



TMS Engineers, Inc



Traffic Volume Forecast

DHL Facility

Village of Ashville, Ohio

April 1, 2022

REVISED

May 4, 2022

Prepared for:

Poggemeyer Design Group, Inc.

101 Clinton Street

Defiance, Ohio 43512

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Prepared For:

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**"This document was prepared consistent with local agency requirements
and/or applicable guidelines contained in this report."**



Table of Contents

Chapter 1 Introduction	1-3
1.1 Purpose of the Report	1
1.2 References	3
Chapter 2 Area Conditions	4-10
2.1 Transportation Network Study Area	4
2.2 Functional Classification	6
2.3 Traffic	8
Chapter 3 Projected Traffic Conditions	11-29
3.1 Site Traffic	11
3.2 Adjusted Traffic	20
3.3 Non-Site Traffic	22
3.4 Future Traffic	28

Appendices

Appendix A - Traffic Volume Figures

Appendix B - Collected Traffic Count Data

Appendix C - Development Trip Generation Data

Appendix D - ODOT COVID-19 Calibration Guidelines

Appendix E - ODOT Historical Traffic Data

Appendix F - Sheetz TIS Trip Generation Figures

Appendix G - US23/SR316 Development TIS Trip Generation Figures

Appendix H - MORPC Growth Rate Correspondence

Appendix I - ODOT Peak Hour to Design Hour Chart

Appendix J - Background Traffic Volume Forecast Calculations

List of Figures

APPENDIX

Figure 1.1 Project Location Map A

Figure 1.2 Site Plan..... A

Figure 2.1 Traffic Count Locations A

Figure 2.2 Aerial View A

Figure 2.3 Existing Conditions Lane Use & Traffic Control A

Figure 2.4 Functional Classification..... A

Figure 2.5 Existing 2022 Weekday Peak Hour Traffic Volumes..... A

Figure 3.1 2024 Directional Distribution New Generated **Vehicle** Traffic..... A

Figure 3.2 2024 Directional Distribution New Generated **Truck** Traffic A

Figure 3.3 2030/2044 North Directional Distribution New Generated **Vehicle** Traffic A

Figure 3.4 2030/2044 North Directional Distribution New Generated **Truck** Traffic..... A

Figure 3.5 2030/2044 South Directional Distribution New Generated **Vehicle** Traffic A

Figure 3.6 2030/2044 South Directional Distribution New Generated **Truck** Traffic..... A

Figure 3.7 2024 New Generated **Vehicle** Traffic..... A

Figure 3.8 2024 New Generated **Truck** Traffic A

Figure 3.9 2030/2044 North New Generated **Vehicle** Traffic A

Figure 3.10 2030/2044 North New Generated **Truck** Traffic..... A

Figure 3.11 2030/2044 South New Generated **Vehicle** Traffic A

Figure 3.12 2030/2044 South New Generated **Truck** Traffic..... A

Figure 3.13 2024 No-Build Peak Hour Traffic Volumes A

Figure 3.14 2030 No-Build Peak Hour Traffic Volumes..... A

List of Figures

APPENDIX

Figure 3.15 2044 No-Build Peak Hour Traffic Volumes.....	A
Figure 3.16 2024 Build Peak Hour Traffic Volumes.....	A
Figure 3.17 2030 Build Peak Hour Traffic Volumes	A
Figure 3.18 2044 Build Peak Hour Traffic Volumes	A

List of Tables

Table-1.1 Development Details.....	1
Table-2.1 Roadway Characteristics.....	5
Table-2.2 Functional Classification.....	7
Table-2.3 AM Peak Hour Traffic Volumes.....	9
Table-2.4 PM Peak Hour Traffic Volumes.....	9
Table-3.1 Development Summary.....	11
Table-3.2 Vehicle Trip Rate Calculation.....	12
Table-3.3 New Trip Summary.....	13
Table-3.4 AM New Trip Origins & Destinations (2024 Opening Year).....	14
Table-3.5 PM New Trip Origins & Destinations (2024 Opening Year).....	15
Table-3.6 AM New Trip Origins & Destinations (2030/2044 Build/Design Year).....	15
Table-3.7 PM New Trip Origins & Destinations (2030/2044 Design Year).....	16
Table-3.8 COVID Adjustment Factor.....	21
Table-3.9 Growth Rates & Factors.....	24
Table-3.10 Peak Hour to Design Hour Factors.....	26
Table-3.11 Intersection Peak Hour Factors.....	27

Chapter 1

Introduction

1.1 Purpose of Report

This traffic volume forecast has been prepared at the request of the Poggemeyer Design Group, Inc. for a Traffic Impact Study that will be prepared for a proposed DHL facility. The development and submission of the traffic volume forecasts for the proposed project are intended to follow the TIS Review Process detailed in *Section 9.32* and the TIS Flow Chart shown *Figure 9.1* of the ODOT **State Highway Access Management Manual** ⁽⁷⁾.

The proposed development is located in the Village of Ashville, Pickaway County, Ohio. **Figure 1.1, Appendix A** details the development location.

The development is expected to consist of an industrial park type development. The site is expected to accommodate land uses related to commerce and fulfillment operations. The following table details the proposed buildings, the development schedule, and building sizes:

Table 1.1 - Development Details

BUILDING #	LOCATION	OPENING YEAR	SIZE (Square Feet)
#1	North of SR 752	2024	1,006,880
#2	North of SR 752	2025	793,440
#3	North of SR 752	2026	1,006,880
#4	South of SR 752	2027	572,460
#5	South of SR 752	2028	1,006,880
#6	South of SR 752	2029	1,006,880
#7	South of SR 752	2030	517,940
TOTAL			5,911,360

The year 2024 with Building #1 will be analyzed for the opening year conditions of the development based on the expected time line. The development is currently expected to reach full build out of the seven buildings in the year 2030. The year 2030 will be analyzed for the full build conditions, the build year. The design year for the proposed project will be based on the opening year and the expected volume of new site generated traffic under the full build condition of the seven buildings.

Buildings #1 - #3 are located north of State Route 752 and to the east of US Route 23. Buildings #4 - #7 are located between State Route 752 to the north and State Route 316 to the south and east of US Route 23.

The development is proposed with two access locations. The project proposes an intersection along State Route 752 that would provide full access to the portions of the development along the north and south side of State Route 752. A second full access intersection is proposed along State Route 316 and would provide direct access to the south side of the development and a connection to the proposed intersection at State Route 752. **Figure 1.2, Appendix A** shows the proposed development site plan.

1.2 References

The following list of references may be utilized for this report and the forecasts contained within it:

1. *Highway Capacity Manual, 7th Edition*, Transportation Research Board of the National Academies, Washington, D.C.
2. *Ohio Manual of Uniform Traffic Control Devices for Streets and Highways*, 2012 Edition. Ohio Department of Transportation, Office of Traffic Engineering, Columbus, Ohio.
3. *Location and Design Manual, Volume 1, Roadway Design*. Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.
4. *Ohio Traffic Forecasting Manual, Volume 1, Traffic Forecasting Background*. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.
5. *Ohio Traffic Forecasting Manual, Volume 2, Traffic Forecasting Methodologies*. Ohio Department of Transportation, Office of Statewide Planning & Research, Columbus, Ohio.
6. *ODOT Analysis and Traffic Simulation Manual (OATS)*, Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.
7. *State Highway Access Management Manual*, Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.
8. *Trip Generation Manual*, 11th Edition, September 2021, Institute of Transportation Engineers, (ITE), Washington, D.C.
9. *Trip Generation Handbook*, 3rd Edition, September 2017, Institute of Transportation Engineers, (ITE), Washington, D.C.
10. *Traffic Engineering Manual*, October 23, 2002 Edition (Revised January 15, 2021), Ohio Department of Transportation, Office of Roadway Engineering, Columbus, Ohio.
11. *A Policy on Geometric Design of Highways and Streets (Green Book)*, 7th Edition, September 2018, American Association of State Highway and Transportation Officials, Washington, D.C.
12. *Access Management Manual*, 2nd Edition, 2014. Transportation Research Board of the National Academies, Washington, D.C.

Chapter 2

Area Conditions

2.1 Transportation Network Study Area

The study area for the proposed development includes the previously discussed development access locations as shown in **Figure 1.2, Appendix A** and the following intersections:

1. **US Route 23 & State Route 752/*Rudi Lane***
2. **US Route 23 & State Route 316/*North Street***
3. **US Route 23 & *Northup Avenue/State Route 316***
4. **State Route 752 & *Ashville Pike***
5. **State Route 316 & *Miller Avenue/County Road 28***

Rudi Lane is proposed roadway that will be constructed as the west approach at the intersection of US Route 23 and State Route 752. The proposed roadway is part of the project to construct a Sheetz development at the intersection.

The Ohio Department of Transportation maintains the traffic signal control facilities at the intersections along US Route 23. The Village of Ashville maintains the traffic signal control facility at the intersection of State Route 752 and State Route 316/*Ashville Pike*.

A location map detailing the traffic count locations can be seen in **Figure 2.1, Appendix A.**

The following table details the primary characteristics of the study area roadways:

Table 2.1 Roadway Characteristics

ROADWAY	# LANES	ORIENTATION	SPEED LIMIT (MPH)	
			POSTED	DESIGN
US Route 23 @ SR 752	5	North-South	50	55
US Route 23 @ SR 316 (North)	4	North-South	35	35
US Route 23 @ SR 316 (South)	5/6	North-South	35	35
Ashville Pike	3	North-South	35	35
Miller Avenue	2	North-South	25	25
County Road 28	2	North-South	55	60
State Route 752 @ US 23	2	East-West	55	60
State Route 752 @ Proposed Access	2	East-West	55	60
State Route 752 @ Ashville Pike	3	East-West	35	35
State Route 316 (West of US 23)	2	East-West	35	35
State Route 316 (East of US 23)	2	East-West	35	35
State Route 316 @ Proposed Access	2	East-West	55	60
State Route 316 @ CR 28	2	East-West	35	35
Rudi Lane	3	East-West	25	25
North Street	2	East-West	25	25
Northup Avenue	2	East-West	25	25

An aerial view of the of the study area can be seen in **Figure 2.2 Appendix A**.

Figure 2.3, Appendix A shows the lane use and traffic control conditions based upon the existing conditions in the study area. These will be considered the existing base conditions for this report.

2.2 Functional Classification

The Ohio Department of Transportation functionally classifies roadways to help define a roadway's characteristics as well as identify roadways that are eligible for federal funds. Functional classification is the grouping of roads, streets, and highways in a hierarchy based on the type of highway service they provide. Generally, streets and highways perform two types of service. They provide either traffic mobility or land access and can be ranked in terms of the proportion of service they provide.

The functional classification as determined by ODOT will be used in this report to apply growth and design hour factors to the study area roadways for use in forecasting the future traffic volumes in the study area. These factors are determined using data, guidelines, and methodology supplied by ODOT. These methods and the corresponding data are based on the roadways assigned functional classification. The ODOT methods for forecasting future traffic volumes are a recognized traffic engineering standard.

Roadways that are not listed as having a functional classification can be assigned into one of two categories. The first category is a local roadway and the second category is that of an access drive.

The ODOT functional classification of the roadways in the study area can currently be found using the ODOT Transportation Information Mapping System (TIMS). TIMS is ODOT's web-mapping portal where information about Ohio's transportation system can be found. TIMS can currently be found at the following web address:

<https://gis.dot.state.oh.us/tims/>

The following table lists the study area roadways that have an assigned functional classification as determined by ODOT and local government entities.

Table 2.2 Functional Classification

ROADWAY	AREA	FC #	CLASSIFICATION
US Route 23	Urban	3	Principal Arterial
State Route 752	Urban	5	Major Collector
State Route 316 (West of US 23)	Urban	5	Major Collector
State Route 316 (East of US 23)	Urban	5	Major Collector
State Route 316 (Long Street)	Urban	5	Major Collector
Ashville Pike	Urban	7	Local Roadway
Miller Avenue	Urban	7	Local Roadway
County Road 28	Urban	7	Local Roadway
Rudi Lane	Urban	7	Local Roadway
North Street	Urban	7	Local Roadway
Northup Avenue	Urban	7	Local Roadway

Figure 2.4, Appendix A illustrates the section of the functional classification map for the study area.

2.3 Traffic

Weekday Peak Hours

Weekday nine hour turning movement counts were performed at the following intersections:

1. **US Route 23 & State Route 752**
2. **US Route 23 & State Route 316/North Street**
3. **US Route 23 & Northup Avenue/State Route 316**
4. **State Route 752 & Ashville Pike**
5. **State Route 316 & Miller Avenue/County Road 28**

The traffic counts were performed on Wednesday, February 16, 2022 and Thursday, March 3, 2022.

The weekday traffic counts were conducted in fifteen (15) minute intervals between the hours of 7 AM - 10 AM, 11 AM - 2 PM, and 3 PM - 6 PM, then hourly totals were calculated. Copies of the intersection turn movement counts are included in **Appendix B**. Average daily traffic was calculated for the roadways using expansion factors to account for daily and seasonal variations according to the recommendations and latest data from the Ohio Department of Transportation.

The AM and PM intersection peak hours are selected by reviewing data in 15-minute intervals. When there is more than one intersection within the study area, a consistent time period should be used for all intersections within the study area in order to develop an existing conditions traffic volume set, the system peak hour. The following questions should be considered when choosing the peak hours for a study area with multiple intersections:

- What are the individual intersection peak hours?
- Are the individual peak hours the same time or close to each other?
- Would it result in significantly fewer vehicles to use a different peak hour for intersections that are not the same?
- What is the peak hour for intersections with the highest overall volume?
- What peak hour contributes the highest volume to the entire system?

The use of summary tables for the entering traffic volumes during the AM and PM time periods are used to evaluate the previously discussed questions, to identify the peak hours for each intersection, and to determine the peak hour of the system.

The following tables detail a breakdown of the hourly volumes during the AM and PM hours that were determined to experience the highest traffic volumes.

**Table 2.3 AM Peak Hour Traffic Volumes
(Total Entering Volume - Vehicles per Hour)**

	HOUR BEGINS								
	7:00	7:15	7:30	7:45	8:00	8:15	8:30	8:45	9:00
US23 & SR752	2376	2276	2085	2018	1973	1936	1903	1826	1756
US23 & SR316 (N)	2527	2433	2278	2114	1983	1889	1843	1821	1821
US23 & SR 316 (S)	2513	2385	2340	2183	2126	2021	1887	1869	1806
SR752 & Ashville Pike	874	781	560	497	507	510	507	469	432
SR316 & CR 28	367	331	337	340	337	327	314	289	294
TOTAL	8657	8206	7600	7152	6926	6683	6454	6274	6109

**Table 2.4 PM Peak Hour Traffic Volumes
(Total Entering Volume - Vehicles per Hour)**

	HOUR BEGINS								
	3:00	3:15	3:30	3:45	4:00	4:15	4:30	4:45	5:00
US23 & SR752	2492	2571	2597	2599	2584	2570	25941	2534	2467
US23 & SR316 (N)	2662	2772	2884	2914	2954	2892	2876	2782	2684
US23 & SR 316 (S)	2692	2822	2961	3026	2951	3018	2978	2968	2890
SR752 & Ashville Pike	825	886	990	1072	1094	1083	1000	912	853
SR316 & CR 28	502	524	531	535	537	530	533	514	501
TOTAL	9173	9575	9963	10146	10120	10093	33328	9710	9395

Based on the collected traffic data, the peak hours for the study area were determined based on the AM and PM hour experiencing the highest total volume indicated in red in the previous tables. The weekday AM peak hour of traffic was determined to be 7:00 AM to 8:00 AM. The weekday PM peak hour of traffic was found to be 3:45 PM to 4:45: PM. These periods will be used to forecast expected and future traffic volumes since they reflect the period of the highest volume of vehicular traffic flow for the study area roadways on a weekday.

The existing AM and PM peak hour traffic volumes are shown in **Figure 2.5, Appendix A**.

It should be noted that it may be necessary to adjust these volumes due to the effects of the COVID-19 pandemic. The ODOT guidance and procedures will be used to determine any necessary adjustments.

Chapter 3

Projected Traffic Conditions

3.1 Site Traffic

Trip Generation

Calculating future total driveway trips requires an estimate of the traffic generated by the proposed development. The most widely accepted method of determining the amount of traffic that the proposed development will generate is to compare the proposed land use with existing facilities of the same use. The Institute of Transportation Engineers (ITE) has prepared a manual titled “**Trip Generation Manual**”⁽⁸⁾, which is a compilation of similar traffic generation studies to aide in making such a comparison. The most recent update of this manual is the 11TH edition and was utilized for this study.

The ITE **Trip Generation Manual**⁽⁸⁾ will be used in conjunction with available site specific data provided by DHL in order to forecast the expected development site generated traffic. Site generated traffic will be prepared for passenger vehicle (**vehicle**) type traffic and truck (**truck**) traffic.

The following table details a breakdown of the buildings that are expected to occupy the development site:

Table 3.1 Development Summary

BUILDING #	BUILDING LOCATION	OPENING YEAR	SIZE (Square Feet)
#1	North of SR 752	2024	1,006,880
#2	North of SR 752	2025	793,440
#3	North of SR 752	2026	1,006,880
#4	South of SR 752	2027	572,460
#5	South of SR 752	2028	1,006,880
#6	South of SR 752	2029	1,006,880
#7	South of SR 752	2030	517,940
TOTAL			5,911,360

The developer provided an overview of the their North American facility operations. The overview showed that for buildings over 400,000 square feet that the 90% are operating 2 or 3 shift operations. The overview also provided a total headcount for each of the sectors that are served at the facilities. The sectors for the AM and PM peak hour vehicle traffic were determined to be the five highest. A copy of the facilities overview can be seen in **Appendix C**.

In order to determine the volume of expected site generated **vehicle** traffic a weighted average of the total headcount for the 5 largest sectors was calculated. It was assumed for the purpose of this report that one employee was equal to one trip in the peak hour due to the shift operations. The following table details the calculation of the site generated trip rate that will be used to forecast the volume of **vehicle** generated traffic by each building in the development:

Table 3.2 Vehicle Trip Rate Calculation

SECTOR	HEADCOUNT per 100,000 sf	WEIGHTED AVERAGE	WEIGHTED VALUE
Automotive	24	15.00%	3.600
Consumer	20	12.50%	2.500
Retail	51	31.88%	16.256
Technology	45	28.13%	12.656
Life Science/Healthcare	20	12.50%	2.500
TOTAL	160	100%	37.513

The weighted average should provide a conservative estimate of future traffic as the sectors being served at each building are currently unknown.

A rate of 37.5125 trips per 100,000 square foot will be applied to each building in the development in order to determine the peak hour site generated trips based on the results shown above in **Table 3.2**.

The peak hour site generated trips will be split in to entering and exiting trips based on the peak hour directional distributions provided for land use #156 - High Cube Parcel Hub Warehouse from the ITE **Trip Generation Manual** ⁽⁸⁾.

The developer provided the expected facility truck volumes from the consumer and ecommerce sectors. These sectors were selected as they provide the highest peak hour volume of truck traffic at DHL facilities and should provide a conservative estimate of the expected truck volumes during the AM and PM peak hours. These truck volumes were applied to each of the proposed buildings based on the square footage of each. A copy of the provided truck data can be seen in **Appendix C**.

Trip generation calculations for the development were performed utilizing the supplied site specific data for **vehicle and truck** trips as well as data contained in the **Trip Generation Manual** ⁽⁸⁾ and the methods outlined in the (ITE) **Trip Generation Handbook** ⁽⁹⁾. A spreadsheet detailing the **vehicle** trip generation calculations can be found in **Appendix C**. The following table details the site generated **vehicle and truck** traffic volumes for each building in the proposed development.

Table 3.3 New Trip Summary

BUILDING	OPENING YEAR	SIZE	TRIP ENDS							
			Weekday Peak Hour Between 7-9 AM				Weekday Peak Hour Between 4-6 PM			
			ENTER		EXIT		ENTER		EXIT	
			Vehicles	Trucks	Vehicles	Trucks	Vehicles	Trucks	Vehicles	Trucks
1 (North of SR 752)	2024	1,006,880 SF	189	25	189	25	257	18	121	18
2 (North of SR 752)	2025	793,440 SF	149	23	149	22	202	18	95	18
3 (North of SR 752)	2026	1,006,880 SF	189	25	189	25	257	18	121	18
4 (South of SR 752)	2027	572,460 SF	107	15	107	15	146	10	69	10
5 (South of SR 752)	2028	1,006,880 SF	189	25	189	25	257	18	121	18
6 (South of SR 752)	2029	1,006,880 SF	189	25	189	25	257	18	121	18
7 (South of SR 752)	2030	517,940 SF	97	15	97	15	132	10	62	10
TOTAL NEW TRIPS			1109	153	1109	152	1508	110	710	110
			1262		1261		1618		820	
			2523				2438			

The ODOT **State Highway Access Management Manual** ⁽⁷⁾ requires that ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is below 500 in the peak hour and twenty year design hour traffic volumes when the number of generated trips is greater than 500 in the peak hour.

The proposed development is expected to generate a total of 2,523 driveway trips in the AM peak hour and a total of 2,438 driveway trips in the PM peak hour. The year 2044 will therefore be analyzed for the twenty year design hour conditions.

Distribution of New Site Generated Weekday Traffic

Separate directional distributions will be prepared for passenger vehicle (**vehicle**) type traffic and truck (**truck**) traffic.

The directional distribution for the new generated **vehicle** traffic is a function of the prevailing operating conditions on the existing roadways. The distribution pattern that was assumed is shown in the tables that follow and is based upon engineering judgement of the existing traffic volumes entering the study area at the five study area intersections during the AM and PM peak hours shown in **Figure 2.4, Appendix A**, the adjacent land uses, functional classification of the roadways, and routes to avoid known areas of congestion. The vehicle trips were assumed to be primary trips made by people leaving home for work and then returning home. The **vehicle** trips were therefore assumed to enter and exit the study using the same route.

The following tables detail the distribution of the new generated **vehicle** trips for the proposed development under the opening and design year conditions.

**Table 3.4 AM New Trip Origins and Destinations
2024 Opening Year**

ORIGIN/ DESTINATION	ROUTE	ENTER % TOTAL	ENTER NEW TRIPS	EXIT % TOTAL	EXIT NEW TRIPS
North	US 23	20%	38	20%	38
South	US 23	40%	75	40%	75
East	SR 752	10%	19	10%	19
West	SR 316	10%	19	10%	19
North	Ashville Pike	10%	19	10%	19
East	SR 316	10%	19	10%	19
TOTALS		100%	189	100%	189

**Table 3.5 PM New Trip Origins and Destinations
2024 Opening Year**

ORIGIN/ DESTINATION	ROUTE	ENTER % TOTAL	ENTER NEW TRIPS	EXIT % TOTAL	EXIT NEW TRIPS
North	US 23	20%	51	20%	24
South	US 23	40%	102	40%	49
East	SR 752	10%	26	10%	12
West	SR 316	10%	26	10%	12
North	Ashville Pike	10%	26	10%	12
East	SR 316	10%	26	10%	12
TOTALS		100%	257	100%	121

**Table 3.6 AM New Trip Origins and Destinations
2030/2044 Build/Design Year**

ORIGIN/ DESTINATION	ROUTE	ENTER % TOTAL	ENTER NEW TRIPS	EXIT % TOTAL	EXIT NEW TRIPS
North	US 23	20%	222	20%	222
South	US 23	40%	443	40%	443
East	SR 752	10%	111	10%	111
West	SR 316	10%	111	10%	111
North	Ashville Pike	10%	111	10%	111
East	SR 316	10%	111	10%	111
TOTALS		100%	1109	100%	1109

**Table 3.7 PM New Trip Origins and Destinations
2030/2044 Build/Design Year**

ORIGIN/ DESTINATION	ROUTE	ENTER % TOTAL	ENTER NEW TRIPS	EXIT % TOTAL	EXIT NEW TRIPS
North	US 23	20%	302	20%	142
South	US 23	40%	602	40%	284
East	SR 752	10%	151	10%	71
West	SR 316	10%	151	10%	71
North	Ashville Pike	10%	151	10%	71
East	SR 316	10%	151	10%	71
TOTALS		100%	1508	100%	710

All **truck** traffic will enter and exit the development at the proposed intersection along State Route 752. **Trucks** will be prohibited from using the State Route 316 access location and exiting the site to the east along State Route 752 through the use of way finding signs both on-site and off-site.

The distribution of the **truck** traffic was based on the all **trucks** using US Route 23 to travel north or south. The trucks were split with 60% originating from and destined to the north. The remaining 40% were assumed to enter from or exit to the south. The distribution was based on the existing volume patterns on US Route 23, the location of Rickenbacker International Airport, and the location of the facility to the south of the greater Columbus area.

Distribution of Site Generated Traffic - 2024 Opening Year

The directional distribution for the new AM and PM peak hour generated **vehicle** traffic is shown graphically in **Figure 3.1, Appendix A** for the opening year conditions.

The directional distribution for the new AM and PM peak hour generated **truck** traffic is shown graphically in **Figure 3.2, Appendix A** for the opening year conditions.

Distribution of Site Generated Traffic - 2030/2044 Design Year

The distribution of new site generated **vehicle** traffic for the portion of the development north of State Route 752 was based on the following assumptions:

- Entering traffic would take the most direct route available to either the SR 752 or SR 316 access. It was assumed that traffic would use the on-site connector road to avoid the section of US 23 between SR 752 and SR 316.
- Exiting traffic would take the most direct route exit the study area using either the SR 752 or SR 316 access. It was assumed that traffic would use the on-site connector road to avoid the section of US 23 between SR 752 and SR 316.

The build and design year conditions directional distribution for the new AM and PM peak hour generated **vehicle** traffic is shown graphically in **Figure 3.3, Appendix A** for the portion of the development located to the north of State Route 752.

The design year conditions directional distribution for the new AM and PM peak hour generated **truck** traffic is shown graphically in **Figure 3.4, Appendix A** for the portion of the development located to the north of State Route 752.

The distribution of new site generated **vehicle** traffic for the portion of the development south of State Route 752 was based on the following assumptions:

- Entering traffic would take the most direct route available to either the SR 752 or SR 316 access. It was assumed that traffic would use the on-site connector road to avoid the section of US 23 between SR 752 and SR 316.
- Exiting traffic would take the most direct route exit the study area using either the SR 752 or SR 316 access. It was assumed that traffic would use the on-site connector road to avoid the section of US 23 between SR 752 and SR 316.

The design year conditions directional distribution for the new AM and PM peak hour generated **vehicle** traffic is shown graphically in **Figure 3.5, Appendix A** for the portion of the development located to the south of State Route 752.

The design year conditions directional distribution for the new AM and PM peak hour generated **truck** traffic is shown graphically in **Figure 3.6, Appendix A** for the portion of the development located to the south of State Route 752.

Assignment of Site Generated Traffic - 2024 Opening Year

Based upon the distribution patterns shown in **Figure 3.1**, the new AM and PM peak site generated **vehicle** traffic was assigned to the study intersections. The assignment of the estimated site generated new **vehicle** traffic for the proposed development under the opening year conditions is shown graphically in **Figure 3.7, Appendix A**.

Based upon the distribution patterns shown in **Figure 3.2**, the new AM and PM peak site generated **truck** traffic was assigned to the study intersections. The assignment of the estimated site generated new **truck** traffic for the proposed development under the opening year conditions is shown graphically in **Figure 3.8, Appendix A**.

Assignment of Site Generated Traffic - 2030/2044 Design Year

Based upon the distribution patterns shown in **Figure 3.3**, the new AM and PM peak site generated **vehicle** traffic was assigned to the study intersections. The assignment of the estimated design year site generated new **vehicle** traffic for the portion of the development north of State Route 752 is shown graphically in **Figure 3.9, Appendix A**.

Based upon the distribution patterns shown in **Figure 3.4**, the new AM and PM peak site generated **truck** traffic was assigned to the study intersections. The assignment of the estimated design year site generated new **truck** traffic for the portion of the development north of State Route 752 is shown graphically in **Figure 3.10, Appendix A**.

Based upon the distribution patterns shown in **Figure 3.5**, the new AM and PM peak site generated **vehicle** traffic was assigned to the study intersections. The assignment of the estimated design year site generated new **vehicle** traffic for the portion of the development south of State Route 752 is shown graphically in **Figure 3.11, Appendix A**.

Based upon the distribution patterns shown in **Figure 3.6**, the new AM and PM peak site generated **truck** traffic was assigned to the study intersections. The assignment of the estimated design year site generated new **truck** traffic for the portion of the development south of State Route 752 is shown graphically in **Figure 3.12, Appendix A**.

3.2 Adjusted Traffic

The collected peak hour traffic volumes detailed in **Appendix B** and **Figure 2.5, Appendix A** should be reviewed to determine if they have been impacted due to the COVID-19 pandemic. The traffic volumes as they were collected may not be representative of a typical weekday under normal travel patterns and show less volume. The ODOT Modeling and Forecasting Section of the Office of Statewide Planning and Research has developed a process to calibrate counts that are artificially low due to the COVID-19 situation. An overview of the ODOT guidance and process can be seen in **Appendix D**. The development of calibration factors for the study area roadways is described in the following paragraphs.

The ODOT Traffic Monitoring Management System (TMMS) was first consulted to determine available Peak Hour and Average Daily Traffic along the study area roadways. The ODOT guidance indicates that only counts prior to March 15, 2020 are suitable for use in the calculation of adjustment factors.

Data from the following location will be used to determine if the collected data should be adjusted to account for the COVID-19 pandemic.

1. US Route 23 (North of SR 752) - Location ID 2765

Location 2765 is a continuous count station that provides daily historical traffic volumes. The location listed provides both ADT and hourly traffic data in 15 minute increments.

The corresponding peak hour data from this location will be used to determine if calibration factors are necessary for the AM and PM peak hours at the study area intersections. The traffic count data collected for this report was collected on February 20, 2022. This was the third Thursday in February. The ODOT historical ADT data from Thursday, February 20, 2022 will be compared to the Thursday, February 17, 2020 data. Copies of the 2020 and 2022 historical data can be seen in **Appendix E**.

A calculated factor greater than 1.0 indicates that the 2022 volumes do not exceed the 2020 historical data, therefore a calibration factor *is* necessary to account for the impact of the COVID-19 pandemic.

A calculated factor of less than 1.0 indicates that the 2022 volumes exceed the 2020 historical data, therefore a calibration factor *is not* necessary to account for the impact of the COVID-19 pandemic.

