

Ashville Residential Development Traffic Impact Study

Prepared for: Maronda Homes Inc. of Ohio
November 3, 2021



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I. Purpose of Report & Study Objectives

The purpose of this traffic analysis and report is to document the potential traffic impacts of a proposed residential development located in Ashville, Ohio. This traffic impact study (TIS) is required by the Village of Ashville as part of the development approval process.

II. Proposed Development

A. Off-Site Developments

The study area includes the proposed site access point and the intersections of SR-752 and St. Paul Road with Ashville Pike. The surrounding area includes residential developments to the northeast and south, and undeveloped land in all other directions.

B. On-Site Development

Location

The site is located on both sides of Ashville Pike. The site is bounded by St. Paul Road to the north, railroad tracks to the west, Lockbourne Eastern Road to the east, and residential developments to the south. **Figure 1** shows the location of the proposed site in central Ohio and **Figure 2** shows the study area.

Figure 1 – Location in Central Ohio

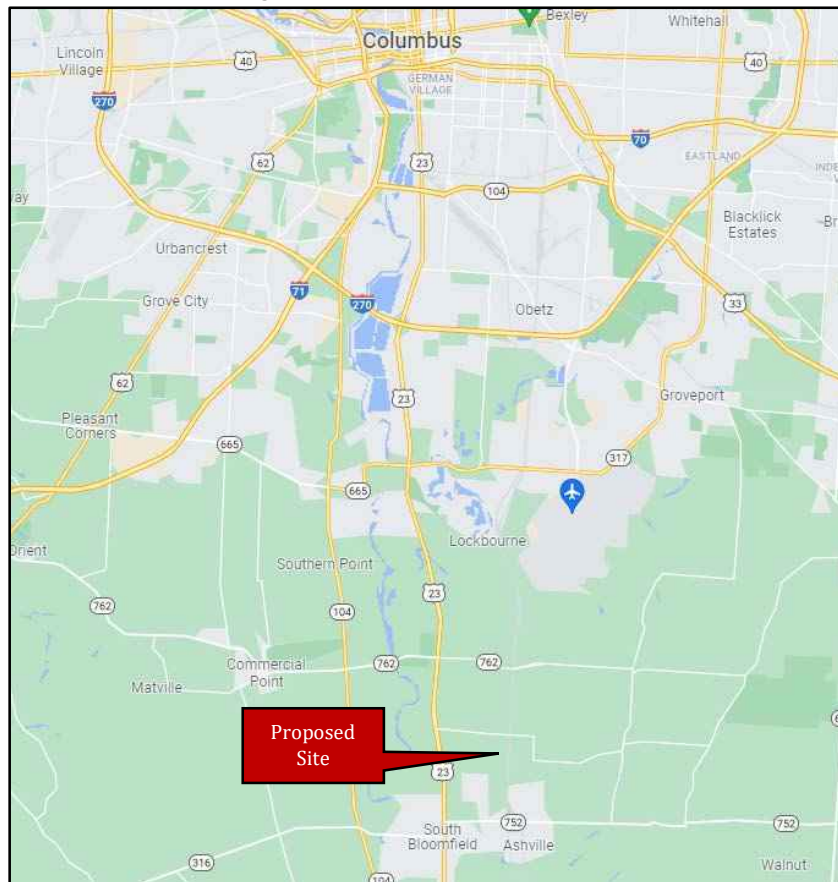
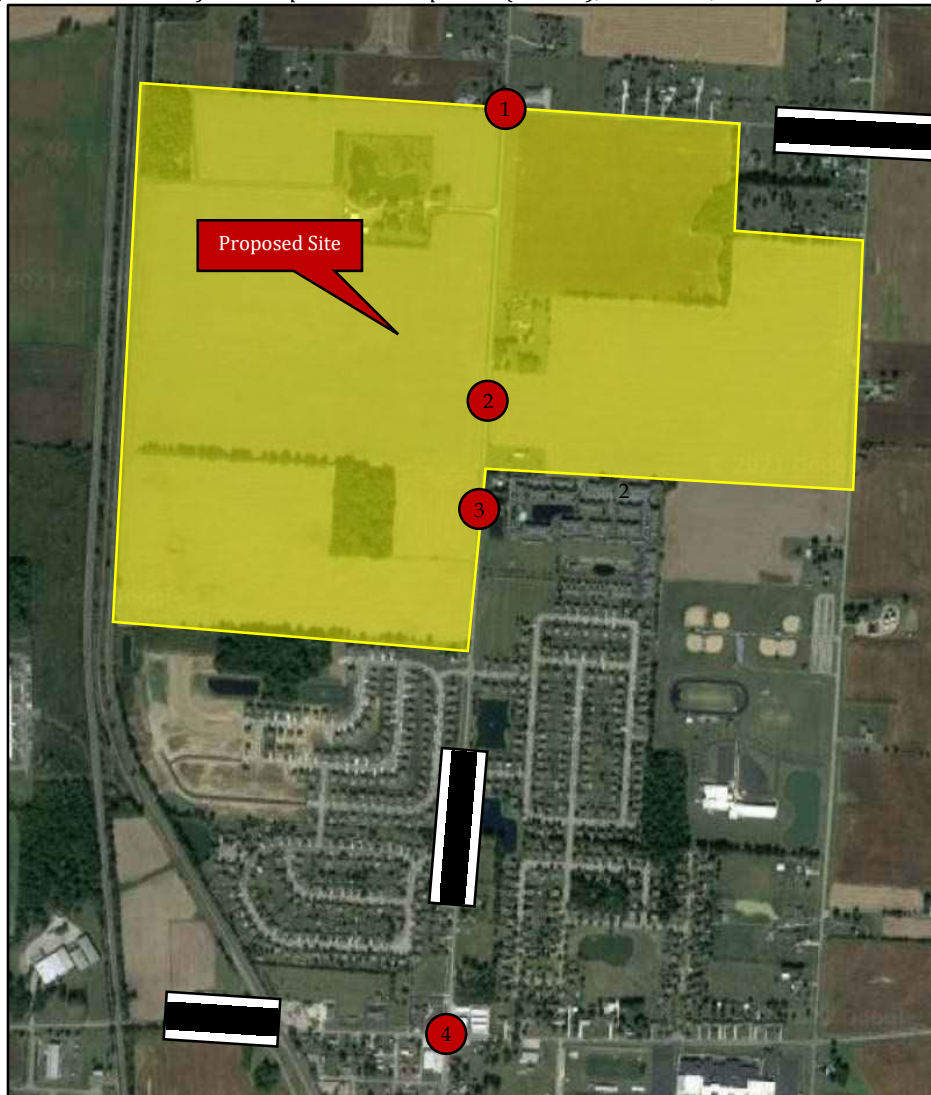


Figure 2 – Location of the Proposed Development (Yellow), Site Drive, and Study Intersections



Land Use & Intensity

The site is currently mostly undeveloped, with a few single-family homes. The site is proposed to be developed into 625 single-family units. The site is proposed to include three access points onto Ashville Pike: one full access across from Long Street and two full access points just north of Long Street.

The site plan is provided in **Appendix A**.

III. Area Conditions

A. Area of Influence

The study intersections for the proposed development are listed below. Numbers correspond to **Figure 2**.

1. Ashville Pike & St. Paul Road
2. Ashville Pike & Site Drive 1/Site Drive 2
3. Ashville Pike & Long Street/Site Drive 3
4. Ashville Pike & SR-752

B. Jurisdictions

The proposed site is located in Ashville, Ohio. All intersections fall under Village of Ashville jurisdiction.

C. Traffic Volumes & Conditions

Peak hour count data was collected at the intersections of SR-752 and St. Paul Road with Ashville Pike on September 30, 2021. Peak hour count data was also collected at Ashville Pike & Long Street on April 20, 2021. Due to a lack of historical data in the area, it was not possible to perform a comparison of volumes along Ashville Pike to determine the impact COVID-19 has inflicted on traffic volumes. Count data can be found in **Appendix B**.

IV. Projected Traffic

A. Background Traffic

For analysis, the Opening Year of the development is 2022 and the Design, or Horizon Year, is 2032. A growth rate of 2% along Ashville Pike was obtained from ODOT’s Transportation Information Mapping System (TIMS). This growth rate was applied to the count data to produce Background, or No Build, volumes for the Opening and Horizon Years.

B. Site Traffic

Trip Generation

Trips for the proposed development were generated using standard Institute of Transportation Engineers (ITE) practices and the Trip Generation Manual, 11th edition, data via the OTISS program¹. Land Use Code (LUC) 210 – *Single-Family Detached Housing* was used to generate trips for the proposed development. **Table 1** shows the trip generation of the proposed development. The full trip generation analysis can be found in **Appendix C**.

Table 1 – Proposed Site Trip Generation Summary

Land Use	Size	AM Peak		PM Peak	
		Entry	Exit	Entry	Exit
210 – Single-Family Detached Housing	625 Units	103	292	351	206

Site traffic was distributed to/from the site based on count data, knowledge of the surrounding area, and engineering judgement. Site traffic was added to the No Build traffic

¹ Online Traffic Impact Study Software developed by ITE and Transoft Solutions.

to produce Build traffic for the Opening and Horizon Years. The full volume calculations can be found in **Appendix D**.

V. Traffic Analysis

A. Turn Lane Warrant Analysis

Turn lane warrant analysis was conducted using standard ODOT turn lane warrant graphs for the stop-controlled study intersections. If a turn lane was warranted in any particular scenario, the length was calculated using methodologies in the ODOT Location and Design (L&D) Manual. Ashville Pike has a posted speed limit of 35 mph throughout the study area. A design speed of 5 MPH over posted was utilized for all turn lane length calculations.

B. Capacity Analysis

Highway Capacity Software (HCS) version 7.8.5 was used for capacity analysis. A minimum LOS of D for the overall intersection/approaches and for each individual movement during peak traffic hours was considered acceptable at the study intersections. If an intersection fell below these criteria, mitigation strategies were developed to bring each movement or intersection back to an acceptable LOS.

C. Sight Distance

Sight distance triangle exhibits were developed for each proposed access point based on criteria outlined in the ODOT L&D Manual. All exhibits were created with design speeds 5 MPH over the posted speed limits.

VI. Results

A. Turn Lane Warrant Analysis

Results of the turn lane warrant analysis show the following turn lanes meet warrants for the listed scenarios:

- Ashville Pike & Site Drive 1/Site Drive 2
 - 215' southbound left turn lane (all Build scenarios)
 - 215' southbound right turn lane (all Build scenarios)
- Ashville Pike & Long Street/Site Drive 3
 - 215' northbound left turn lane (all Build scenarios)
 - 125' southbound left turn lane (Horizon Year Build scenario)
- Asheville Pike & St. Paul Road
 - 215' southbound left turn lane (all scenarios)
 - 215' northbound right turn lane (Horizon Year Build scenario)

All turn lane lengths are inclusive of a 50' diverging taper. The full turn lane warrant analysis and turn lane length analysis can be found in **Appendix E**.

B. Capacity Analysis

Results of the capacity analysis for the study intersections can be seen in **Table 2**. Warranted turn lanes were included in the analysis. The full capacity analysis can be found in **Appendix F**.

Table 2 – Capacity Analysis Summary (LOS/delay)

Intersection	Approach / Movement	Opening Year (2022)				Horizon Year (2032)			
		AM No Build	AM Build	PM No Build	PM Build	AM No Build	AM Build	PM No Build	PM Build
Ashville Pike & St. Paul Road	WB	B/12.0	B/15.0	B/14.5	C/23.3	B/13.4	C/16.5	C/17.4	D/30.2
	SB Left	A/8.1	A/8.6	A/7.8	A/8.1	A/8.3	A/8.9	A/7.9	A/8.3
Ashville Pike & Site Drive 1/ Site Drive 2	EB		C/18.4		D/25.6		C/21.8		D/31.8
	WB		C/16.5		C/20.7		C/19.2		D/25.0
	NB Left		A/7.7		A/8.7		A/7.8		A/9.0
	SB Left		A/8.3		A/8.0		A/8.5		A/8.2
Ashville Pike & Long Street/ Site Drive 3	EB		B/15.0		C/18.8		C/17.1		C/22.3
	WB	B/11.1	B/12.7	B/11.9	C/18.9	B/12.0	B/14.1	B/13.1	C/22.5
	NB Left		A/7.9		A/8.7		A/8.0		A/8.9
	SB Left	A/7.9	A/8.0	A/7.7	A/7.9	A/8.1	A/8.2	A/7.8	A/8.0
Ashville Pike & SR-752	EB	C/25.3	C/25.1	C/26.0	C/25.9	C/25.2	C/25.0	C/27.2	C/28.4
	WB	C/25.4	C/25.6	C/26.5	C/28.2	C/25.2	C/25.4	C/28.3	C/32.8
	NB	C/24.1	C/24.6	C/23.5	C/25.7	C/25.5	C/26.1	C/24.3	C/26.3
	SB	C/21.5	C/23.3	C/25.6	C/29.7	C/22.8	C/24.8	C/28.8	C/33.9
	Total	C/24.0	C/24.5	C/25.5	C/27.7	C/24.6	C/25.2	C/27.4	C/30.8

As seen above in **Table 2**, all intersections operate with acceptable LOS in all scenarios.

C. Sight Distance

Sight distance exhibits for the proposed site drives can be seen in **Appendix G**. No sight distance issues were noted.

VII. Recommendations and Conclusions

Based on the results of the turn lane warrant analysis, capacity analysis, and sight distance analysis, a 215' southbound left turn lane at Ashville Pike & St. Paul Road is warranted in all scenarios and is recommended to be implemented as a No Build improvement.

The following turn lanes are recommended as Build improvements:

- Ashville Pike & Site Drive 1/Site Drive 2
 - 215' southbound left turn lane
 - 215' southbound right turn lane
- Ashville Pike & Long Street/Site Drive 3
 - 215' northbound left turn lane
 - 125' southbound left turn lane
- Ashville Pike & St. Paul Road
 - 215' northbound right turn lane

VIII. Appendices

- Appendix A – Site Plan
- Appendix B – Count Data
- Appendix C – Trip Generation
- Appendix D – Volume Calculations
- Appendix E – Turn Lane Warrant & Length Analysis
- Appendix F – Capacity Analysis
- Appendix G – Sight Distance Analysis

Appendix A

Site Plan



NOTES

NOTE "A": All of the Runkle property is in Flood Hazard Zone X as shown on the Federal Emergency Management Agency Flood Insurance Rate Map, Number 39129C0180 J, effective date July 22, 2010.

NOTE "B": Reserves "A" - "E" shall be owned and maintained by the Runkle Home Owners Association and managed by the HOA or the Neighborhood Management Company it hires.

NOTE "C": Street alignments and lot lines may be adjusted based on best engineering and planning practices to provide a more desirable community.

NOTE "D": No Parking will be allowed on the Fire Hydrant side of the street throughout the entire subdivision. Signage will be posted along the street.

PRELIMINARY DEVELOPMENT PLAN

FOR:

Runkle Property

LOCATED IN:
SOUTHWEST QUARTER SECTION 1, TOWNSHIP 2N, RANGE 22W, of MATHEWS SURVEY
TOWNSHIP OF HARRISON, COUNTY OF PICKAWAY, STATE OF OHIO

TABLE OF CONTENTS

Page 1 ----- SITE PLAN
Page 2 ----- PHASING/TYPICAL SECTION

SITE STATISTICS

TOTAL ACREAGE: 76.6 ACRES
NUMBER OF LOTS: 225
GROSS DENSITY: 2.9 LOT/ACRE
OPEN SPACE: 14.6 AC. (19.3%)
ZONING: P.U.D.
TOTAL LIN. FT. OF ROAD: 11,227 L.F.

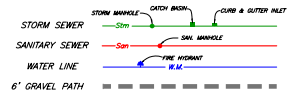
MIN. LOT SIZE PER PLAN

MIN. LOT FRONTAGE @R/W: 57 FT.
MINIMUM LOT WIDTH @R/W: 63 FT.
TYPICAL LOT SIZE: 63' x 125'
AVERAGE LOT SQ. FT.: 7875 sq.ft.

LOT SETBACKS

FRONT YARD SETBACK: 25 FT.
SIDE YARD SETBACK: 5 FT. (ea. side)
REAR YARD SETBACK: 25 FT.

LEGEND



PREPARED FOR:



507 EXECUTIVE CAMPUS DRIVE, SUITE 100
WESTERVILLE, OHIO 43082

PREPARED BY:



CONSULTING ENGINEERS
& SURVEYORS
83 Shull Avenue
Cahanna, Ohio 43230
Ph. (614) 414-7979

DATE: JANUARY 22, 2021

Bates Real Estate LLC
O.R. Volume 758, Page 439
Parcel #: 146,042 Acres
P.P.N. D12-D-002-00-127-00

Michael V. Wright
O.R. Volume 631,
Page 1267
0.378 Acres
P.P.N. D12-D-002-00-199-01

KEL Ltd.
O.R. Volume 124, Page 200
0.378 Acres
P.P.N. D13-D-032-00-001-05

B & D Associates
O.R. Volume 41, Page 495
0.224 Acres
P.P.N. D13-D-032-00-001-05

Maranda Homes, Inc. of Ohio
77.85 Acres (original Deed)
O.R. Volume 565, page 1678
P.P.N. D13-D-037-00-036-00

Mark R. Senger
1.00 Acres
O.R. Volume 738, page 2510
P.P.N. D12-D-002-00-110-00



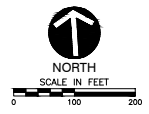
Z:\RUNKLE - PICKAWAY\COMMISSIONS\2-PRELIMINARY PLAN\PRELIMINARY PLATING - 0 ANKES - PLOTTED BY: JIM MATHEWS - JANUARY 22, 2021 - 11:38 AM

LOT LEGEND	
LOT DIMENSIONS	NUMBER OF LOTS
45'W X 120'L	151
50'W X 120'L	69
60'W X 120'L	119
70'W X 120'L	61
TOTAL	400

SITE STATISTICS		
	REQUIRED	PROVIDED
EXISTING SITE	-	146.04 AC.
PROPOSED ASHVILLE PIKE RIGHT-OF-WAY	-	1.55 AC.
LOCKBOURNE E. RIGHT-OF-WAY HIGH	-	1.01 AC.
PROPOSED TOTAL SITE	-	143.48 AC.
APARTMENT SITE	-	30.71 AC.
SINGLE FAMILY SITE	-	112.77 AC.
SINGLE FAMILY LOT ACAGE	-	59.75 AC.
PROPOSED SINGLE FAMILY RIGHT-OF-WAY	-	21.7 AC.
AMENITY CENTER	-	3.86 AC.
OPEN SPACE ACRES*	16.92 AC. (15% OF TOTAL SINGLE FAMILY SITE AREA)	15.07 AC. (16.6%)
BASIN ACAGE (SF)*	5.64 AC. (5% OF TOTAL SINGLE FAMILY SITE AREA)	6.93 AC.
BASIN ACAGE (APT)	-	1.46 AC.
BASIN ACAGE (TOT.)	-	8.39 AC.

*SINGLE FAMILY BASIN ACAGE IS INCLUDED IN OPEN SPACE ACAGE

OPEN SPACE BREAKDOWN	
OPEN SPACE A	2.48 ACRES
OPEN SPACE B	7.30 ACRES
OPEN SPACE C	0.26 ACRES
OPEN SPACE D	0.46 ACRES
OPEN SPACE E	0.89 ACRES
OPEN SPACE F	1.97 ACRES
OPEN SPACE G	2.74 ACRES
OPEN SPACE H	0.99 ACRES
OPEN SPACE I	0.69 ACRES
OPEN SPACE J	0.52 ACRES
OPEN SPACE K	0.77 ACRES
TOTAL	19.07 AC. (16.9%)



- LEGEND**
- EXISTING SUBJECT PROPERTY LINE
 - EXISTING ADJACENT PROPERTY LINE
 - EXISTING RIGHT OF WAY
 - EXISTING CENTERLINE
 - EXISTING EDGE OF PAVEMENT
 - PROPOSED PROPERTY LINE
 - PROPOSED RIGHT OF WAY
 - PROPOSED CENTERLINE OF ROAD
 - PROPOSED PAVEMENT
 - PROPOSED WATER BODY

- NOTES**
- EXISTING BASE MAP INFORMATION OBTAINED FROM PICKAWAY COUNTY AUDITORS ACCESSED SEP. 2021.
 - EXISTING SUBJECT PROPERTY LINE PER BOUNDARY SURVEY COMPLETED BY CEC AUGUST 2021.
 - ROADWAYS NOTED "BY OTHERS" ARE FOR REFERENCE ONLY.

NO.	DATE	DESCRIPTION

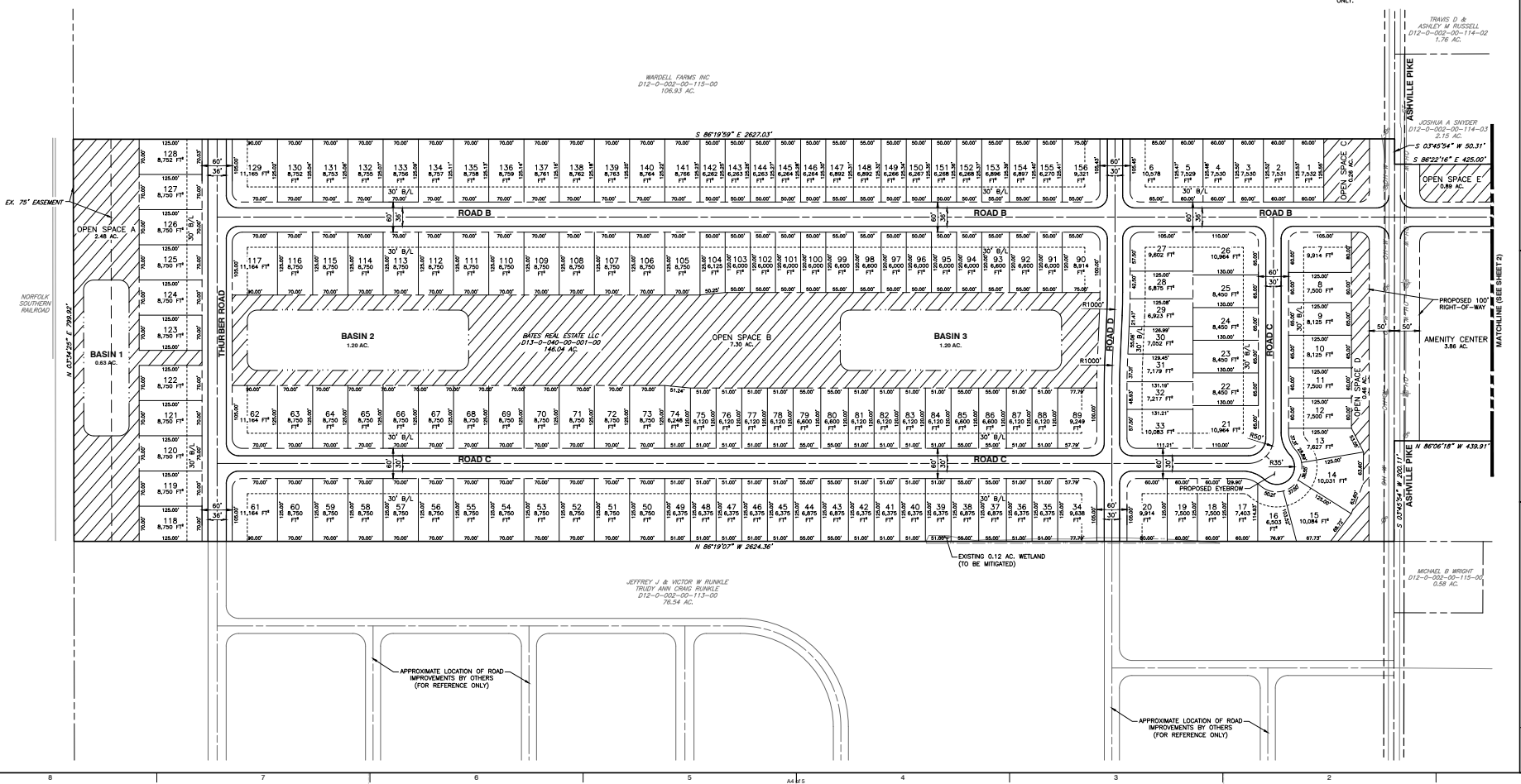
CEC
Cheri & Randal Communications, Inc.
 260 Old Wilson Bridge Road, Suite 260 • Worthington, OH 43080
 614-540-4833 • 888-888-4808
 www.cecinc.com

MARONDA HOMES INC. OF OHIO
BATES PROPERTY
VILLAGE OF ASHVILLE
PICKAWAY COUNTY, OHIO

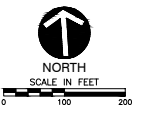
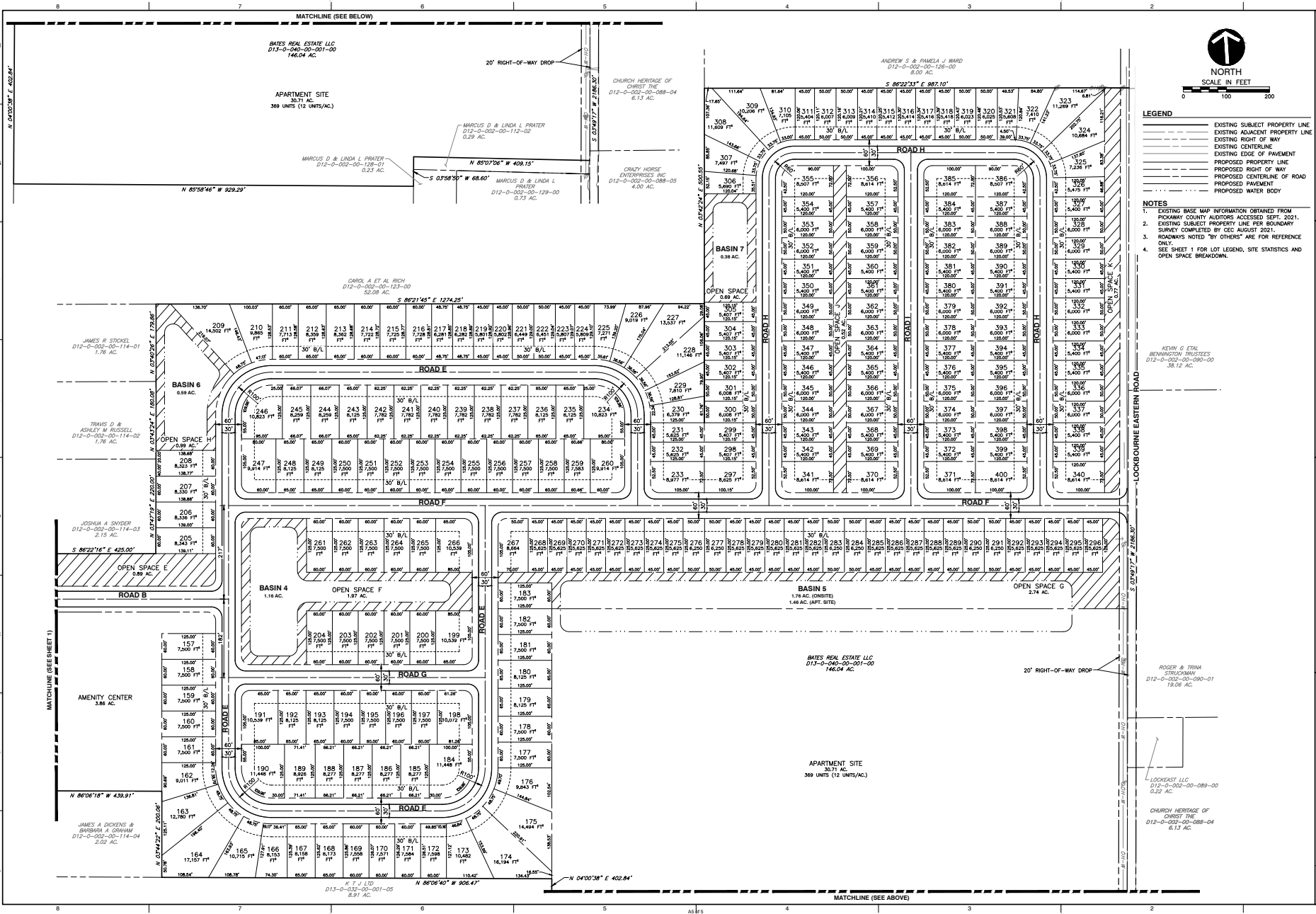
CONCEPTUAL SITE PLAN

DRAWING NO. **CP-03**

JTH
 OCTOBER 2021
 DATE
 1"=100'
 SCALE
 3" X 5"
 DRAFT
 APPROVED BY:



A 11/16/2021 11:42:07 - C:\Users\jth\OneDrive\Documents\Projects\Ashville\CP-03 - Concept Plan\174502-0002-0001-0001 - Ashville - CP - 10/26/2021 10:37 AM
 NORTH/SOUTH
 EAST/WEST
 EX. 75' EASEMENT
 APPROXIMATE LOCATION OF ROAD IMPROVEMENTS BY OTHERS (FOR REFERENCE ONLY)
 APPROXIMATE LOCATION OF ROAD IMPROVEMENTS BY OTHERS (FOR REFERENCE ONLY)
 APPROXIMATE LOCATION OF ROAD IMPROVEMENTS BY OTHERS (FOR REFERENCE ONLY)



- LEGEND**
- EXISTING SUBJECT PROPERTY LINE
 - EXISTING ADJACENT PROPERTY LINE
 - EXISTING RIGHT OF WAY
 - EXISTING CENTERLINE
 - EXISTING EDGE OF PAVEMENT
 - PROPOSED PROPERTY LINE
 - PROPOSED RIGHT OF WAY
 - PROPOSED CENTERLINE OF ROAD
 - PROPOSED PAVEMENT
 - PROPOSED WATER BODY

- NOTES**
1. EXISTING BASE MAP INFORMATION OBTAINED FROM PICKAWAY COUNTY AUDITORS ACCESSED SEPT. 2021.
 2. EXISTING SUBJECT PROPERTY LINE PER BOUNDARY SURVEY COMPLETED BY CGC AUGUST 2021.
 3. ROADWAYS NOTED "BY OTHERS" ARE FOR REFERENCE ONLY.
 4. SEE SHEET 1 FOR LOT LEGEND, SITE STATISTICS AND OPEN SPACE BREAKDOWN.

