2	0	1	236	1	1000	32	147	1279	4

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2080	2611	644	1952	2597	516	1285	0	0	1032	0	0
Stage 1	1577	1577	-	1018	1018	-	-	-	-	-	-	-
Stage 2	503	1034	-	934	1579	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.96	4.1	-	-	4.14	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.33	2.2	-	-	2.22	-	-
Pot Cap-1 Maneuver	31	25	420	39	25	501	547	-	-	669	-	-
Stage 1	117	171	-	258	317	-	-	-	-	-	-	-
Stage 2	524	312	-	290	171	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	13	19	419	32	19	501	546	-	-	669	-	-
Mov Cap-2 Maneuver	13	19	-	32	19	-	-	-	-	-	-	-
Stage 1	116	133	-	257	316	-	-	-	-	-	-	-
Stage 2	275	311	-	225	133	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	111.2		21.5		0		1.2	
HCM LOS	F		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	546	-	-	37	450	669	-	-
HCM Lane V/C Ratio	0.002	-	-	0.085	0.526	0.22	-	-
HCM Control Delay (s)	11.6	-	-	111.2	21.5	11.9	-	-
HCM Lane LOS	B	-	-	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	3	0.8	-	-

Queues

13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation - Dual SBL

Timing Plan: AM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	835	379	973	290	245	610	168	201	1092
v/c Ratio	0.85	0.48	0.67	0.43	0.82	0.44	0.24	0.59	0.81
Control Delay	53.9	17.8	43.9	15.7	49.1	15.3	4.1	75.1	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	53.9	17.8	43.9	15.7	49.1	15.3	4.1	75.1	29.7
Queue Length 50th (ft)	347	145	263	92	130	185	30	81	459
Queue Length 95th (ft)	418	225	307	148	#275	224	53	m131	247
Internal Link Dist (ft)	351		1394			1169			515
Turn Bay Length (ft)		300		200	400		330	250	
Base Capacity (vph)	1071	784	1572	751	298	1397	704	510	1350
Starvation Cap Reductn	0	0	0	0	0	0	0	0	22
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.48	0.62	0.39	0.82	0.44	0.24	0.39	0.82

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation - Dual SBL
 Timing Plan: AM PEAK

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations		↑↑	↗		↑↑↑	↗	↗	↑↑	↗	↗↗	↑↑	↗		
Traffic Volume (vph)	0	802	364	0	934	278	235	586	161	193	981	67		
Future Volume (vph)	0	802	364	0	934	278	235	586	161	193	981	67		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Grade (%)		-5%			-8%			-3%			-2%			
Total Lost time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3			
Lane Util. Factor		0.95	1.00		0.91	1.00	1.00	0.95	1.00	0.97	0.95			
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	0.99	1.00	1.00			
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99			
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00			
Satd. Flow (prot)		3628	1547		5187	1613	1621	3214	1469	3368	3311			
Flt Permitted		1.00	1.00		1.00	1.00	0.12	1.00	1.00	0.95	1.00			
Satd. Flow (perm)		3628	1547		5187	1613	211	3214	1469	3368	3311			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		
Adj. Flow (vph)	0	835	379	0	973	290	245	610	168	201	1022	70		
RTOR Reduction (vph)	0	0	68	0	0	71	0	0	66	0	4	0		
Lane Group Flow (vph)	0	835	311	0	973	219	245	610	102	201	1088	0		
Confl. Peds. (#/hr)	1					1			1	1				
Heavy Vehicles (%)	0%	2%	7%	0%	4%	3%	13%	14%	10%	5%	9%	10%		
Turn Type		NA	pm+ov		NA	pm+ov	D.P+P	NA	Perm	Prot	NA			
Protected Phases		8	5		4	1	5	2		1	6			
Permitted Phases			8			4	6		2					
Actuated Green, G (s)		35.2	52.2		36.2	49.3	69.9	56.5	56.5	13.1	52.9			
Effective Green, g (s)		35.2	52.2		36.2	49.3	69.9	56.5	56.5	13.1	52.9			
Actuated g/C Ratio		0.27	0.40		0.28	0.38	0.54	0.43	0.43	0.10	0.41			
Clearance Time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3			
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)		982	716		1444	611	297	1396	638	339	1347			
v/s Ratio Prot		c0.23	0.06		0.19	0.04	c0.11	0.19		0.06	0.33			
v/s Ratio Perm			0.14			0.10	c0.33		0.07					
v/c Ratio		0.85	0.43		0.67	0.36	0.82	0.44	0.16	0.59	0.81			
Uniform Delay, d1		44.9	28.2		41.7	29.0	41.4	25.6	22.3	55.9	34.1			
Progression Factor		1.00	1.00		1.00	1.00	0.69	0.54	0.38	1.24	0.71			
Incremental Delay, d2		7.2	0.4		1.3	0.4	15.3	0.9	0.5	2.4	4.6			
Delay (s)		52.1	28.6		42.9	29.4	44.1	14.6	9.1	71.5	28.7			
Level of Service		D	C		D	C	D	B	A	E	C			
Approach Delay (s)		44.7			39.8			20.8			35.4			
Approach LOS		D			D			C			D			
Intersection Summary														
HCM 2000 Control Delay			35.8									HCM 2000 Level of Service	D	
HCM 2000 Volume to Capacity ratio			0.83											
Actuated Cycle Length (s)			130.0								25.2			
Intersection Capacity Utilization			85.2%										ICU Level of Service	E
Analysis Period (min)			15											
c Critical Lane Group														

Queues

Future - Mitigation - Dual SBL

13: S Main Street & Erickson Avenue/Stone Spring Road

Timing Plan: PM PEAK



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	754	268	1204	304	403	943	515	398	1327
v/c Ratio	0.93	0.34	0.99	0.46	1.02	0.58	0.65	0.80	0.95
Control Delay	71.3	14.5	77.9	19.7	78.0	16.3	13.3	80.9	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.0
Total Delay	71.3	14.5	77.9	19.7	78.0	16.3	13.3	80.9	48.4
Queue Length 50th (ft)	356	86	404	118	~334	278	222	162	522
Queue Length 95th (ft)	#475	152	#510	192	#541	233	242	250	#746
Internal Link Dist (ft)	381		1394			410			510
Turn Bay Length (ft)		300		200			330	250	
Base Capacity (vph)	813	795	1211	688	397	1630	788	542	1395
Starvation Cap Reductn	0	0	0	0	0	0	0	0	70
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.34	0.99	0.44	1.02	0.58	0.65	0.73	1.00

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 13: S Main Street & Erickson Avenue/Stone Spring Road