The following table details the calculation of peak hour COVID adjustment factors for the study area roadways using the peak hour traffic volumes from the collected traffic data for this report and the 2019 historical data from the ODOT TMMS website:

Table 3.8 - COVID Adjustment Factor

LOCATION	TIME PERIOD	2020 PRE-COVID	2022 CURRENT	ADJUSTMENT FACTOR
US Route 23 (North of SR 72) ID 2765	ADT	28692	29633	0.9682

A COVID adjustment factor of 0.9682 indicates that the 2022 volumes exceed the 2020 historical data, therefore a calibration factor *is not* necessary to account for the impact of the COVID-19 pandemic on the collected traffic data.

3.3 Non-Site Traffic

Sheetz Development

A Sheetz development is currently under construction at the intersection of US Route 23 and State Route 752. The Sheetz development was analyzed in a Traffic Impact Study dated March 17, 2021. The TIS was reviewed and approved by ODOT.

A copy of the traffic volume figures from the TIS that were added to the No-Build background traffic volumes can be seen in **Appendix F**.

The site generated traffic as detailed in the TIS will be added to the calculated No-Build traffic volumes detailed in **Appendix J**.

US Route 23 & SR-316 Development

A Traffic Impact Study is currently being performed for a proposed mixed-used development at the southeast quadrant of the US Route 23 and State Route 316/Northup Avenue intersection. The development is expected to consist of retail space, commercial out lot parcels, multi-family units, duplex units, and single-family lots.

A copy of the traffic volume figures from the TIS that were added to the No-Build background traffic volumes can be seen in **Appendix G**.

The site generated traffic as detailed in the TIS will be added to the calculated No-Build traffic volumes detailed in **Appendix J**.

Background Traffic Growth

Design of new roadways or improvements to existing roadways should not usually be based on current traffic volumes alone, but should consider future traffic volumes expected to make use of the facilities. Roadways should be designed to accommodate the traffic volume that is likely to occur within the design life of the facility. In a practical sense, this design volume should be a value that can be estimated with reasonable accuracy. It is believed that the maximum design period is in the range of 15 to 24 years. Therefore, a period of twenty years is widely used as a basis for design for large projects. A period of ten years is currently specified by the Ohio Department of Transportation for smaller projects. Traffic cannot usually be forecasted accurately beyond this period on a specific facility because of probable changes in the general regional economy, population, and land development along the roadway.

The ODOT **State Highway Access Management Manual** ⁽⁷⁾ requires that opening year and ten year design hour traffic volumes be analyzed for a proposed development when the number of generated trips is less than 500 in the peak hour.

The year 2044 (Design Year) will be analyzed for the proposed development as the peak hour site generated traffic volumes are greater than 500 trips. Therefore, it is necessary to estimate historical growth rates in order to establish the future traffic on the study area roadways due to non-site related conditions.

Roadways, like those found in the study area, carry a significant amount of through traffic due to their functional characteristics. This through traffic component generally increases as regional growth occurs. Therefore, it is anticipated that existing traffic on these roadways may increase in future years.

The Mid-Ohio Regional Planning Commission (MORPC) was contacted in order to determine appropriate growth rates for the study area roadways. MORPC provided linear annual growth rates for the approaches at the study area intersections. A copy of the email correspondence regarding growth rates for the study area can be seen in **Appendix H**.

The growth rate and factors for they study area can be seen in the following table:

Table 3.9 - Growth Rate & Factors

APPROACH/LOCATION	GROWTH RATE (Annual Growth)	GROWTH FACTORS		
		2024	2030	2044
SR 752 East @ US 23	2.00%	1.040	1.160	1.440
US 23 North @ SR 752	0.90%	1.018	1.072	1.198
US 23 South @ SR 752	0.90%	1.018	1.072	1.198
US 23 North @ SR 316	0.90%	1.018	1.072	1.198
SR 316 West @ US 23	1.60%	1.032	1.128	1.352
US 23 South @ SR 316	0.90%	1.018	1.072	1.198
SR 316 East @ US 23	2.00%	1.040	1.160	1.440
US 23 North @ SR 316	1.00%	1.020	1.080	1.220
Northup West @ US 23	2.00%	1.040	1.160	1.440
US 23 South @ SR 316	0.90%	1.018	1.072	1.198
SR 752 East @ Ashville Pike	2.00%	1.040	1.160	1.440
Ashville Pike North @ SR 752	2.20%	1.044	1.176	1.484
SR 752 West @ Ashville Pike	2.00%	1.040	1.160	1.440
Long South @ SR 752	2.20%	1.044	1.176	1.484
SR 316 East @ CR 28	2.00%	1.040	1.160	1.440
SR 316 West @ CR 28	2.00%	1.040	1.160	1.440

The study area intersection approaches that did not have a growth rate supplied by MORPC will not have a growth factor applied to the existing traffic volumes.

Design Hour Traffic

The traffic patterns on any roadway typically show considerable variation in the traffic volumes experienced during the various hours of the day and in the hourly volumes experienced throughout the year. A key decision in the design process involves determining which of these hourly traffic volumes should be used as the basis for the design.

It would be wasteful to predicate a design on the maximum peak hour traffic that occurs during the year and the use of the average hourly traffic would result in an inadequate design. The hourly traffic volumes used in a design should not be exceeded very often or by very much. However, the hourly traffic volumes should not be so high that traffic would rarely be sufficient to make full use of the designed facility.

Normal design policy in the State of Ohio is based upon a review of curves that depict the variation in hourly traffic volumes during the year. The Ohio Department of Transportation recommends using the 30TH highest hour as a design control for urban streets. There is typically very little difference between the volumes in this range. The Ohio Department of Transportation provides factors or a methodology to determine factors that are applied to counted daily traffic volumes to determine appropriate design hour traffic volumes.

Following guidelines set forth in the **ODOT State Highway Access Management Manual** ⁽⁷⁾, all analyses are required to examine the design hour volume for the adjacent roadway and peak hour traffic volume of the proposed development. The **Ohio Traffic Forecasting Manual** ^(4,5) will be used to determine peak hour factors for the study area roadways.

The design hour volumes are determined by multiplying the AM and PM peak hour volumes by the appropriate factors from the ODOT Peak Hour to Design Hour Factor Report based on the functional classification of the roadway, the day of the week and the month that the traffic data was collected. A copy of the ODOT's Peak Hour to Design Hour Factor Report can be seen in **Appendix I**.

The following table details the peak hour to design hour factors for the study area roadways.

Table 3.10 - Peak Hour to Design Hour Factors

ROADWAY	AREA	FUNCTIONAL CLASSIFICATION	MONTH	DAY	DHV FACTOR
US 23 @ SR 752	Urban	Principal Arterial	February	Thursday	1.16
SR 752 @ US 23	Urban	Major Collector	February	Thursday	1.16
US 23 @ SR 316	Urban	Principal Arterial	March	Wednesday	1.16
SR 316 @ US 23	Urban	Major Collector	March	Wednesday	1.16
North Street	Urban	Local Roadway	March	Wednesday	1.16
US 23 @ SR 316	Urban	Principal Arterial	March	Tuesday	1.16
US 316 @ US 23	Urban	Major Collector	March	Tuesday	1.16
Northup Avenue	Urban	Local Roadway	March	Tuesday	1.16
SR 752 @ Ashville Pike	Urban	Major Collector	February	Wednesday	1.17
Long Street (SR 316)	Urban	Major Collector	February	Wednesday	1.17
Ashville Pike	Urban	Local Roadway	February	Wednesday	1.17
SR 316 @ CR 28	Urban	Major Collector	March	Thursday	1.13
Miller Avenue	Urban	Local Roadway	March	Thursday	1.13
CR 28	Urban	Local Roadway	March	Thursday	1.13

Intersection Peak Hour Factors

The intersection peak hour factor (PHF) is used to convert the hourly traffic volume into the flow rate that represents the busiest 15 minutes of the peak hour. The PHF is the sum of the traffic entering the intersection during the peak hour divided by four times the highest 15 minute volume during the peak hour. A PHF of 1 indicates that the traffic volume in each 15 minute volume is the same and therefore traffic flow is consistent throughout the hour. A lower PHF indicates a more variable traffic flow and that traffic volume has a spike during the peak 15 minute interval. PHF's under 0.80 occur in locations with highly peaked demand, such as at schools and factories during shift changes.

The ODOT **Analysis and Traffic Simulation Manual** ⁽⁶⁾ provides guidance to use the existing year PHF for all intersections from traffic counts collected for the project. The PHF is calculated for the intersection as a whole and not individual approaches or movements. A minimum of 0.80 for the PHF is required to be utilized unless justified by highly peaked demands such as for schools and factories noted above. If project specific counts are not available, a default value of 0.92 is to be utilized for arterials.

It is assumed for this report that the PHF for the opening and design years are the same as the calculated PHF from the collected existing year traffic counts. The intersection PHF's are included in **Appendix B**. The following table shows the PHF's calculated for the study area intersections during the AM and PM peak hours:

Table 3.11 - Intersection Peak Hour Factors

ROADWAY/INTERSECTION	AM PHF	PM PHF
US 23 & SR 752	0.888	0.976
US 23 & SR 316/North Street	0.956	0.970
US 23 & SR 316/Northup Avenue	0.952	0.946
SR 752 & Ashville Pike	0.646*	0.882
SR 316 & CR 28/Miller Avenue	0.812	0.942

* A minimum PHF of 0.80 will be used.

The peak hour factors detailed in **Table 3.11** will be used in the intersection capacity calculations for the Traffic Impact Study.

3.4 Future Traffic

No-Build Conditions

The previously discussed calculation of design hour factors and growth rates for each movement were applied to the existing 2022 traffic volumes shown in **Figure 2.5, Appendix A** in order to estimate the future traffic considering non-project traffic conditions without the development of the Sheetz or the proposed mixed-use development.

Spreadsheets detailing the use of the calculated growth rates and the design hour factors and the resulting expected 2024, 2030, and 2044 No-Build traffic volumes can be found in **Appendix J**. The No-Build traffic volumes detailed in **Appendix J** do not include the site generated traffic volumes from the Sheetz or the US 32/SR316 mixed-use development

The site generated traffic volumes for the Sheetz and mixed-use development detailed in **Appendices F & G** were added to the intersection traffic volumes calculated in **Appendix J** to determine the future No-Build (background) traffic volumes for the study area.

Balancing traffic volumes is a process by which the differences between traffic volume data at adjacent traffic count locations is eliminated. The traffic volumes along US Route 23 were not “balanced” for the purpose of this report due to the number of driveways, intersections, and commercial retail businesses between the three US Route 23 count locations.

The estimated 2024, 2030, and 2044 No-Build traffic volumes for the study area are shown graphically in **Figures 3.13 - 3.15, Appendix A**. This traffic is the expected traffic if the proposed DHL facility **is not** constructed, a “**No-Build**” condition.

The No-Build traffic volumes have been rounded to the nearest 10 to adhere to preferred ODOT practices.

Project Build Conditions

In order to estimate the future opening year traffic considering project traffic conditions, the sum of the 2024 No-Build volumes, shown in **Figure 3.13, Appendix A**, were added to the new generated traffic (**Figures 3.7 & 3.8**) to equal the future 2024 Build peak hour volumes.

The estimated 2024 Build traffic volumes for the study area are shown graphically in **Figure 3.16, Appendix A** for the proposed development. These traffic volumes are the expected volumes if the proposed development is constructed, or a “**Build**” condition. These conditions represent the expected opening year conditions with the construction of Building #1.

In order to estimate the build year traffic considering project traffic conditions, the sum of the 2030 No-Build volumes, shown in **Figure 3.14, Appendix A**, were added to the new generated traffic (**Figures 3.9 - 3.12**) to equal the future 2030 Build peak hour volumes.

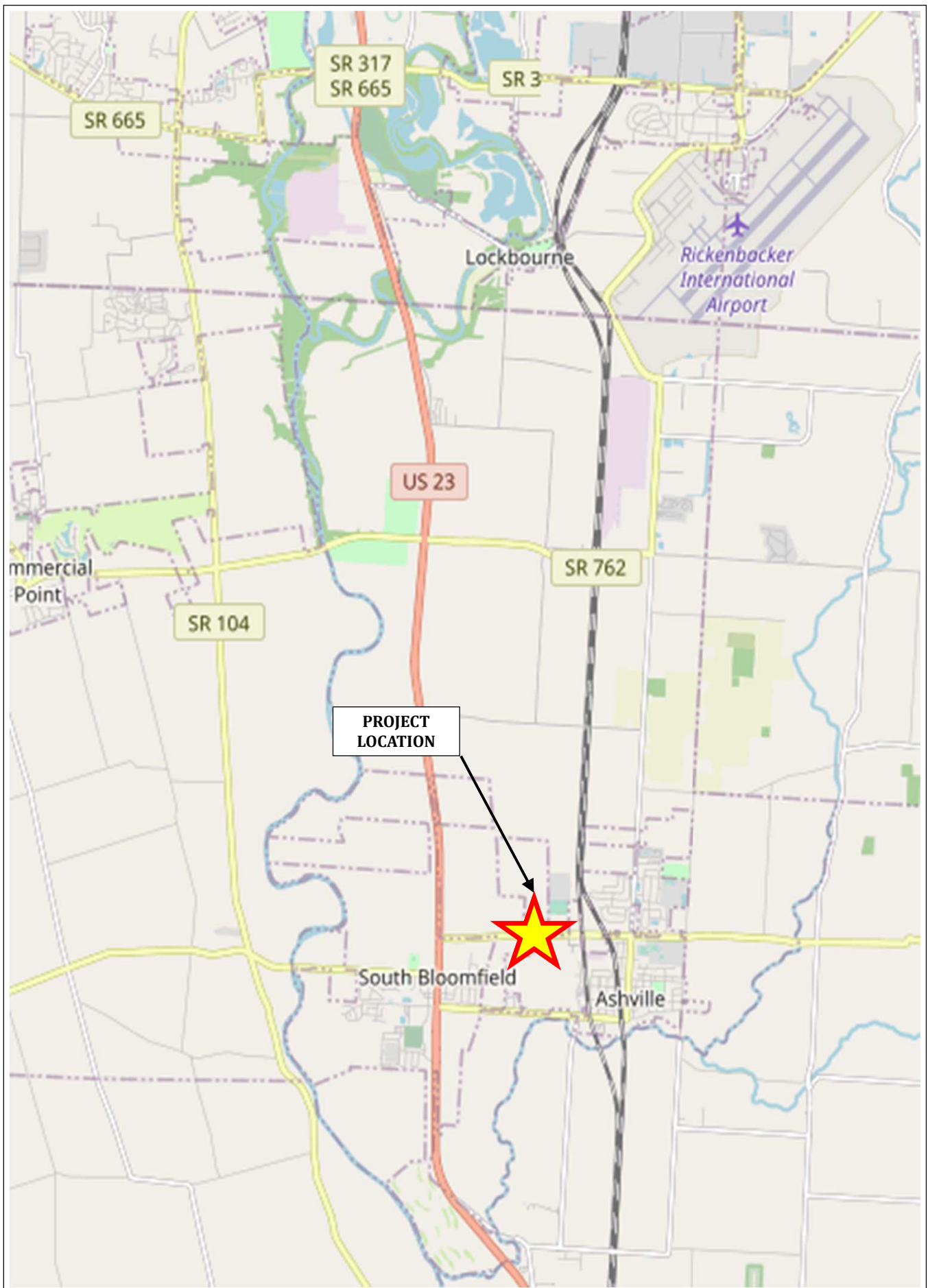
The estimated 2030 Build traffic volumes for the study area are shown graphically in **Figure 3.17, Appendix A** for the proposed development. These traffic volumes are the expected volumes if the proposed development is constructed, or a “**Build**” condition. These conditions represent the expected build year conditions with the construction of all seven buildings

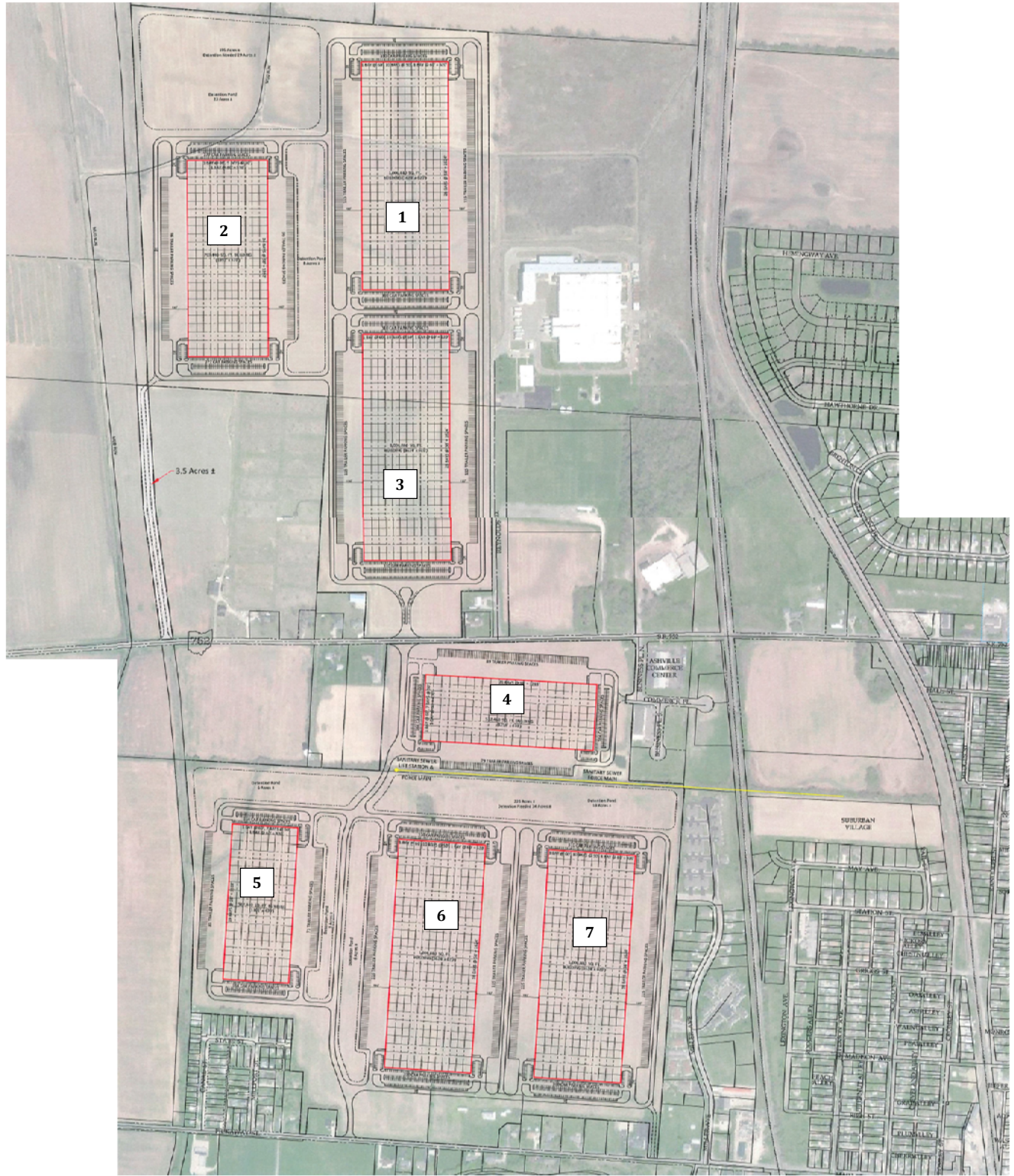
In order to estimate the future design year traffic considering project traffic conditions, the sum of the 2044 No-Build volumes, shown in **Figure 3.15, Appendix A**, were added to the new generated traffic (**Figures 3.9 - 3.12**) to equal the future 2044 Build peak hour volumes.

The estimated 2044 Build traffic volumes for the study area are shown graphically in **Figure 3.18, Appendix A** for the proposed development. These traffic volumes are the expected volumes if the proposed development is constructed, or a “**Build**” condition. These conditions represent the expected design year conditions with the construction of all seven buildings.

Appendix A

Traffic Volume Figures

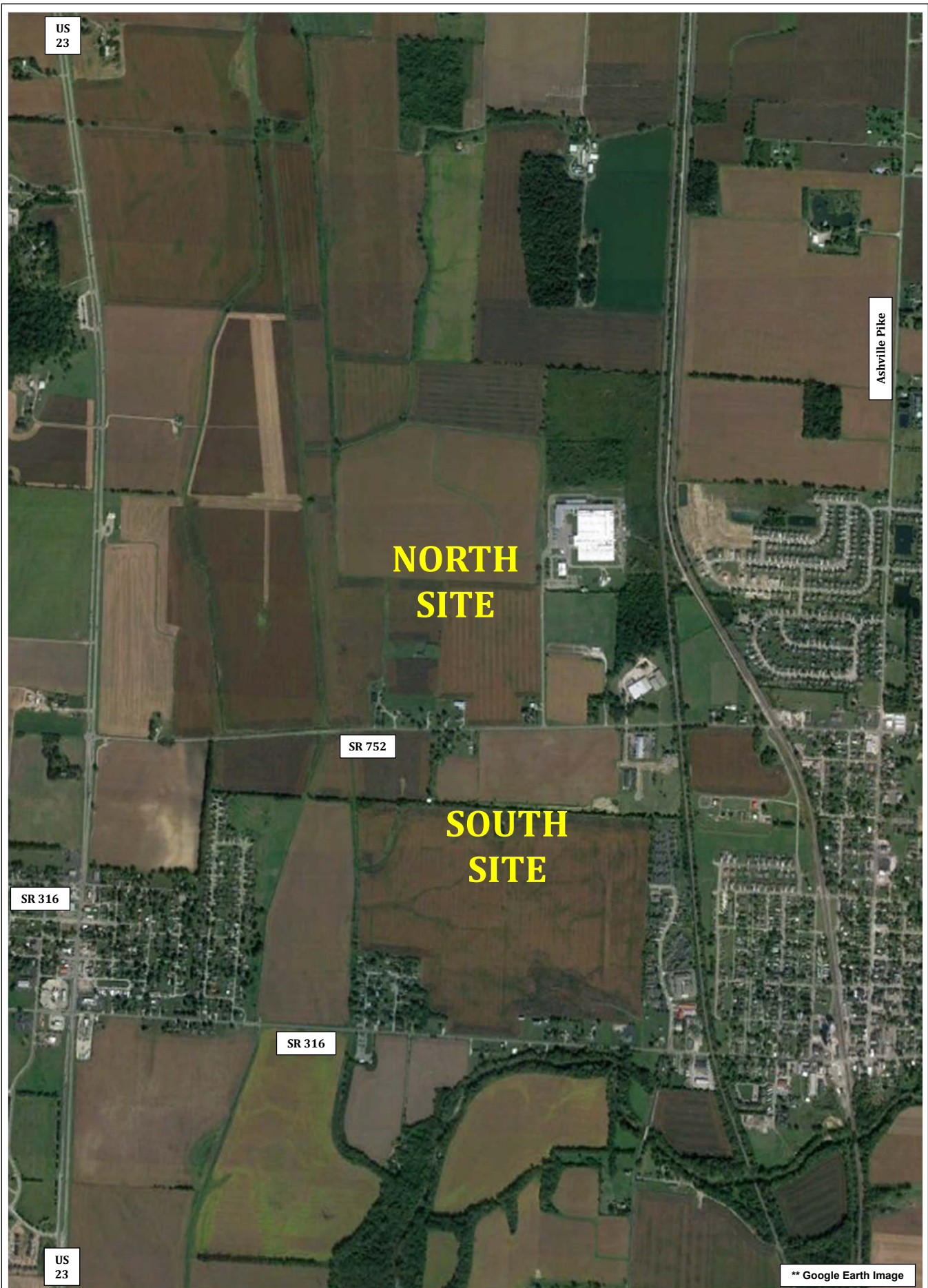


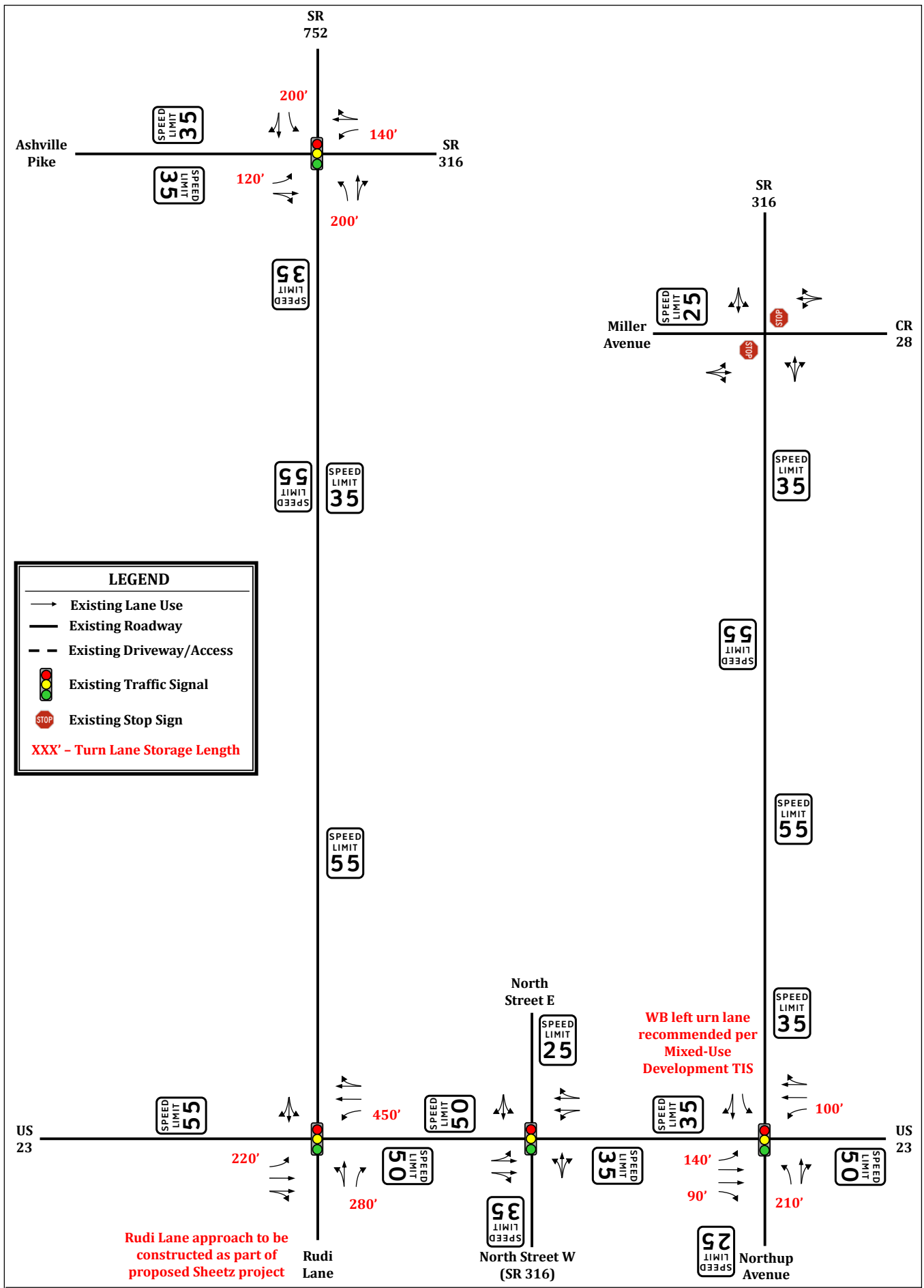


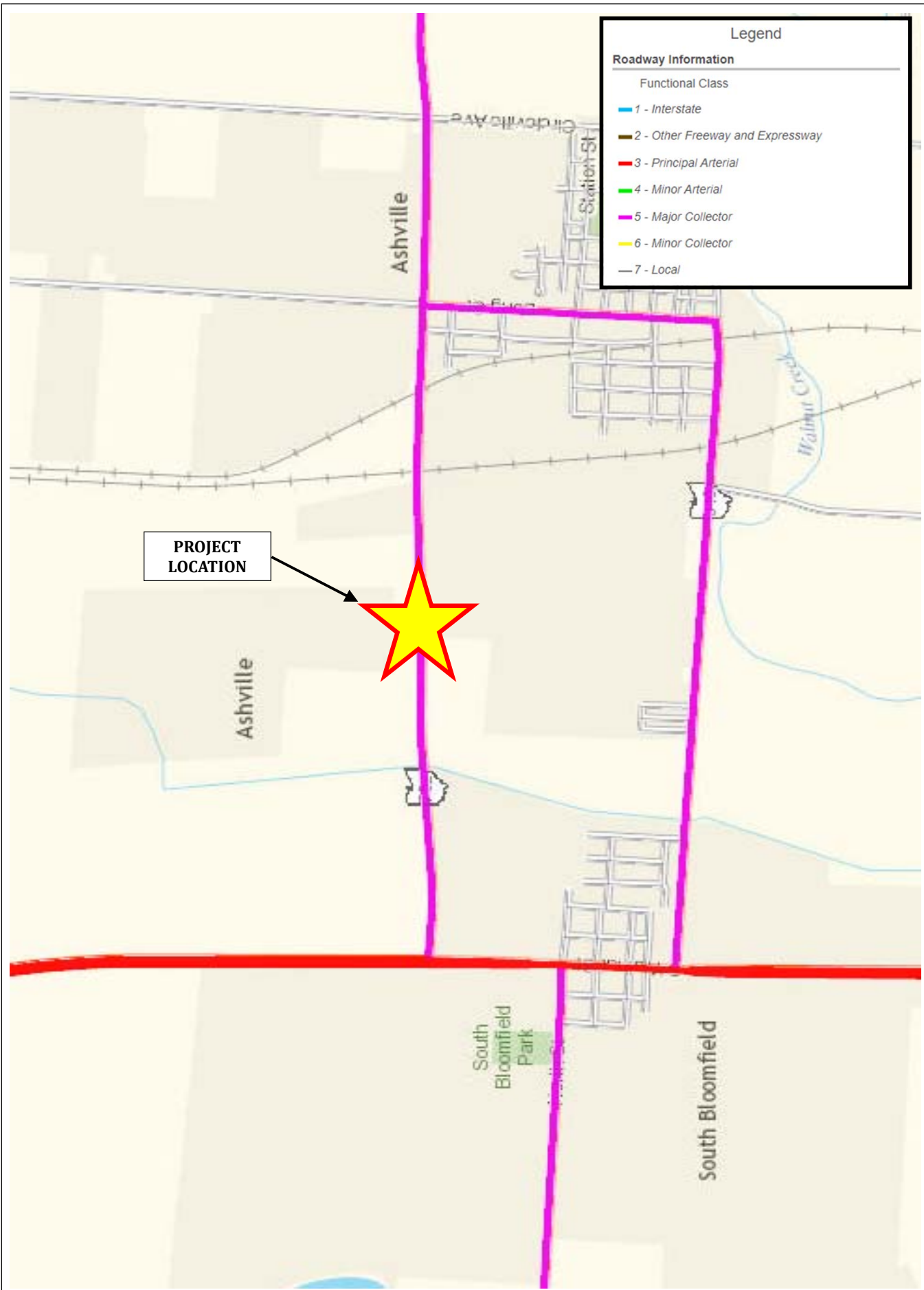
TRAFFIC COUNT LOCATIONS ●



PROJECT LOCATION





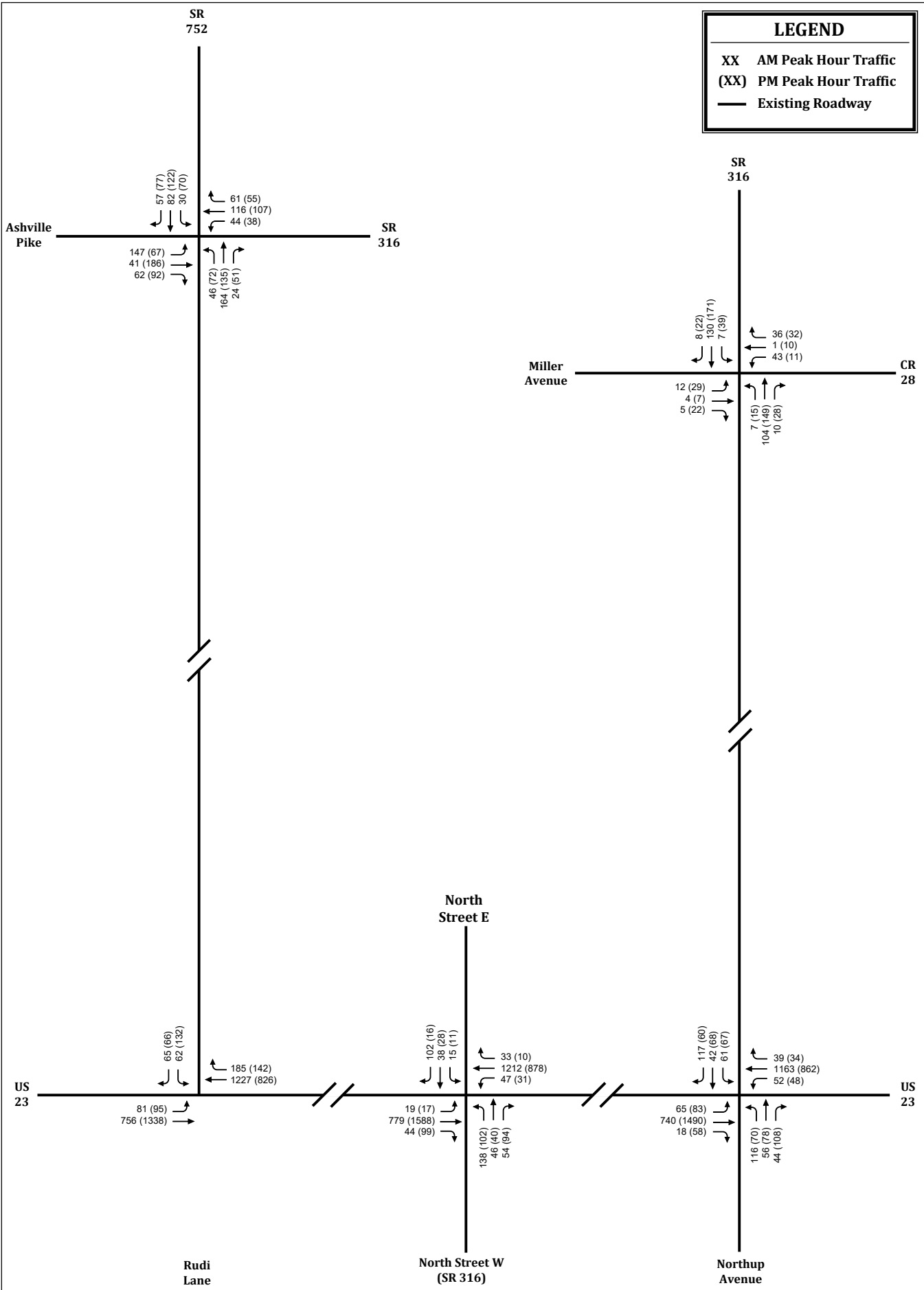


Legend	
Roadway Information	
Functional Class	
—	1 - Interstate
—	2 - Other Freeway and Expressway
—	3 - Principal Arterial
—	4 - Minor Arterial
—	5 - Major Collector
—	6 - Minor Collector
—	7 - Local