KEVIN G. EYBL
 BOUNDARY SURVEYS
 D12-0-002-00-090-00
 38.12 AC.

NO.	DATE	DESCRIPTION

C&E Consultants, Inc.
 260 Old Wilson Bridge Road, Suite 200, Worthington, OH 43080
 614-540-4833, 888-898-6808
 www.candec.com

MARONDA HOMES INC. OF OHIO
 BATES PROPERTY
 VILLAGE OF ASHVILLE
 PICKAWAY COUNTY, OHIO

CONCEPTUAL SITE PLAN	REVISION RECORD
DATE: OCTOBER 2021	DRAWN BY: []
DATE: []	CHECKED BY: []
DATE: []	APPROVED BY: []

DRAWING NO.: **CP-03**

SHEET 1 OF 2

Appendix B

Count Data



Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Saint Paul Road Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
2021-09-30 7:00AM	6	12	0	18	73	21	1	95	16	34	0	50	163
7:15AM	12	20	0	32	80	16	0	96	11	68	1	80	208
7:30AM	3	23	0	26	73	8	0	81	5	21	0	26	133
7:45AM	6	8	0	14	55	2	0	57	1	12	0	13	84
Hourly Total	27	63	0	90	281	47	1	329	33	135	1	169	588
8:00AM	0	6	0	6	49	4	0	53	2	22	0	24	83
8:15AM	4	3	0	7	40	6	0	46	2	32	0	34	87
8:30AM	4	2	0	6	47	3	0	50	4	29	0	33	89
8:45AM	4	6	0	10	25	5	0	30	2	17	0	19	59
Hourly Total	12	17	0	29	161	18	0	179	10	100	0	110	318
4:00PM	6	10	0	16	33	3	0	36	7	89	0	96	148
4:15PM	5	5	0	10	37	5	0	42	20	89	0	109	161
4:30PM	2	3	0	5	37	7	1	45	19	88	0	107	157
4:45PM	6	5	0	11	34	5	0	39	16	105	0	121	171
Hourly Total	19	23	0	42	141	20	1	162	62	371	0	433	637
5:00PM	7	4	0	11	40	2	0	42	17	102	0	119	172
5:15PM	8	2	0	10	40	7	0	47	14	116	0	130	187
5:30PM	10	8	0	18	42	7	0	49	21	94	0	115	182
5:45PM	2	5	0	7	38	5	0	43	21	73	0	94	144
Hourly Total	27	19	0	46	160	21	0	181	73	385	0	458	685
Total	85	122	0	207	743	106	2	851	178	991	1	1170	2228
% Approach	41.1%	58.9%	0%	-	87.3%	12.5%	0.2%	-	15.2%	84.7%	0.1%	-	-
% Total	3.8%	5.5%	0%	9.3%	33.3%	4.8%	0.1%	38.2%	8.0%	44.5%	0%	52.5%	-
Lights	77	115	0	192	722	101	2	825	172	955	1	1128	2145
% Lights	90.6%	94.3%	0%	92.8%	97.2%	95.3%	100%	96.9%	96.6%	96.4%	100%	96.4%	96.3%
Articulated Trucks	1	2	0	3	11	0	0	11	2	11	0	13	27
% Articulated Trucks	1.2%	1.6%	0%	1.4%	1.5%	0%	0%	1.3%	1.1%	1.1%	0%	1.1%	1.2%
Buses and Single-Unit Trucks	7	5	0	12	10	5	0	15	4	25	0	29	56
% Buses and Single-Unit Trucks	8.2%	4.1%	0%	5.8%	1.3%	4.7%	0%	1.8%	2.2%	2.5%	0%	2.5%	2.5%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

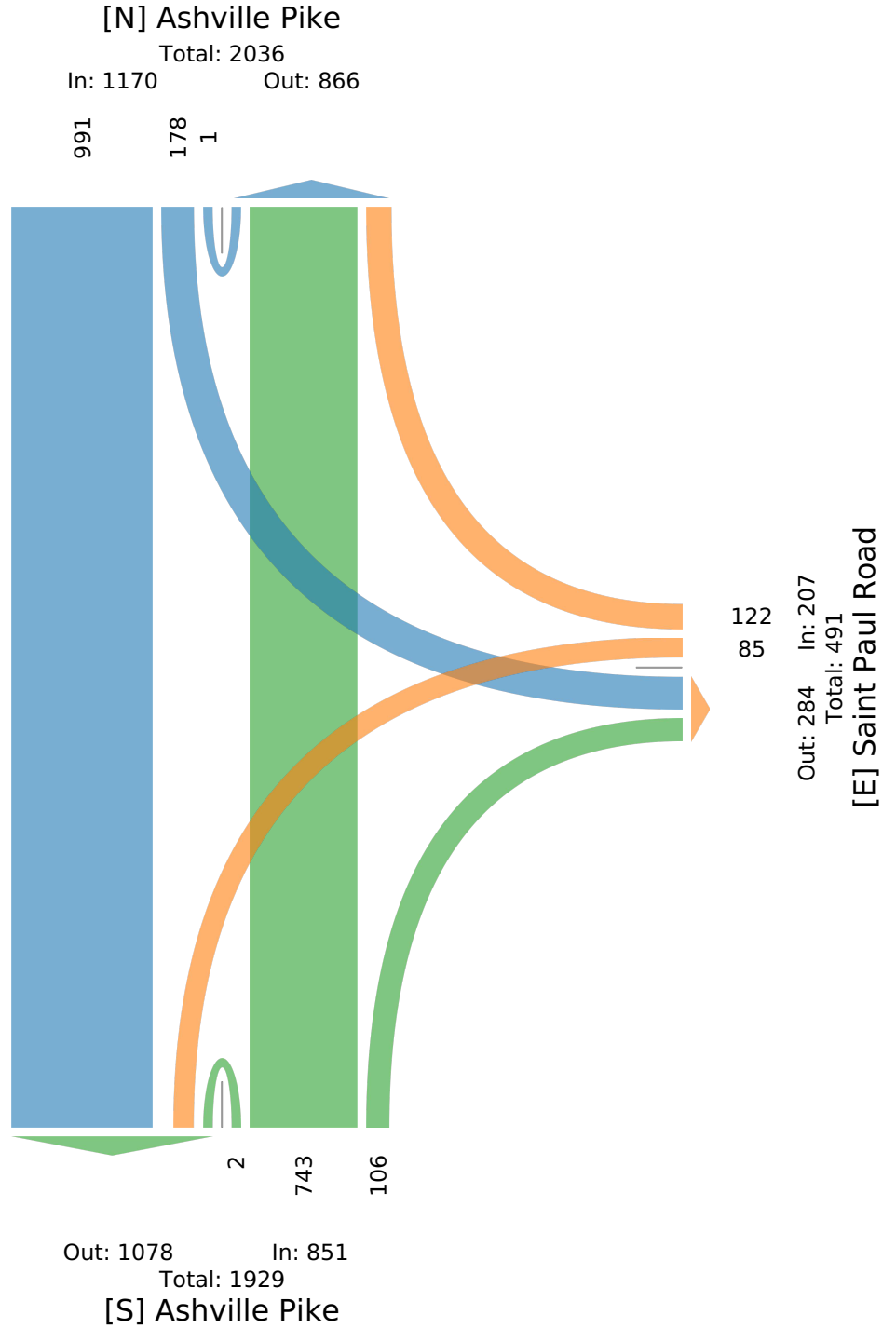
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US



Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Saint Paul Road Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
2021-09-30 7:00AM	6	12	0	18	73	21	1	95	16	34	0	50	163
7:15AM	12	20	0	32	80	16	0	96	11	68	1	80	208
7:30AM	3	23	0	26	73	8	0	81	5	21	0	26	133
7:45AM	6	8	0	14	55	2	0	57	1	12	0	13	84
Total	27	63	0	90	281	47	1	329	33	135	1	169	588
% Approach	30.0%	70.0%	0%	-	85.4%	14.3%	0.3%	-	19.5%	79.9%	0.6%	-	-
% Total	4.6%	10.7%	0%	15.3%	47.8%	8.0%	0.2%	56.0%	5.6%	23.0%	0.2%	28.7%	-
PHF	0.563	0.685	-	0.703	0.878	0.560	0.250	0.857	0.516	0.496	0.250	0.528	0.707
Lights	22	60	0	82	275	46	1	322	32	130	1	163	567
% Lights	81.5%	95.2%	0%	91.1%	97.9%	97.9%	100%	97.9%	97.0%	96.3%	100%	96.4%	96.4%
Articulated Trucks	1	0	0	1	3	0	0	3	0	0	0	0	4
% Articulated Trucks	3.7%	0%	0%	1.1%	1.1%	0%	0%	0.9%	0%	0%	0%	0%	0.7%
Buses and Single-Unit Trucks	4	3	0	7	3	1	0	4	1	5	0	6	17
% Buses and Single-Unit Trucks	14.8%	4.8%	0%	7.8%	1.1%	2.1%	0%	1.2%	3.0%	3.7%	0%	3.6%	2.9%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.

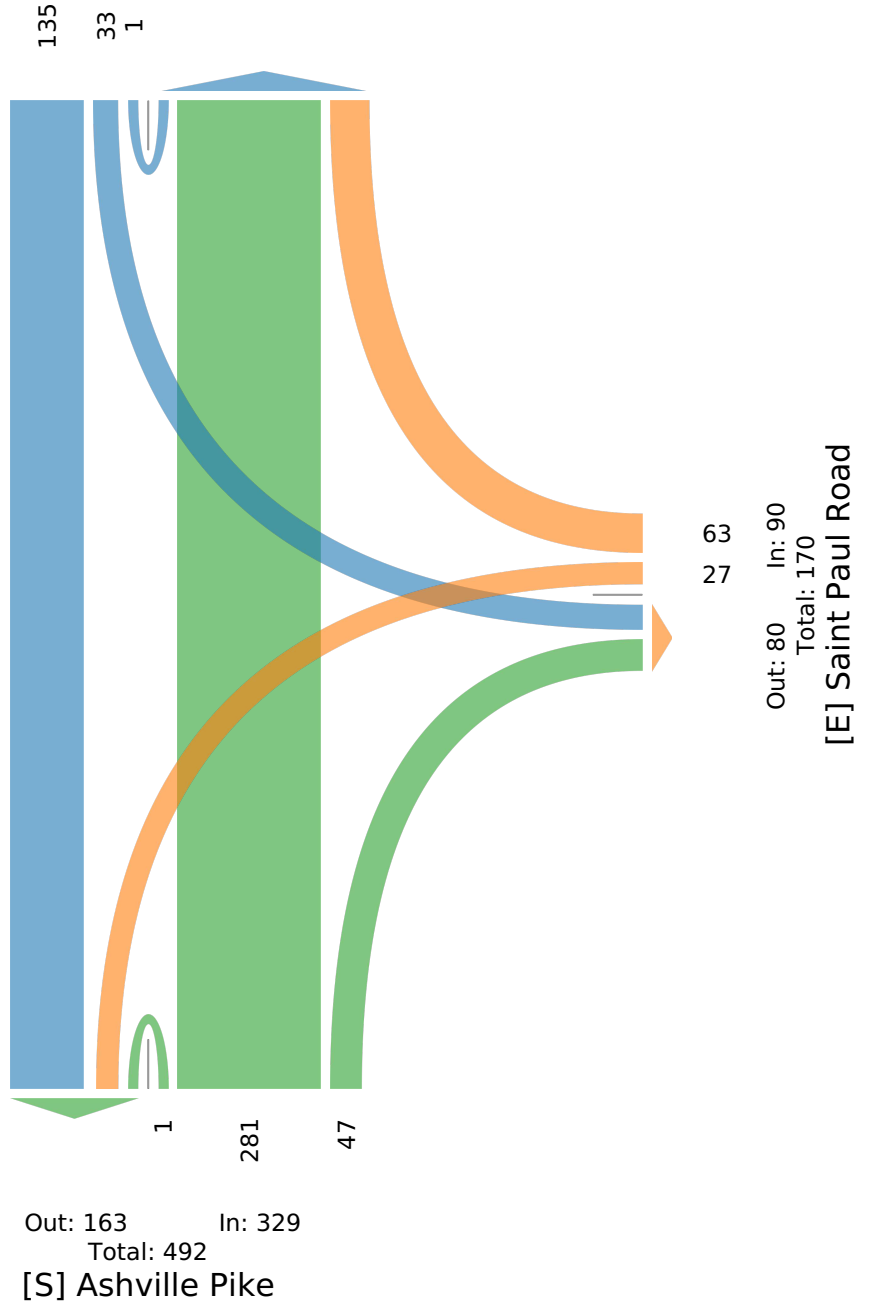
6612 Singletree Drive, Columbus, OH, 43229, US

[N] Ashville Pike

Total: 514

In: 169

Out: 345



Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Saint Paul Road Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
Time													
2021-09-30 4:45PM	6	5	0	11	34	5	0	39	16	105	0	121	171
5:00PM	7	4	0	11	40	2	0	42	17	102	0	119	172
5:15PM	8	2	0	10	40	7	0	47	14	116	0	130	187
5:30PM	10	8	0	18	42	7	0	49	21	94	0	115	182
Total	31	19	0	50	156	21	0	177	68	417	0	485	712
% Approach	62.0%	38.0%	0%	-	88.1%	11.9%	0%	-	14.0%	86.0%	0%	-	-
% Total	4.4%	2.7%	0%	7.0%	21.9%	2.9%	0%	24.9%	9.6%	58.6%	0%	68.1%	-
PHF	0.775	0.594	-	0.694	0.929	0.750	-	0.903	0.810	0.899	-	0.933	0.952
Lights	30	18	0	48	152	21	0	173	67	409	0	476	697
% Lights	96.8%	94.7%	0%	96.0%	97.4%	100%	0%	97.7%	98.5%	98.1%	0%	98.1%	97.9%
Articulated Trucks	0	1	0	1	3	0	0	3	0	5	0	5	9
% Articulated Trucks	0%	5.3%	0%	2.0%	1.9%	0%	0%	1.7%	0%	1.2%	0%	1.0%	1.3%
Buses and Single-Unit Trucks	1	0	0	1	1	0	0	1	1	3	0	4	6
% Buses and Single-Unit Trucks	3.2%	0%	0%	2.0%	0.6%	0%	0%	0.6%	1.5%	0.7%	0%	0.8%	0.8%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike & St. Paul Road - TMC

Thu Sep 30, 2021

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

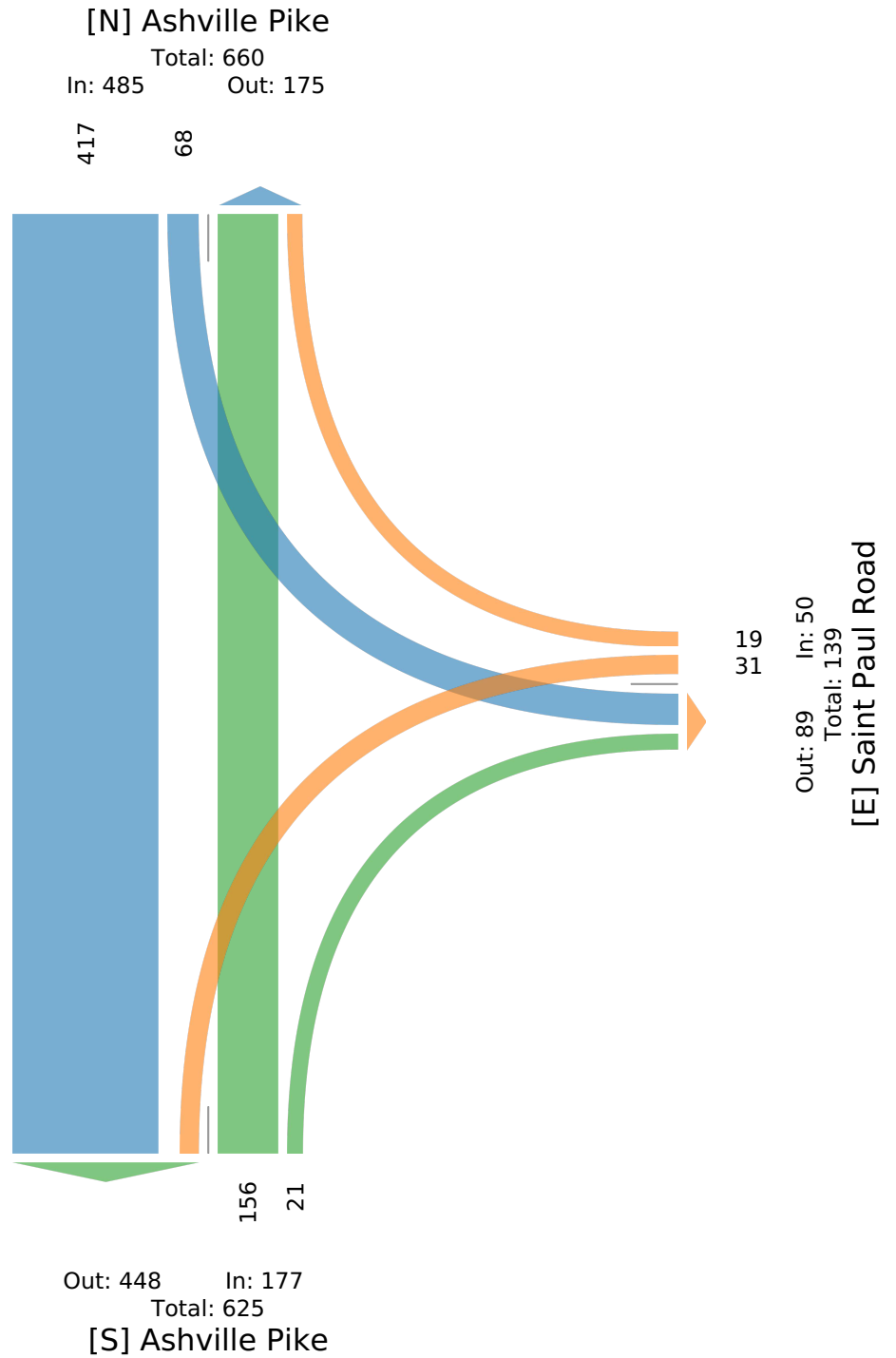
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881160, Location: 39.742179, -82.951237

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US



Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Long Street Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
2021-04-20 7:00AM	3	18	0	21	82	3	0	85	0	48	0	48	154
7:15AM	4	6	0	10	93	1	0	94	0	75	0	75	179
7:30AM	4	8	0	12	78	2	0	80	2	39	0	41	133
7:45AM	2	5	0	7	32	1	0	33	3	20	0	23	63
Hourly Total	13	37	0	50	285	7	0	292	5	182	0	187	529
8:00AM	2	8	0	10	40	0	0	40	1	24	0	25	75
8:15AM	5	1	0	6	24	2	0	26	1	22	0	23	55
8:30AM	4	1	0	5	32	1	0	33	2	26	0	28	66
8:45AM	3	1	0	4	43	3	0	46	2	16	0	18	68
Hourly Total	14	11	0	25	139	6	0	145	6	88	0	94	264
4:00PM	4	2	0	6	27	7	0	34	5	85	0	90	130
4:15PM	7	2	0	9	42	6	0	48	14	82	0	96	153
4:30PM	2	3	0	5	31	4	0	35	3	89	0	92	132
4:45PM	6	3	0	9	32	2	0	34	7	90	0	97	140
Hourly Total	19	10	0	29	132	19	0	151	29	346	0	375	555
5:00PM	1	1	0	2	41	8	0	49	4	85	0	89	140
5:15PM	2	3	0	5	41	2	0	43	6	91	0	97	145
5:30PM	4	2	0	6	41	5	0	46	7	83	0	90	142
5:45PM	2	1	0	3	40	6	0	46	8	73	0	81	130
Hourly Total	9	7	0	16	163	21	0	184	25	332	0	357	557
Total	55	65	0	120	719	53	0	772	65	948	0	1013	1905
% Approach	45.8%	54.2%	0%	-	93.1%	6.9%	0%	-	6.4%	93.6%	0%	-	-
% Total	2.9%	3.4%	0%	6.3%	37.7%	2.8%	0%	40.5%	3.4%	49.8%	0%	53.2%	-
Lights	54	64	0	118	704	51	0	755	65	925	0	990	1863
% Lights	98.2%	98.5%	0%	98.3%	97.9%	96.2%	0%	97.8%	100%	97.6%	0%	97.7%	97.8%
Articulated Trucks	0	0	0	0	3	0	0	3	0	0	0	0	3
% Articulated Trucks	0%	0%	0%	0%	0.4%	0%	0%	0.4%	0%	0%	0%	0%	0.2%
Buses and Single-Unit Trucks	1	1	0	2	12	2	0	14	0	23	0	23	39
% Buses and Single-Unit Trucks	1.8%	1.5%	0%	1.7%	1.7%	3.8%	0%	1.8%	0%	2.4%	0%	2.3%	2.0%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

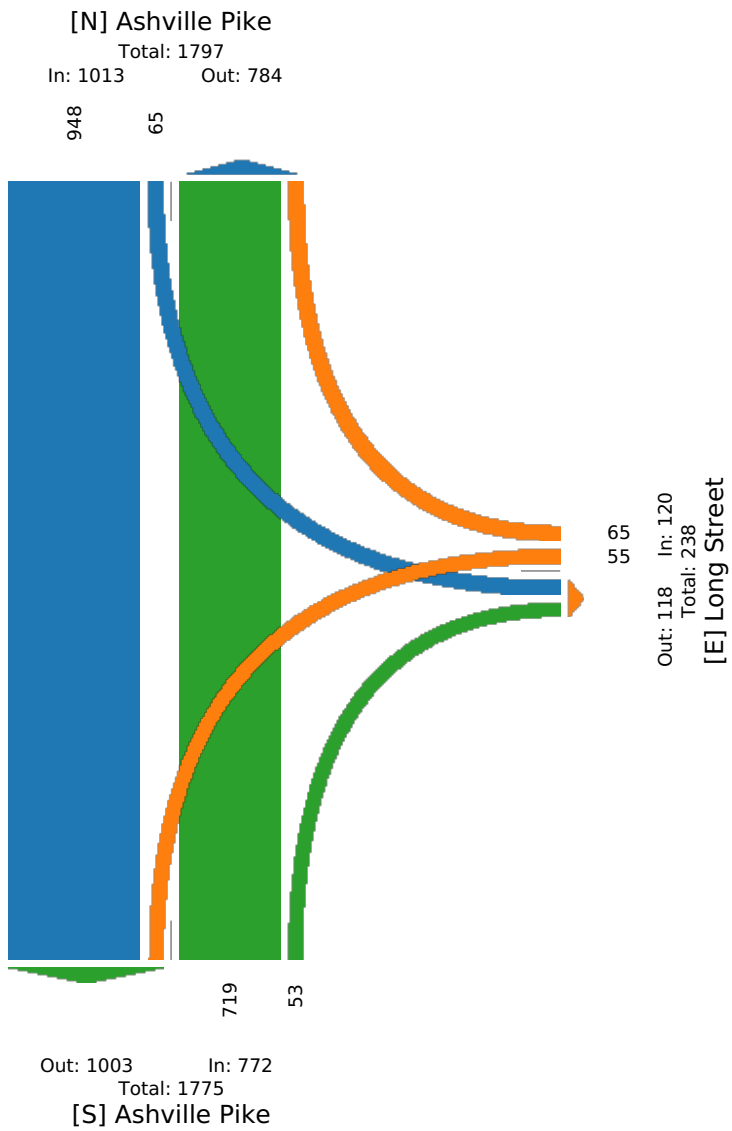
Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US



Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Long Street Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
2021-04-20 7:00AM	3	18	0	21	82	3	0	85	0	48	0	48	154
7:15AM	4	6	0	10	93	1	0	94	0	75	0	75	179
7:30AM	4	8	0	12	78	2	0	80	2	39	0	41	133
7:45AM	2	5	0	7	32	1	0	33	3	20	0	23	63
Total	13	37	0	50	285	7	0	292	5	182	0	187	529
% Approach	26.0%	74.0%	0%	-	97.6%	2.4%	0%	-	2.7%	97.3%	0%	-	-
% Total	2.5%	7.0%	0%	9.5%	53.9%	1.3%	0%	55.2%	0.9%	34.4%	0%	35.3%	-
PHF	0.813	0.514	-	0.595	0.766	0.583	-	0.777	0.417	0.607	-	0.623	0.739
Lights	13	36	0	49	282	6	0	288	5	176	0	181	518
% Lights	100%	97.3%	0%	98.0%	98.9%	85.7%	0%	98.6%	100%	96.7%	0%	96.8%	97.9%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	0	1	0	1	3	1	0	4	0	6	0	6	11
% Buses and Single-Unit Trucks	0%	2.7%	0%	2.0%	1.1%	14.3%	0%	1.4%	0%	3.3%	0%	3.2%	2.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

[N] Ashville Pike

Total: 509

In: 187 Out: 322

182

5



37
13

Out: 12 In: 50
Total: 62
[E] Long Street

285

7

Out: 195 In: 292
Total: 487

[S] Ashville Pike

Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Long Street Westbound				Ashville Pike Northbound				Ashville Pike Southbound				Int
	L	R	U	App	T	R	U	App	L	T	U	App	
2021-04-20 4:45PM	6	3	0	9	32	2	0	34	7	90	0	97	140
5:00PM	1	1	0	2	41	8	0	49	4	85	0	89	140
5:15PM	2	3	0	5	41	2	0	43	6	91	0	97	145
5:30PM	4	2	0	6	41	5	0	46	7	83	0	90	142
Total	13	9	0	22	155	17	0	172	24	349	0	373	567
% Approach	59.1%	40.9%	0%	-	90.1%	9.9%	0%	-	6.4%	93.6%	0%	-	-
% Total	2.3%	1.6%	0%	3.9%	27.3%	3.0%	0%	30.3%	4.2%	61.6%	0%	65.8%	-
PHF	0.542	0.750	-	0.611	0.945	0.531	-	0.878	0.857	0.959	-	0.961	0.978
Lights	13	9	0	22	151	17	0	168	24	344	0	368	558
% Lights	100%	100%	0%	100%	97.4%	100%	0%	97.7%	100%	98.6%	0%	98.7%	98.4%
Articulated Trucks	0	0	0	0	2	0	0	2	0	0	0	0	2
% Articulated Trucks	0%	0%	0%	0%	1.3%	0%	0%	1.2%	0%	0%	0%	0%	0.4%
Buses and Single-Unit Trucks	0	0	0	0	2	0	0	2	0	5	0	5	7
% Buses and Single-Unit Trucks	0%	0%	0%	0%	1.3%	0%	0%	1.2%	0%	1.4%	0%	1.3%	1.2%

*L: Left, R: Right, T: Thru, U: U-Turn

Ashville Pike and Long Street - TMC

Tue Apr 20, 2021

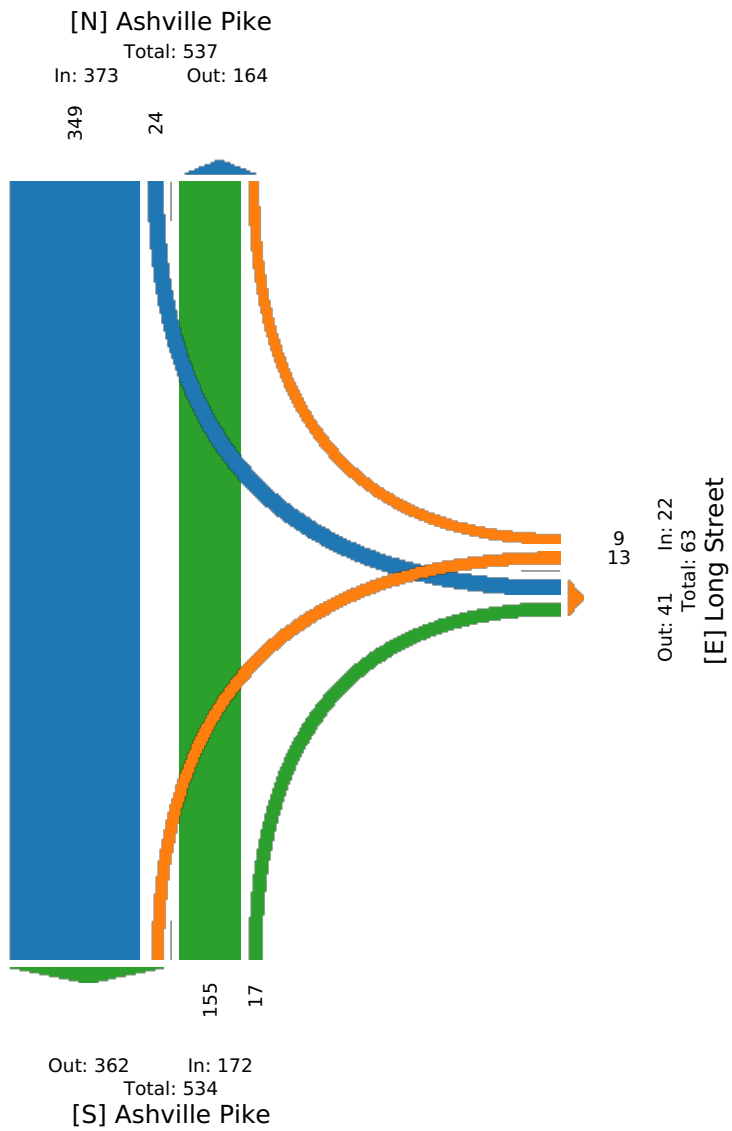
PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 830100, Location: 39.734115, -82.951975

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US



SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	SR-752 Eastbound					SR-752 Westbound					Ashville Pike Northbound					Ashville Pike Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2021-09-30 7:00AM	8	53	3	1	65	7	15	12	0	34	4	26	21	2	53	32	15	16	1	64	216
7:15AM	11	74	3	0	88	8	33	17	0	58	8	34	20	0	62	70	19	11	0	100	308
7:30AM	9	24	4	0	37	10	29	26	0	65	7	27	14	0	48	15	6	12	0	33	183
7:45AM	12	16	2	1	31	3	20	8	0	31	1	25	1	0	27	7	12	15	0	34	123
Hourly Total	40	167	12	2	221	28	97	63	0	188	20	112	56	2	190	124	52	54	1	231	830
8:00AM	12	19	6	0	37	10	27	8	0	45	2	16	5	0	23	5	11	14	0	30	135
8:15AM	13	25	8	0	46	6	13	11	0	30	1	17	4	0	22	18	16	19	0	53	151
8:30AM	11	20	9	1	41	6	15	11	0	32	7	16	6	0	29	13	34	13	0	60	162
8:45AM	10	17	9	0	36	4	19	19	0	42	10	24	1	0	35	11	30	12	0	53	166
Hourly Total	46	81	32	1	160	26	74	49	0	149	20	73	16	0	109	47	91	58	0	196	614
4:00PM	26	28	10	0	64	28	23	19	0	70	20	30	7	0	57	16	58	14	0	88	279
4:15PM	21	33	8	0	62	10	23	15	0	48	11	29	11	0	51	11	49	31	1	92	253
4:30PM	20	30	15	1	66	14	19	15	0	48	10	33	6	0	49	17	45	27	0	89	252
4:45PM	23	26	10	0	59	20	17	13	0	50	7	37	16	1	61	27	47	33	0	107	277
Hourly Total	90	117	43	1	251	72	82	62	0	216	48	129	40	1	218	71	199	105	1	376	1061
5:00PM	24	31	17	2	74	17	40	22	0	79	13	40	13	0	66	23	44	24	0	91	310
5:15PM	20	26	16	0	62	18	30	28	0	76	7	32	12	0	51	25	54	28	1	108	297
5:30PM	25	47	17	1	90	26	35	16	0	77	15	28	19	0	62	31	57	22	0	110	339
5:45PM	13	35	10	1	59	25	26	21	0	72	8	38	17	0	63	16	59	17	0	92	286
Hourly Total	82	139	60	4	285	86	131	87	0	304	43	138	61	0	242	95	214	91	1	401	1232
Total	258	504	147	8	917	212	384	261	0	857	131	452	173	3	759	337	556	308	3	1204	3737
% Approach	28.1%	55.0%	16.0%	0.9%	-	24.7%	44.8%	30.5%	0%	-	17.3%	59.6%	22.8%	0.4%	-	28.0%	46.2%	25.6%	0.2%	-	-
% Total	6.9%	13.5%	3.9%	0.2%	24.5%	5.7%	10.3%	7.0%	0%	22.9%	3.5%	12.1%	4.6%	0.1%	20.3%	9.0%	14.9%	8.2%	0.1%	32.2%	-
Lights	251	474	145	8	878	209	357	254	0	820	128	443	171	3	745	321	543	295	2	1161	3604
% Lights	97.3%	94.0%	98.6%	100%	95.7%	98.6%	93.0%	97.3%	0%	95.7%	97.7%	98.0%	98.8%	100%	98.2%	95.3%	97.7%	95.8%	66.7%	96.4%	96.4%
Articulated Trucks	3	8	0	0	11	2	5	0	0	7	1	2	1	0	4	2	3	5	0	10	32
% Articulated Trucks	1.2%	1.6%	0%	0%	1.2%	0.9%	1.3%	0%	0%	0.8%	0.8%	0.4%	0.6%	0%	0.5%	0.6%	0.5%	1.6%	0%	0.8%	0.9%
Buses and Single-Unit Trucks	4	22	2	0	28	1	22	7	0	30	2	7	1	0	10	14	10	8	1	33	101
% Buses and Single-Unit Trucks	1.6%	4.4%	1.4%	0%	3.1%	0.5%	5.7%	2.7%	0%	3.5%	1.5%	1.5%	0.6%	0%	1.3%	4.2%	1.8%	2.6%	33.3%	2.7%	2.7%

*L: Left, R: Right, T: Thru, U: U-Turn

SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

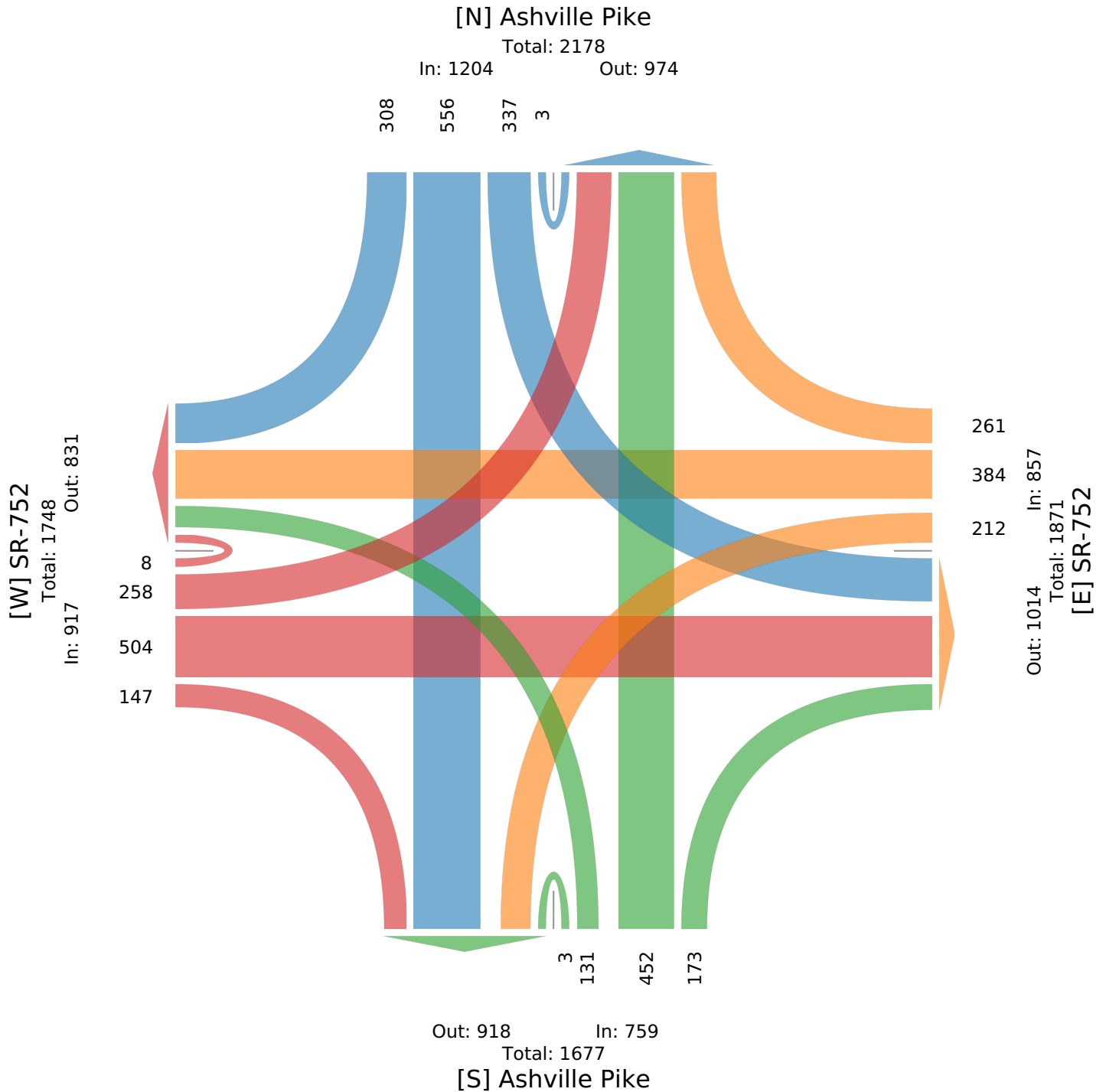
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US



SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	SR-752 Eastbound					SR-752 Westbound					Ashville Pike Northbound					Ashville Pike Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2021-09-30 7:00AM	8	53	3	1	65	7	15	12	0	34	4	26	21	2	53	32	15	16	1	64	216
7:15AM	11	74	3	0	88	8	33	17	0	58	8	34	20	0	62	70	19	11	0	100	308
7:30AM	9	24	4	0	37	10	29	26	0	65	7	27	14	0	48	15	6	12	0	33	183
7:45AM	12	16	2	1	31	3	20	8	0	31	1	25	1	0	27	7	12	15	0	34	123
Total	40	167	12	2	221	28	97	63	0	188	20	112	56	2	190	124	52	54	1	231	830
% Approach	18.1%	75.6%	5.4%	0.9%	-	14.9%	51.6%	33.5%	0%	-	10.5%	58.9%	29.5%	1.1%	-	53.7%	22.5%	23.4%	0.4%	-	-
% Total	4.8%	20.1%	1.4%	0.2%	26.6%	3.4%	11.7%	7.6%	0%	22.7%	2.4%	13.5%	6.7%	0.2%	22.9%	14.9%	6.3%	6.5%	0.1%	27.8%	-
PHF	0.833	0.564	0.750	0.500	0.628	0.700	0.735	0.606	-	0.723	0.625	0.824	0.667	0.250	0.766	0.443	0.684	0.844	0.250	0.578	0.674
Lights	39	156	11	2	208	28	90	61	0	179	19	111	55	2	187	123	50	51	0	224	798
% Lights	97.5%	93.4%	91.7%	100%	94.1%	100%	92.8%	96.8%	0%	95.2%	95.0%	99.1%	98.2%	100%	98.4%	99.2%	96.2%	94.4%	0%	97.0%	96.1%
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	3
% Articulated Trucks	0%	0.6%	0%	0%	0.5%	0%	0%	0%	0%	0%	5.0%	0%	1.8%	0%	1.1%	0%	0%	0%	0%	0%	0.4%
Buses and Single-Unit Trucks	1	10	1	0	12	0	7	2	0	9	0	1	0	0	1	1	2	3	1	7	29
% Buses and Single-Unit Trucks	2.5%	6.0%	8.3%	0%	5.4%	0%	7.2%	3.2%	0%	4.8%	0%	0.9%	0%	0%	0.5%	0.8%	3.8%	5.6%	100%	3.0%	3.5%

*L: Left, R: Right, T: Thru, U: U-Turn

SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

AM Peak (7 AM - 8 AM)

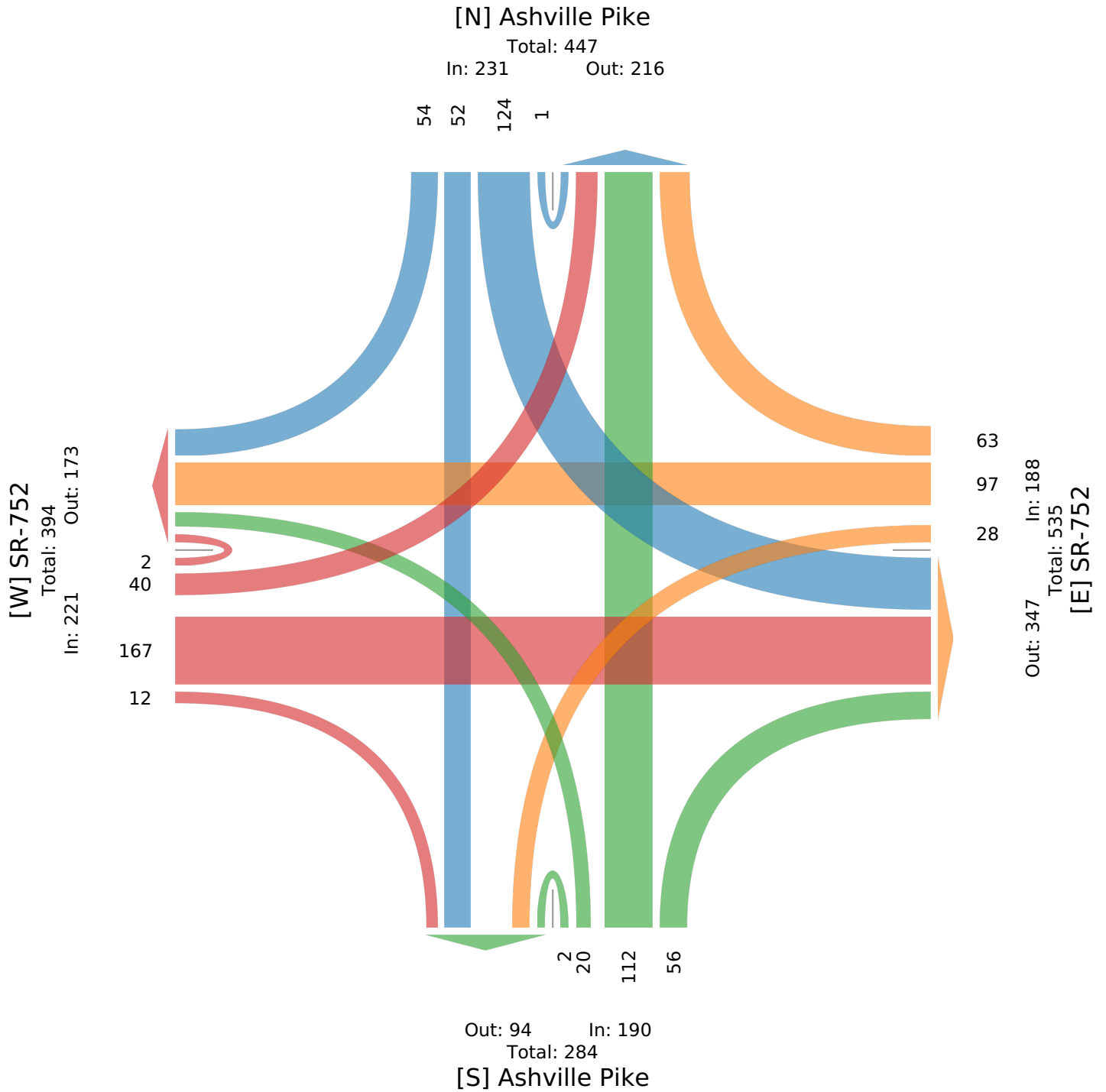
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US



SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

PM Peak (5 PM - 6 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	SR-752 Eastbound					SR-752 Westbound					Ashville Pike Northbound					Ashville Pike Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2021-09-30 5:00PM	24	31	17	2	74	17	40	22	0	79	13	40	13	0	66	23	44	24	0	91	310
5:15PM	20	26	16	0	62	18	30	28	0	76	7	32	12	0	51	25	54	28	1	108	297
5:30PM	25	47	17	1	90	26	35	16	0	77	15	28	19	0	62	31	57	22	0	110	339
5:45PM	13	35	10	1	59	25	26	21	0	72	8	38	17	0	63	16	59	17	0	92	286
Total	82	139	60	4	285	86	131	87	0	304	43	138	61	0	242	95	214	91	1	401	1232
% Approach	28.8%	48.8%	21.1%	1.4%	-	28.3%	43.1%	28.6%	0%	-	17.8%	57.0%	25.2%	0%	-	23.7%	53.4%	22.7%	0.2%	-	-
% Total	6.7%	11.3%	4.9%	0.3%	23.1%	7.0%	10.6%	7.1%	0%	24.7%	3.5%	11.2%	5.0%	0%	19.6%	7.7%	17.4%	7.4%	0.1%	32.5%	-
PHF	0.820	0.739	0.882	0.500	0.792	0.827	0.819	0.777	-	0.962	0.717	0.863	0.803	-	0.917	0.766	0.907	0.813	0.250	0.911	0.909
Lights	80	137	59	4	280	85	129	86	0	300	43	135	61	0	239	92	214	88	1	395	1214
% Lights	97.6%	98.6%	98.3%	100%	98.2%	98.8%	98.5%	98.9%	0%	98.7%	100%	97.8%	100%	0%	98.8%	96.8%	100%	96.7%	100%	98.5%	98.5%
Articulated Trucks	2	2	0	0	4	0	1	0	0	1	0	1	0	0	1	2	0	3	0	5	11
% Articulated Trucks	2.4%	1.4%	0%	0%	1.4%	0%	0.8%	0%	0%	0.3%	0%	0.7%	0%	0%	0.4%	2.1%	0%	3.3%	0%	1.2%	0.9%
Buses and Single-Unit Trucks	0	0	1	0	1	1	1	1	0	3	0	2	0	0	2	1	0	0	0	1	7
% Buses and Single-Unit Trucks	0%	0%	1.7%	0%	0.4%	1.2%	0.8%	1.1%	0%	1.0%	0%	1.4%	0%	0%	0.8%	1.1%	0%	0%	0%	0.2%	0.6%

*L: Left, R: Right, T: Thru, U: U-Turn

SR-752 & Ashville Pike - TMC

Thu Sep 30, 2021

PM Peak (5 PM - 6 PM) - Overall Peak Hour

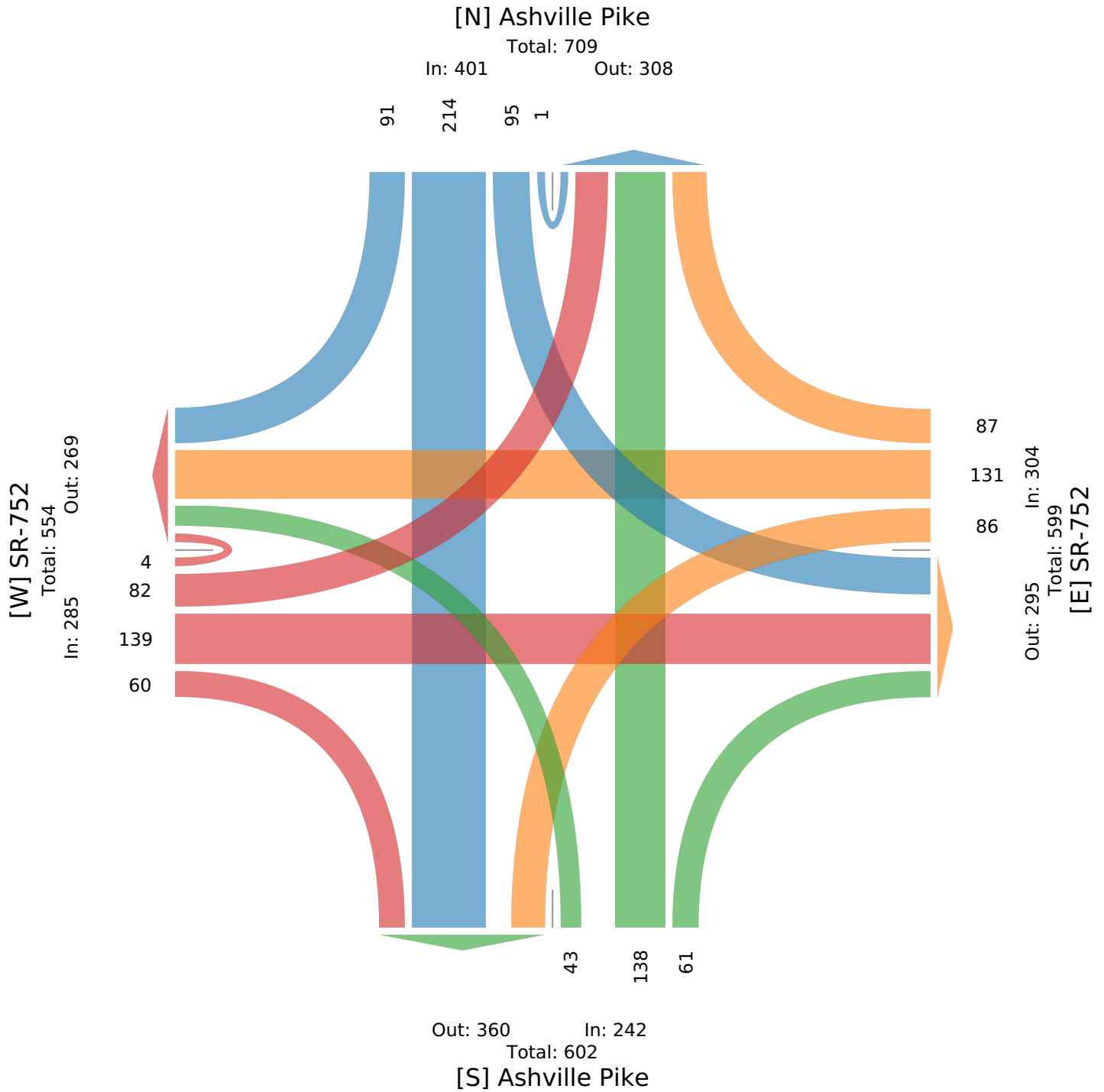
All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 881161, Location: 39.723492, -82.95282

