

final report

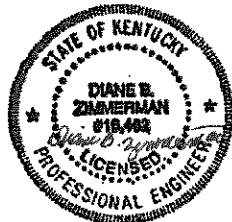
May 9, 2021

## Traffic Impact Study

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

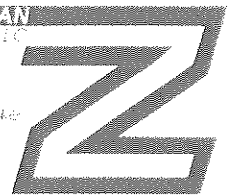
Prepared for

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.

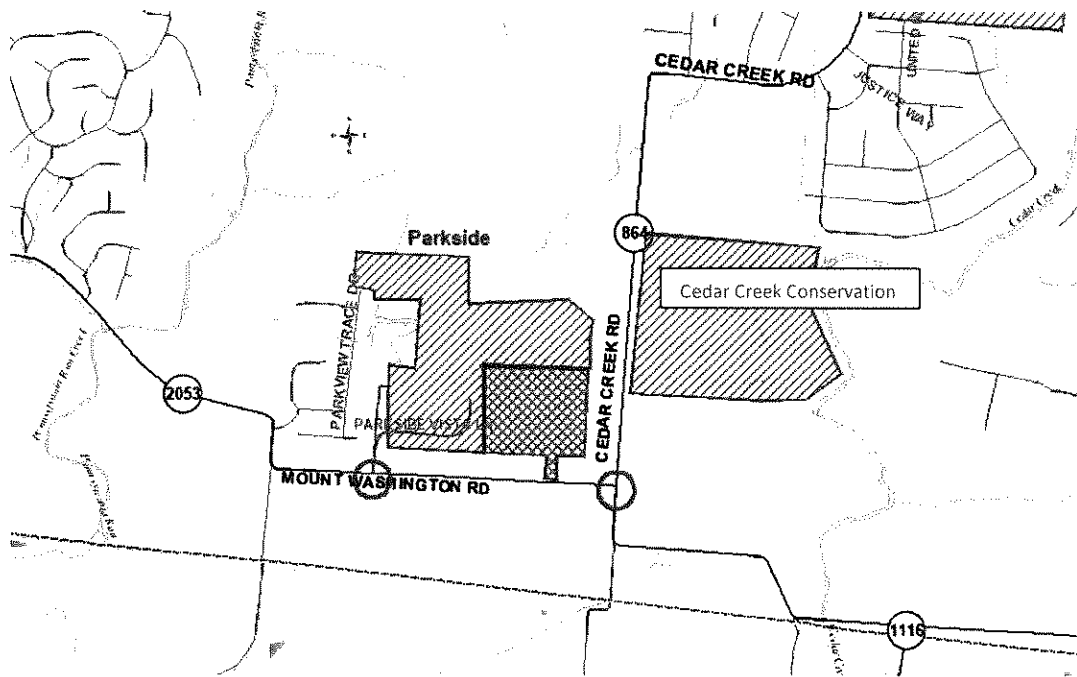


Figure 1. Site Map

## 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.

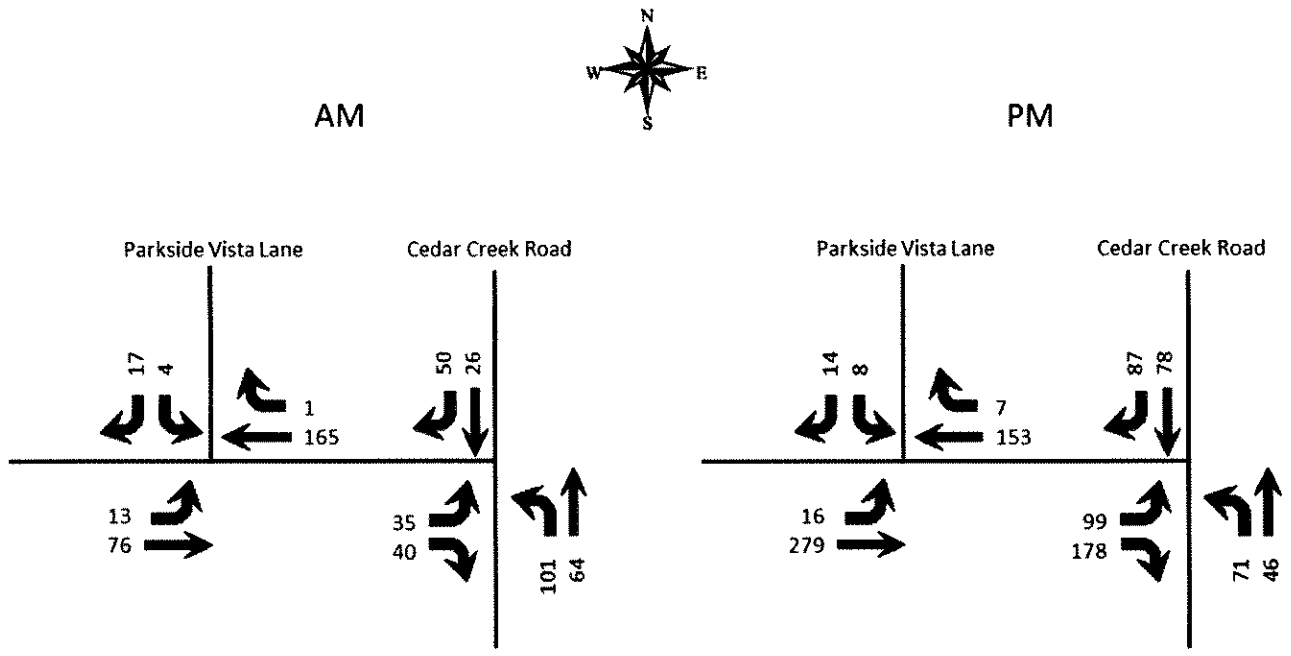