**PROJECT
LOCATION**



LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic
—	Existing Roadway

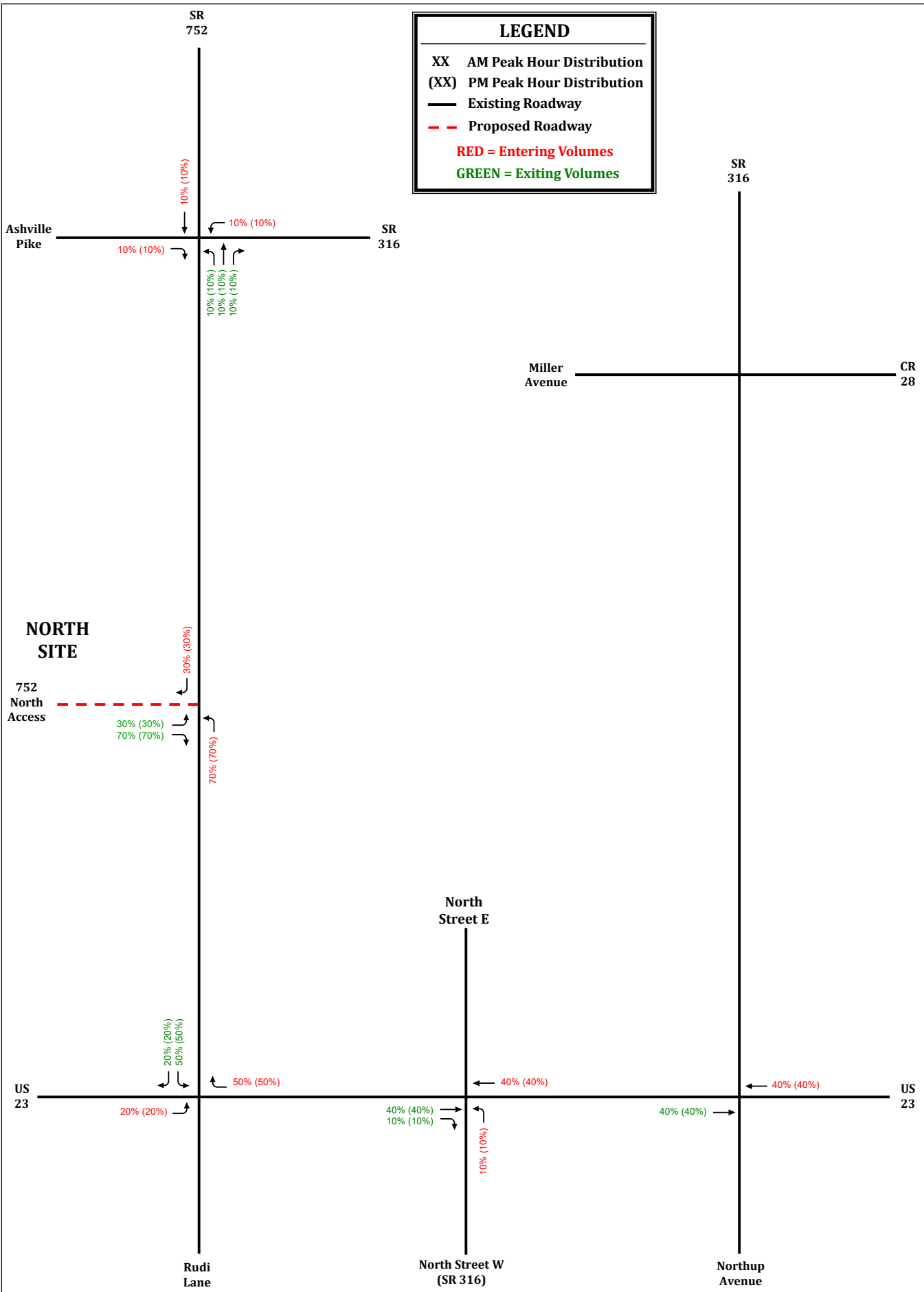


LEGEND

XX AM Peak Hour Distribution
 (XX) PM Peak Hour Distribution

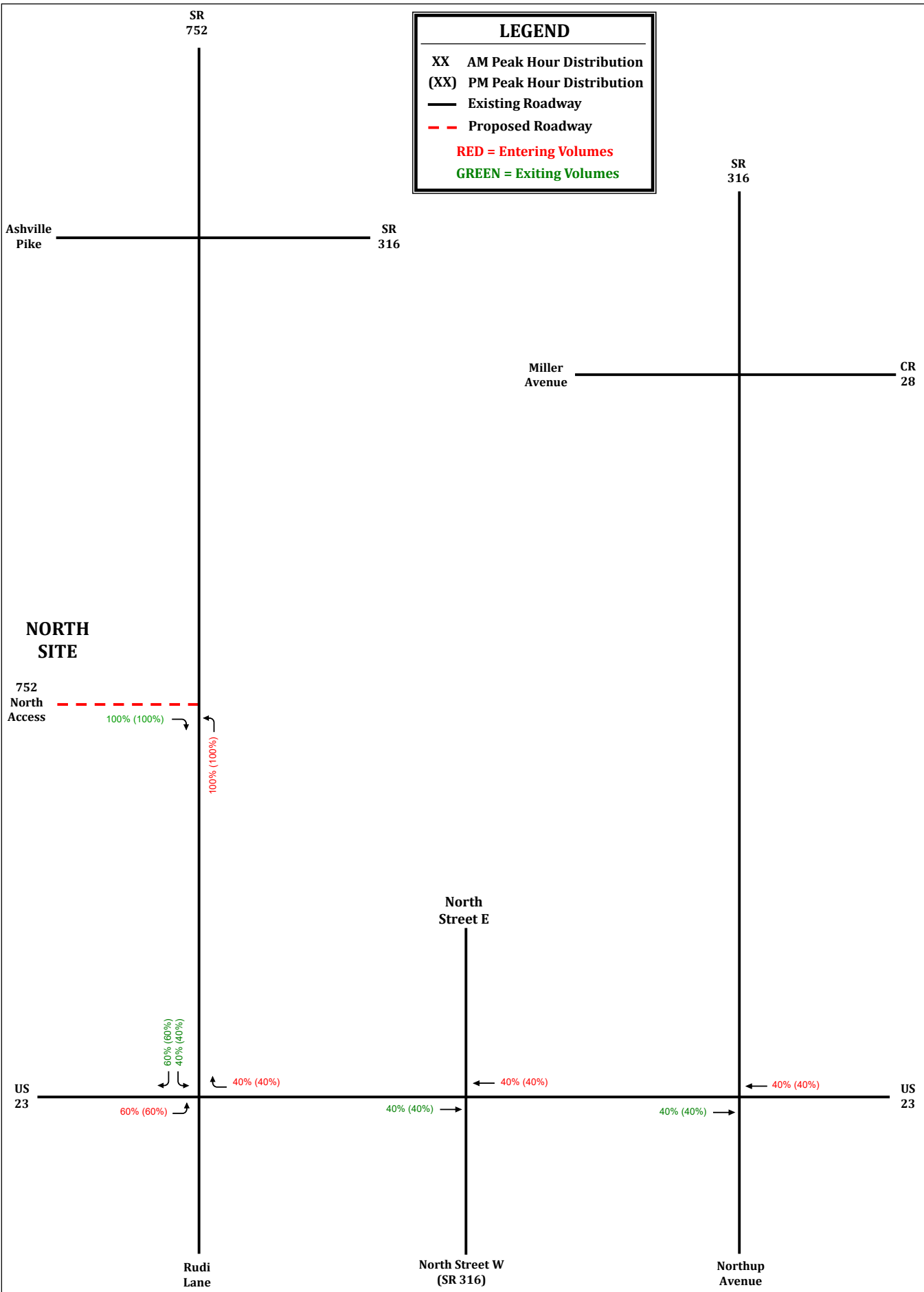
— Existing Roadway
 - - Proposed Roadway

RED = Entering Volumes
 GREEN = Exiting Volumes



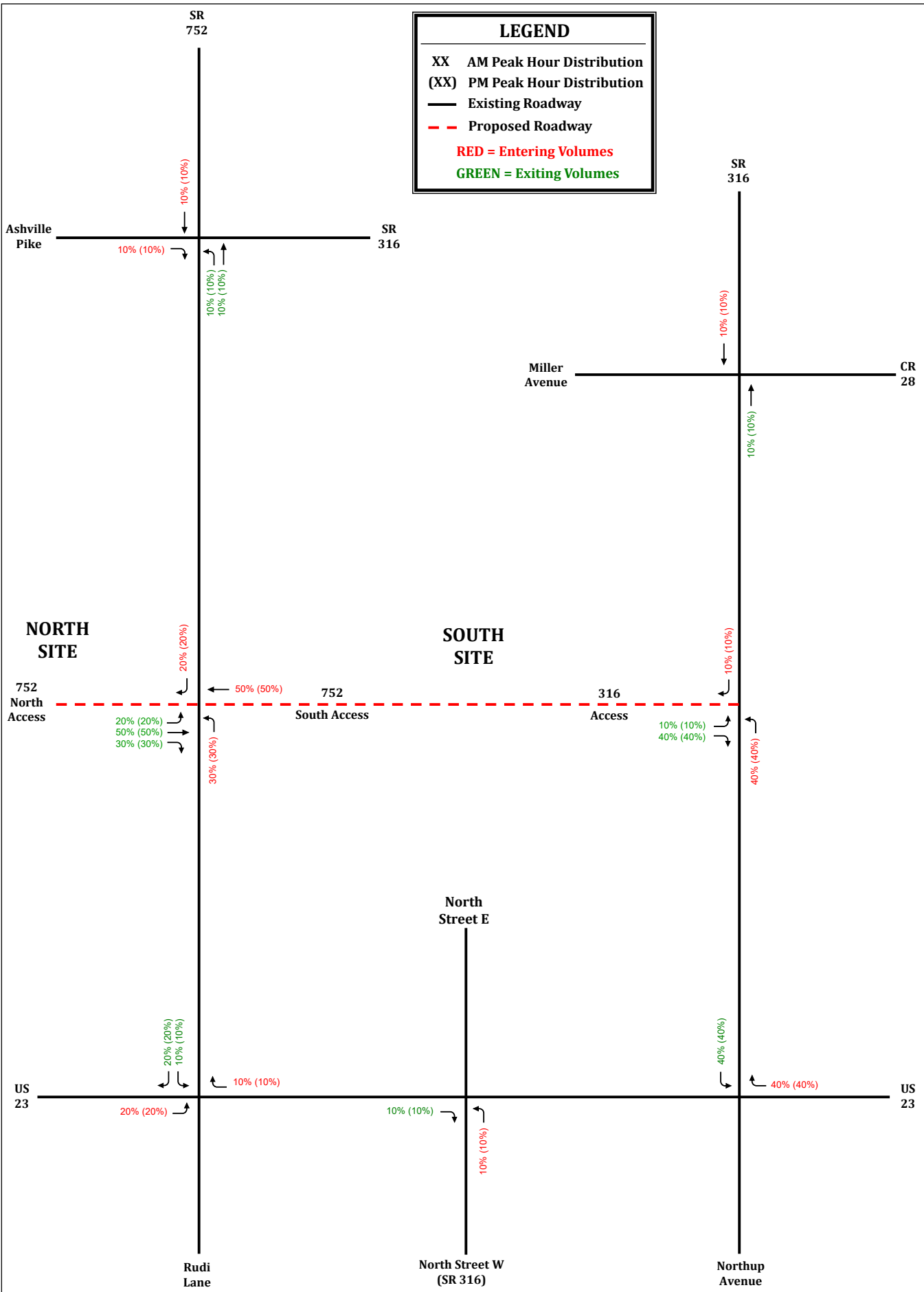
LEGEND

- XX AM Peak Hour Distribution
- (XX) PM Peak Hour Distribution
- Existing Roadway
- - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes



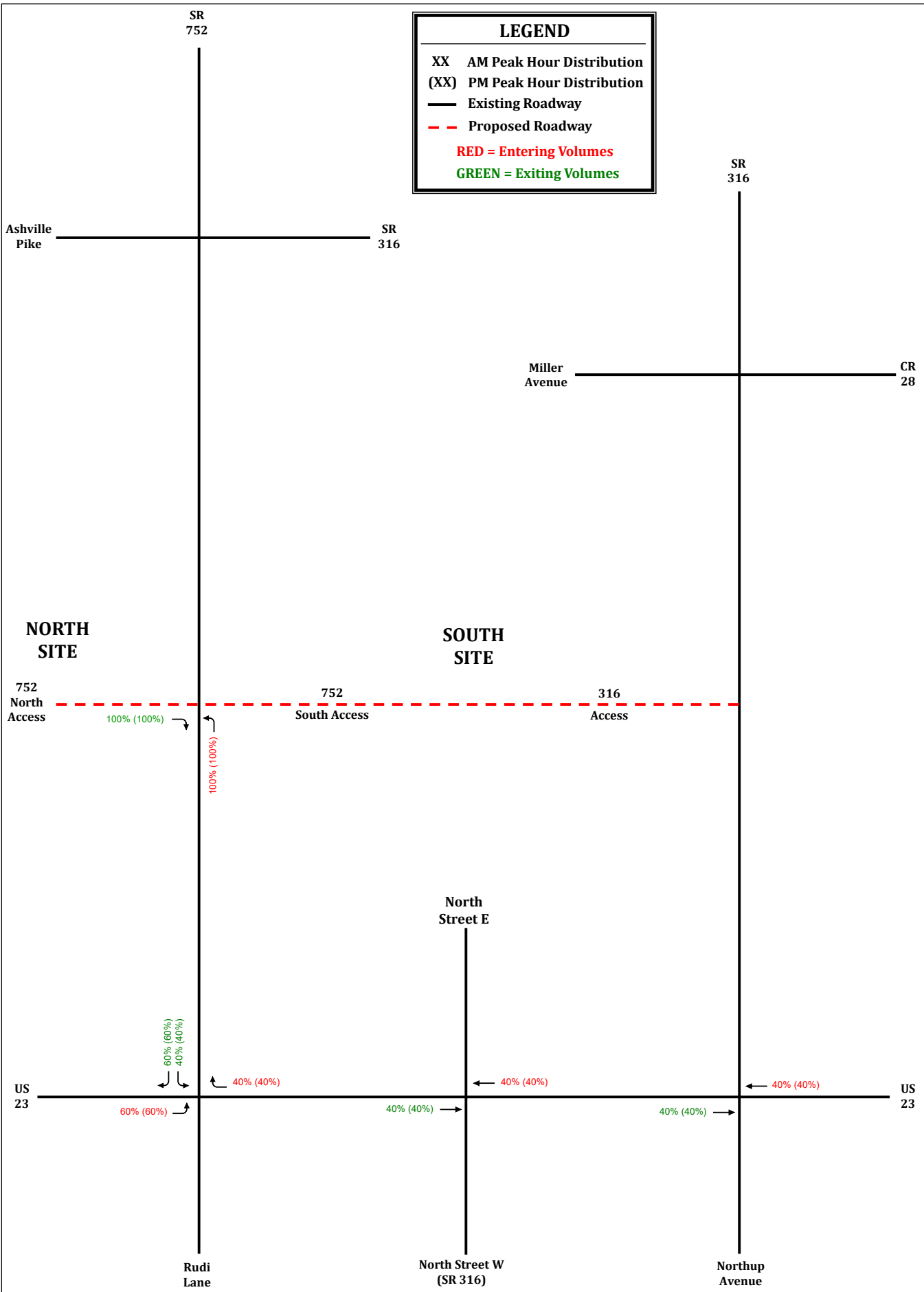
LEGEND

- XX AM Peak Hour Distribution
- (XX) PM Peak Hour Distribution
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes



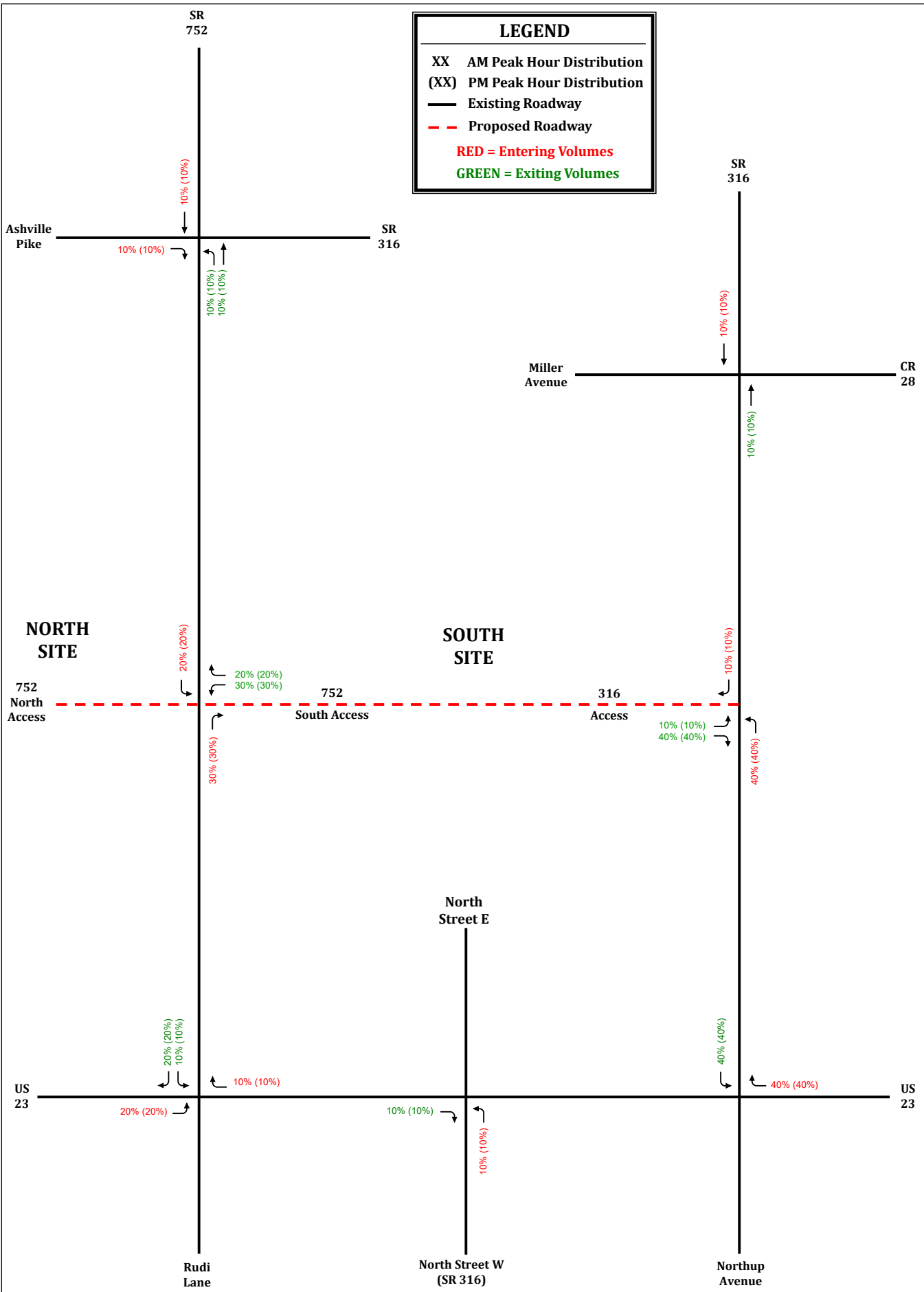
LEGEND

- XX AM Peak Hour Distribution
- (XX) PM Peak Hour Distribution
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes



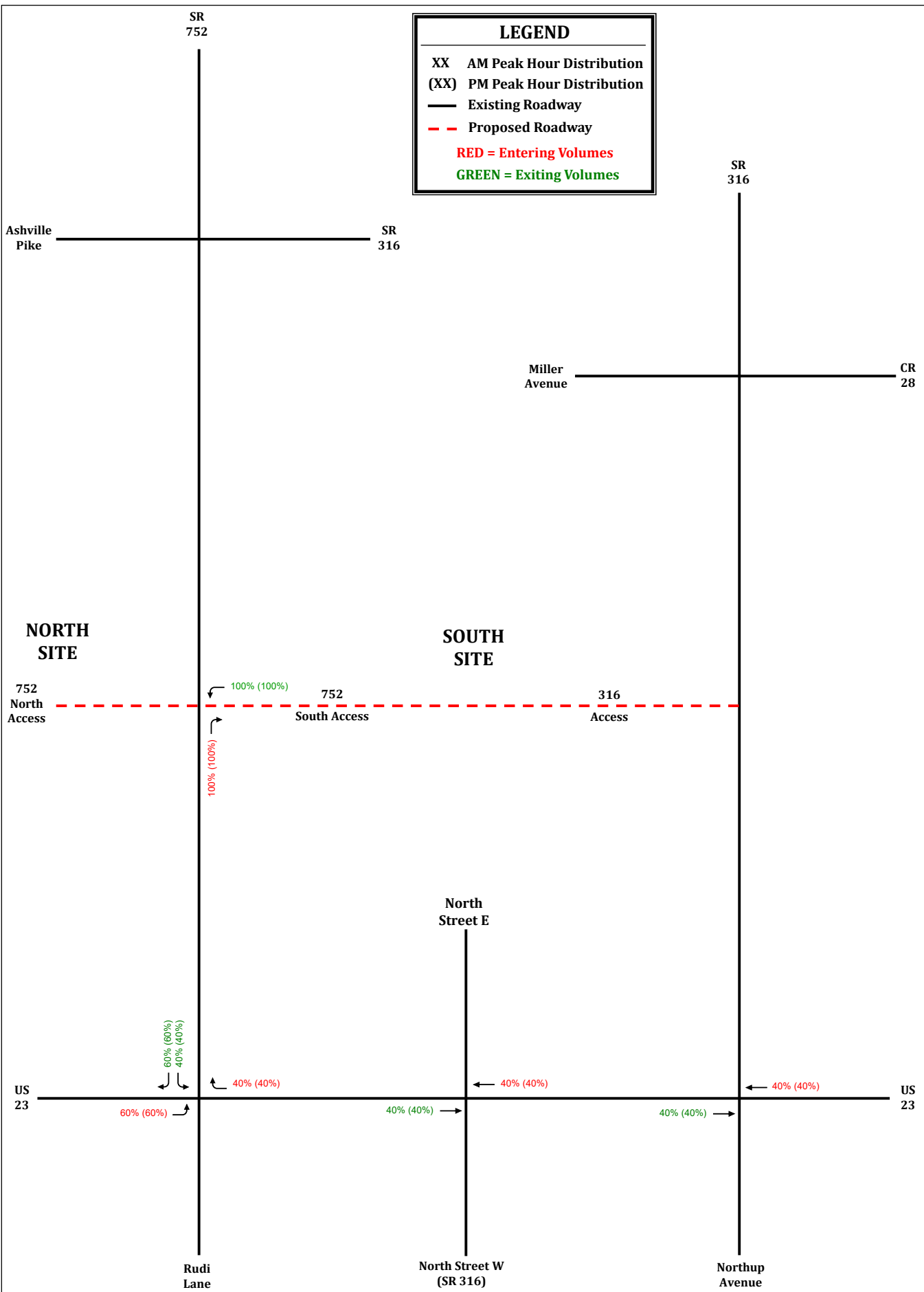
LEGEND

- XX AM Peak Hour Distribution
- (XX) PM Peak Hour Distribution
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes



LEGEND

- XX AM Peak Hour Distribution
- (XX) PM Peak Hour Distribution
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

