April 26, 2021

Traffic Impact Study

Garrett Bridwell Old Heady Road Louisville, KY

Prepared for

Louisville Metro Planning Commission





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INTRODUCTION

The site plan for the proposed subdivision shows 119 single-family lots and 30 multi-family units on Old Heady Road in Louisville, KY. **Figure 1** displays a map of the site. Access from Old Heady Road to the site will be from an entrance opposite Chenoweth Run Road. The subdivision also connects to Saratoga Springs at Saddle Bend Way. 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 intersection of Old Heady Road with Chenoweth Run Road.



Figure 1. Site Map

EXISTING CONDITIONS

Old Heady Road is a maintained by Louisville Metro with an estimated 2021 ADT of 900 vehicles per day south of Knoll Wind Way, as estimated from the turning movement count. The road is a two-lane highway with ten-foot lanes with three-foot stabilized shoulders. The speed limit is 35 mph. There are no sidewalks. The intersection with Chenoweth Run Road is controlled with a stop sign.

Peak hour traffic count for the intersections was obtained on Tuesday, April 13, 2021. The a.m. peak hour occurred between 8:00 to 9:00 a.m. and the p.m. peak hour occurred between 5:00 and 6:00. **Figure 2** illustrates the existing a.m. and p.m. peak hour traffic volumes. The Appendix contains the full count data.

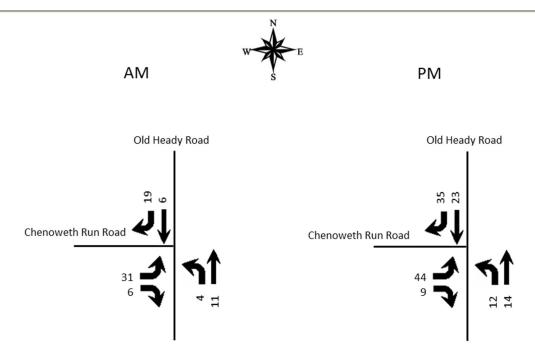


Figure 2. Existing Peak Hour Volumes

FUTURE CONDITIONS

The project completion date is 2025. An annual growth rate of 2 percent was applied to the 2021 volumes. **Figure 3** displays the 2025 No Build peak hour volumes.

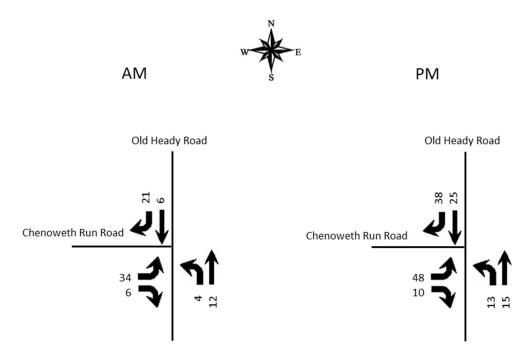


Figure 3. 2025 No Build Peak Hour Volumes

TRIP GENERATION

The Institute of Transportation Engineers <u>Trip Generation Manual</u>, 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**. **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.

	A.M. F	Peak	Hour	P.M. F	Peak	Hour
Land Use	Trips	In	Out	Trips	In	Out
Single-Family (119 units)	89	22	67	120	76	44
Multi-Family (30 units)	15	3	12	20	13	7
TOTAL	104	25	79	140	89	51

