MEMO

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

VIA EMAIL mjdemil@statewide-mgt.com

To:	**Statewide Vandyke, LLC**
From:	**Mary Flanagan, PE** **Fleis & VandenBrink Engineering**
Date:	**June 22, 2026**
Re:	**4436 Rolston Road – Residential Development** **Fenton Township, Michigan** **Traffic Impact Study**

1 INTRODUCTION

This memorandum presents the results of the Traffic Impact Study (TIS) for the proposed residential development in Fenton Township, Michigan. The project site is generally located in the northeast quadrant of the Rolston Road & Ripley Road intersection, as shown in the attached **Figure 1**. The proposed development includes the construction of single-family lots, located on vacant property. Site access is proposed via one (1) full-access driveway on Ripley Road and two (2) full access driveways on Rolston Road which are both under the jurisdiction of the Genessee County Road Commission (GCRC).

The scope of work for this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, professional experience, accepted traffic engineering practice, and information published by ITE. The study analyses were completed using Synchro/SimTraffic (Version 12) traffic analysis software. Sources of data for this study include F&V subconsultant Quality Counts, LLC (QC), ITE, GCRC, and the Michigan Department of Transportation (MDOT).

2 BACKGROUND DATA

The lane use and traffic control at the study intersections is shown in the attached **Figure 2** and study roadways are further described below. For purposes of this study, driveways and minor streets were assumed to have an operating speed of 25 miles per hour (mph), unless otherwise noted.

Rolston Road runs in the east / west directions, adjacent to the south side of the project site. The study section of roadway is under the jurisdiction of GCRC, is classified as a *Major Collector*, and has a posted speed limit of 45-mph east of Ripley Road and 35-mph west of Ripley Road. The study section of Rolston Road has an Annual Average Daily Traffic (AADT) volume of approximately 2,047 (MDOT 2026) vehicles per day (vpd) and provides a typical two-lane cross-section, with one (1) lane of travel in each direction.

Ripley Road runs in the north / south directions, adjacent to the west side of the project site. The study section of roadway is under the jurisdiction of GCRC, and provides a typical two-lane cross-section, with one (1) lane of travel in each direction.

- North of Rolston Road: The study section of roadway is classified as a *Local Road* and provides a posted speed limit of 40-mph.
- South of Rolston Road: The study section of roadway is unpaved, classified as a *Major Collector,* has a posted speed limit of 25-mph, and an AADT volume of approximately 1,607 vpd (MDOT 2025).

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2.1 Existing Traffic Volumes

F&V subconsultant QC collected 11-hour (7:00 AM to 6:00 PM) Turning Movement Count (TMC) data on Wednesday, June 3, 2026, at the **Rolston Road & Ripley Road** study intersection. During the collection of the TMC data, Peak Hour Factors (PHFs), pedestrian and bicycle volumes, and commercial truck percentages were recorded and used in the traffic analysis. The weekday AM and PM peak hours for the adjacent study roadway network were observed to occur between 7:30 AM to 8:30 AM and 3:45 PM to 4:45 PM, respectively.

The peak hours of the study intersection were utilized, and the traffic volumes were carried through the proposed site driveways. The existing 2026 peak hour traffic volumes used in the analysis are shown in the attached **Figure 3**. All applicable background data referenced in this memorandum is attached.

3 Existing Conditions (2026)

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the Rolston Road & Ripley Road study intersection using Synchro/SimTraffic (Version 12) traffic analysis software. The study analyses were based on the existing lane use and traffic control shown in the attached **Figure 2**, the existing peak hour traffic volumes shown in the attached **Figure 3**, and the methodologies presented in the *Highway Capacity Manual 7th, Edition* (HCM7).

Descriptions of LOS "A" through "F", as defined in the HCM, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed, in order to evaluate network operations and vehicle queueing. The results for the existing conditions analysis are attached and summarized in **Table 1**.

