

Appendix F

Signal Warrant Analysis



STUDY AND ANALYSIS INFORMATION	TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS
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Municipality:	Village of Ashville	Traffic Volumes Obtained By:	CMTran
County:	Pickaway	Analysis Date:	
ODOT Engineering District:	6	Agency/ Company Name Performing Warrant Analysis:	CMTran

Analysis Information

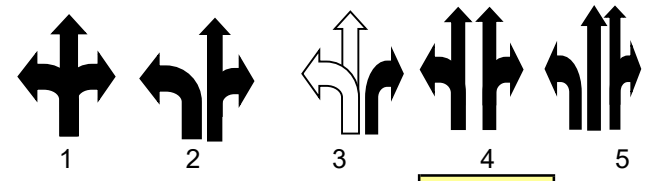
Data Collection Date:	7/25/2012
Day of the Week:	Wednesday
Is the intersection in a built-up area of an isolated community of <10,000 population?	No
Existing Traffic Signal at intersection:	No
Total Number of Approaches at Intersection:	4

Major Street Information

Major Street Name and Route Number:	Ashville Pike
Major Street Approach Direction:	N-Bound S-Bound
Number of Thru Lanes on Each Major Street Approach:	1 LANE(S)
Speed Limit or 85th Percentile Speed on the Major Street*:	35 MPH
*Unknown assumes below 45 mph	

Minor Street Information

Minor Street Name and Route Number:	Site Access 1/ Site Access 2
Minor Street Approach Configuration:	1 E-Bound 1 W-Bound
Number of Thru Lanes on Each Minor Street Approach:	1 LANE(S)
Apply Right Turn Lane Reduction*:	No



*Right Turn Lane Reduction Shall be used for Warrants 1, 2, & 3 for New ODOT Signals. Please refer to TEM 402-3.2 for clarification and criteria under which Right Turn Reduction is not required.

Warrant	Warrant		Notes and Comments:			
	Applicable?	Satisfied?				
Warrant 1, Eight-Hour Vehicular Volume	Yes	No				
Warrant 2, Four-Hour Vehicular Volume	Yes	No				
Warrant 3, Peak Hour	Yes	No	Signals installed under Warrant 3 should be traffic actuated. <table border="1" style="float: right; font-size: x-small;"> <tr><td>Peak Hour</td></tr> <tr><td>4:45 PM</td></tr> <tr><td>5:45 PM</td></tr> </table>	Peak Hour	4:45 PM	5:45 PM
Peak Hour						
4:45 PM						
5:45 PM						
For Warrants 1-3, new ODOT signals must be based off of 100% volume thresholds (TEM 402-3.2)						
Warrant 4, Pedestrian Volume	No		If this warrant is met, and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E of the OMUTCD. <table border="1" style="float: right; font-size: x-small;"> <tr><td>Peak Hour</td></tr> <tr><td>4:45 PM</td></tr> <tr><td>5:45 PM</td></tr> </table>	Peak Hour	4:45 PM	5:45 PM
Peak Hour						
4:45 PM						
5:45 PM						
Warrant 5, School Crossing	No		N/A			
Warrant 6, Coordinated Signal System	No		(Shall not be used as the sole warrant in the analysis)			
Warrant 7, Crash Experience	No		If this is the sole warrant, signal must be semi-actuated with control devices which provide proper coordination if installed at an intersection within a coordinated system and normally should be fully traffic actuated if installed at an isolated intersection.			
Warrant 8, Roadway Network	No		(Shall not be used as the sole warrant in the analysis)			
Warrant 9, Intersection Near a Grade Crossing	No		Figure 4C-9			
Multi-Way Stop Warrant	No		May be used as an interim measure if traffic signal warrants are satisfied.			

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

If no warrants are satisfied, additional options may be considered:

1. An engineering study, performed by a firm prequalified by ODOT for signal design, if approved by the ODOT district, may be used to justify a new signal installation or retention of an existing signal that otherwise does not meet the published warrants. An example of such an instance is a traffic signal in proximity to a railroad crossing that serves to reduce queuing across the tracks.
2. According to TEM 402-2, If the actual turning movement counts fail to satisfy a signal warrant, it may be acceptable to use traffic volumes projected to the second year after project completion. The **Modeling and Forecasting Section** should provide the projected traffic volumes.
3. A pedestrian hybrid beacon may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants (see Chapter 4C of TEM) or at a location that meets traffic signal warrants under Sections 4C.05 and/or 4C.06 but a decision is made to not install a traffic control signal. **Please fill inputs on PHB Score Sheet and submit to ODOT.**

Considerations such as geometrics and lack of sight distance generally have not been accepted in lieu of satisfying signal warrants. These considerations may allow an otherwise unwarranted traffic signal to be retained at **100 percent** local cost. Please review TEM 402-4 for details.

Conclusion: **Do Not Install New Traffic Signal**

Notes: Ashville Pike & Site Drive 1/Site Drive 2 - 2032 Build

OMUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? **No**

**Only applicable after an adequate trial of other alternatives (See section 4C.02.06 of the 2012 OMUTCD)*

Lanes Major/ Minor	Adjusted Volumes		Condition A				Condition B				Combination A/B*							
			100%		70%		100%		70%		Cond. A		Cond. B		Cond. A		Cond. B	
	Major	Minor	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
1 / 1	X		500	150	350	105	750	75	525	53	400	120	600	60	280	84	420	42
2+ / 1			600	150	420	105	900	75	630	53	480	120	720	60	336	84	504	42
2+ / 2+			600	200	420	140	900	100	630	70	480	160	720	80	336	112	504	56
1 / 2+			500	200	350	140	750	100	525	70	400	160	600	80	280	112	420	56
12:00 AM	0	0																
12:15 AM	0	0																
12:30 AM	0	0																
12:45 AM	0	0																
1:00 AM	0	0																
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4:45 AM	0	0																
5:00 AM	0	0																
5:15 AM	110	48																
5:30 AM	164	48																
5:45 AM	227	48																
6:00 AM	302	48												1				
6:15 AM	408	82			1					1								
6:30 AM	491	82														1	1	
6:45 AM	527	82	1						1	1								
7:00 AM	499	82												1				
7:15 AM	446	70			1						1							
7:30 AM	347	70																
7:45 AM	296	70																
8:00 AM	298	70												1				
8:15 AM	274	48																
8:30 AM	277	48																
8:45 AM	261	48																
9:00 AM	249	48																
9:15 AM	250	46																
9:30 AM	247	46																
9:45 AM	248	46																
10:00 AM	246	46																
10:15 AM	275	42																
10:30 AM	281	42												1				
10:45 AM	294	42																
11:00 AM	300	42																
11:15 AM	316	46																
11:30 AM	322	46												1				
11:45 AM	317	46																
12:00 PM	321	46																
12:15 PM	317	50																
12:30 PM	296	50												1				
12:45 PM	304	50																
1:00 PM	320	50																
1:15 PM	342	50																
1:30 PM	370	50			1										1			
1:45 PM	405	50									1							
2:00 PM	419	50																
2:15 PM	481	52															1	1
2:30 PM	488	52			1									1				
2:45 PM	476	52									1							
3:00 PM	505	52	1															
3:15 PM	563	60							1	1							1	1
3:30 PM	609	60			1								1	1	1			
3:45 PM	634	60									1							
4:00 PM	632	60	1															
4:15 PM	633	60							1	1							1	1
4:30 PM	633	60			1								1	1	1			
4:45 PM	640	60									1							
5:00 PM	633	60	1															
5:15 PM	562	48							1								1	1
5:30 PM	520	48			1									1				
5:45 PM	477	48								1								
6:00 PM	425	48																
6:15 PM	172	0																
6:30 PM	104	0																
6:45 PM	43	0																
7:00 PM	0	0																
7:15 PM	0	0																
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9:00 PM	0	0																
9:15 PM	0	0																
9:30 PM	0	0																
9:45 PM	0	0																
HOURS MET			4	0	7	0	0	0	4	3	7	0	2	2	11	0	5	5
WARRANT SATISFIED?			NO		N/A		NO		N/A		NO		NO		NO		NO	

Warrant Met: **No**

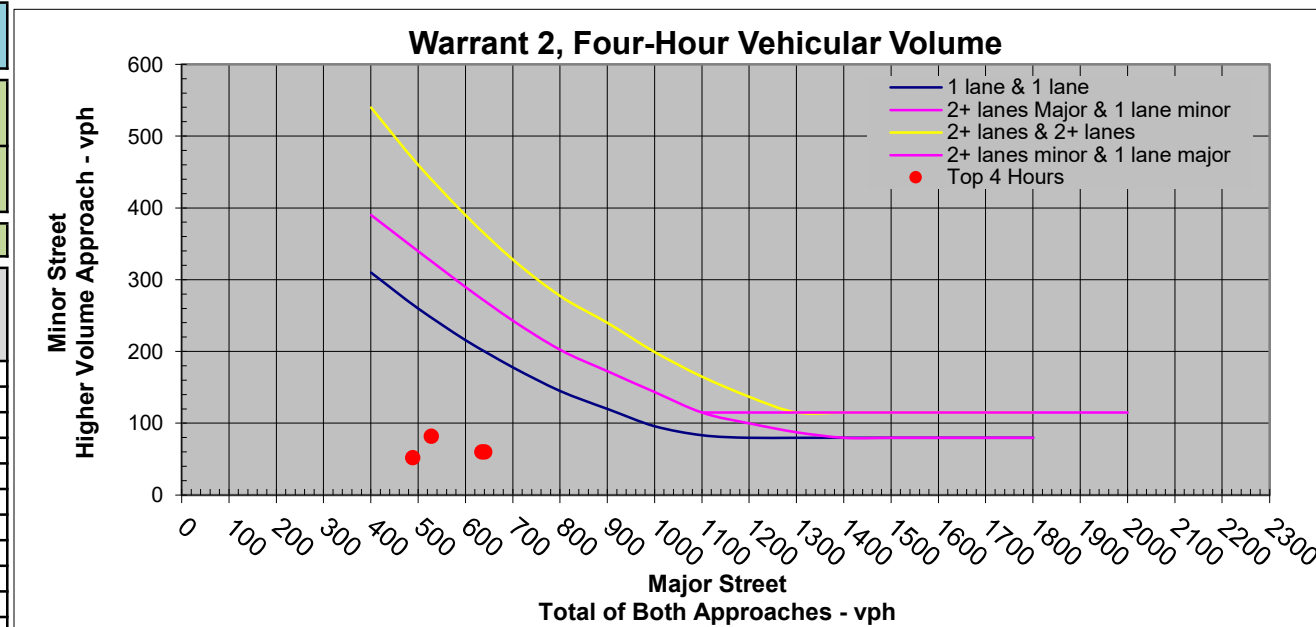
Notes:

OMUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	Total Number of Unique Hours Met on Figure 4C-1	0
Major street: 1 Lane	Total Number of Unique Hours Met on Figure 4C-2 (70% Factor)	0
Minor Street: 1 Lane		

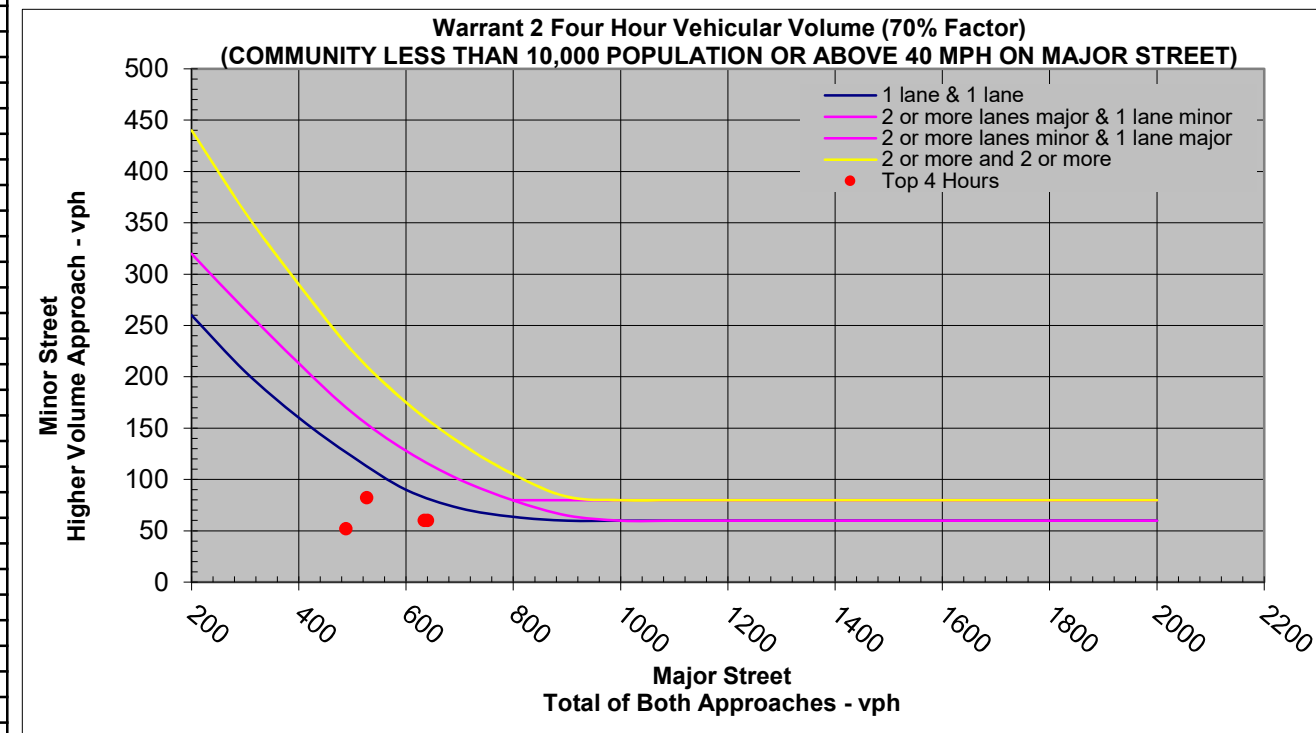
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? **No**