Table 1. Peak Hour Trips Generated by Site

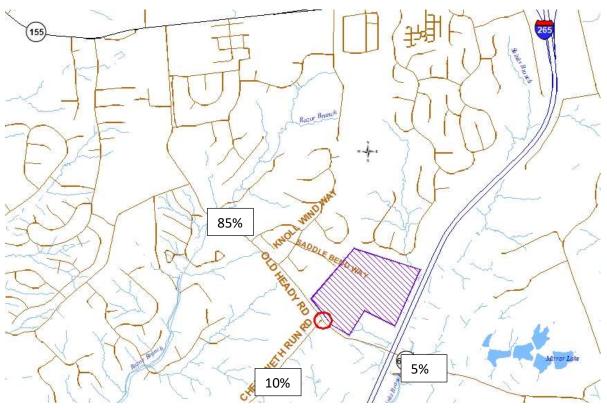


Figure 4. Trip Distribution Percentages

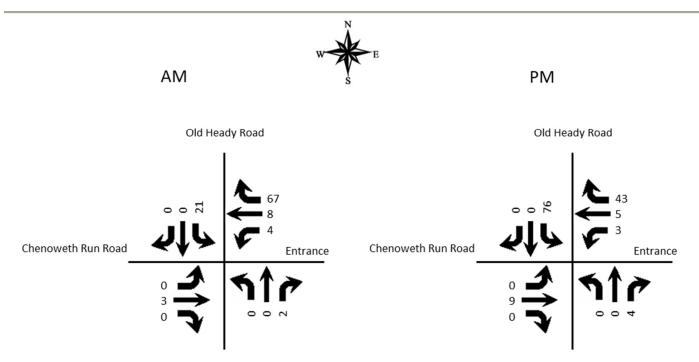


Figure 5. Peak Hour Trips Generated by Site

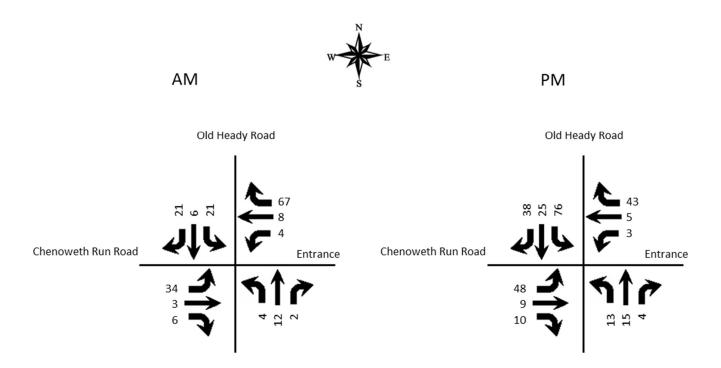


Figure 6. 2025 Build Peak Hour Volumes

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 <u>Highway Capacity Manual</u>, 6th edition. Future delays and Level of Service were determined for the intersections using the HCS Streets (version 7.9) software. The delays and Level of Service are summarized in **Table 2**.

Table 2. Peak Hour Level of Service

		A.M.			P.M.	
Annua a ah	2021	2025	2025	2020	2025	2025
Approach	Existing	No Build	Build	Existing	No Build	Build
Old Heady Road at Chenoweth Run Road						
Chenoweth Run Road Eastbound	Α	Α	В	Α	Α	В
Chenoweth Kun Koad Lastbound	9.0	9.1	10.9	9.4	9.5	12.8
Entrance Westbound			Α			Α
Littiance Westbodild			9.2			9.3
Old Heady Road Northbound (left)	Α	Α	Α	Α	Α	Α
Old Fleady Road Northbourid (left)	7.3	7.3	7.3	7.4	7.4	7.4
Old Heady Road Southbound (left)			Α			Α
Old Fleady Road Southboulid (left)			7.3			7.4

Key: Level of Service, Delay in seconds per vehicle

The entrances were evaluated for turn lanes using the Kentucky Transportation Cabinet <u>Highway Design Guidance</u> <u>Manual</u> dated July, 2020. Using the volumes in Figure 6, a southbound left-turn lane will not be required at the entrance.

CONCLUSIONS

Based upon the volume of traffic generated by the development and the amount of traffic forecasted for the year 2025, there will be a slight impact to the existing highway network. A left-turn lane will not be required at the entrance. No other improvements are required.

