



January 26, 2021

Ms. Jennifer Staple-Clark
7 Woodmere Circle
North Haven, CT 06473

**Re: Traffic Study
Slate Upper School
5100 Outer Ridge Road
North Haven, Connecticut
SLR #6156.03.11**

Dear Ms. Staple-Clark:

At your request, we have undertaken this letter as an addendum to our traffic study for the proposed Slate Upper School to be located at 5100 Outer Ridge Road in North Haven, Connecticut. As part of this analysis, the traffic impact of the proposed school was expanded to include two nearby off-site intersections. The work comprising this analysis consisted of several tasks, including data collection, estimation of site-development-generated traffic volumes to these intersections, and assessment of future traffic operations.

EXISTING CONDITIONS

The two intersections surrounding the site that have been analyzed as part of this study are as follows:

1. Outer Ridge Road (Ridge Road) at Mount Carmel Avenue
2. Outer Ridge Road at Blue Hills Road

Both study intersections are unsignalized.

Outer Ridge Road (Ridge Road) runs approximately north/south adjacent to the site with one travel lane in each direction and no shoulders; sidewalks are currently not present along either side of Outer Ridge Road. North of the site, Outer Ridge Road intersects Mount Carmel Avenue at an unsignalized T-intersection, at which traffic along Outer Ridge Road is stop controlled while traffic along Mount Carmel Avenue is free flowing. To the south of the site, Outer Ridge Road intersects with Blue Hills Road and Ridge Road at an all-way-stop-controlled intersection.

Mount Carmel Avenue runs approximately east/west with one travel lane in each direction; the posted speed limit is 25 miles per hour (mph). Mount Carmel Avenue was repaved in the vicinity of the site within the past 2 years.

Blue Hills Road is a town road that starts on its western end at Outer Ridge Road/Ridge Road. It has one travel lane in each direction and terminates on its eastern extent at Hartford Turnpike.

Land use near the site is primarily residential. Sleeping Giant State Park and Quinnipiac University are located approximately 1 mile west of the site. Further to the west, Mount Carmel Avenue intersects Whitney Avenue (State Route 10); east of the site, Mount Carmel Avenue provides access to the Hartford Turnpike. The site is located near the North Haven town boundary with Hamden.

Crash Data Summary

Data on traffic crashes near the site for the recent 3-year period of March 1, 2017, through February 29, 2020 (pre-COVID-19), was obtained via the Connecticut Crash Data Repository. This data is summarized in **Table 1** by location, crash severity, and collision type.

TABLE 1
Crash Data Summary

LOCATION:	CRASH SEVERITY				FIXED-OBJECT	TOTAL
	SUSPECTED MINOR INJURY	POSSIBLE INJURY	PROPERTY DAMAGE ONLY	TOTAL		
Outer Ridge Road at Mount Carmel Avenue			2	2	2	2
Outer Ridge Road between Mount Carmel Avenue and Blue Hills Road				0		0
Outer Ridge Road at Blue Hills Road				0		0
TOTAL	0	0	2	2	2	2

Source: University of Connecticut's Connecticut Crash Data Repository from March 1, 2017, to February 29, 2020

Two crashes were reported on Outer Ridge Road/Ridge Road in the vicinity of the site during this period, both in the vicinity of the Mount Carmel Road intersection. No crashes occurred along Outer Ridge Road along its entire length between Mount Carmel Road and Blue Hills Road, including the Blue Hills Road intersection. The two reported crashes that took place at the intersection of Mount Carmel Avenue were both fixed-object collisions. There do not appear to be any unusual trends in the crash data.

Crash history following the COVID-19 outbreak was also separately investigated for the study area. No crashes were reported during this more recent period.

Roadway Traffic

Traffic counts were conducted at the study intersections on Thursday, January 14, 2021, during the morning and afternoon peak periods. The roadway peak hours that will coincide with school-related traffic were found to be 8:15 a.m. to 9:15 a.m. and 3:00 p.m. to 4:00 p.m. for the weekday morning and afternoon, respectively. Figure 1 shows the existing 2021 peak-hour traffic volumes.

Due to the COVID-19 pandemic and its overall effect on reducing current travel, the traffic volumes shown in Figure 2 were adjusted to better reflect typical (non-COVID) traffic levels in the area. To accomplish this, traffic monitoring data was collected on Outer Ridge Road along the site frontage for 24 hours on January 14, 2021, via an Automatic Traffic Recorder (ATR) and compared to traffic data that had been collected in the same location on February 11, 2020, and February 12, 2020 (pre-COVID-19), for the Slate Upper School traffic study. After comparing the two ATRs, the 2021 vehicle volumes to/from Outer Ridge Road at the two study intersections were increased to reflect the higher 2020 volumes. The other vehicle movements at the Mount Carmel Avenue and Blue Hills Road intersections were increased by 20 percent during the morning peak hour and 48 percent during the afternoon peak hour generally reflecting the net difference in the two count periods. Figure 2 shows the adjusted morning and afternoon peak-hour traffic volumes at the study intersections.

SITE-GENERATED TRAFFIC

The site-generated peak-hour trips from the proposed school were estimated in the previous traffic study and are summarized below in Table 2. These site-generated traffic estimates are for the proposed school at full enrollment; for the purposes of this study, it was assumed that all students are dropped off and picked up and do not drive themselves.

TABLE 2
Site-Generated Traffic Estimates

LAND USE	NUMBER OF VEHICLE TRIPS					
	WEEKDAY MORNING PEAK HOUR			WEEKDAY AFTERNOON PEAK HOUR		
	IN	OUT	TOTAL	IN	OUT	TOTAL
Upper School, 100 students (Pre-Kindergarten and Grades 7-12)	90	80	170	75	80	155

It is noted that not all students will be arriving or departing in a single 15-minute window as is typical for most schools since the Slate Upper School will have flexible start and end times for students. Arrival and departure will be spread somewhat evenly across the analysis peak hours.

The distribution of site-generated traffic was estimated based on review of the surrounding roadway network as well as expected student demographics. Students who will attend the school are expected to live throughout the surrounding towns within reasonable driving distance. It is estimated that 70 percent of the site-generated traffic would be oriented to/from the south via Outer Ridge Road, 10 percent to/from the west via Mount Carmel Avenue, and 20 percent to/from the east via Mount Carmel Avenue. **Figure 3** shows the site traffic distribution at the study intersections. **Figure 4** shows the estimated site-generated traffic routed through the study intersections based on this distribution for the weekday morning and afternoon peak hours.