Figure 2. Existing Peak Hour Volumes

### 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.

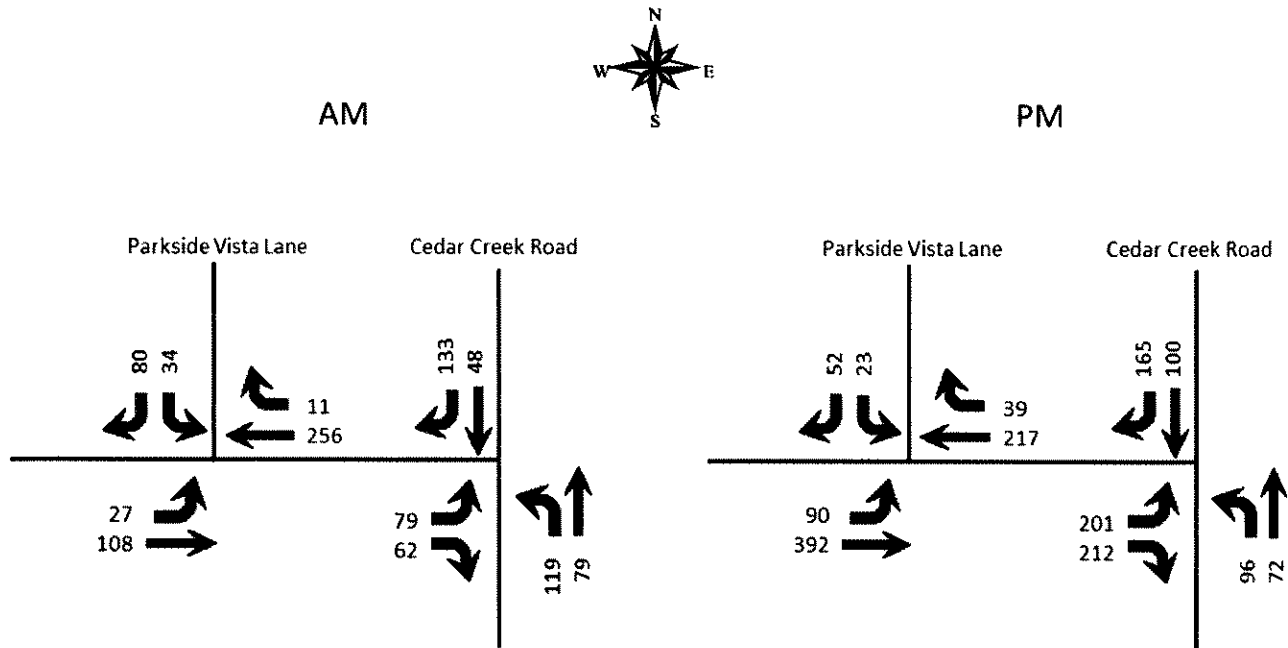


Figure 3. 2026 No Build Peak Hour Volumes

## TRIP GENERATION

The Institute of Transportation Engineers Trip Generation Manual, 10<sup>th</sup> 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