APPENDIX

Traffic Counts

Classified Turn Movement Count || All vehicles

Marr Traffic

www.marrtraffic.com

Site 2 of 2

Old Heady Rd (South) Old Heady Rd (North) Chenoweth Run Rd

Old Heady Road, KY

Date

Tuesday, April 13, 2021

Weather Cloudy 61°F

Lat/Long 38.169725°, -85.524743°

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

All vehicles

		No	orthbou	nd			So	uthbou	nd			E	astboun	ıd	
		Old He	ady Rd	(South)			Old He	ady Rd (North)			Chen	oweth R	un Rd	
	Left	Thru		U-Turn	App		Thru	Right	U-Turn	App	Left		Right	U-Turn	App
TIME	2.1	2.2		2.3	Total		2.4	2.5	2.6	Total	2.7		2.8	2.9	Total
0700 - 0715	0	1		0	1		0	5	0	5	1		4	0	5
0715 - 0730	0	2		0	2		0	10	0	10	5		1	0	6
0730 - 0745	0	1		0	1		0	7	0	7	4		1	0	5
0745 - 0800	0	2		0	2		1	1	0	2	3		0	0	3
Hourly Total	0	6		0	6		1	23	0	24	13		6	0	19
0800 - 0815	2	2		0	4		0	9	0	9	19		2	0	21
0815 - 0830	1	3		0	4		2	3	0	5	7		1	0	8
0830 - 0845	0	2		0	2		1	2	0	3	3		2	0	5
0845 - 0900	1	4		0	5		3	5	0	8	2		1	0	3
Hourly Total	4	11		0	15		6	19	0	25	31		6	0	37
						l V									
Grand Total	4	17		0	21		7	42	0	49	44		12	0	56
Approach %	19.05	80.95		0.00	-		14.29	85.71	0.00	Ξ.	78.57		21.43	0.00	-
Intersection %	3.17	13.49		0.00	16.67		5.56	33.33	0.00	38.89	34.92		9.52	0.00	44.44
						1									
PHF	0.50	0.69		0.00	0.75		0.50	0.53	0.00	0.69	0.41		0.75	0.00	0.44

126

0.57

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

All vehicles

Old Heady Rd (South) Old Heady Rd (North) Chenoweth Run Rd	App Total 10 13 24 6
TIME 2.1 2.2 2.3 Total 2.4 2.5 2.6 Total 2.7 2.8 2.9 1600-1615 3 7 0 10 9 9 0 18 8 2 0 1615-1630 2 2 0 4 4 10 0 14 12 1 0 1630-1645 6 2 0 8 7 9 0 16 20 4 0	Total 10 13 24
1600 - 1615 3 7 0 10 9 9 0 18 8 1615 - 1630 2 2 0 4 10 0 14 12 1630 - 1645 6 2 0 8 7 9 0 16 20 4 0	10 13 24
1615 - 1630 2 2 1630 - 1645 6 2 0 8 7 9 0 16 20 4 4 10 0 14 12 7 9 0 16 20 20 4 4 0	13 24
1630-1645 6 2 0 8 7 9 0 16 20 4 0	24
	6
1645 - 1700 1 3 0 4 3 7 0 10 4 2 0	
Hourly Total 12 14 0 26 23 35 0 58 44 9 0	53
1700 - 1715 4 3 0 7 6 7 0 13 4 1 0	5
1715 - 1730 5 5 0 10 6 6 0 12 6 2 0	8
1730 - 1745 1 3 0 4 3 5 0 8 3 3 0	6
1745 - 1800 2 3 0 5 7 1 0 8 4 3 0	7
Hourly Total 12 14 0 26 22 19 0 41 17 9 0	26
Grand Total 24 28 0 52 45 54 0 99 61 18 0	79
Approach % 46.15 53.85 0.00 - 45.45 54.55 0.00 - 77.22 22.78 0.00	-
Intersection % 10.43 12.17 0.00 22.61 19.57 23.48 0.00 43.04 26.52 7.83 0.00	34.35
PHF 0.50 0.50 0.00 0.65 0.64 0.88 0.00 0.81 0.55 0.56 0.00	0.55

