final report

May 9, 2021

Traffic Impact Study

Parkside Extension
7507 Mt. Washington Road (KY 2053)
Louisville, KY

Prepared for

Louisville Metro Planning Commission

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INTRODUCTION

The site plan for the proposed Parkside Extension subdivision shows an additional 117 single-family lots on Mt. Washington Road (KY 2053) in Louisville, KY. **Figure 1** displays a map of the site. Access from Mt. Washington Road to the site will be from Parkside Vista Lane. The subdivision also connects to Parkside Vista Trace. The purpose of this study is to examine the traffic impacts of the development upon the adjacent highway system. For this study, the impact area was defined to be the intersections of Mt. Washington Road with Parkside Vista Lane and Cedar Creek Road.

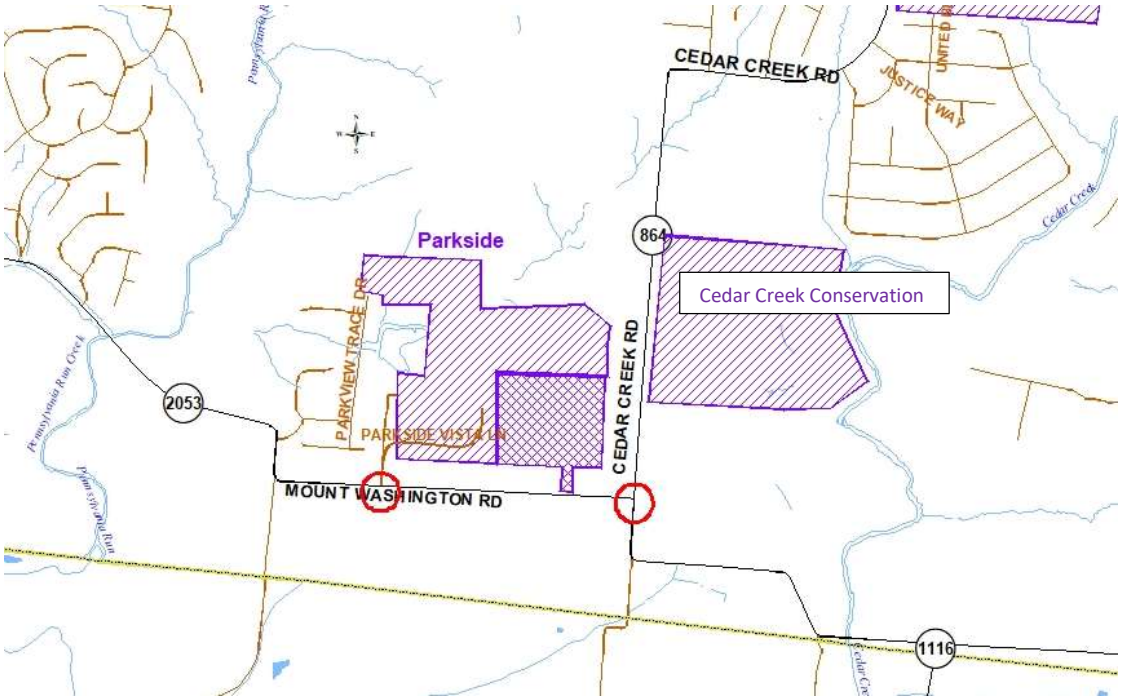


Figure 1. Site Map

EXISTING CONDITIONS

Mt. Washington Road, KY 2053, is a state-maintained road with an estimated 2021 ADT of 4,500 vehicles per day between Campion Court and KY 864, as estimated from the 2019 count by the Kentucky Transportation Cabinet at station 278. The road is a two-lane highway with ten-foot lanes with three-foot stabilized shoulders (provided by the Kentucky Transportation Cabinet). The speed limit is 35 mph. There are no sidewalks. The intersection with Cedar Creek Road is controlled with a stop sign.

Peak hour traffic counts for the intersections were obtained on Tuesday, April 13, 2021. The a.m. peak hour varied and the p.m. peak hour occurred between 4:15 and 5:15. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