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

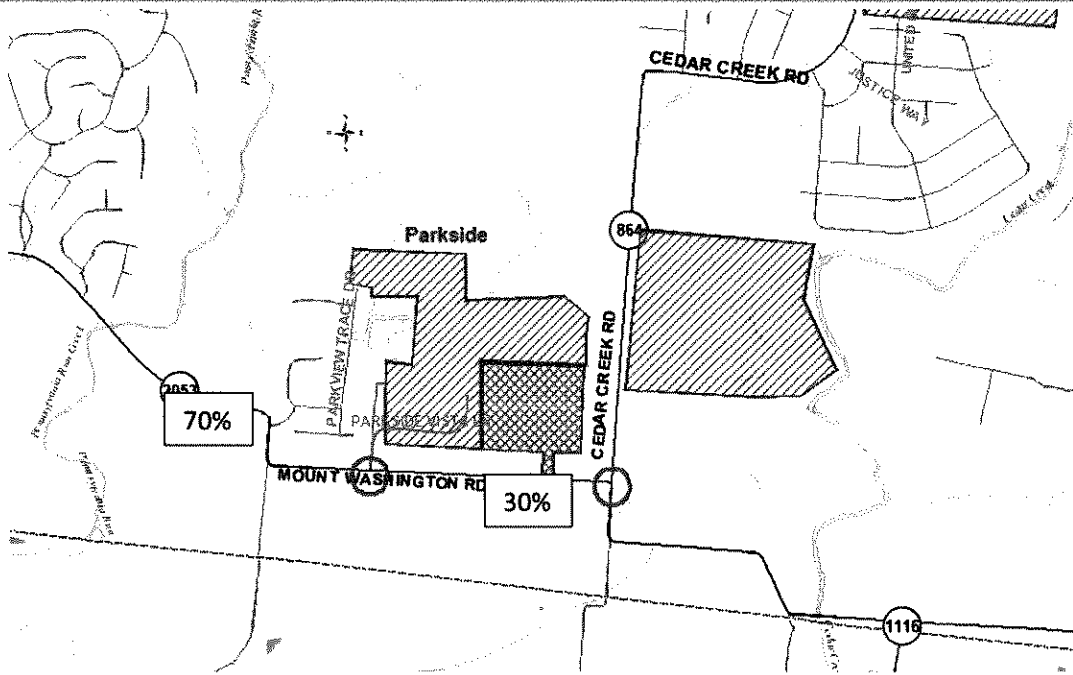


Figure 4. Trip Distribution Percentages

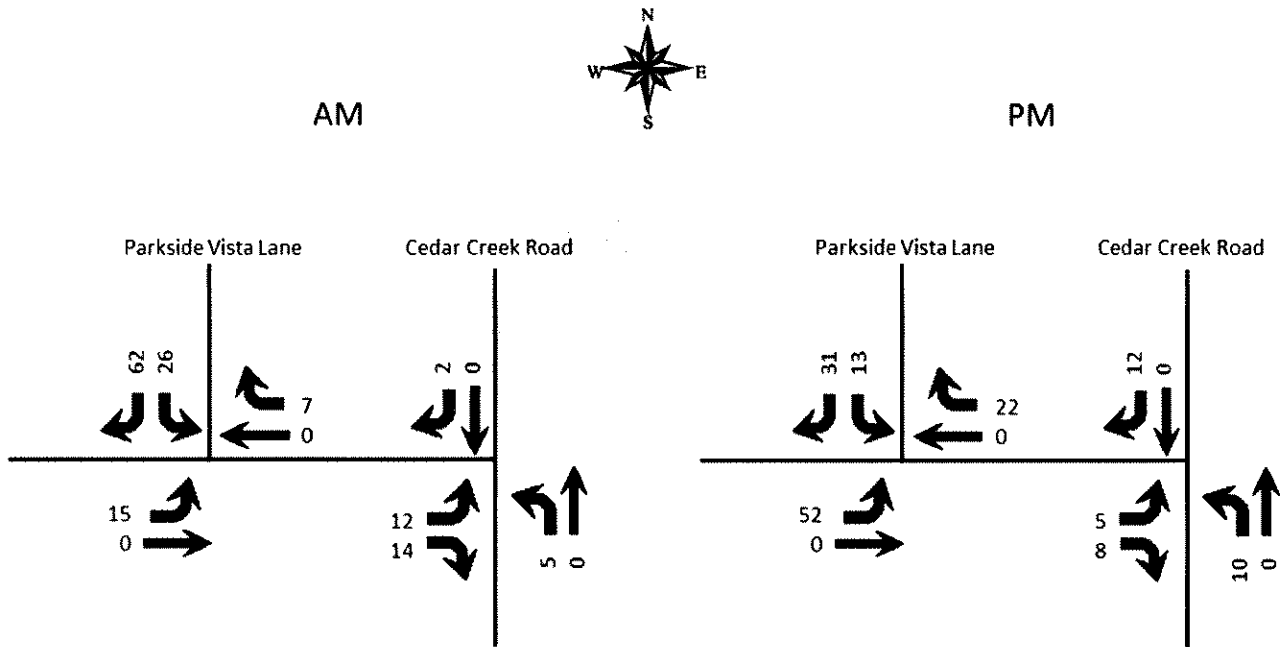


Figure 5. Peak Hour Trips Generated by Site

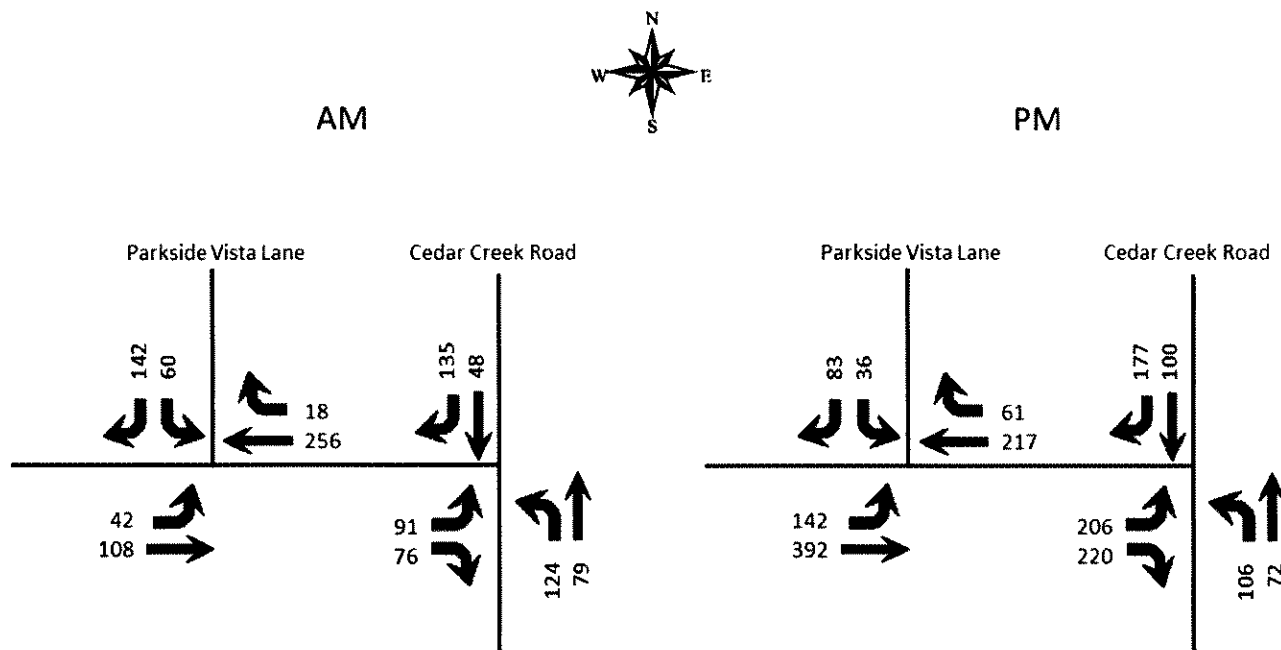


Figure 6. 2026 Build Peak Hour Volumes

## 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, 6<sup>th</sup> 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
<b>Mt. Washington Road at Parkside Vista Lane</b>						
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
<b>Mt. Washington Road at Cedar Creek Road</b>						
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**

Parkside Extension  
Mt. Washington Road  
Traffic Impact Study

Traffic Counts

Classified Turn Movement Count | All vehicles



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  