230

0.71

HCS Reports

						o nep										
		Н	CS7	Two-	-Way	Stop	o-Co	ntrol	Rep	ort						
General Information	_	_	_	_	_	_	Site	Inforr	natio	n	_	_	_	_	_	_
Analyst	DBZ						Inters	ection			Old F	leady at	Chenow	eth Ru		
Agency/Co.	_	B Zimm	nerman 1	raffic En	aineerin	a		liction				,				
Date Performed	4/27/						East/	Nest Str	eet		Chen	oweth R	un Road			
Analysis Year	2021						North	/South	Street		Old F	leady Ro	ad			
Time Analyzed	AM P	eak					Peak	Hour Fac	ctor		0.57					
Intersection Orientation	North	n-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Old F	leady														
Lanes																
				74 + X + L	្សាក Major	1 1 + Y r Street: No	† † r	14471								
Vehicle Volumes and Adj	ustme															
Approach	-		ound				bound			_	bound		_		bound	_
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	-	24	LR	6						LT	11				6	TR
Volume (veh/h)	+	31		0						4	11				0	19
Percent Heavy Vehicles (%) Proportion Time Blocked	-	3		0						0						
Percent Grade (%)	+		0													
Right Turn Channelized	+	,	<u> </u>													
Median Type Storage	+			Undi	vided											
Critical and Follow-up H	eadwa	ys														
Base Critical Headway (sec)	Т	7.1	Г	6.2			Г		Г	4.1	П		П	Г	П	Т
Critical Headway (sec)	1	6.43		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.30						2.20						
Delay, Queue Length, an	d Leve	l of S	ervice													
Flow Rate, v (veh/h)	Т		65							7						
Capacity, c (veh/h)			956							1578						
v/c Ratio			0.07							0.00						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
Control Delay (s/veh)			9.0							7.3						
Level of Service (LOS)			А							А						
Approach Delay (s/veh)		9	.0							2	2.0					
Approach LOS			A													

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HCSTM TWSC Version 7.9 Chen AM.xtw Generated: 4/27/2021 11:13:54 AM

		Н	CS7	Two-	-Way	Stop	o-Co	ntrol	Rep	ort						
General Information	_	_	_	_			Site	Inforr	natio	n	_	_	_	_	_	_
Analyst	DBZ						Inters	ection			Old H	leady at	Chenow	eth Ru		_
Agency/Co.	Diane	B Zimm	nerman 1	raffic En	gineerin	g	Juriso	diction								
Date Performed	4/27/	2021					East/	West Stre	eet		Chen	oweth R	un Road			
Analysis Year	2025						North	n/South :	Street		Old H	leady Ro	ad			
Time Analyzed	AM P	eak No E	Build				Peak	Hour Fac	tor		0.57					
Intersection Orientation	North	-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Old H	leady														
Lanes																
				744747		1 + Y r Street: Nor		14471								
Vehicle Volumes and Adj	justme	nts														
Approach		Eastb	ound			Westl	oound			North	bound			South	bound	
	_															
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	U	10	11	12	U	7	8	9	1U	1	2	3	4U	4	5	6
Priority Number of Lanes	U		11		U					1					_	6
Priority Number of Lanes Configuration	U	10	11	12	U	7	8	9	1U	1 0 LT	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h)	U	10 0	11	12 0	U	7	8	9	1U	1 0 LT 4	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%)	U	10	11	12	U	7	8	9	1U	1 0 LT	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked	U	10 0 34 3	11 1 LR	12 0	U	7	8	9	1U	1 0 LT 4	2	3	4U	4	5	6
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)	U	10 0 34 3	11	12 0	U	7	8	9	1U	1 0 LT 4	2	3	4U	4	5	C TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized	U	10 0 34 3	11 1 LR	12 0 6 0		7	8	9	1U	1 0 LT 4	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage		10 0 34 3	11 1 LR	12 0 6 0	U	7	8	9	1U	1 0 LT 4	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H		10 0 34 3	11 1 LR	12 0 6 0		7	8	9	1U	1 0 LT 4 0	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec)		10 0 34 3 ys	11 1 LR	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec)		10 0 34 3 ys 7.1 6.43	11 1 LR	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)		10 0 34 3 7.1 6.43 3.5	11 1 LR	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	10 0 34 3 7.1 6.43 3.5 3.53	11 1 LR	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0	2	3	4U	4	5	C TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	10 0 34 3 7.1 6.43 3.5 3.53	11 1 LR	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0	2	3	4U	4	5	C TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)	eadwa	10 0 34 3 7.1 6.43 3.5 3.53	11 1 LR 00	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0	2	3	4U	4	5	C TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)	eadwa	10 0 34 3 7.1 6.43 3.5 3.53	11 1 LR 00 0 Price 70 951	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0 4.1 4.10 2.2 2.20 7 1573	2	3	4U	4	5	6 0 TI
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	eadwa	10 0 34 3 7.1 6.43 3.5 3.53	11 1 LR 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0	2	3	4U	4	5	C TI
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Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh)	eadwa	10 0 34 3 7.1 6.43 3.5 3.53 I of Se	11 1 LR 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	12 0 6 0 Undi		7	8	9	1U	1 0 LT 4 0 0 4.1 4.10 2.2 2.20 7 1573 0.00 0.0 7.3 A	2	3	4U	4	5	(T