Future - Mitigation - Dual SBL
 Timing Plan: PM PEAK

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗		↑↑↑	↗	↗	↑↑	↗	↗↗	↑↑	↗	
Traffic Volume (vph)	0	716	255	0	1144	289	383	896	489	378	1160	101	
Future Volume (vph)	0	716	255	0	1144	289	383	896	489	378	1160	101	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-5%			-8%			-3%			-2%		
Total Lost time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3		
Lane Util. Factor		0.95	1.00		0.91	1.00	1.00	0.95	1.00	0.97	0.95		
Frbp, ped/bikes		1.00	1.00		1.00	0.99	1.00	1.00	1.00	1.00	1.00		
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	0.99		
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		3628	1547		5237	1633	1779	3592	1607	3502	3435		
Flt Permitted		1.00	1.00		1.00	1.00	0.07	1.00	1.00	0.95	1.00		
Satd. Flow (perm)		3628	1547		5237	1633	132	3592	1607	3502	3435		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	0	754	268	0	1204	304	403	943	515	398	1221	106	
RTOR Reduction (vph)	0	0	62	0	0	66	0	0	59	0	5	0	
Lane Group Flow (vph)	0	754	206	0	1204	238	403	943	456	398	1322	0	
Confl. Peds. (#/hr)	1					1	4					4	
Heavy Vehicles (%)	0%	2%	7%	0%	3%	2%	3%	2%	2%	1%	5%	1%	
Turn Type		NA	pm+ov		NA	pm+ov	D.P+P	NA	Perm	Prot	NA		
Protected Phases		8	5		4	1	5	2		1	6		
Permitted Phases			8			4	6		2				
Actuated Green, G (s)		31.4	58.4		32.4	52.3	83.7	63.5	63.5	19.9	56.7		
Effective Green, g (s)		31.4	58.4		32.4	52.3	83.7	63.5	63.5	19.9	56.7		
Actuated g/C Ratio		0.22	0.42		0.23	0.37	0.60	0.45	0.45	0.14	0.41		
Clearance Time (s)		8.6	8.0		7.6	8.3	8.0	8.3	8.3	8.3	8.3		
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		813	733		1211	610	396	1629	728	497	1391		
v/s Ratio Prot		0.21	0.05		c0.23	0.06	c0.20	0.26		0.11	0.38		
v/s Ratio Perm			0.08			0.09	c0.41		0.28				
v/c Ratio		0.93	0.28		0.99	0.39	1.02	0.58	0.63	0.80	0.95		
Uniform Delay, d1		53.2	26.9		53.7	32.1	49.8	28.3	29.2	58.1	40.3		
Progression Factor		1.00	1.00		1.00	1.00	0.72	0.53	0.44	1.23	0.70		
Incremental Delay, d2		16.4	0.2		24.3	0.4	42.1	1.0	2.8	6.7	11.9		
Delay (s)		69.6	27.2		78.0	32.6	77.9	16.0	15.5	78.0	39.9		
Level of Service		E	C		E	C	E	B	B	E	D		
Approach Delay (s)		58.5			68.9			29.3			48.7		
Approach LOS		E			E			C			D		
Intersection Summary													
HCM 2000 Control Delay			49.4									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.02										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	25.2
Intersection Capacity Utilization			98.9%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													



APPENDIX D

North-South Connector High-Level Cost Estimate and Concepts

High-Level Cost Estimate North-South Connector

Includes new stop-controlled approach at W Mosby Road terminus

Date: November 2025

VDOT ITEM #	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
GENERAL CONSTRUCTION & EARTHWORK					
301SD20-0001	Clearing and Grubbing	LS	1	\$60,000.00	\$ 60,000.00
303SD20-0001	Regular Excavation	CY	14,950	\$55.00	\$ 822,250.00
303SD20-0007	Borrow Excavation	CY	3,567	\$65.00	\$ 231,863.43
SUBTOTAL					\$ 1,114,113.43
DRAINAGE AND STORMWATER MANAGEMENT ITEMS					
501SD20-0004	Underdrain UD-4	LF	3,000	\$30.00	\$ 90,000.00
302SD20-0025	15" Conc. Pipe	LF	500	\$202.04	\$ 101,020.00
302SD20-0059	36" Conc. Pipe	LF	500	\$487.87	\$ 243,935.00
302SD20-0069	48" Conc. Pipe	LF	500	\$518.52	\$ 259,260.00
302SD20-0198	15" End Section ES-1 or 2	EA	4	\$2,011.65	\$ 8,046.60
302SD20-0210	36" End Section ES-1 or 2	EA	1	\$2,986.36	\$ 2,986.36
302SD20-0214	48" End Section ES-1 or 2	EA	1	\$5,340.31	\$ 5,340.31
302SX20-0025	Underdrain End Section (NS END SECTION)	EA	5	\$1,500.00	\$ 7,500.00
414SD20-0002	Erosion Control Stone Class A1, EC-1 (2 foot depth)	SY	130	\$180.00	\$ 23,400.00
SUBTOTAL					\$ 741,488.27
PAVEMENT ITEMS					
308SD20-0011	Aggr. Base Matl. Ty. I, No. 21B	TON	4,619	\$62.18	\$ 287,209.00
315SD20-0007	Asphalt Conc. Ty. SM-9.5A	TON	828	\$155.90	\$ 129,026.00
315SD20-0002	Asphalt Conc. Ty. SM-12.5D Const	TON	892	\$233.86	\$ 208,571.00
315SD20-0047	Asphalt Conc. Ty. BM-25.0A Maint	TON	4,966	\$114.10	\$ 566,655.00
SUBTOTAL					\$ 1,191,461.00
INCIDENTAL ITEMS					
502SD20-0022	Std. Comb. Curb & Gutter CG-6	LF	5,116	\$45.43	\$ 232,419.88
504SD20-0002	CG-12 Detectable Warning Surface	SY	128	\$416.85	\$ 53,356.80
504SD20-0003	Hydr. Cement Conc. Sidewalk 4"	SY	889	\$88.34	\$ 78,534.26
412SD20-0044	Sawcut (Full Depth)	LF	2,136	\$18.00	\$ 38,448.00
515SD20-0004	Flexible Pave. Planing 0"-2"	SY	5,377	\$25.00	\$ 134,423.00
SUBTOTAL					\$ 537,181.94
SIGNALS					
NS	New signal at Erickson Avenue	LS	1	\$750,000.00	\$ 750,000.00
SUBTOTAL					\$ 750,000.00
ROADSIDE DEVELOPMENT					
602SD20-0003	Topsoil, Class B 4"	ACRE	0.3	\$64,092.00	\$ 19,228.00
604SD20-0001	Sod	SY	1167	\$22.00	\$ 25,674.00
SUBTOTAL					\$ 44,902.00
SIGNING AND PAVEMENT MARKING					
704SD20-0006	Type B Class I Pavement Line Marking 4"	LF	8060	\$1.50	\$ 12,090.00
704SD20-0010	Type B Class II Pavement Line Marking 24"	LF	1070	\$37.61	\$ 40,242.70
704SD20-0047	Pvmt Symb Mrkg Sgl Turn Arrow Ty B, CL II	EA	20	\$433.74	\$ 8,674.80
SUBTOTAL					\$ 61,007.50