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US



Appendix C

Trip Generation



Scenario - 2

Scenario Name: PM Peak

User Group:

Dev. phase: 1

No. of Years to Project 0

Traffic :

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method	Entry	Exit	Total
					Rate/Equation	Split%	Split%	
210 - Single-Family Detached Housing	General Urban/Suburban	Dwelling Units	625	Weekday, Peak Hour of Adjacent Street Traffic,	Best Fit (LOG)	351	206	557
Data Source: Trip Generation Manual, 11th Ed					$\ln(T) = 0.94\ln(X) + 0.27$	63%	37%	

VEHICLE TO PERSON TRIP CONVERSION

BASELINE SITE VEHICLE CHARACTERISTICS:

Land Use	Baseline Site Vehicle Mode Share		Baseline Site Vehicle Occupancy		Baseline Site Vehicle Directional Split	
	Entry (%)	Exit (%)	Entry	Exit	Entry (%)	Exit (%)
210 - Single-Family Detached Housing	100	100	1	1	63	37

ESTIMATED BASELINE SITE PERSON TRIPS:

Land Use	Person Trips by Vehicle		Person Trips by Other Modes		Total Baseline Site Person Trips	
	Entry	Exit	Entry	Exit	Entry	Exit
210 - Single-Family Detached Housing	351	206	0	0	351	206
	557		0		557	

NEW VEHICLE TRIPS

Land Use	New Vehicle Trips		
	Entry	Exit	Total
210 - Single-Family Detached Housing	351	206	557

RESULTS

Site Totals	Entry	Exit	Total
Vehicle Trips Before Reduction	351	206	557
External Vehicle Trips	351	206	557
New Vehicle Trips	351	206	557

Appendix D

Volume Calculations

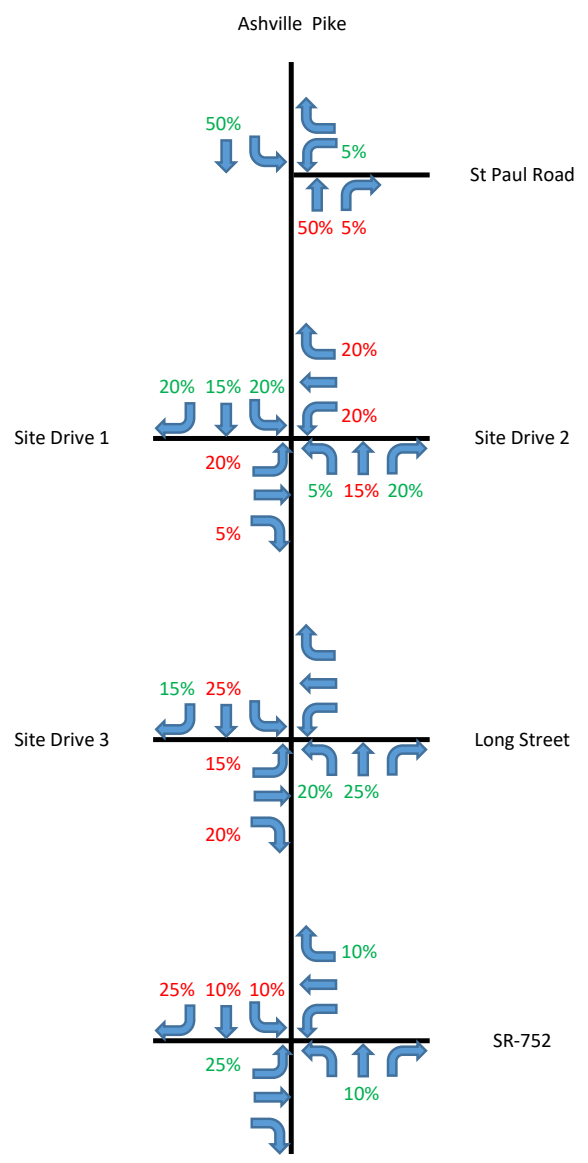


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
		Distribution	

^
N

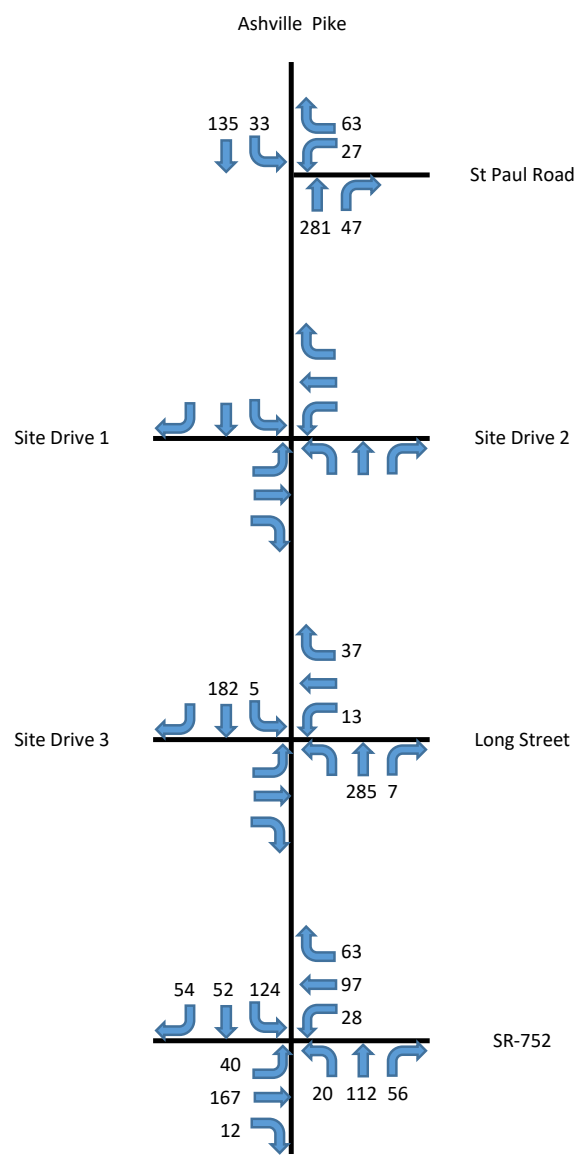


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2021	AM	Count	

^
N



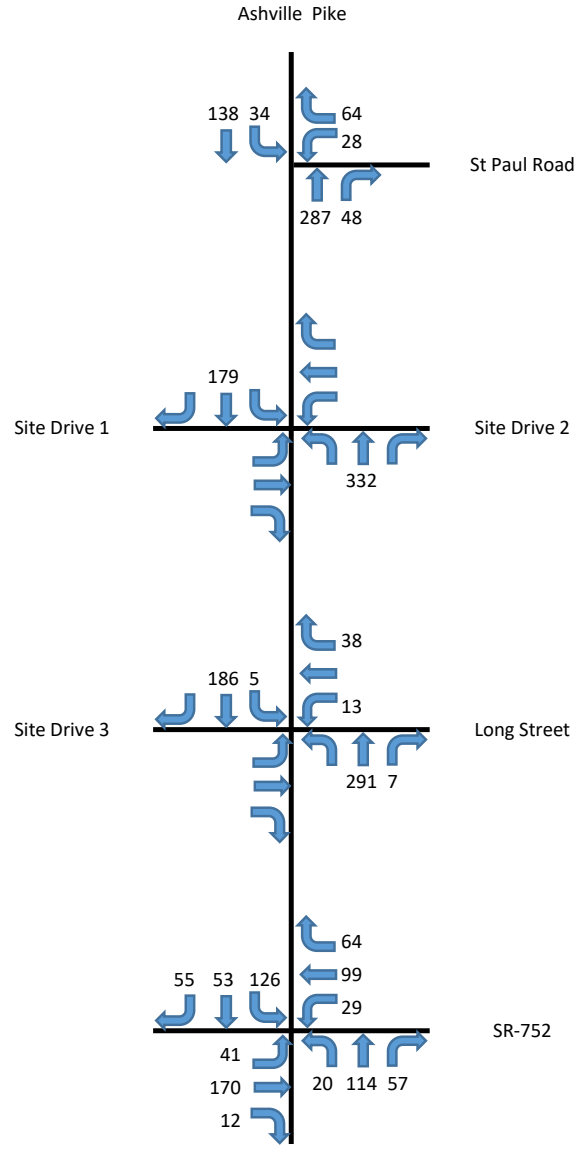
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2022	AM	No Build	A

^
N

Growth Rate 2%



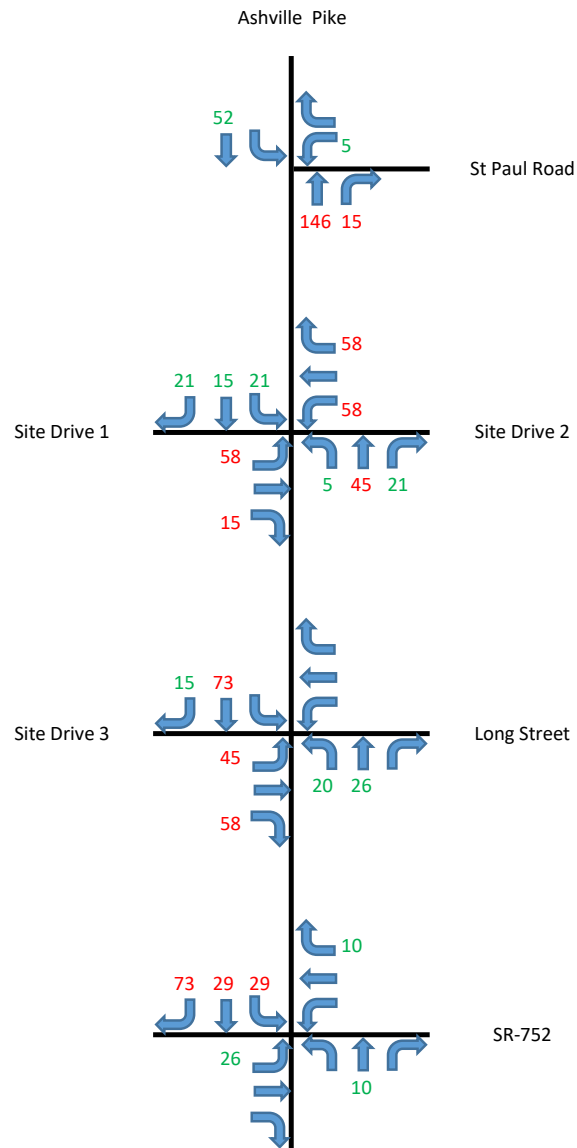
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
	AM	Non-Pass-By Traffic	B

^
N

Enter 103
Exit 292

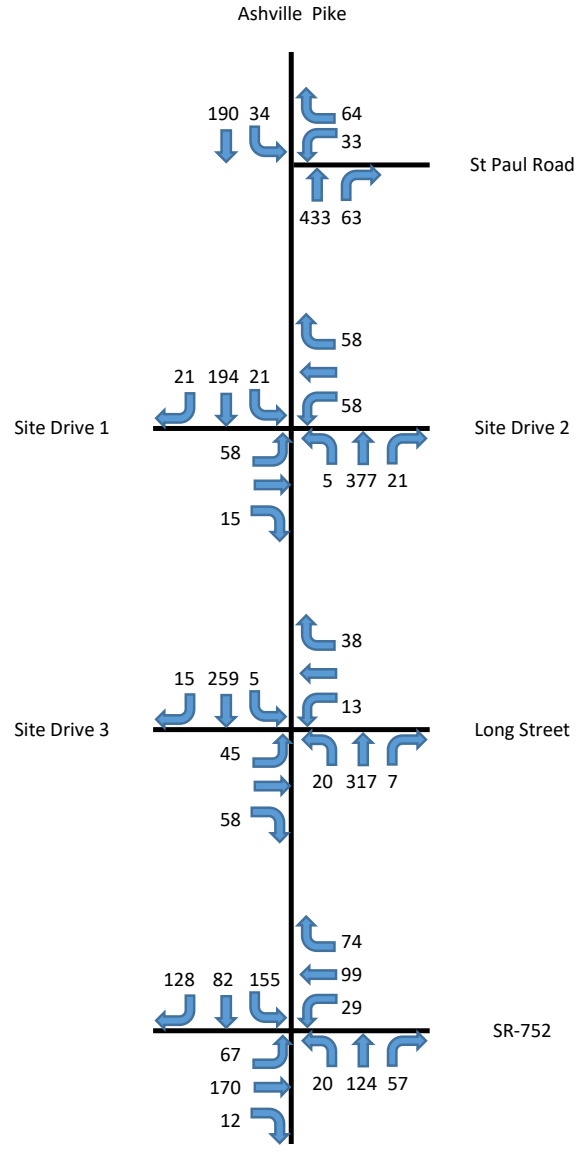


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2022	AM	Build	C = A + B

^
N



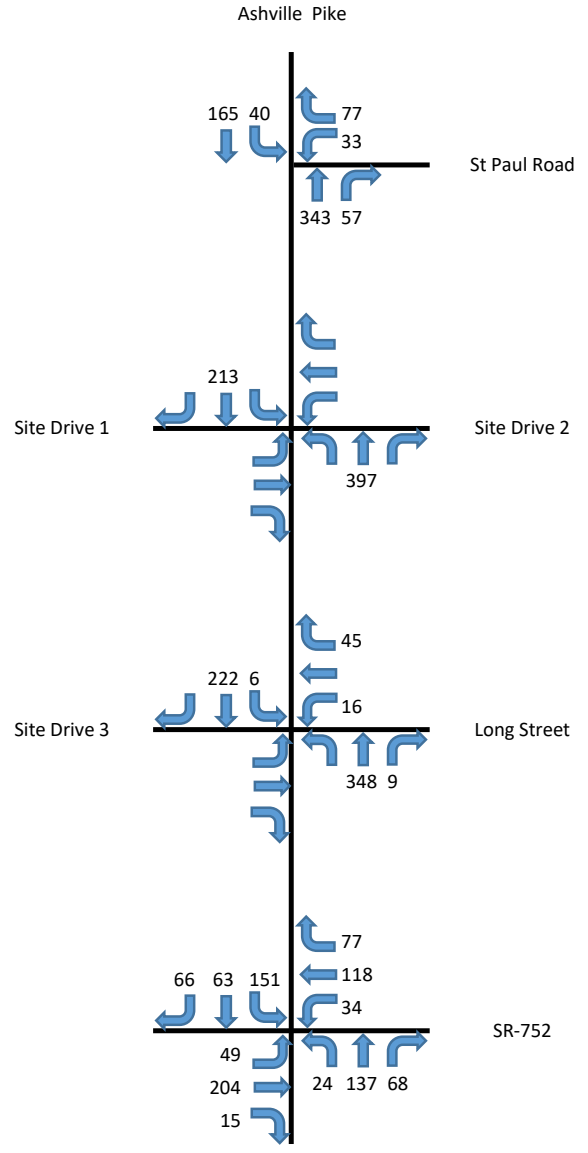
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2032	AM	No Build	D

^
N

Growth Rate 2%

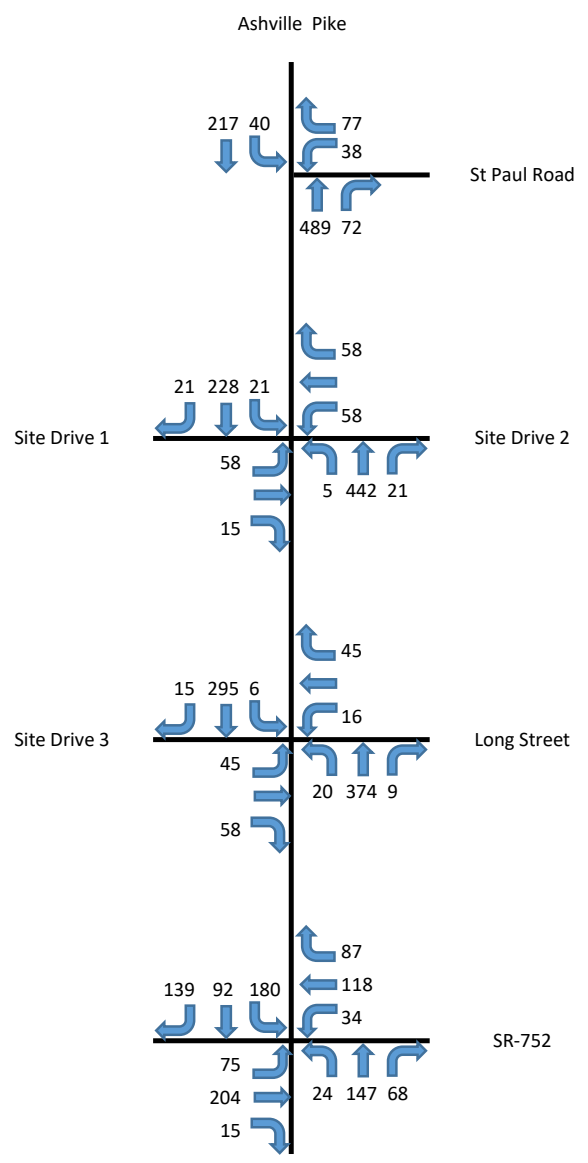


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2032	AM	Build	E = B + D

^
N

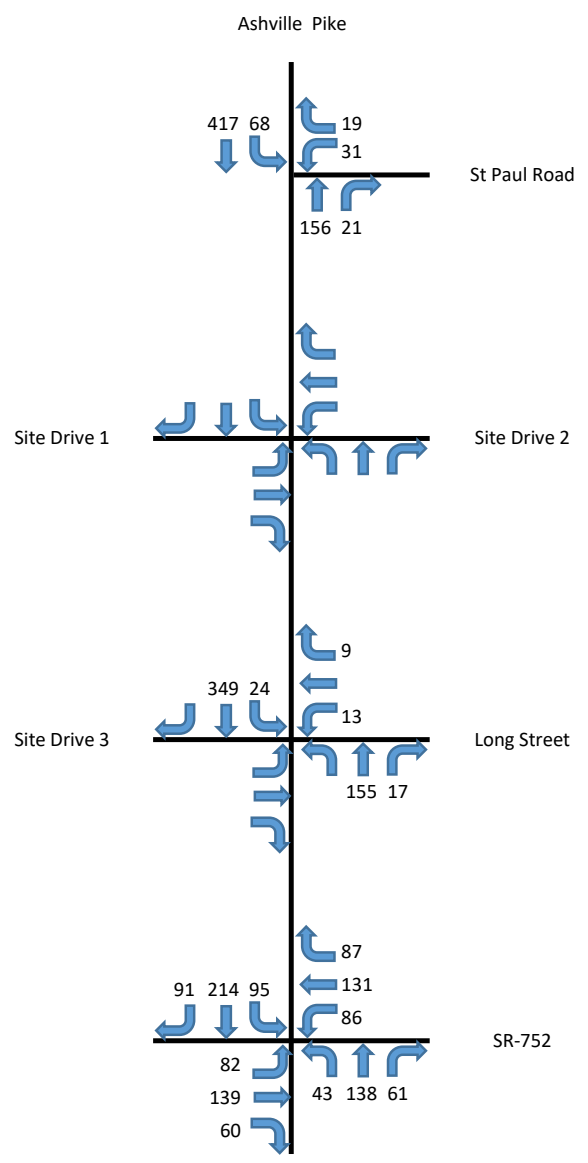


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2021	PM	Count	

^
N



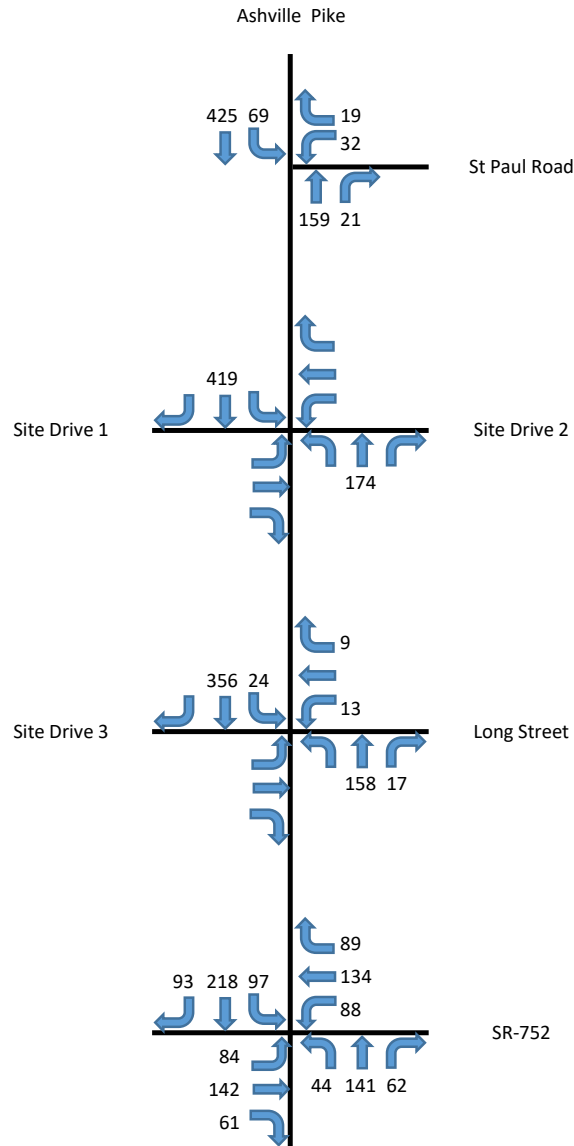
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2022	PM	No Build	F

^
N

Growth Rate 2%



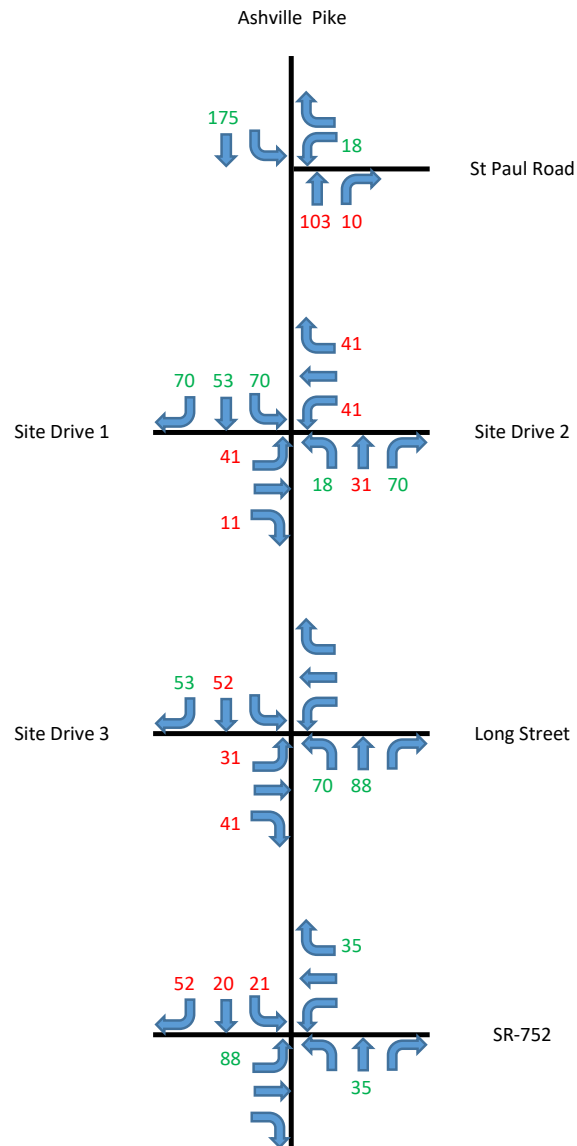
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
	PM	Non-Pass-By Traffic	G