FUTURE TRAFFIC VOLUMES

Future roadway traffic volumes were estimated both with and without the proposed school in place to determine possible traffic impacts. The school is expected to open with full enrollment in 2029.

The background (no-build) traffic scenario is reflective of future conditions before the new development is built. The background volumes were estimated by expanding the baseline traffic volumes to the year of 2029 using an annual growth rate of 0.75 percent, per input from the Connecticut Department of Transportation (CTDOT). Correspondence with the Towns of North Haven and Hamden, as well as CTDOT, finds that there is currently no other upcoming development in the area that is expected to contribute future traffic volumes past the site. The resultant estimated 2022 traffic volumes reflect conditions before the proposed development would open and can be seen in **Figure 5** as the background traffic volumes.

The estimated site-generated traffic volumes (**Figure 4**) were then added to the background traffic (**Figure 5**) to form the future combined traffic volumes. Combined traffic volumes are reflective of roadway traffic conditions with the proposed development in place and can be seen in **Figure 6** for the morning and afternoon study peak hours.

Intersection Capacity Analysis

In this study, the future traffic conditions with the school in place were evaluated by means of capacity analysis techniques. These analyses were used to estimate the quality of operations at the future school driveway. The quality of operations is measured and expressed as a level of service (LOS). LOS is defined as a measure of inconvenience that motorists experience. The levels are expressed with letter designations of A through F. A more detailed explanation of LOS and the analysis worksheets is provided in the Appendix. Table 3 summarizes the results of the capacity analysis.

As can be seen, traffic conditions at the study intersections are estimated to remain excellent at LOS B or better during both peak hours. There is no change in LOS for any movements between the background and combined scenarios for either peak hour. Traffic in this area is light and is not expected to be significantly affected by, nor will it interfere with, future school-related traffic.

TABLE 3
Capacity Analysis Summary

MOVEMENTS	WEEKDAY MORNING PEAK HOUR		WEEKDAY AFTERNOON PEAK HOUR	
	BACKGROUND	COMBINED	BACKGROUND	COMBINED
<i>Unsignalized</i>				
Outer Ridge Road at Mount Carmel Avenue (Two Way Stop-Control)				
Westbound Left	A	A	A	A
Northbound Left/Right	A	A	B	B
Outer Ridge Road at Blue Hills Road (All Way Stop-Control)				
Eastbound Through/Right	A	A	A	A
Westbound Left/Through	A	A	A	A
Northbound Left/Right	A	A	A	A

SUMMARY AND CONCLUSION

This traffic addendum was conducted to assess the traffic impact of the proposed Slate Upper School on the surrounding roadway network. To determine a profile of existing conditions, data assembly efforts were undertaken. Traffic that will be generated by the proposed development was estimated, and intersection capacity analyses were performed to analyze future conditions at the site. Analysis of the estimated traffic added to the adjacent roadway network from the proposed school finds that the additional traffic can be accommodated with no perceptible impact. The LOS at both study intersections is expected to be excellent at LOS A or B.


We hope this letter is useful to you and the Town of North Haven. If you have any questions or need anything further, please do not hesitate to contact either of the undersigned.

Sincerely,

SLR International Corporation



David G. Sullivan, PE
 US Manager of Traffic & Transportation Planning



Neil C. Olinski, MS, PTP
 Senior Transportation Planner

Enclosures

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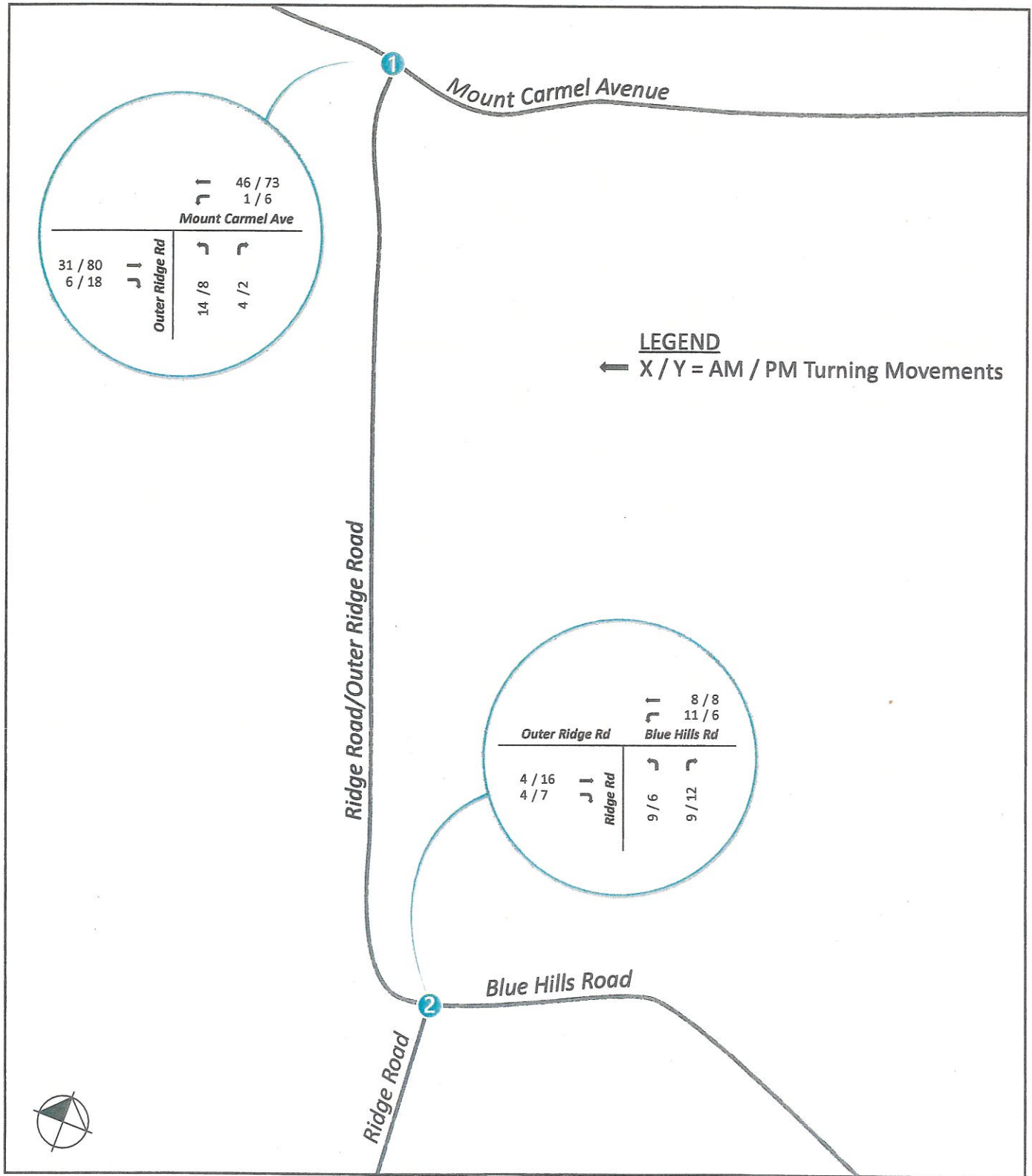