High-Level Cost Estimate North-South Connector

Includes new stop-controlled approach at W Mosby Road terminus

Date: November 2025

VDOT ITEM #	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
CONSTRUCTION INCIDENTALS					
513SD20-0001	Mobilization	LS	1	\$305,000.00	\$305,000.00
514SX20-0004	Construction Surveying (NS BUILDING CONSTRUCTION)	LS	1	\$46,000.00	\$ 46,000.00
512SP20-0002	NS Maintenance of Traffic - 20%	LS	1	\$889,000.00	\$ 889,000.00
RIGHT OF WAY AQUISITION					
	Right Of Way Purchase	ACRES	2.7	\$75,000.00	\$ 202,789.26
	Plats, Title Reports, and Appraisals	EA	4	\$15,000.00	\$ 60,000.00
	Administrative Settlements	EA	1	-	\$ 202,789.26
				SUBTOTAL	\$ 465,578.51
UTILITY RELOCATIONS AND ADJUSTMENTS					
	Relocate wooden power pole	EA	1	\$75,000.00	\$ 75,000.00
				SUBTOTAL	\$ 75,000.00
CONTINGENCY AND CEI					
				CONSTRUCTION SUBTOTAL	\$6,220,732.65
				EROSION AND SEDIMENT CONTROL & STORMWATER MANAGEMENT (15%)	\$ 934,000.00
				CONTINGENCY (50%)	\$ 3,111,000.00
				CONSTRUCTION ENGINEERING & INSPECTION (20%)	\$ 1,245,000.00
				PRELIMINARY ENGINEERING (15%)	\$ 934,000.00
				TOTAL CONSTRUCTION COST	\$ 11,199,732.65
				ASSUMED INFLATION PER YEAR	3%
				TOTAL CONSTRUCTION COST IN THE YEAR 2033	\$ 14,187,486.24

The Consultant has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Consultant at this time and represent only the Consultant's judgment as a design professional familiar with the construction industry. The Consultant cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

High-Level Cost Estimate North-South Connector

Includes new roundabout at W Mosby Road terminus

Date: December 2025

VDOT ITEM #	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
GENERAL CONSTRUCTION & EARTHWORK					
301SD20-0001	Clearing and Grubbing	LS	1	\$60,000.00	\$ 60,000.00
303SD20-0001	Regular Excavation	CY	14,950	\$55.00	\$ 822,250.00
303SD20-0007	Borrow Excavation	CY	14,950	\$65.00	\$ 971,750.00
	Roundabout Earthwork	LS	1	\$850,000.00	\$ 850,000.00
SUBTOTAL					\$ 2,704,000.00
DRAINAGE AND STORMWATER MANAGEMENT ITEMS					
501SD20-0003	Underdrain UD-3	LF	3,000	\$25.00	\$ 75,000.00
302SD20-0025	15" Conc. Pipe	LF	500	\$202.04	\$ 101,020.00
302SD20-0059	36" Conc. Pipe	LF	500	\$487.87	\$ 243,935.00
302SD20-0069	48" Conc. Pipe	LF	500	\$518.52	\$ 259,260.00
302SD20-0198	15" End Section ES-1 or 2	EA	4	\$2,011.65	\$ 8,046.60
302SD20-0210	36" End Section ES-1 or 2	EA	1	\$2,986.36	\$ 2,986.36
302SD20-0214	48" End Section ES-1 or 2	EA	1	\$5,340.31	\$ 5,340.31
302SX20-0025	Underdrain End Section (NS END SECTION)	EA	5	\$1,500.00	\$ 7,500.00
414SD20-0002	Erosion Control Stone Class A1, EC-1 (2 foot depth)	SY	130	\$180.00	\$ 23,400.00
SUBTOTAL					\$ 651,488.27
PAVEMENT ITEMS					
308SD20-0011	Aggr. Base Matl. Ty. I, No. 21B	TON	5,296	\$62.18	\$ 329,329.00
315SD20-0007	Asphalt Conc. Ty. SM-9.5A	TON	819	\$155.90	\$ 127,642.00
315SD20-0002	Asphalt Conc. Ty. SM-12.5D Const	TON	1,095	\$233.86	\$ 256,020.00
315SD20-0047	Asphalt Conc. Ty. BM-25.0A Maint	TON	6,096	\$114.10	\$ 695,567.00
SUBTOTAL					\$ 1,408,558.00
INCIDENTAL ITEMS					
502SD20-0022	Std. Comb. Curb & Gutter CG-6	LF	5,334	\$45.43	\$ 242,323.62
504SD20-0002	CG-12 Detectable Warning Surface	SY	320	\$416.85	\$ 133,392.00
502SD20-0053	MS-1 (Solid Conc)	SY	7,782	\$159.24	\$ 1,239,205.68
504SD20-0003	Hydr. Cement Conc. Sidewalk 4"	SY	868	\$88.34	\$ 76,679.12
412SD20-0044	Sawcut (Full Depth)	LF	1,796	\$18.00	\$ 32,328.00
515SD20-0004	Flexible Pave. Planing 0"-2"	SY	5,301	\$25.00	\$ 132,534.00
508SD20-0004	Demo. Of Pavement (Flexible)	SY	655	\$15.00	\$ 9,830.00
SUBTOTAL					\$ 1,866,292.42
SIGNALS					
NS	New signal at Erickson Avenue	LS	1	\$750,000.00	\$ 750,000.00
SUBTOTAL					\$ 750,000.00
ROADSIDE DEVELOPMENT					
602SD20-0003	Topsoil, Class B 4"	ACRE	0.3	\$64,092.00	\$ 19,228.00
604SD20-0001	Sod	SY	1343	\$22.00	\$ 29,546.00
SUBTOTAL					\$ 48,774.00
SIGNING AND PAVEMENT MARKING					
704SD20-0006	Type B Class I Pavement Line Marking 4"	LF	8060	\$1.50	\$ 12,090.00
704SD20-0008	Type B Class I Pavement Line Marking 8"	LF	122	\$2.50	\$ 305.00
704SD20-0009	Type B Class I Pavement Line Marking 12"	LF	120	\$5.00	\$ 600.00
704SD20-0010	Type B Class II Pavement Line Marking 24"	LF	1315	\$37.61	\$ 49,457.15
704SD20-0086	Type B Class II Pavement Symbol Marking Yield 2' x 3'	EA	4	\$186.48	\$ 745.92
704SD20-0047	Pvmt Symb Mrkg Sgl Turn Arrow Ty B, CL II	EA	20	\$433.74	\$ 8,674.80
SUBTOTAL					\$ 71,872.87
LIGHTING					
	Roundabout Lighting	LS	1	\$180,000.00	\$ 180,000.00
SUBTOTAL					\$ 180,000.00