		Н	CS7	Two-	-Way	Stop	o-Co	ntrol	Rep	ort						
General Information							Site	Inforr	natio	n						_
Analyst	DBZ						Inters	ection			Old H	leady at	Chenow	eth Ru		
Agency/Co.	Diane	B Zimm	erman T	raffic En	gineerin	g	Jurisd	iction								
Date Performed	4/27/	2021					East/\	Nest Stre	eet		Chen	oweth R	un Road			
Analysis Year	2025						North	/South S	Street		Old H	leady Ro	oad			
Time Analyzed	AM P	eak Build	d				Peak	Hour Fac	ctor		0.57					
Intersection Orientation	North	n-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Old F	leady														
Lanes																
				144444		† † † Y • Street: Nor		* * * * * * * * * * * * * * * * * * *								
Vehicle Volumes and Ad	justme	nts														
Approach	\bot	Eastb	ound			Westl	oound			North	bound			South	bound	_
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	l f
Priority	+	10	11	12		7	8	9	10	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	(
Configuration	+		LTR				LTR				LTR				LTR	L
Volume (veh/h)	_	34	3	6		4	8	67		4	12	2		21	6	2
Percent Heavy Vehicles (%)	+	3	0	0		3	3	3		0				5		\vdash
Proportion Time Blocked	+															
Percent Grade (%)	+		0			,	0									
Right Turn Channelized Median Type Storage	+-			Undi	vided											
Critical and Follow-up F	 leadwa	ys		Ondi	viaca											
Base Critical Headway (sec)	\top	7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		Т
Critical Headway (sec)		7.13	6.50	6.20		7.13	6.53	6.23		4.10				4.15		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
base rollow-op neadway (sec)	$\overline{}$	2.52	4.00	3.30		3.53	4.03	3.33		2.20				2.25		
Follow-Up Headway (sec)		3.53			_											
Follow-Up Headway (sec)	ıd Leve		ervice													
Follow-Up Headway (sec)	nd Leve		rvice 75				139			7				37		Г
Follow-Up Headway (sec) Delay, Queue Length, ar	nd Leve						139 987			7 1573				37 1571		
Follow-Up Headway (sec) Delay, Queue Length, ar Flow Rate, v (veh/h)	nd Leve		75													
Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)	nd Leve		75 685				987			1573				1571		
Follow-Up Headway (sec) Delay, Queue Length, at Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	nd Leve		75 685 0.11				987 0.14			1573 0.00				1571 0.02		
Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh)	nd Leve		75 685 0.11 0.4				987 0.14 0.5			1573 0.00 0.0				1571 0.02 0.1		
Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh) Control Delay (s/veh)	nd Leve	l of Se	75 685 0.11 0.4 10.9			9	987 0.14 0.5 9.2			1573 0.00 0.0 7.3 A	.6			1571 0.02 0.1 7.3 A	.3	