FIGURE 1

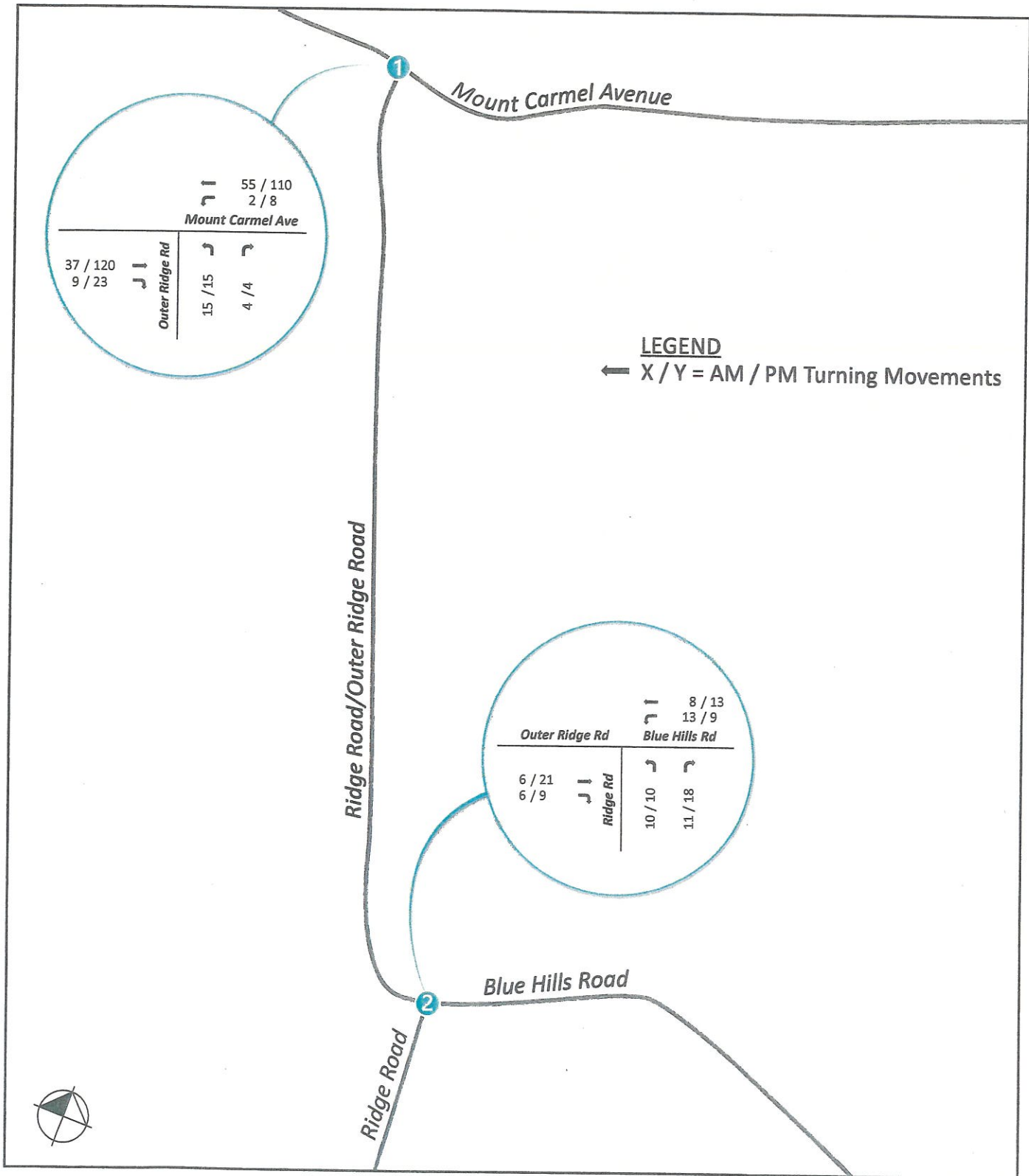


FIGURE 2

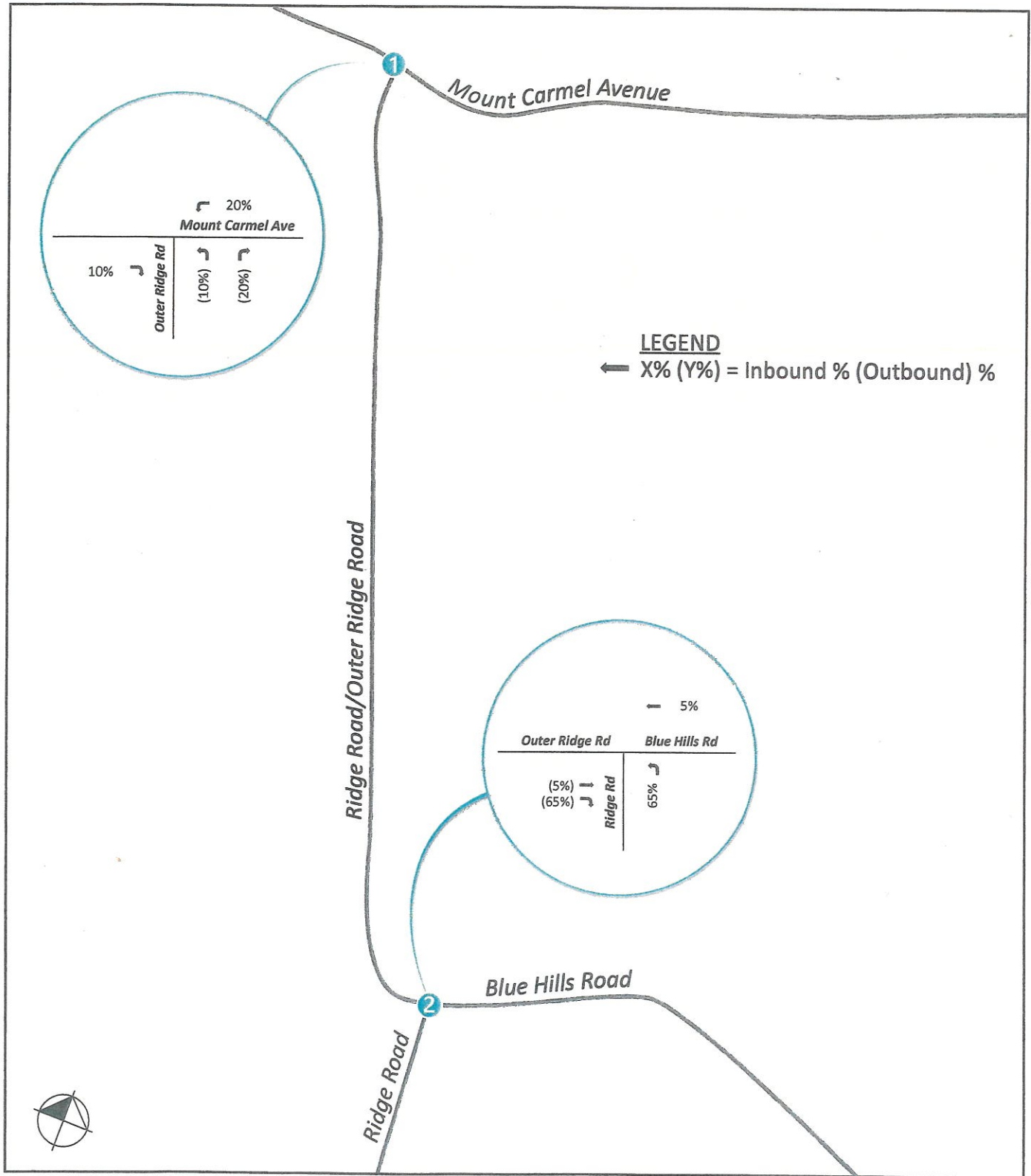


FIGURE 3

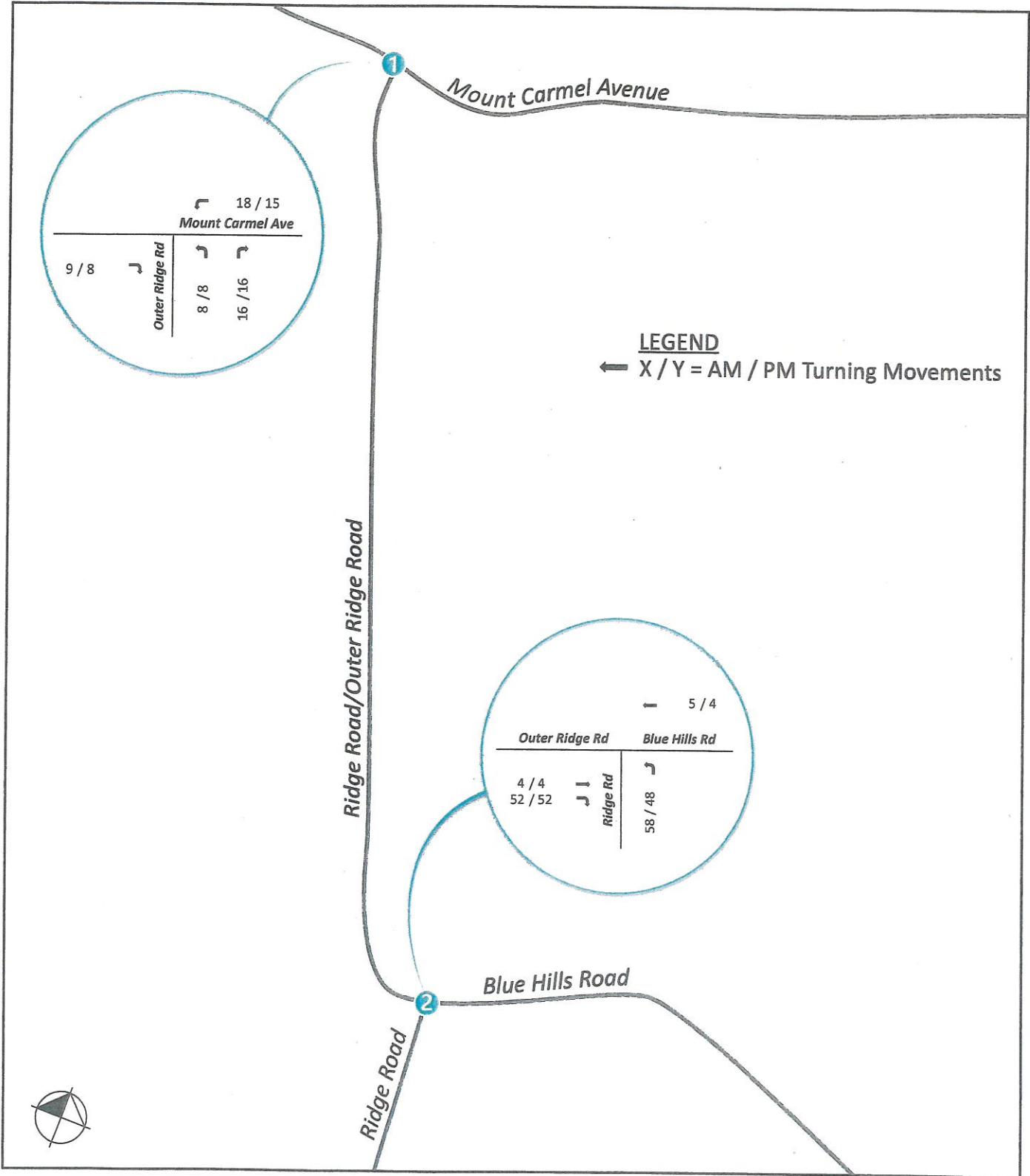


FIGURE 4

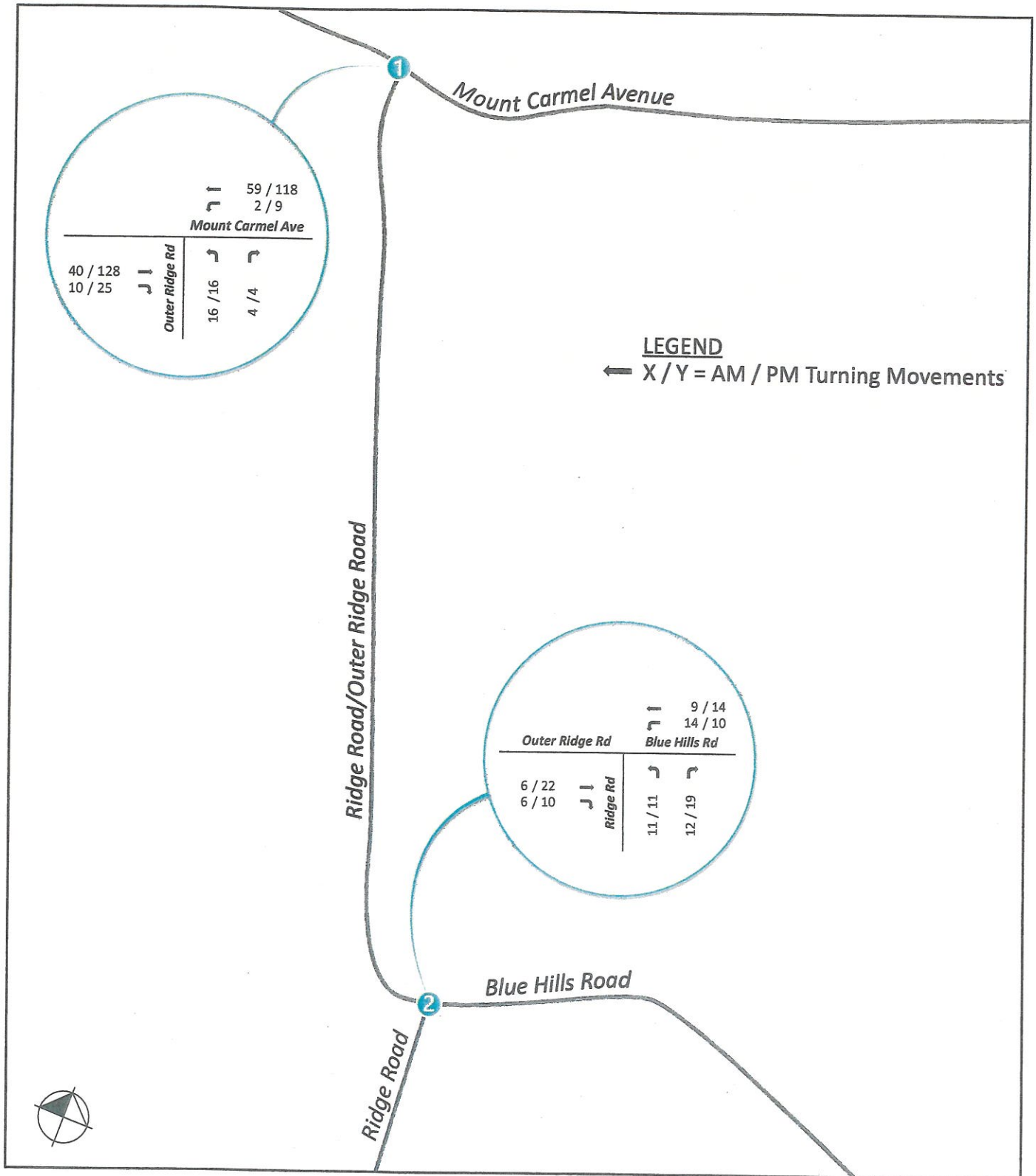


FIGURE 5

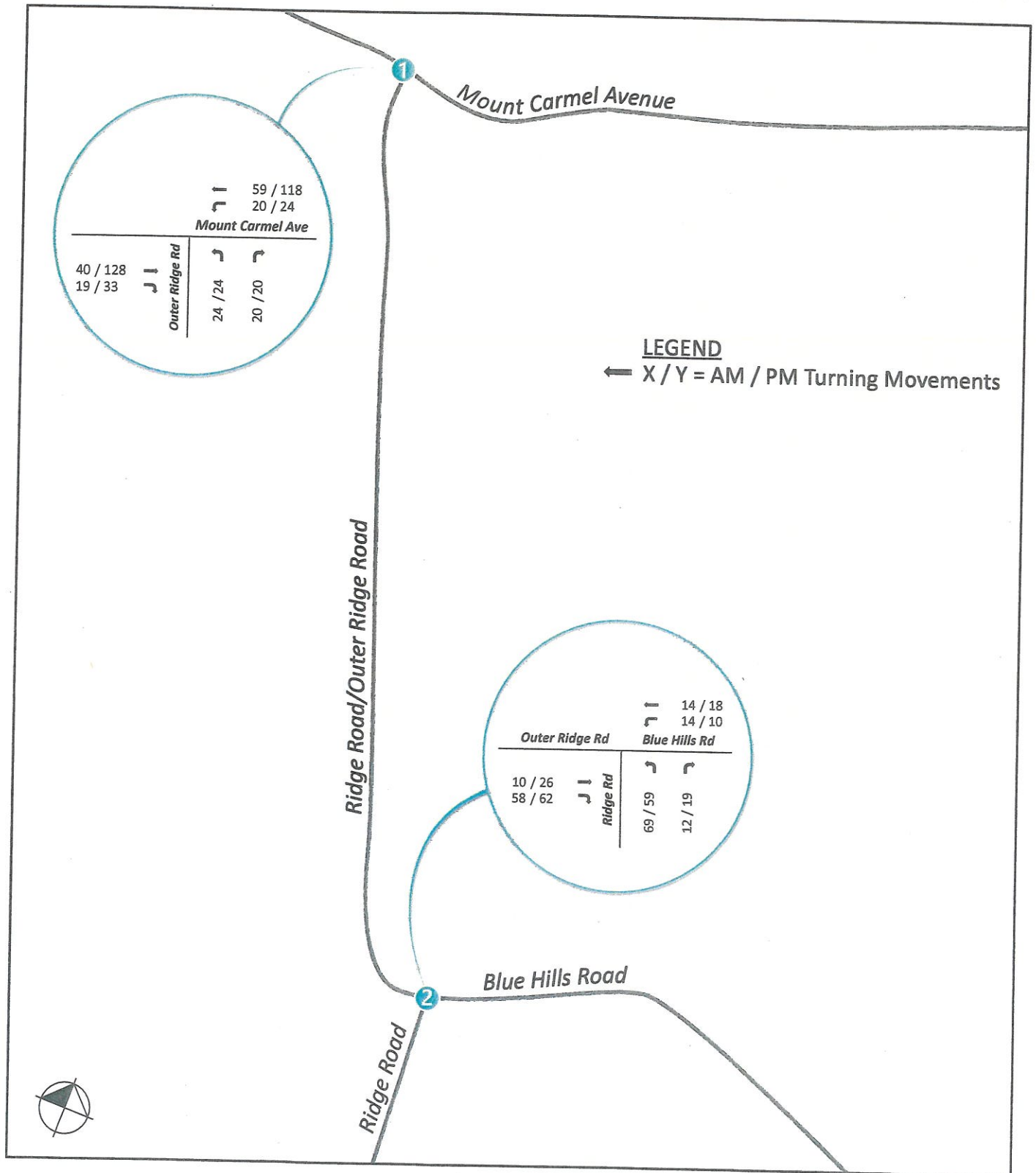


FIGURE 6

APPENDIX

LEVEL OF SERVICE FOR UNSIGNALIZED INTERSECTIONS ALL-WAY STOP-CONTROL (AWSC)

The criteria for AWSC intersections have different threshold values than do those for signalized intersections primarily because drivers expect different levels of performance from distinct types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection. Thus a higher level of control delay is acceptable at a signalized intersection for the same LOS. The level-of-service criteria are given below.