Table 1: Existing Intersection Operations

Intersection		Control	Movement / Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Rolston Road & Ripley Road	Stop (Minor)	EBL	7.5	A	7.5	A
			WBL	0.0*	A	7.4	A
			NB Approach	**10.0**	**B**	**10.2**	**B**
			SB Approach	**9.9**	**A**	**10.0**	**B**

**Indicates no vehicle volume present*

The result of the existing conditions analysis indicates that all approaches and movements are currently operating acceptably, at LOS D or better, during both the AM and PM peak hours. Review of SimTraffic microsimulations also indicates acceptable operations during both peak hours, with minimal vehicle queueing observed.

4 Background Conditions (2031)

4.1 Background Growth

Population growth data was obtained from the American Community Survey (ACS) and reviewed for Fenton Township, in order to calculate an annual background growth rate to project the existing 2026 peak hour traffic volumes to the site buildout year of 2031. Population census data for Fenton Township indicates an average annual growth rate of approximately 0.75% per year.

In addition to the background traffic growth, it is important to account for traffic that will be generated by approved developments within the vicinity of the study area, which are currently under construction or will be constructed prior to the site buildout year of 2031. At the time of this study, no approved background developments were identified within the vicinity of the project site. Therefore, a conservative annual background growth rate of **1.0%** per year was applied to the existing 2026 peak hour traffic volumes, in order to forecast the background 2031 peak hour traffic volumes, ***without the proposed development***, as shown in the attached **Figure 4**.

4.2 Background Intersection Operations

Background peak hour vehicle delays and LOS were calculated based on the existing lane use and traffic control shown in the attached **Figure 2**, the background peak hour traffic volumes shown in the attached **Figure 4**, and the methodologies presented in the HCM7. The results of the background conditions analysis are attached and summarized in **Table 2**.

Table 2: Background Intersection Operations

Intersection		Control	Movement / Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Rolston Road & Ripley Road	Stop (Minor)	EBL	7.5	A	7.5	A	7.5	A	7.5	A	0.0	-	0.0	-
			WBL	0.0*	A	7.4	A	0.0*	A	7.4	A	0.0	-	0.0	-
			NB Approach	**10.0**	**B**	**10.2**	**B**	**10.1**	**B**	**10.3**	**B**	**0.1**	**-**	**0.1**	**-**
			SB Approach	**9.9**	**A**	**10.0**	**B**	**9.9**	**A**	**10.1**	**B**	**0.0**	**-**	**0.1**	**-**

**Indicates no vehicle volume present*

The results of the background conditions analysis indicates that all approaches and movements at the study intersections will continue to operate acceptable, in a manner similar to the existing conditions analysis. Review of SimTraffic microsimulations indicates acceptable operations, similar to those observations made during existing conditions, with only minor increases in vehicle queues.

5 Site Trip Generation

5.1 Site Trip Generation

The number of weekday peak hours (AM and PM) and daily vehicle trips that would be generated by the proposed development were calculated based on information published in the *ITE Trip Generation Manual, 12th Edition*. The proposed development plan includes the construction of single-family homes. The site trip generation forecast utilized for this study is summarized in **Table 3**.

Table 3: Site Trip Generation Summary

Land Use	ITE Code	Amount	Unit	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Single-Family Detached Housing	210	111	DU	1,161	22	58	80	66	40	106

5.2 Rezoning Analysis

The proposed development plan includes the construction of single-family residential homes. As part of this project, the subject property is proposed to be conditionally rezoned from the existing AG (Agricultural Residential District) to R-3 (Single-Family Residential Medium District) under the clustered open space PUD option.

A trip generation comparison was performed to evaluate the maximum potential development plan under the existing AG zoning, compared to the development plan that would be permitted under the proposed R-3 with conditional rezoning. The maximum potential trips associated with both the existing and proposed zoning are summarized in **Table 4**.