Hour Interval Beginning At	Raw Traffic Counts				Total Major Approach Volumes	Highest Actual Minor Street Approach Volumes	Hour Met?	Hour Met? (70% Factor)
	Major - Ashville Pike		Minor - Site Access 1/ Site Access					
	N-Bound	S-Bound	W-Bound	E-Bound				
6:00 AM	246	56	48	40	302	48		
6:15 AM	301	107	82	68	408	82		
6:30 AM	330	161	82	68	491	82		
6:45 AM	341	186	82	68	527	82		
7:00 AM	310	189	82	68	499	82		
7:15 AM	266	180	70	58	446	70		
7:30 AM	208	139	70	58	347	70		
7:45 AM	167	129	70	58	296	70		
8:00 AM	173	125	70	58	298	70		
8:15 AM	157	117	48	39	274	48		
8:30 AM	166	111	48	39	277	48		
8:45 AM	158	103	48	39	261	48		
9:00 AM	143	106	48	39	249	48		
9:15 AM	130	120	46	38	250	46		
9:30 AM	122	125	46	38	247	46		
9:45 AM	123	125	46	38	248	46		
10:00 AM	121	125	46	38	246	46		
10:15 AM	132	143	42	35	275	42		
10:30 AM	130	151	42	35	281	42		
10:45 AM	130	164	42	35	294	42		
11:00 AM	133	167	42	35	300	42		
11:15 AM	138	178	46	39	316	46		
11:30 AM	143	179	46	39	322	46		
11:45 AM	149	168	46	39	317	46		
12:00 PM	148	173	46	39	321	46		
12:15 PM	151	166	50	41	317	50		
12:30 PM	140	156	50	41	296	50		
12:45 PM	135	169	50	41	304	50		
1:00 PM	143	177	50	41	320	50		
1:15 PM	143	199	50	41	342	50		
1:30 PM	155	215	50	41	370	50		
1:45 PM	178	227	50	41	405	50		
2:00 PM	183	236	50	41	419	50		
2:15 PM	207	274	52	43	481	52		
2:30 PM	206	282	52	43	488	52		
2:45 PM	186	290	52	43	476	52		
3:00 PM	189	316	52	43	505	52		
3:15 PM	193	370	60	50	563	60		
3:30 PM	204	405	60	50	609	60		
3:45 PM	207	427	60	50	634	60		
4:00 PM	198	434	60	50	632	60		
4:15 PM	206	427	60	50	633	60		
4:30 PM	205	428	60	50	633	60		
4:45 PM	213	427	60	50	640	60		
5:00 PM	218	415	60	50	633	60		
5:15 PM	191	371	48	40	562	48		
5:30 PM	182	338	48	40	520	48		
5:45 PM	173	304	48	40	477	48		
6:00 PM	161	264	48	40	425	48		
6:15 PM	70	102	0	0	172	0		
6:30 PM	45	59	0	0	104	0		
6:45 PM	20	23	0	0	43	0		
7:00 PM	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0		



Top Hours for Figure 4C-1				
Start Time	End Time	Major Street	Minor Street	
Top Hour	4:45 PM	5:45 PM	640	60
2nd Highest Hour	3:45 PM	4:45 PM	634	60
3rd Highest Hour	6:45 AM	7:45 AM	527	82
4th Highest Hour	2:30 PM	3:30 PM	488	52

Top Hours for Figure 4C-2				
Start Time	End Time	Major Street	Minor Street	
Top Hour	4:45 PM	5:45 PM	640	60
2nd Highest Hour	3:45 PM	4:45 PM	634	60
3rd Highest Hour	6:45 AM	7:45 AM	527	82
4th Highest Hour	2:30 PM	3:30 PM	488	52



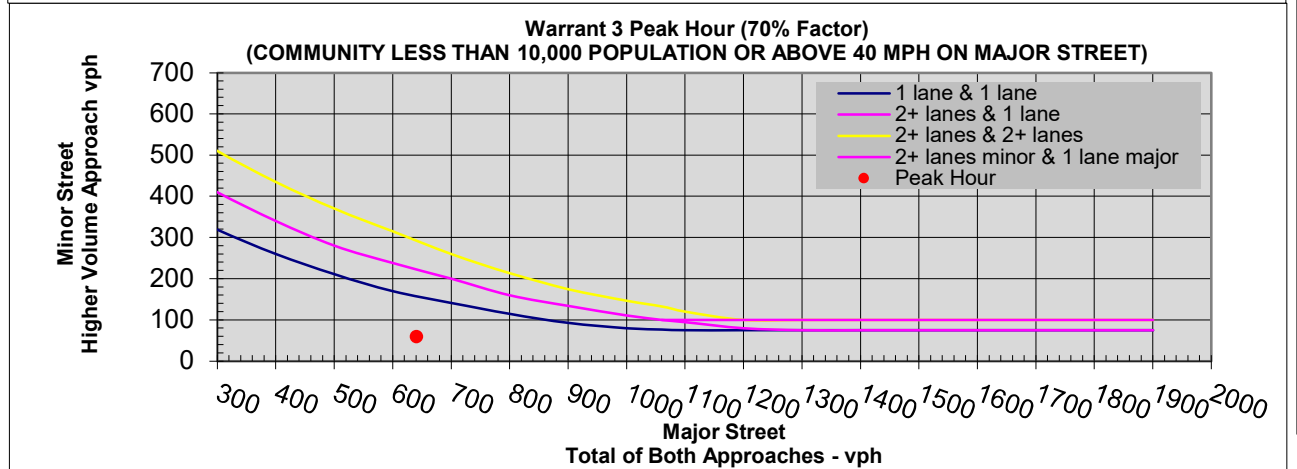
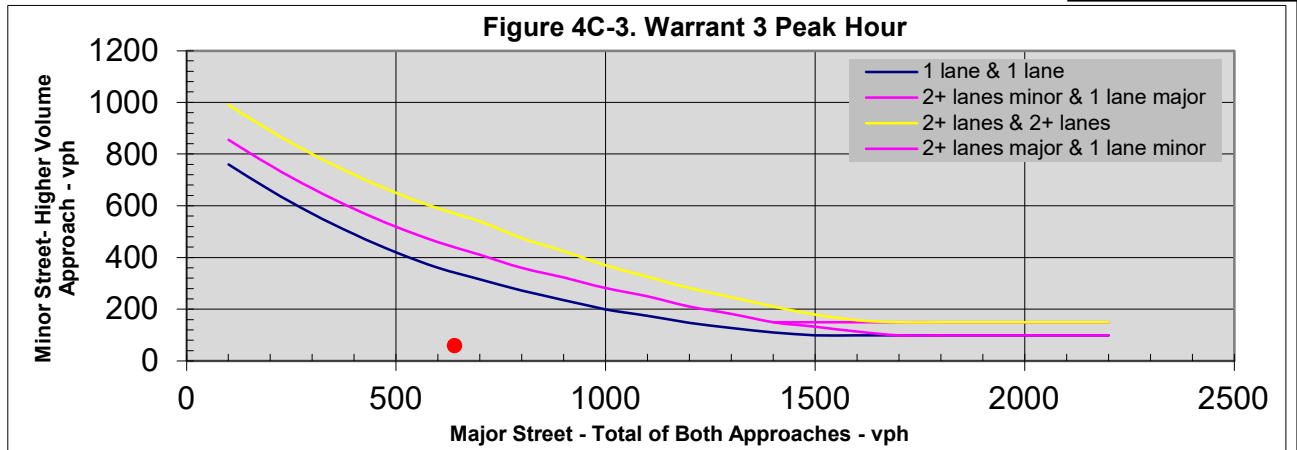
Are the requirements for Warrant 2 met?: **No**

OMUTCD WARRANT 3, PEAK HOUR			
Number of Lanes for Moving Traffic on Each Approach		Peak Hour Start time	4:45 PM
Major Street:	1 Lane	Peak Hour End Time	5:45 PM
Minor Street:	1 Lane		
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street?		No	
Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?		No	
Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*			
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?		No	
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?		No	
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?		No	
<i>*If applicable, attach all supporting calculations and documentation.</i>			

Hour Vehicular Volume				
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Sum of Major Street and Highest Minor Street	Sum of Major Street and Combined Minor Street
6:00 AM	302	48	350	390
6:15 AM	408	82	490	558
6:30 AM	491	82	573	641
6:45 AM	527	82	609	677
7:00 AM	499	82	581	649
7:15 AM	446	70	516	574
7:30 AM	347	70	417	475
7:45 AM	296	70	366	424
8:00 AM	298	70	368	426
8:15 AM	274	48	322	361
8:30 AM	277	48	325	364
8:45 AM	261	48	309	348
9:00 AM	249	48	297	336
9:15 AM	250	46	296	334
9:30 AM	247	46	293	331
9:45 AM	248	46	294	332
10:00 AM	246	46	292	330
10:15 AM	275	42	317	352
10:30 AM	281	42	323	358
10:45 AM	294	42	336	371
11:00 AM	300	42	342	377
11:15 AM	316	46	362	401
11:30 AM	322	46	368	407
11:45 AM	317	46	363	402
12:00 PM	321	46	367	406
12:15 PM	317	50	367	408
12:30 PM	296	50	346	387
12:45 PM	304	50	354	395
1:00 PM	320	50	370	411
1:15 PM	342	50	392	433
1:30 PM	370	50	420	461
1:45 PM	405	50	455	496
2:00 PM	419	50	469	510
2:15 PM	481	52	533	576
2:30 PM	488	52	540	583
2:45 PM	476	52	528	571
3:00 PM	505	52	557	600
3:15 PM	563	60	623	673
3:30 PM	609	60	669	719
3:45 PM	634	60	694	744
4:00 PM	632	60	692	742
4:15 PM	633	60	693	743
4:30 PM	633	60	693	743
4:45 PM	640	60	700	750
5:00 PM	633	60	693	743
5:15 PM	562	48	610	650
5:30 PM	520	48	568	608
5:45 PM	477	48	525	565
6:00 PM	425	48	473	513
6:15 PM	172	0	172	172
6:30 PM	104	0	104	104
6:45 PM	43	0	43	43
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	0	0
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0

Actual Peak Hour Major Traffic Volume	Actual Peak Hour Minor Traffic Volume	Required Peak Hour Minor Traffic Volume for Fig. 4C-3	Required Peak Hour Minor Traffic Volume for Fig. 4C-4
640	60	330.8156	155.9416

Are the requirements for Warrant 3 met?: **No**



Start Time	Southbound Approach						Westbound Approach						Northbound Approach						Eastbound Approach						NOTES:	
	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total	Right	Thru	Left	U-Turn	Peds	App Total		
12:00 AM	0						0						0						0						It should be noted that if data is copied overtop of the Hourly Totals or Approach Totals, that the 'AutoSum' Formula will be lost. This should not affect the actual totals if the data was copied from a program that performs the calculations for the user.	
12:15 AM	0						0						0						0							
12:30 AM	0						0						0						0							
12:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
1:00 AM	0						0						0						0							
1:15 AM	0						0						0						0							
1:30 AM	0						0						0						0							
1:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
2:00 AM	0						0						0						0							
2:15 AM	0						0						0						0							
2:30 AM	0						0						0						0							
2:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
3:00 AM	0						0						0						0							
3:15 AM	0						0						0						0							
3:30 AM	0						0						0						0							
3:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
4:00 AM	0						0						0						0							
4:15 AM	0						0						0						0							
4:30 AM	0						0						0						0							
4:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
5:00 AM	0						0						0						0							
5:15 AM	0						0						0						0							
5:30 AM	0						0						0						0							
5:45 AM	0						0						0						0							
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0
6:00 AM	8	15	6	0	0	29	24	0	24	0	48	6	73	2	0	0	81	8	0	32	0	0	0	40		
6:15 AM	0	5	0	0	0	5	0	0	0	0	0	49	0	0	0	49	0	0	0	0	0	0	0	0		
6:30 AM	0	7	0	0	0	7	0	0	0	0	0	56	0	0	0	56	0	0	0	0	0	0	0	0		
6:45 AM	0	15	0	0	0	15	0	0	0	0	0	60	0	0	0	60	0	0	0	0	0	0	0	0		
Hourly Total	8	42	6	0	0	56	24	0	24	0	48	6	238	2	0	0	246	8	0	32	0	0	0	40		
7:00 AM	17	50	13	0	0	80	41	0	41	0	82	13	119	4	0	0	136	14	0	54	0	0	0	68		
7:15 AM	0	59	0	0	0	59	0	0	0	0	0	78	0	0	0	78	0	0	0	0	0	0	0	0		
7:30 AM	0	32	0	0	0	32	0	0	0	0	0	67	0	0	0	67	0	0	0	0	0	0	0	0		
7:45 AM	0	18	0	0	0	18	0	0	0	0	0	29	0	0	0	29	0	0	0	0	0	0	0	0		
Hourly Total	17	159	13	0	0	189	41	0	41	0	82	13	293	4	0	0	310	14	0	54	0	0	0	68		
8:00 AM	21	35	15	0	0	71	35	0	35	0	70	15	72	5	0	0	92	12	0	46	0	0	0	58		
8:15 AM	0	18	0	0	0	18	0	0	0	0	0	20	0	0	0	20	0	0	0	0	0	0	0	0		
8:30 AM	0	22	0	0	0	22	0	0	0	0	0	26	0	0	0	26	0	0	0	0	0	0	0	0		
8:45 AM	0	14	0	0	0	14	0	0	0	0	0	35	0	0	0	35	0	0	0	0	0	0	0	0		
Hourly Total	21	89	15	0	0	125	35	0	35	0	70	15	153	5	0	0	173	12	0	46	0	0	0	58		
9:00 AM	18	31	14	0	0	63	24	0	24	0	48	14	57	5	0	0	76	8	0	31	0	0	0	39		
9:15 AM	0	12	0	0	0	12	0	0	0	0	0	29	0	0	0	29	0	0	0	0	0	0	0	0		
9:30 AM	0	14	0	0	0	14	0	0	0	0	0	18	0	0	0	18	0	0	0	0	0	0	0	0		
9:45 AM	0	17	0	0	0	17	0	0	0	0	0	20	0	0	0	20	0	0	0	0	0	0	0	0		
Hourly Total	18	74	14	0	0	106	24	0	24	0	48	14	124	5	0	0	143	8	0	31	0	0	0	39		
10:00 AM	23	37	17	0	0	77	23	0	23	0	46	17	40	6	0	0	63	8	0	30	0	0	0	38		
10:15 AM	0	17	0	0	0	17	0	0	0	0	0	21	0	0	0	21	0	0	0	0	0	0	0	0		
10:30 AM	0	14	0	0	0	14	0	0	0	0	0	19	0	0	0	19	0	0	0	0	0	0	0	0		
10:45 AM	0	17	0	0	0	17	0	0	0	0	0	18	0	0	0	18	0	0	0	0	0	0	0	0		
Hourly Total	23	85	17	0	0	125	23	0	23	0	46	17	98	6	0	0	121	8	0	30	0	0	0	38		
11:00 AM	30	43	22	0	0	95	21	0	21	0	42	22	45	7	0	0	74	7	0	28	0	0	0	35		
11:15 AM	0	25	0	0	0	25	0	0	0	0	0	19	0	0	0	19	0	0	0	0	0	0	0	0		
11:30 AM	0	27	0	0	0	27	0	0	0	0	0	19	0	0	0	19	0	0	0	0	0	0	0	0		
11:45 AM	0	20	0	0	0	20	0	0	0	0	0	21	0	0	0	21	0	0	0	0	0	0	0	0		
Hourly Total	30	115	22	0	0	167	21	0	21	0	42	22	104	7	0	0	133	7	0	28	0	0	0	35		
12:00 PM	31	52	23	0	0	106	23	0	23	0	46	23	48	8	0	0	79	8	0	31	0	0	0	39		
12:15 PM	0	26	0	0	0	26	0	0	0	0	0	24	0	0	0	24	0	0	0	0	0	0	0	0		
12:30 PM	0	16	0	0	0	16	0	0	0	0	0	25	0	0	0	25	0	0	0	0	0	0	0	0		
12:45 PM	0	25	0	0	0	25	0	0	0	0	0	20	0	0	0	20	0	0	0	0	0	0	0	0		
Hourly Total	31	119	23	0	0	173	23	0	23	0	46	23	117	8	0	0	148	8	0	31	0	0	0	39		
1:00 PM	33	41	25	0	0	99	25	0	25	0	50	25	49	8	0	0	82	8	0	33	0	0	0	41		
1:15 PM	0	16	0	0	0	16	0	0	0	0	0	13	0	0	0	13	0	0	0	0	0	0	0	0		
1:30 PM	0	29	0	0	0	29	0	0	0	0	0	20	0	0	0	20	0	0	0	0	0	0	0	0		
1:45 PM	0	33	0	0	0	33	0	0	0	0	0	28	0	0	0	28	0	0	0	0	0	0	0	0		
Hourly Total	33	119	25	0	0	177	25	0	25	0	50	25	110	8	0	0	143	8	0	33	0	0	0	41		
2:00 PM	39	53	29	0	0	121	25	0	25	0	50	29	43	10	0	0	82	8	0	33	0	0	0	41		
2:15 PM	0	32	0	0	0	32	0	0	0	0	0	25	0	0	0	25	0	0	0	0	0	0	0	0		
2:30 PM	0	41	0	0	0	41	0	0	0	0	0	43	0	0	0	43	0	0	0	0	0	0	0	0		
2:45 PM	0	42	0	0	0	42	0	0	0	0	0	33	0	0	0	33	0	0	0	0	0	0	0	0		
Hourly Total	39	168	29	0	0	236	25	0	25	0	50	29	144	10	0	0	183	8	0	33	0	0	0	41		
3:00 PM	47	76	36	0	0	159	26	0	26	0	52	36	58	12	0	0	106	9	0	34	0	0	0	43		
3:15 PM	0	40	0	0	0	40	0	0	0	0	0	24	0	0	0	24	0	0	0	0	0	0	0	0		
3:30 PM	0	49	0	0	0	49	0	0	0	0	0	23	0	0	0	23	0	0	0	0	0	0	0	0		
3:45 PM	0	68	0	0	0	68	0	0	0	0	0	36	0	0	0	36	0	0	0	0	0	0	0	0		
Hourly Total	47	233	36	0	0	316	26	0	26	0	52	36	141	12	0	0	189	9	0	34	0	0	0	43		
4:00 PM	57	113	43	0	0	213	30	0	30	0	60	43	53	14	0	0	110	10	0	40	0	0	0	50		
4:15 PM	0	75	0	0	0	75	0	0	0	0	0	35	0	0	0	35	0	0	0	0	0	0	0	0		
4:30 PM	0	71	0	0	0	71	0	0	0	0	0	26	0	0	0	26	0	0	0	0	0	0	0	0		
4:45 PM	0	75	0	0	0	75	0	0	0	0	0	27	0	0	0	27	0	0	0	0	0	0	0	0		
Hourly Total	57	334	43	0	0	434	30	0	30	0	60	43	141	14	0	0	198	10	0	40	0	0	0	50		
5:00 PM	55	110	41	0	0	206	30	0	30	0	60	41	63	14	0	0	118	10	0	40	0	0	0	50		
5:15 PM	0	76	0	0	0	76	0	0	0	0	0	34	0	0	0	34	0	0	0	0	0	0	0	0		
5:30 PM	0	70	0	0	0	70	0	0	0	0	0	34	0	0	0	34	0	0	0	0	0	0	0	0		
5:45 PM	0	63	0	0	0	63	0	0	0	0	0	32	0	0	0	32	0									