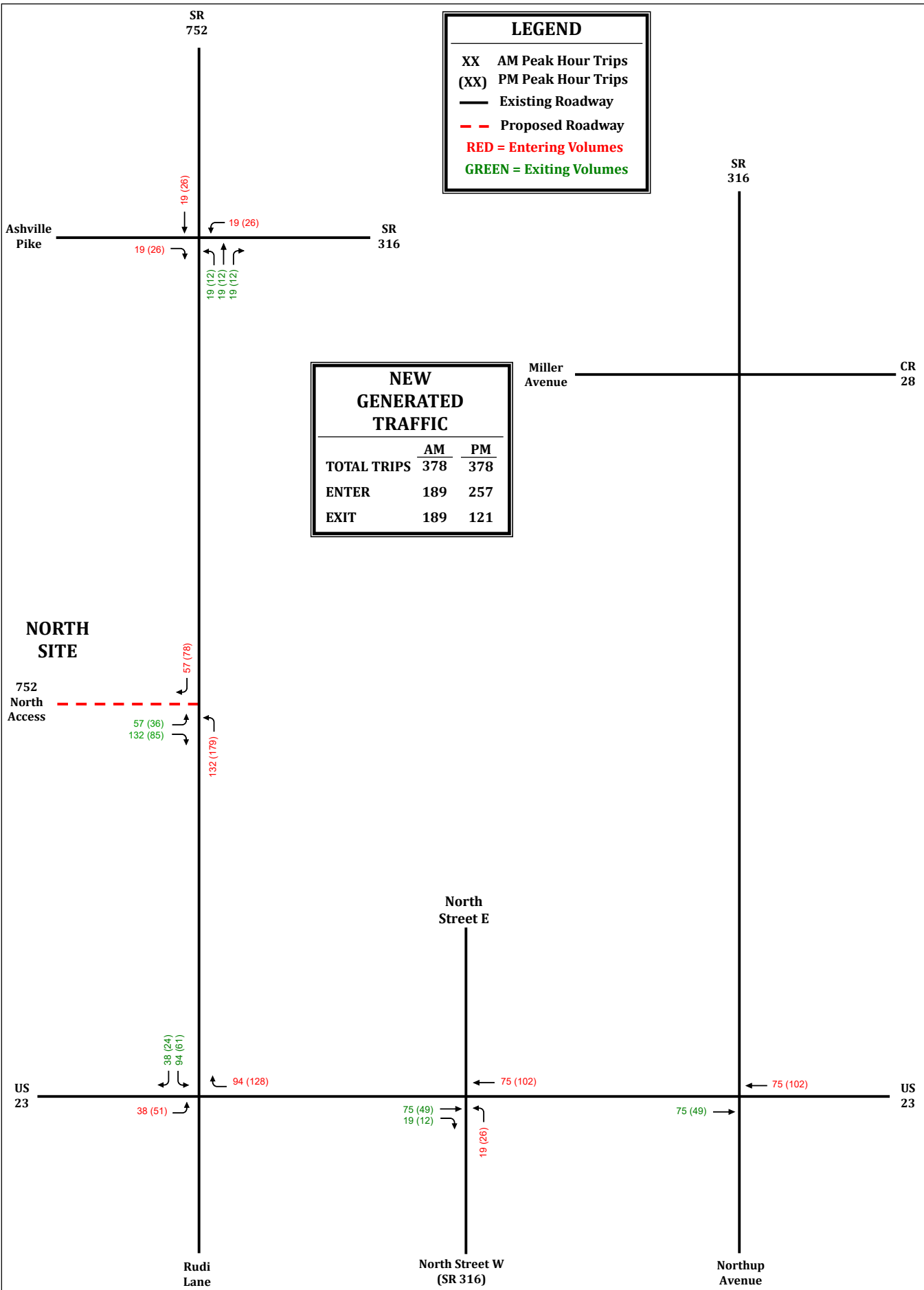


LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

NEW GENERATED TRAFFIC

	AM	PM
TOTAL TRIPS	378	378
ENTER	189	257
EXIT	189	121

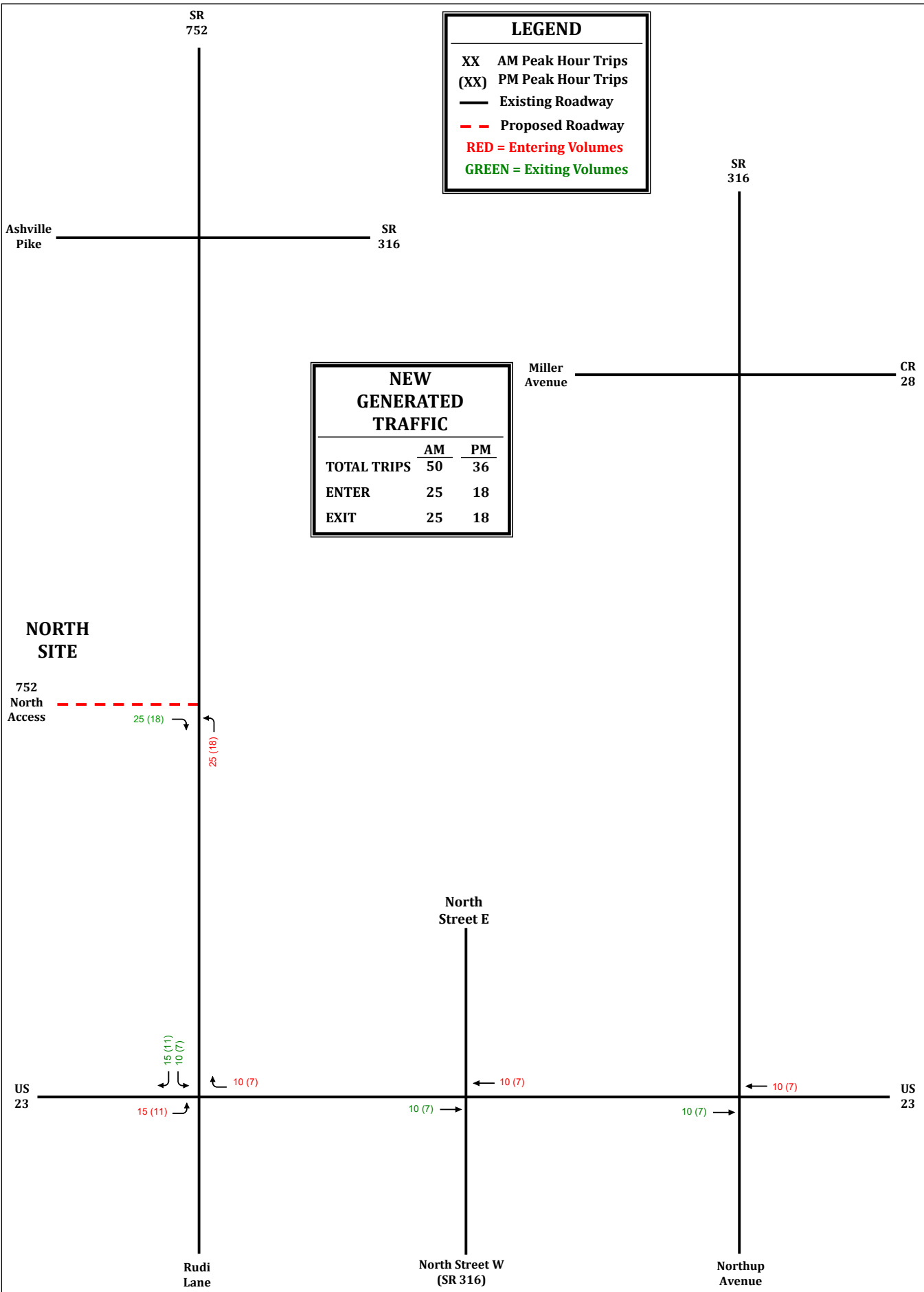


LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

NEW GENERATED TRAFFIC

	AM	PM
TOTAL TRIPS	50	36
ENTER	25	18
EXIT	25	18

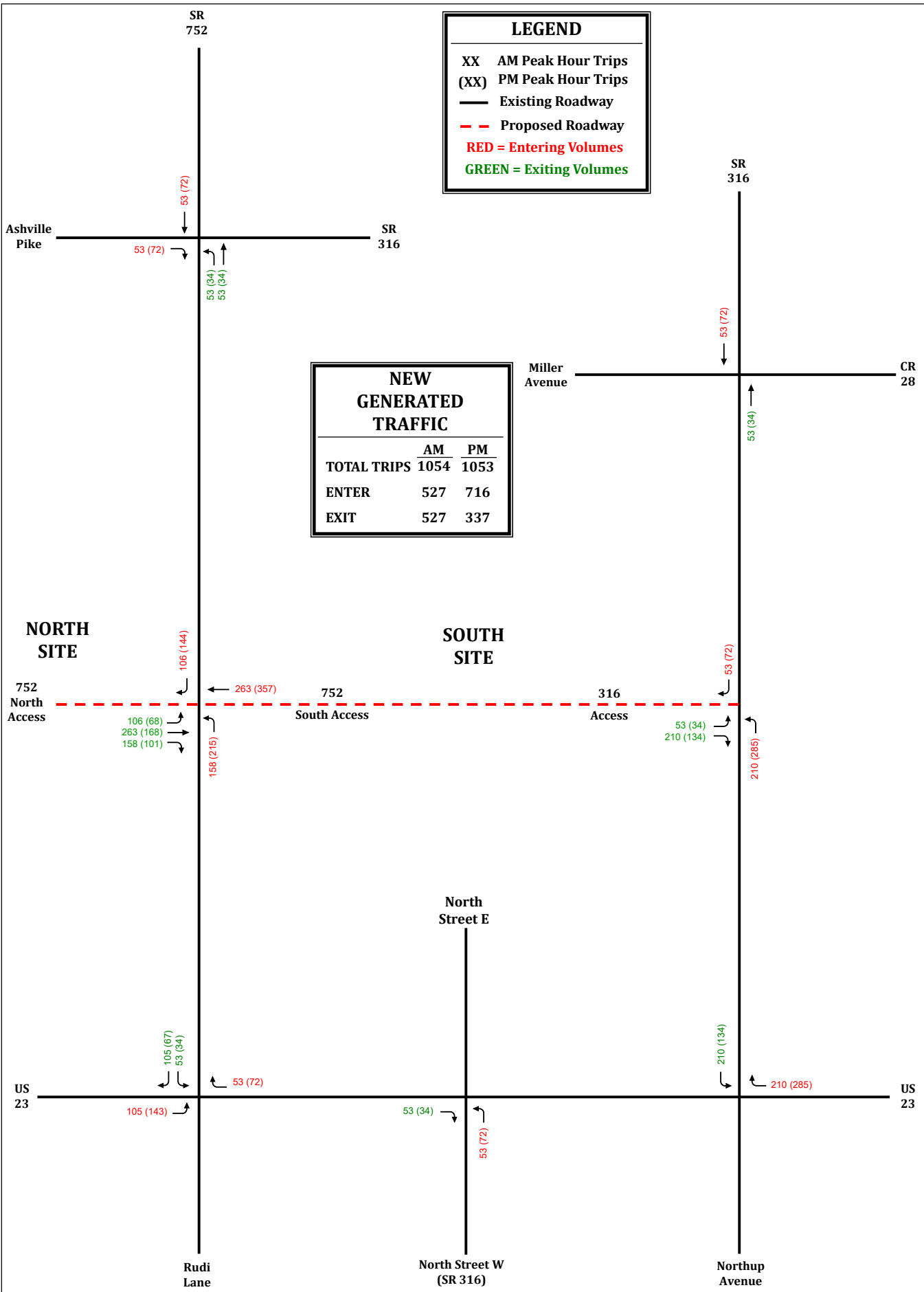


LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

NEW GENERATED TRAFFIC

	AM	PM
TOTAL TRIPS	1054	1053
ENTER	527	716
EXIT	527	337

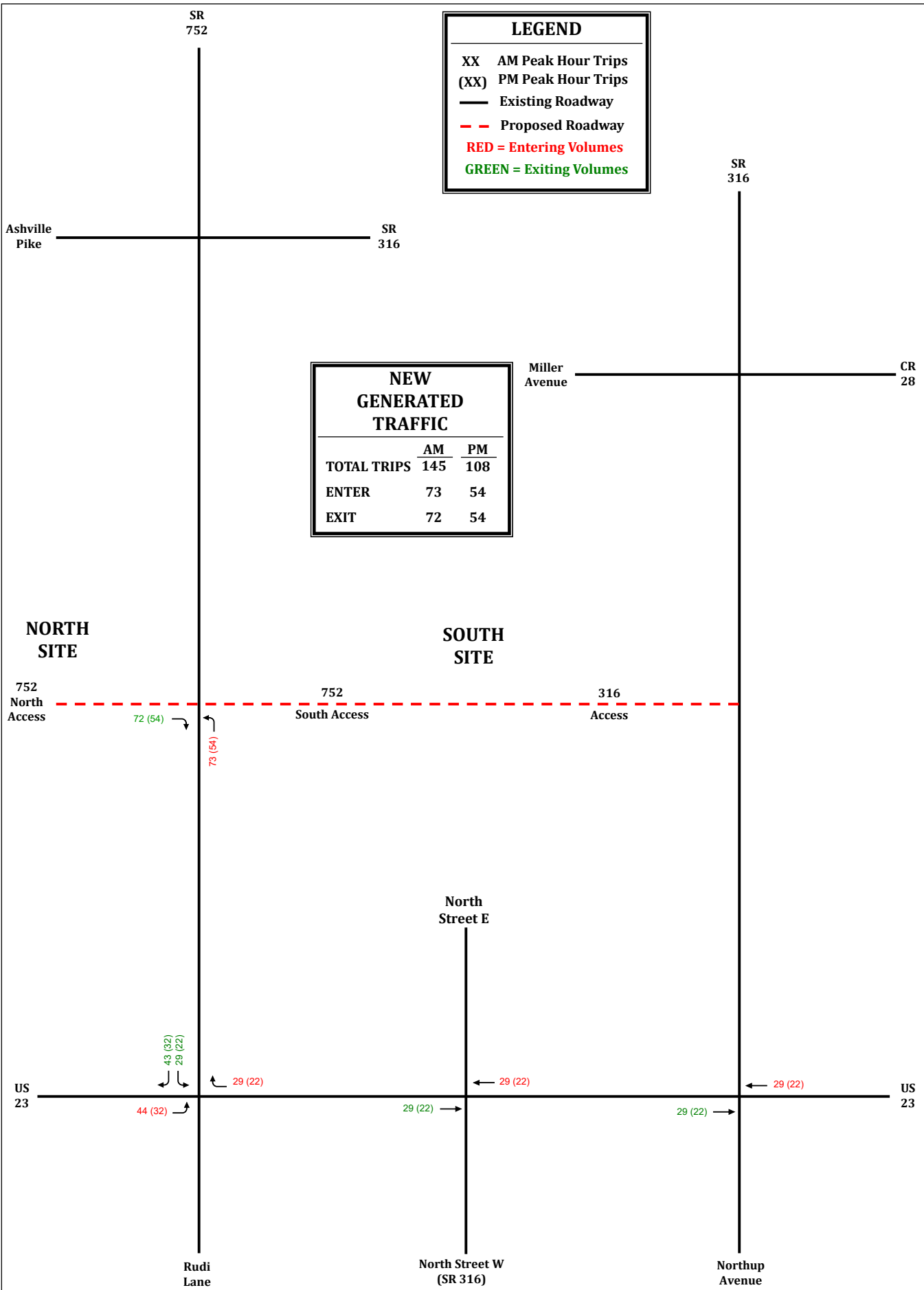


LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

**NEW
GENERATED
TRAFFIC**

	AM	PM
TOTAL TRIPS	145	108
ENTER	73	54
EXIT	72	54

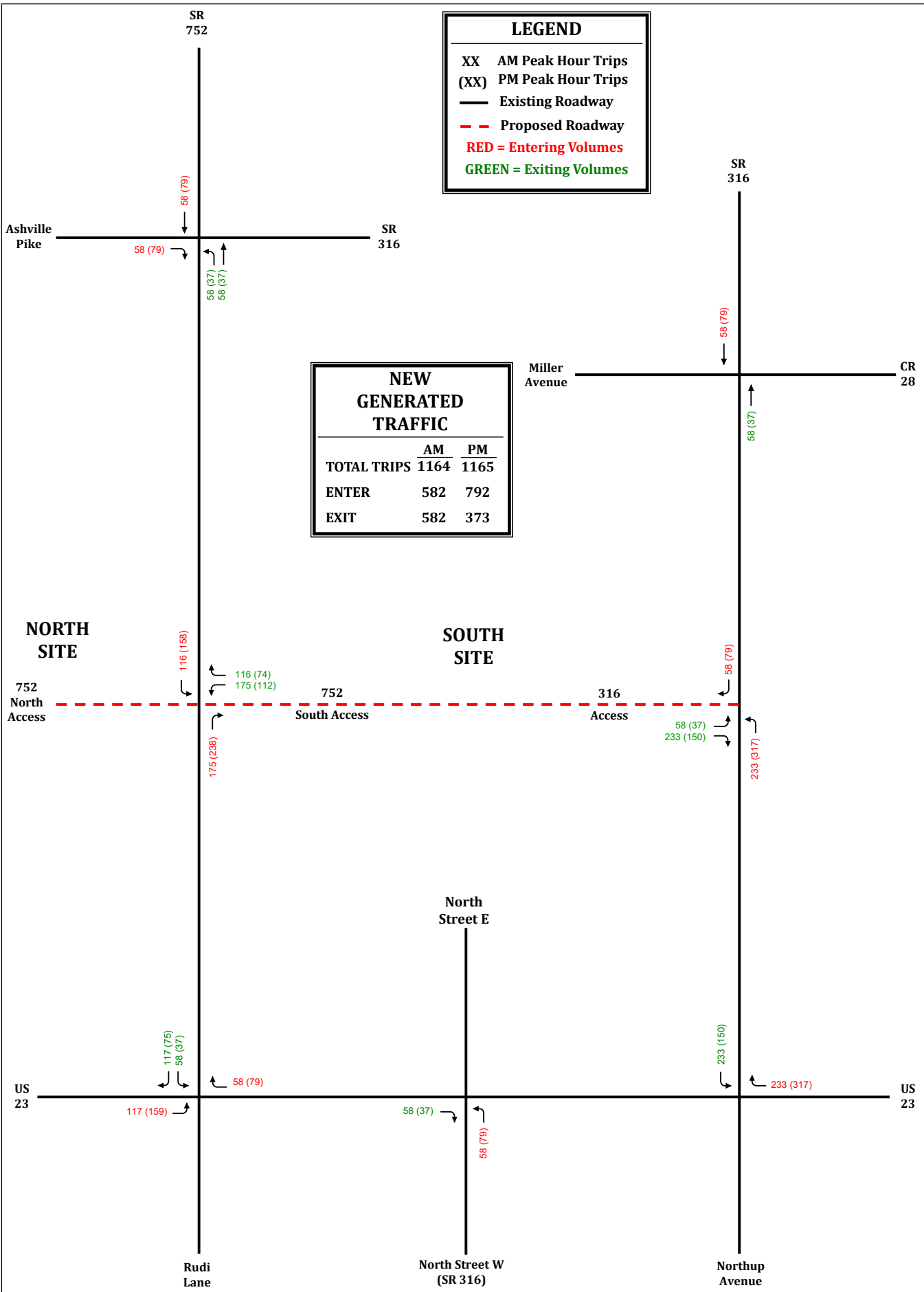


LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

NEW GENERATED TRAFFIC

	AM	PM
TOTAL TRIPS	1164	1165
ENTER	582	792
EXIT	582	373

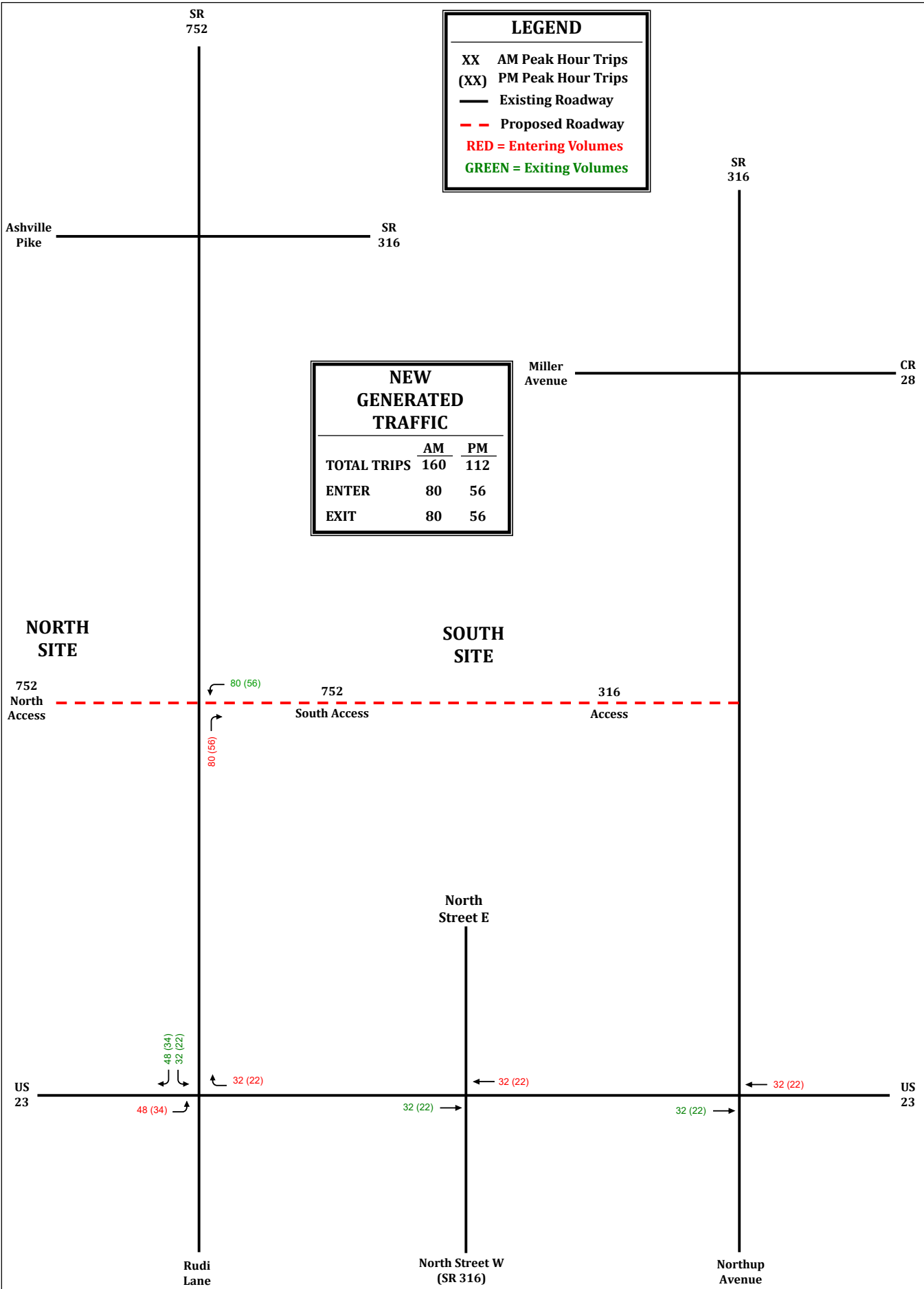


LEGEND

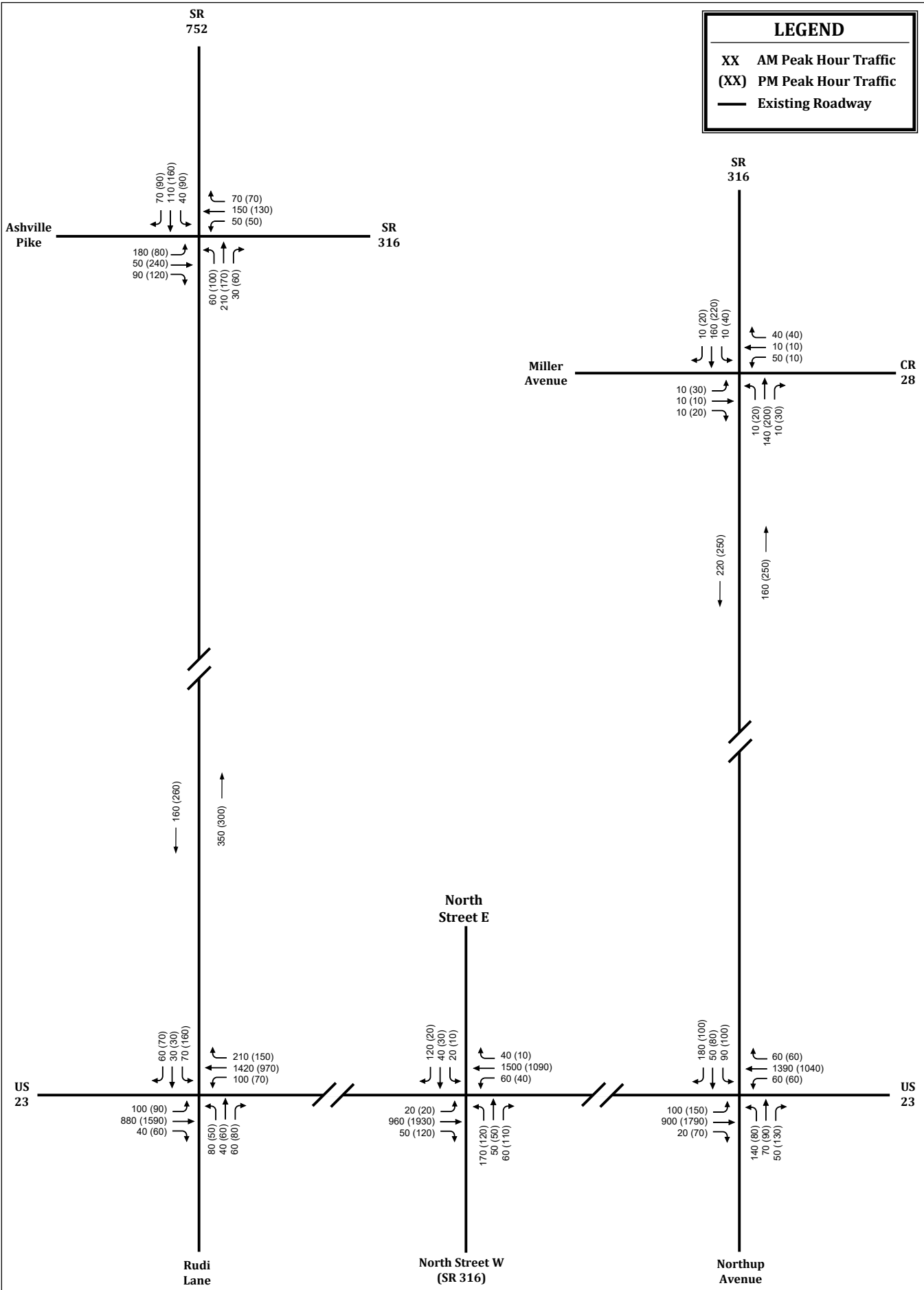
- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway
- RED = Entering Volumes
- GREEN = Exiting Volumes