Table 4: Rezoning Trip Generation Comparison

Zoning	Land Use	ITE Code	Size	Unit	Average Daily Traffic (vpd)	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
Existing Zoning	Single-Family Detached	210	50	DU	669	11	28	39	32	19	51
Proposed Zoning	Single-Family Detached	210	111	DU	1,161	22	58	80	66	40	106
				Difference	**492**	**11**	**30**	**41**	**34**	**21**	**55**

6 SITE TRIP DISTRIBUTION

The vehicular trips that would be generated by the proposed development were assigned to the study roadway network based on the proposed site access plan and driveway configurations, the existing peak hour traffic patterns in the adjacent roadway network, and methodologies published by ITE.

In order to determine the projected site traffic distribution, it was assumed that the existing adjacent street traffic volumes in the AM are home-to-work based trips and in the PM are work-to-home based trips. Therefore, the trip distribution assumes trips are leaving the proposed development and exiting the study roadway network during the AM peak hour, then re-entering the study roadway network and returning to the proposed development during the PM peak hour. The ITE trip distribution methodology assumes that new trips will return to their direction of origin. The site trip distribution used in the analysis is summarized in **Table 5**.

Table 5: Site Trip Distribution

To/From	Via	AM	PM
North	Ripley Road	18%	23%
South	Ripley Road	3%	1%
East	Rolston Road	41%	38%
West	Rolston Road	38%	38%
Total		**100%**	**100%**

The vehicular traffic volumes shown in **Table 3** were distributed to the study roadway network according to the distribution shown in **Table 5**. The site-generated peak hour trips shown in the attached **Figure 5** were added to the background peak hour traffic volumes shown in the attached **Figure 4**, in order to calculate the future peak hour traffic volumes, ***with the addition of the proposed development***. The future peak hour traffic volumes used in the analysis are shown in the attached **Figure 6**.

7 FUTURE CONDITIONS (2031)

7.1 INTERSECTION OPERATIONS

The future peak hour vehicle delays and LOS ***with the proposed development*** were calculated at the study intersections based on the proposed lane use and traffic control shown in the attached **Figure 2**, the future peak hour traffic volumes shown in the attached **Figure 6**, and the methodologies presented in the HCM7. The results of the future conditions analysis are attached and summarized in **Table 6**.

Table 6: Future Intersection Operations

Intersection		Control	Movement / Approach	Background Conditions				Future Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Rolston Road & Ripley Road	Stop (Minor)	EBL	7.5	A	7.5	A	7.5	A	7.6	A	0.0	-	0.1	-
			WBL	0.0*	A	7.4	A	7.4	A	7.4	A	7.4	-	0.0	-
			NB Approach	**10.1**	**B**	**10.3**	**B**	**10.5**	**B**	**11.0**	**B**	**0.4**	**-**	**0.7**	**-**
			SB Approach	**9.9**	**A**	**10.1**	**B**	**10.2**	**B**	**10.4**	**B**	**0.3**	**A→B**	**0.3**	**-**
2	Ripley Road & Site Drive #1	Stop (Minor)	**WB Approach**	N/A				**8.9**	**A**	**9.2**	**A**	N/A			
			NB Approach					**Free**							
			SBL					7.4	A	7.4	A				
3	Rolston Road & Site Drive #2	Stop (Minor)	EBL	N/A				7.5	A	7.5	A	N/A			
			WB Approach					**Free**							
			SB Approach					**9.6**	**A**	**9.9**	**A**				

Intersection		Control	Movement / Approach	Background Conditions				Future Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
4	Rolston Road & Site Drive #3	Stop (Minor)	EBL	N/A				7.5	A	7.5	A	N/A			
			WB Approach					**Free**							
			SB Approach					**9.4**	**A**	**9.6**	**A**				

**Indicates no vehicle volume present*

The results of the future conditions analysis indicates that all the study intersections are expected to continue to operate acceptably, at LOS D or better during both peak periods in a manner similar to background conditions. Review of SimTraffic microsimulations also indicates acceptable operations throughout the study roadway network. Vehicles at the stop-controlled site driveway intersections were able to find adequate gaps within the through traffic along Ripley Road and Rolston Road, without experiencing excessive vehicle queueing.