LEVEL-OF SERVICE CRITERIA FOR AWSC INTERSECTIONS	
LOS¹	CONTROL DELAY (s/veh)
A	≤ 10
B	> 10 AND ≤ 15
C	> 15 AND ≤ 25
D	> 25 AND ≤ 35
E	> 35 AND ≤ 50
F	> 50

¹ For approaches and intersection-wide assessment, LOS is defined solely by control delay.

Note: LOS F is assigned to a movement if the volume-to-capacity ratio exceeds 1.0, regardless of the control delay.

Reference: Highway Capacity Manual Version 6.0, Transportation Research Board, 2016.

LEVEL OF SERVICE FOR TWO-WAY STOP SIGN CONTROLLED INTERSECTIONS

The level of service for a TWSC (two-way stop controlled) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS criteria are given in the Table. LOS criteria are given below:

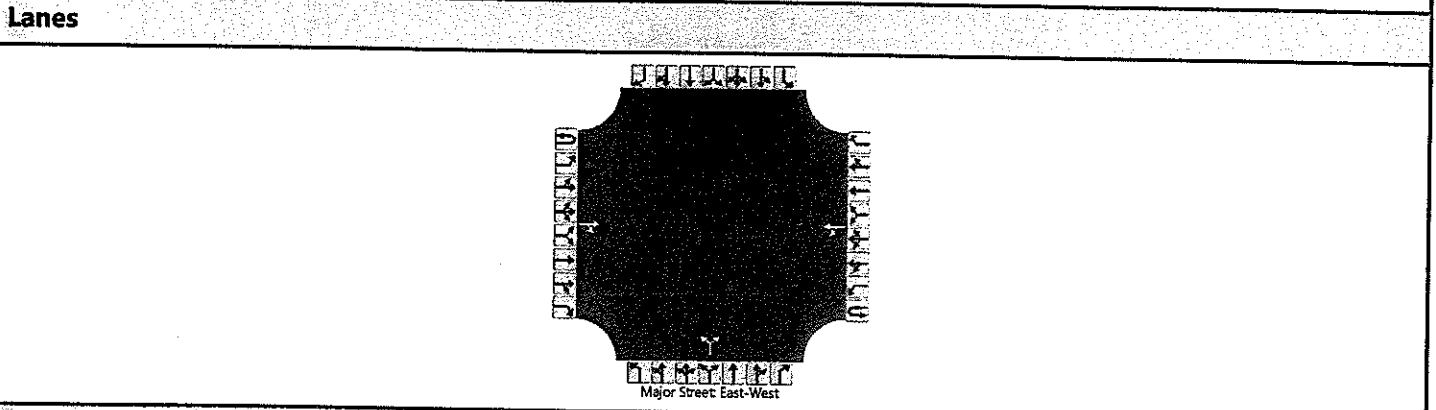
LEVEL-OF SERVICE CRITERIA FOR AWSC INTERSECTIONS	
LOS¹	CONTROL DELAY (s/veh)
A	≤ 10
B	> 10 AND ≤ 15
C	> 15 AND ≤ 25
D	> 25 AND ≤ 35
E	> 35 AND ≤ 50
F	> 50

Note: LOS criteria apply to each lane on a given approach and to each approach on the minor street.
 LOS is not calculated for major-street approaches or for the intersection as a whole.
 LOS F is assigned to a movement if the volume-to-capacity ratio exceeds 1.0, regardless of the control delay

Reference: Highway Capacity Manual Version 6.0, Transportation Research Board, 2016.

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	FMF	Intersection	Mt Carmel Ave at Ridge Rd				
Agency/Co.	SLR	Jurisdiction					
Date Performed	1/20/2021	East/West Street	Mount Carmel Ave				
Analysis Year	2029	North/South Street	Ridge Road				
Time Analyzed	AM	Peak Hour Factor	0.78				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	Background, AM Peak Hour						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			40	10		2	59			16		4				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)					4.1					7.1		6.2				
Critical Headway (sec)					4.13					6.43		6.23				
Base Follow-Up Headway (sec)					2.2					3.5		3.3				
Follow-Up Headway (sec)					2.23					3.53		3.33				

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					3					26						
Capacity, c (veh/h)					1532					878						
v/c Ratio					0.00					0.03						
95% Queue Length, Q ₉₅ (veh)					0.0					0.1						
Control Delay (s/veh)					7.4					9.2						
Level of Service (LOS)					A					A						
Approach Delay (s/veh)					0.3						9.2					
Approach LOS											A					

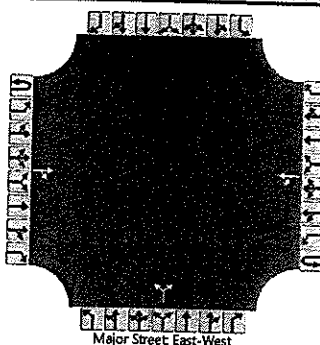
HCS7 Two-Way Stop-Control Report

General Information

Site Information

Analyst	FMF	Intersection	Mt Carmel Ave at Ridge Rd
Agency/Co.	SLR	Jurisdiction	
Date Performed	1/20/2021	East/West Street	Mount Carmel Ave
Analysis Year	2029	North/South Street	Ridge Road
Time Analyzed	AM	Peak Hour Factor	0.78
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Combined, AM Peak Hour		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			40	19		20	59			24		20				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)					4.1					7.1		6.2				
Critical Headway (sec)					4.13					6.43		6.23				
Base Follow-Up Headway (sec)					2.2					3.5		3.3				
Follow-Up Headway (sec)					2.23					3.53		3.33				