NEW GENERATED TRAFFIC

	AM	PM
TOTAL TRIPS	160	112
ENTER	80	56
EXIT	80	56

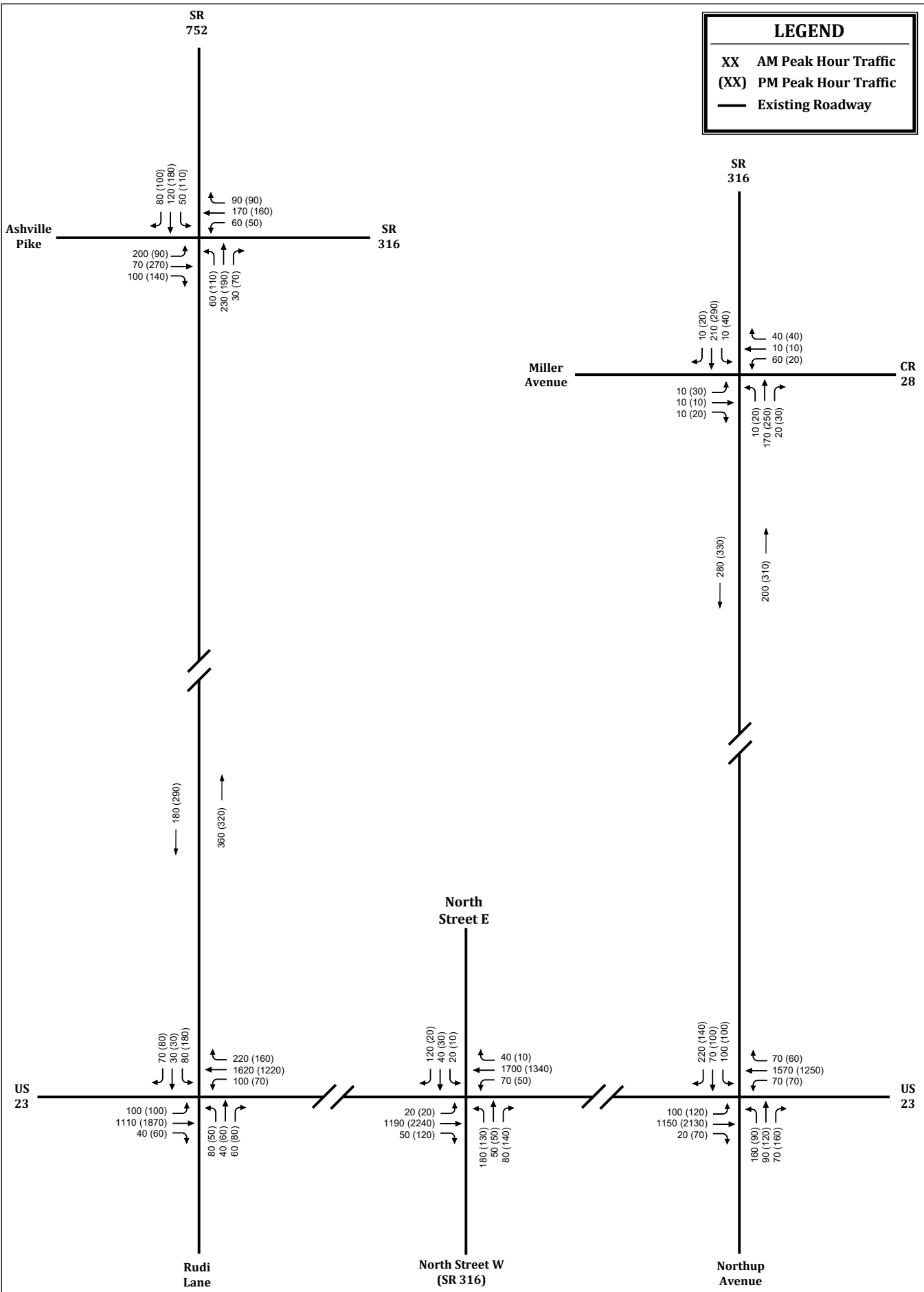


LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic
—	Existing Roadway

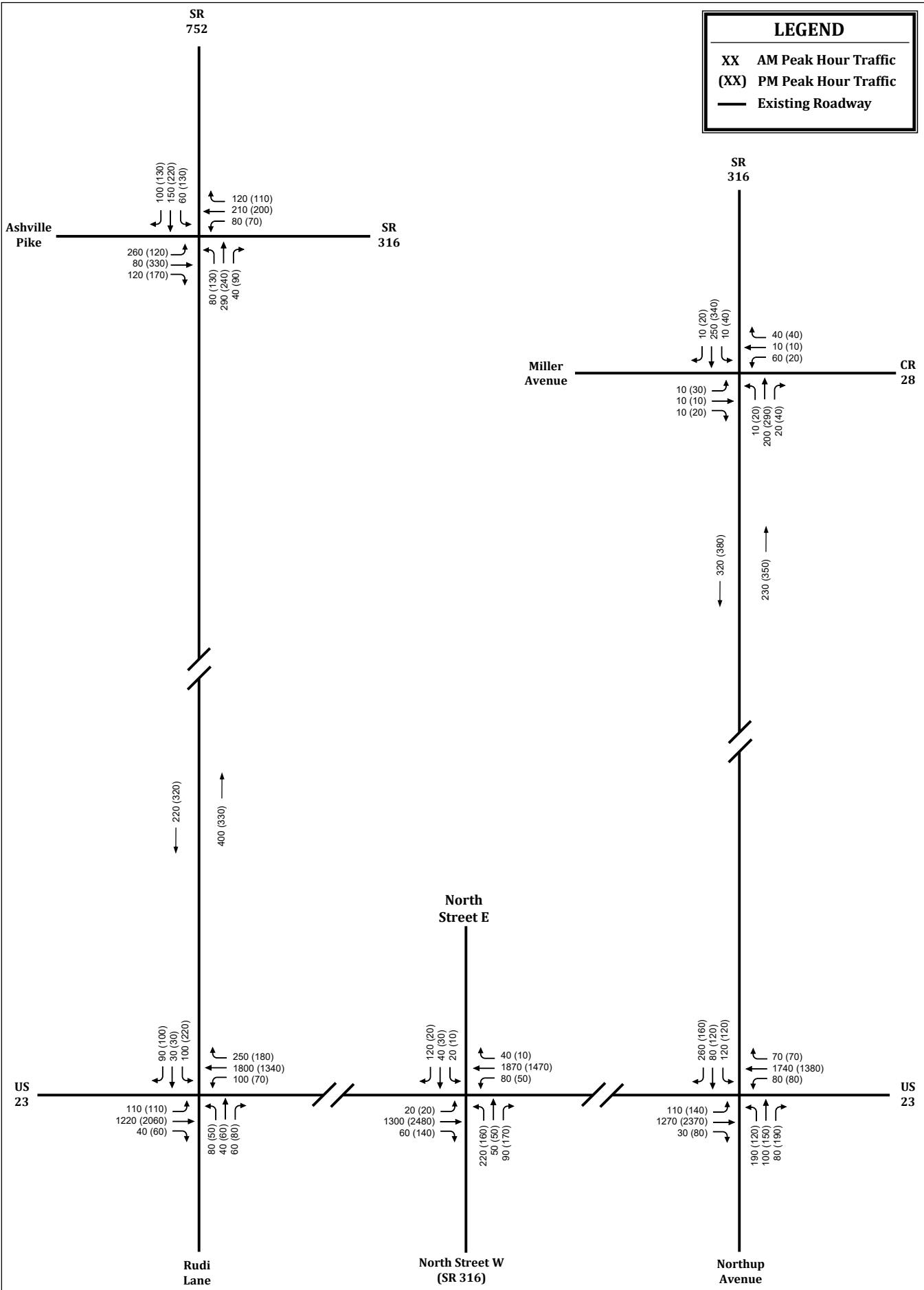


LEGEND

- XX AM Peak Hour Traffic
- (XX) PM Peak Hour Traffic
- Existing Roadway

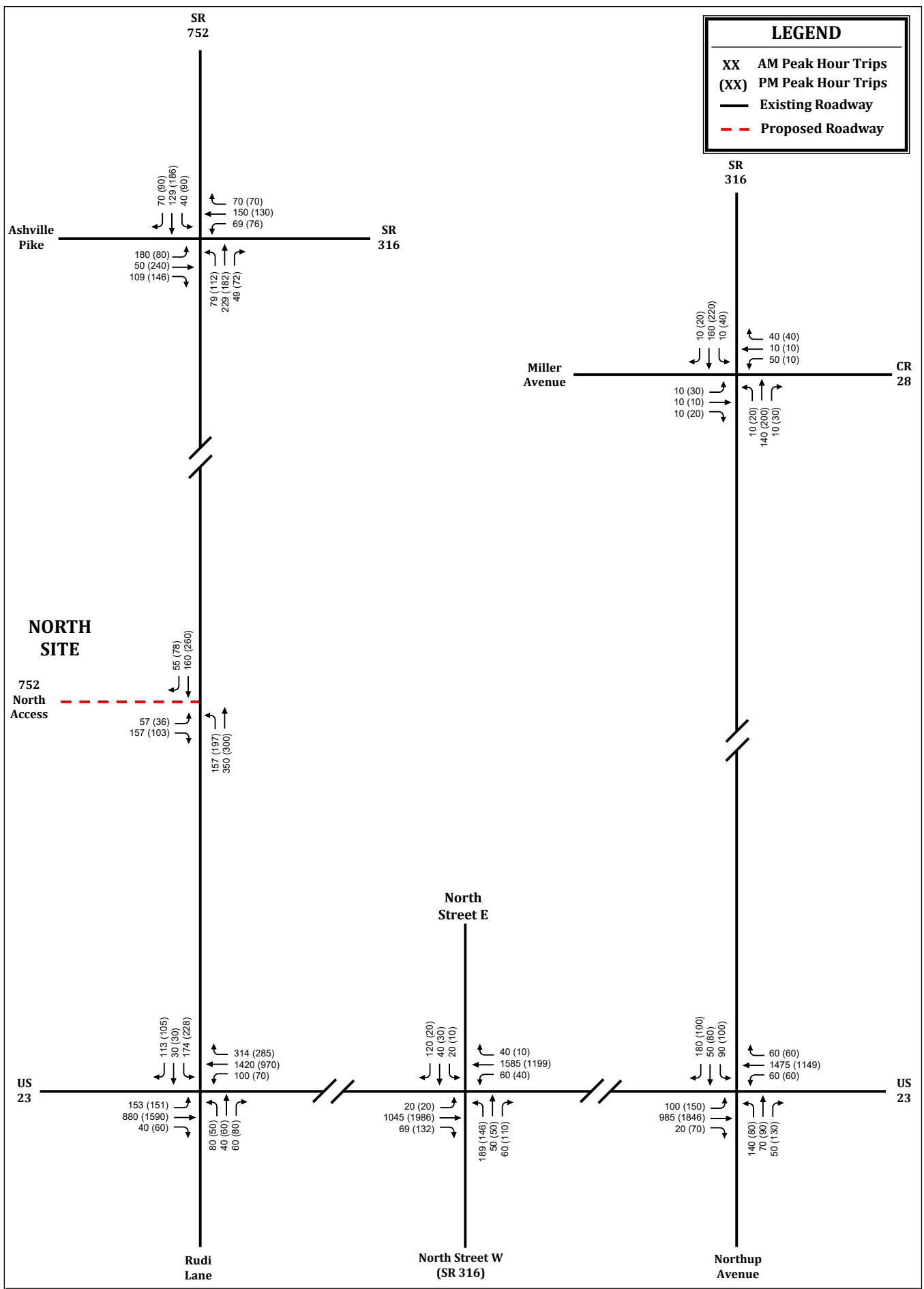


LEGEND	
XX	AM Peak Hour Traffic
(XX)	PM Peak Hour Traffic
—	Existing Roadway



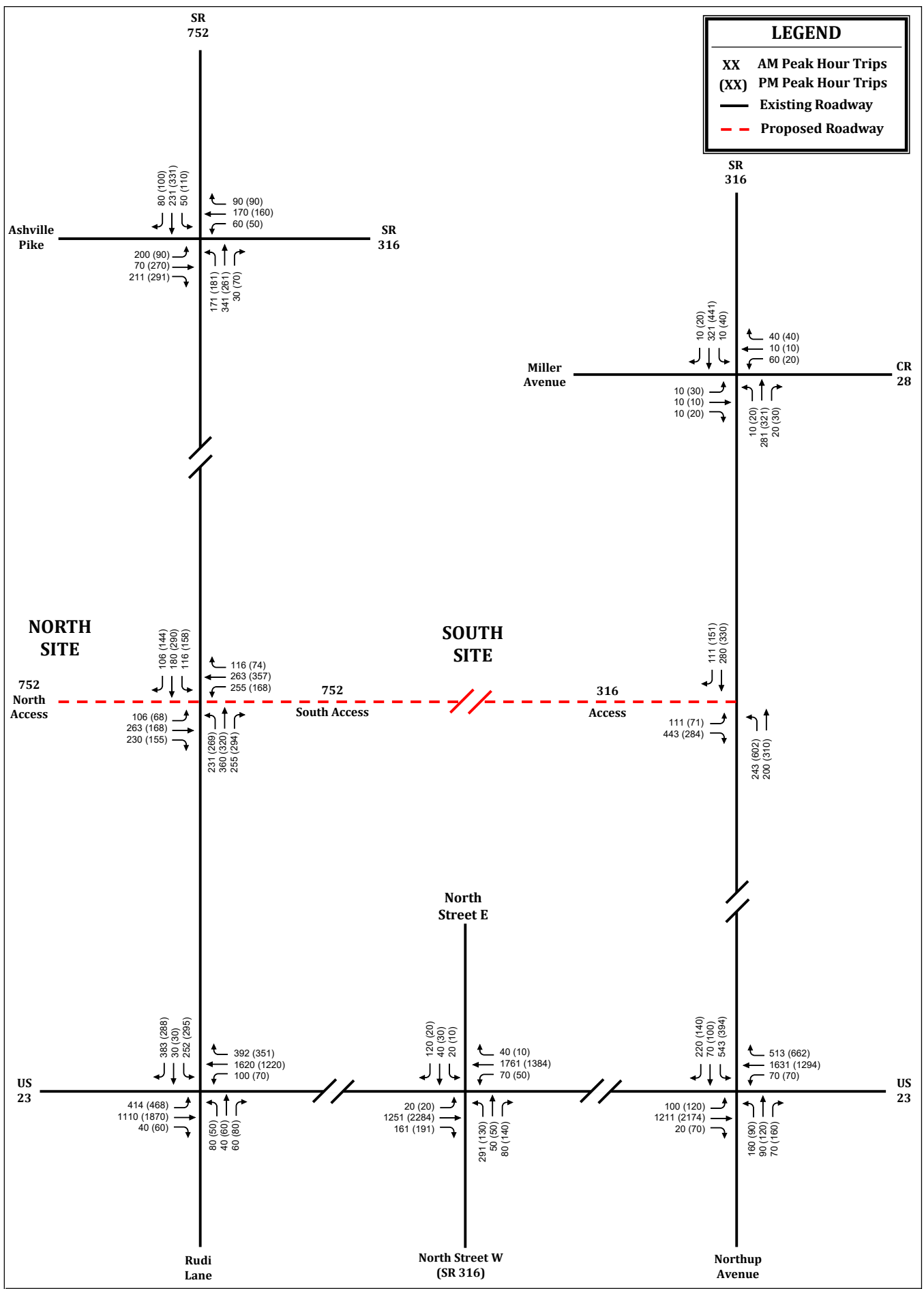
LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway



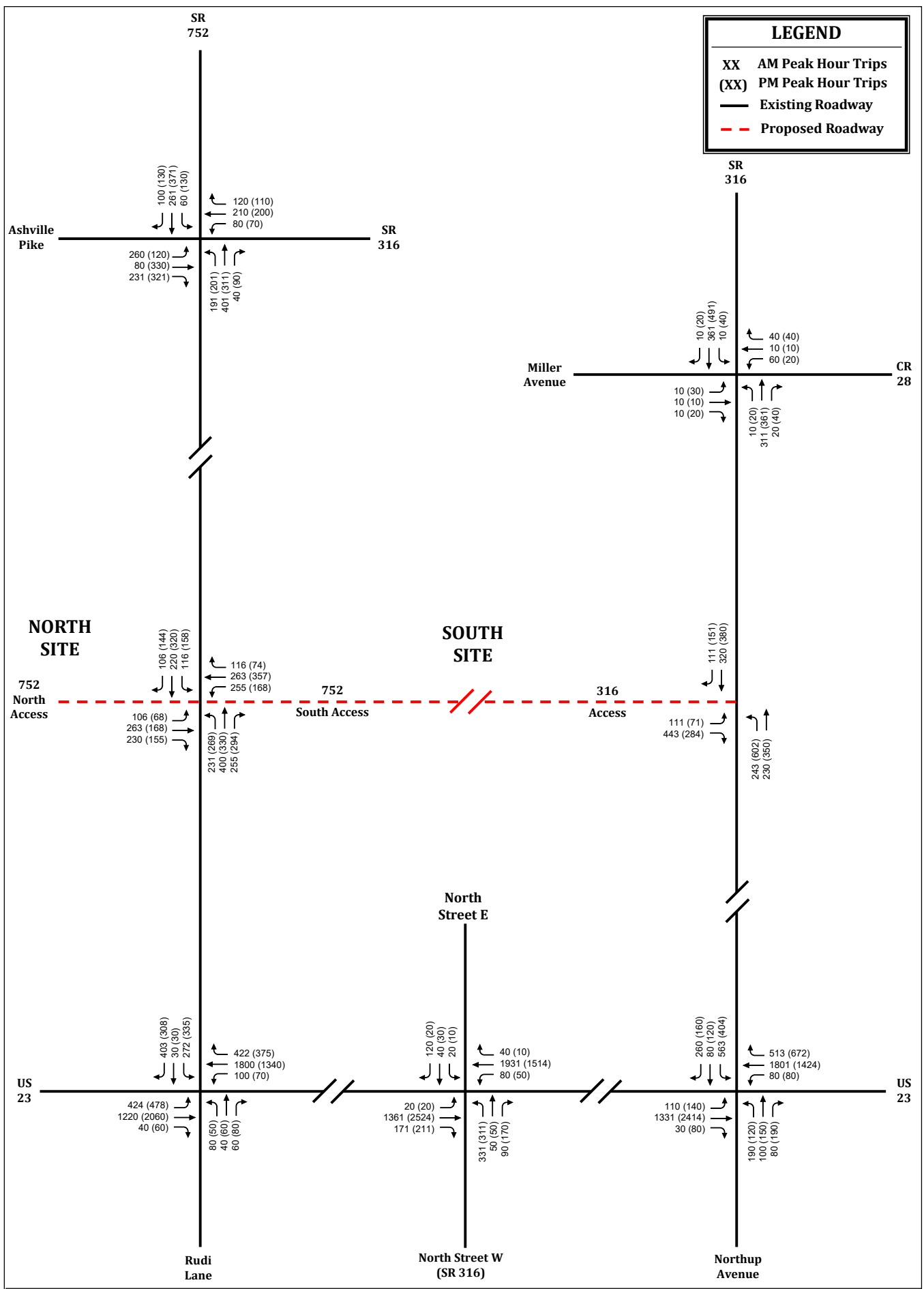
LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway



LEGEND

- XX AM Peak Hour Trips
- (XX) PM Peak Hour Trips
- Existing Roadway
- - - Proposed Roadway



Appendix B

Collected Traffic Count Data

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: Ashville At Intersection of: State Route 752 and South Walnut Street (US 23) Project: 22-029
 Date: 2/17/2022 Day: Thu. Comments: _____ Date entered: Feb. 18, 2022
 Weather: Clear Recorder(s): DJS Data entry by: JJO SR 752 & US 23 021/722

TIME BEGINS	S. Walnut St. (US 23) FROM NORTH				S. Walnut St. (US 23) FROM SOUTH				SR 752 FROM EAST				SR 752 FROM WEST				TOTAL EAST WEST		TOTAL ALL DIREC.	PEAK HOUR FACTOR						
	Left	Thru	Right	Total	Left	Thru	Right	Total	Trk	Bus	Total	Right	Thru	Left	Trk	Bus	Total	West		East	South	North	West			
06:00																										
07:00	81	756	0	837	0	139	5	144	185	1412	132	4	2249	62	0	65	127	4	4				127	0.930	0.851	0.722
08:00	45	722	0	767	0	144	0	144	81	1079	186	6	1846	69	0	58	127	4	4				127	0.954	0.921	0.858
09:00	38	767	0	805	0	187	3	190	54	864	196	4	1669	48	0	39	87	4	0				87	0.923	0.927	0.725
10:00																										
11:00	36	749	0	785	0	186	0	186	63	676	153	2	1461	65	0	74	139	10	1				139	0.896	0.867	0.848
12:00	42	827	0	869	0	192	3	195	83	968	223	3	1837	103	0	56	159	15	1				159	0.961	0.786	0.970
1:00	26	857	0	883	0	188	1	189	75	830	167	0	1713	85	0	57	142	13	3				142	0.908	0.894	0.807
2:00																										
3:00	69	1362	0	1431	0	136	2	138	87	879	128	4	2310	120	0	62	182	13	1				182	0.877	0.939	0.948
4:00	88	1314	0	1402	0	139	3	142	141	988	134	7	2390	127	0	67	194	5	0				194	0.930	0.943	0.851
5:00	70	1337	0	1407	0	138	0	138	98	875	93	0	2282	121	0	64	185	6	0				185	0.936	0.879	0.797
6:00																										
7:00																										
8:00																										
9:00																										
TOTALS	495	8691	0	9186	17	1449	17	1466	867	8571	1412	30	17757	800	0	542	1342	74	14				1342	19099		
ADT	716	12577.22	0	13294	16.0%				1255	12404	16.8%		25697	1132	0	767	1899	6.6%					1899	27596		

N Leg Hourly Factor: 1.63
 S Leg Hourly Factor: 1.63
 N Leg Monthly Factor: 0.89
 S Leg Monthly Factor: 0.89

E Leg Hourly Factor: 1.56
 W Leg Hourly Factor: 0.00
 E Leg Monthly Factor: 0.90
 W Leg Monthly Factor: 0.00

N Leg Combined Factor: 1.45
 S Leg Combined Factor: 1.45

E Leg Combined Factor: 1.41
 W Leg Combined Factor: 1.41

TMS ENGINEERS, INC.

2112 Case Parkway South #7

Twinsburg, Ohio 44087

(330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 1 SR 752 and USR 23 021722 DJS
Site Code : 00000000
Start Date : 2/17/2022
Page No : 2

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						SOUTH WALNUT STREET (US 23) From South						SR 752 From West									
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
	10:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	0	189	9	0	198	20	0	15	0	35	14	118	0	0	132	0	0	0	0	0	0	365
11:15 AM	0	187	11	0	198	22	0	15	0	37	15	169	0	0	184	0	0	0	0	0	0	419
11:30 AM	0	207	12	0	219	7	0	19	0	26	9	156	0	0	165	0	0	0	0	0	0	410
11:45 AM	0	166	4	0	170	25	0	16	0	41	25	170	0	0	195	0	0	0	0	0	0	406
Total	0	749	36	0	785	74	0	65	0	139	63	613	0	0	676	0	0	0	0	0	0	1600
12:00 PM	0	198	9	0	207	16	0	25	0	41	20	288	0	0	308	0	0	0	0	0	0	556
12:15 PM	0	200	14	0	214	13	0	26	0	39	16	218	0	0	234	0	0	0	0	0	0	487
12:30 PM	0	214	8	0	222	15	0	23	0	38	20	198	0	0	218	0	0	0	0	0	0	478
12:45 PM	0	215	11	0	226	12	0	29	0	41	27	181	0	0	208	0	0	0	0	0	0	475
Total	0	827	42	0	869	56	0	103	0	159	83	885	0	0	968	0	0	0	0	0	0	1996
01:00 PM	0	184	7	0	191	15	0	29	0	44	17	179	0	0	196	0	0	0	0	0	0	431
01:15 PM	0	215	5	0	220	14	0	13	0	27	14	218	0	0	232	0	0	0	0	0	0	479
01:30 PM	0	235	8	0	243	16	0	17	0	33	21	174	0	0	195	0	0	0	0	0	0	471
01:45 PM	0	223	6	0	229	12	0	26	0	38	23	184	0	0	207	0	0	0	0	0	0	474
Total	0	857	26	0	883	57	0	85	0	142	75	755	0	0	830	0	0	0	0	0	0	1855
02:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 1 SR 752 and USR 23 021722 DJS
Site Code : 00000000
Start Date : 2/17/2022
Page No : 3

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						SOUTH WALNUT STREET (US 23) From South						SR 752 From West						
	Right		Left		Peds		Right		Left		Peds		Right		Left		Peds		
	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	Thru	App. Total	
03:00 PM	0	268	12	0	280	16	0	32	0	48	25	205	0	0	230	0	0	0	0
03:15 PM	0	347	12	0	359	13	0	35	0	48	13	201	0	0	214	0	0	0	0
03:30 PM	0	362	22	0	384	20	0	26	1	47	17	217	0	0	234	0	0	0	0
03:45 PM	0	385	23	0	408	13	0	27	0	40	32	169	0	0	201	0	0	0	0
Total	0	1362	69	0	1431	62	0	120	1	183	87	792	0	0	879	0	0	0	0
04:00 PM	0	305	19	0	324	14	0	37	0	51	41	221	0	0	262	0	0	0	0
04:15 PM	0	320	27	0	347	19	0	31	0	50	28	222	0	0	250	0	0	0	0
04:30 PM	0	328	26	0	354	20	0	37	0	57	41	214	0	0	255	0	0	0	0
04:45 PM	0	361	16	0	377	14	0	22	0	36	31	190	0	0	221	0	0	0	0
Total	0	1314	88	0	1402	67	0	127	0	194	141	847	0	0	988	0	0	0	0
05:00 PM	0	338	17	0	355	19	0	39	0	58	14	196	0	0	210	0	0	0	0
05:15 PM	0	364	12	0	376	21	0	25	0	46	28	221	0	0	249	0	0	0	0
05:30 PM	0	321	24	0	345	12	0	30	0	42	31	188	0	0	219	0	0	0	0
05:45 PM	0	314	17	0	331	12	0	27	0	39	25	172	0	0	197	0	0	0	0
Total	0	1337	70	0	1407	64	0	121	0	185	98	777	0	0	875	0	0	0	0
Grand Total	0	8691	495	0	9186	542	0	800	2	1344	867	7704	0	0	8571	0	0	0	0
Approch %	0	94.6	5.4	0	40.3	40.3	0	59.5	0.1	10.1	89.9	0	0	0	44.9	0	0	0	0
Total %	0	45.5	2.6	0	48.1	2.8	0	4.2	0	7	4.5	40.3	0	0	7129	0	0	0	0
Cars	0	7273	447	0	7720	500	0	754	2	1256	810	6319	0	0	83.2	0	0	0	0
% Cars	0	83.7	90.3	0	84	92.3	0	94.2	100	93.5	93.4	82	0	0	1412	0	0	0	0
Trucks	0	1408	41	0	1449	36	0	38	0	74	35	1377	0	0	16.5	0	0	0	0
% Trucks	0	16.2	8.3	0	15.8	6.6	0	4.8	0	5.5	4	17.9	0	0	30	0	0	0	0
Buses	0	10	7	0	17	6	0	8	0	14	22	8	0	0	0.4	0	0	0	0
% Buses	0	0.1	1.4	0	0.2	1.1	0	1	0	1	2.5	0.1	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

City: Ashville

Intersection: US 23 & North St

Counter: DJS

Day of the Week: Wednesday

File Name : TC 5 USR 23 and North St 030222 DJS

Site Code : 00000000

Start Date : 3/2/2022

Page No : 1

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						SOUTH WALNUT STREET (US 23) From South						NORTH STREET From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
07:00 AM	6	180	5	0	191		5	317	14	0	336		11	10	36	0	57	
07:15 AM	7	203	3	0	213		7	320	7	0	336		8	11	53	0	72	
07:30 AM	19	203	4	0	226		8	317	18	0	343		14	13	25	0	52	
07:45 AM	12	193	7	0	212		11	258	8	0	277		21	12	24	0	57	
Total	44	779	19	0	842		33	1212	47	0	1292		54	46	138	0	238	
08:00 AM	13	190	4	0	207		3	257	8	0	268		11	6	18	0	35	
08:15 AM	9	187	7	0	203		0	224	10	0	234		12	10	14	0	36	
08:30 AM	5	178	2	0	185		5	236	13	0	254		11	8	15	0	34	
08:45 AM	14	151	3	1	169		2	211	11	0	224		17	8	14	0	39	
Total	41	706	16	1	764		10	928	42	0	980		51	32	61	0	144	
09:00 AM	6	157	5	0	168		5	199	10	0	214		20	6	15	0	41	
09:15 AM	11	170	1	0	182		4	217	6	0	227		16	5	12	0	33	
09:30 AM	8	195	2	0	205		5	218	3	0	226		16	2	9	0	27	
09:45 AM	5	165	4	0	174		1	214	7	0	222		21	8	8	0	37	
Total	30	687	12	0	729		15	848	26	0	889		73	21	44	0	138	
10:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
10:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
10:30 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 5 USR 23 and North St 030222 DJS
Site Code : 00000000
Start Date : 3/2/2022
Page No : 2

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						NORTH STREET From East						SOUTH WALNUT STREET (US 23) From South						NORTH STREET From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
10:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
11:00 AM	5	174	2	0	181		7	6	2	0	15		4	186	8	0	198		18	4	10	0	32	426
11:15 AM	5	184	3	0	192		5	0	1	0	6		0	161	10	0	171		19	4	14	0	37	406
11:30 AM	3	197	14	0	214		4	2	3	0	9		2	221	5	0	228		20	5	9	0	34	485
11:45 AM	3	209	2	0	214		7	2	4	0	13		3	203	7	0	213		15	4	9	0	28	468
Total	16	764	21	0	801		23	10	10	0	43		9	771	30	0	810		72	17	42	0	131	1785
12:00 PM	13	179	6	0	198		3	5	1	0	9		4	192	19	0	215		23	5	12	0	40	462
12:15 PM	19	231	2	0	252		9	4	5	0	18		3	216	24	0	243		13	4	13	0	30	543
12:30 PM	10	176	1	0	187		1	9	1	0	11		0	231	14	0	245		24	5	15	0	44	487
12:45 PM	11	198	3	0	212		2	5	2	0	9		0	185	11	0	196		16	5	14	0	35	452
Total	53	784	12	0	849		15	23	9	0	47		7	824	68	0	899		76	19	54	0	149	1944
01:00 PM	19	179	0	0	198		3	4	0	0	7		1	184	15	0	200		18	5	14	1	38	443
01:15 PM	7	203	1	0	211		6	5	4	0	15		5	207	7	1	220		22	3	11	0	36	482
01:30 PM	11	196	2	0	209		1	5	1	0	7		1	208	8	0	217		9	2	19	0	30	463
01:45 PM	12	241	2	0	255		5	2	0	0	7		1	201	11	0	213		14	4	15	0	33	508
Total	49	819	5	0	873		15	16	5	0	36		8	800	41	1	850		63	14	59	1	137	1896
02:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
02:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
02:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
02:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0
Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 5 USR 23 and North St 030222 DJS

Site Code : 00000000

Start Date : 3/2/2022

Page No : 3

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						NORTH STREET From East						SOUTH WALNUT STREET (US 23) From South						NORTH STREET From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
03:00 PM	21	347	2	0	370		1	5	3	0	9		1	203	16	0	220		19	5	17	1	42	
03:15 PM	21	308	3	0	332		4	6	3	0	13		2	215	9	0	226		30	7	15	0	52	
03:30 PM	17	382	3	0	402		2	8	5	0	15		2	243	5	0	250		19	13	15	0	47	
03:45 PM	24	387	4	0	415		4	5	2	0	11		2	192	10	0	204		24	9	22	0	55	
Total	83	1424	12	0	1519		11	24	13	0	48		7	853	40	0	900		92	34	69	1	196	
04:00 PM	22	422	6	0	450		4	6	3	0	13		1	225	3	0	229		22	10	26	1	59	
04:15 PM	24	371	2	0	397		5	6	1	0	12		4	243	8	0	255		28	8	35	0	71	
04:30 PM	29	408	5	0	442		3	11	5	0	19		3	218	10	0	231		20	13	19	0	52	
04:45 PM	28	393	3	0	424		5	3	5	0	13		2	216	6	0	224		33	10	21	0	64	
Total	103	1594	16	0	1713		17	26	14	0	57		10	902	27	0	939		103	41	101	1	246	
05:00 PM	30	337	5	0	372		7	5	3	0	15		2	234	6	0	242		29	5	25	2	61	
05:15 PM	26	377	1	0	404		5	8	3	0	16		1	229	23	0	253		20	5	21	0	46	
05:30 PM	22	320	0	0	342		2	4	1	0	7		1	218	8	0	227		37	8	29	0	74	
05:45 PM	22	272	3	0	297		5	7	4	0	16		3	224	9	0	236		27	12	39	0	78	
Total	100	1306	9	0	1415		19	24	11	0	54		7	905	46	0	958		113	30	114	2	259	
Grand Total	519	8863	122	1	9505		285	213	103	1	602		106	8043	367	1	8517		697	254	682	5	1638	
Apprch %	5.5	93.2	1.3	0			47.3	35.4	17.1	0.2			1.2	94.4	4.3	0		42.6	15.5	41.6	0.3			
Total %	2.6	43.7	0.6	0	46.9		1.4	1.1	0.5	0	3		0.5	39.7	1.8	0	42		3.4	1.3	3.4	0	8.1	
Cars	466	7441	119	1	8027		279	204	102	1	586		104	6579	331	1	7015		648	248	641	5	1542	
% Cars	89.8	84	97.5	100	84.5		97.9	95.8	99	100	97.3		98.1	81.8	90.2	100	82.4		93	97.6	94	100	94.1	
Trucks	47	1410	3	0	1460		5	4	0	0	9		2	1448	35	0	1485		47	2	32	0	81	
% Trucks	9.1	15.9	2.5	0	15.4		1.8	1.9	0	0	1.5		1.9	18	9.5	0	17.4		6.7	0.8	4.7	0	4.9	
Buses	6	12	0	0	18		1	5	1	0	7		0	16	1	0	17		2	4	9	0	15	
% Buses	1.2	0.1	0	0	0.2		0.4	2.3	1	0	1.2		0	0.2	0.3	0	0.2		0.3	1.6	1.3	0	0.9	

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 5 USR 23 and North St 030222 DJS
Site Code : 00000000
Start Date : 3/2/2022
Page No : 4