8 ACCESS MANAGEMENT

8.1 DRIVEWAY SPACING

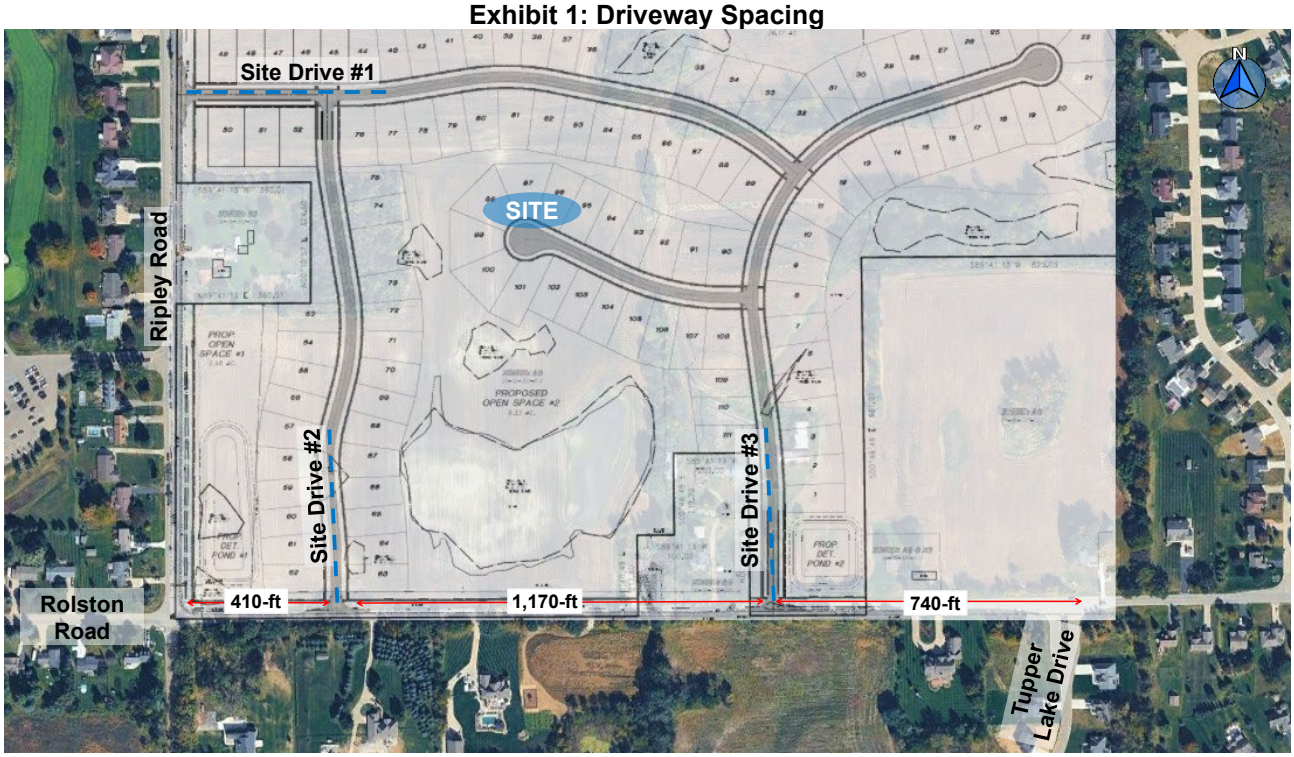
GCRC does not maintain their own driveway spacing criteria; therefore, the MDOT Geometric Design Guidance (Section 2.2) was utilized to evaluate the location of the proposed site driveways, in relation to nearby intersections and driveways within close proximity to the project site on Rolston Road. The desirable intersection corner clearance and unsignalized access spacing criteria were evaluated for the 45-mph section of Rolston Road. The distance of the proposed site driveways from nearby access points and the warranting criteria are summarized in **Table 7** and displayed in **Exhibit 1**.