		Н	CS7	Two-	-Way	Sto	o-Co	ntrol	Rep	ort						
General Information							Site	Inform	natio	n						
Analyst	DBZ						Inters	ection			Old H	leady at	Chenow	eth Ru		
Agency/Co.	Diane	B Zimn	nerman 1	raffic En	gineerin	g	Jurisc	liction								
Date Performed	4/27/						East/	West Str	eet		Chen	oweth R	un Road			
Analysis Year	2021						North	n/South :	Street		Old H	leady Ro	ad			
Time Analyzed	PM P	eak					Peak	Hour Fac	ctor		0.71					
Intersection Orientation	North	n-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Old H	leady														
Lanes																
				14 4Y ↑ ↑ ſ		† † † Y r Street: No		4 + 7 4 4 7								
Vehicle Volumes and Ad	justme															
Approach	+	_	oound				bound			_	bound			_	bound	
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						TF
Volume (veh/h)	+-	44		9						12	14				23	35
Percent Heavy Vehicles (%)	+	3		0						0						\vdash
Proportion Time Blocked	+		0													
Percent Grade (%) Right Turn Channelized	+		U													
Median Type Storage	+-			Undi	vided											
Critical and Follow-up H	leadwa	vs		Ond	vided											
Base Critical Headway (sec)	T	7.1		6.2						4.1			П	П	_	Т
Critical Headway (sec)		6.43		6.20						4.10						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.30						2.20						
	ıd Leve		ervice													
Delay, Queue Length, an			75							17						т
Delay, Queue Length, an	\top					_				1529				_	 	+
Flow Rate, v (veh/h)			895													
										0.01						┢
Flow Rate, v (veh/h) Capacity, c (veh/h)			895													
Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio			895 0.08							0.01						
Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh)			895 0.08 0.3							0.01						
Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh) Control Delay (s/veh)		g	895 0.08 0.3 9.4							0.01 0.0 7.4 A	.5					

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		Н	CS7	Two-	-Way	Stop	o-Co	ntrol	Rep	ort						
General Information	_	_	_	_			Site	Infor	natio	n	_	_	_	_	_	_
Analyst	DBZ						Inters	ection			Old H	leady at	Chenow	eth Ru		
Agency/Co.	Diane	B Zimm	nerman 1	raffic En	gineerin	g	Jurisd	liction								
Date Performed	4/27/	2021					East/\	West Str	eet		Chen	oweth R	un Road			
Analysis Year	2025						North	n/South	Street		Old H	leady Ro	ad			
Time Analyzed	PM Pe	eak No E	Build				Peak	Hour Fa	ctor		0.71					
Intersection Orientation	North	-South					Analy	sis Time	Period (hrs)	0.25					
Project Description	Old H	leady														
Lanes																
				744747		イ イ サ Y r Street: Nor		4 4 4 4 4								
Vehicle Volumes and Ad	ustme	nts														
Approach		Eastb	ound			Westl	ound			North	bound			South	bound	
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	U	10	11	12	U	7	8	9	1U	1	2	3	4U	4	5	6
Priority Number of Lanes	U	_	11 1		U			_	_	1	_		_		_	6
Priority Number of Lanes Configuration	U	10	11	12	U	7	8	9	1U	1 0 LT	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h)	U	10 0 48	11 1	12 0	U	7	8	9	1U	1 0 LT 13	2	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%)	U	10	11 1	12	U	7	8	9	1U	1 0 LT	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked	U	10 0 48 3	11 1 LR	12 0	U	7	8	9	1U	1 0 LT 13	1	3	4U	4	5	6
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%)	U	10 0 48 3	11 1	12 0	U	7	8	9	1U	1 0 LT 13	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized	U	10 0 48 3	11 1 LR	12 0 10 0		7	8	9	1U	1 0 LT 13	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage		10 0	11 1 LR	12 0 10 0	Vided	7	8	9	1U	1 0 LT 13	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H		10 0 48 3	11 1 LR	12 0 10 0		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec)		10 0 48 3 ys 7.1	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec)		10 0 48 3 ys 7.1 6.43	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec)		10 0 48 3 7.1 6.43 3.5	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0 0 4.1 4.10 2.2	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TF
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0 0 4.1 4.10 2.2	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0 0 4.1 4.10 2.2	1	3	4U	4	5	6 0 TF
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR 00 00 00 00 00 00 00 00 00 00 00 00 00	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TR
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR 00 00 00 00 00 00 00 00 00 00 00 00 00	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TF
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, an Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR 00 00 00 00 00 00 00 00 00 00 00 00 00	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TF
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Pelay, Queue Length, and Flow Rate, v (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh) Control Delay (s/veh)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR 00 00 82 885 0.09 0.3 9.5	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TF
Priority Number of Lanes Configuration Volume (veh/h) Percent Heavy Vehicles (%) Proportion Time Blocked Percent Grade (%) Right Turn Channelized Median Type Storage Critical and Follow-up H Base Critical Headway (sec) Critical Headway (sec) Base Follow-Up Headway (sec) Follow-Up Headway (sec) Delay, Queue Length, and Flow Rate, v (veh/h) Capacity, c (veh/h) v/c Ratio 95% Queue Length, Q ₉₅ (veh)	eadwa	10 0 48 3 7.1 6.43 3.5 3.53	11 1 LR 00 00 00 00 00 00 00 00 00 00 00 00 00	12 0 10 0 Undi		7	8	9	1U	1 0 LT 13 0	1	3	4U	4	5	6 0 TF