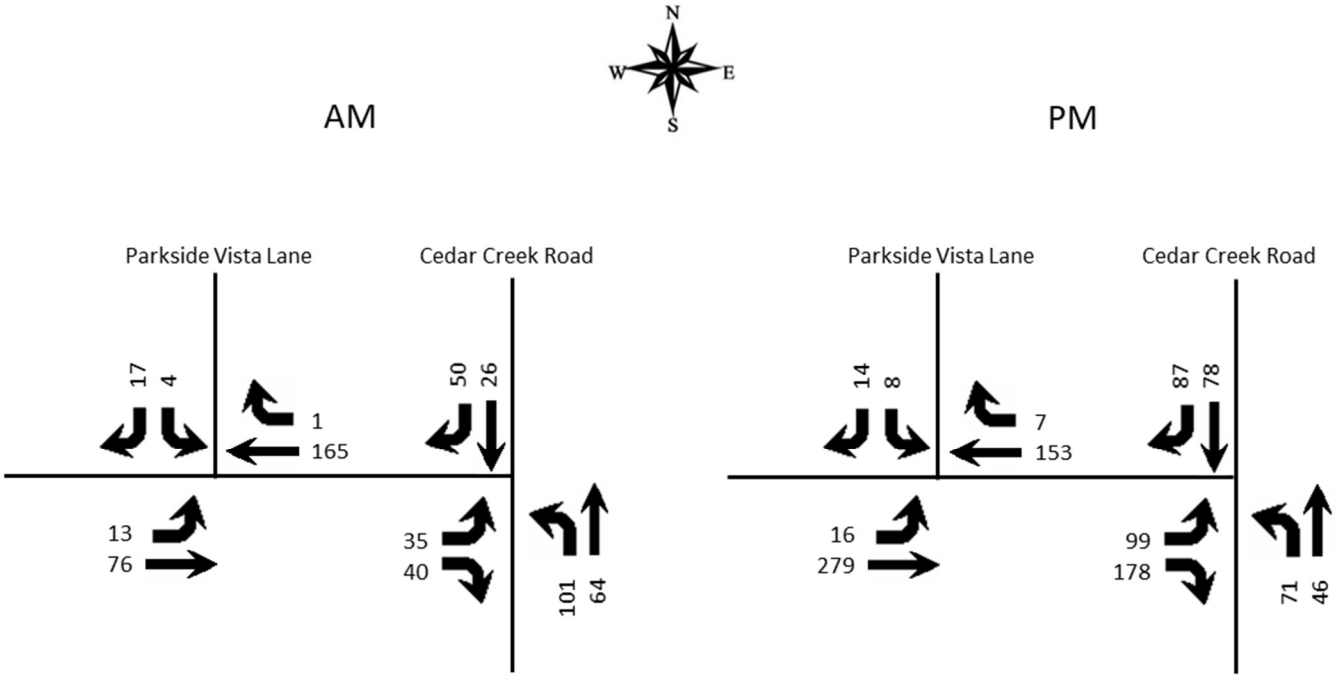


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2026. An annual growth rate of 2 percent was applied to the 2021 thru volumes. This was determined by the historical growth at KYTC station 278. Trip generation for 513 lots from approved subdivisions on Cedar Creek Road was included (see Appendix for detail). Trip generation for the 145 unbuilt lots that will be accessed from Parkside Vista Lane are shown on Parkside Vista Lane. This results in an annual growth rate of 9.2%. There are 46 lots that access from Mt. Washington Road will primarily be from Parkside Vista Trace. **Figure 3** displays the 2026 No Build peak hour volumes.

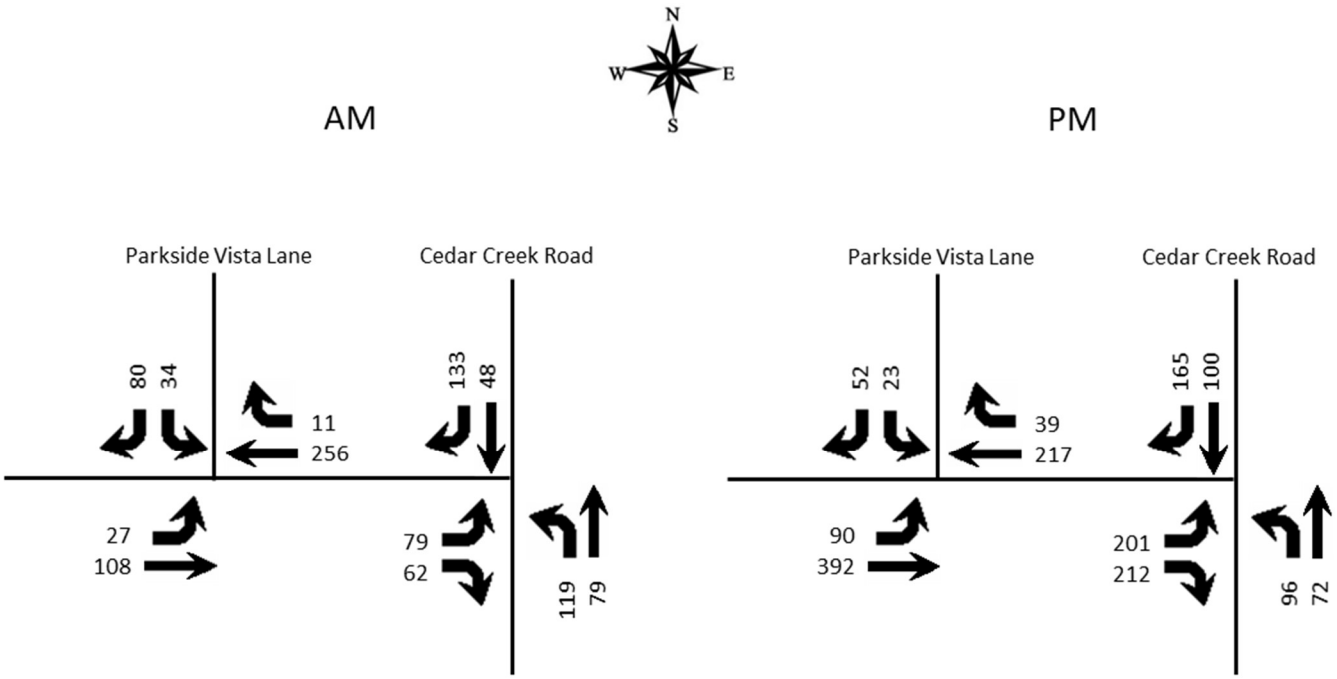


Figure 3. 2026 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10th Edition contains trip generation rates for a wide range of developments. The land use of "Single-Family Detached (210)" was reviewed and determined to be the best match. The trip generation results are listed in **Table 1**. The trips were assigned to the highway network with the percentages shown in **Figure 4**. At Cedar Creek Road, percentages from the count were used for each peak hour. **Figure 5** shows the trips generated by this development and distributed throughout the road network during the peak hours. **Figure 6** displays the individual turning movements for the peak hours when the development is completed.