Lat/Long  
38.083397°, -85.632467°

Weather  
Cloudy  
61°F

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

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Driveway					Parkside Vista Ln					KY-2053 Mt. Washinton Rd (West)					KY-2053 Mt. Washinton Rd (East)					
	Left 1.1	Thru 1.2	Right 1.3	U-Turn 1.4	App Total	Left 1.5	Thru 1.6	Right 1.7	U-Turn 1.8	App Total	Left 1.9	Thru 1.10	Right 1.11	U-Turn 1.12	App Total	Left 1.13	Thru 1.14	Right 1.15	U-Turn 1.16	App 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

TIME	Northbound					Southbound					Eastbound					Westbound					Int Total
	Driveway					Parkside Vista Ln					KY-2053 Mt. Washinton Rd (West)					KY-2053 Mt. Washinton Rd (East)					
	Left 1.1	Thru 1.2	Right 1.3	U-Turn 1.4	App Total	Left 1.5	Thru 1.6	Right 1.7	U-Turn 1.8	App Total	Left 1.9	Thru 1.10	Right 1.11	U-Turn 1.12	App Total	Left 1.13	Thru 1.14	Right 1.15	U-Turn 1.16	App 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

Parkside Extension  
Mt. Washington Road  
Traffic Impact Study

Classified Turn Movement Count || All vehicles



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

TIME	Northbound				Southbound				Eastbound				Int Total
	Cedar Creek Rd		KY-864 Cedar Creek Rd		KY-2053 Mt. Washington Rd								
	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	
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

TIME	Northbound				Southbound				Eastbound				Int Total
	Cedar Creek Rd		KY-864 Cedar Creek Rd		KY-2053 Mt. Washington Rd								
	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	
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