Table 7: Desirable Corner Clearance Summary

Adjacent Driveways & Intersections			Distance	Criteria (45-mph)	Meets
Site Drive #2	To	Ripley Road	410 feet	230 feet	**YES**
Site Drive #2	To	Site Drive #3	1,170 feet	230 feet	**YES**
Site Drive #3	To	Tupper Lake Drive	740 feet	230 feet	**YES**

The results of the driveway spacing analysis indicates that the proposed site driveway intersections on Rolston Road are expected to meet the driveway spacing criteria in relation to nearby intersections and driveways.

Exhibit 1: Driveway Spacing



8.2 AUXILIARY LANE EVALUATION

Auxiliary left- and right-turn treatment criteria were evaluated at the proposed site driveways. GCRC does not maintain auxiliary turn lane treatment criteria; therefore, the MDOT criteria was utilized for this evaluation. This analysis was based on the future peak hour traffic volumes shown on the attached **Figure 6**; the results of the analysis are shown on the attached charts and summarized in **Table 8**.

Table 8: Auxiliary Turn Lane Evaluation Summary

Intersection	Criteria	AM Peak Hour	PM Peak Hour	Recommendation
Ripley Road & Site Drive #1	Left-Turn	No Treatment	No Treatment	**No Treatment**
	Right-Turn	No Treatment	No Treatment	**No Treatment**
Rolston Road & Site Drive #2	Left-Turn	No Treatment	No Treatment	**No Treatment**
	Right-Turn	No Treatment	No Treatment	**No Treatment**
Rolston Road & Site Drive #3	Left-Turn	No Treatment	No Treatment	**No Treatment**
	Right-Turn	No Treatment	No Treatment	**No Treatment**

The results of the auxiliary turn lane evaluation indicates that left- and right-turn treatments are **NOT** warranted at the proposed site driveways on Ripley Road and Rolston Road.

9 CONCLUSIONS

The conclusions of this TIS are as follows:

1. Existing Conditions (2026)

- The results of the existing conditions analysis indicates that all approaches and movements at the **Rolston Road & Ripley Road** study intersection are currently operating acceptable, at LOS D or better during both the AM and PM peak hours. Additionally, SimTraffic microsimulations also indicate acceptable operations.

2. Background Conditions (2031)

- A conservative annual growth rate of **1.0%** per year was utilized to project the existing 2026 traffic volumes to the buildout year of 2031. No background developments were identified within the vicinity of the study area.
- The results of the background conditions analysis indicates that all approaches and movements at the study intersection are expected to continue to operate acceptably in a manner similar to the existing conditions analysis, during both peak hours. Additionally, SimTraffic microsimulations also indicate acceptable operations.

3. Future Conditions (2031)

- The results of the future conditions analysis indicates that the study intersections are expected to continue to operate acceptably in a manner similar to the background conditions analysis, during both peak hours.
- Review of SimTraffic microsimulations also indicates acceptable operations throughout the study roadway network. Vehicles at the stop-controlled site driveway intersections were able to find adequate gaps within the through traffic along Ripley Road and Rolston Road, without experiencing excessive vehicle queueing.

4. Access Management

- Driveway Spacing Evaluation: The results of the driveway spacing analysis indicate that the proposed site driveway intersections on Rolston Road are expected to meet the driveway spacing criteria in relation to nearby intersections and driveways.
- Auxiliary Lane Evaluation: The results of the auxiliary turn lane evaluation indicate that left- and right-turn treatments are **NOT** warranted at the proposed site driveways on Ripley Road and Rolston Road.

10 SUMMARY

- The proposed development is expected to have minimal impact on the adjacent roadway network and existing infrastructure can adequately accommodate the projected trips generated by the proposed development plan. No mitigation measures are recommended as part of this project.