Table 1. Peak Hour Trips Generated by Site

	A.M. Peak Hour			P.M. Peak Hour		
Land Use	**Trips**	**In**	**Out**	**Trips**	**In**	**Out**
Single-Family (117 units)	88	22	66	118	74	44

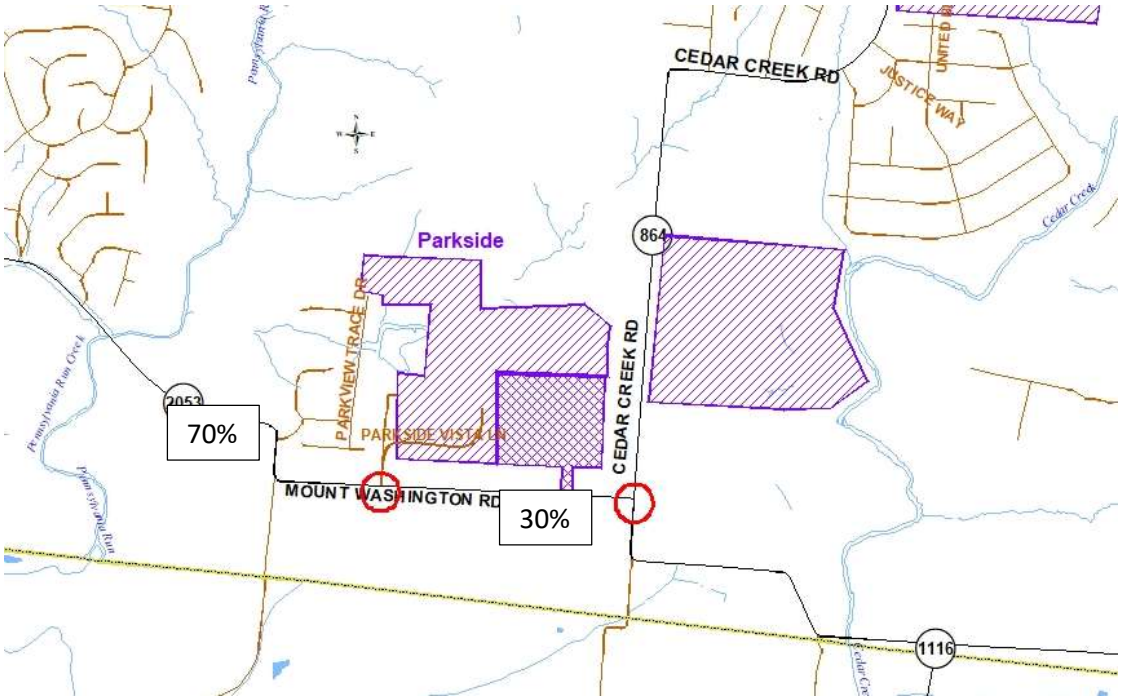


Figure 4. Trip Distribution Percentages

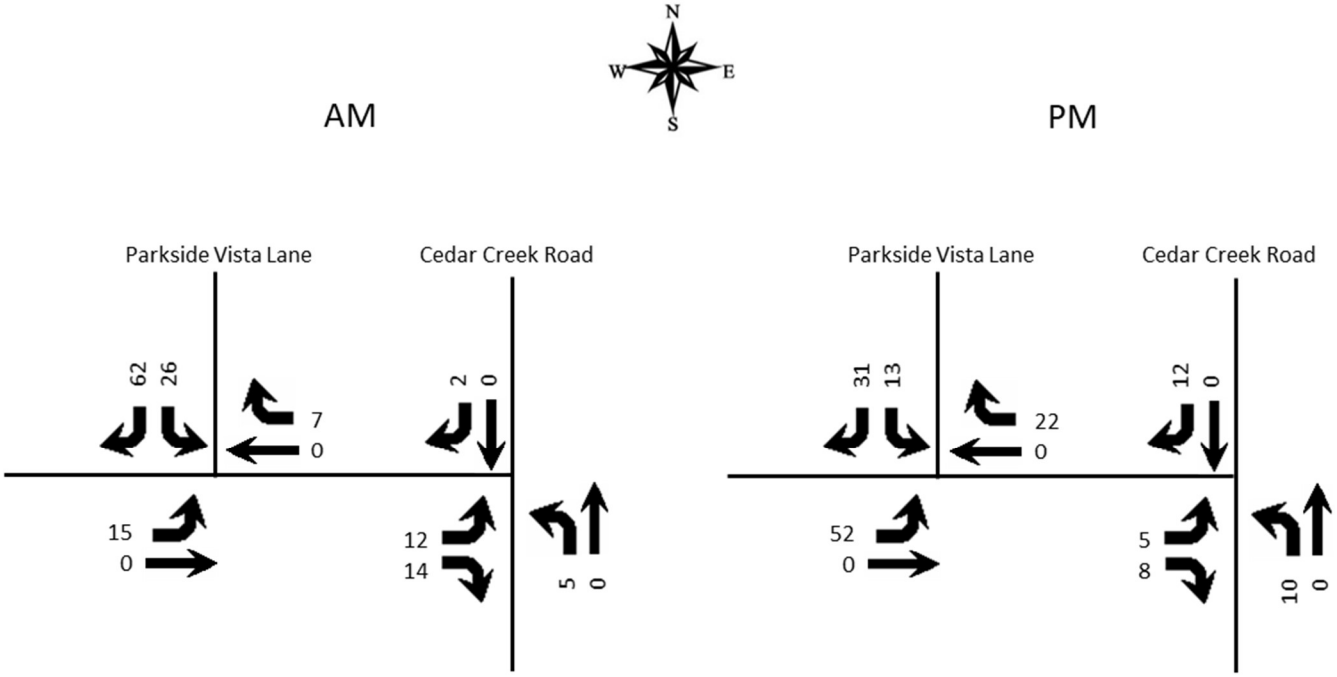


Figure 5. Peak Hour Trips Generated by Site

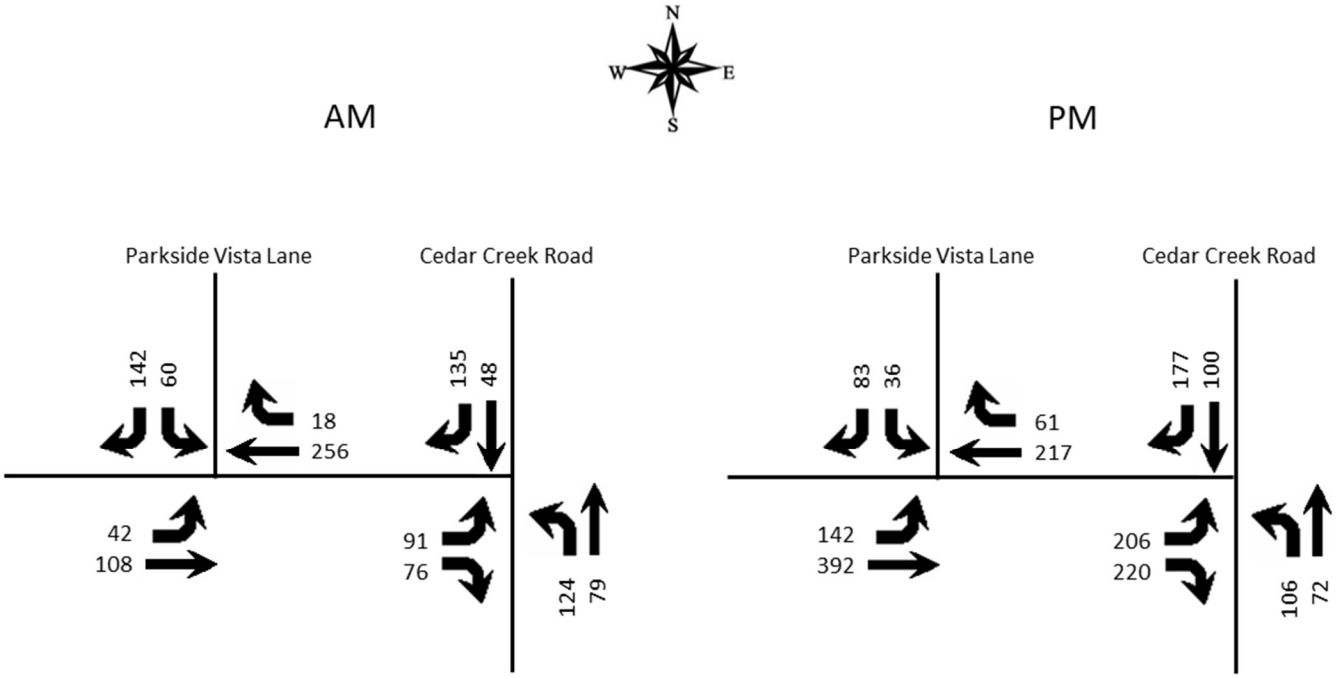


Figure 6. 2026 Build Peak Hour Volumes

ANALYSIS

The qualitative measure of operation for a roadway facility or intersection is evaluated by assigning a "Level of Service". Level of Service is a ranking scale from A through F, "A" is the best operating condition and "F" is the worst. Level of Service results depend upon the facility that is analyzed. In this case, the Level of Service is based upon the total delay experienced for lanes at stop-controlled intersections.

To evaluate the impact of the proposed development, the vehicle delays at the intersections were determined using procedures detailed in the Highway Capacity Manual, 6th edition. Future delays and Level of Service were determined for the intersections using the HCS Streets (version 7.9.5) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

Approach	A.M.			P.M.		
	2021 Existing	2026 No Build	2026 Build	2021 Existing	2026 No Build	2026 Build
Mt. Washington Road at Parkside Vista Lane						
Mt. Washington Road Eastbound (left)	A 7.8	A 8.0	A 8.0	A 7.6	A 8.0	A 8.2
Parkside Vista Lane Southbound	A 9.6	B 12.7	B 12.6	B 10.4	B 13.1	B 13.2
Mt. Washington Road at Cedar Creek Road						
Mt. Washington Road Eastbound	B 10.6	B 13.3	B 14.0	B 12.1	C 21.5	C 24.1
Cedar Creek Road Northbound (left)	A 7.6	A 7.9	A 8.0	A 7.7	A 8.0	A 8.1