Start Time	SOUTH WALNUT STREET (US 23) From North						NORTH STREET From East						SOUTH WALNUT STREET (US 23) From South						NORTH STREET From West						
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total
	Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																								
Peak Hour for Entire Intersection Begins at 07:00 AM																									
07:00 AM	6	180	5	0	191	33	10	5	0	48	5	317	14	0	336	11	10	36	0	57	632				
07:15 AM	7	203	3	0	213	25	10	5	0	40	9	320	7	0	336	8	11	53	0	72	661				
07:30 AM	19	203	4	0	226	21	9	3	0	33	8	317	18	0	343	14	13	25	0	52	654				
07:45 AM	12	193	7	0	212	23	9	2	0	34	11	258	8	0	277	21	12	24	0	57	580				
Total Volume	44	779	19	0	842	102	38	15	0	155	33	1212	47	0	1292	54	46	138	0	238	2527				
% App. Total	5.2	92.5	2.3	0		65.8	24.5	9.7	0		2.6	93.8	3.6	0		22.7	19.3	58	0						
PHF	.579	.959	.679	.000	.931	.773	.950	.750	.000	.807	.750	.947	.653	.000	.942	.643	.885	.651	.000	.826	.956				
Cars	40	643	19	0	702	99	36	15	0	150	33	1045	46	0	1124	49	46	134	0	229	2205				
% Cars	90.9	82.5	100	0	83.4	97.1	94.7	100	0	96.8	100	86.2	97.9	0	87.0	90.7	100	97.1	0	96.2	87.3				
Trucks	2	134	0	0	136	2	1	0	0	3	0	164	1	0	165	5	0	3	0	8	312				
% Trucks	4.5	17.2	0	0	16.2	2.0	2.6	0	0	1.9	0	13.5	2.1	0	12.8	9.3	0	2.2	0	3.4	12.3				
Buses	2	2	0	0	4	1	1	0	0	2	0	3	0	0	3	0	0	1	0	1	10				
% Buses	4.5	0.3	0	0	0.5	1.0	2.6	0	0	1.3	0	0.2	0	0	0.2	0	0	0.7	0	0.4	0.4				
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 03:45 PM																									
03:45 PM	24	387	4	0	415	4	5	2	0	11	2	192	10	0	204	24	9	22	0	55	685				
04:00 PM	22	422	6	0	450	4	6	3	0	13	1	225	3	0	229	22	10	26	1	59	751				
04:15 PM	24	371	2	0	397	5	6	1	0	12	4	243	8	0	255	28	8	35	0	71	735				
04:30 PM	29	408	5	0	442	3	11	5	0	19	3	218	10	0	231	20	13	19	0	52	744				
Total Volume	99	1588	17	0	1704	16	28	11	0	55	10	878	31	0	919	94	40	102	1	237	2915				
% App. Total	5.8	93.2	1	0		29.1	50.9	20	0		1.1	95.5	3.4	0		39.7	16.9	43	0.4						
PHF	.853	.941	.708	.000	.947	.800	.636	.550	.000	.724	.625	.903	.775	.000	.901	.839	.769	.729	.250	.835	.970				
Cars	93	1411	16	0	1520	15	27	10	0	52	10	735	26	0	771	89	38	98	1	226	2569				
% Cars	93.9	88.9	94.1	0	89.2	93.8	96.4	90.9	0	94.5	100	83.7	83.9	0	83.9	94.7	95.0	96.1	100	95.4	88.1				
Trucks	6	174	1	0	181	1	0	0	0	1	0	141	5	0	146	4	0	1	0	5	333				
% Trucks	6.1	11.0	5.9	0	10.6	6.3	0	0	0	1.8	0	16.1	16.1	0	15.9	4.3	0	1.0	0	2.1	11.4				
Buses	0	3	0	0	3	0	1	1	0	2	0	2	0	0	2	1	2	3	0	6	13				
% Buses	0	0.2	0	0	0.2	0	3.6	9.1	0	3.6	0	0.2	0	0	0.2	1.1	5.0	2.9	0	2.5	0.4				

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: Ashville At Intersection of: Millie Road (SR 316) / Northrup I and South Walnut Street (US 23) Project: 22-029
 Date: 3/1/2022 Day: Tue. Comments: _____ Date entered: Mar. 4, 2022
 Weather: _____ Clear Recorder(s): DJS & SLC Data entry by: JJO Mar. 4, 2022

TIME BEGINS	S. Walnut St. (US 23) FROM NORTH					S. Walnut St. (US 23) FROM SOUTH					Ashville Rd. (SR 316) FROM EAST					Northrup Dr. FROM WEST					TOTAL EAST WEST			TOTAL ALL DIREC.			PEAK HOUR FACTOR				
	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus	West	East	South	West	East	West			
06:00																															
07:00	65	740	18	823	126	1	52	1163	39	1254	159	5	2077	61	42	117	220	9	0	116	56	44	216	15	2	436	2513	854	0.919	0.873	0.659
08:00	83	695	27	805	142	1	21	920	38	979	183	1	1784	59	43	88	190	3	4	65	33	54	152	9	6	342	2126	821	0.900	0.896	0.731
09:00	64	649	24	737	160	2	24	738	27	789	161	1	1526	42	42	72	156	8	1	46	38	40	124	8	3	280	1806	931	0.861	0.796	0.838
10:00																															
11:00	87	669	34	790	162	2	44	689	31	764	193	0	1554	46	63	90	199	11	0	36	40	51	127	9	1	326	1880	963	0.946	0.921	0.794
12:00	94	727	49	870	167	0	31	709	41	781	175	0	1651	56	165	77	298	9	1	55	104	54	213	12	1	511	2162	906	0.939	0.637	0.807
1:00	67	742	28	837	176	3	44	724	37	805	148	1	1642	59	54	78	191	5	0	40	68	63	171	9	2	362	2004	894	0.940	0.884	0.807
2:00																															
3:00	80	1335	49	1464	159	2	50	710	31	791	140	2	2255	72	80	70	222	2	1	52	74	89	215	12	2	437	2692	806	0.860	0.854	0.747
4:00	82	1429	55	1566	140	2	46	861	36	943	106	0	2509	69	73	60	202	7	1	67	62	111	240	11	1	442	2951	896	0.886	0.856	0.822
5:00	129	1314	85	1528	133	1	43	857	43	943	102	2	2471	71	75	67	213	3	0	44	64	98	206	10	0	419	2890	907	0.880	0.934	0.831
6:00																															
7:00																															
8:00																															
9:00																															
TOTALS	751	8300	369	9420	1365	14	355	7371	323	8049	1367	12	17469	535	637	719	1891	57	8	521	539	604	1664	95	18	3555	21024	3555			
ADT	1324	14629.59	650	16604	14.6%	626	12992	569	14187	17.1%	877	1045	1179	3101	3.4%	883	883	989	2725	6.8%	5826	36617									

N Leg Hourly Factor: <u>1.63</u> S Leg Hourly Factor: <u>1.63</u> N Leg Monthly Factor: <u>1.08</u> S Leg Monthly Factor: <u>1.08</u>	E Leg Hourly Factor: <u>1.56</u> W Leg Hourly Factor: <u>1.56</u> E Leg Monthly Factor: <u>1.05</u> W Leg Monthly Factor: <u>1.05</u>	N Leg Combined Factor: <u>1.76</u> S Leg Combined Factor: <u>1.76</u> E Leg Combined Factor: <u>1.64</u> W Leg Combined Factor: <u>1.64</u>
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TMS ENGINEERS, INC.
 2112 Case Parkway South #7
 Twinsburg, Ohio 44087
 (330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : Ashville Rd & S. Walnut St 030122

Site Code : 00000000

Start Date : 3/1/2022

Page No : 3

Groups Printed- Cars - Trucks - Buses

Start Time	SOUTH WALNUT STREET (US 23) From North						ASHVILLE ROAD (SR 316) From East						SOUTH WALNUT STREET (US 23) From South						NORTHURUP DRIVE From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
03:00 PM	7	299	15	0	321		16	15	20	0	51		5	163	7	0	175		18	14	9	0	41	
03:15 PM	11	308	17	0	336		23	20	11	1	55		8	137	19	0	164		27	12	13	0	52	
03:30 PM	11	317	25	0	353		16	24	25	0	65		10	208	12	0	230		17	18	15	0	50	
03:45 PM	20	411	23	0	454		15	21	16	0	52		8	202	12	0	222		27	30	15	0	72	
Total	49	1335	80	0	1464		70	80	72	1	223		31	710	50	0	791		89	74	52	0	215	
04:00 PM	12	345	22	0	379		15	20	13	0	48		6	236	10	0	252		16	10	13	0	39	
04:15 PM	12	338	11	0	361		19	9	18	0	46		14	237	15	0	266		34	13	25	0	72	
04:30 PM	14	396	27	0	437		11	18	20	0	49		6	187	11	0	204		31	25	17	0	73	
04:45 PM	17	350	22	0	389		15	26	18	2	61		10	201	10	0	221		30	14	12	0	56	
Total	55	1429	82	0	1566		60	73	69	2	204		36	861	46	0	943		111	62	67	0	240	
05:00 PM	24	360	29	0	413		19	16	21	0	56		11	244	13	0	268		32	12	4	0	48	
05:15 PM	16	321	26	0	363		17	25	10	0	52		9	215	9	0	233		21	15	21	0	57	
05:30 PM	35	349	37	0	421		12	20	16	0	48		9	201	12	0	222		24	26	12	0	62	
05:45 PM	10	284	37	0	331		19	14	24	0	57		14	197	9	0	220		21	11	7	0	39	
Total	85	1314	129	0	1528		67	75	71	0	213		43	857	43	0	943		98	64	44	0	206	
Grand Total	369	8300	751	0	9420		719	637	535	3	1894		323	7371	355	0	8049		604	539	521	0	1664	
Approch %	3.9	88.1	8	0			38	33.6	28.2	0.2			4	91.6	4.4	0			36.3	32.4	31.3	0		
Total %	1.8	39.5	3.6	0	44.8		3.4	3	2.5	0	9		1.5	35.1	1.7	0	38.3		2.9	2.6	2.5	0	7.9	
Cars	351	6960	730	0	8041		692	621	513	3	1829		313	6025	332	0	6670		551	519	481	0	1551	
% Cars	95.1	83.9	97.2	0	85.4		96.2	97.5	95.9	100	96.6		96.9	81.7	93.5	0	82.9		91.2	96.3	92.3	0	93.2	
Trucks	17	1328	20	0	1365		24	14	19	0	57		10	1337	20	0	1367		53	13	29	0	95	
% Trucks	4.6	16	2.7	0	14.5		3.3	2.2	3.6	0	3		3.1	18.1	5.6	0	17		8.8	2.4	5.6	0	5.7	
Buses	1	12	1	0	14		3	2	3	0	8		0	9	3	0	12		0	7	11	0	18	
% Buses	0.3	0.1	0.1	0	0.1		0.4	0.3	0.6	0	0.4		0	0.1	0.8	0	0.1		0	1.3	2.1	0	1.1	

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : Ashville Rd & S. Walnut St 030122
Site Code : 00000000
Start Date : 3/1/2022
Page No : 4

Start Time	SOUTH WALNUT STREET (US 23) From North					ASHVILLE ROAD (SR 316) From East					SOUTH WALNUT STREET (US 23) From South					NORTHRUP DRIVE From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
	Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	6	168	7	0	181	35	12	16	0	63	13	300	21	0	334	15	26	41	0	82	660
07:15 AM	1	182	19	0	202	21	6	20	0	47	9	318	14	0	341	10	14	29	0	53	643
07:30 AM	7	214	20	0	241	34	16	9	0	59	9	283	12	0	304	8	8	26	0	42	646
07:45 AM	4	176	19	0	199	27	8	16	0	51	8	262	5	0	275	11	8	20	0	39	564
Total Volume	18	740	65	0	823	117	42	61	0	220	39	1163	52	0	1254	44	56	116	0	216	2513
% App. Total	2.2	89.9	7.9	0		53.2	19.1	27.7	0		3.1	92.7	4.1	0		20.4	25.9	53.7	0		
PHF	.643	.864	.813	.000	.854	.836	.656	.763	.000	.873	.750	.914	.619	.000	.919	.733	.538	.707	.000	.659	.952
Cars	17	617	62	0	696	115	39	57	0	211	38	1005	47	0	1090	35	54	110	0	199	2196
% Cars	94.4	83.4	95.4	0	84.6	98.3	92.9	93.4	0	95.9	97.4	86.4	90.4	0	86.9	79.5	96.4	94.8	0	92.1	87.4
Trucks	0	123	3	0	126	2	3	4	0	9	1	155	3	0	159	9	2	4	0	15	309
% Trucks	0	16.6	4.6	0	15.3	1.7	7.1	6.6	0	4.1	2.6	13.3	5.8	0	12.7	20.5	3.6	3.4	0	6.9	12.3
Buses	1	0	0	0	1	0	0	0	0	0	0	3	2	0	5	0	0	2	0	2	8
% Buses	5.6	0	0	0	0.1	0	0	0	0	0	0	0.3	3.8	0	0.4	0	0	1.7	0	0.9	0.3
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	20	411	23	0	454	15	21	16	0	52	8	202	12	0	222	27	30	15	0	72	800
04:00 PM	12	345	22	0	379	15	20	13	0	48	6	236	10	0	252	16	10	13	0	39	718
04:15 PM	12	338	11	0	361	19	9	18	0	46	14	237	15	0	266	34	13	25	0	72	745
04:30 PM	14	396	27	0	437	11	18	20	0	49	6	187	11	0	204	31	25	17	0	73	763
Total Volume	58	1490	83	0	1631	60	68	67	0	195	34	862	48	0	944	108	78	70	0	256	3026
% App. Total	3.6	91.4	5.1	0		30.8	34.9	34.4	0		3.6	91.3	5.1	0		42.2	30.5	27.3	0		
PHF	.725	.906	.769	.000	.898	.789	.810	.838	.000	.938	.607	.909	.800	.000	.887	.794	.650	.700	.000	.877	.946
Cars	57	1343	82	0	1482	55	67	67	0	189	33	749	48	0	830	102	74	67	0	243	2744
% Cars	98.3	90.1	98.8	0	90.9	91.7	98.5	100	0	96.9	97.1	86.9	100	0	87.9	94.4	94.9	95.7	0	94.9	90.7
Trucks	1	144	1	0	146	4	1	0	0	5	1	112	0	0	113	6	4	2	0	12	276
% Trucks	1.7	9.7	1.2	0	9.0	6.7	1.5	0	0	2.6	2.9	13.0	0	0	12.0	5.6	5.1	2.9	0	4.7	9.1
Buses	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	6
% Buses	0	0.2	0	0	0.2	1.7	0	0	0	0.5	0	0.1	0	0	0.1	0	0	1.4	0	0.4	0.2

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: Ashville At Intersection of: State Route 752 and Ashville Pike / Long Street Project: 22-029
 Date: 2/16/2022 Day: Wed. Comments: _____ Date entered: Feb. 18, 2022 R 752 & Ashville Pike + Long St.02162
 Weather: Clear Recorder(s): DJS Data entry by: JJO

TIME BEGINS	Ashville Pike FROM NORTH			Long Street FROM SOUTH			TOTAL NORTH SOUTH			SR 752 FROM EAST			SR 752 FROM WEST			TOTAL EAST WEST			TOTAL ALL DIREC.			PEAK HOUR FACTOR										
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	West	East	South	North	West	East								
06:00																																
07:00	147	41	62	250	4	3	44	116	61	221	4	1	471	30	82	57	169	6	6	46	164	24	234	6	9	403	0.601	0.708	0.782	0.557		
08:00	27	81	39	147	6	6	30	75	24	129	2	2	276	21	64	22	107	7	6	40	58	26	124	7	1	231	0.735	0.806	0.836	0.939		
09:00	22	43	32	97	1	6	31	63	28	122	2	2	219	19	70	24	113	4	0	27	54	19	100	11	7	213	0.836	0.782	0.724	0.926		
10:00																																
11:00	20	63	26	109	8	2	31	73	21	125	2	1	234	52	63	32	147	8	2	30	45	28	103	6	0	250	0.879	0.801	0.919	0.858		
12:00	10	97	60	167	9	1	37	83	5	125	4	0	292	3	17	42	62	2	0	53	7	45	105	7	1	167	0.888	0.893	0.534	0.772		
1:00	28	65	47	140	3	0	26	60	31	117	1	0	257	36	63	51	150	3	8	32	32	36	100	3	0	250	0.875	0.750	0.647	0.833		
2:00																																
3:00	50	153	73	276	9	3	39	110	27	176	3	5	452	45	96	50	191	3	2	50	91	41	182	6	3	373	0.812	0.846	0.823	0.892		
4:00	72	191	86	349	6	7	33	117	55	205	5	1	554	71	119	75	265	9	2	83	129	63	275	9	6	540	0.899	0.884	0.728	0.893		
5:00	44	149	72	265	6	0	32	120	38	190	3	0	455	54	78	35	167	6	0	77	103	51	231	3	1	398	0.839	0.913	0.852	0.862		
6:00																																
7:00																																
8:00																																
9:00																																
TOTALS	420	883	497	1800	52	28	303	817	290	1410	26	12	3210	331	652	388	1371	48	26	438	683	333	1454	58	28	2825	6035					
ADT	572	1201.785	676	2450	4.4%		413	1114	395	1922	2.7%		4372	451	889	529	1869	5.4%		597	931	454	1982	5.9%		3851	8222					

N Leg Hourly Factor: <u>1.56</u> S Leg Hourly Factor: <u>1.56</u> N Leg Monthly Factor: <u>0.87</u> S Leg Monthly Factor: <u>0.87</u>	E Leg Hourly Factor: <u>1.56</u> W Leg Hourly Factor: <u>1.56</u> E Leg Monthly Factor: <u>0.87</u> W Leg Monthly Factor: <u>0.87</u>	N Leg Combined Factor: <u>1.36</u> S Leg Combined Factor: <u>1.36</u>	E Leg Combined Factor: <u>1.36</u> W Leg Combined Factor: <u>1.36</u>
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TMS ENGINEERS, INC.
 2112 Case Parkway South #7
 Twinsburg, Ohio 44087
 (330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

City: Ashville
 Intersection: SR 752 & Long St / Ashville Pike
 Counter: DJS
 Day of the Week: Wednesday

File Name : TC 2 SR 752 and Long St Ashville 021622 DJS
 Site Code : 00000000
 Start Date : 2/16/2022
 Page No : 1

Groups Printed- Cars - Trucks - Buses

Start Time	ASHVILLE PIKE From North						STATE ROUTE 752 From East						LONG STREET From South						STATE ROUTE 752 From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
07:00 AM	12	5	42	0	59		13	19	7	0	39		18	31	8	0	57		6	49	8	0	63	
07:15 AM	16	12	76	0	104		17	26	8	0	51		22	41	15	0	78		6	85	14	0	105	
07:30 AM	21	12	21	0	54		19	25	10	0	54		15	25	11	0	51		6	23	15	0	44	
07:45 AM	13	12	8	0	33		8	12	5	0	25		6	19	10	0	35		6	7	9	0	22	
Total	62	41	147	0	250		57	82	30	0	169		61	116	44	0	221		24	164	46	0	234	
08:00 AM	9	11	3	0	23		5	23	4	0	32		11	21	8	0	40		6	16	8	0	30	
08:15 AM	9	15	9	0	33		9	16	4	0	29		5	11	6	0	22		8	14	11	0	33	
08:30 AM	11	31	8	0	50		7	15	6	0	28		4	21	6	0	31		6	15	10	0	31	
08:45 AM	10	24	7	0	41		1	10	7	0	18		4	22	10	0	36		6	13	11	0	30	
Total	39	81	27	0	147		22	64	21	0	107		24	75	30	0	129		26	58	40	0	124	
09:00 AM	4	11	8	1	24		8	25	6	0	39		7	23	9	0	39		7	12	8	0	27	
09:15 AM	9	16	4	1	30		7	20	5	0	32		12	9	5	0	26		3	18	6	0	27	
09:30 AM	12	9	7	0	28		7	17	4	0	28		2	16	6	0	24		3	13	6	0	22	
09:45 AM	7	7	3	0	17		2	8	4	0	14		7	15	11	0	33		6	11	7	0	24	
Total	32	43	22	2	99		24	70	19	0	113		28	63	31	0	122		19	54	27	0	100	
10:00 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
10:15 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
10:30 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 2 SR 752 and Long St Ashville 021622 DJS

Site Code : 00000000

Start Date : 2/16/2022

Page No : 2

Groups Printed- Cars - Trucks - Buses

Start Time	ASHVILLE PIKE From North						STATE ROUTE 752 From East						LONG STREET From South						STATE ROUTE 752 From West					
	Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total		Right	Thru	Left	Peds	App. Total	
10:45 AM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
11:00 AM	6	14	5	0	25		7	18	9	0	34		10	14	7	0	31		4	4	8	0	16	
11:15 AM	6	21	4	0	31		10	14	16	0	40		3	12	6	0	21		10	14	6	0	30	
11:30 AM	4	15	4	0	23		6	13	19	0	38		3	30	6	0	39		7	13	8	0	28	
11:45 AM	10	13	7	0	30		9	18	8	0	35		5	17	12	0	34		7	14	8	0	29	
Total	26	63	20	0	109		32	63	52	0	147		21	73	31	0	125		28	45	30	0	103	
12:00 PM	18	22	2	0	42		1	4	2	0	7		4	21	10	0	35		14	7	13	0	34	
12:15 PM	17	24	1	0	42		0	6	0	0	6		1	23	10	0	34		10	0	14	3	27	
12:30 PM	11	21	4	0	36		24	4	1	0	29		0	19	10	0	29		7	0	13	0	20	
12:45 PM	14	30	3	0	47		17	3	0	0	20		0	20	7	0	27		14	0	13	0	27	
Total	60	97	10	0	167		42	17	3	0	62		5	83	37	0	125		45	7	53	3	108	
01:00 PM	21	17	2	0	40		9	19	7	0	35		6	17	8	0	31		10	5	7	0	22	
01:15 PM	10	12	3	0	25		9	17	11	0	37		5	12	4	0	21		5	7	6	0	18	
01:30 PM	9	16	12	0	37		10	5	5	0	20		10	11	5	0	26		13	11	6	0	30	
01:45 PM	7	20	11	2	40		23	22	13	0	58		10	20	9	0	39		8	9	13	1	31	
Total	47	65	28	2	142		51	63	36	0	150		31	60	26	0	117		36	32	32	1	101	
02:00 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
02:15 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
02:30 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
02:45 PM	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	
Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0	

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 2 SR 752 and Long St Ashville 021622 DJS

Site Code : 00000000

Start Date : 2/16/2022

Page No : 3

Groups Printed- Cars - Trucks - Buses

Start Time	ASHVILLE PIKE From North						STATE ROUTE 752 From East						LONG STREET From South						STATE ROUTE 752 From West						Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total					
03:00 PM	16	39	13	0	68	15	15	5	0	35	8	16	7	0	31	12	25	14	0	51	185				
03:15 PM	13	28	8	1	50	6	23	16	0	45	8	32	8	0	48	13	21	13	0	47	190				
03:30 PM	17	38	19	3	77	18	30	10	0	58	2	41	9	0	52	7	22	11	0	40	227				
03:45 PM	27	48	10	3	88	11	28	14	0	53	9	21	15	0	45	9	23	12	0	44	230				
Total	73	153	50	7	283	50	96	45	0	191	27	110	39	0	176	41	91	50	0	182	832				
04:00 PM	19	41	13	0	73	8	26	18	0	52	12	25	12	0	49	12	38	22	2	74	248				
04:15 PM	19	58	20	2	99	31	23	19	0	73	17	36	5	0	58	14	31	20	0	65	295				
04:30 PM	27	39	24	0	90	27	45	19	0	91	17	25	6	0	48	16	43	18	0	77	306				
04:45 PM	21	53	15	0	89	9	25	15	0	49	9	31	10	0	50	21	17	23	0	61	249				
Total	86	191	72	2	351	75	119	71	0	265	55	117	33	0	205	63	129	83	2	277	1098				
05:00 PM	23	42	14	1	80	10	21	10	1	42	10	29	9	0	48	12	29	26	2	69	239				
05:15 PM	18	39	9	0	66	10	18	16	0	44	6	29	6	9	50	11	26	22	3	62	222				
05:30 PM	20	33	9	1	63	6	25	18	1	50	8	33	8	0	49	16	28	14	0	58	220				
05:45 PM	11	35	12	2	60	9	14	10	0	33	14	29	9	0	52	12	20	15	0	47	192				
Total	72	149	44	4	269	35	78	54	2	169	38	120	32	9	199	51	103	77	5	236	873				
Grand Total	497	883	420	17	1817	388	652	331	2	1373	290	817	303	9	1419	333	683	438	11	1465	6074				
Apprch %	27.4	48.6	23.1	0.9		28.3	47.5	24.1	0.1		20.4	57.6	21.4	0.6		22.7	46.6	29.9	0.8						
Total %	8.2	14.5	6.9	0.3	29.9	6.4	10.7	5.4	0	22.6	4.8	13.5	5	0.1	23.4	5.5	11.2	7.2	0.2	24.1					
Cars	461	858	401	17	1737	369	605	323	2	1299	279	801	292	9	1381	324	629	415	11	1379	5796				
% Cars	92.8	97.2	95.5	100	95.6	95.1	92.8	97.6	100	94.6	96.2	98	96.4	100	97.3	97.3	92.1	94.7	100	94.1	95.4				
Trucks	34	14	4	0	52	8	33	7	0	48	7	8	11	0	26	8	28	22	0	58	184				
% Trucks	6.8	1.6	1	0	2.9	2.1	5.1	2.1	0	3.5	2.4	1	3.6	0	1.8	2.4	4.1	5	0	4	3				
Buses	2	11	15	0	28	11	14	1	0	26	4	8	0	0	12	1	26	1	0	28	94				
% Buses	0.4	1.2	3.6	0	1.5	2.8	2.1	0.3	0	1.9	1.4	1	0	0	0.8	0.3	3.8	0.2	0	1.9	1.5				

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : TC 2 SR 752 and Long St Ashville 021622 DJS
Site Code : 00000000
Start Date : 2/16/2022
Page No : 4

Start Time	ASHVILLE PIKE From North					STATE ROUTE 752 From East					LONG STREET From South					STATE ROUTE 752 From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
	Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																				
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	12	5	42	0	59	13	19	7	0	39	18	31	8	0	57	6	49	8	0	63	218
07:15 AM	16	12	76	0	104	17	26	8	0	51	22	41	15	0	78	6	85	14	0	105	338
07:30 AM	21	12	21	0	54	19	25	10	0	54	15	25	11	0	51	6	23	15	0	44	203
07:45 AM	13	12	8	0	33	8	12	5	0	25	6	19	10	0	35	6	7	9	0	22	115
Total Volume	62	41	147	0	250	57	82	30	0	169	61	116	44	0	221	24	164	46	0	234	874
% App. Total	24.8	16.4	58.8	0		33.7	48.5	17.8	0		27.6	52.5	19.9	0		10.3	70.1	19.7	0		
PHF	.738	.854	.484	.000	.601	.750	.788	.750	.000	.782	.693	.707	.733	.000	.708	1.00	.482	.767	.000	.557	.646
Cars	57	39	147	0	243	53	74	30	0	157	61	114	41	0	216	21	154	44	0	219	835
% Cars	91.9	95.1	100	0	97.2	93.0	90.2	100	0	92.9	100	98.3	93.2	0	97.7	87.5	93.9	95.7	0	93.6	95.5
Trucks	3	1	0	0	4	2	4	0	0	6	0	1	3	0	4	3	2	1	0	6	20
% Trucks	4.8	2.4	0	0	1.6	3.5	4.9	0	0	3.6	0	0.9	6.8	0	1.8	12.5	1.2	2.2	0	2.6	2.3
Buses	2	1	0	0	3	2	4	0	0	6	0	1	0	0	1	0	8	1	0	9	19
% Buses	3.2	2.4	0	0	1.2	3.5	4.9	0	0	3.6	0	0.9	0	0	0.5	0	4.9	2.2	0	3.8	2.2
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	27	48	10	3	88	11	28	14	0	53	9	21	15	0	45	9	23	12	0	44	230
04:00 PM	19	41	13	0	73	8	26	18	0	52	12	25	12	0	49	12	38	22	2	74	248
04:15 PM	19	58	20	2	99	31	23	19	0	73	17	36	5	0	58	14	31	20	0	65	295
04:30 PM	27	39	24	0	90	27	45	19	0	91	17	25	6	0	48	16	43	18	0	77	306
Total Volume	92	186	67	5	350	77	122	70	0	269	55	107	38	0	200	51	135	72	2	260	1079
% App. Total	26.3	53.1	19.1	1.4		28.6	45.4	26	0		27.5	53.5	19	0		19.6	51.9	27.7	0.8		
PHF	.852	.802	.698	.417	.884	.621	.678	.921	.000	.739	.809	.743	.633	.000	.862	.797	.785	.818	.250	.844	.882
Cars	88	184	58	5	335	73	117	69	0	259	51	105	36	0	192	51	122	68	2	243	1029
% Cars	95.7	98.9	86.6	100	95.7	94.8	95.9	98.6	0	96.3	92.7	98.1	94.7	0	96.0	100	90.4	94.4	100	93.5	95.4
Trucks	4	1	2	0	7	4	4	1	0	9	3	2	2	0	7	0	6	4	0	10	33
% Trucks	4.3	0.5	3.0	0	2.0	5.2	3.3	1.4	0	3.3	5.5	1.9	5.3	0	3.5	0	4.4	5.6	0	3.8	3.1
Buses	0	1	7	0	8	0	1	0	0	1	1	0	0	0	1	0	7	0	0	7	17
% Buses	0	0.5	10.4	0	2.3	0	0.8	0	0	0.4	1.8	0	0	0	0.5	0	5.2	0	0	2.7	1.6

VEHICULAR TRAFFIC COUNT SUMMARY

Municipality: Ashville At Intersection of: West Main Street (SR 316) and Miller Avenue / Cromley Road

Date: 3/3/2022 Day: Thu. Comments: _____ Recorder(s): JJO Data entry by: JJO Date entered: Mar. 4, 2022 Project: 22-029

Weather: Clear Main St. & Miller Ave + Cromley Rd 031

TIME BEGINS	Miller Ave. FROM NORTH			Cromley Rd. FROM SOUTH			TOTAL NORTH SOUTH			W. Main St. (SR 316) FROM EAST			W. Main St. (SR 316) FROM WEST			TOTAL EAST WEST		TOTAL ALL DIREC.			PEAK HOUR FACTOR								
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus	North	South	East	West	
06:00																													
07:00	12	4	5	1	36	80	1	1	1	101	7	130	8	145	6	1	7	104	10	121	6	2	266	367	0.583	0.800	0.863	0.818	
08:00	10	2	20	3	30	53	1	0	0	85	17	112	17	146	10	6	15	84	7	106	7	2	252	337	0.571	0.697	0.890	0.803	
09:00	12	3	21	6	12	26	0	0	0	62	16	101	10	127	7	0	12	84	9	105	6	3	232	294	0.600	0.722	0.836	0.875	
10:00																													
11:00	11	3	20	4	22	34	1	0	0	68	26	100	14	140	6	0	7	85	3	95	6	0	235	303	0.708	0.708	0.972	0.742	
12:00	21	4	18	2	24	32	1	0	0	75	18	130	18	166	5	0	25	103	19	147	6	0	313	388	0.672	0.889	0.902	0.875	
1:00	15	3	7	4	25	42	1	1	1	67	21	85	12	118	4	0	6	102	4	112	5	1	230	297	0.694	0.700	0.843	0.800	
2:00																													
3:00	30	6	24	6	38	52	1	3	3	112	29	153	25	207	4	1	17	137	29	183	8	2	390	502	0.682	0.650	0.892	0.803	
4:00	21	5	21	10	34	54	1	1	1	101	46	187	18	251	8	1	17	145	23	185	10	0	436	537	0.734	0.900	0.860	0.907	
5:00	13	5	9	5	25	44	0	0	0	71	28	152	25	205	2	0	16	176	33	225	6	0	430	501	0.844	0.786	0.840	0.953	
6:00																													
7:00																													
8:00																													
9:00																													
TOTALS	145	35	145	5	325	417	7	6	6	742	208	1150	147	1505	52	9	122	1020	137	1279	60	10	2784	3526					
ADT	218	52.72212	218	490	3.7%	62	355	3.1%	628	1118	314	1735	222	2270	4.1%	184	1539	207	1930	5.5%	4200	5318							