^
N

Enter 351
Exit 206

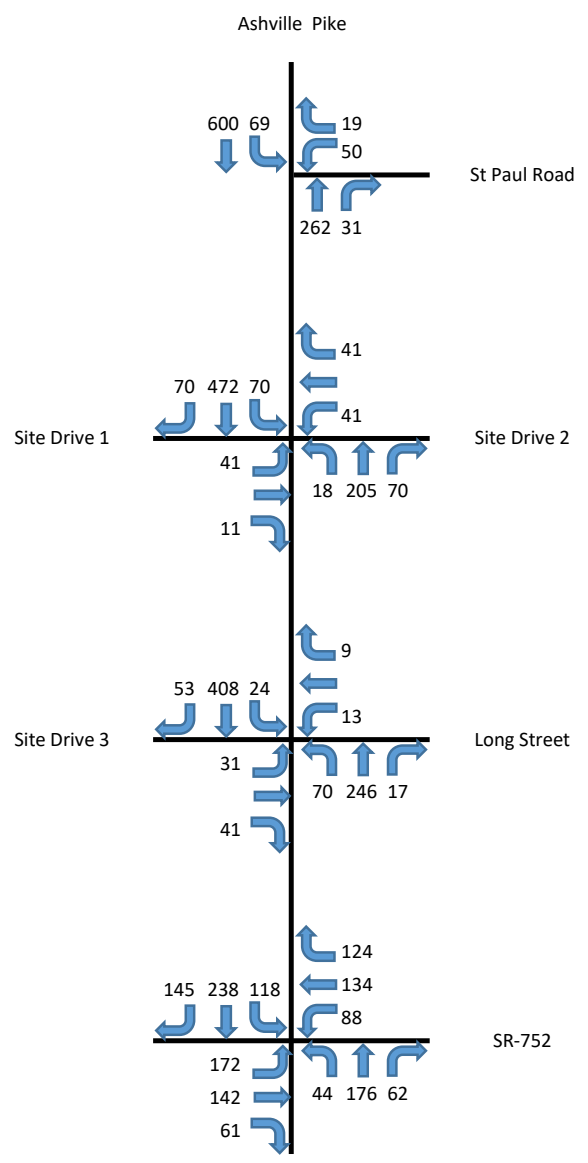


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2022	PM	Build	H = F + G

^
N



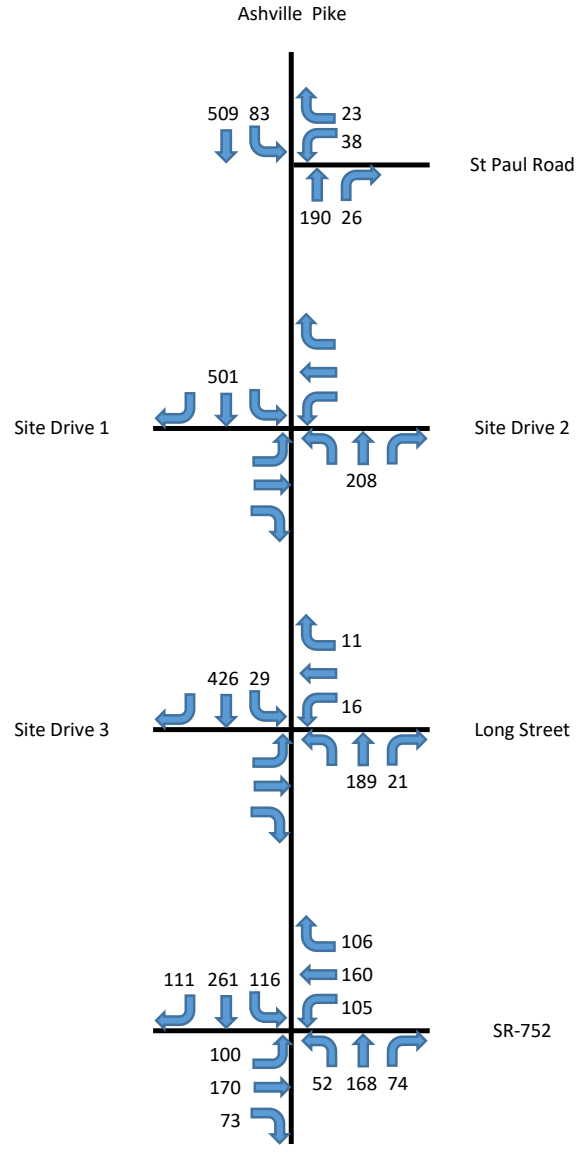
Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2032	PM	No Build	I

^
N

Growth Rate 2%

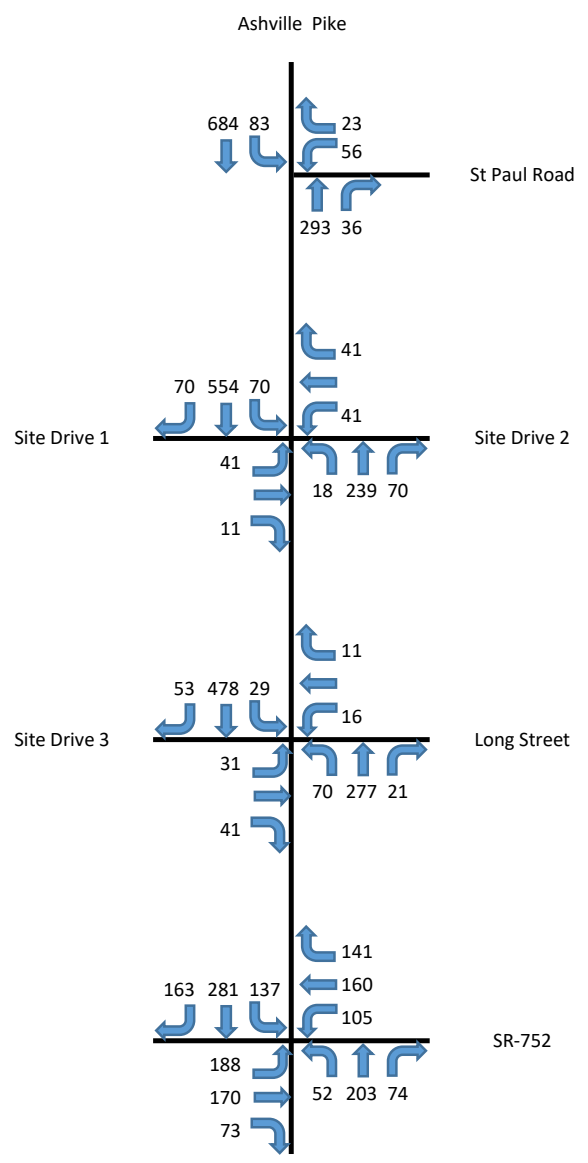


Ashville Residential TIS
Traffic Volume Calculations



Year	Period	Scenario	Plate
2032	PM	Build	J = G + I

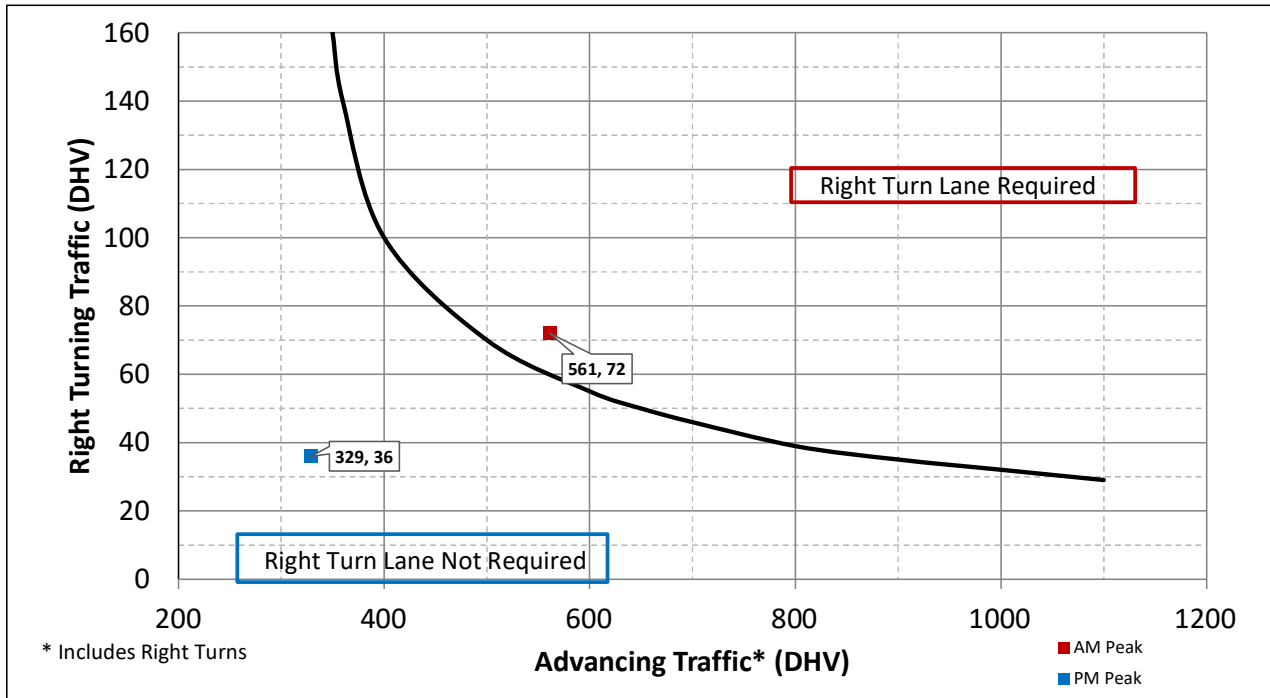
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Appendix E

Turn Lane Warrant and Length Analysis

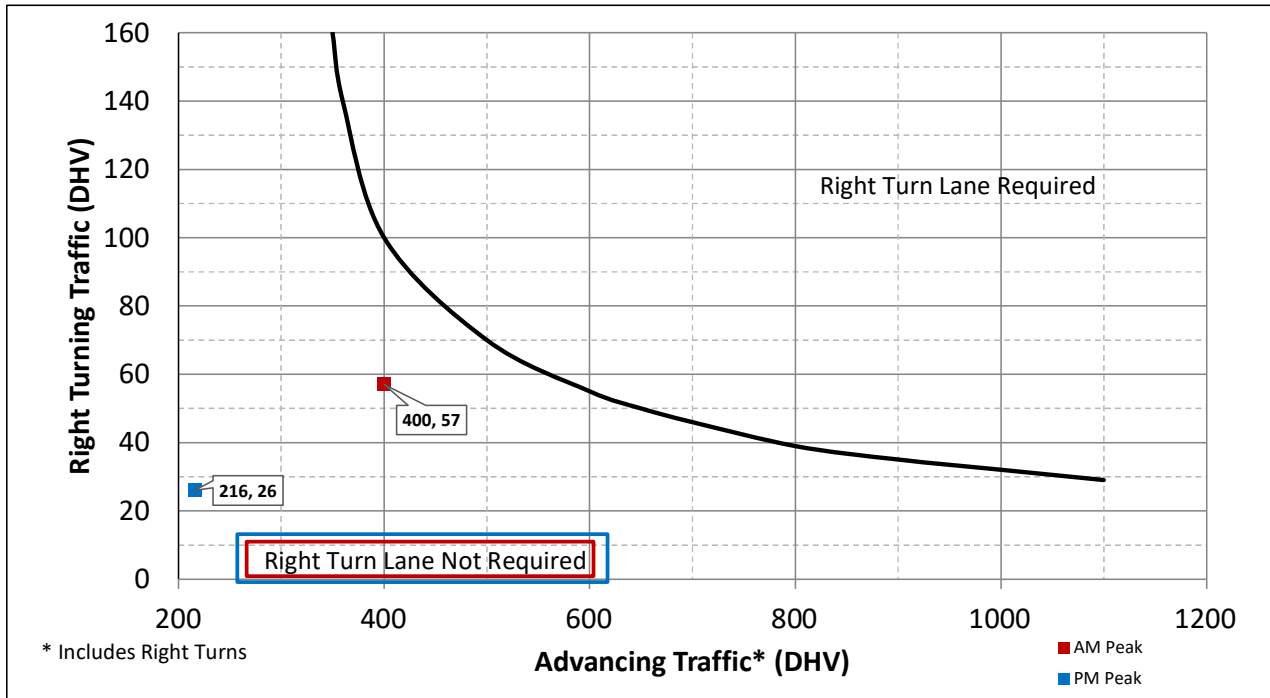
2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	72	VPH	
	Advancing Traffic	561	VPH	
	Right Turn Percentage	13%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
Turn Lane Length	215		* Turn Lane Length includes 50 ft diverging taper	
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	36	VPH	
	Advancing Traffic	329	VPH	
	Right Turn Percentage	11%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
Turn Lane Length	165		* Turn Lane Length includes 50 ft diverging taper	
Is Right Turn Warrant Met		Yes	See Above	

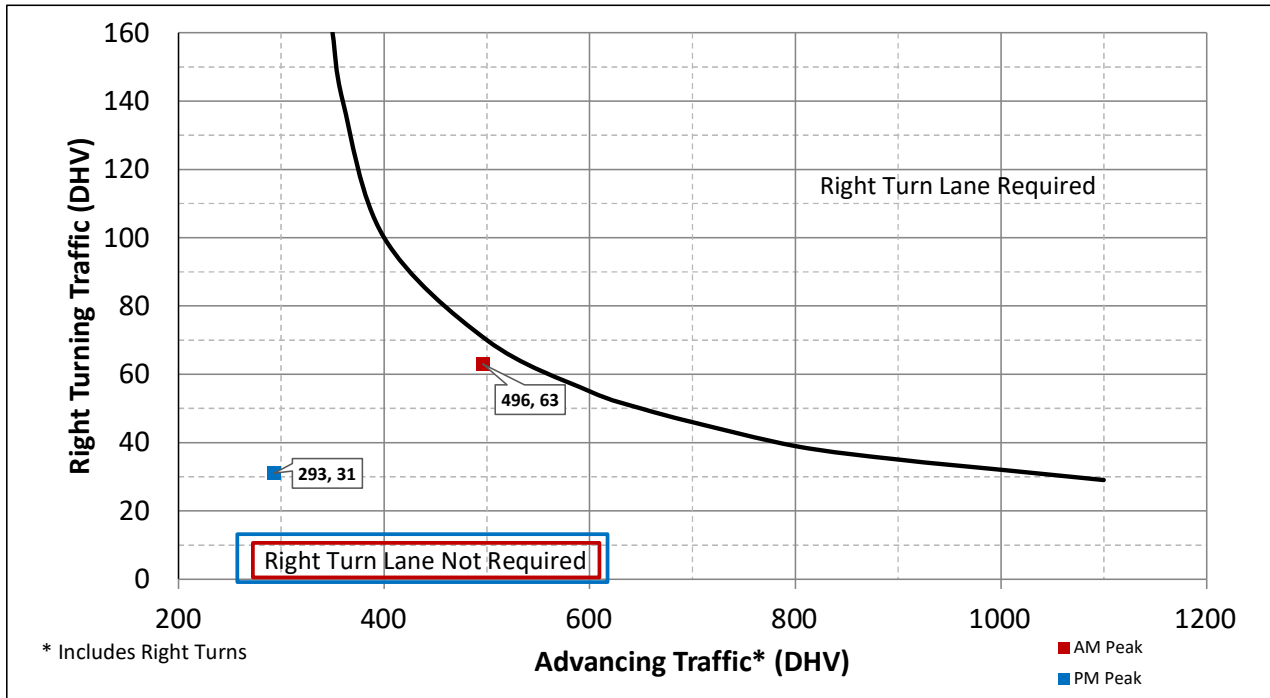
2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	57	VPH	
	Advancing Traffic	400	VPH	
	Right Turn Percentage	14%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
	Turn Lane Length	165		* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	26	VPH	
	Advancing Traffic	216	VPH	
	Right Turn Percentage	12%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
	Turn Lane Length	165		* Turn Lane Length includes 50 ft diverging taper
Is Right Turn Warrant Met	No	No Right Turn Lane Required		

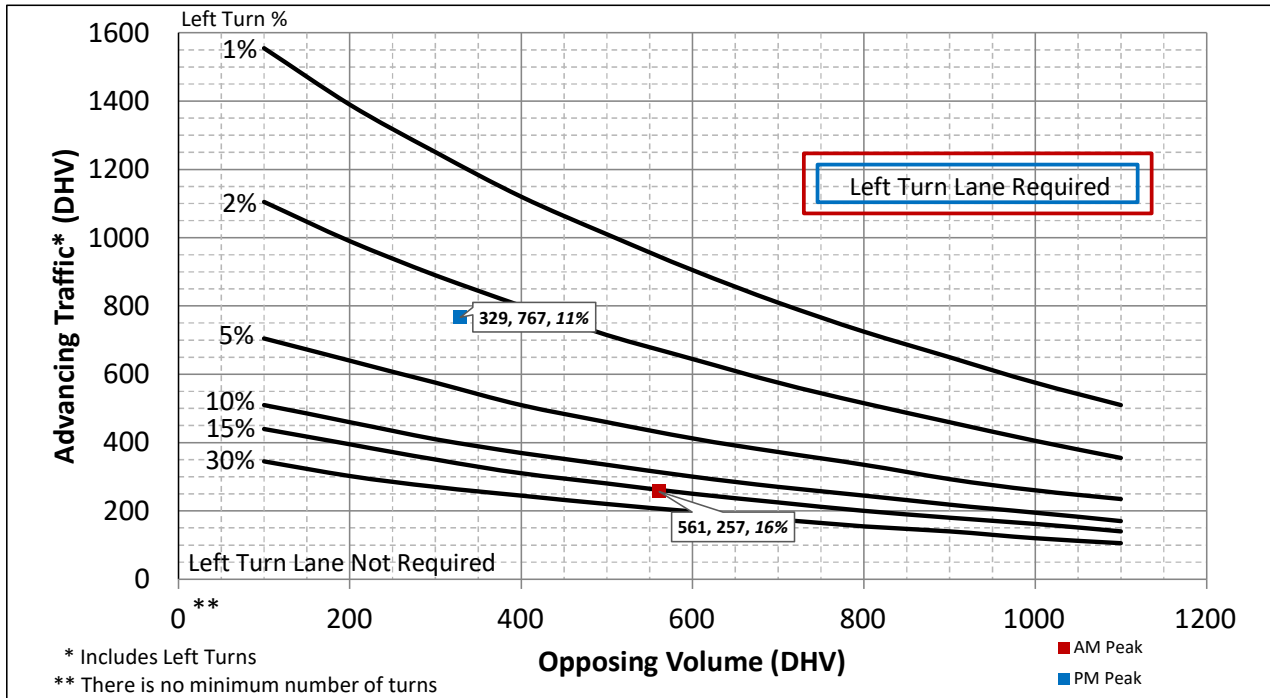
2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	63	VPH	
	Advancing Traffic	496	VPH	
	Right Turn Percentage	13%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	31	VPH	
	Advancing Traffic	293	VPH	
	Right Turn Percentage	11%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
	Turn Lane Length	165		* Turn Lane Length includes 50 ft diverging taper
Is Right Turn Warrant Met	No	No Right Turn Lane Required		

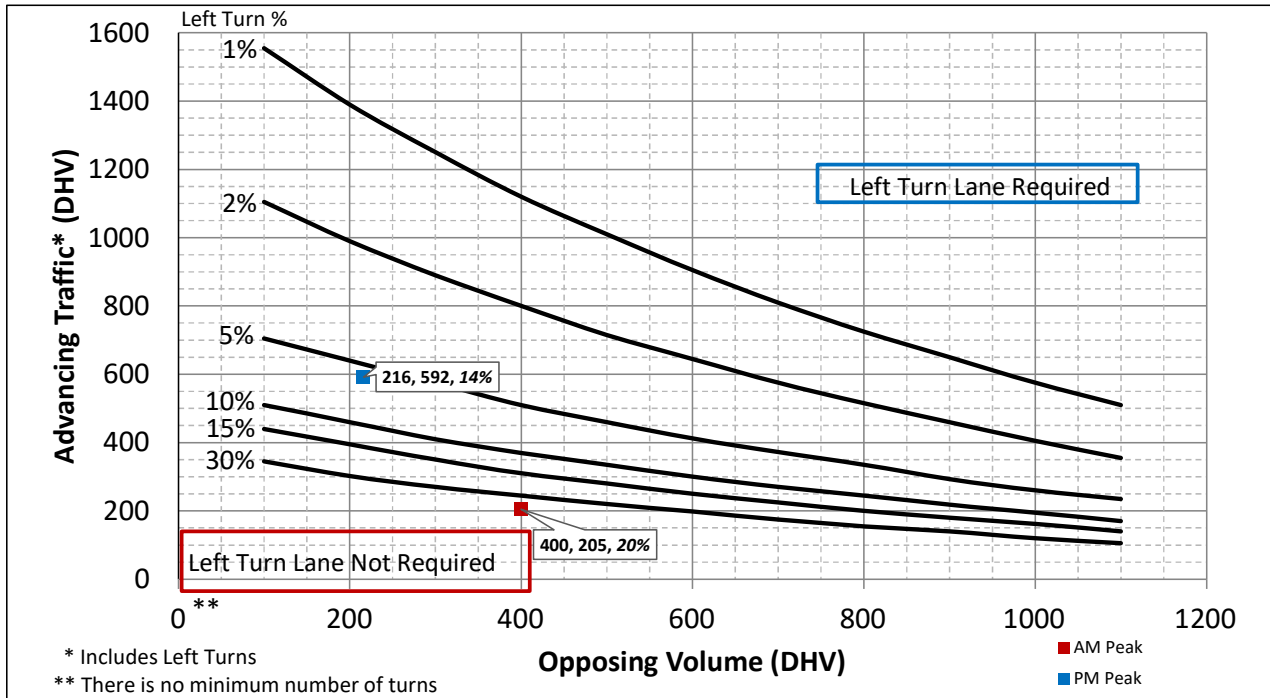
2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	40	VPH	
	Advancing Traffic	257	VPH	
	Opposing Volume	561	VPH	
	Left Turn Percentage	16%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
	Turn Lane Length	165		* Turn Lane Length includes 50 ft diverging taper
	Offset Width	12		
Approach Taper	320			
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	83	VPH	
	Advancing Traffic	767	VPH	
	Opposing Volume	329	VPH	
	Left Turn Percentage	11%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		* Turn Lane Length includes 50 ft diverging taper
	Offset Width	12		
Approach Taper	320			
Is Left Turn Warrant Met		Yes	See Above	

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



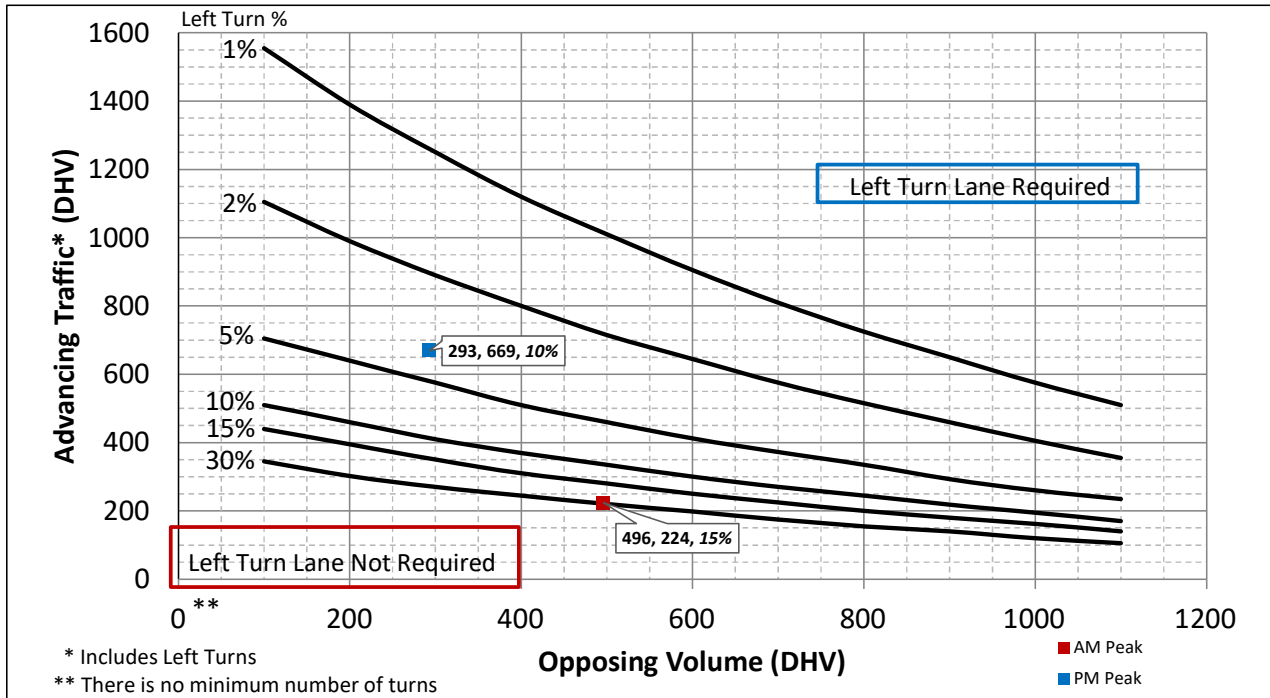
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	40	VPH
	Advancing Traffic	205	VPH
	Opposing Volume	400	VPH
	Left Turn Percentage	20%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	1	
	Turn Lane Length	165	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	83	VPH
	Advancing Traffic	592	VPH
	Opposing Volume	216	VPH
	Left Turn Percentage	14%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	215	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

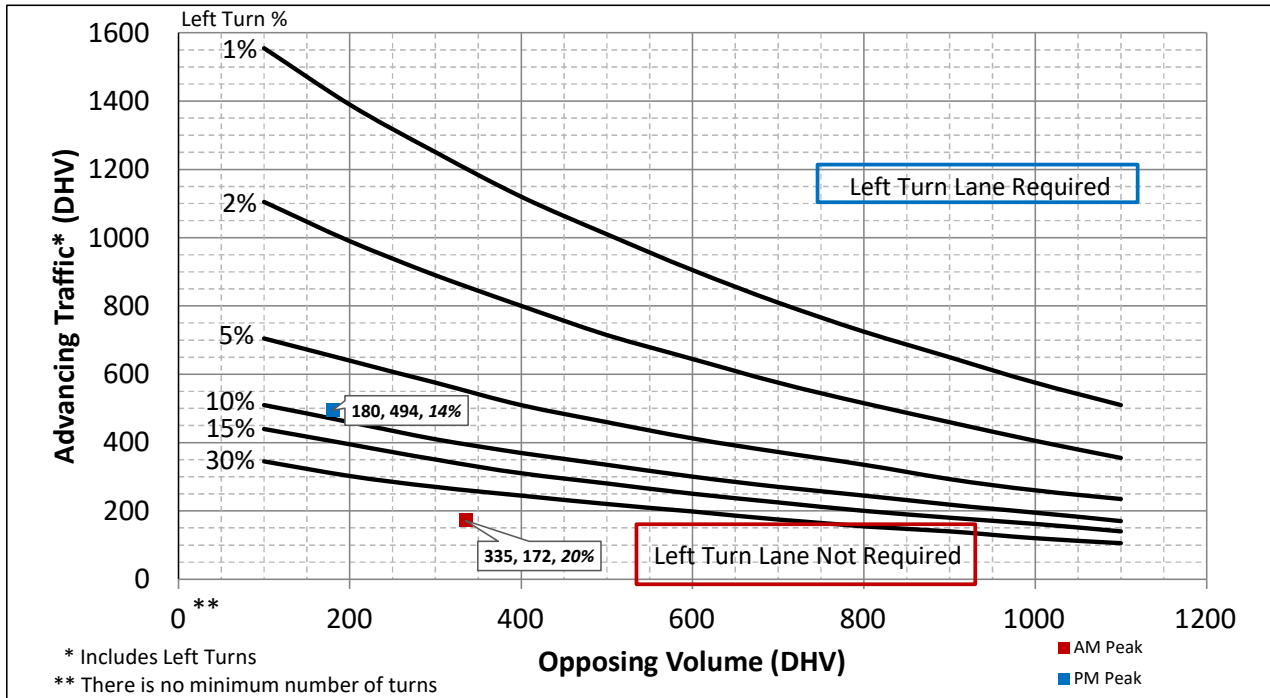
2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