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet Highway Design Guidance Manual dated July, 2020. Using the volumes in Figure 6, an eastbound left-turn lane is recommended at the entrance.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2026, there will be a slight impact to the existing highway network. A left-turn lane is recommended at the entrance. No other improvements are required.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Mt. Washington, KY

Site 1 of 2
Driveway
Parkside Vista Ln
KY-2053 Mt. Washinton Rd (West)
KY-2053 Mt. Washinton Rd (East)

Date
Tuesday, April 13, 2021

Weather
Cloudy
61°F

Lat/Long
38.083397°, -85.632467°

0700 - 0900 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Driveway					Parkside Vista Ln					KY-2053 Mt. Washinton Rd (West)					KY-2053 Mt. Washinton Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
0700 - 0715	0	0	0	0	0	1	0	3	0	4	1	18	0	0	19	0	25	0	0	25	48
0715 - 0730	0	0	1	0	1	0	0	1	0	1	2	19	0	0	21	0	40	1	0	41	64
0730 - 0745	0	0	0	0	0	0	0	5	0	5	5	20	0	0	25	0	46	0	0	46	76
0745 - 0800	0	0	0	0	0	1	0	5	0	6	4	18	0	0	22	0	37	0	0	37	65
Hourly Total	0	0	1	0	**1**	2	0	14	0	**16**	12	75	0	0	**87**	0	148	1	0	**149**	**253**
0800 - 0815	0	0	0	0	0	3	0	6	0	9	2	19	0	0	21	0	42	0	0	42	72
0815 - 0830	0	0	0	0	0	0	0	0	0	0	3	15	0	0	18	0	34	1	0	35	53
0830 - 0845	0	0	0	0	0	6	0	1	0	7	2	15	0	0	17	0	39	2	0	41	65
0845 - 0900	0	0	0	0	0	5	0	1	0	6	0	19	0	0	19	0	25	3	0	28	53
Hourly Total	0	0	0	0	**0**	14	0	8	0	**22**	7	68	0	0	**75**	0	140	6	0	**146**	**243**
Grand Total	0	0	1	0	**1**	16	0	22	0	**38**	19	143	0	0	**162**	0	288	7	0	**295**	**496**
Approach %	0.00	0.00	100.00	0.00	-	42.11	0.00	57.89	0.00	-	11.73	88.27	0.00	0.00	-	0.00	97.63	2.37	0.00	-	
Intersection %	0.00	0.00	0.20	0.00	0.20	3.23	0.00	4.44	0.00	7.66	3.83	28.83	0.00	0.00	32.66	0.00	58.06	1.41	0.00	59.48	
PHF	0.00	0.00	0.25	0.00	**0.25**	0.33	0.00	0.71	0.00	**0.58**	0.65	0.95	0.00	0.00	**0.89**	0.00	0.90	0.25	0.00	**0.90**	**0.91**