High-Level Cost Estimate North-South Connector

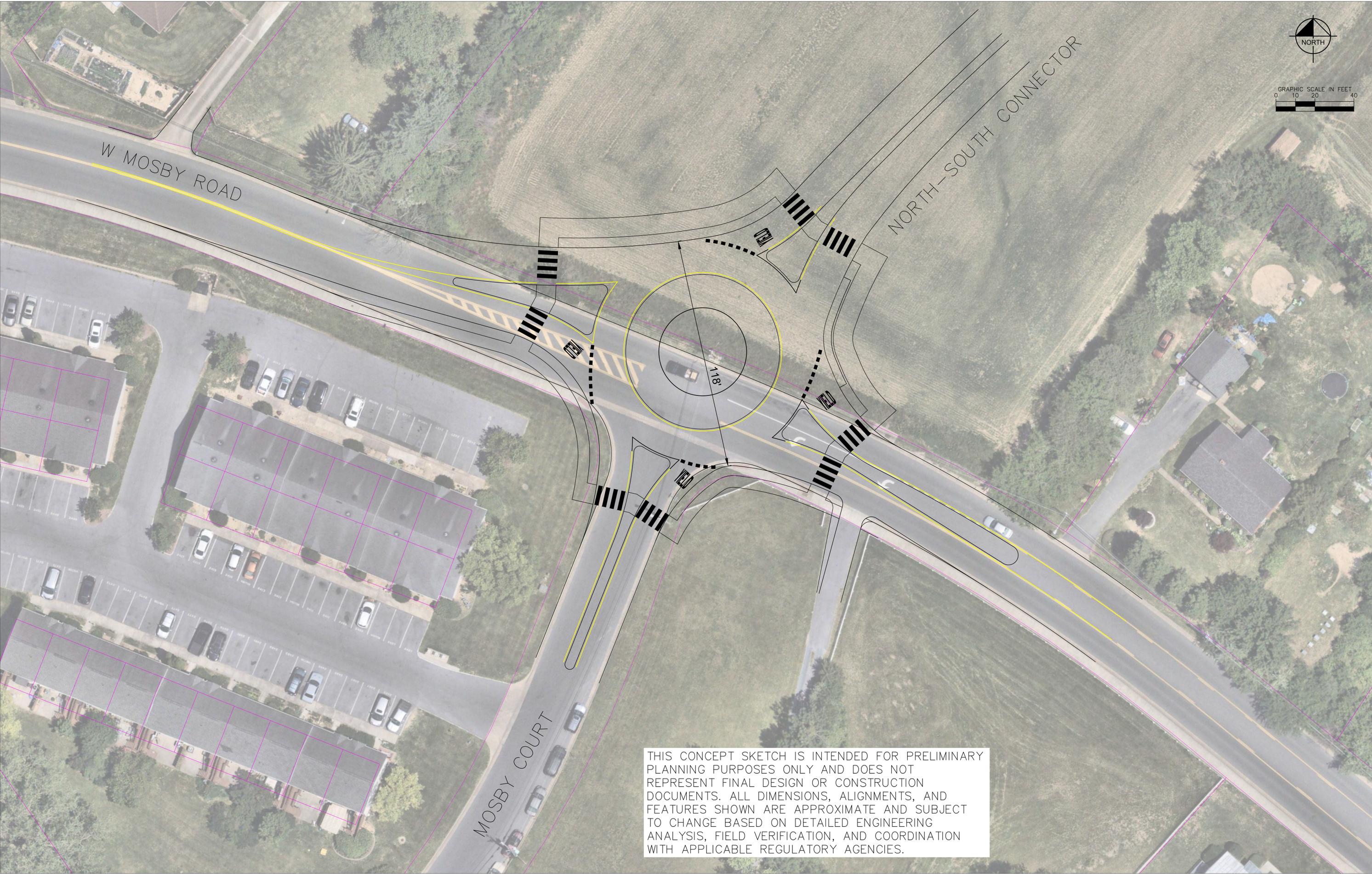
Includes new roundabout at W Mosby Road terminus

Date: December 2025

VDOT ITEM #	ITEM DESCRIPTION	UNITS	QUANTITY	UNIT PRICE	TOTAL PRICE
CONSTRUCTION INCIDENTALS					
513SD20-0001	Mobilization	LS	1	\$501,000.00	\$501,000.00
514SX20-0004	Construction Surveying (NS BUILDING CONSTRUCTION)	LS	1	\$78,000.00	\$ 78,000.00
512SP20-0002	NS Maintenance of Traffic - 20%	LS	1	\$1,537,000.00	\$ 1,537,000.00
RIGHT OF WAY AQUISITION					
	Right Of Way Purchase	ACRES	2.7	\$75,000.00	\$ 202,789.26
	Plats, Title Reports, and Appraisals	EA	4	\$15,000.00	\$ 60,000.00
	Administrative Settlements	EA	1	-	\$ 202,789.26
				SUBTOTAL	\$ 465,578.51
UTILITY RELOCATIONS AND ADJUSTMENTS					
	Relocate wooden power pole	EA	1	\$75,000.00	\$ 75,000.00
				SUBTOTAL	\$ 75,000.00
CONTINGENCY AND CEI					
				CONSTRUCTION SUBTOTAL	\$10,337,564.07
				EROSION AND SEDIMENT CONTROL & STORMWATER MANAGEMENT (15%)	\$ 1,551,000.00
				CONTINGENCY (50%)	\$ 5,169,000.00
				CONSTRUCTION ENGINEERING & INSPECTION (20%)	\$ 2,068,000.00
				PRELIMINARY ENGINEERING (15%)	\$ 1,551,000.00
				TOTAL CONSTRUCTION COST	\$ 18,608,564.07
				ASSUMED INFLATION PER YEAR	3%
				TOTAL CONSTRUCTION COST IN THE YEAR 2033	\$ 23,572,772.22