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

Mary Flanagan

Digitally signed by Mary Flanagan
Date: 2026.06.22 13:59:04 -04'00'

Attachments: Figures 1 – 6
Proposed Concept Plan
Traffic Volume Data
US Census Data
Synchro / SimTraffic Results
Auxiliary Turn Lane Criteria

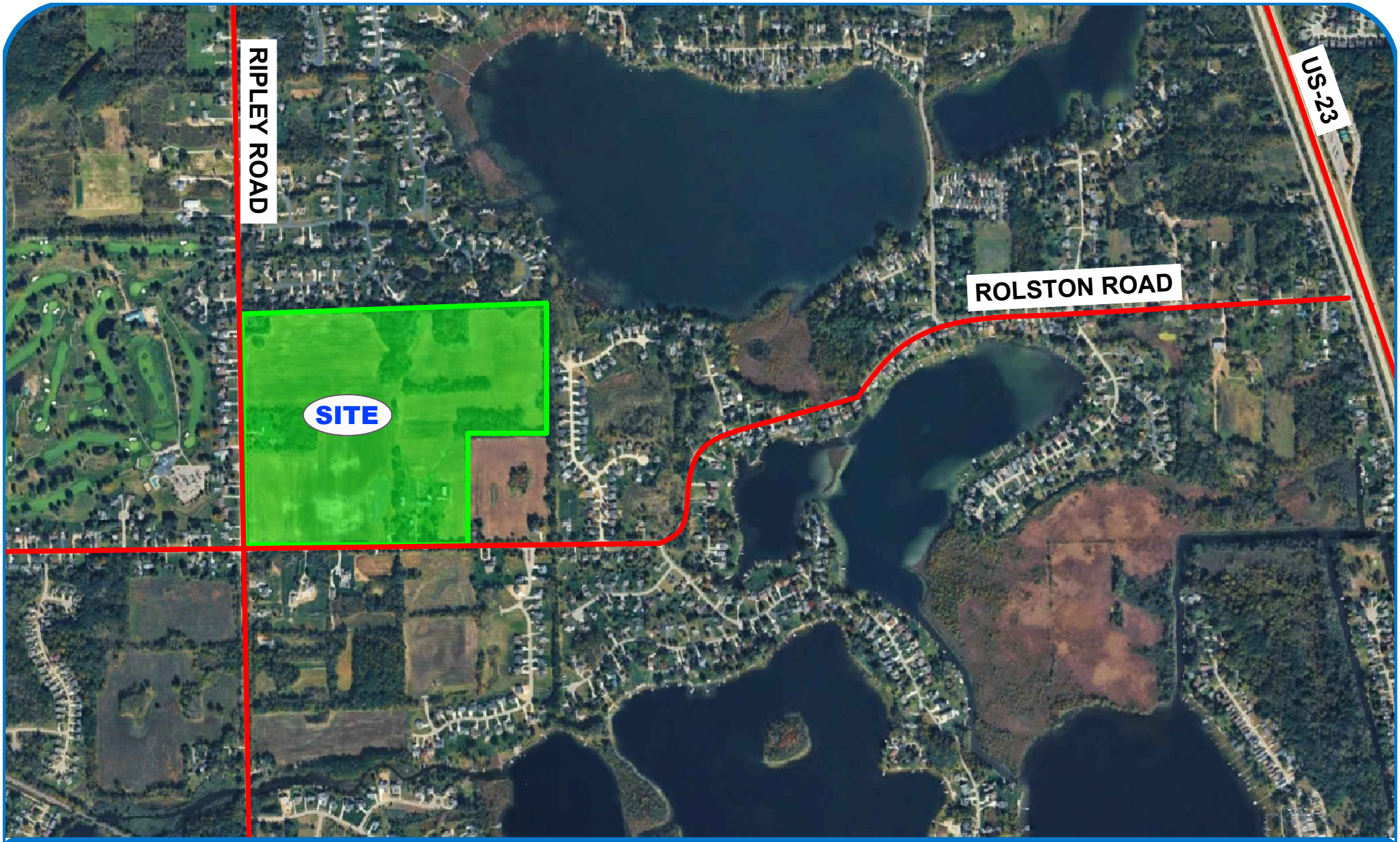


FIGURE 1

SITE LOCATION

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

SITE SITE LOCATION

NORTH

SCALE: NOT TO SCALE

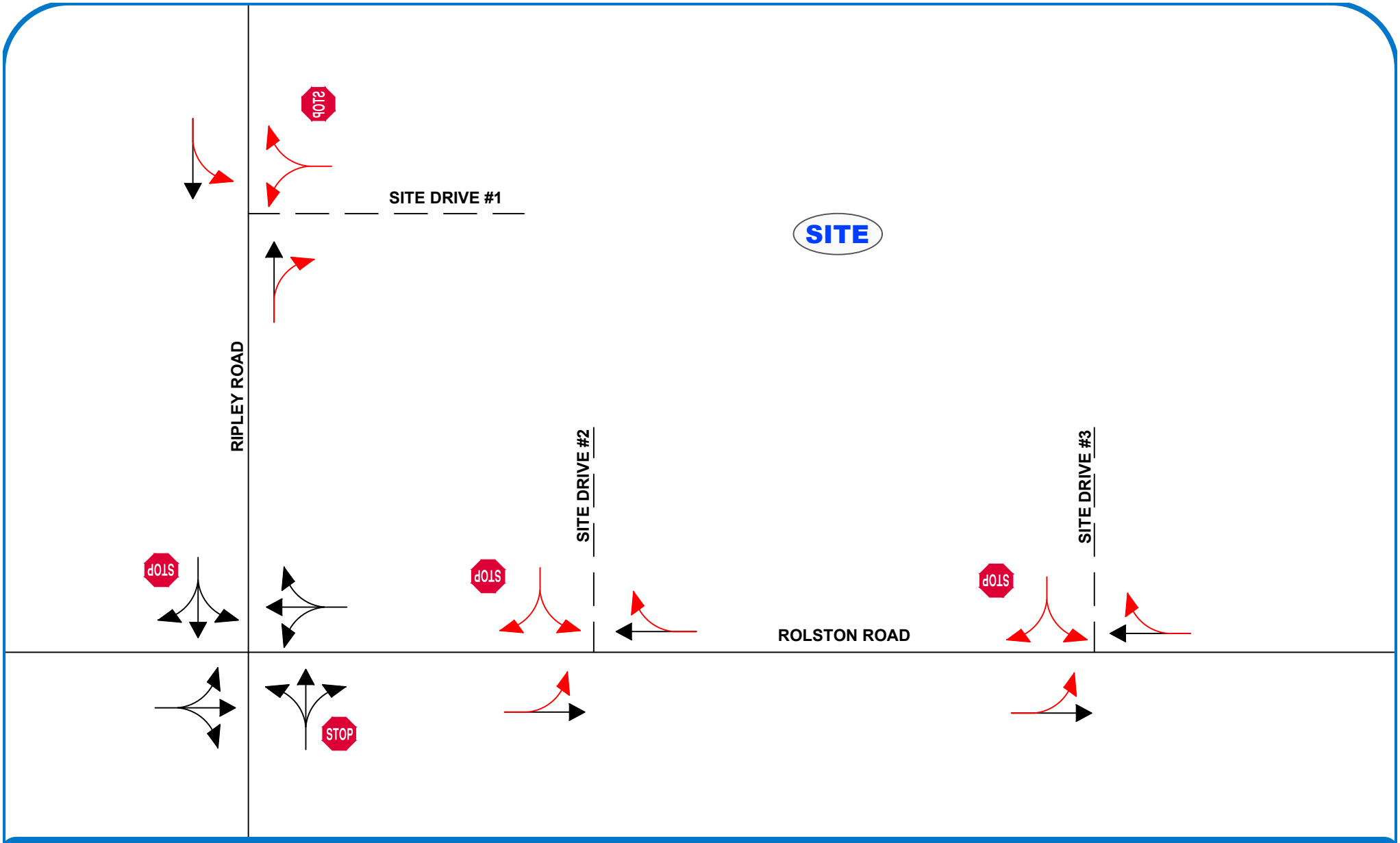


FIGURE 2

LANE USE AND TRAFFIC CONTROL