1600 - 1800 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound					Southbound					Eastbound					Westbound					
	Driveway					Parkside Vista Ln					KY-2053 Mt. Washinton Rd (West)					KY-2053 Mt. Washinton Rd (East)					
	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Left	Thru	Right	U-Turn	App	Int
TIME	1.1	1.2	1.3	1.4	Total	1.5	1.6	1.7	1.8	Total	1.9	1.10	1.11	1.12	Total	1.13	1.14	1.15	1.16	Total	Total
1600 - 1615	1	0	0	0	1	0	0	2	0	2	4	54	1	0	59	0	47	4	0	51	113
1615 - 1630	0	0	0	0	0	2	0	6	0	8	3	79	0	0	82	0	34	2	0	36	126
1630 - 1645	0	0	0	0	0	2	0	3	0	5	2	69	0	0	71	0	43	1	0	44	120
1645 - 1700	0	0	0	0	0	2	0	1	0	3	6	59	0	0	65	0	42	2	0	44	112
Hourly Total	1	0	0	0	**1**	6	0	12	0	**18**	15	261	1	0	**277**	0	166	9	0	**175**	**471**
1700 - 1715	0	0	0	0	0	2	0	4	0	6	5	72	0	0	77	0	34	2	0	36	119
1715 - 1730	0	0	0	0	0	0	0	2	0	2	3	61	0	0	64	0	32	2	0	34	100
1730 - 1745	0	0	0	0	0	3	0	1	0	4	1	58	0	0	59	0	34	2	0	36	99
1745 - 1800	0	0	0	0	0	4	0	2	0	6	1	47	0	0	48	0	49	3	0	52	106
Hourly Total	0	0	0	0	**0**	9	0	9	0	**18**	10	238	0	0	**248**	0	149	9	0	**158**	**424**
Grand Total	1	0	0	0	**1**	15	0	21	0	**36**	25	499	1	0	**525**	0	315	18	0	**333**	**895**
Approach %	100.00	0.00	0.00	0.00	-	41.67	0.00	58.33	0.00	-	4.76	95.05	0.19	0.00	-	0.00	94.59	5.41	0.00	-	
Intersection %	0.11	0.00	0.00	0.00	0.11	1.68	0.00	2.35	0.00	4.02	2.79	55.75	0.11	0.00	58.66	0.00	35.20	2.01	0.00	37.21	
PHF	0.00	0.00	0.00	0.00	**0.00**	1.00	0.00	0.58	0.00	**0.69**	0.67	0.88	0.00	0.00	**0.90**	0.00	0.89	0.88	0.00	**0.91**	**0.95**

Classified Turn Movement Count || All vehicles

Marr Traffic DATA COLLECTION
www.marrtraffic.com

Mt. Washington, KY

Site 2 of 2
Cedar Creek Rd
KY-864 Cedar Creek Rd
KY-2053 Mt. Washington Rd

Date
Tuesday, April 13, 2021

Weather
Cloudy
61°F

Lat/Long
38.083042°, -85.623591°

0700 - 0900 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Cedar Creek Rd				KY-864 Cedar Creek Rd				KY-2053 Mt. Washington Rd				
TIME	Left 2.1	Thru 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8	U-Turn 2.9	App Total	Int Total
0700 - 0715	23	18	0	41	1	7	0	8	14	2	0	16	65
0715 - 0730	24	18	0	42	1	13	0	14	11	8	0	19	75
0730 - 0745	34	21	0	55	4	12	0	16	5	16	0	21	92
0745 - 0800	18	12	0	30	7	13	1	21	12	11	0	23	74
Hourly Total	99	69	0	**168**	13	45	1	**59**	42	37	0	**79**	**306**
0800 - 0815	26	14	0	40	9	12	0	21	10	9	1	20	81
0815 - 0830	23	17	0	40	6	13	0	19	7	4	0	11	70
0830 - 0845	21	17	0	38	5	16	0	21	13	7	0	20	79
0845 - 0900	18	8	0	26	2	14	0	16	17	8	0	25	67
Hourly Total	88	56	0	**144**	22	55	0	**77**	47	28	1	**76**	**297**
Grand Total	187	125	0	**312**	35	100	1	**136**	89	65	1	**155**	**603**
Approach %	59.94	40.06	0.00	-	25.74	73.53	0.74	-	57.42	41.94	0.65	-	
Intersection %	31.01	20.73	0.00	51.74	5.80	16.58	0.17	22.55	14.76	10.78	0.17	25.70	
PHF	0.74	0.76	0.00	**0.75**	0.72	0.96	0.25	**0.92**	0.71	0.63	0.25	**0.82**	**0.86**