N Leg Hourly Factor: <u>1.56</u> S Leg Hourly Factor: <u>1.56</u> N Leg Monthly Factor: <u>0.96</u> S Leg Monthly Factor: <u>0.96</u>	E Leg Hourly Factor: <u>1.56</u> W Leg Hourly Factor: <u>1.56</u> E Leg Monthly Factor: <u>0.96</u> W Leg Monthly Factor: <u>0.96</u>	N Leg Combined Factor: <u>1.51</u> S Leg Combined Factor: <u>1.51</u>	E Leg Combined Factor: <u>1.51</u> W Leg Combined Factor: <u>1.51</u>
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TMS ENGINEERS, INC.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
(330) 686-6402 FAX: (330) 686-6417

Figure #:

Page #:

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : W. Main St & Miller Ave + Cromley Rd 030322 JJO
 Site Code : 00000000
 Start Date : 3/3/2022
 Page No : 1

City: Ashville
 Intersection: W. Main St & Miller Ave + Cromley Rd
 Counter: JJO
 Day of the Week: Thursday

Groups Printed- Cars - Trucks - Buses

Start Time	MILLER AVENUE From North						WEST MAIN STREET (SR 316) From East						CROMLEY ROAD From South						WEST MAIN STREET (SR 316) From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total				
07:00 AM	1	1	7	0	9	2	36	4	0	42	9	0	16	0	25	2	33	2	0	37				
07:15 AM	2	2	2	0	6	1	28	2	0	31	12	0	12	0	24	1	25	1	0	27				
07:30 AM	0	1	2	0	3	2	36	1	0	39	9	1	10	0	20	2	24	2	0	28				
07:45 AM	2	0	1	0	3	3	30	0	0	33	6	0	5	0	11	5	22	2	0	29				
Total	5	4	12	0	21	8	130	7	0	145	36	1	43	0	80	10	104	7	0	121				
08:00 AM	2	1	0	0	3	2	30	2	0	34	9	1	6	0	16	1	20	3	0	24				
08:15 AM	5	1	1	0	7	6	30	5	0	41	7	1	11	0	19	0	18	9	0	27				
08:30 AM	8	0	6	2	16	5	26	5	0	36	2	1	7	0	10	3	28	2	0	33				
08:45 AM	5	0	3	0	8	4	26	5	0	35	2	0	6	0	8	3	18	1	0	22				
Total	20	2	10	2	34	17	112	17	0	146	20	3	30	0	53	7	84	15	0	106				
09:00 AM	2	0	2	0	4	1	30	3	0	34	4	1	1	0	6	3	18	2	0	23				
09:15 AM	6	0	3	0	9	4	29	5	1	39	4	2	2	0	8	3	20	3	0	26				
09:30 AM	3	1	4	0	8	2	22	3	0	27	1	2	0	0	3	1	26	3	0	30				
09:45 AM	10	2	3	0	15	3	20	5	0	28	3	1	5	1	10	2	20	4	1	27				
Total	21	3	12	0	36	10	101	16	1	128	12	6	8	1	27	9	84	12	1	106				
10:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
10:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
10:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : W. Main St & Miller Ave + Cromley Rd 030322 JJO
 Site Code : 00000000
 Start Date : 3/3/2022
 Page No : 2

Groups Printed- Cars - Trucks - Buses

Start Time	MILLER AVENUE From North					WEST MAIN STREET (SR 316) From East					CROMLEY ROAD From South					WEST MAIN STREET (SR 316) From West					Int. Total				
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total					
10:45 AM	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
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11:00 AM	6	0	2	0	8	3	25	8	0	36	4	1	1	0	6	0	13	1	0	14	0	0	0	0	0
11:15 AM	6	2	4	0	12	1	28	5	0	34	3	0	4	0	7	2	20	2	0	24	0	0	0	0	0
11:30 AM	4	0	2	0	6	6	28	2	0	36	8	0	1	0	9	1	28	3	0	32	0	0	0	0	0
11:45 AM	4	1	3	0	8	4	19	11	0	34	7	3	2	0	12	0	24	1	0	25	0	0	0	0	0
Total	20	3	11	0	34	14	100	26	0	140	22	4	8	0	34	3	85	7	0	95	0	0	0	0	0
12:00 PM	8	1	7	0	16	6	34	2	0	42	6	2	1	0	9	6	24	12	0	42	0	0	0	0	0
12:15 PM	5	2	4	0	11	6	39	1	0	46	7	0	1	0	8	4	32	6	0	42	0	0	0	0	0
12:30 PM	2	1	6	0	9	5	28	7	0	40	5	0	3	0	8	3	21	3	0	27	0	0	0	0	0
12:45 PM	3	0	4	0	7	1	29	8	0	38	6	0	1	0	7	6	26	4	0	36	0	0	0	0	0
Total	18	4	21	0	43	18	130	18	0	166	24	2	6	0	32	19	103	25	0	147	0	0	0	0	0
01:00 PM	2	0	6	0	8	4	16	5	0	25	3	0	2	0	5	1	22	2	0	25	0	0	0	0	0
01:15 PM	0	0	2	0	2	0	25	6	0	31	7	0	2	0	9	1	34	0	0	35	0	0	0	0	0
01:30 PM	2	2	2	0	6	4	22	9	0	35	6	2	5	0	13	1	30	3	0	34	0	0	0	0	0
01:45 PM	3	1	5	0	9	4	22	1	0	27	9	2	4	0	15	1	16	1	0	18	0	0	0	0	0
Total	7	3	15	0	25	12	85	21	0	118	25	4	13	0	42	4	102	6	0	112	0	0	0	0	0
02:00 PM	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
02:15 PM	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
02:30 PM	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
02:45 PM	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
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087

Transportation Management Services

File Name : W. Main St & Miller Ave + Cromley Rd 030322 JJO
 Site Code : 00000000
 Start Date : 3/3/2022
 Page No : 3

Groups Printed- Cars - Trucks - Buses

Start Time	MILLER AVENUE From North						WEST MAIN STREET (SR 316) From East						CROMLEY ROAD From South						WEST MAIN STREET (SR 316) From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total				
03:00 PM	5	3	6	0	14	7	36	8	0	51	9	2	2	0	13	5	24	5	0	34				
03:15 PM	6	1	6	0	13	4	31	9	0	44	15	3	2	0	20	8	27	6	0	41				
03:30 PM	7	0	4	0	11	6	47	5	0	58	9	0	1	0	10	7	41	3	0	51				
03:45 PM	6	2	14	0	22	8	39	7	0	54	5	1	3	0	9	9	45	3	0	57				
Total	24	6	30	0	60	25	153	29	0	207	38	6	8	0	52	29	137	17	0	183				
04:00 PM	8	1	7	0	16	6	38	9	0	53	8	4	2	0	14	6	42	3	0	51				
04:15 PM	6	1	4	0	11	3	45	12	0	60	7	3	5	0	15	5	30	4	0	39				
04:30 PM	2	3	4	0	9	5	49	11	0	65	12	2	1	0	15	8	32	5	0	45				
04:45 PM	5	0	6	0	11	4	55	14	0	73	7	1	2	0	10	4	41	5	0	50				
Total	21	5	21	0	47	18	187	46	0	251	34	10	10	0	54	23	145	17	0	185				
05:00 PM	4	1	3	0	8	6	37	7	0	50	3	1	6	0	10	13	43	3	0	59				
05:15 PM	1	2	3	0	6	8	43	7	0	58	9	1	4	0	14	3	42	5	0	50				
05:30 PM	2	1	3	0	6	7	25	4	0	36	10	2	2	0	14	11	46	2	0	59				
05:45 PM	2	1	4	0	7	4	47	10	0	61	3	1	2	0	6	6	45	6	0	57				
Total	9	5	13	0	27	25	152	28	0	205	25	5	14	0	44	33	176	16	0	225				
Grand Total	145	35	145	2	327	147	1150	208	1	1506	236	41	140	1	418	137	1020	122	1	1280				
Approch %	44.3	10.7	44.3	0.6		9.8	76.4	13.8	0.1		56.5	9.8	33.5	0.2		10.7	79.7	9.5	0.1					
Total %	4.1	1	4.1	0.1	9.3	4.2	32.6	5.9	0	42.7	6.7	1.2	4	0	11.8	3.9	28.9	3.5	0	36.3				
Cars	139	35	139	1	314	143	1097	204	0	1444	230	39	135	1	405	130	963	116	1	1210				
% Cars	95.9	100	95.9	50	96	97.3	95.4	98.1	0	95.9	97.5	95.1	96.4	100	96.9	94.9	94.4	95.1	100	94.5				
Trucks	2	0	3	0	5	2	46	4	0	52	3	0	4	0	7	6	51	3	0	60				
% Trucks	1.4	0	2.1	0	1.5	1.4	4	1.9	0	3.5	1.3	0	2.9	0	1.7	4.4	5	2.5	0	4.7				
Buses	4	0	3	1	8	2	7	0	1	10	3	2	1	0	6	1	6	3	0	10				
% Buses	2.8	0	2.1	50	2.4	1.4	0.6	0	100	0.7	1.3	4.9	0.7	0	1.4	0.7	0.6	2.5	0	0.8				

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Start Time	MILLER AVENUE From North					WEST MAIN STREET (SR 316) From East					CROMLEY ROAD From South					WEST MAIN STREET (SR 316) From West						
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total	
	Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																						
07:00 AM	1	1	7	0	9	2	36	4	0	42	9	0	16	0	25	2	33	2	0	37	113	
07:15 AM	2	2	2	0	6	1	28	2	0	31	12	0	12	0	24	1	25	1	0	27	88	
07:30 AM	0	1	2	0	3	2	36	1	0	39	9	1	10	0	20	2	24	2	0	28	90	
07:45 AM	2	0	1	0	3	3	30	0	0	33	6	0	5	0	11	5	22	2	0	29	76	
Total Volume	5	4	12	0	21	8	130	7	0	145	36	1	43	0	80	10	104	7	0	121	367	
% App. Total	23.8	19	57.1	0		5.5	89.7	4.8	0		45	1.2	53.8	0		8.3	86	5.8	0			
PHF	.625	.500	.429	.000	.583	.667	.903	.438	.000	.863	.750	.250	.672	.000	.800	.500	.788	.875	.000	.818	.812	
Cars	5	4	11	0	20	8	123	7	0	138	35	1	42	0	78	10	97	6	0	113	349	
% Cars	100	100	91.7	0	95.2	100	94.6	100	0	95.2	97.2	100	97.7	0	97.5	100	93.3	85.7	0	93.4	95.1	
Trucks	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	6	0	0	6	13	
% Trucks	0	0	0	0	0	0	4.6	0	0	4.1	0	0	2.3	0	1.3	0	5.8	0	0	5.0	3.5	
Buses	0	0	1	0	1	0	1	0	0	1	1	0	0	0	1	0	1	1	0	2	5	
% Buses	0	0	8.3	0	4.8	0	0.8	0	0	0.7	2.8	0	0	0	1.3	0	1.0	14.3	0	1.7	1.4	
Peak Hour Analysis From 03:45 PM to 04:30 PM - Peak 1 of 1																						
Peak Hour for Entire Intersection Begins at 03:45 PM																						
03:45 PM	6	2	14	0	22	8	39	7	0	54	5	1	3	0	9	9	45	3	0	57	142	
04:00 PM	8	1	7	0	16	6	38	9	0	53	8	4	2	0	14	6	42	3	0	51	134	
04:15 PM	6	1	4	0	11	3	45	12	0	60	7	3	5	0	15	5	30	4	0	39	125	
04:30 PM	2	3	4	0	9	5	49	11	0	65	12	2	1	0	15	8	32	5	0	45	134	
Total Volume	22	7	29	0	58	22	171	39	0	232	32	10	11	0	53	28	149	15	0	192	535	
% App. Total	37.9	12.1	50	0		9.5	73.7	16.8	0		60.4	18.9	20.8	0		14.6	77.6	7.8	0			
PHF	.688	.583	.518	.000	.659	.688	.872	.813	.000	.892	.667	.625	.550	.000	.883	.778	.828	.750	.000	.842	.942	
Cars	21	7	28	0	56	22	165	38	0	225	31	10	10	0	51	25	140	15	0	180	512	
% Cars	95.5	100	96.6	0	96.6	100	96.5	97.4	0	97.0	96.9	100	90.9	0	96.2	89.3	94.0	100	0	93.8	95.7	
Trucks	0	0	1	0	1	0	5	1	0	6	0	0	1	0	1	3	8	0	0	11	19	
% Trucks	0	0	3.4	0	1.7	0	2.9	2.6	0	2.6	0	0	9.1	0	1.9	10.7	5.4	0	0	5.7	3.6	
Buses	1	0	0	0	1	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	4	
% Buses	4.5	0	0	0	1.7	0	0.6	0	0	0.4	3.1	0	0	0	1.9	0	0.7	0	0	0.5	0.7	

Appendix C

Development Trip Generation Data

FOR INTERNAL USE
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DHL TRAFFIC PROFILES

Westerville, OH, 17 February 2022

DHL Real Estate Development— Excellence. Simply delivered.



DHL NorAm Location Information - PowerBI

North America Summary Dashboard

488	LOGICS Operation IDs
352	Unique Addresses
145,089,383	Square Footage (Operations Only)
75,707,226	Total Hours Worked (Last 12 Months)
87,996,389	Total Miles Driven (Last 12 Months)
42,107	DSC Associate Headcount (Last Month)

Location List

- 3M El Paso - Sergio Canavos
- 3M Mechaniburg - Tim Rogan
- 3M Inglewood Memphis - DC
- 3M Mechanical - Brent Black - Packaging
- 3M Mechanical - Brent Black
- 3M Penobscot - David Scofield
- Atarca - Distribution Center
- ADS - Southeast DDS
- ADS - Southeast WZE
- ADS New Mexico - Warehouse
- ADS Ohio Shuttle
- ADS WMS
- ADP Fairborn WH
- Alabamas
- Alzemia DSC
- ASML - San Diego
- ASOZ Atlanta
- AutoZemex - Mount Vernon
- Autos Las Vegas
- Autos Las Vegas
- BAG Cincinnati - Warehouse
- Anexas Soabahan White
- BAH - Venice
- Bayer - Las Vegas
- Bayer McDonough DC
- BAYER NEDC PNG
- Bayer NEDC PNG
- BOS Philadelphia
- BOS Philadelphia
- BOS Memphis White
- Bram Frankfurt - Packaging
- Bram Frankfurt - Quante

Summary

- ADICE NA (OP NA) (R 0142)
- Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)
- 4Comcast NA (OP NA) (R 0228)

View: Operation

- Operation
- Overhead

Filters

- Location: All
- Sector: All
- Country: All
- Vice President: All
- HR Area: All
- Safety Manager: All
- Activity: All

Notes:

- Please note: For addresses with multiple locations, the size of the dot to get a site count for that address, or click on dot for list of sites.
- All information on this page is obtained from LOGICS, and is refreshed overnight. Circle sizes indicate DSC headcount. DSC Associate Headcount only includes DSC associates in HRMS, updates after WDI each month, and does not include seasonal or temp agency associates. Total Hours Worked includes temporary associates. Please access 'Definitions' tab for more information.

Information updated daily LOGICS

DHL NorAm Location Information – Headcount per x sq/ft

Summary below is sorted by sector with the highest amount of square footage

Sectors with the highest concentration of headcount per sq/ft are darker red

Retail leads with 51 heads per 100k sq/ft of space

Chem / engineering & manufacturing are last with 13-14 heads per 100k sq/ft of space

Sector	Row Labels	Sum of Square Footage	Sum of Total FTE (Last 12 Months)	% of DHL Sq/Ft	sq/ft per	Heads per x sq/ft (Daily)				
						100k	1,000k	650k	570k	
Automotive		162,381,638	39,189	56%	4,143	24	241	157	138	
Consumer		73,690,269	14,841	25%	4,965	20	201	131	115	
Retail		20,511,676	10,472	7%	1,959	51	511	332	291	
Technology		4,855,146	2,171	2%	2,236	45	447	291	255	
Life Science & Healthcare		10,708,508	2,103	4%	5,092	20	196	128	112	
Engineering & Manufacturing		13,327,534	1,870	5%	7,127	14	140	91	80	
Chemicals		3,606,638	480	1%	7,513	13	133	87	76	
Energy		1,095,359	253	0%	4,330	23	231	150	132	

DHL NorAm Location Information – ITE Results Corrections

ITE provided results on various building sizes on FTE and truck movement over two shifts

Errors were discovered replicating the math (in red)

The summary for 'Enter' and 'Exit' between 7-9 AM left out the final row for 570k sq/ft

The final total between 4-6 PM (bottom right) was not totaling the entire headcount

ITE									
Size	Weekday Peak Hour Between 7-9 AM				Weekday Peak Hour Between 4-6 PM				
	Enter	Exit	Trucks		Enter	Exit	Trucks		
1000k	576	576	90	1152	786	370	60		
570k	281	281	51	562	374	176	34		
1000k	576	576	90	1152	786	370	60		
650k	336	336	59	672	450	212	39		
1000k	576	576	90	1152	786	370	60		
1000k	576	576	90	1152	786	370	60		
570k	281	281	51	562	374	176	34		
	3202	3202	521		4342	2044	347		
	6404				6386				

DHL NorAm Location Information – DHL Results

The results below are based on actual DHL operations for FTE and truck movement over two shifts

The left table 'DHL Operations (All Sectors) are a weighted average of all ops. The right is our max FTE/Truck sector

All sectors are significantly less for FTE than the ITE output

Retail is ~40% of the ITE results while trucks is the same

DHL is speculating that the ITE numbers are theoretical max headcount for given sq/ft

DHL Operations (All Sectors) (as of 2/15/2022)										
Size	Weekday Peak Hour Between 7-9 AM			Trucks	Weekday Peak Hour Between 4-6 PM			Trucks		
	Enter	Exit	Enter		Exit	Enter	Exit			
1000k	123	123	246	62	167	79	41	41		
570k	70	70	140	35	95	45	23	23		
1000k	123	123	246	62	167	79	41	41		
650k	80	80	160	62	109	51	41	41		
1000k	123	123	246	62	167	79	41	41		
1000k	123	123	246	62	167	79	41	41		
570k	70	70	140	35	95	45	23	23		
	712	712		380	969	456	253	253		
	1424				1424					

DHL Operations (Retail) (as of 2/15/2022)										
Size	Weekday Peak Hour Between 7-9 AM			Trucks	Weekday Peak Hour Between 4-6 PM			Trucks		
	Enter	Exit	Enter		Exit	Enter	Exit			
1000k	255	255	511	96	347	163	64	64		
570k	70	70	140	54	95	45	36	36		
1000k	255	255	511	96	347	163	64	64		
650k	166	166	332	40	226	106	27	27		
1000k	255	255	511	96	347	163	64	64		
1000k	255	255	511	96	347	163	64	64		
570k	70	70	140	54	95	45	36	36		
	1327	1327		531	1805	849	354	354		
	2654				2654					

FOR INTERNAL USE
FOR INTERNAL USE

DHL TRAFFIC PROFILES

Westerville, OH, 2 May 2022

DHL Real Estate Development— Excellence. Simply delivered.



DHL NorAm Location Information – Consumer and Ecommerce

Data is representative of actual DHL operations for the noted sector vehicles

DHL Operations (Consumer / Ecommerce) (as of 4/29/2022)		
	Weekday Peak Hour Between 7-9 AM	Weekday Peak Hour Between 4-6 PM
Size	Trucks	Trucks
1000k	50	36
800k	45	36
575k	30	20
400k	25	16

DHL SITE GENERATED TRAFFIC CALCULATIONS

TOTAL SITE GENERATED TRIPS - ITE #156

BUILDING	SITE	SIZE (Sq Ft)	OPENING YEAR	TOTAL AM TRIPS			PM TOTAL TRIPS		
				TOTAL	ENTER* 50%	EXIT* 50%	TOTAL	ENTER* 68%	EXIT* 32%
1	North	1,006,880	2024	1161	580	581	1166	793	373
2	North	793,440	2025	869	434	435	865	588	277
3	North	1,006,880	2026	1161	580	581	1166	793	373
4	South	572,460	2027	566	283	283	553	376	177
5	South	1,006,880	2028	1161	580	581	1166	793	373
6	South	1,006,880	2029	1161	580	581	1166	793	373
7	South	517,940	2030	491	245	246	476	324	152
TOTALS: 5,911,360				6570	3282	3288	6558	4460	2098

VEHICLE & TRUCK GENERATED TRIPS - ITE #156

BUILDING	SITE	SIZE (Sq Ft)	OPENING YEAR	AM VEHICLE TRIPS (Total Trip minus Truck Trips)			AM TRUCK TRIPS			PM VEHICLE TRIPS (Total Trip minus Truck Trips)			PM TRUCK TRIPS		
				TOTAL	ENTER	EXIT	TOTAL	ENTER* 50%	EXIT* 50%	TOTAL	ENTER	EXIT	TOTAL	ENTER* 48%	EXIT* 52%
1	North	1,006,880	2024	1070	535	535	91	45	46	1106	764	342	60	29	31
2	North	793,440	2025	798	399	399	71	35	36	817	565	252	48	23	25
3	North	1,006,880	2026	1070	535	535	91	45	46	1106	764	342	60	29	31
4	South	572,460	2027	514	257	257	52	26	26	519	360	159	34	16	18
5	South	1,006,880	2028	1070	535	535	91	45	46	1106	764	342	60	29	31
6	South	1,006,880	2029	1070	535	535	91	45	46	1106	764	342	60	29	31
7	South	517,940	2030	444	222	222	47	23	24	445	309	136	31	15	16
TOTALS: 5,911,360				6036	3018	3018	534	264	270	6205	4230	1915	353	170	183

* Truck splits not available for Land Use #156. Enter & Exit splits are based on AVERAGE directional distribution for ITE Land Uses 150/154/155

VEHICLE & TRUCK GENERATED TRIPS - PER AVAILABLE DHL DATA

BUILDING	SITE	SIZE (Sq Ft)	OPENING YEAR	AM VEHICLE TRIPS			AM TRUCK TRIPS			PM VEHICLE TRIPS			PM TRUCK TRIPS		
				TOTAL	ENTER* 50%	EXIT* 50%	TOTAL	ENTER** 50%	EXIT** 50%	TOTAL	ENTER** 68%	EXIT** 32%	TOTAL	ENTER** 48%	EXIT** 52%
1	North	1,006,880	2024	378	189	189	32	16	16	378	257	121	21	10	11
2	North	793,440	2025	298	149	149	26	13	13	298	202	95	17	8	9
3	North	1,006,880	2026	378	189	189	32	16	16	378	257	121	21	10	11
4	South	572,460	2027	215	107	107	22	11	11	215	146	69	14	7	7
5	South	1,006,880	2028	378	189	189	32	16	16	378	257	121	21	10	11
6	South	1,006,880	2029	378	189	189	32	16	16	378	257	121	21	10	11
7	South	517,940	2030	194	97	97	21	10	11	194	132	62	13	6	7
TOTALS: 5,911,360				2218	1109	1109	197	98	99	2218	1508	710	128	61	67

* Enter & Exit splits are based on directional distribution for ITE Land Use 156 - High-Cube Parcel Hub Warehouse

** Truck splits not available for Land Use #156. Enter & Exit splits are based on AVERAGE directional distribution for ITE Land Uses 150/154/155

TOTAL SITE GENERATED TRIPS - PER AVAILABLE DHL DATA

BUILDING	SITE	SIZE (Sq Ft)	OPENING YEAR	TOTAL AM TRIPS			PM TOTAL TRIPS		
				TOTAL	ENTER	EXIT	TOTAL	ENTER	EXIT
1	North	1,006,880	2024	410	205	205	399	267	132
2	North	793,440	2025	324	162	162	314	210	104
3	North	1,006,880	2026	410	205	205	399	267	132
4	South	572,460	2027	237	118	118	229	153	76
5	South	1,006,880	2028	410	205	205	399	267	132
6	South	1,006,880	2029	410	205	205	399	267	132
7	South	517,940	2030	215	107	108	207	138	69
TOTALS: 5,911,360				2415	1207	1208	2346	1569	777

Appendix D

ODOT COVID-19 Calibration Guidelines



Decreased traffic as a result of the COVID19 pandemic requires additional consideration in the collection and processing of traffic counts for design traffic forecasts. The Office of Technical Services is continuously reporting the statewide decrease in traffic as registered by our permanent traffic recorders at:

<https://www.transportation.ohio.gov/wps/portal/gov/odot/programs/technical-services/resources/regional-traffic-analysis>

Currently about a 15% decrease in traffic is occurring. While this is similar to the decrease experienced from May to August, September and early October decreases were closer to 10%. It's too early to tell whether this represents a new trend due to increasing COVID19 trends or additional suppression related to pre-holiday travel, however regardless, the values reported here are averages based solely on the location of the permanent traffic recorders which are heavily biased towards freeways and therefore may not represent local conditions.

For establishing base line traffic conditions for forecasting projects, the following procedure is therefore provided. **Note, this method is an expedient to keep projects moving, if possible the project sponsor might want to defer collecting new traffic counts for projects until traffic conditions return to normal (at a minimum normal is defined as within 15% of pre-pandemic values, even better would be to wait until post-pandemic volumes can be measured). Additionally, any projects whose forecasts are based upon counts collected during the pandemic will require new traffic counts if they are subsequently resubmitted for certification once ODOT determines traffic levels have returned to normal, note this does not necessarily mean the forecasts must be redone as long as the new counts are in reasonable agreement (usually within 15%) with the counts used for the forecasts.** Since some locations may currently be close to normal, the factoring procedure is optional. However, any forecast submitted for certification must follow Steps 1 and 2 and:

- A. Contain count plates showing the prior existing counts and original raw project counts and if the factoring procedure is used the factored values with factor stations and the new counts to which they applied clearly indicated.
- B. Forecast plates must contain the following additional uncertainty note (the italicized part only included if factoring is conducted): *"Counts collected during COVID19 Pandemic and factored per ODOT Modeling and Forecasting guidance"*.

Step 1 Get Existing Counts

Utilize the ODOT Traffic Monitoring Management System at:

<https://odot.ms2soft.com/tcds/tsearch.asp?loc=odot>

to obtain as many prior existing counts as possible. ODOT coverage counts are conducted every 3 years, the latest count that is no more than 3 years old should be used, however, only counts conducted prior to March 15, 2020 should be included. Efforts should be made to include counts on the primary project routes even if those counts are outside of the project study area.

Step 2 Conduct New Counts

Conduct new counts as normal, both machine and turning movement. New machine counts must also be conducted at the locations obtained in step 1 to establish "factor stations". Counts should be conducted following all previously published guidance:



<https://www.transportation.ohio.gov/static/Programs/StatewidePlanning/Modeling-Forecasting/GuidelinesTCTFRoadwayDesign.pdf>

Step 3 Create Project Specific Factors

In lieu of the normal seasonal adjustment factor process to develop AADT, the counts collected at the factor stations will be compared to the counts from step 1 to develop factors. Both daily (AADT) and peak hour factors will be calculated separately as it is anticipated that time of day patterns have been changed drastically (and thus the peak hour selected for analysis should be determined by the existing counts from step 1). Note, at the daily level the raw new count is compared to the seasonally adjusted prior count, thus the factor developed is a replacement for the seasonal adjustment factoring process. If other project counts are conducted on different days from the factor stations, additional seasonal factors could be applied to reconcile to the factor day, however, so long as all project counts are conducted on Monday-Thursday within a month of one another this should be unnecessary. This does not replace or change other processes such as the application of design hour volume factors.

Step 4 Apply Factors

The factors from Step 3 will be applied to the other counts collected in Step 2. The analyst needs to determine which factors to apply to each count. Generally, factors should be selected from the same road as close to the subject count as possible. If this isn't possible, a factor station with similar characteristics (functional class, development density, lanes, speed limit, access type etc.) and geographic proximity should be chosen. Average factors from multiple locations might also be used.

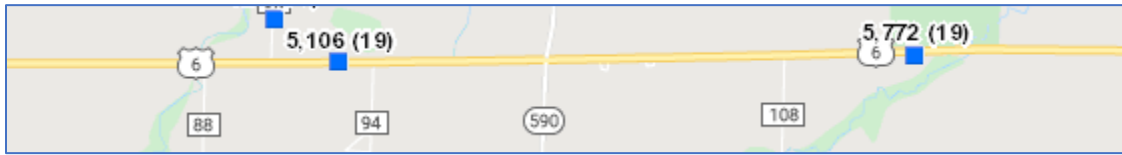
Step 5 Additional Turn Movement Count Considerations

As ODOT's Traffic Monitoring Management System does not contain extensive turning movement counts and turning movement counts aren't conducted for an entire day there are additional considerations. If a count does exist in TMC (the turning movement portion of TMMS) and it is within 3 years old it can be used in lieu of a new count. A new count could also be conducted for the purpose of creating factors from this count in Step 2, however, since TM counts are not done for the full day, this would only result in peak hour factors which would thus require alternate factor station locations for developing the AADT factors. Therefore, in general, factor station locations are recommended for machine count locations only.

In addition, it is possible that the turning movement proportions have been skewed as a result of the traffic decrease. Therefore, for important intersections, it is recommended that StreetLight Data be queried at the intersection using average week day for one full month of weekdays. Both a pre and post COVID19 month should be queried. The pre-C month should either be February 2020 or the month in 2019 matching the post-C month selected below. The former should be used if the analyst believes changing development patterns are most important while the latter is used if the analyst believes seasonal effects are most important. The post-C month will be the latest month available in StreetLight. The comparisons should be made in terms of the turning movement percentages, not absolute volume. If the StreetLight comparisons indicate the turn movement percentages have changed by more than 10 percentage points, the turn movement count percentages can be adjusted to reflect this. Any such adjustment must be clearly indicated with the submitted count information.

Note: Check back to the web site for any updates.

Simple Corridor Project Factor Example (Blue Dots are TMMS- MS2 Count Locations)



Step 1: Get the most recent hourly, 24-hour count.

Use TMMS (<https://odot.ms2soft.com/tcds/tsearch.asp?loc=Odot&mod=>) to obtain “Old” pre-COVID date count.

Use the most recent 24 hour-hourly count for AADT, AM,PM

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2019	5,106 ³		8	53	3,842 (75%)	1,264 (25%)	Grown from 2018
2018	5,050	407	8	53	3,800 (75%)	1,250 (25%)	
2017	6,234 ³		9	52	4,706 (75%)	1,530 (25%)	Grown from 2016
2016	6,029 ³		9	52	4,551 (75%)	1,477 (24%)	Grown from 2015

Note:
We cannot use 2019 AADT because it is estimated from 2018. There is no hourly data.