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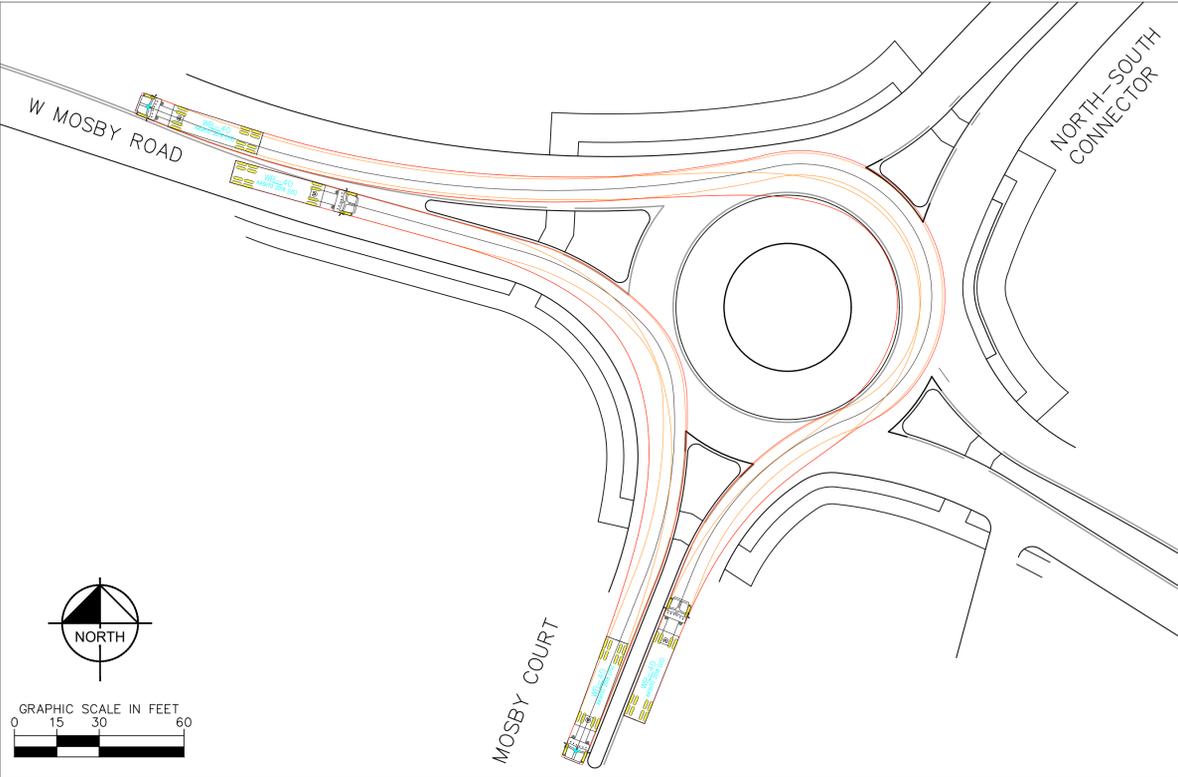
ROUNDBABOUT CONCEPT: GEOMETRY



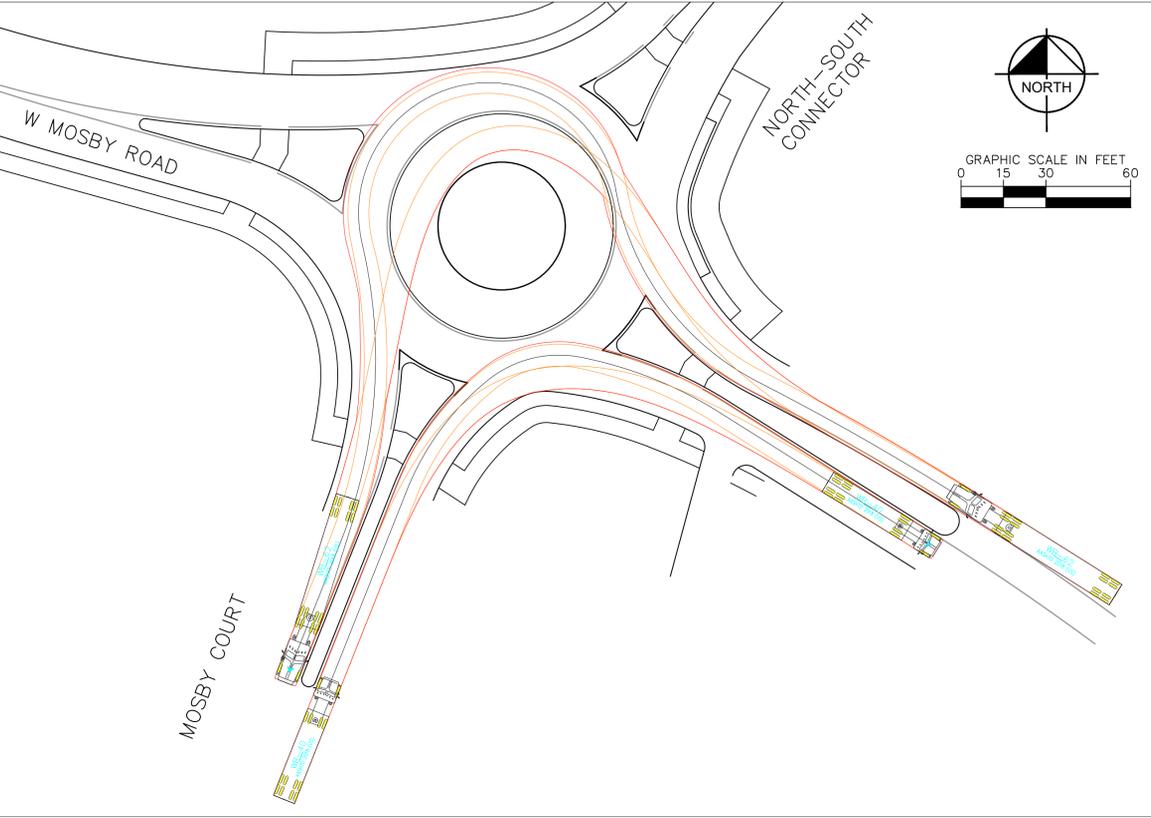
THIS CONCEPT SKETCH IS INTENDED FOR PRELIMINARY PLANNING PURPOSES ONLY AND DOES NOT REPRESENT FINAL DESIGN OR CONSTRUCTION DOCUMENTS. ALL DIMENSIONS, ALIGNMENTS, AND FEATURES SHOWN ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON DETAILED ENGINEERING ANALYSIS, FIELD VERIFICATION, AND COORDINATION WITH APPLICABLE REGULATORY AGENCIES.