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		Н	CS7	Two-	-Way	Sto	р-Со	ntrol	Rep	ort						
General Information	_	_	_	_			Site	Inforr	natio	n	_	_	_	_	_	
Analyst	DBZ						Inters	ection			Old F	leady at	Chenow	eth Ru		
Agency/Co.	Diane	e B Zimm	nerman 1	raffic En	gineerin	ıg	Juriso	liction				-				
Date Performed	4/27/						East/	West Stre	eet		Chen	oweth R	un Road			
Analysis Year	2025							n/South S			Old F	leady Ro	oad			
Time Analyzed	PM P	eak Build	<u> </u>				-	Hour Fac			0.71	,				
Intersection Orientation		n-South	-					sis Time		hrs)	0.25					
Project Description	_	leady					,			10000						
Lanes		,														
				4 4 4 4 4 7 7		† † † Y r Street: No		4 + 4 4 4 4								
Vehicle Volumes and Adj	justme	nts			iviajoi	1 30 667 1401	101-30001									
Approach	_	_	ound				bound				bound			_	bound	_
Movement	U	L	T	R	U	L	Т	R	U	L	T	R	U	L	T	
Priority	_	10	11	12		7	8	9	1U	1	2	3	4U	4	5	<u> </u>
Number of Lanes	-	0	1	0		0	1	0	0	0	1	0	0	0	1	(
Configuration	-		LTR				LTR				LTR				LTR	L
Volume (veh/h)	+	48	9	10		3	5	43		13	15	4		76	25	3
Percent Heavy Vehicles (%)	-	3	0	0		0	0	3		0				3		L
Proportion Time Blocked	+															
Percent Grade (%)	-		0				0									_
Right Turn Channelized	+			I I d'												
Median Type Storage Critical and Follow-up H	0041440			Undi	vided											
-	eauwa	_														
Base Critical Headway (sec)	+	7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		\vdash
Critical Headway (sec)		7.13	6.50	6.20		7.10	6.50	6.23		4.10				4.13		-
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.50	4.00	3.3		2.2				2.2		
Follow-Up Headway (sec)	d Lave	3.53	4.00			3.30	4.00	5.55		2.20				2.23		_
Delay, Queue Length, an	a Leve	I OT S	_													
Flow Rate, v (veh/h)	1		94				72			18				107		L
Capacity, c (veh/h)			555				911			1520				1581		
v/c Ratio			0.17				0.08			0.01				0.07		L
95% Queue Length, Q ₉₅ (veh)			0.6				0.3			0.0				0.2		
Control Delay (s/veh)			12.8				9.3			7.4				7.4		L
Level of Service (LOS)			В				А			А				А		
Approach Delay (s/veh)	1		2.8).3			3	.1			4	.3	_
Approach LOS			В			1	A									