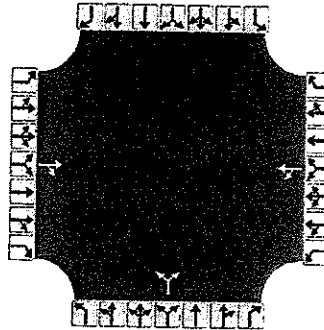
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					26					56						
Capacity, c (veh/h)					1517					868						
v/c Ratio					0.02					0.07						
95% Queue Length, Q ₉₅ (veh)					0.1					0.2						
Control Delay (s/veh)					7.4					9.4						
Level of Service (LOS)					A					A						
Approach Delay (s/veh)					2.0						9.4					
Approach LOS					A						A					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	FMF	Intersection	Ridge Rd at Blue Hills Rd
Agency/Co.	SLR	Jurisdiction	
Date Performed	1/20/2021	East/West Street	Ridge Rd/Blue Hills Rd
Analysis Year	2029	North/South Street	Ridge Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.80
Time Analyzed	AM		
Project Description	Background, AM Peak Hour		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume		6	6	14	9		11		12			
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	TR			LT			LR					
Flow Rate, v (veh/h)	15			29			29					
Percent Heavy Vehicles	2			2			2					

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20					
Initial Degree of Utilization, x	0.013			0.026			0.026					
Final Departure Headway, hd (s)	3.72			4.13			3.81					
Final Degree of Utilization, x	0.016			0.033			0.030					
Move-Up Time, m (s)	2.0			2.0			2.0					
Service Time, ts (s)	1.72			2.13			1.81					

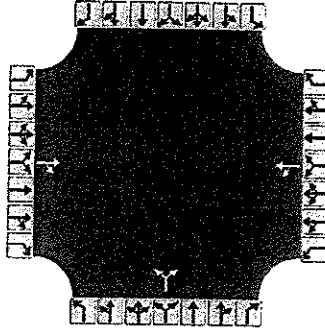
Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	15			29			29					
Capacity	968			872			945					
95% Queue Length, Q ₉₅ (veh)	0.0			0.1			0.1					
Control Delay (s/veh)	6.8			7.3			6.9					
Level of Service, LOS	A			A			A					
Approach Delay (s/veh)	6.8			7.3			6.9					
Approach LOS	A			A			A					
Intersection Delay, s/veh LOS	7.0						A					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	FMF	Intersection	Ridge Rd at Blue Hills Rd
Agency/Co.	SLR	Jurisdiction	
Date Performed	1/20/2021	East/West Street	Ridge Rd/Blue Hills Rd
Analysis Year	2029	North/South Street	Ridge Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.80
Time Analyzed	AM		
Project Description	Combined, AM Peak Hour		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume		10	58	14	14		69		12			
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	TR			LT			LR					
Flow Rate, v (veh/h)	85			35			101					
Percent Heavy Vehicles	2			2			2					

Departure Headway and Service Time

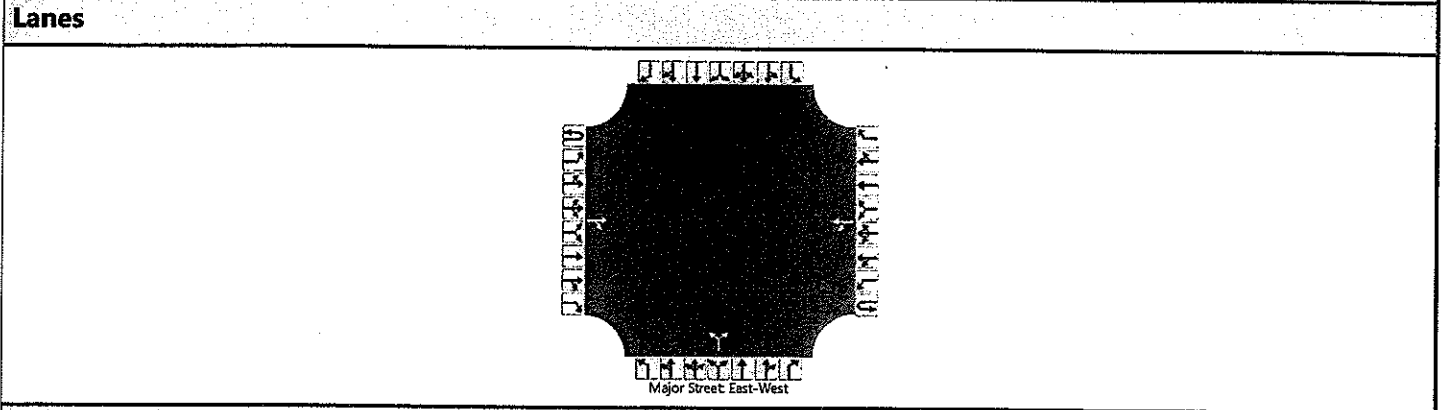
Initial Departure Headway, hd (s)	3.20			3.20			3.20					
Initial Degree of Utilization, x	0.076			0.031			0.090					
Final Departure Headway, hd (s)	3.69			4.34			4.26					
Final Degree of Utilization, x	0.087			0.042			0.120					
Move-Up Time, m (s)	2.0			2.0			2.0					
Service Time, ts (s)	1.69			2.34			2.26					

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	85			35			101					
Capacity	975			829			846					
95% Queue Length, Q ₉₅ (veh)	0.3			0.1			0.4					
Control Delay (s/veh)	7.0			7.5			7.8					
Level of Service, LOS	A			A			A					
Approach Delay (s/veh)	7.0			7.5			7.8					
Approach LOS	A			A			A					
Intersection Delay, s/veh LOS	7.5						A					

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	FMF	Intersection	Mt Carmel Ave at Ridge Rd				
Agency/Co.	SLR	Jurisdiction					
Date Performed	1/20/2021	East/West Street	Mount Carmel Ave				
Analysis Year	2029	North/South Street	Ridge Road				
Time Analyzed	PM	Peak Hour Factor	0.85				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	Background, PM Peak Hour						



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			128	25		9	118			16		4				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)					4.1					7.1		6.2				
Critical Headway (sec)					4.13					6.43		6.23				
Base Follow-Up Headway (sec)					2.2					3.5		3.3				
Follow-Up Headway (sec)					2.23					3.53		3.33				