Most Recent Hourly Count Summary from MS2-TMMS

21:00-22:00	24	26	29	21	100
22:00-23:00	19	20	20	19	78
23:00-24:00	15	14	20	9	58
Total					5,216
AADT					5,050
AM Peak				07:00-08:00	407
PM Peak				15:15-16:15	416

Note:
This example assumed the entire corridor peaks at 3:15-4:15 PM. This may not be the case. Look at all the counts in the corridor to establish the peak that will be used.

Step 2: Get the new count

Note: The new count is taken at the same location as Location ID: 472 as a 24-hour count. (probably tube count)

NEW Raw Count 4/15/2020 (COVID Best)			
	EB	WB	Tot
7-8 AM	101	91	192
3:15-4 :15 PM	106	144	250
24 Hrs			2190

Step 3: Calculate factors: (Pre-COVID count) / (new count)

5050 / 2190 =	2.306	AADT COVID FACTOR
407 / 192 =	2.120	AM COVID FACTOR
416 / 250 =	1.664	PM COVID FACTOR

Repeat this calculation for as many MS2 counts are in the project area within the same year and average them. In this example, the two on US 6 shown may be enough.

Appendix E

ODOT Historical Traffic Data

Volume Count Report

LOCATION INFO	
Location ID	2765
Type	SPOT
Funct'l Class	3
Located On	US-23
Loc On Alias	N310
BETWEEN	SR-752 AND DUVALL RD (SR-762)
Direction	2-WAY
County	Pickaway
Community	HARRISON
MPO ID	
HPMS ID	
Agency	ODOT

INTERVAL:15-MIN					
Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	82	68	60	68	278
1:00-2:00	60	54	62	48	224
2:00-3:00	47	50	59	48	204
3:00-4:00	59	68	61	90	278
4:00-5:00	96	134	168	174	572
5:00-6:00	230	322	329	345	1,226
6:00-7:00	484	581	541	466	2,072
7:00-8:00	494	540	528	449	2,011
8:00-9:00	435	414	438	418	1,705
9:00-10:00	388	408	407	350	1,553
10:00-11:00	374	361	397	340	1,472
11:00-12:00	318	340	375	332	1,365
12:00-13:00	482	421	417	395	1,715
13:00-14:00	363	413	396	406	1,578
14:00-15:00	414	487	490	485	1,876
15:00-16:00	484	551	559	573	2,167
16:00-17:00	523	570	580	545	2,218
17:00-18:00	538	619	502	495	2,154
18:00-19:00	472	383	382	334	1,571
19:00-20:00	242	265	254	224	985
20:00-21:00	241	211	186	180	818
21:00-22:00	201	191	184	158	734
22:00-23:00	145	115	129	103	492
23:00-24:00	88	95	100	82	365
Total					29,633
AM Peak					06:15-07:15 2,082
PM Peak					16:30-17:30 2,282

COUNT DATA INFO	
Count Status	Accepted
Start Date	Thu 2/17/2022
End Date	Fri 2/18/2022
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Station	
Study	
Speed Limit	
Description	
Sensor Type	ATR
Source	TCDS_COUNT_IMPORT_COMBINE
Latitude,Longitude	

Count Navigation: |<<| <| >| >>| Count Type: **VOLUME** ▼



Directions: **2-WAY** **NB** **SB**
 1 2 1 2

Volume Count Report

LOCATION INFO

Location ID	2765
Type	SPOT
Funct'l Class	3
Located On	US-23
Loc On Alias	N310
BETWEEN	SR-752 AND DUVALL RD (SR-762)
Direction	2-WAY
County	Pickaway
Community	HARRISON
MPO ID	
HPMS ID	
Agency	ODOT

INTERVAL:15-MIN

Time	15-min Interval				Hourly Count
	1st	2nd	3rd	4th	
 0:00-1:00	65	67	60	57	249
1:00-2:00	53	48	44	53	198
2:00-3:00	39	43	44	51	177
3:00-4:00	42	52	61	81	236
4:00-5:00	76	146	141	167	530
5:00-6:00	252	313	392	458	1,415
6:00-7:00	536	570	608	539	2,253
7:00-8:00	544	554	577	506	2,181
8:00-9:00	467	500	429	406	1,802
9:00-10:00	419	389	402	353	1,563
10:00-11:00	360	381	377	394	1,512
11:00-12:00	373	333	376	399	1,481
12:00-13:00	384	412	424	377	1,597
13:00-14:00	408	417	436	396	1,657
14:00-15:00	407	471	480	499	1,857
15:00-16:00	527	548	440	301	1,816
16:00-17:00	367	342	360	362	1,431
17:00-18:00	322	526	544	518	1,910
18:00-19:00	455	396	284	318	1,453
19:00-20:00	271	272	233	255	1,031
20:00-21:00	212	190	190	171	763
21:00-22:00	179	181	156	134	650
22:00-23:00	147	130	175	113	565
23:00-24:00 	97	98	85	85	365
Total					28,692
AADT					26,224
AM Peak					06:15-07:15 2,261
PM Peak					14:30-15:30 2,054

COUNT DATA INFO

Count Status	Accepted
Start Date	Thu 2/20/2020
End Date	Fri 2/21/2020
Start Time	12:00:00 AM
End Time	12:00:00 AM
Direction	
Notes	
Station	
Study	
Speed Limit	
Description	
Sensor Type	ATR
Source	TCDS_COUNT_IMPORT_COMBINE
Latitude,Longitude	

Count Navigation: |<<|<|>|>>|

Count Type: VOLUME ▼

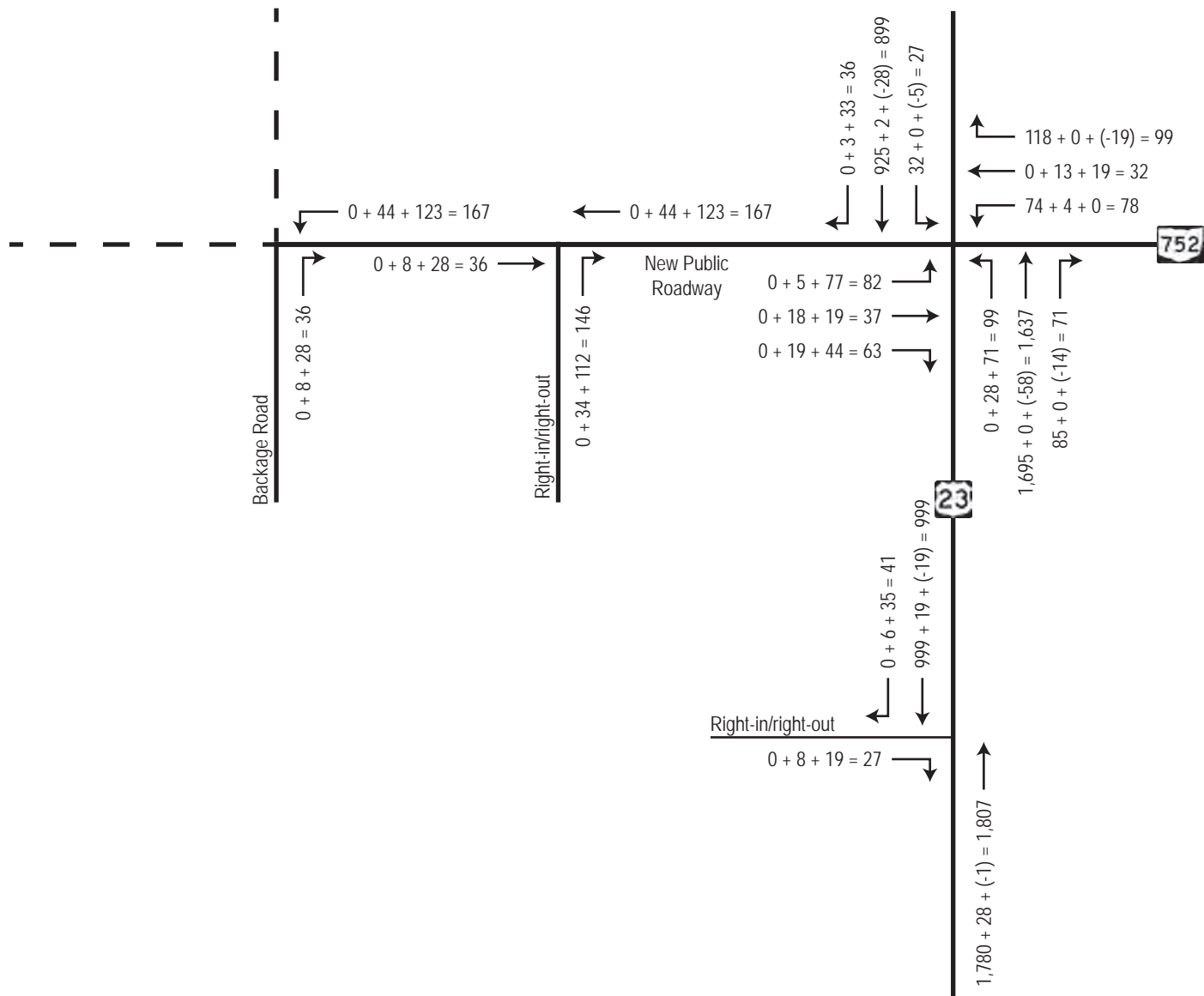
Directions: **2-WAY** NB SB 

Appendix F

Sheetz TIS Trip Generation Figures



AM PEAK



A + B + C = D

- A** - Background Volumes (2031)
- B** - Primary Trips
- C** - Pass-by Trips
- D** - Total Volumes



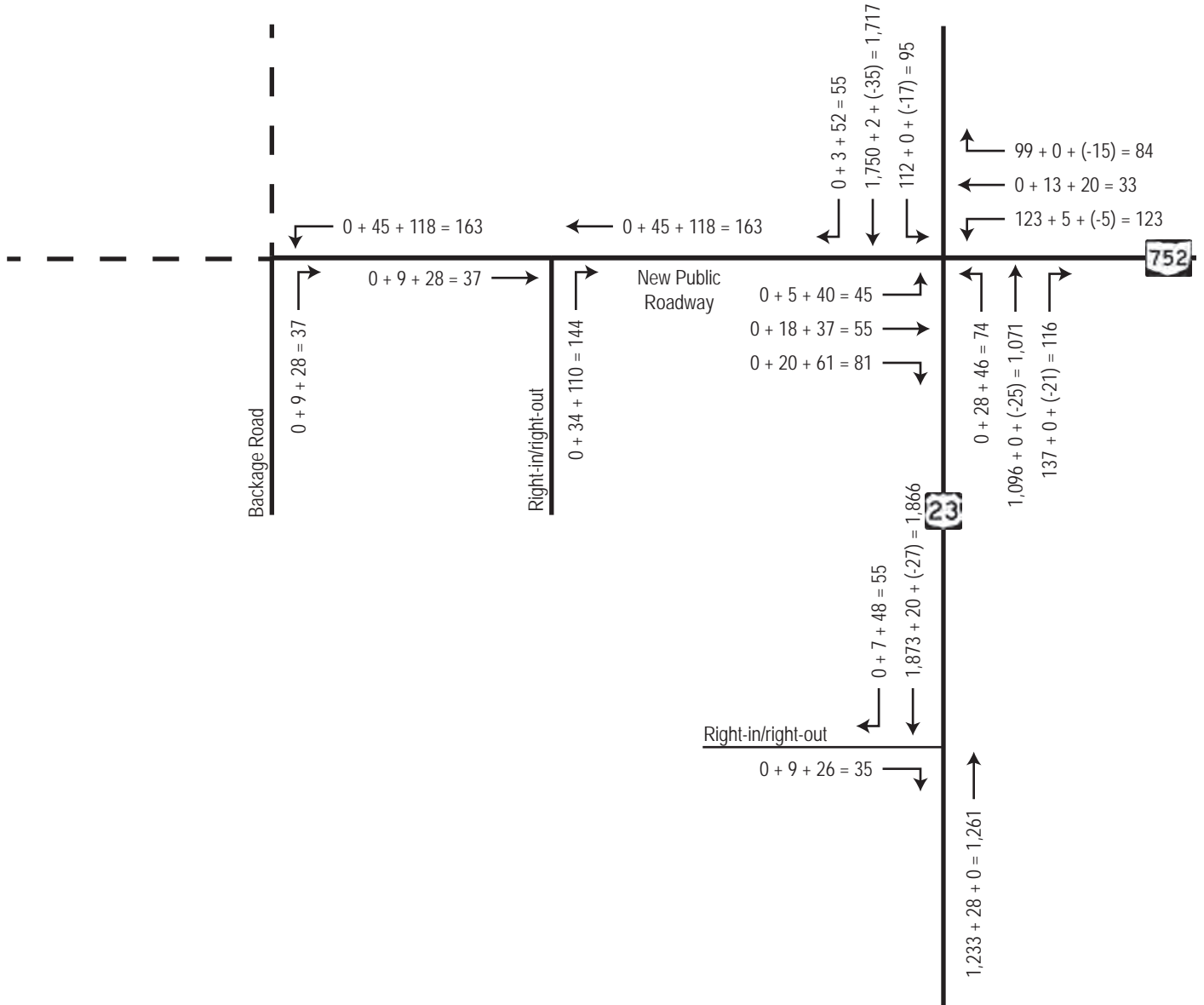
**South Bloomfield Sheetz
Traffic Impact Study**
South Bloomfield, Ohio

**Figure 3: AM Peak Hour
Turning Movement Volumes**

Last Revision: 12/03/2020



PM PEAK



A + B + C = D

A - Background Volumes (2031)
B - Primary Trips
C - Pass-by Trips
D - Total Volumes

ms consultants, inc.
 engineers, architects, planners

**South Bloomfield Sheetz
 Traffic Impact Study**
 South Bloomfield, Ohio

**Figure 4: PM Peak Hour
 Turning Movement Volumes**

Last Revision: 12/03/2020

Appendix G

US23/SR316 Development TIS Trip Generation Figures











Appendix H

MORPC Growth Rate Correspondence

Andy Comer

From: Hwashik Jang <hjang@morpc.org>
Sent: Tuesday, March 29, 2022 2:43 PM
To: Andy Comer
Cc: Nick Gill
Subject: RE: Proposed DHL Facility TIS - Ashville, Pickaway County, Ohio

Andy,

We have completed processing growth rates for your Ashville traffic study area.

Please use linear annual growth rates as summarized below.

<u>Location</u>	<u>Linear Annual Growth Rate</u>
SR 752 e/o US 23	2.00%
US 23 n/o SR 752	0.90%
US 23 s/o SR 752	0.90%
US 23 n/o SR 316	0.90%
SR 316 w/o US 23	1.60%
US 23 s/o SR 316	0.90%
SR 316 e/o US 23	2.00%
US 23 n/o SR 316	1.00%
SR 316 w/o US 23	2.00%
US 23 s/o SR 316	0.90%
SR 752 e/o Long St	2.00%
Long St n/o SR 752	2.20%
SR 752 w/o Long St	2.00%
Long St s/o SR 752	2.20%
W Main St e/o Cromley Rd	2.00%
SR 316 w/o Cromley Rd	2.00%

Note: The above rate was derived based on planning level analysis by using MORPC's regional travel demand model.

If you have any questions, please let me know.

Thanks,

HWASHIK JANG

Senior Planner, Mid-Ohio Regional Planning Commission

T: 614.233.4145 | hjang@morpc.org

111 Liberty Street, Suite 100 | Columbus, OH 43215



Given continued concerns and rapidly changing conditions due to COVID-19, MORPC offices are currently open to the public, but on a limited basis for preplanned meetings. In taking such steps, we are protecting the health and safety of our staff, members, and the general public. During this time, MORPC will continue to provide services to our members and community partners remotely. For updates and other information visit our website at www.morpc.org/covid19. Thank you for your patience and understanding as we navigate through these unique challenges.

From: Andy Comer <Andy@tmsengineers.com>
Sent: Friday, March 4, 2022 1:16 PM
To: Hwashik Jang <hjang@morpc.org>
Subject: Proposed DHL Facility TIS - Ashville, Pickaway County, Ohio

Hwashik,

We have been contracted to prepare a Traffic Impact Study for a proposed DHL facility in Ashville, Pickaway County, Ohio. The project is expected to consist of 7 warehouse/spec buildings. The development is proposed with access along SR 752 and SR 316 east of US 23. The SR 752 access is proposed for both car and truck traffic. The SR 316 access will be a car access only. Attached please find a "Project Location Map" detailing the development location. We are providing the following information in order to request a traffic growth rate for the study area roadways (US 23/SR 752/SR 316):

1. Traffic Data – We collected traffic data at five locations as determined with ODOT, Asheville, and South Bloomfield. See attached "Traffic Count Data". Included with the traffic data please find a map detailing the count locations and summary of the peak hour data.
2. Open Year & Design Year – Opening Year 2023 & Design Year 2043
3. Roadway Network Assumptions – The TIS will determine traffic and lane use at the proposed access locations and if any additional improvements are needed at the existing intersections.
4. Land Use Assumptions – The attached "Project Site Plan" includes a breakdown of each development building and the site plans for the development. The trip generation for the development will be based on site specific data.
5. Project Review Contact Person – The project will be reviewed by ODOT, District 6. We had a project scoping meeting with ODOT, District 6 on February 9, 2022. Our contact at ODOT District 6 is currently Andrew Hurst. We have also been in contact with the Village of Ashville engineer – Christopher Tebbe.

Please let me know if you have any questions or if there is any additional information you require to determine a traffic growth rate for the project study area.

Thank you,
Andy

Andrew B. Comer, P.E.

TMS Engineers, Inc.

2112 Case Parkway South #7
Twinsburg, Ohio 44087
T: (330) 686-6402
F: (330) 686-6417

Appendix I

ODOT Peak Hour to Design Hour Chart

PEAK HOUR to DESIGN HOUR FACTORS
FUNCTIONAL CLASSIFICATION = 03, 04, 05u
 (Urban Principal Arterial, Urban Minor Arterial, & Urban Minor Collector)

Day Month		Monthly Average by Day-of-Week							
		WEEKDAY MON-THUR	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		0	1	2	3	4	5	6	7
January	1	1.20	1.72	1.22	1.21	1.20	1.17	1.15	1.56
February	2	1.17	1.63	1.19	1.16	1.17	1.16	1.11	1.48
March	3	1.15	1.57	1.16	1.16	1.16	1.13	1.11	1.45
April	4	1.11	1.52	1.13	1.12	1.09	1.09	1.06	1.41
May	5	1.08	1.44	1.10	1.09	1.08	1.06	1.04	1.35
June	6	1.14	1.51	1.16	1.15	1.14	1.11	1.09	1.39
July	7	1.16	1.54	1.19	1.17	1.15	1.15	1.13	1.44
August	8	1.13	1.51	1.15	1.14	1.13	1.11	1.08	1.40
September	9	1.12	1.53	1.15	1.11	1.12	1.09	1.04	1.40
October	10	1.10	1.53	1.13	1.10	1.10	1.08	1.05	1.40
November	11	1.13	1.56	1.16	1.12	1.13	1.11	1.06	1.48
December	12	1.13	1.58	1.14	1.13	1.12	1.12	1.09	1.44

peak hour volume * factor = design hour volume

source: year 2016, 2017, & 2018 Automatic Traffic Recorders (ATR) Data

ATR Stations:

2018: 21, 28, 123, 131, 134, 166, 169, 517, 523, 543, 544, 550,
565, 605, 765

2017: 21, 123, 523, 538, 543, 544, 550, 565, 605, 725, 765, 28,
134, 169, 517, 131, 166

Ohio Department of Transportation

Modeling & Forecasting Section

June 2019

NOTE: These are NOT seasonal adjustment factors!!!

Note: Insufficient data exists to produce factors for functional classes 06 and 07 Urban.

Appendix J

Background Traffic Volume Forecast Calculations

WORKSHEET FOR NO BUILD VEHICULAR TRAFFIC VOLUME CALCULATIONS

SR 752 & US 23 021722

	S. Walnut St. (US 23)										S. Walnut St. (US 23)										SR 752										TOTAL EAST WEST		TOTAL ALL DIREC.	
	FROM NORTH					FROM SOUTH					TOTAL NORTH SOUTH					FROM EAST					FROM WEST					TOTAL EAST WEST	TOTAL ALL DIREC.							
	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Bus	Left	Thru	Right	Total	Bus									
2022	Raw	81	756	0	837	0	1227	185	1412							62	0	65	127		0	0	0	0		127	2376							
COVID	Feater	1,000	1,000	1,000		1,000	1,000	1,000								1,000	1,000	1,000			0,000	0,000	0,000											
2022	Adjusted	81	756	0	837	0	1227	185	1412							62	0	65	127		0	0	0	0		127	2376							
DHV	Feater	1,156	1,156	1,156		1,156	1,156	1,156								1,156	1,156	1,156			1,000	1,000	1,000											
2022	No Build	94	874	0	968	0	1419	214	1633							72	0	75	147		0	0	0	0		147	2748							
Growth	Feater	0,009	0,009	0,009		0,009	0,009	0,009								0,020	0,020	0,020			0,000	0,000	0,000											
2024	Adj +Growth+DHV	95	890	0	985	0	1445	218	1662							75	0	78	153		0	0	0	0		153	2800							
Opening Year	Round	100	890	0	990	0	1440	220	1660							70	0	80	150		0	0	0	0		150	2800							
2030	Adj +Growth+DHV	100	937	0	1038	0	1521	229	1750							83	0	87	170		0	0	0	0		170	2959							
Build Year	Round	100	940	0	1040	0	1520	230	1750							80	0	90	170		0	0	0	0		170	2960							
2044	Adj +Growth+DHV	112	1047	0	1160	0	1700	256	1956							103	0	108	211		0	0	0	0		211	3327							
Design Year	Round	110	1050	0	1160	0	1700	260	1960							100	0	110	210		0	0	0	0		210	3330							
2022	Raw	95	1338	0	1433	0	826	142	968							132	0	66	198		0	0	0	0		198	2599							
COVID	Feater	1,000	1,000	1,000		1,000	1,000	1,000								1,000	1,000	1,000			0,000	0,000	0,000											
2022	Adjusted	95	1338	0	1433	0	826	142	968							132	0	66	198		0	0	0	0		198	2599							
DHV	Feater	1,156	1,156	1,156		1,156	1,156	1,156								1,156	1,156	1,156			1,000	1,000	1,000											
2022	No Build	110	1547	0	1657	0	955	164	1119							153	0	76	229		0	0	0	0		229	3006							
Growth	Feater	0,009	0,009	0,009		0,009	0,009	0,009								0,020	0,020	0,020			0,000	0,000	0,000											
2024	Adj +Growth+DHV	112	1575	0	1687	0	972	167	1140							159	0	79	238		0	0	0	0		238	3006							
Opening Year	Round	110	1580	0	1690	0	970	170	1140							160	0	80	240		0	0	0	0		240	3006							
2030	Adj +Growth+DHV	118	1659	0	1777	0	1024	176	1200							177	0	89	266		0	0	0	0		266	3242							
Build Year	Round	120	1660	0	1780	0	1020	180	1200							180	0	90	270		0	0	0	0		270	3250							
2044	Adj +Growth+DHV	132	1854	0	1985	0	1144	197	1341							220	0	110	330		0	0	0	0		330	3656							
Design Year	Round	130	1850	0	1980	0	1140	200	1340							220	0	110	330		0	0	0	0		330	3650							

AM PEAK

PM PEAK

WORKSHEET FOR NO BUILD VEHICULAR TRAFFIC VOLUME CALCULATIONS

S. Walnut St & Ashville Rd + Northrup Dr 030122

	S. Walnut St. (US 23)						S. Walnut St. (US 23)						Ashville Rd. (SR 316)						Northrup Ave. FROM WEST						TOTAL EAST WEST	TOTAL ALL DIREC.
	FROM NORTH			FROM SOUTH			FROM NORTH			FROM SOUTH			FROM EAST			FROM WEST			TOTAL EAST WEST	TOTAL ALL DIREC.						
	Left	Thru	Right	Trk	Bus	Total	Left	Thru	Right	Trk	Bus	Total	Left	Thru	Right	Trk	Bus	Total			Left	Thru	Right	Trk		
2022	Raw	65	740	18	823		52	1163	39	1254		61	42	117	220		116	56	44	216					436	2513
COVID	Factor	1.000	1.000	1.000			1.000	1.000	1.000			1.000	1.000	1.000			1.000	1.000	1.000							
2022	Adjusted	65	740	18	823		52	1163	39	1254		61	42	117	220		116	56	44	216					436	2513
DHV	Factor	1.158	1.158	1.158			1.158	1.158	1.158			1.158	1.158	1.158			1.158	1.158	1.158							
2022	No Build	75	857	21	953		60	1346	45	1452		71	49	135	255		134	65	51	250					505	2909
Growth	Factor	0.010	0.010	0.010			0.009	0.009	0.009			0.020	0.020	0.020			0.020	0.020	0.020							
2024	Adj +Growth+DHV	77	874	21	972		61	1371	46	1478		73	51	141	265		140	67	53	260					525	2975
Opening Year	Round	80	870	20	970		60	1370	50	1480		70	50	140	260		140	70	50	260					520	2970
2030	Adj +Growth+DHV	81	925	23	1029		65	1443	48	1556		82	56	157	295		156	75	59	290					586	3171
Build Year	Round	80	930	20	1030		60	1440	50	1550		80	60	160	300		160	80	60	300					600	3180
2044	Adj +Growth+DHV	92	1045	25	1162		72	1613	54	1739		102	70	195	367		193	93	73	360					727	3628
Design Year	Round	90	1050	30	1170		70	1610	50	1730		100	70	200	370		190	90	70	350					720	3620
2022	Raw	83	1490	58	1631		48	862	34	944		67	68	60	195		70	78	108	256					451	3026
COVID	Factor	1.000	1.000	1.000			1.000	1.000	1.000			1.000	1.000	1.000			1.000	1.000	1.000							
2022	Adjusted	83	1490	58	1631		48	862	34	944		67	68	60	195		70	78	108	256					451	3026
DHV	Factor	1.158	1.158	1.158			1.158	1.158	1.158			1.158	1.158	1.158			1.158	1.158	1.158							
2022	No Build	96	1725	67	1888		56	998	39	1093		78	79	69	226		81	90	125	296					522	3503
Growth	Factor	0.010	0.010	0.010			0.009	0.009	0.009			0.020	0.020	0.020			0.020	0.020	0.020							
2024	Adj +Growth+DHV	98	1759	68	1926		57	1016	40	1113		81	82	72	235		84	94	130	308					543	3582
Opening Year	Round	100	1760	70	1930		60	1020	40	1120		80	80	70	230		80	90	130	300					530	3580
2030	Adj +Growth+DHV	104	1863	73	2039		60	1070	42	1172		90	91	81	262		94	105	145	344					606	3817
Build Year	Round	100	1860	70	2030		60	1070	40	1170		90	90	80	260		90	100	150	340					600	3800
2044	Adj +Growth+DHV	117	2104	82	2304		67	1196	47	1309		112	113	100	325		117	130	180	427					752	4365
Design Year	Round	120	2100	80	2300		70	1200	50	1320		110	110	100	320		120	130	180	430					750	4370

AM PEAK

PM PEAK

WORKSHEET FOR NO BUILD VEHICULAR TRAFFIC VOLUME CALCULATIONS

SR 752 & Ashville Pike + Long St 021622

	Ashville Pike												Long Street (SR 316)			TOTAL NORTH SOUTH			SR 752						TOTAL EAST WEST		TOTAL ALL DIREC.						
	FROM NORTH						FROM SOUTH						FROM SOUTH			FROM EAST			FROM WEST			EAST	WEST										
	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Trk	Bus	Left	Thru	Right	Total	Left	Thru	Right	Total	Trk			Bus									
2022	Raw	147	41	62	250							44	116	61	221							30	82	57	169	46	164	24	234			403	874
COVID	Factor	1.000	1.000	1.000	1.000							1.000	1.000	1.000	1.000							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				
2022	Adjusted	147	41	62	250							44	116	61	221							30	82	57	169	46	164	24	234			403	874
DHV	Factor	1.171	1.171	1.171	1.171							1.171	1.171	1.171	1.171							1.171	1.171	1.171	1.171	1.171	1.171	1.171	1.171				
2022	No Build	172	48	73	293							52	136	71	259							35	96	67	198	54	192	28	274			472	1023
Growth	Factor	0.022	0.022	0.022	0.022							0.022	0.022	0.022	0.022							0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020				
2024	Adj +Growth+DHV	180	50	76	306							54	142	75	270							37	100	69	206	56	200	29	285	491		1066	
Opening Year	Round	180	50	80	310							50	140	70	260							40	100	70	210	60	200	30	290	500		1070	
2030	Adj +Growth+DHV	202	56	85	344							61	160	84	304							41	111	77	229	62	223	33	318	547		1196	
Build Year	Round	200	60	90	350							60	160	80	300							40	110	80	230	60	220	30	310	540		1190	
2044	Adj +Growth+DHV	255	71	108	434							76	202	106	384							51	138	96	285	78	276	40	394	679		1498	
Design Year	Round	260	70	110	440							80	200	110	390							50	140	100	290	80	280	40	400	690		1520	
2022	Raw	67	186	92	345							38	107	55	200							70	122	77	269	72	135	51	258	527		1072	
COVID	Factor	1.000	1.000	1.000	1.000							1.000	1.000	1.000	1.000							1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000				
2022	Adjusted	67	186	92	345							38	107	55	200							70	122	77	269	72	135	51	258	527		1072	
DHV	Factor	1.171	1.171	1.171	1.171							1.171	1.171	1.171	1.171							1.171	1.171	1.171	1.171	1.171	1.171	1.171	1.171				
2022	No Build	78	218	108	404							44	125	64	234							82	143	90	315	84	158	60	302	617		1255	
Growth	Factor	0.022	0.022	0.022	0.022							0.022	0.022	0.022	0.022							0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020				
2024	Adj +Growth+DHV	82	227	112	422							46	131	67	244							85	149	94	327	88	164	62	314	642		1308	
Opening Year	Round	80	230	110	420							50	130	70	250							90	150	90	330	90	160	60	310	640		1310	
2030	Adj +Growth+DHV	92	256	127	475							52	147	76	275							95	166	105	365	98	183	69	350	716		1466	
Build Year	Round	90	260	130	480							50	150	80	280							100	170	100	370	100	180	70	350	720		1480	
2044	Adj +Growth+DHV	116	323	160	599							66	186	96	347							118	206	130	453	121	228	86	435	888		1835	
Design Year	Round	120	320	160	600							70	190	100	360							120	210	130	460	120	230	90	440	900		1860	

AM PEAK

PM PEAK