1600 - 1800 (Weekday 2h Session) (13-04-2021)
All vehicles

	Northbound				Southbound				Eastbound				
	Cedar Creek Rd				KY-864 Cedar Creek Rd				KY-2053 Mt. Washington Rd				
TIME	Left 2.1	Thru 2.2	U-Turn 2.3	App Total	Thru 2.4	Right 2.5	U-Turn 2.6	App Total	Left 2.7	Right 2.8	U-Turn 2.9	App Total	Int Total
1600 - 1615	19	8	1	28	17	23	0	40	25	25	0	50	118
1615 - 1630	19	13	0	32	19	20	1	40	22	52	0	74	146
1630 - 1645	18	10	0	28	15	26	0	41	30	37	1	68	137
1645 - 1700	19	12	0	31	19	25	1	45	19	44	0	63	139
Hourly Total	75	43	1	**119**	70	94	2	**166**	96	158	1	**255**	**540**
1700 - 1715	15	11	0	26	25	18	0	43	27	45	0	72	141
1715 - 1730	16	12	0	28	22	12	1	35	26	29	0	55	118
1730 - 1745	16	8	0	24	20	27	0	47	23	32	0	55	126
1745 - 1800	23	14	0	37	18	19	0	37	18	29	0	47	121
Hourly Total	70	45	0	**115**	85	76	1	**162**	94	135	0	**229**	**506**
Grand Total	145	88	1	**234**	155	170	3	**328**	190	293	1	**484**	**1046**
Approach %	61.97	37.61	0.43	-	47.26	51.83	0.91	-	39.26	60.54	0.21	-	
Intersection %	13.86	8.41	0.10	22.37	14.82	16.25	0.29	31.36	18.16	28.01	0.10	46.27	
PHF	0.93	0.88	0.00	**0.91**	0.78	0.86	0.50	**0.94**	0.82	0.86	0.25	**0.94**	**0.96**