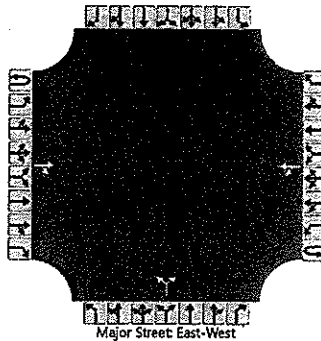
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)					11					24						
Capacity, c (veh/h)					1389					695						
v/c Ratio					0.01					0.03						
95% Queue Length, Q ₉₅ (veh)					0.0					0.1						
Control Delay (s/veh)					7.6					10.4						
Level of Service (LOS)					A					B						
Approach Delay (s/veh)					0.6				10.4							
Approach LOS					A				B							

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	FMF	Intersection	Mt Carmel Ave at Ridge Rd				
Agency/Co.	SLR	Jurisdiction					
Date Performed	1/20/2021	East/West Street	Mount Carmel Ave				
Analysis Year	2029	North/South Street	Ridge Road				
Time Analyzed	PM	Peak Hour Factor	0.85				
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25				
Project Description	Combined, PM Peak Hour						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	1	0		0	0	0
Configuration				TR		LT					LR					
Volume (veh/h)			128	33		24	118			24		20				
Percent Heavy Vehicles (%)						3				3		3				
Proportion Time Blocked																
Percent Grade (%)										0						
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1				7.1		6.2				
Critical Headway (sec)						4.13				6.43		6.23				
Base Follow-Up Headway (sec)						2.2				3.5		3.3				
Follow-Up Headway (sec)						2.23				3.53		3.33				

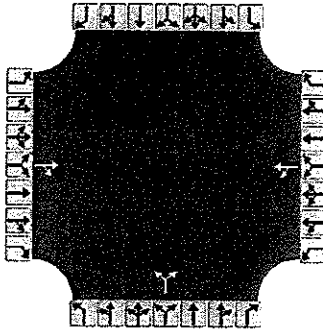
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						28					52					
Capacity, c (veh/h)						1378					712					
v/c Ratio						0.02					0.07					
95% Queue Length, Q ₉₅ (veh)						0.1					0.2					
Control Delay (s/veh)						7.7					10.4					
Level of Service (LOS)						A					B					
Approach Delay (s/veh)					1.4				10.4							
Approach LOS					A				B							

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	FMF	Intersection	Ridge Rd at Blue Hills Rd
Agency/Co.	SLR	Jurisdiction	
Date Performed	1/20/2021	East/West Street	Ridge Rd/Blue Hills Rd
Analysis Year	2029	North/South Street	Ridge Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.80
Time Analyzed	PM		
Project Description	Background, PM Peak Hour		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume		22	10	10	14		11		19			
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	TR			LT			LR					
Flow Rate, v (veh/h)	40			30			38					
Percent Heavy Vehicles	2			2			2					

Departure Headway and Service Time

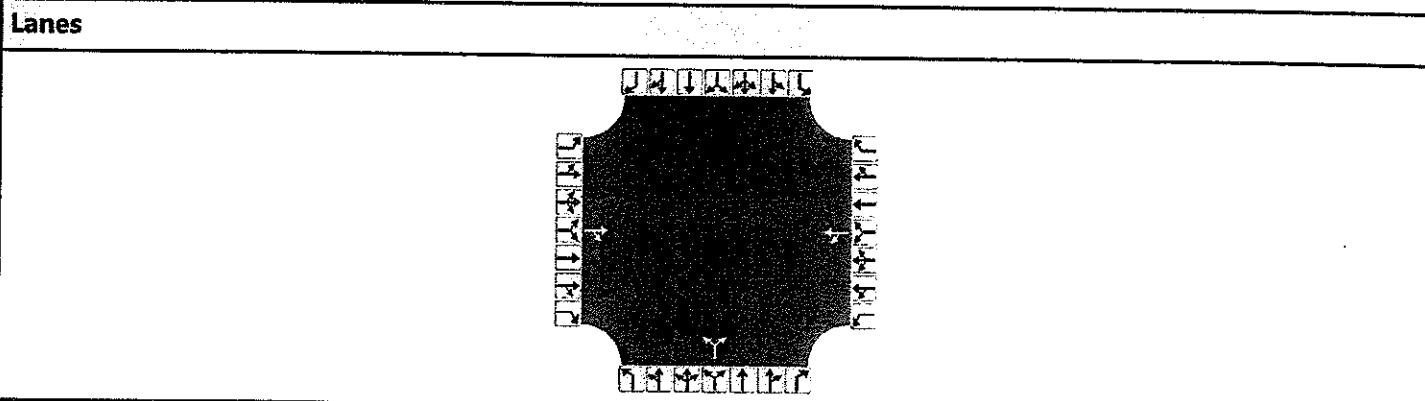
Initial Departure Headway, hd (s)	3.20			3.20			3.20					
Initial Degree of Utilization, x	0.036			0.027			0.033					
Final Departure Headway, hd (s)	3.85			4.13			3.77					
Final Degree of Utilization, x	0.043			0.034			0.039					
Move-Up Time, m (s)	2.0			2.0			2.0					
Service Time, ts (s)	1.85			2.13			1.77					

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	40			30			38					
Capacity	935			872			954					
95% Queue Length, Q ₉₅ (veh)	0.1			0.1			0.1					
Control Delay (s/veh)	7.0			7.3			6.9					
Level of Service, LOS	A			A			A					
Approach Delay (s/veh)	7.0			7.3			6.9					
Approach LOS	A			A			A					
Intersection Delay, s/veh LOS	7.1						A					

HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	FMF	Intersection	Ridge Rd at Blue Hills Rd
Agency/Co.	SLR	Jurisdiction	
Date Performed	1/20/2021	East/West Street	Ridge Rd/Blue Hills Rd
Analysis Year	2029	North/South Street	Ridge Rd
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.80
Time Analyzed	PM		
Project Description	Combined, PM Peak Hour		



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Movement												
Volume		26	62	10	18		59		19			
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	TR			LT			LR					
Flow Rate, v (veh/h)	110			35			98					
Percent Heavy Vehicles	2			2			2					

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20					
Initial Degree of Utilization, x	0.098			0.031			0.087					
Final Departure Headway, hd (s)	3.77			4.33			4.23					
Final Degree of Utilization, x	0.115			0.042			0.115					
Move-Up Time, m (s)	2.0			2.0			2.0					
Service Time, ts (s)	1.77			2.33			2.23					

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	110			35			98					
Capacity	955			832			850					
95% Queue Length, Q ₉₅ (veh)	0.4			0.1			0.4					
Control Delay (s/veh)	7.3			7.5			7.8					
Level of Service, LOS	A			A			A					
Approach Delay (s/veh)	7.3			7.5			7.8					
Approach LOS	A			A			A					
Intersection Delay, s/veh LOS	7.5						A					