		Design Speed	40	mph
AM Peak	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60		Assume 60
	Turn Lane Volume	34		VPH
	Advancing Traffic	224		VPH
	Opposing Volume	496		VPH
	Left Turn Percentage	15%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	1		
	Turn Lane Length	165		
	Offset Width	12		
	Approach Taper	320		
PM Peak	Design Speed	40		mph
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60		Assume 60
	Turn Lane Volume	69		VPH
	Advancing Traffic	669		VPH
	Opposing Volume	293		VPH
	Left Turn Percentage	10%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		
	Offset Width	12		
	Approach Taper	320		
				* Turn Lane Length includes 50 ft diverging taper
Is Left Turn Warrant Met		Yes		See Above

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



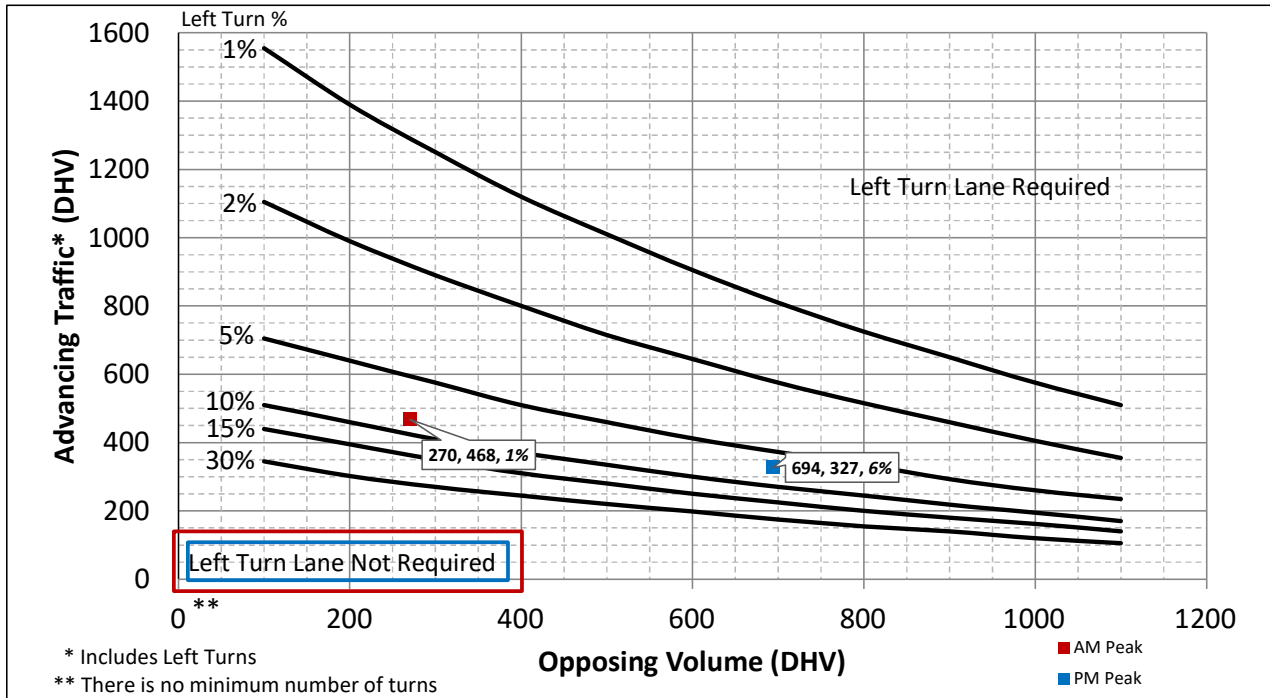
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	34	VPH
	Advancing Traffic	172	VPH
	Opposing Volume	335	VPH
	Left Turn Percentage	20%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	1	
	Turn Lane Length	165	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	69	VPH
	Advancing Traffic	494	VPH
	Opposing Volume	180	VPH
	Left Turn Percentage	14%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	215	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

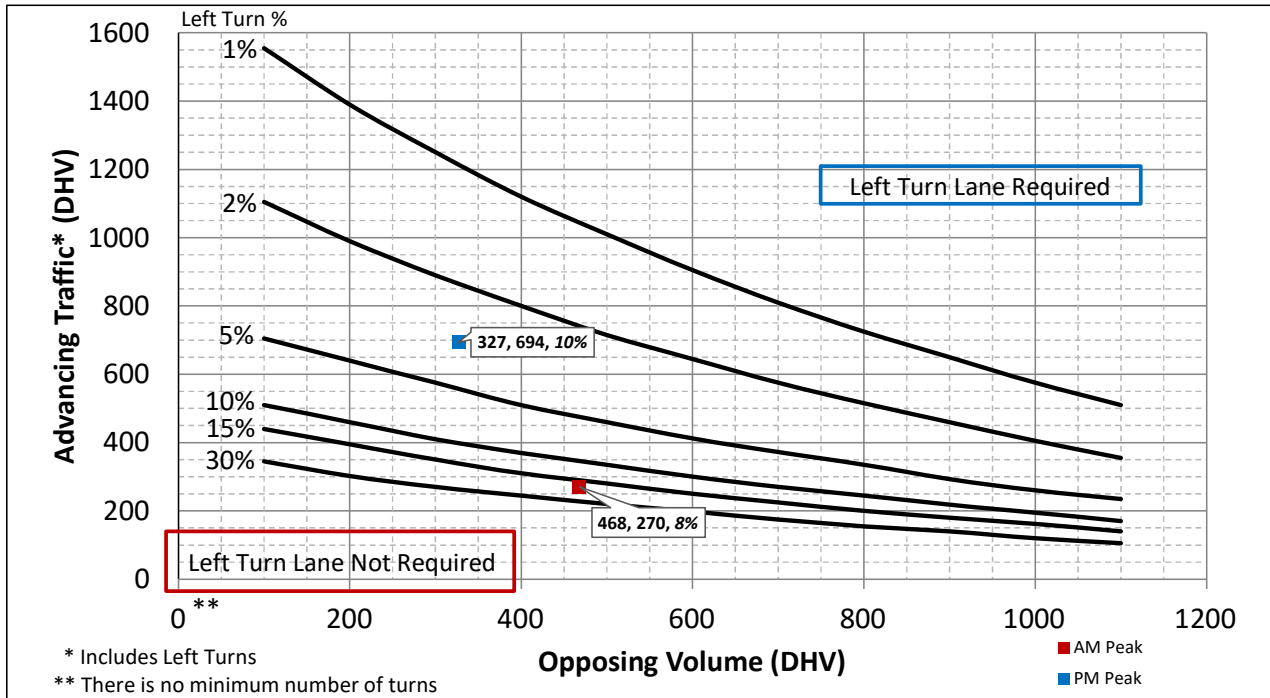
2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	5	VPH	
	Advancing Traffic	468	VPH	
	Opposing Volume	270	VPH	
	Left Turn Percentage	1%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
	Offset Width	12		
Approach Taper	320			
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	18	VPH	
	Advancing Traffic	327	VPH	
	Opposing Volume	694	VPH	
	Left Turn Percentage	6%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
	Offset Width	12		
Approach Taper	320			
Is Left Turn Warrant Met		No	No Left Turn Lane Required	

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



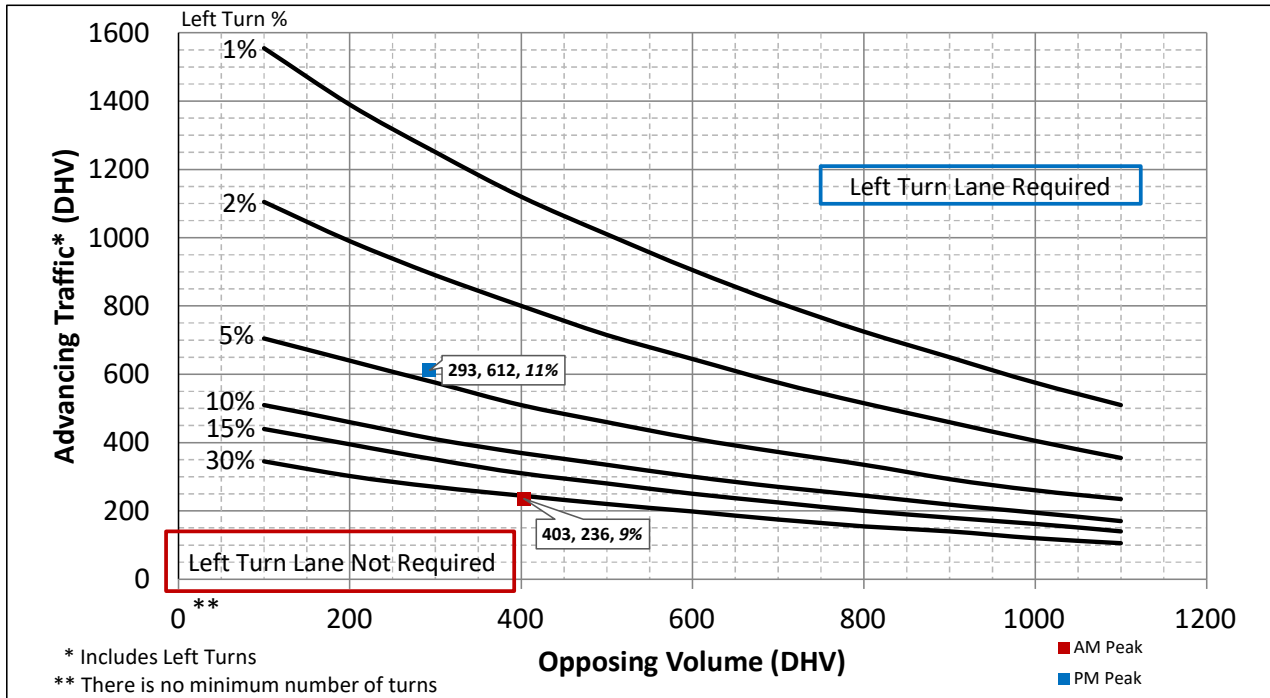
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	21	VPH
	Advancing Traffic	270	VPH
	Opposing Volume	468	VPH
	Left Turn Percentage	8%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	70	VPH
	Advancing Traffic	694	VPH
	Opposing Volume	327	VPH
	Left Turn Percentage	10%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	215	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



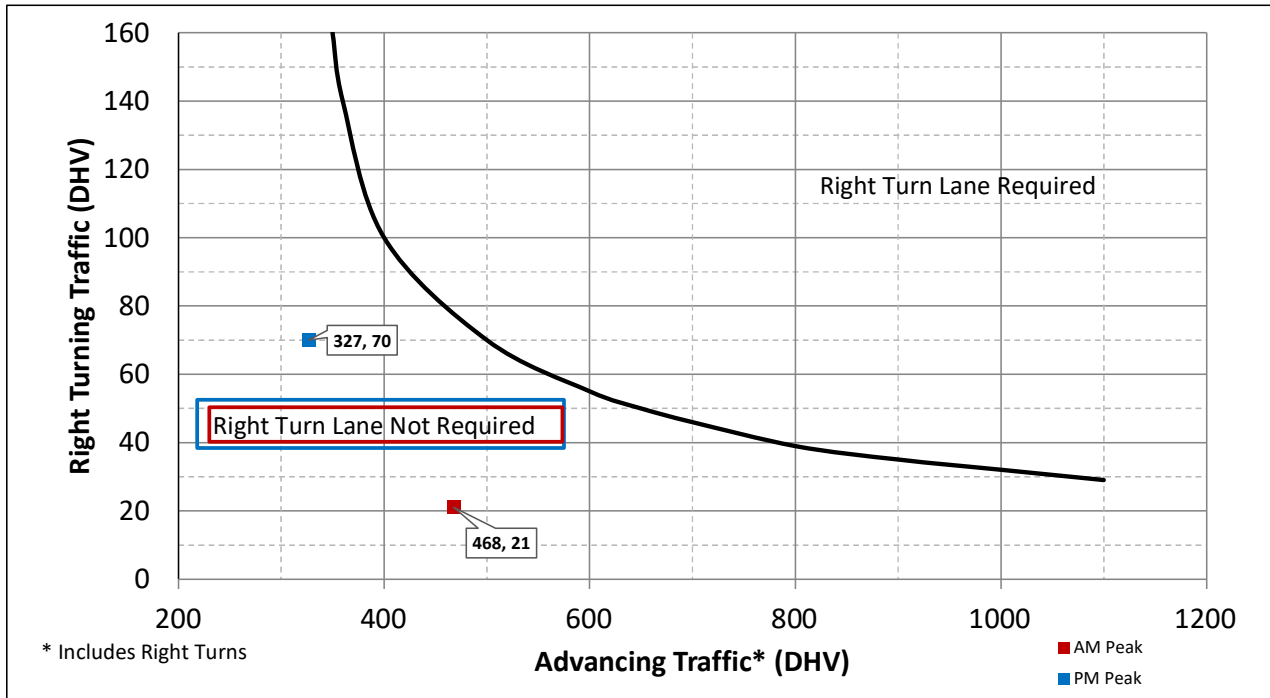
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	21	VPH
	Advancing Traffic	236	VPH
	Opposing Volume	403	VPH
	Left Turn Percentage	9%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	70	VPH
	Advancing Traffic	612	VPH
	Opposing Volume	293	VPH
	Left Turn Percentage	11%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	215	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

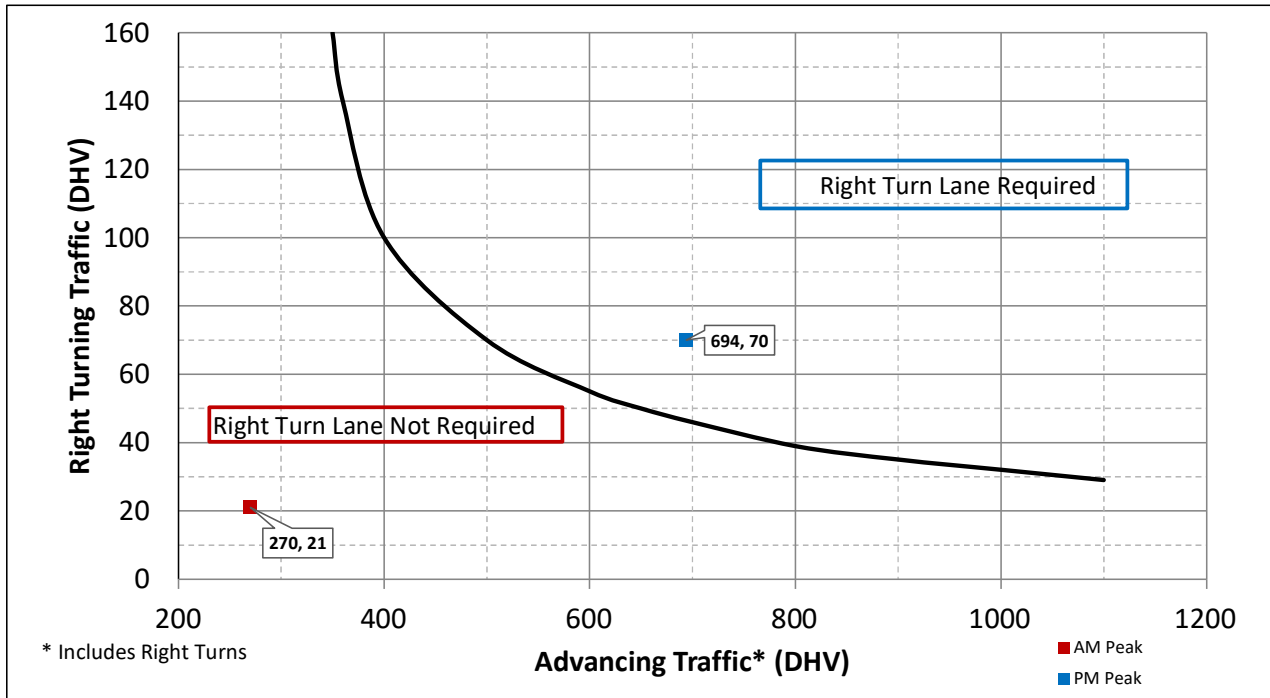
2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	21	VPH	
	Advancing Traffic	468	VPH	
	Right Turn Percentage	4%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	70	VPH	
	Advancing Traffic	327	VPH	
	Right Turn Percentage	21%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		* Turn Lane Length includes 50 ft diverging taper
Is Right Turn Warrant Met		No	No Right Turn Lane Required	

2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



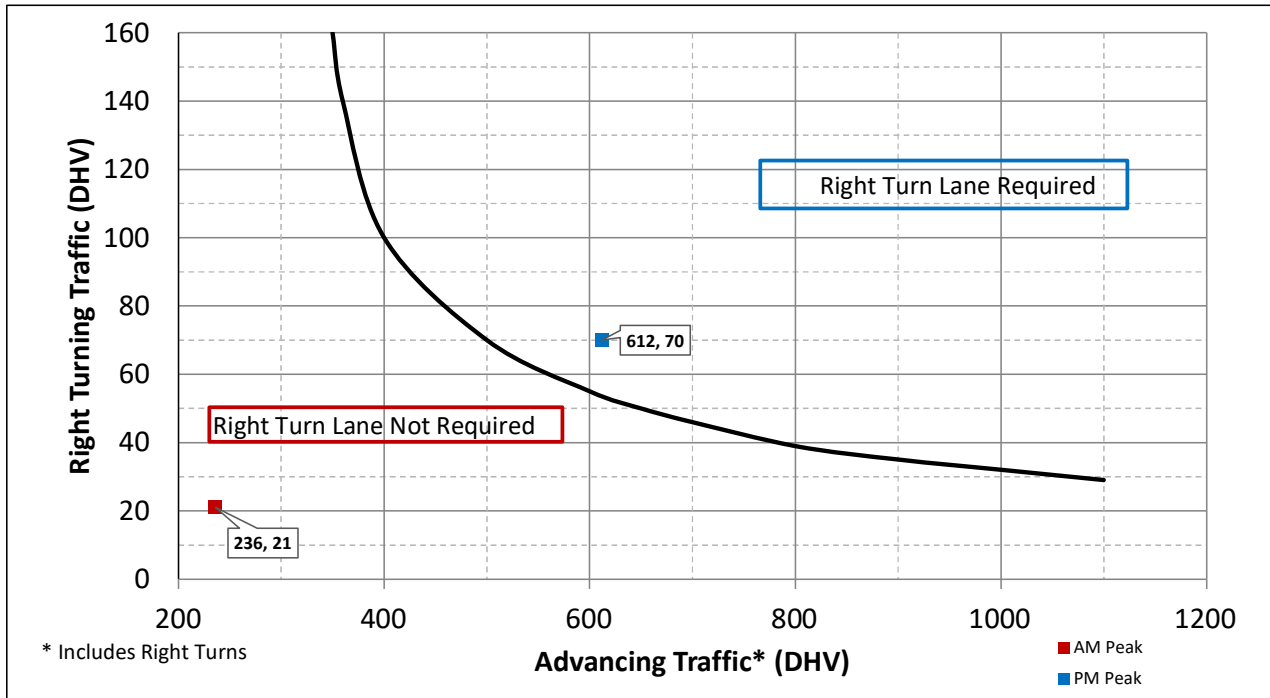
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	21	VPH	
	Advancing Traffic	270	VPH	
	Right Turn Percentage	8%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	70	VPH	
	Advancing Traffic	694	VPH	
	Right Turn Percentage	10%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		
Is Right Turn Warrant Met		Yes	See Above	

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



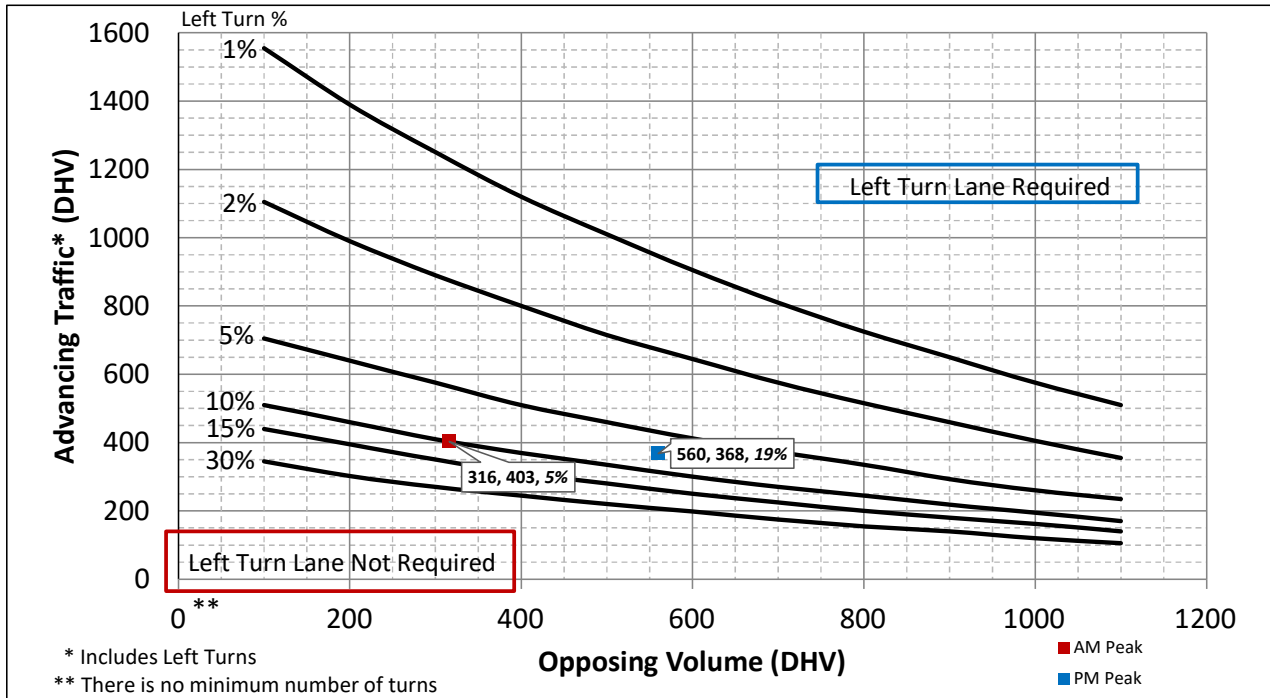
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	21	VPH	
	Advancing Traffic	236	VPH	
	Right Turn Percentage	9%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	70	VPH	
	Advancing Traffic	612	VPH	
	Right Turn Percentage	11%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		
Is Right Turn Warrant Met		Yes	See Above	

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



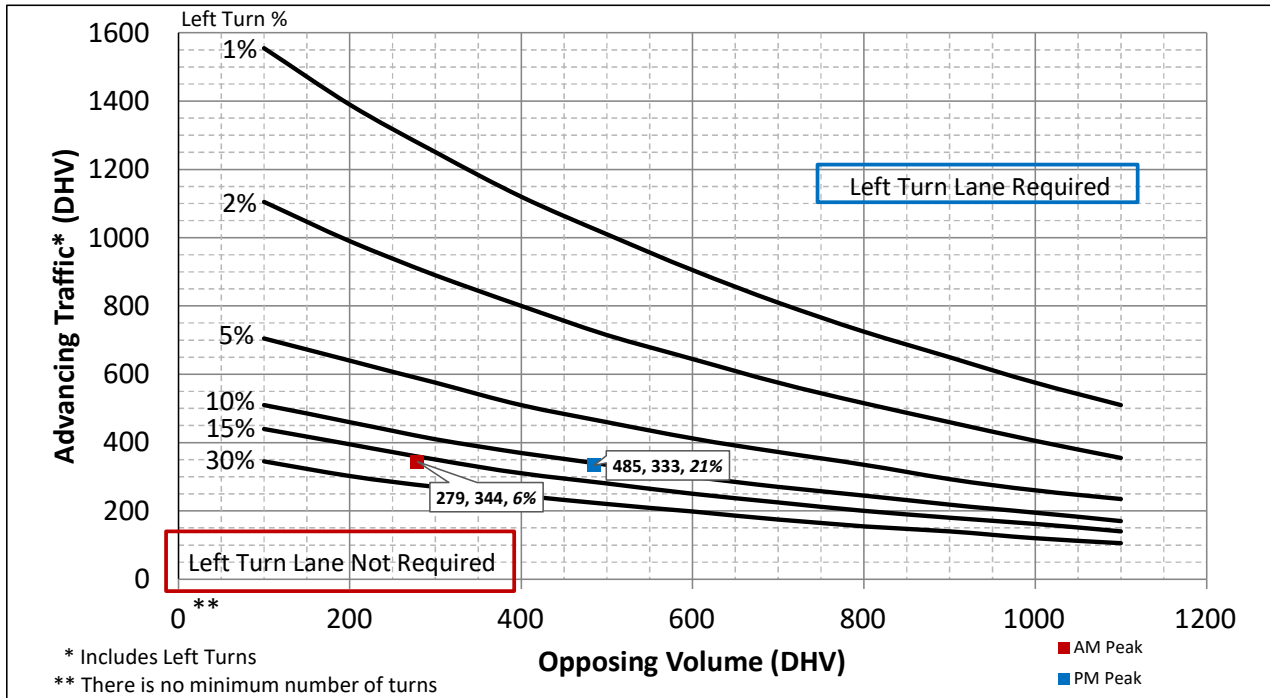
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	20	VPH
	Advancing Traffic	403	VPH
	Opposing Volume	316	VPH
	Left Turn Percentage	5%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	70	VPH
	Advancing Traffic	368	VPH
	Opposing Volume	560	VPH
	Left Turn Percentage	19%	
	Location Type	Through Road	
	Condition	C	
	Vehicles/Cycle	2	
	Turn Lane Length	215	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		Yes	See Above