Ashville Pike & Long Street Count Data

	Southbound					Westbound					Northbound					Eastbound		
	Right	Thru	Left			Right	Thru	Left			Right	Thru	Left			Right	Thru	Left
0:00																		
12:15																		
12:30																		
12:45																		
1:00																		
1:15																		
1:30																		
1:45																		
2:00																		
2:15																		
2:30																		
2:45																		
3:00																		
3:15																		
3:30																		
3:45																		
4:00																		
4:15																		
4:30																		
4:45																		
5:00																		
5:15																		
5:30																		
5:45																		
6:00		10	1			6						57						
6:15		6	0			7						57						
6:30		9	0			2						69						
6:45		18	1			7						70						
7:00		48	0			18						82						
7:15		75	0			6						93						
7:30		39	2			8						78						
7:45		20	3			5						32						
8:00		24	1			8						40						
8:15		22	1			1						24						
8:30		26	2			1						32						
8:45		16	2			1						43						
9:00		21	1			0						42						
9:15		15	0			3						34						
9:30		18	0			4						19						
9:45		21	1			0						25						
10:00		25	0			0						22						
10:15		22	0			6						20						
10:30		15	3			1						23						
10:45		21	1			3						20						
11:00		27	0			1						29						
11:15		31	1			0						24						
11:30		32	3			5						19						
11:45		24	1			1						26						
12:00		35	2			2						29						
12:15		31	2			3						28						
12:30		19	1			1						31						
12:45		29	2			1						24						
1:00		18	2			1						30						
1:15		21	0			1						16						
1:30		34	2			1						24						
1:45		40	2			1						34						
2:00		29	1			2						20						
2:15		40	1			3						30						
2:30		50	3			0						55						
2:45		50	4			4						38						
3:00		49	3			2						39						
3:15		48	4			2						28						
3:30		59	4			4						25						
3:45		81	6			5						41						
4:00		85	5			2						27						
4:15		82	14			2						42						
4:30		89	3			3						31						
4:45		90	7			3						32						
5:00		85	4			1						41						
5:15		91	6			3						41						
5:30		83	7			2						41						
5:45		73	8			1						40						
6:00		56	2			4						22						
6:15		51	4			4						28						
6:30		42	4			4						28						
6:45		25	4			0						25						
7:00																		
7:15																		
7:30																		
7:45																		
8:00																		
8:15																		
8:30																		
8:45																		
9:00																		
9:15																		
9:30																		
9:45																		
10:00																		
10:15																		
10:30																		
10:45																		
11:00																		
11:15																		
11:30																		
11:45																		

Ashville Pike & Long Street Count Data Grown

	Southbound			Westbound			Northbound			Eastbound		
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left
0:00												
12:15												
12:30												
12:45												
1:00												
1:15												
1:30												
1:45												
2:00												
2:15												
2:30												
2:45												
3:00												
3:15												
3:30												
3:45												
4:00												
4:15												
4:30												
4:45												
5:00												
5:15												
5:30												
5:45												
6:00		8	1		5					44		
6:15		5	0		5					44		
6:30		7	0		2					54		
6:45		14	1		5					55		
7:00		37	0		14					64		
7:15		59	0		5					73		
7:30		30	2		6					61		
7:45		16	2		4					25		
8:00		19	1		6					31		
8:15		17	1		1					19		
8:30		20	2		1					25		
8:45		12	2		1					34		
9:00		16	1		0					33		
9:15		12	0		2					27		
9:30		14	0		3					15		
9:45		16	1		0					20		
10:00		20	0		0					17		
10:15		17	0		5					16		
10:30		12	2		1					18		
10:45		16	1		2					16		
11:00		21	0		1					23		
11:15		24	1		0					19		
11:30		25	2		4					15		
11:45		19	1		1					20		
12:00		27	2		2					23		
12:15		24	2		2					22		
12:30		15	1		1					24		
12:45		23	2		1					19		
1:00		14	2		1					23		
1:15		16	0		1					12		
1:30		27	2		1					19		
1:45		31	2		1					27		
2:00		23	1		2					16		
2:15		31	1		2					23		
2:30		39	2		0					43		
2:45		39	3		3					30		
3:00		38	2		2					30		
3:15		37	3		2					22		
3:30		46	3		3					20		
3:45		63	5		4					32		
4:00		66	4		2					21		
4:15		64	11		2					33		
4:30		69	2		2					24		
4:45		70	5		2					25		
5:00		66	3		1					32		
5:15		71	5		2					32		
5:30		65	5		2					32		
5:45		57	6		1					31		
6:00		44	2		3					17		
6:15		40	3		3					22		
6:30		33	3		3					22		
6:45		20	3		0					20		
7:00		0	0		0					0		
7:15		0	0		0					0		
7:30		0	0		0					0		
7:45		0	0		0					0		
8:00												
8:15												
8:30												
8:45												
9:00												
9:15												
9:30												
9:45												
10:00												
10:15												
10:30												
10:45												
11:00												
11:15												
11:30												
11:45												

Growth Rate 2.00%
 Collection Year 2021
 Design Year 2032

Through Volumes at Site Drive 1/Site Drive 2 determined from the Ashville Pike & Long Street Count Data

	Southbound					Westbound					Northbound					Eastbound		
	Right	Thru	Left			Right	Thru	Left			Right	Thru	Left			Right	Thru	Left
0:00																		
12:15																		
12:30																		
12:45																		
1:00																		
1:15																		
1:30																		
1:45																		
2:00																		
2:15																		
2:30																		
2:45																		
3:00																		
3:15																		
3:30																		
3:45																		
4:00																		
4:15																		
4:30																		
4:45																		
5:00																		
5:15																		
5:30																		
5:45																		
6:00		9										49						
6:15		5										49						
6:30		7										56						
6:45		15										60						
7:00		37										78						
7:15		59										78						
7:30		32										67						
7:45		18										29						
8:00		20										37						
8:15		18										20						
8:30		22										26						
8:45		14										35						
9:00		17										33						
9:15		12										29						
9:30		14										18						
9:45		17										20						
10:00		20										17						
10:15		17										21						
10:30		14										19						
10:45		17										18						
11:00		21										24						
11:15		25										19						
11:30		27										19						
11:45		20										21						
12:00		29										25						
12:15		26										24						
12:30		16										25						
12:45		25										20						
1:00		16										24						
1:15		16										13						
1:30		29										20						
1:45		33										28						
2:00		24										18						
2:15		32										25						
2:30		41										43						
2:45		42										33						
3:00		40										32						
3:15		40										24						
3:30		49										23						
3:45		68										36						
4:00		70										23						
4:15		75										35						
4:30		71										26						
4:45		75										27						
5:00		69										33						
5:15		76										34						
5:30		70										34						
5:45		63										32						
6:00		46										20						
6:15		43										25						
6:30		36										25						
6:45		23										20						
7:00																		
7:15																		
7:30																		
7:45																		
8:00																		
8:15																		
8:30																		
8:45																		
9:00																		
9:15																		
9:30																		
9:45																		
10:00																		
10:15																		
10:30																		
10:45																		
11:00																		
11:15																		
11:30																		
11:45																		

Trip Distribution at Ashville Pike & Site Drive 1/Site Drive 2 - Distribution matches the distribution used in the TIS volumes.

	20% Entry			15% Entry			15% Exit			15% Exit			5% Exit			20% Exit				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left		
0:00																				
12:15																				
12:30																				
12:45																				
1:00																				
1:15																				
1:30																				
1:45																				
2:00																				
2:15																				
2:30																				
2:45																				
3:00																				
3:15																				
3:30																				
3:45																				
4:00																				
4:15																				
4:30																				
4:45																				
5:00																				
5:15																				
5:30																				
5:45																				
6:00	8	6	6		24	24		6	24	2			8				32	1.6%	5.8%	
6:15																				
6:30																				
6:45																				
7:00	17	13	13		41	41		13	41	4			14				54	3.1%	10.0%	
7:15																				
7:30																				
7:45																				
8:00	21	15	15		35	35		15	35	5			12				46	3.8%	8.5%	
8:15																				
8:30																				
8:45																				
9:00	18	14	14		24	24		14	24	5			8				31	3.3%	5.8%	
9:15																				
9:30																				
9:45																				
10:00	23	17	17		23	23		17	23	6			8				30	4.2%	5.6%	
10:15																				
10:30																				
10:45																				
11:00	30	22	22		21	21		22	21	7			7				28	5.4%	5.1%	
11:15																				
11:30																				
11:45																				
12:00	31	23	23		23	23		23	23	8			8				31	5.7%	5.7%	
12:15																				
12:30																				
12:45																				
1:00	33	25	25		25	25		25	25	8			8				33	6.1%	6.0%	
1:15																				
1:30																				
1:45																				
2:00	39	29	29		25	25		29	25	10			8				33	7.1%	6.1%	
2:15																				
2:30																				
2:45																				
3:00	47	36	36		26	26		36	26	12			9				34	8.7%	6.2%	
3:15																				
3:30																				
3:45																				
4:00	57	43	43		30	30		43	30	14			10				40	10.5%	7.4%	
4:15																				
4:30																				
4:45																				
5:00	55	41	41		30	30		41	30	14			10				40	10.0%	7.3%	
5:15																				
5:30																				
5:45																				
6:00	46	35	35		24	24		35	24	12			8				32	8.5%	5.9%	
6:15																				
6:30																				
6:45																				
7:00																				
7:15																				
7:30																				
7:45																				
8:00																				
8:15																				
8:30																				
8:45																				
9:00																				
9:15																				
9:30																				
9:45																				
10:00																				
10:15																				
10:30																				
10:45																				
11:00																				
11:15																				
11:30																				
11:45																				

210 - Single-Family
Detached Housing
Entry % Exit %

210
Weekday
2723

Appendix G

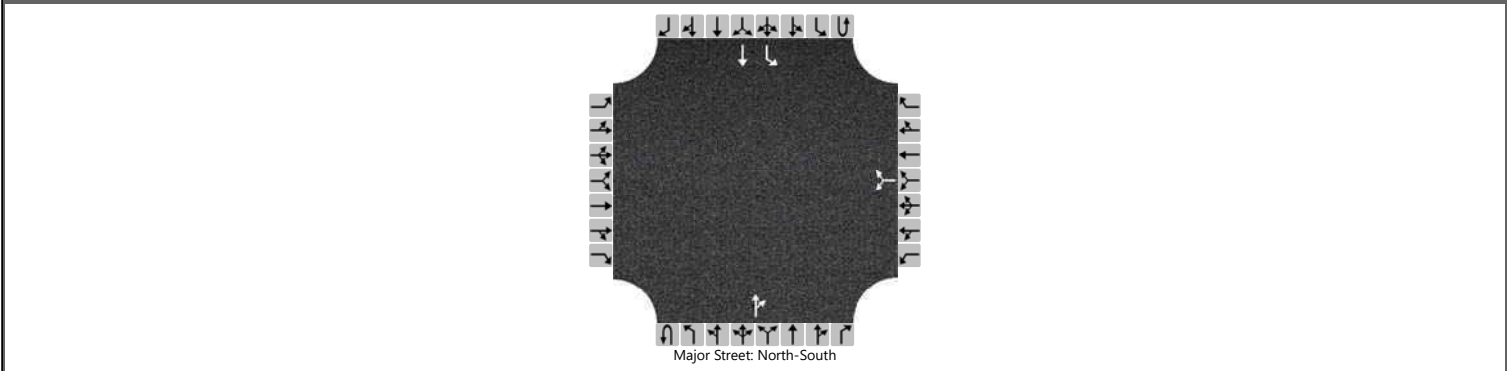
Capacity Analysis



HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & St Paul Rd		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	St Paul Road		
Analysis Year	2022			North/South Street	Ashville Pike		
Time Analyzed	AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						28		64			287	48		34	138	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

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

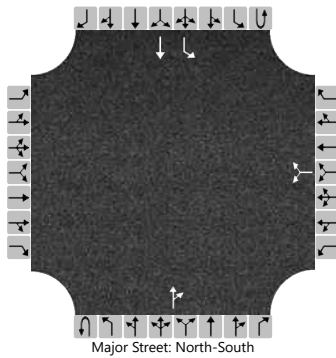
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						100								37		
Capacity, c (veh/h)						611								1189		
v/c Ratio						0.16								0.03		
95% Queue Length, Q ₉₅ (veh)						0.6								0.1		
Control Delay (s/veh)						12.0								8.1		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					12.0								1.6			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & St Paul Rd
Agency/Co.	CMTran	Jurisdiction	Village of Asheville
Date Performed		East/West Street	St Paul Road
Analysis Year	2022	North/South Street	Ashville Pike
Time Analyzed	AM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Asheville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0	
Configuration							LR					TR		L	T		
Volume (veh/h)						28		100			433	48		46	190		
Percent Heavy Vehicles (%)						3		3						3			
Proportion Time Blocked																	
Percent Grade (%)						0											
Right Turn Channelized																	
Median Type Storage					Undivided												