TRIP GENERATION NEARBY SUBDIVISIONS

Cedar Creek Conservation Subdivision
10803 Cedar Creek Road
Traffic Impact Study

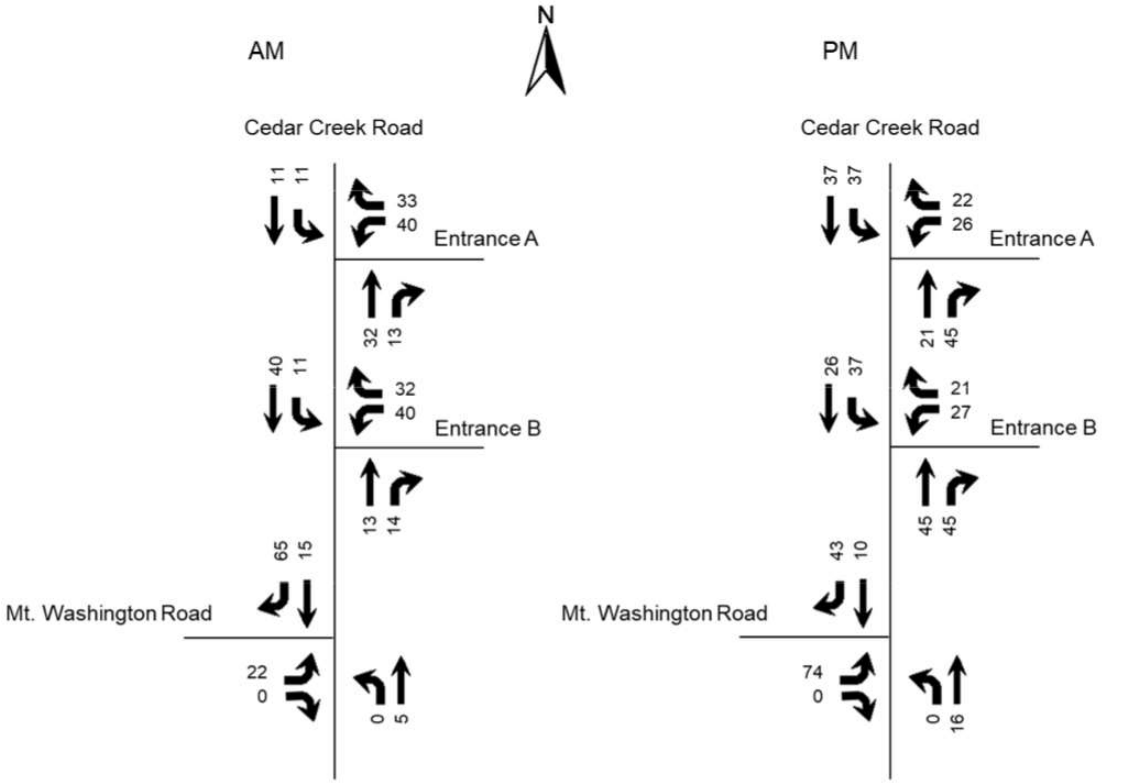


Figure 5. Peak Hour Trips Generated by Site

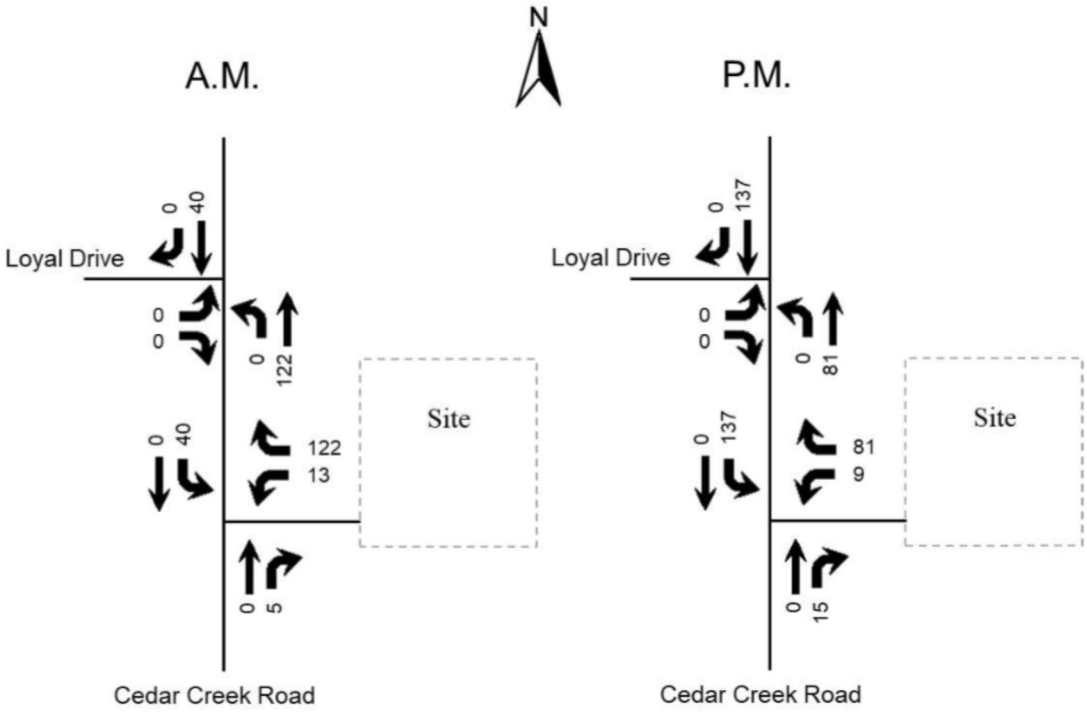


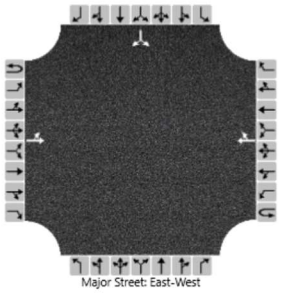
Figure 5. Peak Hour Trips Generated by Site

HCS Reports

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington
Analysis Year	2021	North/South Street	Parkside Vista Lane
Time Analyzed	AM Peak	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		13	76				165	1						4		17
Percent Heavy Vehicles (%)		15												25		6
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)		4.25												6.65		6.26
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.34												3.73		3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		14													23	
Capacity, c (veh/h)		1318													801	
v/c Ratio		0.01													0.03	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.8													9.6	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)		1.2												9.6		
Approach LOS														A		

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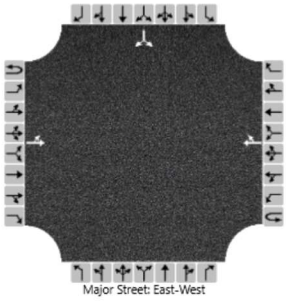
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington
Analysis Year	2026	North/South Street	Parkside Vista Lane
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		27	108				256	11						80		34
Percent Heavy Vehicles (%)		7												1		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)		4.17												6.41		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.51		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		30													125	
Capacity, c (veh/h)		1240													592	
v/c Ratio		0.02													0.21	
95% Queue Length, Q_{95} (veh)		0.1													0.8	
Control Delay (s/veh)		8.0													12.7	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.8												12.7		
Approach LOS														B		

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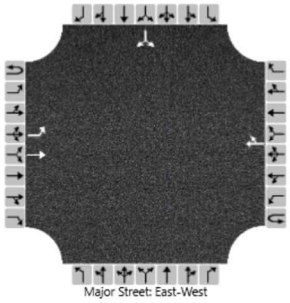
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington
Analysis Year	2026	North/South Street	Parkside Vista Lane
Time Analyzed	AM Peak Build	Peak Hour Factor	0.91
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		42	108				256	18						60		142
Percent Heavy Vehicles (%)		7												3		1
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage				Left Only								1				

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.43		6.21
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.53		3.31

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		46													222	
Capacity, c (veh/h)		1232													692	
v/c Ratio		0.04													0.32	
95% Queue Length, Q_{95} (veh)		0.1													1.4	
Control Delay (s/veh)		8.0													12.6	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		2.3												12.6		
Approach LOS														B		

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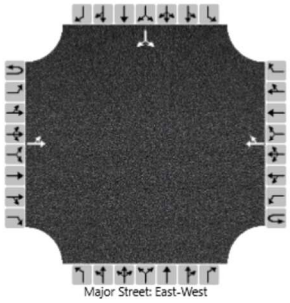
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington
Analysis Year	2021	North/South Street	Parkside Vista Lane
Time Analyzed	PM Peak	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		16	279				153	7						8		14
Percent Heavy Vehicles (%)		0												0		21
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)		4.10												6.40		6.41
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.49

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		17													23	
Capacity, c (veh/h)		1421													691	
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)		0.5												10.4		
Approach LOS														B		

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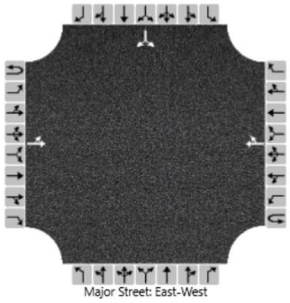
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington
Analysis Year	2026	North/South Street	Parkside Vista Lane
Time Analyzed	PM Peak	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		90	392				217	39						23		52
Percent Heavy Vehicles (%)		0												0		6
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)		4.10												6.40		6.26
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.20												3.50		3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		95													79	
Capacity, c (veh/h)		1306													525	
v/c Ratio		0.07													0.15	
95% Queue Length, Q_{95} (veh)		0.2													0.5	
Control Delay (s/veh)		8.0													13.1	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		2.1												13.1		
Approach LOS														B		

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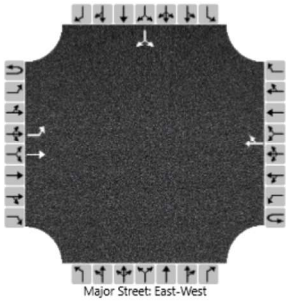
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Parkside Vista
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt Washington Rd
Analysis Year	2026	North/South Street	Parkside Vista Lane
Time Analyzed	PM Peak	Peak Hour Factor	0.95
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	Parkside Ext		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	1	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		L	T					TR							LR	
Volume (veh/h)		142	392				217	61						36		83
Percent Heavy Vehicles (%)		1												1		5
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage					Left Only								1			