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

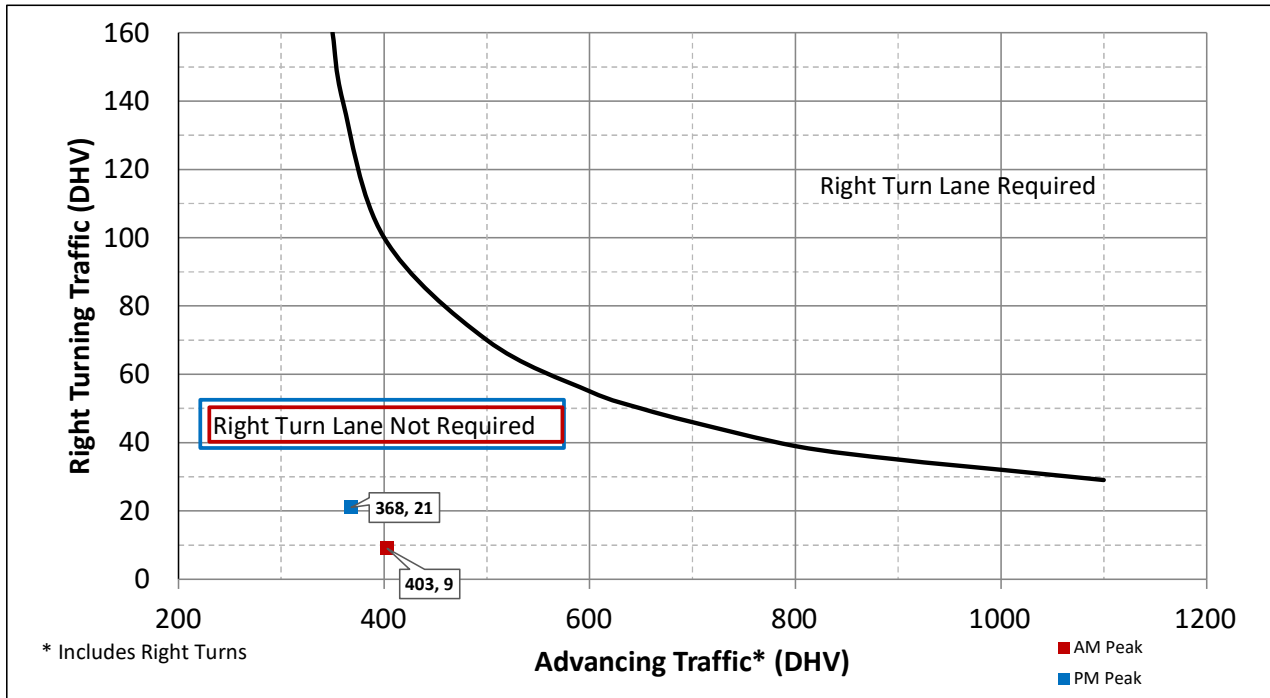
2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

		Design Speed	40	mph
AM Peak	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60		Assume 60
	Turn Lane Volume	20		VPH
	Advancing Traffic	344		VPH
	Opposing Volume	279		VPH
	Left Turn Percentage	6%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		
	Offset Width	12		
	Approach Taper	320		
				* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40		mph
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60		Assume 60
	Turn Lane Volume	70		VPH
	Advancing Traffic	333		VPH
	Opposing Volume	485		VPH
	Left Turn Percentage	21%		
	Location Type	Through Road		
	Condition	C		
	Vehicles/Cycle	2		
	Turn Lane Length	215		
	Offset Width	12		
Approach Taper	320			
				* Turn Lane Length includes 50 ft diverging taper
Is Left Turn Warrant Met		Yes		See Above

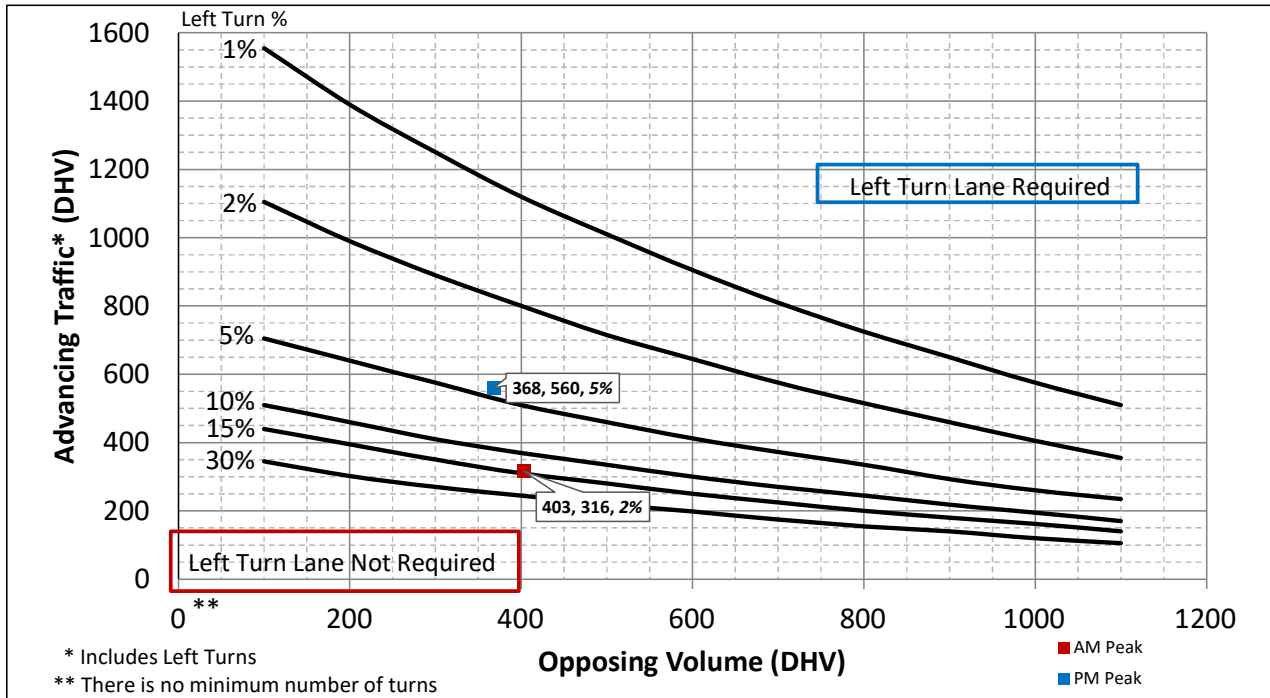
2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	9	VPH	
	Advancing Traffic	403	VPH	
	Right Turn Percentage	2%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	21	VPH	
	Advancing Traffic	368	VPH	
	Right Turn Percentage	6%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
Is Right Turn Warrant Met		No	No Right Turn Lane Required	

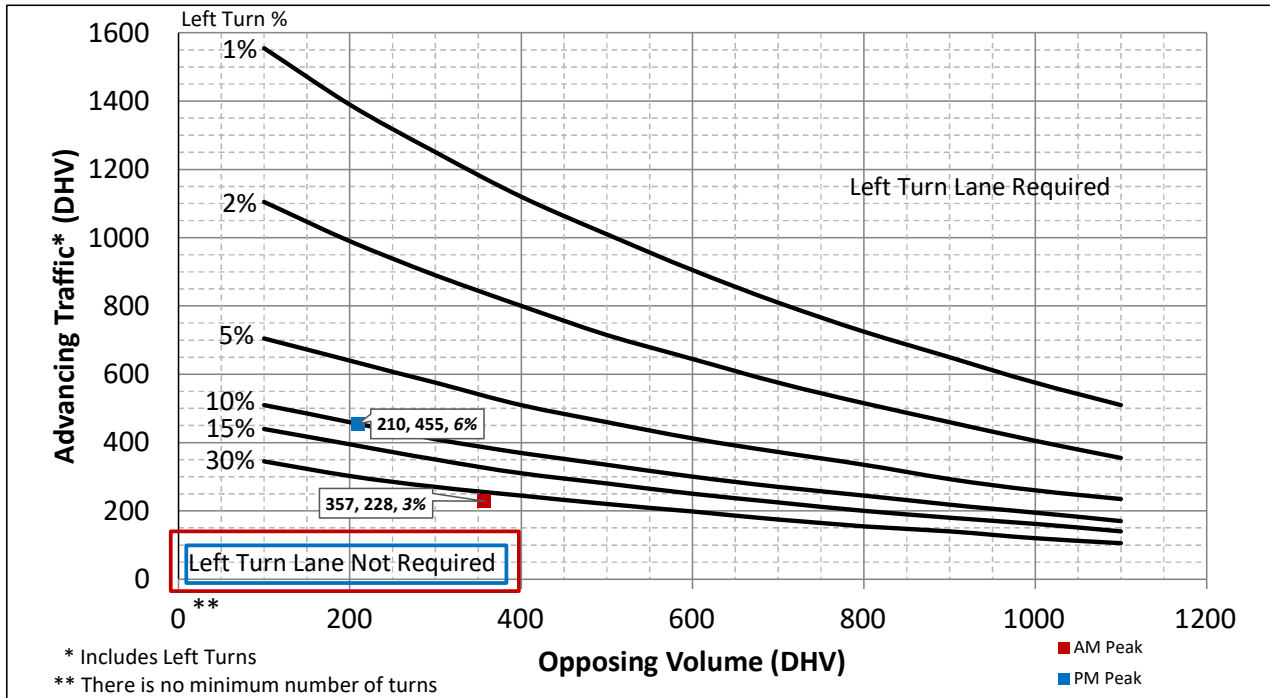
2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

	Design Speed	40	mph
AM Peak	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	6	VPH
	Advancing Traffic	316	VPH
	Opposing Volume	403	VPH
	Left Turn Percentage	2%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
	Approach Taper	320	
			* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	29	VPH
	Advancing Traffic	560	VPH
	Opposing Volume	368	VPH
	Left Turn Percentage	5%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
			* Turn Lane Length includes 50 ft diverging taper
Is Left Turn Warrant Met	Yes	See Above	

2-Lane Highway Left Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



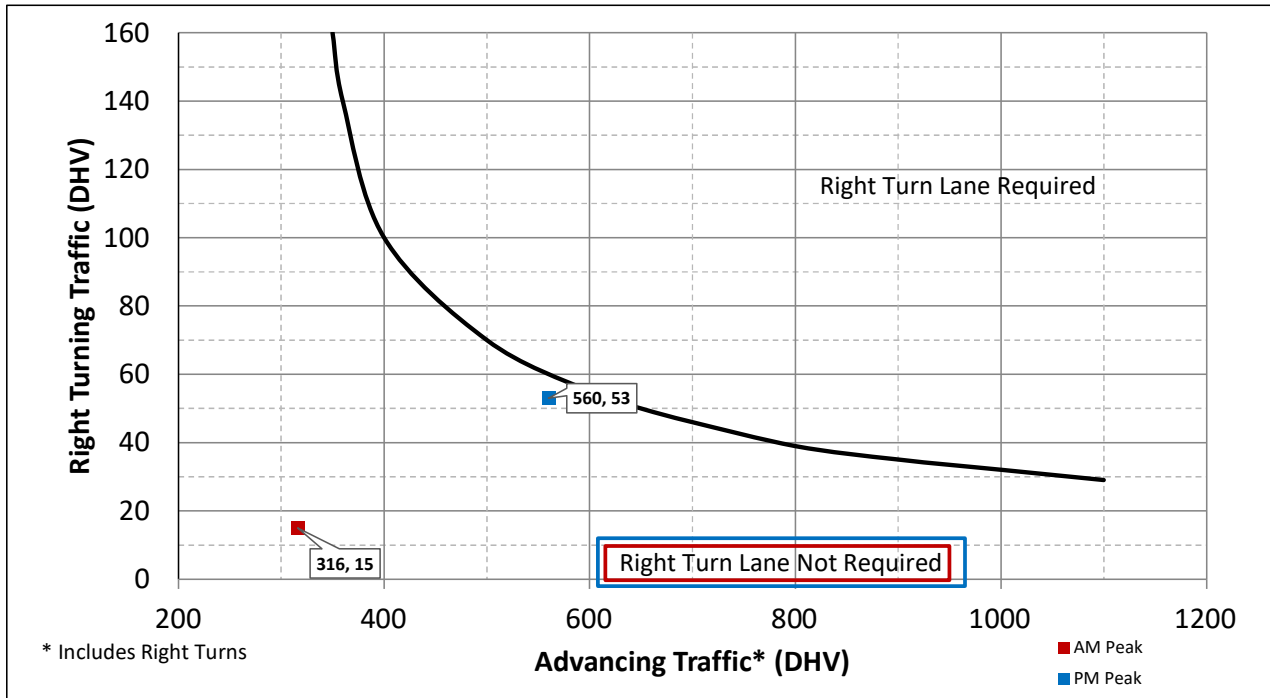
Turn Lane Length Calculations

AM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	6	VPH
	Advancing Traffic	228	VPH
	Opposing Volume	357	VPH
	Left Turn Percentage	3%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
PM Peak	Design Speed	40	mph
	Traffic Control	Unsignalized	
	Cycle Length	Unsignalized	
	Cycles Per Hour	60	Assume 60
	Turn Lane Volume	29	VPH
	Advancing Traffic	455	VPH
	Opposing Volume	210	VPH
	Left Turn Percentage	6%	
	Location Type	Through Road	
	Condition	B	
	Vehicles/Cycle	1	
	Turn Lane Length	125	
	Offset Width	12	
Approach Taper	320		
Is Left Turn Warrant Met		No	No Left Turn Lane Required

* Turn Lane Length includes 50 ft diverging taper

* Turn Lane Length includes 50 ft diverging taper

2-Lane Highway Right Turn Lane Warrant
(= < 40 mph or 70 kph Posted Speed)



Turn Lane Length Calculations

AM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	15	VPH	
	Advancing Traffic	316	VPH	
	Right Turn Percentage	5%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
PM Peak	Design Speed	40	mph	
	Traffic Control	Unsignalized		
	Cycle Length	Unsignalized		
	Cycles Per Hour	60	Assume 60	
	Turn Lane Volume	53	VPH	
	Advancing Traffic	560	VPH	
	Right Turn Percentage	9%		
	Location Type	Through Road		
	Condition	B		
	Vehicles/Cycle	1		
	Turn Lane Length	125		* Turn Lane Length includes 50 ft diverging taper
Is Right Turn Warrant Met		No	No Right Turn Lane Required	

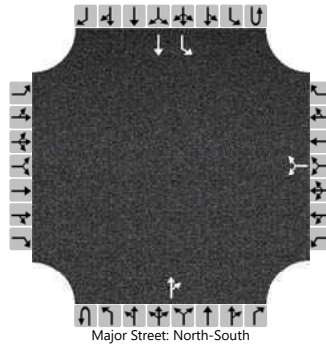
Appendix F

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	

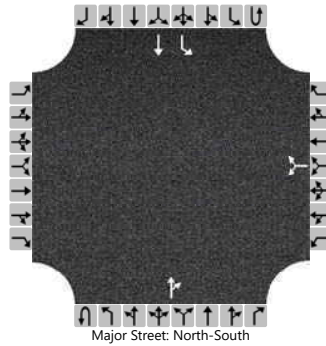
Delay, Queue Length, and Level of Service

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 Ashville		
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	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		64			433	63		34	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		

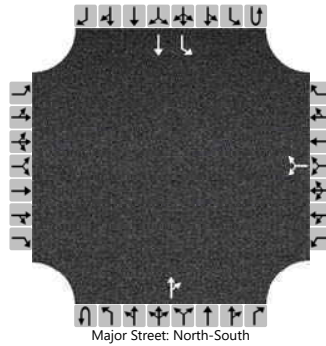
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						105								37		
Capacity, c (veh/h)						466								1024		
v/c Ratio						0.23								0.04		
95% Queue Length, Q ₉₅ (veh)						0.9								0.1		
Control Delay (s/veh)						15.0								8.6		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)						15.0								1.3		
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 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		

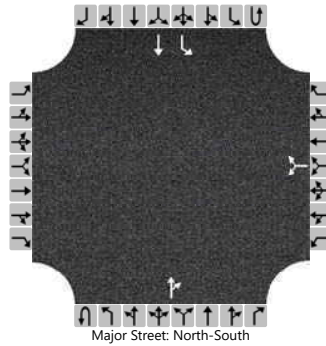
Delay, Queue Length, and Level of Service

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				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 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)						50		19			262	31		69	600	
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		

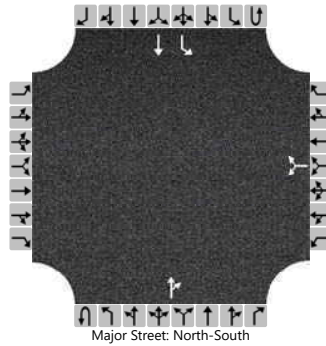
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						75								75		
Capacity, c (veh/h)						271								1236		
v/c Ratio						0.28								0.06		
95% Queue Length, Q ₉₅ (veh)						1.1								0.2		
Control Delay (s/veh)						23.3								8.1		
Level of Service (LOS)						C								A		
Approach Delay (s/veh)						23.3								0.8		
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	

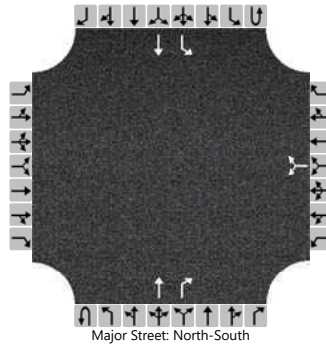
Delay, Queue Length, and Level of Service

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				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 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	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						38		77			489	72		40	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		

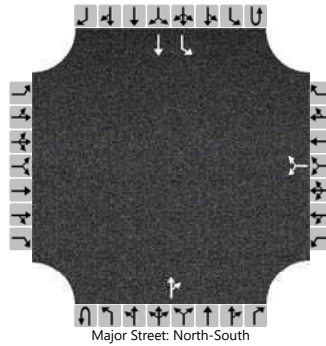
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						125								43		
Capacity, c (veh/h)						438								964		
v/c Ratio						0.29								0.05		
95% Queue Length, Q ₉₅ (veh)						1.2								0.1		
Control Delay (s/veh)						16.5								8.9		
Level of Service (LOS)						C								A		
Approach Delay (s/veh)						16.5								1.4		
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
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)						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		

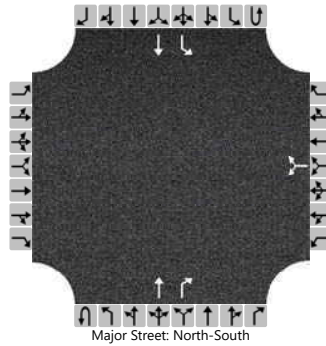
Delay, Queue Length, and Level of Service

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				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 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	1	0	1	1	0
Configuration							LR				T	R		L	T	
Volume (veh/h)						56		23			293	36		83	684	
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)						86								90		
Capacity, c (veh/h)						227								1196		
v/c Ratio						0.38								0.08		
95% Queue Length, Q ₉₅ (veh)						1.7								0.2		
Control Delay (s/veh)						30.2								8.3		
Level of Service (LOS)						D								A		
Approach Delay (s/veh)						30.2								0.9		
Approach LOS						D										

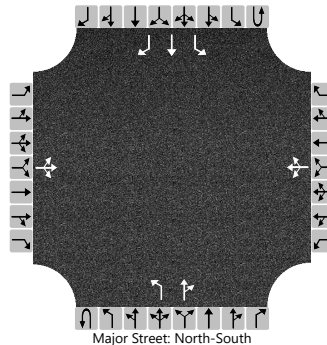
HCS7 Two-Way Stop-Control Report

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		1	1	0		1	1	1
Configuration			LTR				LTR			L		TR		L	T	R
Volume (veh/h)		58	0	15		58	0	58		5	377	21		21	194	21
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		

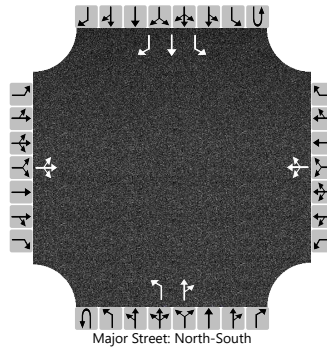
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			79				126			5				23		
Capacity, c (veh/h)			347				437			1328				1122		
v/c Ratio			0.23				0.29			0.00				0.02		
95% Queue Length, Q ₉₅ (veh)			0.9				1.2			0.0				0.1		
Control Delay (s/veh)			18.4				16.5			7.7				8.3		
Level of Service (LOS)			C				C			A				A		
Approach Delay (s/veh)	18.4				16.5				0.1				0.7			
Approach LOS	C				C											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRV	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
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	11		41	0	41		18	205	70		70	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)			57				89			20				76		
Capacity, c (veh/h)			231				318			981				1257		
v/c Ratio			0.24				0.28			0.02				0.06		
95% Queue Length, Q ₉₅ (veh)			0.9				1.1			0.1				0.2		
Control Delay (s/veh)			25.6				20.7			8.7				8.0		
Level of Service (LOS)			D				C			A				A		
Approach Delay (s/veh)	25.6				20.7				0.5				0.9			
Approach LOS	D				C											

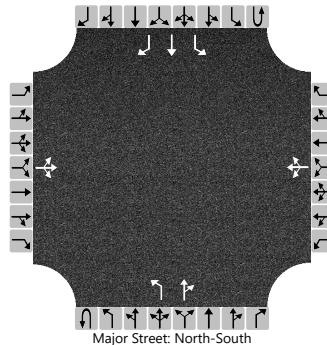
HCS7 Two-Way Stop-Control Report

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	15		58	0	58		5	442	21		21	228	21	
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			

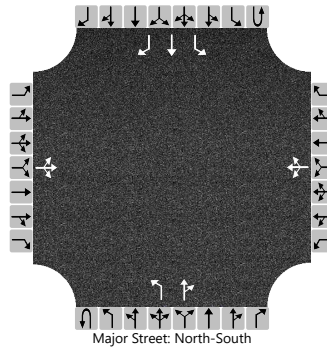
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			79				126			5				23			
Capacity, c (veh/h)			293				379			1287				1056			
v/c Ratio			0.27				0.33			0.00				0.02			
95% Queue Length, Q ₉₅ (veh)			1.1				1.4			0.0				0.1			
Control Delay (s/veh)			21.8				19.2			7.8				8.5			
Level of Service (LOS)			C				C			A				A			
Approach Delay (s/veh)	21.8				19.2				0.1				0.7				
Approach LOS	C				C												

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRV	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	11		41	0	41		18	239	70		70	554	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			

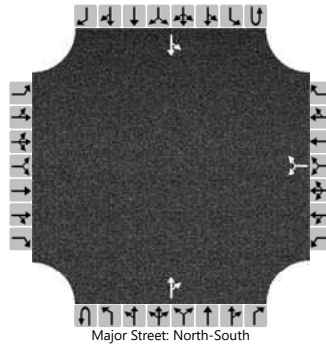
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			57				89			20				76			
Capacity, c (veh/h)			190				267			909				1218			
v/c Ratio			0.30				0.33			0.02				0.06			
95% Queue Length, Q ₉₅ (veh)			1.2				1.4			0.1				0.2			
Control Delay (s/veh)			31.8				25.0			9.0				8.2			
Level of Service (LOS)			D				D			A				A			
Approach Delay (s/veh)		31.8				25.0				0.5				0.8			
Approach LOS		D				D											

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	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	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						13		38			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	

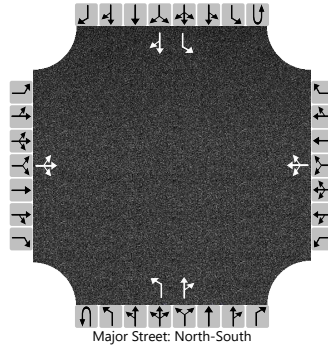
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						55									5	
Capacity, c (veh/h)						648									1230	
v/c Ratio						0.09									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	LRV	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)		45	0	58		13	0	38		20	317	7		5	259	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			

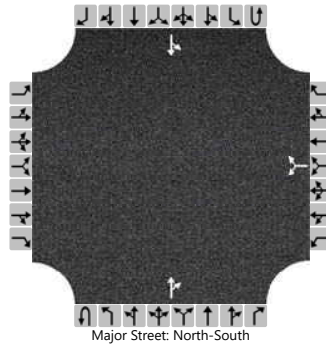
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			112				55			22				5			
Capacity, c (veh/h)			471				524			1258				1201			
v/c Ratio			0.24				0.11			0.02				0.00			
95% Queue Length, Q ₉₅ (veh)			0.9				0.4			0.1				0.0			
Control Delay (s/veh)			15.0				12.7			7.9				8.0			
Level of Service (LOS)			B				B			A				A			
Approach Delay (s/veh)		15.0				12.7				0.5				0.1			
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		

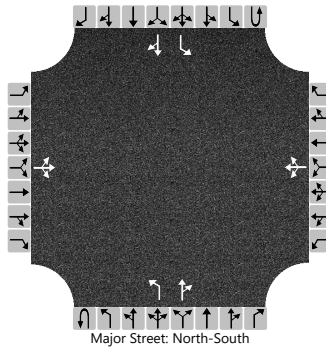
Delay, Queue Length, and Level of Service

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	LRV	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		1	1	0		0	1	0
Configuration			LTR				LTR			L		TR		L		TR
Volume (veh/h)		31	0	41		13	0	9		70	246	17		24	408	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		

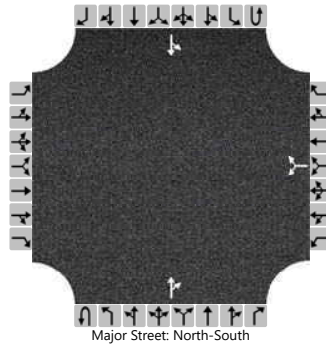
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			78				24				76				26	
Capacity, c (veh/h)			339				283				1058				1271	
v/c Ratio			0.23				0.08				0.07				0.02	
95% Queue Length, Q ₉₅ (veh)			0.9				0.3				0.2				0.1	
Control Delay (s/veh)			18.8				18.9				8.7				7.9	
Level of Service (LOS)			C				C				A				A	
Approach Delay (s/veh)	18.8				18.9				1.8				0.4			
Approach LOS	C				C											

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	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	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						16		45			348	9		6	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		

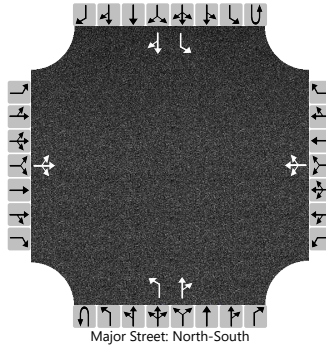
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						66								7		
Capacity, c (veh/h)						583								1165		
v/c Ratio						0.11								0.01		
95% Queue Length, Q ₉₅ (veh)						0.4								0.0		
Control Delay (s/veh)						12.0								8.1		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					12.0								0.3			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRV	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	1	0	0	1	1	0	
Configuration			LTR				LTR			L		TR		L		TR	
Volume (veh/h)		45	0	58		16	0	45		20	374	9		6	295	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			