Critical and Follow-up Headways

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

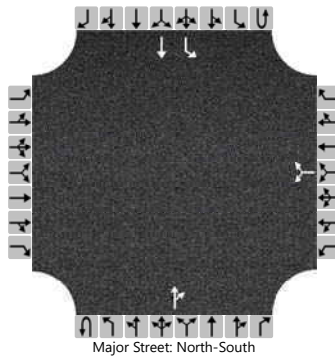
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						139									50		
Capacity, c (veh/h)						495									1039		
v/c Ratio						0.28									0.05		
95% Queue Length, Q ₉₅ (veh)						1.1									0.2		
Control Delay (s/veh)						15.1									8.6		
Level of Service (LOS)						C									A		
Approach Delay (s/veh)						15.1								1.7			
Approach LOS						C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY	Intersection	Ashville Pk & St Paul Rd				
Agency/Co.	CMTran	Jurisdiction	Village of Ashville				
Date Performed		East/West Street	St Paul Road				
Analysis Year	2022	North/South Street	Ashville Pike				
Time Analyzed	PM No Build	Peak Hour Factor	0.92				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						32		19			159	21		69	425	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						55								75		
Capacity, c (veh/h)						433								1371		
v/c Ratio						0.13								0.05		
95% Queue Length, Q ₉₅ (veh)						0.4								0.2		
Control Delay (s/veh)						14.5								7.8		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					14.5								1.1			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

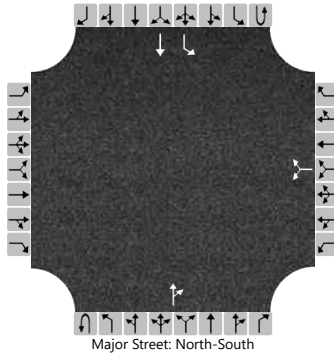
General Information

Analyst	LRY
Agency/Co.	CMTran
Date Performed	
Analysis Year	2022
Time Analyzed	PM Build
Intersection Orientation	North-South
Project Description	Ashville Residential TIS

Site Information

Intersection	Ashville Pk & St Paul Rd
Jurisdiction	Village of Ashville
East/West Street	St Paul Road
North/South Street	Ashville Pike
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						32		42			262	21		109	601	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type Storage							Undivided									

Critical and Follow-up Headways

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

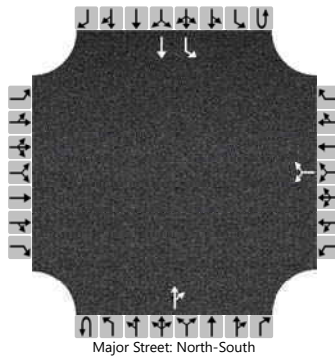
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						80									118	
Capacity, c (veh/h)						326									1247	
v/c Ratio						0.25									0.09	
95% Queue Length, Q ₉₅ (veh)						1.0									0.3	
Control Delay (s/veh)						19.6									8.2	
Level of Service (LOS)						C									A	
Approach Delay (s/veh)						19.6									1.3	
Approach LOS						C										

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & St Paul Rd		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	St Paul Road		
Analysis Year	2032			North/South Street	Ashville Pike		
Time Analyzed	AM No Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						33		77			343	57		40	165	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						120								43		
Capacity, c (veh/h)						547								1120		
v/c Ratio						0.22								0.04		
95% Queue Length, Q ₉₅ (veh)						0.8								0.1		
Control Delay (s/veh)						13.4								8.3		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					13.4								1.6			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

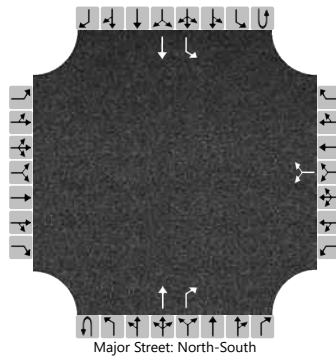
General Information

Analyst	LRY
Agency/Co.	CMTran
Date Performed	
Analysis Year	2032
Time Analyzed	AM Build
Intersection Orientation	North-South
Project Description	Ashville Residential TIS

Site Information

Intersection	Ashville Pk & St Paul Rd
Jurisdiction	Village of Ashville
East/West Street	St Paul Road
North/South Street	Ashville Pike
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	1		0	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						33		113			489	57		52	217	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized											No					
Median Type Storage							Undivided									

Critical and Follow-up Headways

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

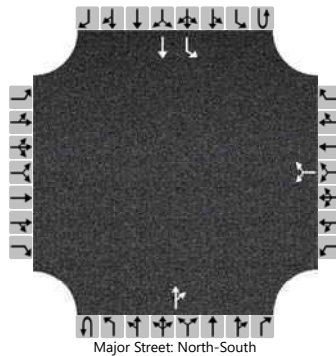
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							159								57	
Capacity, c (veh/h)							459								978	
v/c Ratio							0.35								0.06	
95% Queue Length, Q ₉₅ (veh)							1.5								0.2	
Control Delay (s/veh)							16.9								8.9	
Level of Service (LOS)							C								A	
Approach Delay (s/veh)							16.9								1.7	
Approach LOS							C									

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & St Paul Rd		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	St Paul Road		
Analysis Year	2032			North/South Street	Ashville Pike		
Time Analyzed	PM No Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	1	1	0
Configuration							LR					TR		L	T	
Volume (veh/h)						38		23			190	26		83	509	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

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

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						66								90		
Capacity, c (veh/h)						357								1327		
v/c Ratio						0.19								0.07		
95% Queue Length, Q ₉₅ (veh)						0.7								0.2		
Control Delay (s/veh)						17.4								7.9		
Level of Service (LOS)						C								A		
Approach Delay (s/veh)					17.4								1.1			
Approach LOS					C											

HCS7 Two-Way Stop-Control Report

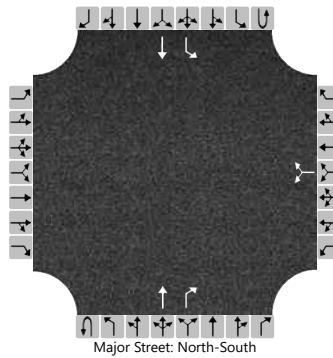
General Information

Analyst	LRY
Agency/Co.	CMTran
Date Performed	
Analysis Year	2032
Time Analyzed	PM Build
Intersection Orientation	North-South
Project Description	Ashville Residential TIS

Site Information

Intersection	Ashville Pk & St Paul Rd
Jurisdiction	Village of Ashville
East/West Street	St Paul Road
North/South Street	Ashville Pike
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	1		0	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						38		46			293	26		123	685	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized											No					
Median Type Storage							Undivided									

Critical and Follow-up Headways

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

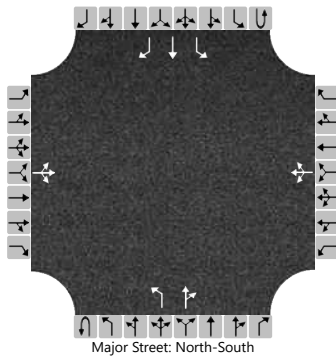
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						91									134	
Capacity, c (veh/h)						266									1207	
v/c Ratio						0.34									0.11	
95% Queue Length, Q ₉₅ (veh)						1.5									0.4	
Control Delay (s/veh)						25.4									8.4	
Level of Service (LOS)						D									A	
Approach Delay (s/veh)						25.4									1.3	
Approach LOS						D										

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & SD1/SD2		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Site Drive 1/Site Drive 2		
Analysis Year	2022			North/South Street	Ashville Pike		
Time Analyzed	AM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1	
Configuration			LTR				LTR			L		TR		L	T	R	
Volume (veh/h)		58	0	14		44	0	44		5	376	15		15	194	22	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	No
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			

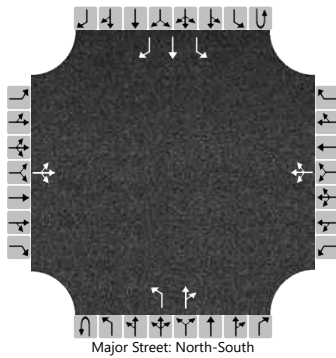
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			78				96			5					16		
Capacity, c (veh/h)			367				448			1327					1129		
v/c Ratio			0.21				0.21			0.00					0.01		
95% Queue Length, Q ₉₅ (veh)			0.8				0.8			0.0					0.0		
Control Delay (s/veh)			17.4				15.2			7.7					8.2		
Level of Service (LOS)			C				C			A					A		
Approach Delay (s/veh)		17.4				15.2				0.1				0.5			
Approach LOS		C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & SD1/SD2		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Site Drive 1/Site Drive 2		
Analysis Year	2022			North/South Street	Ashville Pike		
Time Analyzed	PM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1	
Configuration			LTR				LTR			L		TR		L	T	R	
Volume (veh/h)		41	0	10		31	0	31		18	205	52		53	472	70	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	No
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			

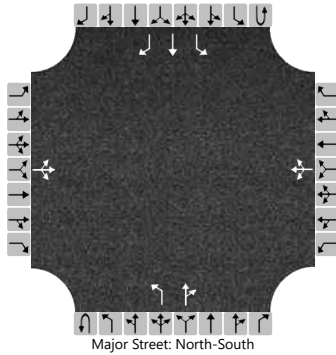
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			55				67				20					58	
Capacity, c (veh/h)			252				342				981					1278	
v/c Ratio			0.22				0.20				0.02					0.05	
95% Queue Length, Q ₉₅ (veh)			0.8				0.7				0.1					0.1	
Control Delay (s/veh)			23.2				18.1				8.7					8.0	
Level of Service (LOS)			C				C				A					A	
Approach Delay (s/veh)		23.2				18.1				0.6				0.7			
Approach LOS		C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & SD1/SD2		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Site Drive 1/Site Drive 2		
Analysis Year	2032			North/South Street	Ashville Pike		
Time Analyzed	AM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1	
Configuration			LTR				LTR			L		TR		L	T	R	
Volume (veh/h)		58	0	14		44	0	44		5	437	15		15	228	22	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized											No						
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

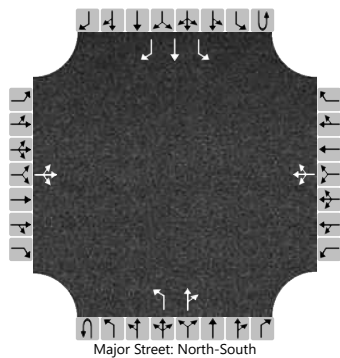
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			78				96				5				16		
Capacity, c (veh/h)			313				391				1286				1067		
v/c Ratio			0.25				0.24				0.00				0.02		
95% Queue Length, Q ₉₅ (veh)			1.0				0.9				0.0				0.0		
Control Delay (s/veh)			20.3				17.2				7.8				8.4		
Level of Service (LOS)			C				C				A				A		
Approach Delay (s/veh)		20.3				17.2				0.1				0.5			
Approach LOS		C				C											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & SD1/SD2
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Site Drive 1/Site Drive 2
Analysis Year	2032	North/South Street	Ashville Pike
Time Analyzed	PM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	1	
Configuration			LTR				LTR			L		TR		L	T	R	
Volume (veh/h)		41	0	10		31	0	31		18	238	52		53	552	70	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	No
Median Type Storage		Undivided															

Critical and Follow-up Headways

	Eastbound	Westbound	Northbound	Southbound
Base Critical Headway (sec)	7.1	6.5	6.2	4.1
Critical Headway (sec)	7.13	6.53	6.23	4.13
Base Follow-Up Headway (sec)	3.5	4.0	3.3	2.2
Follow-Up Headway (sec)	3.53	4.03	3.33	2.23


Delay, Queue Length, and Level of Service

	Eastbound	Westbound	Northbound	Southbound
Flow Rate, v (veh/h)	55	67	20	58
Capacity, c (veh/h)	209	290	911	1239
v/c Ratio	0.27	0.23	0.02	0.05
95% Queue Length, Q ₉₅ (veh)	1.0	0.9	0.1	0.1
Control Delay (s/veh)	28.4	21.2	9.0	8.0
Level of Service (LOS)	D	C	A	A
Approach Delay (s/veh)	28.4	21.2	0.5	0.6
Approach LOS	D	C		

HCS7 Roundabouts Report

General Information

Site Information

Analyst	LRY		Intersection	Ashville Pike & SD1/SD2
Agency or Co.	CMTran		E/W Street Name	Site Drive 1/Site Drive 2
Date Performed			N/S Street Name	Ashville Pike
Analysis Year	2022		Analysis Time Period (hrs)	0.25
Time Analyzed	AM Build		Peak Hour Factor	0.92
Project Description	Ashville Residential TIS		Jurisdiction	Village of Ashville

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	58	0	14	0	44	0	44	0	5	376	15	0	15	194	22
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v _{PCE}), pc/h	0	65	0	16	0	49	0	49	0	6	421	17	0	17	217	25
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	


Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		81			98			444			259	
Entry Volume, veh/h		79			95			431			251	
Circulating Flow (v _c), pc/h	283			492			82			55		
Exiting Flow (v _{ex}), pc/h	34			31			535			282		
Capacity (C _{PCE}), pc/h		1034			835			1269			1305	
Capacity (c), veh/h		1004			811			1232			1267	
v/c Ratio (x)		0.08			0.12			0.35			0.20	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.3			5.6			6.2			4.5	
Lane LOS		A			A			A			A	
95% Queue, veh		0.3			0.4			1.6			0.7	
Approach Delay, s/veh	4.3			5.6			6.2			4.5		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh LOS	5.5						A					

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	LRY				Intersection	Ashville Pike & SD1/SD2		
Agency or Co.	CMTran				E/W Street Name	Site Drive 1/Site Drive 2		
Date Performed					N/S Street Name	Ashville Pike		
Analysis Year	2022				Analysis Time Period (hrs)	0.25		
Time Analyzed	PM Build				Peak Hour Factor	0.92		
Project Description	Ashville Residential TIS				Jurisdiction	Village of Ashville		


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	41	0	10	0	31	0	31	0	18	205	52	0	53	472	70
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v _{PCE}), pc/h	0	46	0	11	0	35	0	35	0	20	230	58	0	59	528	78
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		57			70			308			665		
Entry Volume, veh/h		55			68			299			646		
Circulating Flow (v _c), pc/h	622			296			105			55			
Exiting Flow (v _{ex}), pc/h	117			98			311			574			
Capacity (C _{PCE}), pc/h		732			1020			1240			1305		
Capacity (c), veh/h		710			991			1204			1267		
v/c Ratio (x)		0.08			0.07			0.25			0.51		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		5.9			4.2			5.2			8.3		
Lane LOS		A			A			A			A		
95% Queue, veh		0.3			0.2			1.0			3.0		
Approach Delay, s/veh	5.9			4.2			5.2			8.3			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	7.1						A						