ROUNDBABOUT CONCEPT AUTOTURN: TURNING MOVEMENTS

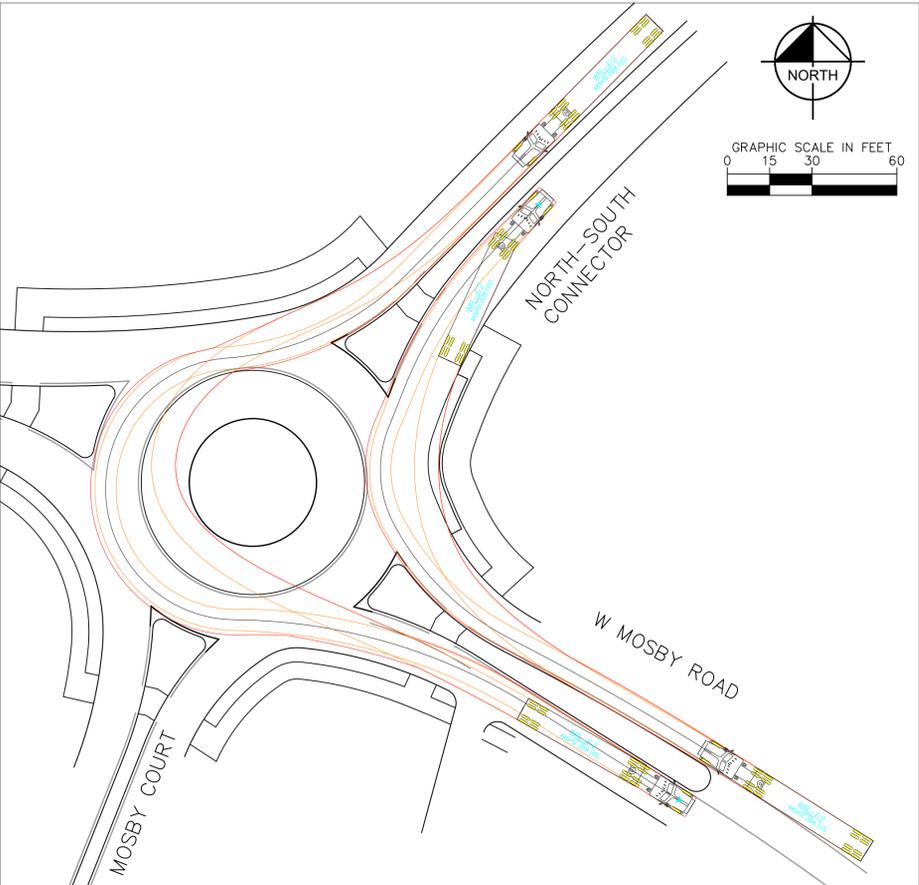
EASTBOUND RIGHT TURN: WB-40
NORTHBOUND LEFT TURN: WB-40



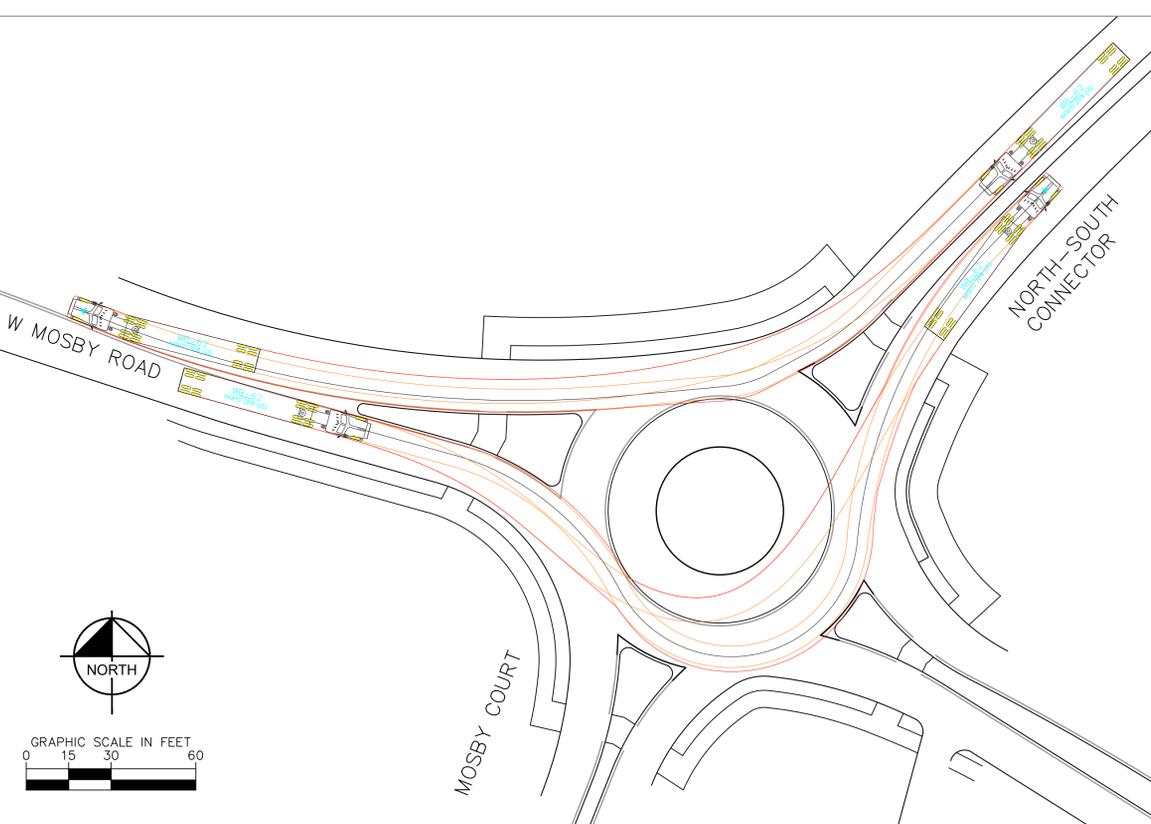
NORTHBOUND RIGHT TURN: WB-40
WESTBOUND LEFT TURN: WB-62



WESTBOUND RIGHT TURN: WB-62
SOUTHBOUND LEFT TURN: WB-62

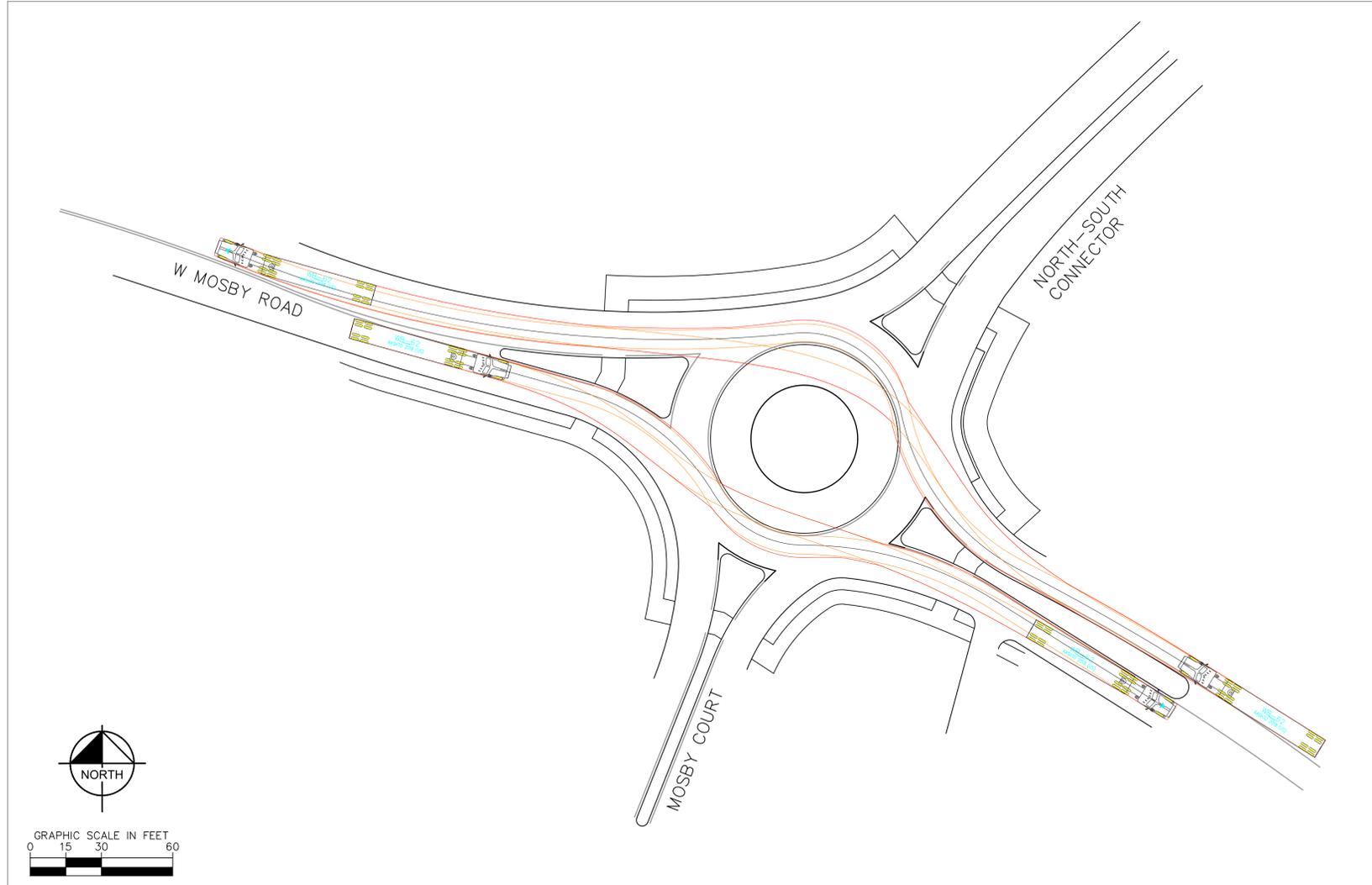