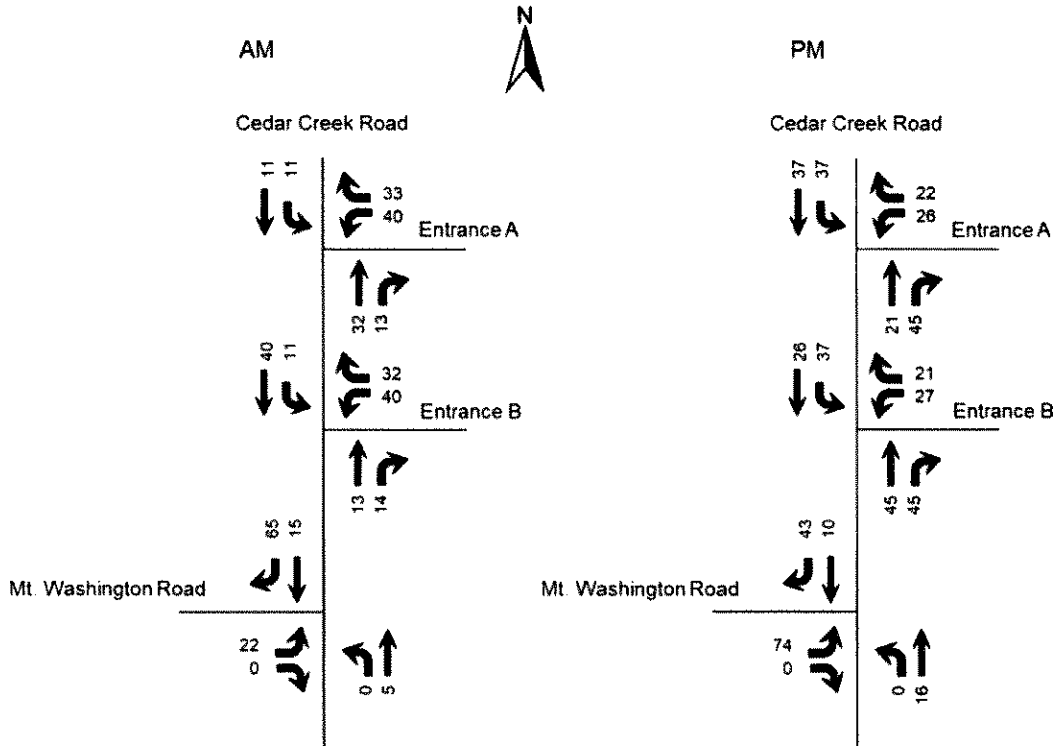


Figure 5. Peak Hour Trips Generated by Site

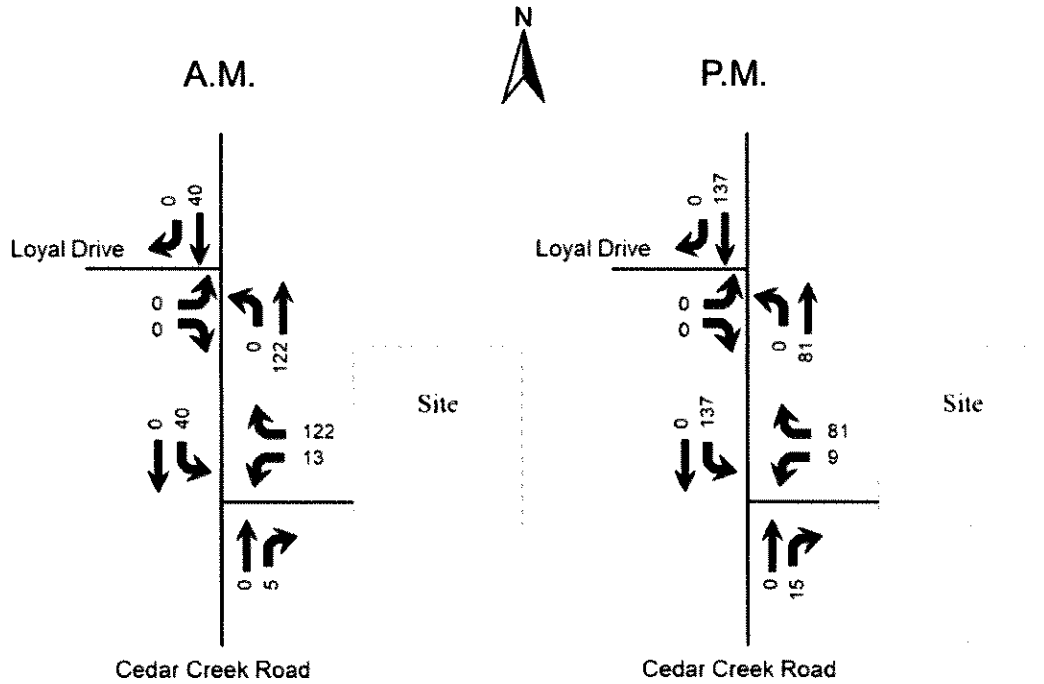


Figure 5. Peak Hour Trips Generated by Site

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																
<b>Lanes</b>																	
<p>Major Street East-West</p>																	
<b>Vehicle Volumes and Adjustments</b>																	
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																
<b>Critical and Follow-up Headways</b>																	
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	
<b>Delay, Queue Length, and Level of Service</b>																	
Flow Rate, v (veh/h)		14														23	
Capacity, c (veh/h)		1318														801	
v/c Ratio		0.01														0.03	
95% Queue Length, Q <sub>95</sub> (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												A				

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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 <sub>95</sub> (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															

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

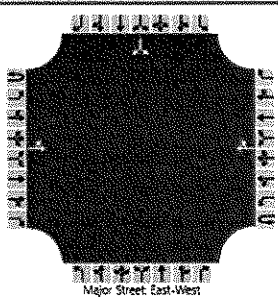
HCS7 Two-Way Stop-Control Report																	
General Information								Site Information									
Analyst	DBZ							Intersection	Mt Wash at Parkside Vista								
Agency/Co.	Diane B Zimmerman Traffic Engineering							Jurisdiction									
Date Performed	5/9/2021							East/West Street	Mt Washington								
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																
<b>Lanes</b>																	
<p style="text-align: center;">Major Street East-West</p>																	
<b>Vehicle Volumes and Adjustments</b>																	
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	
<b>Critical and Follow-up Headways</b>																	
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	
<b>Delay, Queue Length, and Level of Service</b>																	
Flow Rate, v (veh/h)		46														222	
Capacity, c (veh/h)		1232														692	
v/c Ratio		0.04														0.32	
95% Queue Length, Q <sub>95</sub> (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				



Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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																
<p style="text-align: center;">Major Street East-West</p>																
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 <sub>95</sub> (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												B			

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

HCS7 Two-Way Stop-Control Report																
General Information								Site Information								
Analyst	D8Z							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															
<b>Lanes</b>																
 <p>Major Street East-West</p>																
<b>Vehicle Volumes and Adjustments</b>																
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															
<b>Critical and Follow-up Headways</b>																
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
<b>Delay, Queue Length, and Level of Service</b>																
Flow Rate, v (veh/h)		95														79
Capacity, c (veh/h)		1306														525
v/c Ratio		0.07														0.15