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	LRY				Intersection	Ashville Pike & SD1/SD2		
Agency or Co.	CMTran				E/W Street Name	Site Drive 1/Site Drive 2		
Date Performed					N/S Street Name	Ashville Pike		
Analysis Year	2032				Analysis Time Period (hrs)	0.25		
Time Analyzed	AM Build				Peak Hour Factor	0.92		
Project Description	Ashville Residential TIS				Jurisdiction	Village of Ashville		


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	58	0	14	0	44	0	44	0	5	437	15	0	15	228	22
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v _{PCE}), pc/h	0	65	0	16	0	49	0	49	0	6	489	17	0	17	255	25
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v _e), pc/h		81			98			512			297		
Entry Volume, veh/h		79			95			497			288		
Circulating Flow (v _c), pc/h	321			560			82			55			
Exiting Flow (v _{ex}), pc/h	34			31			603			320			
Capacity (C _{PCE}), pc/h		995			779			1269			1305		
Capacity (c), veh/h		966			757			1232			1267		
v/c Ratio (x)		0.08			0.13			0.40			0.23		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		4.5			6.1			6.9			4.8		
Lane LOS		A			A			A			A		
95% Queue, veh		0.3			0.4			2.0			0.9		
Approach Delay, s/veh	4.5			6.1			6.9			4.8			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	6.0						A						

HCS7 Roundabouts Report

General Information				Site Information				
Analyst	LRY				Intersection	Ashville Pike & SD1/SD2		
Agency or Co.	CMTran				E/W Street Name	Site Drive 1/Site Drive 2		
Date Performed					N/S Street Name	Ashville Pike		
Analysis Year	2032				Analysis Time Period (hrs)	0.25		
Time Analyzed	PM Build				Peak Hour Factor	0.92		
Project Description	Ashville Residential TIS				Jurisdiction	Village of Ashville		

Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	41	0	10	0	31	0	31	0	18	238	52	0	53	552	70
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{pce}), pc/h	0	46	0	11	0	35	0	35	0	20	266	58	0	59	618	78
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763		
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087		

Flow Computations, Capacity and v/c Ratios													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Entry Flow (v_e), pc/h		57			70			344			755		
Entry Volume, veh/h		55			68			334			733		
Circulating Flow (v_c), pc/h	712			332			105			55			
Exiting Flow (v_{ex}), pc/h	117			98			347			664			
Capacity (C_{pce}), pc/h		668			984			1240			1305		
Capacity (c), veh/h		648			955			1204			1267		
v/c Ratio (x)		0.09			0.07			0.28			0.58		

Delay and Level of Service													
Approach	EB			WB			NB			SB			
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	
Lane Control Delay (d), s/veh		6.5			4.4			5.5			9.6		
Lane LOS		A			A			A			A		
95% Queue, veh		0.3			0.2			1.1			3.9		
Approach Delay, s/veh	6.5			4.4			5.5			9.6			
Approach LOS	A			A			A			A			
Intersection Delay, s/veh LOS	8.0						A						

HCS7 Two-Way Stop-Control Report

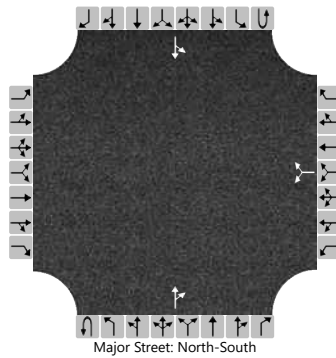
General Information

Analyst	LRY
Agency/Co.	CMTran
Date Performed	
Analysis Year	2022
Time Analyzed	AM No Build
Intersection Orientation	North-South
Project Description	Ashville Residential TIS

Site Information

Intersection	Ashville Pk & Long St
Jurisdiction	Village of Ashville
East/West Street	Long Street
North/South Street	Ashville Pike
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR			LT	
Volume (veh/h)						13		37			291	7		5	186	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type Storage							Undivided									

Critical and Follow-up Headways

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

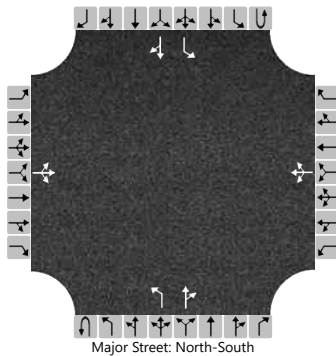
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						54									5	
Capacity, c (veh/h)						646									1230	
v/c Ratio						0.08									0.00	
95% Queue Length, Q ₉₅ (veh)						0.3									0.0	
Control Delay (s/veh)						11.1									7.9	
Level of Service (LOS)						B									A	
Approach Delay (s/veh)						11.1									0.2	
Approach LOS						B										

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & Long St
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Long Street/Site Drive 3
Analysis Year	2022	North/South Street	Ashville Pike
Time Analyzed	AM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		44	0	58		13	0	37		21	311	7		5	244	15	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			

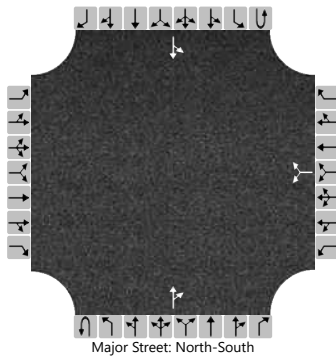
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			111				54				23				5		
Capacity, c (veh/h)			488				532				1275				1208		
v/c Ratio			0.23				0.10				0.02				0.00		
95% Queue Length, Q ₉₅ (veh)			0.9				0.3				0.1				0.0		
Control Delay (s/veh)			14.5				12.5				7.9				8.0		
Level of Service (LOS)			B				B				A				A		
Approach Delay (s/veh)		14.5				12.5				0.5				0.2			
Approach LOS		B				B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & Long St
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Long Street
Analysis Year	2022	North/South Street	Ashville Pike
Time Analyzed	PM No Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration							LR					TR		LT			
Volume (veh/h)						13		9			158	17		24	356		
Percent Heavy Vehicles (%)						3		3						3			
Proportion Time Blocked																	
Percent Grade (%)						0											
Right Turn Channelized																	
Median Type Storage					Undivided												

Critical and Follow-up Headways

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

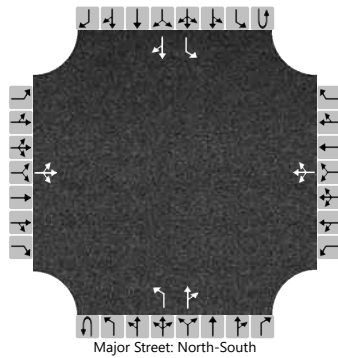
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						24									26		
Capacity, c (veh/h)						549									1378		
v/c Ratio						0.04									0.02		
95% Queue Length, Q ₉₅ (veh)						0.1									0.1		
Control Delay (s/veh)						11.9									7.7		
Level of Service (LOS)						B									A		
Approach Delay (s/veh)						11.9									0.7		
Approach LOS						B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Ashville Pk & Long St		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Long Street/Site Drive 3		
Analysis Year	2022			North/South Street	Ashville Pike		
Time Analyzed	PM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		31	0	42		13	0	9		69	228	17		24	397	53	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

	Eastbound	Westbound	Northbound	Southbound
Base Critical Headway (sec)	7.1	6.5	6.2	4.1
Critical Headway (sec)	7.13	6.53	6.23	4.13
Base Follow-Up Headway (sec)	3.5	4.0	3.3	2.2
Follow-Up Headway (sec)	3.53	4.03	3.33	2.23

Delay, Queue Length, and Level of Service

	Eastbound	Westbound	Northbound	Southbound
Flow Rate, v (veh/h)	79	24	75	26
Capacity, c (veh/h)	355	297	1069	1292
v/c Ratio	0.22	0.08	0.07	0.02
95% Queue Length, Q ₉₅ (veh)	0.8	0.3	0.2	0.1
Control Delay (s/veh)	18.0	18.2	8.6	7.8
Level of Service (LOS)	C	C	A	A
Approach Delay (s/veh)	18.0	18.2	1.9	0.4
Approach LOS	C	C		

HCS7 Two-Way Stop-Control Report

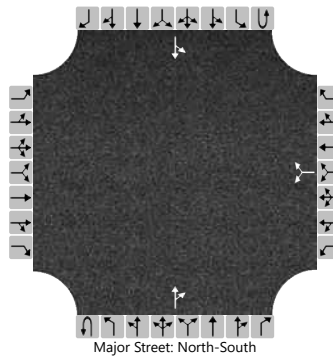
General Information

Analyst	LRY
Agency/Co.	CMTran
Date Performed	
Analysis Year	2032
Time Analyzed	AM No Build
Intersection Orientation	North-South
Project Description	Ashville Residential TIS

Site Information

Intersection	Ashville Pk & Long St
Jurisdiction	Village of Ashville
East/West Street	Long Street
North/South Street	Ashville Pike
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						13		37			348	7		5	222	
Percent Heavy Vehicles (%)						3		3						3		
Proportion Time Blocked																
Percent Grade (%)							0									
Right Turn Channelized																
Median Type Storage							Undivided									

Critical and Follow-up Headways

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

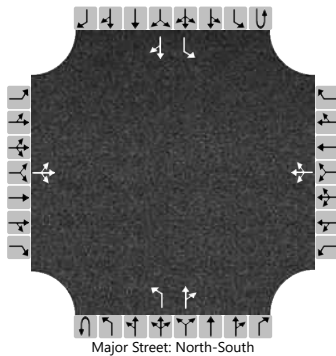
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)							54								5	
Capacity, c (veh/h)							585								1167	
v/c Ratio							0.09								0.00	
95% Queue Length, Q ₉₅ (veh)							0.3								0.0	
Control Delay (s/veh)							11.8								8.1	
Level of Service (LOS)							B								A	
Approach Delay (s/veh)							11.8								0.2	
Approach LOS							B									

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & Long St
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Long Street/Site Drive 3
Analysis Year	2032	North/South Street	Ashville Pike
Time Analyzed	AM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		44	0	58		13	0	37		21	368	7		5	280	15	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

	Eastbound	Westbound	Northbound	Southbound
Base Critical Headway (sec)	7.1	6.5	6.2	4.1
Critical Headway (sec)	7.13	6.53	6.23	4.13
Base Follow-Up Headway (sec)	3.5	4.0	3.3	2.2
Follow-Up Headway (sec)	3.53	4.03	3.33	2.23

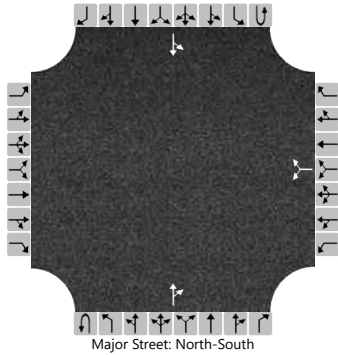
Delay, Queue Length, and Level of Service

	Eastbound	Westbound	Northbound	Southbound
Flow Rate, v (veh/h)	111	54	23	5
Capacity, c (veh/h)	431	473	1234	1146
v/c Ratio	0.26	0.11	0.02	0.00
95% Queue Length, Q ₉₅ (veh)	1.0	0.4	0.1	0.0
Control Delay (s/veh)	16.2	13.6	8.0	8.2
Level of Service (LOS)	C	B	A	A
Approach Delay (s/veh)	16.2	13.6	0.4	0.1
Approach LOS	C	B		

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & Long St
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Long Street
Analysis Year	2032	North/South Street	Ashville Pike
Time Analyzed	PM No Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0	
Configuration							LR					TR		LT			
Volume (veh/h)						13		9			189	17		24	426		
Percent Heavy Vehicles (%)						3		3						3			
Proportion Time Blocked																	
Percent Grade (%)						0											
Right Turn Channelized																	
Median Type Storage					Undivided												

Critical and Follow-up Headways

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

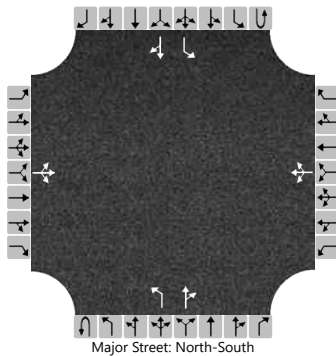
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						24									26		
Capacity, c (veh/h)						485									1339		
v/c Ratio						0.05									0.02		
95% Queue Length, Q ₉₅ (veh)						0.2									0.1		
Control Delay (s/veh)						12.8									7.7		
Level of Service (LOS)						B									A		
Approach Delay (s/veh)						12.8								0.6			
Approach LOS						B											

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Ashville Pk & Long St
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Long Street/Site Drive 3
Analysis Year	2032	North/South Street	Ashville Pike
Time Analyzed	PM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	1	0	0	1	1	0	0	1	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		31	0	42		13	0	9		69	259	17		24	467	53	
Percent Heavy Vehicles (%)		3	3	3		3	3	3		3				3			
Proportion Time Blocked																	
Percent Grade (%)		0				0											
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23			

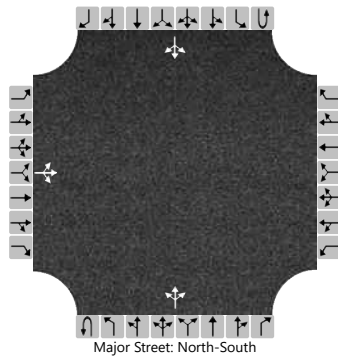
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			79				24				75					26	
Capacity, c (veh/h)			305				252				1002					1255	
v/c Ratio			0.26				0.09				0.07					0.02	
95% Queue Length, Q ₉₅ (veh)			1.0				0.3				0.2					0.1	
Control Delay (s/veh)			20.9				20.8				8.9					7.9	
Level of Service (LOS)			C				C				A					A	
Approach Delay (s/veh)		20.9				20.8				1.8				0.3			
Approach LOS		C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Lockbourne Eastern & SD4		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Site Drive 4		
Analysis Year	2022			North/South Street	Lockbourne Eastern Road		
Time Analyzed	AM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound					
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Movement																		
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			LTR								LTR				LTR			
Volume (veh/h)		15	0	15						5	187	0		0	117	5		
Percent Heavy Vehicles (%)		3	3	3						3				3				
Proportion Time Blocked																		
Percent Grade (%)		0																
Right Turn Channelized																		
Median Type Storage		Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23			

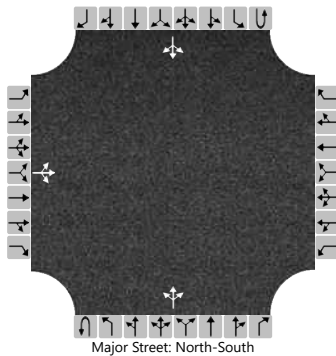
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33							5				0			
Capacity, c (veh/h)			730							1446				1362			
v/c Ratio			0.04							0.00				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1							0.0				0.0			
Control Delay (s/veh)			10.2							7.5				7.6			
Level of Service (LOS)			B							A				A			
Approach Delay (s/veh)		10.2								0.2				0.0			
Approach LOS		B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Lockbourne Eastern & SD4		
Agency/Co.	CMTran			Jurisdiction	Village of Ashville		
Date Performed				East/West Street	Site Drive 4		
Analysis Year	2022			North/South Street	Lockbourne Eastern Road		
Time Analyzed	PM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Ashville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
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	1	0		0	1	0
Configuration			LTR								LTR				LTR	
Volume (veh/h)		10	0	10						18	75	0		0	129	18
Percent Heavy Vehicles (%)		3	3	3						3				3		
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23		