SOUTHBOUND RIGHT TURN: WB-62
EASTBOUND LEFT TURN: WB-62

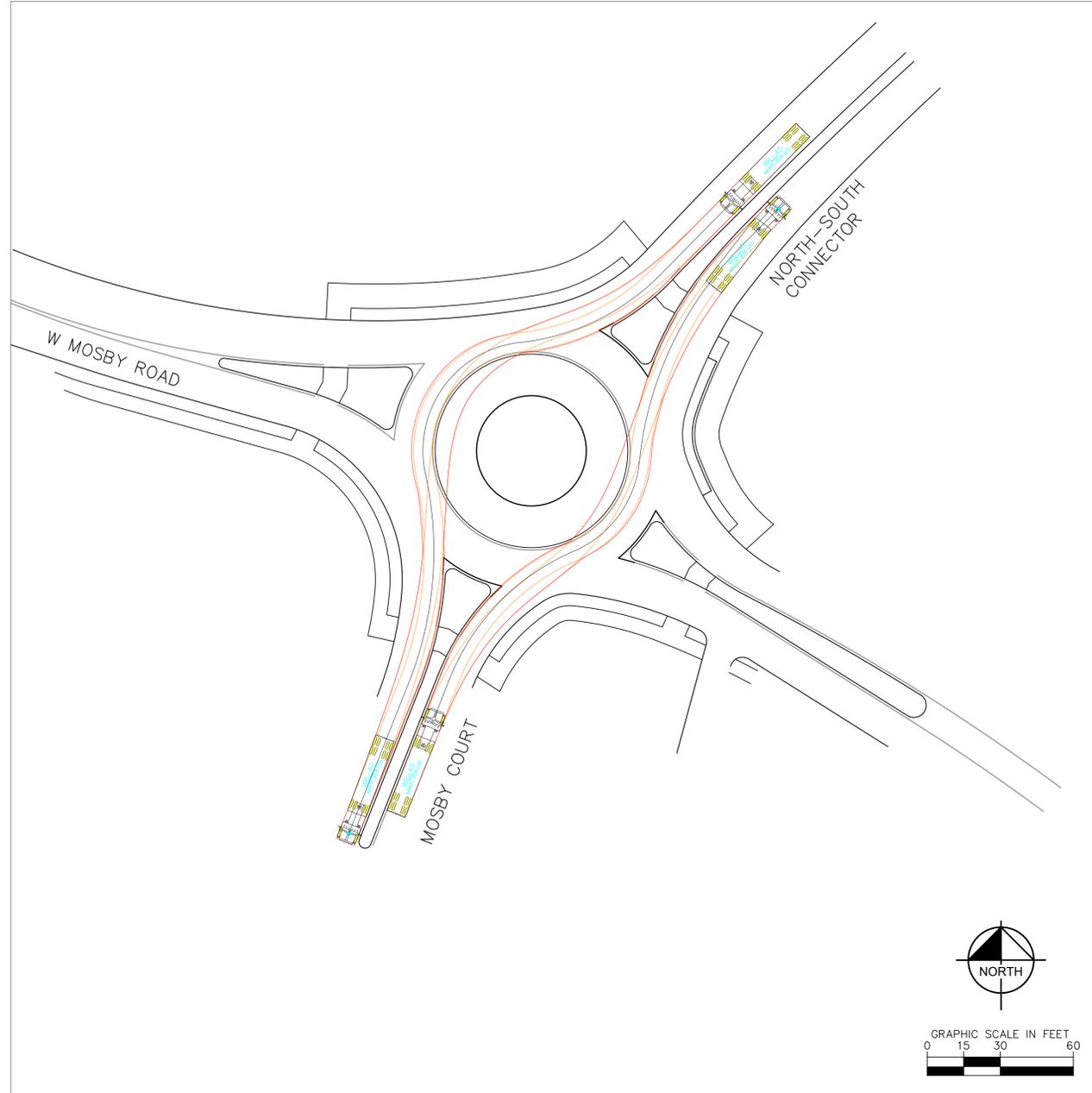


ROUNDBABOUT CONCEPT AUTOTURN: THROUGH MOVEMENTS

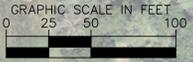
EASTBOUND THROUGH: WB-62
WESTBOUND THROUGH: WB-62



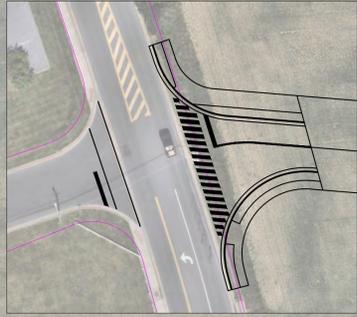
NORTHBOUND THROUGH: WB-40
SOUTHBOUND THROUGH: WB-40



NORTH-SOUTH CONNECTOR CONCEPT