95% Queue Length, Q <sub>95</sub> (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															

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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																	
<p style="text-align: center;">Major Street East-West</p>																	
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 <sub>95</sub> (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			

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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															

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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															
<b>Lanes</b>																
<p style="text-align: center;">Major Street North-South</p>																
<b>Vehicle Volumes and Adjustments</b>																
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														
<b>Critical and Follow-up Headways</b>																
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						
<b>Delay, Queue Length, and Level of Service</b>																
Flow Rate, v (veh/h)			164							138						
Capacity, c (veh/h)			595							1366						
v/c Ratio			0.28							0.10						
95% Queue Length, Q <sub>95</sub> (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								A						

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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															
<b>Lanes</b>																
<p style="text-align: center;">Major Street North-South</p>																
<b>Vehicle Volumes and Adjustments</b>																
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														
<b>Critical and Follow-up Headways</b>																
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						
<b>Delay, Queue Length, and Level of Service</b>																
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								A						

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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																
<p style="text-align: center;">Major Street: North-South</p>																
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 <sub>95</sub> (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								A						

Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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															
<b>Lanes</b>																
<b>Vehicle Volumes and Adjustments</b>																
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														
<b>Critical and Follow-up Headways</b>																
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						
<b>Delay, Queue Length, and Level of Service</b>																
Flow Rate, v (veh/h)			430							100						
Capacity, c (veh/h)			639							1299						
v/c Ratio			0.67							0.08						
95% Queue Length, Q <sub>95</sub> (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								A						



Parkside Extension  
 Mt. Washington Road  
 Traffic Impact Study

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	10	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 <sub>95</sub> (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								A						