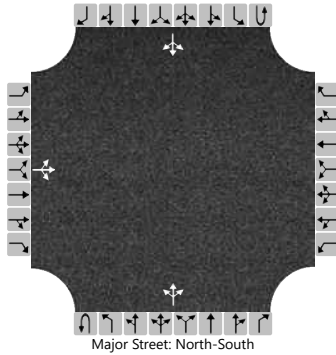
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			22						20				0			
Capacity, c (veh/h)			767						1413				1510			
v/c Ratio			0.03						0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1						0.0				0.0			
Control Delay (s/veh)			9.8						7.6				7.4			
Level of Service (LOS)			A						A				A			
Approach Delay (s/veh)	9.8								1.6				0.0			
Approach LOS	A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Lockbourne Eastern & SD4
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Site Drive 4
Analysis Year	2032	North/South Street	Lockbourne Eastern Road
Time Analyzed	AM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
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	1	0		0	1	0	
Configuration			LTR								LTR				LTR		
Volume (veh/h)		15	0	15						5	214	0		0	137	5	
Percent Heavy Vehicles (%)		3	3	3						3				3			
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23		

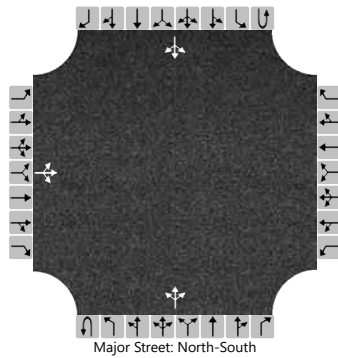
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			33							5				0			
Capacity, c (veh/h)			689							1420				1329			
v/c Ratio			0.05							0.00				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1							0.0				0.0			
Control Delay (s/veh)			10.5							7.5				7.7			
Level of Service (LOS)			B							A				A			
Approach Delay (s/veh)		10.5								0.2				0.0			
Approach LOS		B															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Lockbourne Eastern & SD4
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Site Drive 4
Analysis Year	2032	North/South Street	Lockbourne Eastern Road
Time Analyzed	PM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound					
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Movement																		
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			LTR								LTR				LTR			
Volume (veh/h)		10	0	10						18	84	0		0	144	18		
Percent Heavy Vehicles (%)		3	3	3						3				3				
Proportion Time Blocked																		
Percent Grade (%)		0																
Right Turn Channelized																		
Median Type Storage		Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23			

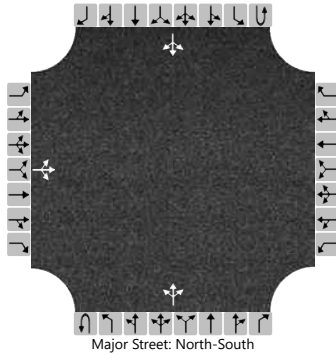
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			22							20				0			
Capacity, c (veh/h)			744							1394				1497			
v/c Ratio			0.03							0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.1							0.0				0.0			
Control Delay (s/veh)			10.0							7.6				7.4			
Level of Service (LOS)			A							A				A			
Approach Delay (s/veh)		10.0								1.4				0.0			
Approach LOS		A															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Lockbourne & Apartments
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Apartment Site Drive
Analysis Year	2022	North/South Street	Lockbourne Eastern Road
Time Analyzed	AM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
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	1	0		0	1	0	
Configuration			LTR								LTR				LTR		
Volume (veh/h)		47	0	57						18	145	0		0	117	15	
Percent Heavy Vehicles (%)		3	3	3						3				3			
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1					4.1		
Critical Headway (sec)		7.13	6.53	6.23						4.13					4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2					2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23					2.23		

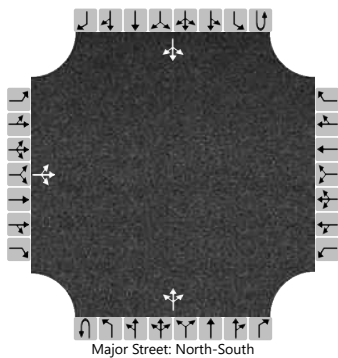
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			113							20					0				
Capacity, c (veh/h)			746							1433					1416				
v/c Ratio			0.15							0.01					0.00				
95% Queue Length, Q ₉₅ (veh)			0.5							0.0					0.0				
Control Delay (s/veh)			10.7							7.5					7.5				
Level of Service (LOS)			B							A					A				
Approach Delay (s/veh)		10.7									0.9					0.0			
Approach LOS		B									A					A			

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Lockbourne & Apartments
Agency/Co.	CMTran	Jurisdiction	Village of Asheville
Date Performed		East/West Street	Apartment Site Drive
Analysis Year	2022	North/South Street	Lockbourne Eastern Road
Time Analyzed	PM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Asheville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound						
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R			
Movement																			
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			LTR								LTR				LTR				
Volume (veh/h)		30	0	36						62	63	0		0	88	51			
Percent Heavy Vehicles (%)		3	3	3						3				3					
Proportion Time Blocked																			
Percent Grade (%)		0																	
Right Turn Channelized																			
Median Type Storage		Undivided																	

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23			

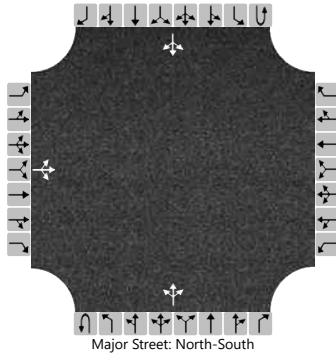
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			72							67				0			
Capacity, c (veh/h)			743							1424				1526			
v/c Ratio			0.10							0.05				0.00			
95% Queue Length, Q ₉₅ (veh)			0.3							0.1				0.0			
Control Delay (s/veh)			10.4							7.7				7.4			
Level of Service (LOS)			B							A				A			
Approach Delay (s/veh)		10.4								4.0				0.0			
Approach LOS		B															

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRY			Intersection	Lockbourne & Apartments		
Agency/Co.	CMTran			Jurisdiction	Village of Asheville		
Date Performed				East/West Street	Apartment Site Drive		
Analysis Year	2032			North/South Street	Lockbourne Eastern Road		
Time Analyzed	AM Build			Peak Hour Factor	0.92		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	Asheville Residential TIS						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound					
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R		
Movement																		
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			LTR								LTR				LTR			
Volume (veh/h)		47	0	57						18	172	0		0	137	15		
Percent Heavy Vehicles (%)		3	3	3						3				3				
Proportion Time Blocked																		
Percent Grade (%)		0																
Right Turn Channelized																		
Median Type Storage		Undivided																

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23			

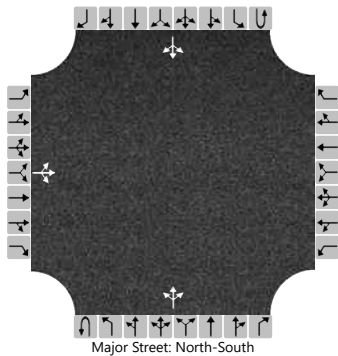
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			113							20				0			
Capacity, c (veh/h)			706							1407				1381			
v/c Ratio			0.16							0.01				0.00			
95% Queue Length, Q ₉₅ (veh)			0.6							0.0				0.0			
Control Delay (s/veh)			11.1							7.6				7.6			
Level of Service (LOS)			B							A				A			
Approach Delay (s/veh)		11.1								0.8				0.0			
Approach LOS		B															

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	LRY	Intersection	Lockbourne & Apartments
Agency/Co.	CMTran	Jurisdiction	Village of Ashville
Date Performed		East/West Street	Apartment Site Drive
Analysis Year	2032	North/South Street	Lockbourne Eastern Road
Time Analyzed	PM Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Ashville Residential TIS		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
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			LTR								LTR				LTR		
Volume (veh/h)		30	0	36						62	72	0		0	103	51	
Percent Heavy Vehicles (%)		3	3	3						3				3			
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

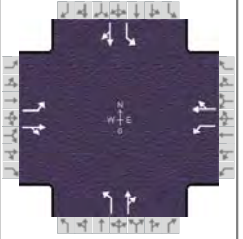
Base Critical Headway (sec)		7.1	6.5	6.2						4.1				4.1			
Critical Headway (sec)		7.13	6.53	6.23						4.13				4.13			
Base Follow-Up Headway (sec)		3.5	4.0	3.3						2.2				2.2			
Follow-Up Headway (sec)		3.53	4.03	3.33						2.23				2.23			

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			72							67				0			
Capacity, c (veh/h)			720							1404				1514			
v/c Ratio			0.10							0.05				0.00			
95% Queue Length, Q ₉₅ (veh)			0.3							0.2				0.0			
Control Delay (s/veh)			10.6							7.7				7.4			
Level of Service (LOS)			B							A				A			
Approach Delay (s/veh)		10.6								3.8				0.0			
Approach LOS		B															

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	CMTran	Duration, h	0.250		
Analyst	LRY	Analysis Date	Oct 4, 2021	Area Type	Other
Jurisdiction	Village of Ashville	Time Period	AM No Build	PHF	0.92
Urban Street	Ashville Pike	Analysis Year	2022	Analysis Period	1 > 7:00
Intersection	Ashville Pike & SR-752	File Name	OY AM No Build - 752.xus		
Project Description	Ashville Residential TIS				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	41	170	12	29	99	64	20	114	57	126	53	55

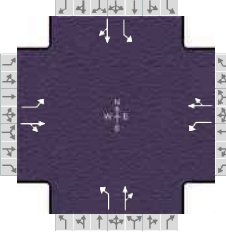
Signal Information				Signal Timing Diagram									
Cycle, s	90.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		7.0	27.0	7.0	25.0	0.0	0.0				
		Yellow		4.0	4.0	4.0	4.0	0.0	0.0				
		Red		2.0	2.0	2.0	2.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	31.0	13.0	31.0	13.0	33.0	13.0	33.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g _s), s	3.5	10.1	3.1	9.5	2.7	9.4	6.7	6.7
Green Extension Time (g _e), s	0.0	0.6	0.0	0.6	0.0	0.5	0.0	0.5
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.56	0.00	0.22	0.00	0.09	0.00	1.00	0.00

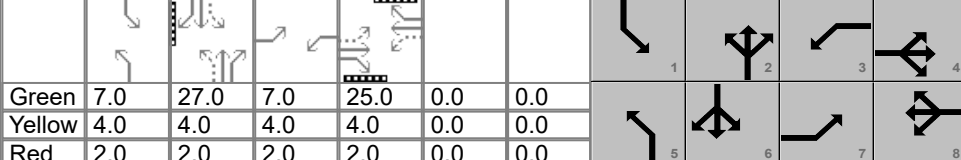
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	45	198		32	177		22	186		137	117	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1790		1739	1705		1781	1764		1767	1700	
Queue Service Time (g _s), s	1.5	8.1		1.1	7.5		0.7	7.4		4.7	4.7	
Cycle Queue Clearance Time (g _c), s	1.5	8.1		1.1	7.5		0.7	7.4		4.7	4.7	
Green Ratio (g/C)	0.36	0.28		0.36	0.28		0.38	0.30		0.38	0.30	
Capacity (c), veh/h	415	497		407	474		506	529		450	510	
Volume-to-Capacity Ratio (X)	0.107	0.398		0.077	0.374		0.043	0.351		0.305	0.230	
Back of Queue (Q), ft/ln (95 th percentile)	28.2	157.8		19.6	139.3		12.6	137.4		85.7	84.1	
Back of Queue (Q), veh/ln (95 th percentile)	1.1	6.0		0.8	5.4		0.5	5.4		3.3	3.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.13	0.53		0.09	0.09		0.08	0.46		0.57	0.07	
Uniform Delay (d ₁), s/veh	19.7	26.4		19.6	26.2		17.9	24.6		19.4	23.7	
Incremental Delay (d ₂), s/veh	0.0	0.2		0.0	0.2		0.0	0.1		0.1	0.1	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	19.8	26.6		19.6	26.4		17.9	24.8		19.6	23.8	
Level of Service (LOS)	B	C		B	C		B	C		B	C	
Approach Delay, s/veh / LOS	25.3	C		25.4	C		24.1	C		21.5	C	
Intersection Delay, s/veh / LOS	24.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	0.89	A	0.83	A	0.83	A	0.91	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	CMTran			Duration, h	0.250	
Analyst	LRY	Analysis Date	Oct 4, 2021	Area Type	Other	
Jurisdiction	Village of Ashville	Time Period	AM Build	PHF	0.92	
Urban Street	Ashville Pike	Analysis Year	2022	Analysis Period	1 > 7:00	
Intersection	Ashville Pike & SR-752	File Name	OY AM Build - 752.xus			
Project Description	Ashville Residential TIS					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	67	178	12	39	125	69	20	124	60	141	82	127

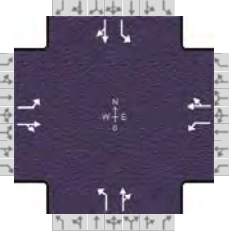
Signal Information																								
Cycle, s	90.0	Reference Phase	2	Green	7.0	27.0	7.0	25.0	0.0	0.0	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	Red	2.0	2.0	2.0	2.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	Yes	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	31.0	13.0	31.0	13.0	33.0	13.0	33.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	4.6	10.5	3.4	11.1	2.7	10.0	7.3	11.9
Green Extension Time (g_e), s	0.0	0.7	0.0	0.7	0.0	0.8	0.0	0.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.00	0.47	0.00	0.09	0.00	1.00	0.00

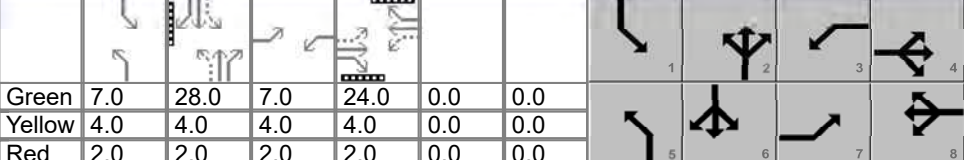
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	73	207		42	211		22	200		153	227	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1791		1739	1716		1781	1767		1767	1673	
Queue Service Time (g_s), s	2.6	8.5		1.4	9.1		0.7	8.0		5.3	9.9	
Cycle Queue Clearance Time (g_c), s	2.6	8.5		1.4	9.1		0.7	8.0		5.3	9.9	
Green Ratio (g/C)	0.36	0.28		0.36	0.28		0.38	0.30		0.38	0.30	
Capacity (c), veh/h	389	497		400	477		412	530		438	502	
Volume-to-Capacity Ratio (X)	0.187	0.415		0.106	0.442		0.053	0.377		0.350	0.453	
Back of Queue (Q), ft/ln (95 th percentile)	46.9	165.8		26.6	169.5		12.6	149.4		96.9	175.7	
Back of Queue (Q), veh/ln (95 th percentile)	1.8	6.3		1.0	6.5		0.5	5.9		3.8	6.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.55		0.12	0.11		0.08	0.50		0.65	0.14	
Uniform Delay (d_1), s/veh	20.2	26.5		19.8	26.8		18.4	24.9		19.7	25.5	
Incremental Delay (d_2), s/veh	0.1	0.2		0.0	0.2		0.0	0.2		0.2	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	20.3	26.7		19.8	27.0		18.5	25.0		19.9	25.8	
Level of Service (LOS)	C	C		B	C		B	C		B	C	
Approach Delay, s/veh / LOS	25.1	C		25.8	C		24.4	C		23.4	C	
Intersection Delay, s/veh / LOS	24.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	0.95	A	0.91	A	0.85	A	1.12	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	CMTran			Duration, h	0.250	
Analyst	LRY	Analysis Date	Oct 4, 2021	Area Type	Other	
Jurisdiction	Village of Ashville	Time Period	PM No Build	PHF	0.92	
Urban Street	Ashville Pike	Analysis Year	2022	Analysis Period	1 > 7:00	
Intersection	Ashville Pike & SR-752	File Name	OY PM No Build - 752.xus			
Project Description	Ashville Residential TIS					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	84	142	61	88	134	89	44	141	62	97	218	93