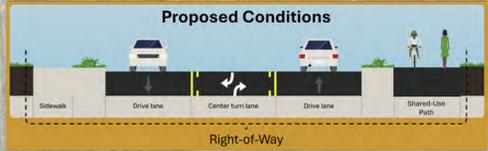


UNSIGNALIZED INTERSECTION ALTERNATIVE

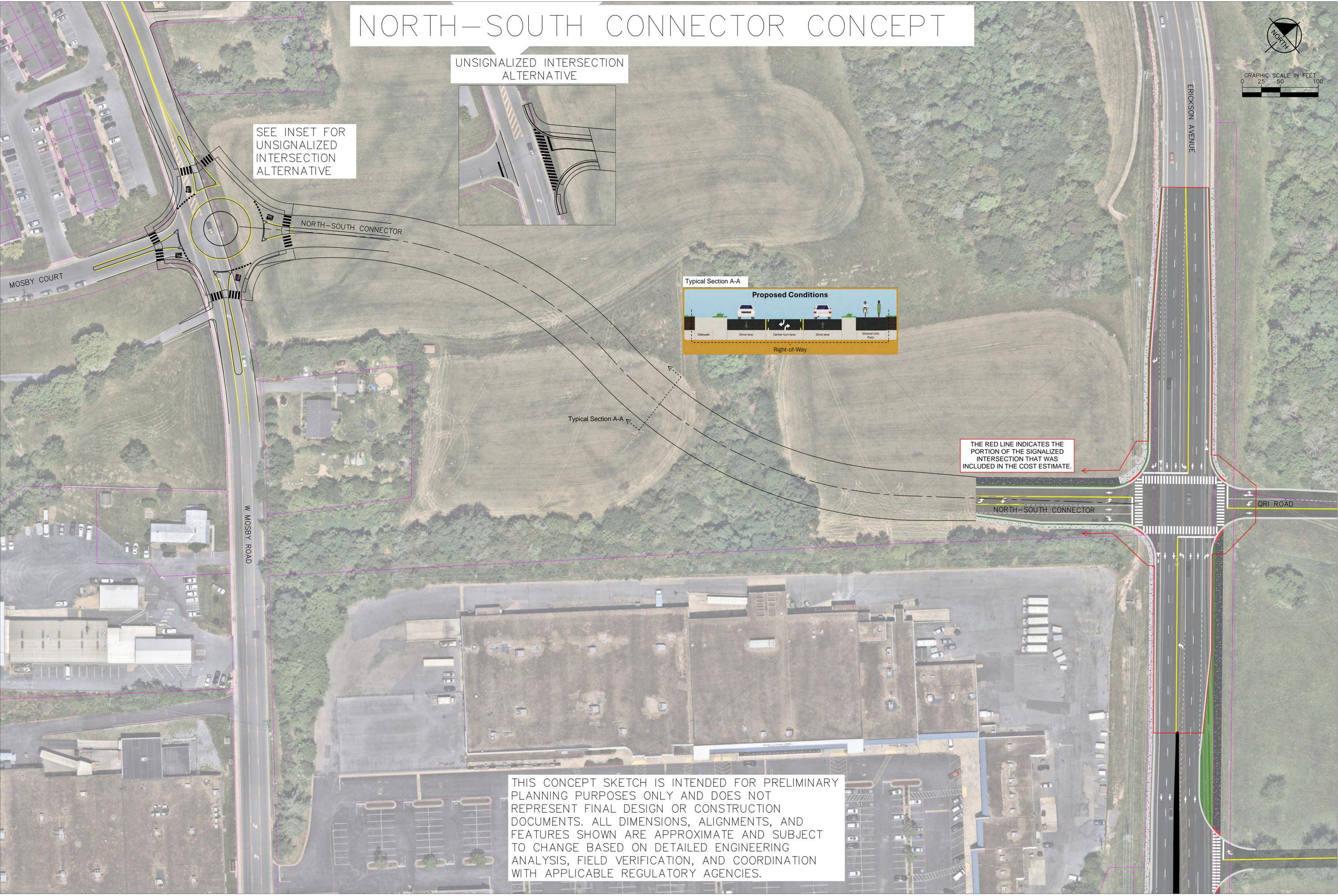


SEE INSET FOR UNSIGNALIZED INTERSECTION ALTERNATIVE

Typical Section A-A



THE RED LINE INDICATES THE PORTION OF THE SIGNALIZED INTERSECTION THAT WAS INCLUDED IN THE COST ESTIMATE.



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