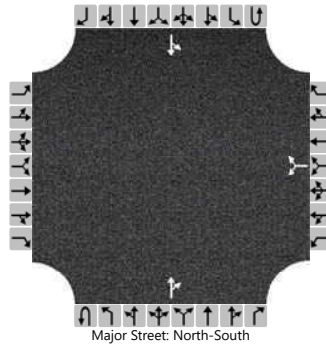
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			112				66			22				7			
Capacity, c (veh/h)			410				461			1217				1137			
v/c Ratio			0.27				0.14			0.02				0.01			
95% Queue Length, Q ₉₅ (veh)			1.1				0.5			0.1				0.0			
Control Delay (s/veh)			17.1				14.1			8.0				8.2			
Level of Service (LOS)			C				B			A				A			
Approach Delay (s/veh)		17.1				14.1				0.4				0.2			
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)						16		11			189	21		29	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		

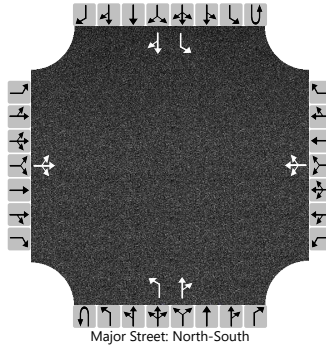
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						29								32		
Capacity, c (veh/h)						476								1334		
v/c Ratio						0.06								0.02		
95% Queue Length, Q ₉₅ (veh)						0.2								0.1		
Control Delay (s/veh)						13.1								7.8		
Level of Service (LOS)						B								A		
Approach Delay (s/veh)					13.1								0.7			
Approach LOS					B											

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	LRV	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	41		16	0	11		70	277	21		29	478	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

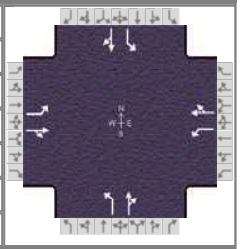
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.13	6.53	6.23		4.13				4.13		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.53	4.03	3.33		2.23				2.23		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			78				29				76				32	
Capacity, c (veh/h)			285				235				991				1230	
v/c Ratio			0.27				0.13				0.08				0.03	
95% Queue Length, Q ₉₅ (veh)			1.1				0.4				0.2				0.1	
Control Delay (s/veh)			22.3				22.5				8.9				8.0	
Level of Service (LOS)			C				C				A				A	
Approach Delay (s/veh)	22.3				22.5				1.7				0.4			
Approach LOS	C				C											

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 Asheville		Time Period	AM No Build		PHF	0.92
Urban Street	Asheville Pike		Analysis Year	2022		Analysis Period	1> 7:00
Intersection	Asheville Pike & SR-752		File Name	OY AM No Build - 752.xus			
Project Description	Asheville 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	41	170	12	29	99	64	20	114	57	126	53	55

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

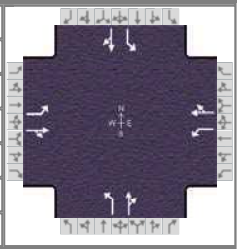
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	31.0	13.0	31.0	13.0	33.0	13.0	33.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue 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		
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	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 Asheville	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	51	170	12	29	99	74	20	140	57	155	126	84

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

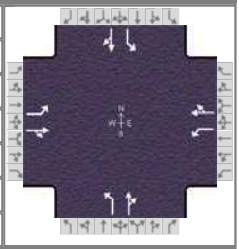
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	31.0	13.0	31.0	13.0	33.0	13.0	33.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	3.9	10.1	3.1	10.1	2.7	10.6	7.9	11.6
Green Extension Time (g_e), s	0.0	0.6	0.0	0.6	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	0.22	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	55	198		32	188		22	214		168	228	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1790		1739	1695		1781	1778		1767	1731	
Queue Service Time (g_s), s	1.9	8.1		1.1	8.1		0.7	8.6		5.9	9.6	
Cycle Queue Clearance Time (g_c), s	1.9	8.1		1.1	8.1		0.7	8.6		5.9	9.6	
Green Ratio (g/C)	0.36	0.28		0.36	0.28		0.38	0.30		0.38	0.30	
Capacity (c), veh/h	406	497		407	471		416	533		428	519	
Volume-to-Capacity Ratio (X)	0.137	0.398		0.077	0.399		0.052	0.401		0.394	0.440	
Back of Queue (Q), ft/ln (95 th percentile)	35.3	157.8		19.6	149.1		12.6	161.1		107.7	175.6	
Back of Queue (Q), veh/ln (95 th percentile)	1.3	6.0		0.8	5.7		0.5	6.3		4.2	6.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.16	0.53		0.09	0.09		0.08	0.54		0.72	0.14	
Uniform Delay (d_1), s/veh	19.9	26.4		19.6	26.4		18.4	25.1		20.0	25.4	
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	20.0	26.6		19.6	26.6		18.4	25.3		20.2	25.6	
Level of Service (LOS)	B	C		B	C		B	C		C	C	
Approach Delay, s/veh / LOS	25.1	C		25.6	C		24.6	C		23.3	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	0.91	A	0.85	A	0.88	A	1.14	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 Asheville		Time Period	PM No Build		PHF	0.92
Urban Street	Asheville Pike		Analysis Year	2022		Analysis Period	1> 7:00
Intersection	Asheville Pike & SR-752		File Name	OY PM No Build - 752.xus			
Project Description	Asheville 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				EB				WB				NB				SB											
Cycle, s	90.0	Reference Phase	2	Green	7.0	28.0	7.0	24.0	0.0	0.0	Green	7.0	28.0	7.0	24.0	0.0	0.0	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	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	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	Red	2.0	2.0	2.0	2.0	0.0	0.0	Red	2.0	2.0	2.0	2.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On																								

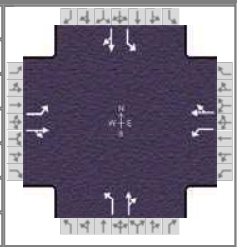
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue 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 Asheville	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		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	119	142	61	88	134	124	44	229	62	118	269	114

Signal Information				EB				WB				NB				SB											
Cycle, s	90.0	Reference Phase	2	Green	7.0	28.0	7.0	24.0	0.0	0.0	Green	7.0	28.0	7.0	24.0	0.0	0.0	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	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	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	Red	2.0	2.0	2.0	2.0	0.0	0.0	Red	2.0	2.0	2.0	2.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On																								

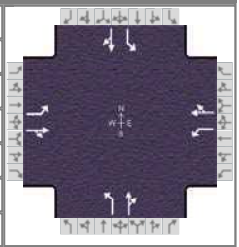
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	6.6	11.4	5.3	14.7	3.5	15.1	6.2	20.8
Green Extension Time (g_e), s	0.0	0.9	0.0	0.8	0.0	1.3	0.0	1.1
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	0.03	0.53	0.01	1.00	0.16

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	129	221		96	280		48	316		128	416	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1774		1795	1735		1795	1816		1795	1789	
Queue Service Time (g_s), s	4.6	9.4		3.3	12.7		1.5	13.1		4.2	18.8	
Cycle Queue Clearance Time (g_c), s	4.6	9.4		3.3	12.7		1.5	13.1		4.2	18.8	
Green Ratio (g/C)	0.34	0.27		0.34	0.27		0.39	0.31		0.39	0.31	
Capacity (c), veh/h	332	473		384	463		298	565		373	557	
Volume-to-Capacity Ratio (X)	0.390	0.466		0.249	0.606		0.161	0.560		0.343	0.748	
Back of Queue (Q), ft/ln (95 th percentile)	85.6	176.7		61.2	228.6		27.3	236.4		76.9	332	
Back of Queue (Q), veh/ln (95 th percentile)	3.4	7.0		2.4	9.1		1.1	9.4		3.1	13.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.39	0.59		0.28	0.14		0.17	0.79		0.51	0.27	
Uniform Delay (d_1), s/veh	22.2	27.6		21.2	28.9		19.8	25.9		19.5	27.8	
Incremental Delay (d_2), s/veh	0.3	0.3		0.1	1.6		0.1	0.8		0.2	4.9	
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	22.5	27.9		21.3	30.5		19.9	26.6		19.7	32.8	
Level of Service (LOS)	C	C		C	C		B	C		B	C	
Approach Delay, s/veh / LOS	25.9	C		28.2	C		25.7	C		29.7	C	
Intersection Delay, s/veh / LOS	27.7						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	1.07	A	1.11	A	1.09	A	1.39	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 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		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	49	204	15	34	118	77	24	137	68	151	63	66

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

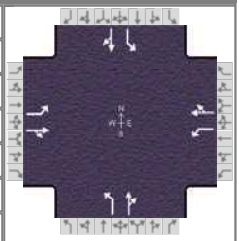
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	13.0	32.0	13.0	32.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.2	3.1	3.2
Queue Clearance Time (g_s), s	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		
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	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	LRY	Analysis Date	Oct 4, 2021	Area Type	Other		
Jurisdiction	Village of Asheville	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		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	59	204	15	34	118	87	24	163	68	180	136	95

Signal Information				Green				Yellow				Red			
Cycle, s	90.0	Reference Phase	2	[Diagram]				[Diagram]				[Diagram]			
Offset, s	0	Reference Point	End	[Diagram]				[Diagram]				[Diagram]			
Uncoordinated	Yes	Simult. Gap E/W	On	[Diagram]				[Diagram]				[Diagram]			
Force Mode	Fixed	Simult. Gap N/S	On	[Diagram]				[Diagram]				[Diagram]			

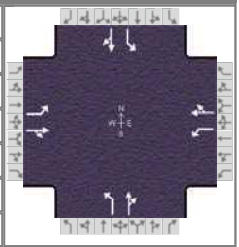
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	32.0	13.0	32.0	13.0	32.0	13.0	32.0
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue Clearance Time (g _s), s	4.2	11.8	3.2	11.7	2.8	12.5	9.0	12.9
Green Extension Time (g _e), s	0.0	0.8	0.0	0.8	0.0	0.9	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	0.31	0.00	0.13	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	64	238		37	223		26	251		196	251	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1789		1739	1696		1781	1776		1767	1728	
Queue Service Time (g _s), s	2.2	9.8		1.2	9.7		0.8	10.5		7.0	10.9	
Cycle Queue Clearance Time (g _c), s	2.2	9.8		1.2	9.7		0.8	10.5		7.0	10.9	
Green Ratio (g/C)	0.37	0.29		0.37	0.29		0.37	0.29		0.37	0.29	
Capacity (c), veh/h	393	517		391	490		383	513		385	499	
Volume-to-Capacity Ratio (X)	0.163	0.461		0.095	0.455		0.068	0.489		0.508	0.503	
Back of Queue (Q), ft/ln (95 th percentile)	40.2	191.5		22.6	177.4		15.5	196.3		130.7	198.8	
Back of Queue (Q), veh/ln (95 th percentile)	1.5	7.3		0.9	6.8		0.6	7.7		5.1	7.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.18	0.64		0.10	0.11		0.10	0.65		0.87	0.16	
Uniform Delay (d ₁), s/veh	19.6	26.2		19.2	26.2		19.3	26.5		21.5	26.6	
Incremental Delay (d ₂), s/veh	0.1	0.2		0.0	0.2		0.0	0.3		0.5	0.3	
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	19.6	26.5		19.3	26.4		19.3	26.8		21.9	26.9	
Level of Service (LOS)	B	C		B	C		B	C		C	C	
Approach Delay, s/veh / LOS	25.0	C		25.4	C		26.1	C		24.8	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	0.99	A	0.92	A	0.94	A	1.22	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		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	170	73	105	160	106	52	168	74	116	261	111

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

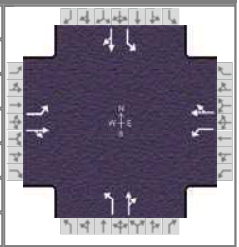
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	30.0	13.0	30.0	13.0	34.0	13.0	34.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (MAH), s	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Queue 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		
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	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	LRY	Analysis Date	Oct 4, 2021		Area Type	Other	
Jurisdiction	Village of Asheville		Time Period	PM Build	PHF	0.92	
Urban Street	Asheville Pike		Analysis Year	2032	Analysis Period	1> 7:00	
Intersection	Asheville Pike & SR-752		File Name	HY PM Build - 752.xus			
Project Description	Asheville 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	135	170	73	105	160	141	52	256	74	137	312	132

Signal Information				EB				WB				NB				SB											
Cycle, s	90.0	Reference Phase	2	Green	7.0	29.0	7.0	23.0	0.0	0.0	Green	7.0	29.0	7.0	23.0	0.0	0.0	Green	7.0	29.0	7.0	23.0	0.0	0.0			
Offset, s	0	Reference Point	End	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	Yellow	4.0	4.0	4.0	4.0	0.0	0.0	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	Red	2.0	2.0	2.0	2.0	0.0	0.0	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	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	3.2	3.1	3.2	3.1	3.1	3.1	3.1
Queue Clearance Time (g_s), s	7.4	13.7	6.1	17.5	3.8	17.1	6.9	24.5
Green Extension Time (g_e), s	0.0	0.9	0.0	0.7	0.0	1.5	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	0.04	1.00	0.30	0.82	0.03	1.00	0.59

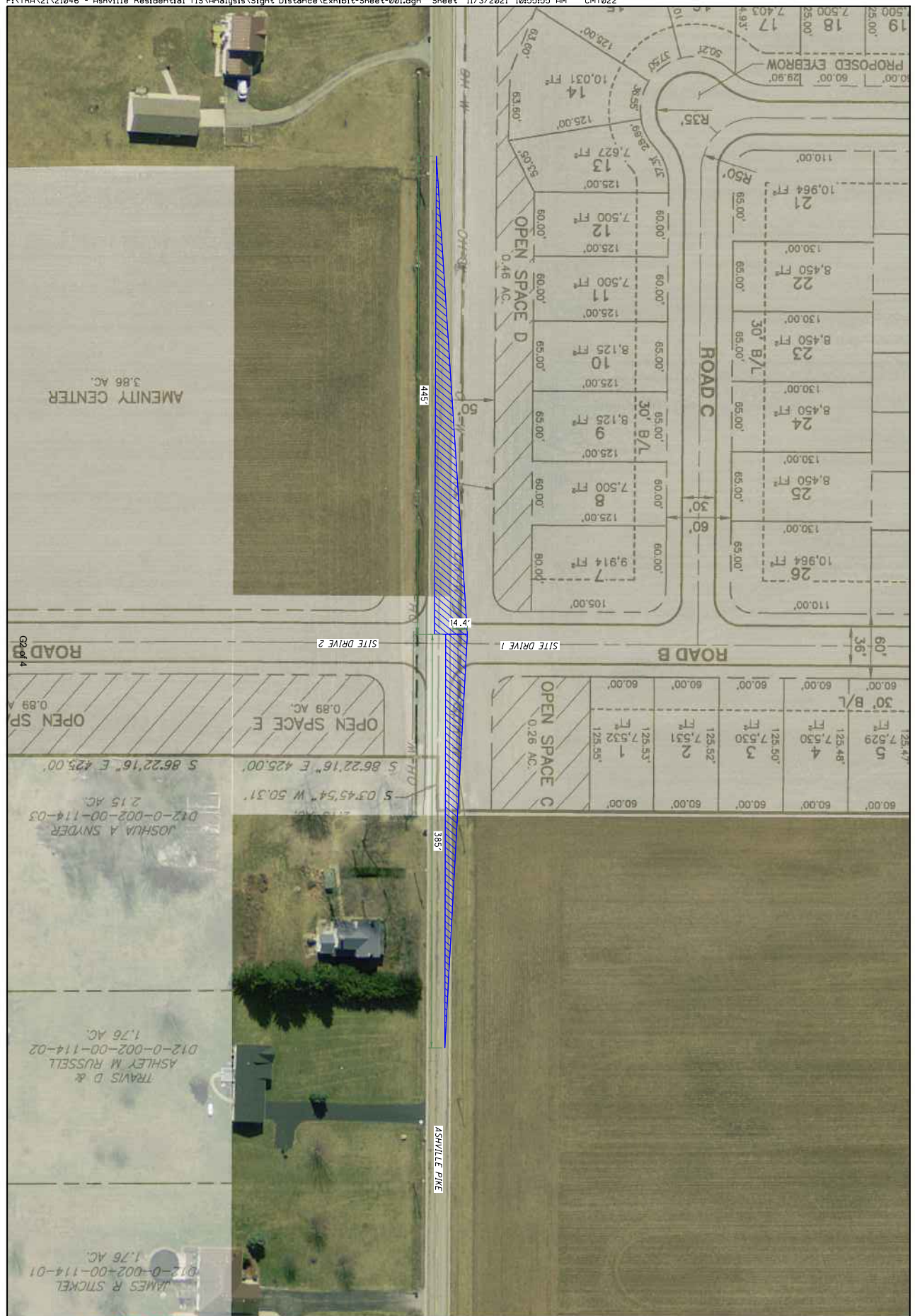
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	147	264		114	327		57	359		149	483	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1774		1795	1739		1795	1812		1795	1789	
Queue Service Time (g_s), s	5.4	11.7		4.1	15.5		1.8	15.1		4.9	22.5	
Cycle Queue Clearance Time (g_c), s	5.4	11.7		4.1	15.5		1.8	15.1		4.9	22.5	
Green Ratio (g/C)	0.33	0.26		0.33	0.26		0.40	0.32		0.40	0.32	
Capacity (c), veh/h	283	453		336	444		265	584		356	577	
Volume-to-Capacity Ratio (X)	0.519	0.582		0.340	0.736		0.213	0.614		0.418	0.837	
Back of Queue (Q), ft/ln (95 th percentile)	101.6	219		75.7	283.4		31.8	266.1		88.6	405.2	
Back of Queue (Q), veh/ln (95 th percentile)	4.0	8.6		3.0	11.2		1.3	10.6		3.5	16.1	
Queue Storage Ratio (RQ) (95 th percentile)	0.46	0.73		0.34	0.18		0.20	0.89		0.59	0.33	
Uniform Delay (d_1), s/veh	23.8	29.3		22.5	30.7		20.3	25.8		19.6	28.3	
Incremental Delay (d_2), s/veh	0.8	1.3		0.2	5.6		0.1	1.4		0.3	9.9	
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	24.6	30.6		22.7	36.3		20.4	27.2		19.8	38.2	
Level of Service (LOS)	C	C		C	D		C	C		B	D	
Approach Delay, s/veh / LOS	28.4	C		32.8	C		26.3	C		33.9	C	
Intersection Delay, s/veh / LOS	30.8						C					

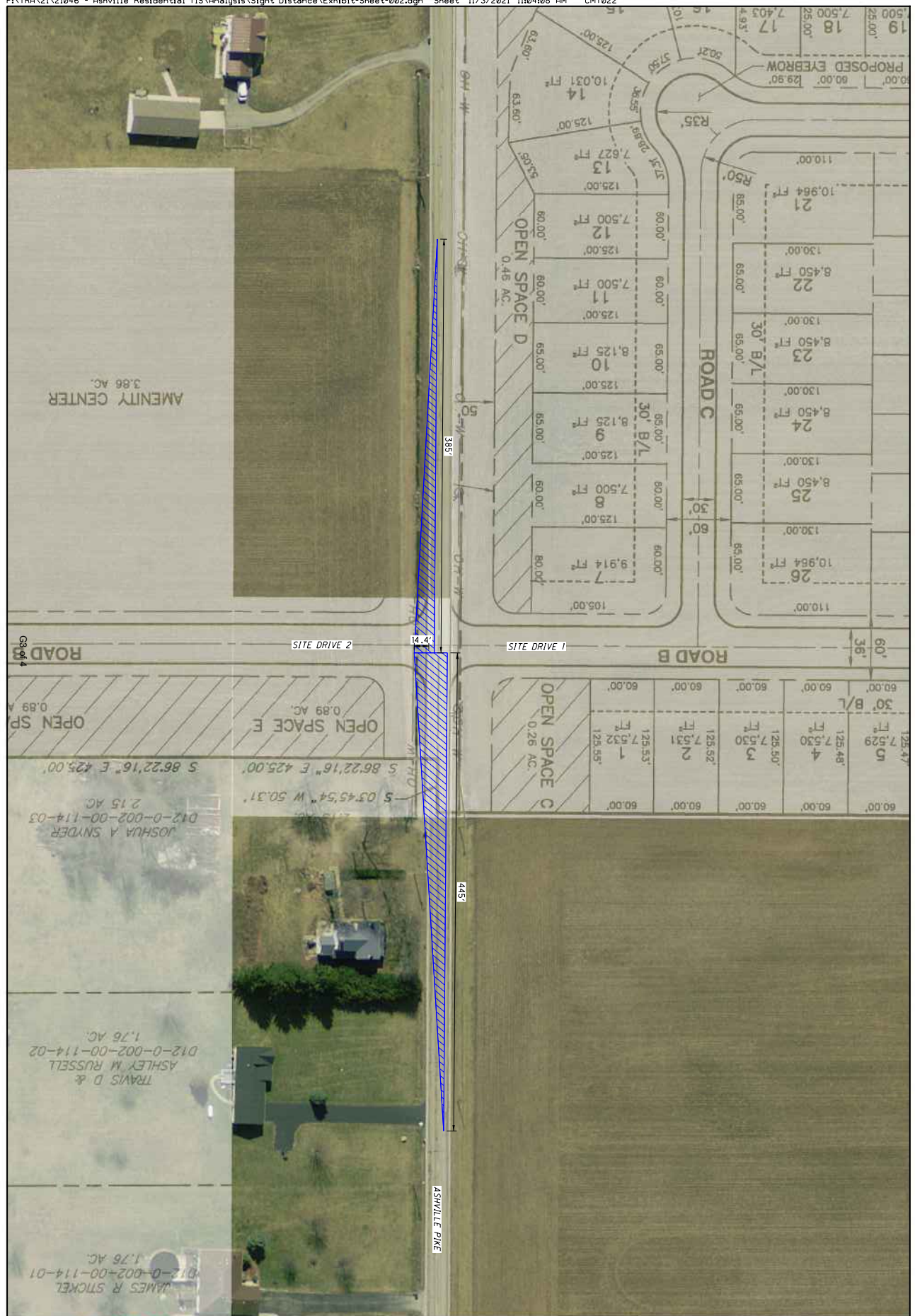
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	1.93	B	1.93	B	1.92	B	1.92	B
Bicycle LOS Score / LOS	1.17	A	1.22	A	1.17	A	1.53	B

Appendix G

Sight Distance Analysis





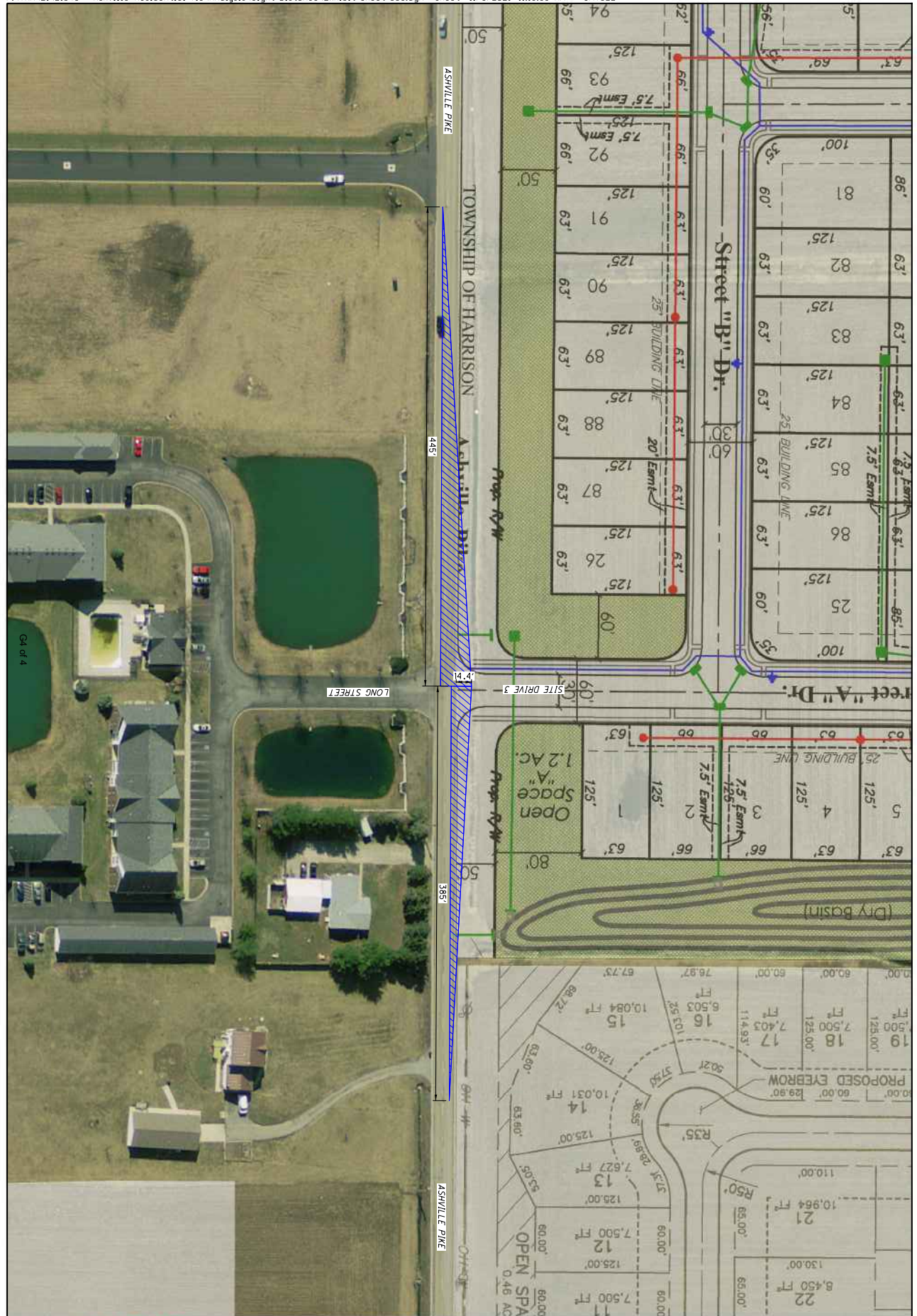


CARPENTER MARTY
Transportation

**ASHVILLE RESIDENTIAL TIS
SITE DRIVE 2 INTERSECTION SIGHT DISTANCE**

CALCULATED BY
CHECKED AML
HORIZONTAL SCALE IN FEET





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