Signal Information														
Cycle, s	90.0	Reference Phase	2	Green	7.0	28.0	7.0	24.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	2.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

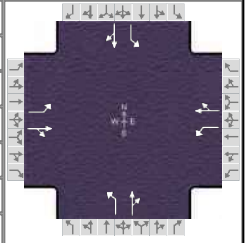
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	5.2	11.4	5.3	12.5	3.5	10.7	5.4	16.4
Green Extension Time (g_e), s	0.0	0.8	0.0	0.8	0.0	1.0	0.0	0.9
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.00	1.00	0.01	0.53	0.00	1.00	0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	91	221		96	242		48	221		105	338	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1774		1795	1759		1795	1787		1795	1789	
Queue Service Time (g_s), s	3.2	9.4		3.3	10.5		1.5	8.7		3.4	14.4	
Cycle Queue Clearance Time (g_c), s	3.2	9.4		3.3	10.5		1.5	8.7		3.4	14.4	
Green Ratio (g/C)	0.34	0.27		0.34	0.27		0.39	0.31		0.39	0.31	
Capacity (c), veh/h	363	473		384	469		355	556		444	557	
Volume-to-Capacity Ratio (X)	0.251	0.466		0.249	0.517		0.135	0.397		0.237	0.607	
Back of Queue (Q), ft/ln (95 th percentile)	58.8	176.7		61.2	195.3		27.3	162.2		62.2	255.5	
Back of Queue (Q), veh/ln (95 th percentile)	2.3	7.0		2.4	7.7		1.1	6.4		2.5	10.1	
Queue Storage Ratio (RQ) (95 th percentile)	0.27	0.59		0.28	0.12		0.17	0.54		0.41	0.21	
Uniform Delay (d_1), s/veh	21.3	27.6		21.2	28.1		18.8	24.4		18.6	26.3	
Incremental Delay (d_2), s/veh	0.1	0.3		0.1	0.5		0.1	0.2		0.1	1.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	21.5	27.9		21.3	28.5		18.9	24.5		18.7	27.7	
Level of Service (LOS)	C	C		C	C		B	C		B	C	
Approach Delay, s/veh / LOS	26.0	C		26.5	C		23.5	C		25.6	C	
Intersection Delay, s/veh / LOS	25.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.00	A	1.05	A	0.93	A	1.22	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMTran			Duration, h	0.250		
Analyst	LRV	Analysis Date	Oct 4, 2021	Area Type	Other		
Jurisdiction	Village of Ashville	Time Period	PM Build	PHF	0.92		
Urban Street	Ashville Pike	Analysis Year	2022	Analysis Period	1 > 7:00		
Intersection	Ashville Pike & SR-752		File Name	OY PM Build - 752.xus			
Project Description	Ashville Residential TIS						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	172	170	61	95	151	107	44	176	73	107	239	145

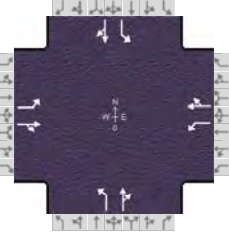
Signal Information													
Cycle, s	90.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	28.0	7.0	24.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0			
				Red	2.0	2.0	2.0	2.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	8.9	12.8	5.6	14.6	3.5	13.0	5.8	21.2
Green Extension Time (g _e), s	0.0	0.9	0.0	0.8	0.0	1.3	0.0	1.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.01	1.00	0.03	0.53	0.00	1.00	0.18

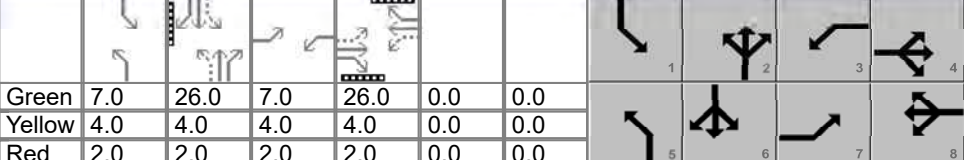
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	187	251		103	280		48	271		116	417	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1785		1795	1754		1795	1791		1795	1765	
Queue Service Time (g _s), s	6.9	10.8		3.6	12.6		1.5	11.0		3.8	19.2	
Cycle Queue Clearance Time (g _c), s	6.9	10.8		3.6	12.6		1.5	11.0		3.8	19.2	
Green Ratio (g/C)	0.34	0.27		0.34	0.27		0.39	0.31		0.39	0.31	
Capacity (c), veh/h	334	476		361	468		293	557		405	549	
Volume-to-Capacity Ratio (X)	0.560	0.527		0.286	0.599		0.163	0.486		0.287	0.760	
Back of Queue (Q), ft/ln (95 th percentile)	131.8	203.2		66.6	227.8		27.4	202.2		69.2	336.4	
Back of Queue (Q), veh/ln (95 th percentile)	5.2	8.0		2.6	9.0		1.1	8.0		2.7	13.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.60	0.68		0.30	0.14		0.17	0.67		0.46	0.27	
Uniform Delay (d ₁), s/veh	23.0	28.2		21.5	28.8		19.9	25.2		19.0	28.0	
Incremental Delay (d ₂), s/veh	1.3	0.5		0.2	1.5		0.1	0.2		0.1	5.5	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	24.3	28.7		21.7	30.3		20.0	25.4		19.2	33.5	
Level of Service (LOS)	C	C		C	C		B	C		B	C	
Approach Delay, s/veh / LOS	26.8	C		28.0	C		24.6	C		30.4	C	
Intersection Delay, s/veh / LOS	27.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.21	A	1.12	A	1.01	A	1.37	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	CMTran			Duration, h	0.250	
Analyst	LRV	Analysis Date	Oct 4, 2021	Area Type	Other	
Jurisdiction	Village of Ashville	Time Period	AM No Build	PHF	0.92	
Urban Street	Ashville Pike	Analysis Year	2032	Analysis Period	1 > 7:00	
Intersection	Ashville Pike & SR-752	File Name	HY AM No Build - 752.xus			
Project Description	Ashville Residential TIS					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	49	204	15	34	118	77	24	137	68	151	63	66

Signal Information														
Cycle, s	90.0	Reference Phase	2	Green	7.0	26.0	7.0	26.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	2.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

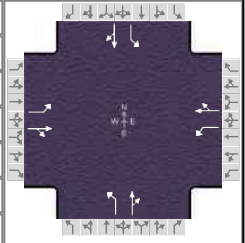
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	13.0	32.0	13.0	32.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	3.8	11.8	3.2	11.1	2.8	11.2	7.8	7.8
Green Extension Time (g_e), s	0.0	0.7	0.0	0.8	0.0	0.6	0.0	0.7
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	0.90	0.00	0.31	0.00	0.13	0.00	1.00	0.00

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	53	238		37	212		26	223		164	140	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1789		1739	1705		1781	1765		1767	1699	
Queue Service Time (g_s), s	1.8	9.8		1.2	9.1		0.8	9.2		5.8	5.8	
Cycle Queue Clearance Time (g_c), s	1.8	9.8		1.2	9.1		0.8	9.2		5.8	5.8	
Green Ratio (g/C)	0.37	0.29		0.37	0.29		0.37	0.29		0.37	0.29	
Capacity (c), veh/h	402	517		391	492		472	510		406	491	
Volume-to-Capacity Ratio (X)	0.133	0.461		0.095	0.430		0.055	0.437		0.404	0.286	
Back of Queue (Q), ft/ln (95 th percentile)	33.2	191.5		22.6	167.3		15.4	172.3		106.9	103.9	
Back of Queue (Q), veh/ln (95 th percentile)	1.3	7.3		0.9	6.4		0.6	6.8		4.2	4.1	
Queue Storage Ratio (RQ) (95 th percentile)	0.15	0.64		0.10	0.10		0.10	0.57		0.71	0.08	
Uniform Delay (d_1), s/veh	19.3	26.2		19.2	26.0		18.7	26.0		20.7	24.8	
Incremental Delay (d_2), s/veh	0.1	0.2		0.0	0.2		0.0	0.2		0.2	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	19.4	26.5		19.3	26.2		18.7	26.3		21.0	24.9	
Level of Service (LOS)	B	C		B	C		B	C		C	C	
Approach Delay, s/veh / LOS	25.2	C		25.2	C		25.5	C		22.8	C	
Intersection Delay, s/veh / LOS	24.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	0.97	A	0.90	A	0.90	A	0.99	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMTran			Duration, h	0.250		
Analyst	LRV	Analysis Date	Oct 4, 2021	Area Type	Other		
Jurisdiction	Village of Ashville	Time Period	AM Build	PHF	0.92		
Urban Street	Ashville Pike	Analysis Year	2032	Analysis Period	1 > 7:00		
Intersection	Ashville Pike & SR-752		File Name	HY AM Build - 752.xus			
Project Description	Ashville Residential TIS						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	75	212	15	44	144	82	24	147	71	166	92	138

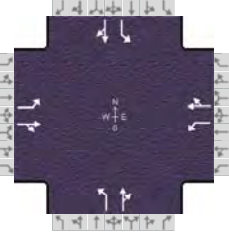
Signal Information												
Cycle, s	90.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	On	Green	7.0	26.0	7.0	26.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	4.0	4.0	0.0	0.0		
				Red	2.0	2.0	2.0	2.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	13.0	32.0	13.0	32.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	4.8	12.2	3.6	12.7	2.8	11.9	8.5	13.2
Green Extension Time (g_e), s	0.0	0.8	0.0	0.8	0.0	0.9	0.0	0.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.00	0.64	0.00	0.13	0.00	1.00	0.00

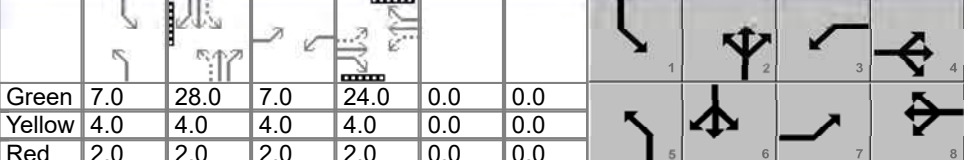
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	82	247		48	246		26	237		180	250	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1790		1739	1714		1781	1767		1767	1675	
Queue Service Time (g_s), s	2.8	10.2		1.6	10.7		0.8	9.9		6.5	11.2	
Cycle Queue Clearance Time (g_c), s	2.8	10.2		1.6	10.7		0.8	9.9		6.5	11.2	
Green Ratio (g/C)	0.37	0.29		0.37	0.29		0.37	0.29		0.37	0.29	
Capacity (c), veh/h	376	517		384	495		379	510		395	484	
Volume-to-Capacity Ratio (X)	0.217	0.477		0.124	0.496		0.069	0.464		0.457	0.517	
Back of Queue (Q), ft/ln (95 th percentile)	51.7	199.2		29.4	198.1		15.5	184.9		118.9	199.5	
Back of Queue (Q), veh/ln (95 th percentile)	2.0	7.6		1.1	7.6		0.6	7.3		4.6	7.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.23	0.66		0.13	0.12		0.10	0.62		0.79	0.16	
Uniform Delay (d_1), s/veh	19.9	26.4		19.4	26.6		19.3	26.3		21.0	26.7	
Incremental Delay (d_2), s/veh	0.1	0.3		0.1	0.3		0.0	0.2		0.3	0.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	20.0	26.6		19.5	26.8		19.3	26.5		21.3	27.2	
Level of Service (LOS)	C	C		B	C		B	C		C	C	
Approach Delay, s/veh / LOS	25.0	C		25.6	C		25.8	C		24.7	C	
Intersection Delay, s/veh / LOS	25.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.92	B	1.92	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.03	A	0.97	A	0.92	A	1.20	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	CMTran			Duration, h	0.250	
Analyst	LRY	Analysis Date	Oct 4, 2021	Area Type	Other	
Jurisdiction	Village of Ashville	Time Period	PM No Build	PHF	0.92	
Urban Street	Ashville Pike	Analysis Year	2032	Analysis Period	1 > 7:00	
Intersection	Ashville Pike & SR-752		File Name	HY PM No Build - 752.xus		
Project Description	Ashville Residential TIS					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	100	170	73	105	160	106	52	168	74	116	261	111

Signal Information														
Cycle, s	90.0	Reference Phase	2	Green	7.0	28.0	7.0	24.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0				
Uncoordinated	Yes	Simult. Gap E/W	On	Red	2.0	2.0	2.0	2.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

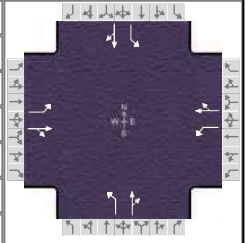
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	5.8	13.5	6.0	15.0	3.8	12.7	6.2	20.1
Green Extension Time (g_e), s	0.0	0.9	0.0	0.8	0.0	1.2	0.0	1.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.02	1.00	0.04	0.86	0.00	1.00	0.10

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	109	264		114	289		57	263		126	404	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1774		1795	1759		1795	1787		1795	1789	
Queue Service Time (g_s), s	3.8	11.5		4.0	13.0		1.8	10.7		4.2	18.1	
Cycle Queue Clearance Time (g_c), s	3.8	11.5		4.0	13.0		1.8	10.7		4.2	18.1	
Green Ratio (g/C)	0.34	0.27		0.34	0.27		0.39	0.31		0.39	0.31	
Capacity (c), veh/h	328	473		350	469		306	556		411	557	
Volume-to-Capacity Ratio (X)	0.332	0.558		0.326	0.616		0.184	0.473		0.307	0.726	
Back of Queue (Q), ft/ln (95 th percentile)	71	214.4		74.1	235.3		32.5	197		75.5	318.7	
Back of Queue (Q), veh/ln (95 th percentile)	2.8	8.4		2.9	9.3		1.3	7.8		3.0	12.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.32	0.71		0.34	0.15		0.20	0.66		0.50	0.26	
Uniform Delay (d_1), s/veh	22.0	28.4		21.8	29.0		19.7	25.0		19.1	27.6	
Incremental Delay (d_2), s/veh	0.2	0.9		0.2	1.8		0.1	0.2		0.2	4.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	22.2	29.3		22.0	30.8		19.8	25.3		19.2	31.7	
Level of Service (LOS)	C	C		C	C		B	C		B	C	
Approach Delay, s/veh / LOS	27.2	C		28.3	C		24.3	C		28.8	C	
Intersection Delay, s/veh / LOS	27.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.10	A	1.15	A	1.01	A	1.36	A

HCS7 Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	CMTran			Duration, h	0.250		
Analyst	LRV	Analysis Date	Oct 4, 2021	Area Type	Other		
Jurisdiction	Village of Ashville	Time Period	PM Build	PHF	0.92		
Urban Street	Ashville Pike	Analysis Year	2032	Analysis Period	1 > 7:00		
Intersection	Ashville Pike & SR-752		File Name	HY PM Build - 752.xus			
Project Description	Ashville Residential TIS						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	188	198	73	112	177	124	52	203	85	126	282	163