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.11												6.41		6.25
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.21												3.51		3.35

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		149													125	
Capacity, c (veh/h)		1275													566	
v/c Ratio		0.12													0.22	
95% Queue Length, Q_{95} (veh)		0.4													0.8	
Control Delay (s/veh)		8.2													13.2	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		2.2												13.2		
Approach LOS														B		

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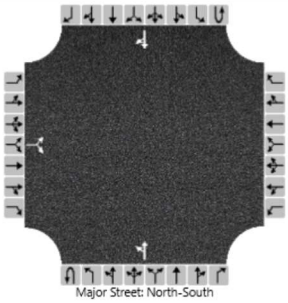
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2021	North/South Street	Cedar Creek Rd
Time Analyzed	AM Peak	Peak Hour Factor	0.86
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		35		40						101	64				26	50
Percent Heavy Vehicles (%)		14		2						1						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.54		6.22						4.11						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.63		3.32						2.21						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			87							117						
Capacity, c (veh/h)			733							1514						
v/c Ratio			0.12							0.08						
95% Queue Length, Q_{95} (veh)			0.4							0.3						
Control Delay (s/veh)			10.6							7.6						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		10.6								4.9						
Approach LOS		B														

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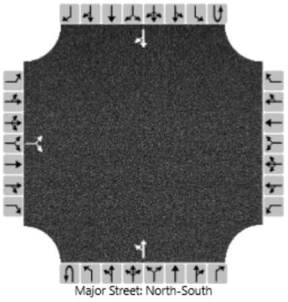
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2026	North/South Street	Cedar Creek Rd
Time Analyzed	AM Peak No Build	Peak Hour Factor	0.86
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		79		62						119	79				48	133
Percent Heavy Vehicles (%)		6		2						1						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.22						4.11						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.32						2.21						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			164							138						
Capacity, c (veh/h)			595							1366						
v/c Ratio			0.28							0.10						
95% Queue Length, Q_{95} (veh)			1.1							0.3						
Control Delay (s/veh)			13.3							7.9						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		13.3								5.1						
Approach LOS		B														

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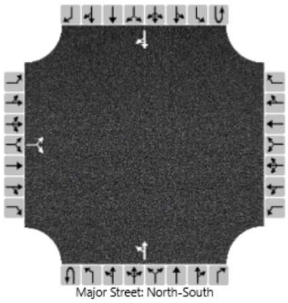
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2026	North/South Street	Cedar Creek Rd
Time Analyzed	AM Peak Build	Peak Hour Factor	0.86
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		91		76						124	79				48	135
Percent Heavy Vehicles (%)		6		2						1						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.22						4.11						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.32						2.21						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			194							144						
Capacity, c (veh/h)			591							1363						
v/c Ratio			0.33							0.11						
95% Queue Length, Q_{95} (veh)			1.4							0.4						
Control Delay (s/veh)			14.0							8.0						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		14.0								5.2						
Approach LOS		B														

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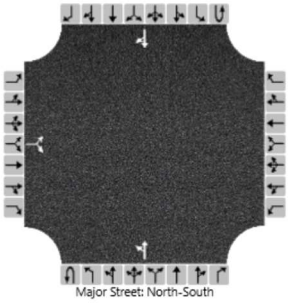
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2021	North/South Street	Cedar Creek Rd
Time Analyzed	PM Peak	Peak Hour Factor	0.96
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		99		178						71	46				78	87
Percent Heavy Vehicles (%)		6		1						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.21						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.31						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			289							74						
Capacity, c (veh/h)			792							1417						
v/c Ratio			0.36							0.05						
95% Queue Length, Q_{95} (veh)			1.7							0.2						
Control Delay (s/veh)			12.1							7.7						
Level of Service (LOS)			B							A						
Approach Delay (s/veh)		12.1								4.8						
Approach LOS		B														

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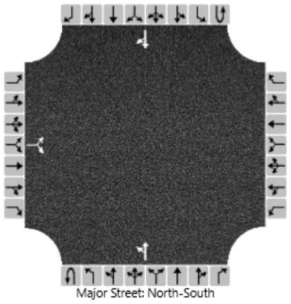
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2026	North/South Street	Cedar Creek Rd
Time Analyzed	PM Peak No Build	Peak Hour Factor	0.96
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		201		212						96	72				100	165
Percent Heavy Vehicles (%)		6		1						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.21						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.31						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			430							100						
Capacity, c (veh/h)			639							1299						
v/c Ratio			0.67							0.08						
95% Queue Length, Q_{95} (veh)			5.2							0.2						
Control Delay (s/veh)			21.5							8.0						
Level of Service (LOS)			C							A						
Approach Delay (s/veh)		21.5								4.8						
Approach LOS		C														

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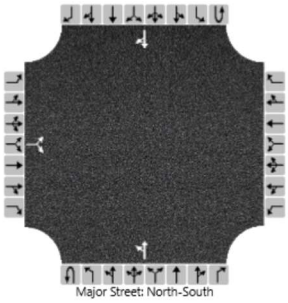
HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	DBZ	Intersection	Mt Wash at Cedar Creek
Agency/Co.	Diane B Zimmerman Traffic Engineering	Jurisdiction	
Date Performed	5/9/2021	East/West Street	Mt. Washington Rd
Analysis Year	2026	North/South Street	Cedar Creek Rd
Time Analyzed	PM Peak Build	Peak Hour Factor	0.96
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Parkside Extension		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		206		220						106	72				100	177
Percent Heavy Vehicles (%)		6		1						0						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized																
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.21						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.31						2.20						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			444							110						
Capacity, c (veh/h)			620							1285						
v/c Ratio			0.72							0.09						
95% Queue Length, Q_{95} (veh)			6.0							0.3						
Control Delay (s/veh)			24.1							8.1						
Level of Service (LOS)			C							A						
Approach Delay (s/veh)		24.1								5.1						
Approach LOS		C														

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