Signal Information				Signal Phases									
Cycle, s	90.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	Yes	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		7.0	29.0	7.0	23.0	0.0	0.0				
		Yellow		4.0	4.0	4.0	4.0	0.0	0.0				
		Red		2.0	2.0	2.0	2.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	29.0	13.0	29.0	13.0	35.0	13.0	35.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	9.0	15.3	6.4	17.4	3.8	14.9	6.5	25.0
Green Extension Time (g _e), s	0.0	0.9	0.0	0.8	0.0	1.5	0.0	0.8
Phase Call Probability	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Max Out Probability	1.00	0.10	1.00	0.28	0.82	0.01	1.00	0.69

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	204	295		122	327		57	313		137	484	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1784		1795	1755		1795	1790		1795	1769	
Queue Service Time (g _s), s	7.0	13.3		4.4	15.4		1.8	12.9		4.5	23.0	
Cycle Queue Clearance Time (g _c), s	7.0	13.3		4.4	15.4		1.8	12.9		4.5	23.0	
Green Ratio (g/C)	0.33	0.26		0.33	0.26		0.40	0.32		0.40	0.32	
Capacity (c), veh/h	285	456		314	449		261	577		388	570	
Volume-to-Capacity Ratio (X)	0.718	0.646		0.388	0.729		0.217	0.543		0.353	0.849	
Back of Queue (Q), ft/ln (95 th percentile)	169.2	246.9		81.2	281.6		31.8	230		80.7	412.6	
Back of Queue (Q), veh/ln (95 th percentile)	6.7	9.7		3.2	11.2		1.3	9.1		3.2	16.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.77	0.82		0.37	0.18		0.20	0.77		0.54	0.34	
Uniform Delay (d ₁), s/veh	26.1	29.9		22.9	30.7		20.4	25.1		19.0	28.5	
Incremental Delay (d ₂), s/veh	7.3	2.5		0.3	5.2		0.2	0.6		0.2	11.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	33.4	32.3		23.2	35.9		20.6	25.6		19.2	39.5	
Level of Service (LOS)	C	C		C	D		C	C		B	D	
Approach Delay, s/veh / LOS	32.8	C		32.4	C		24.9	C		35.0	C	
Intersection Delay, s/veh / LOS	31.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.31	A	1.23	A	1.10	A	1.51	B

Appendix H

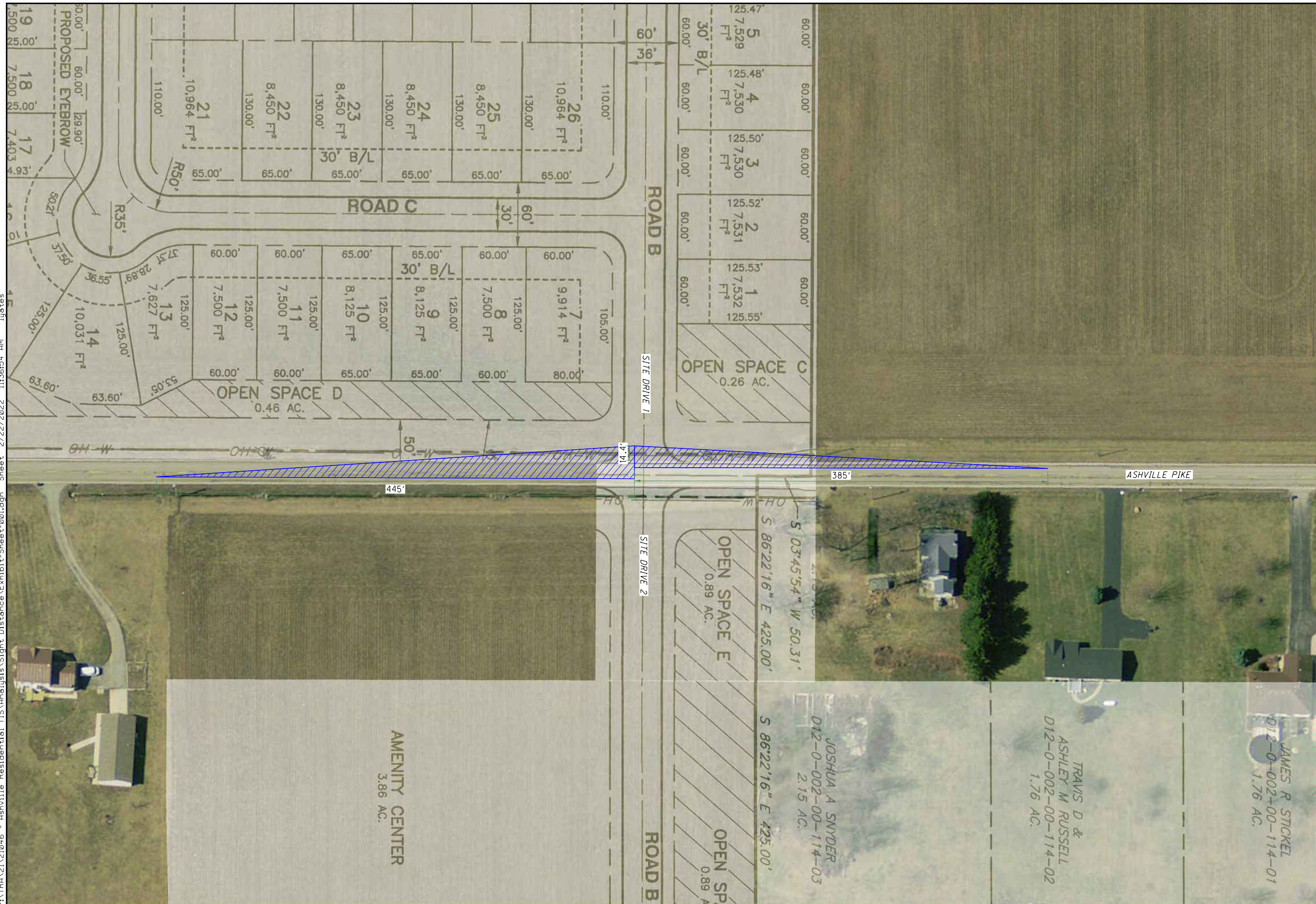
Sight Distance Analysis





CALCULATED LRY CHECKED AML

AMENITY CENTER SECTION 1
SITE PLAN



JAMES R STICKEL
D12-0-002-00-114-01
1.76 AC.

TRAVIS D &
ASHLEY M RUSSELL
D12-0-002-00-114-02
1.76 AC.

JOSHUA A SNYDER
D12-0-002-00-114-03
2.15 AC.

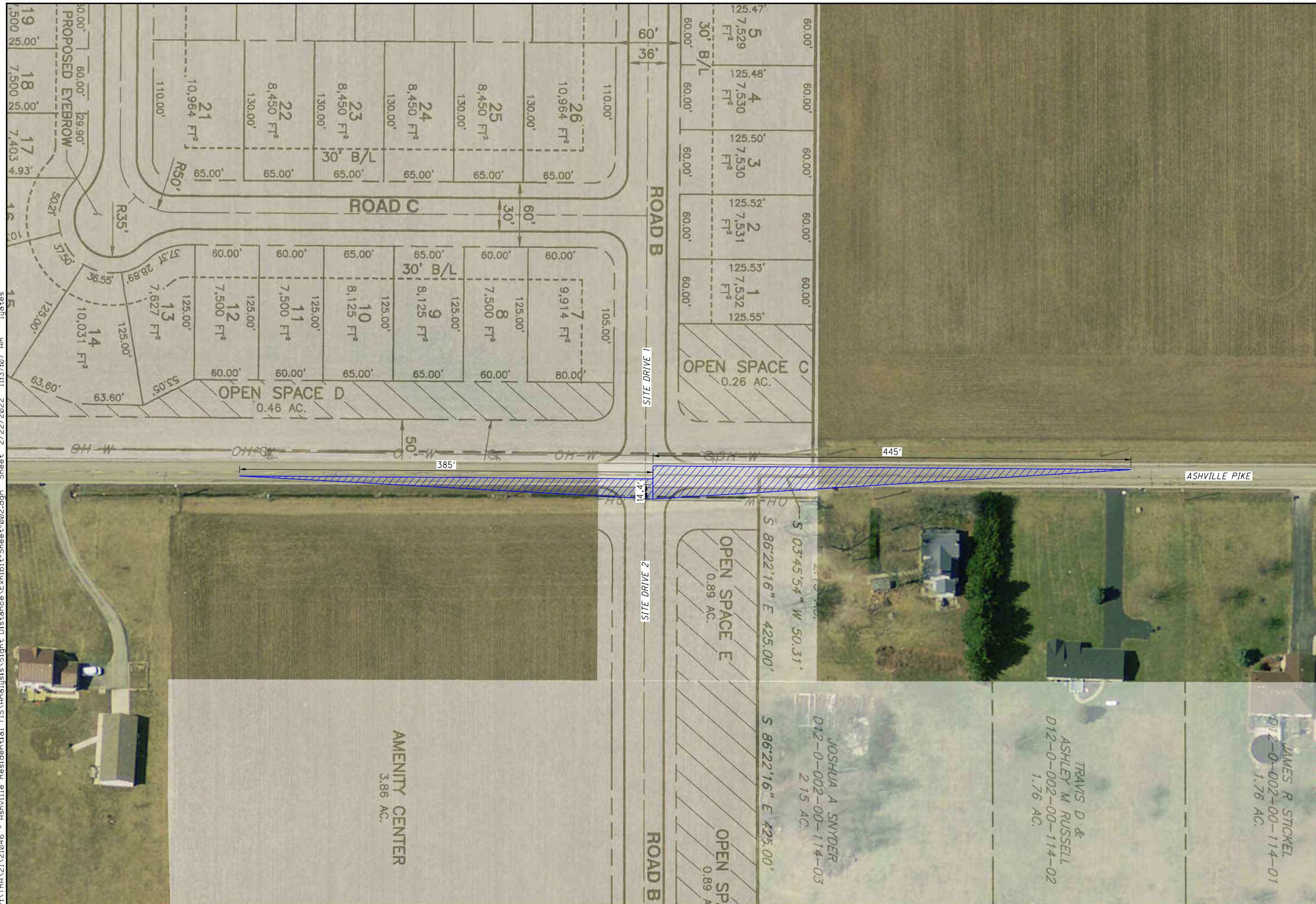
AMENITY CENTER
3.86 AC.



CALCULATED
LRY
CHECKED
AML

SITE DRIVE 2 INTERSECTION LIGHT DISTANCE
ASHVILLE RESIDENTIAL SUBDIVISION

CARPENTER MARTY
Engineering & Surveying



P:\TRA\21\21046 - Ashville Residential TIS\Analysis\Sight Distance\Exhibit-Sheet-002.dgn Sheet 2/22/2022 11:37:07 AM Iyotes



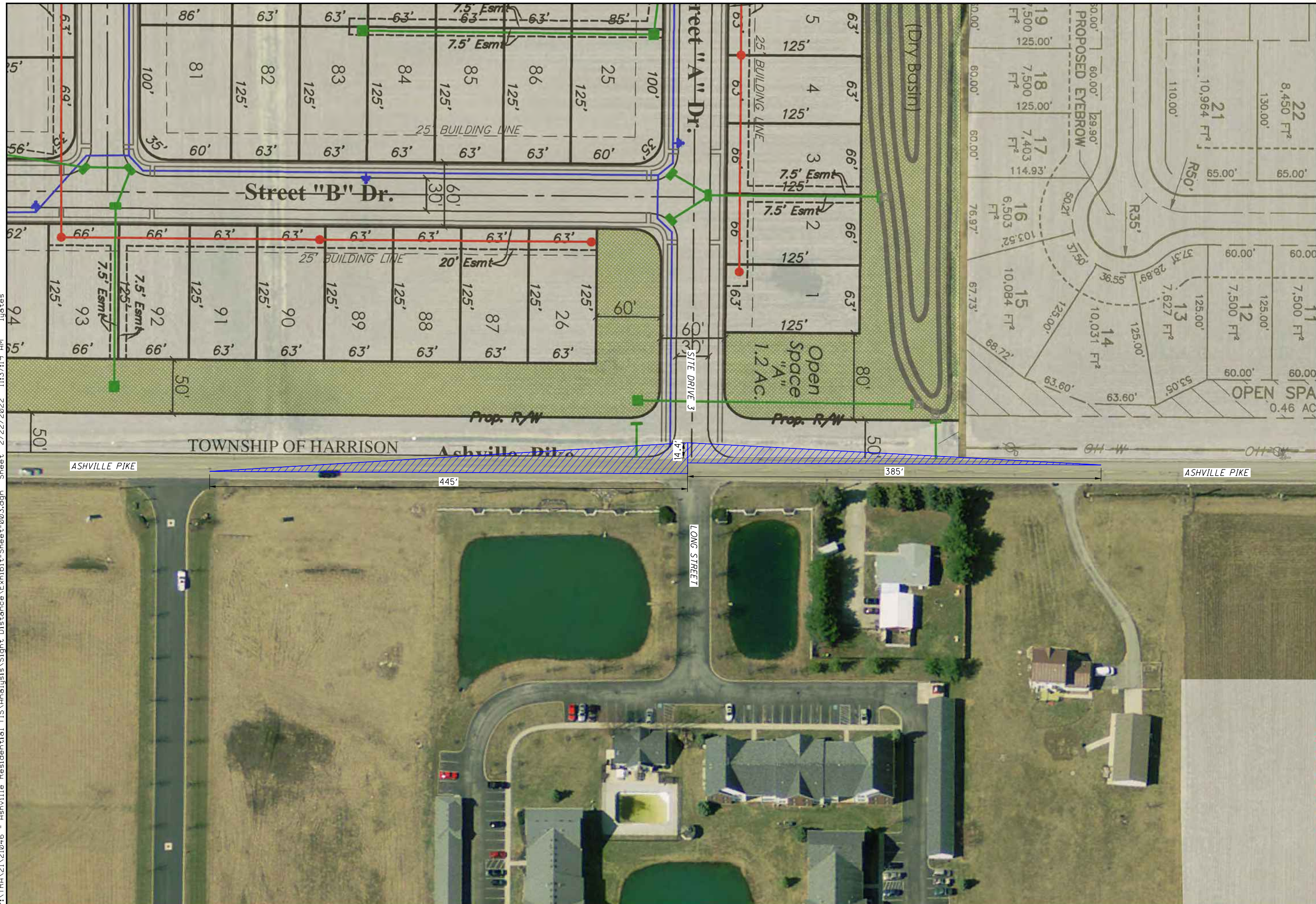
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0 20 40 60 80
HORIZONTAL
SCALE IN FEET

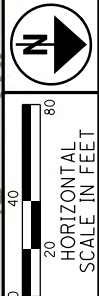
CALCULATED
LRY
CHECKED
AML

**SIT 3
RESIDENTIAL
DRIVE
DISTANCE
SIGHT TRIANGLE**

**CARPENTER
MARTY**
transportation

3
4





CALCULATED
LRY
CHECKED
AML

SITE DRIVE INTERSECTION & RESIDENTIAL DISTANCE



Appendix I

Improvements Exhibit