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

ROADS

PROPOSED ROADS

LANE USE

PROPOSED LANE USE

UNSIGNALIZED INTERSECTION

NORTH

SCALE: NOT TO SCALE

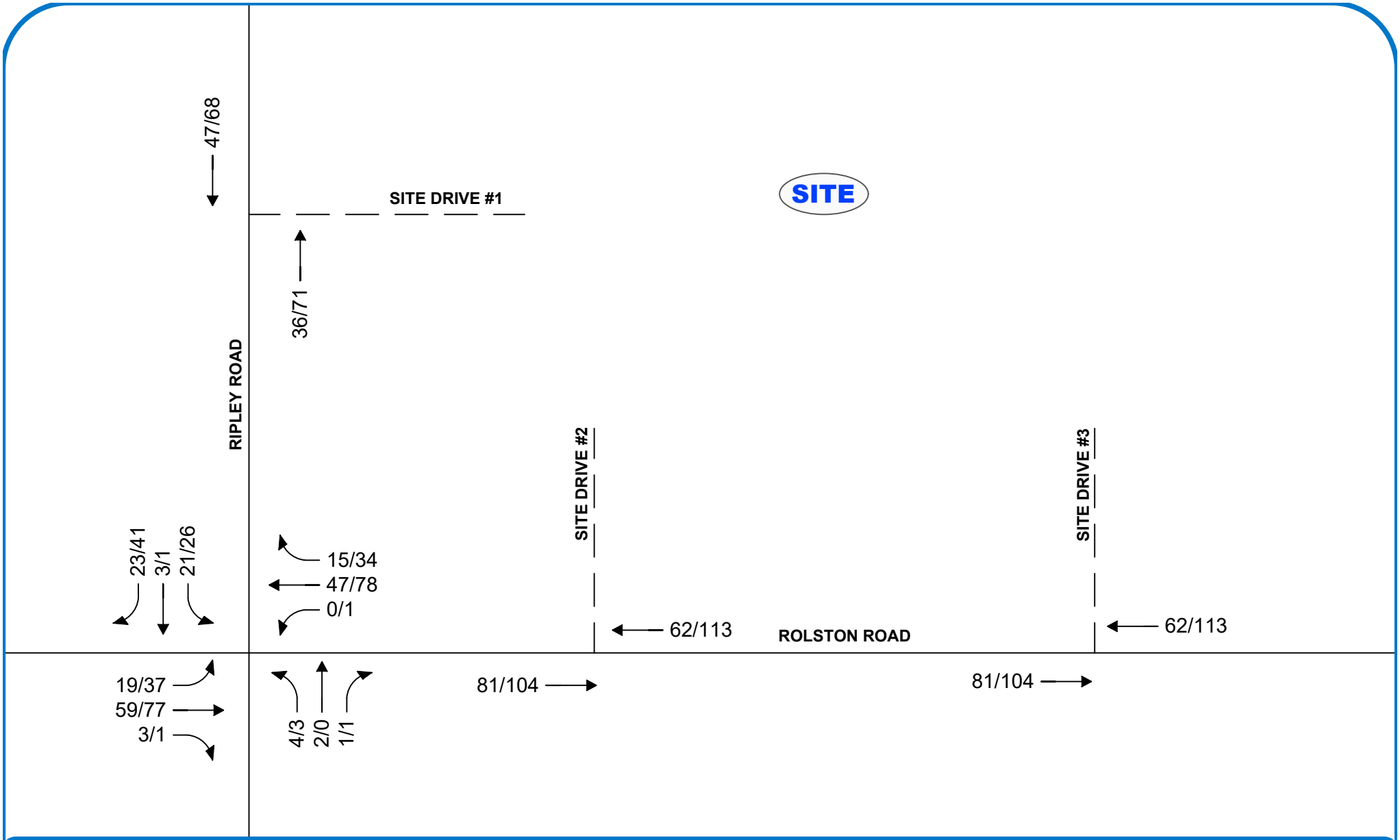


FIGURE 3

EXISTING (2026) TRAFFIC VOLUMES

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

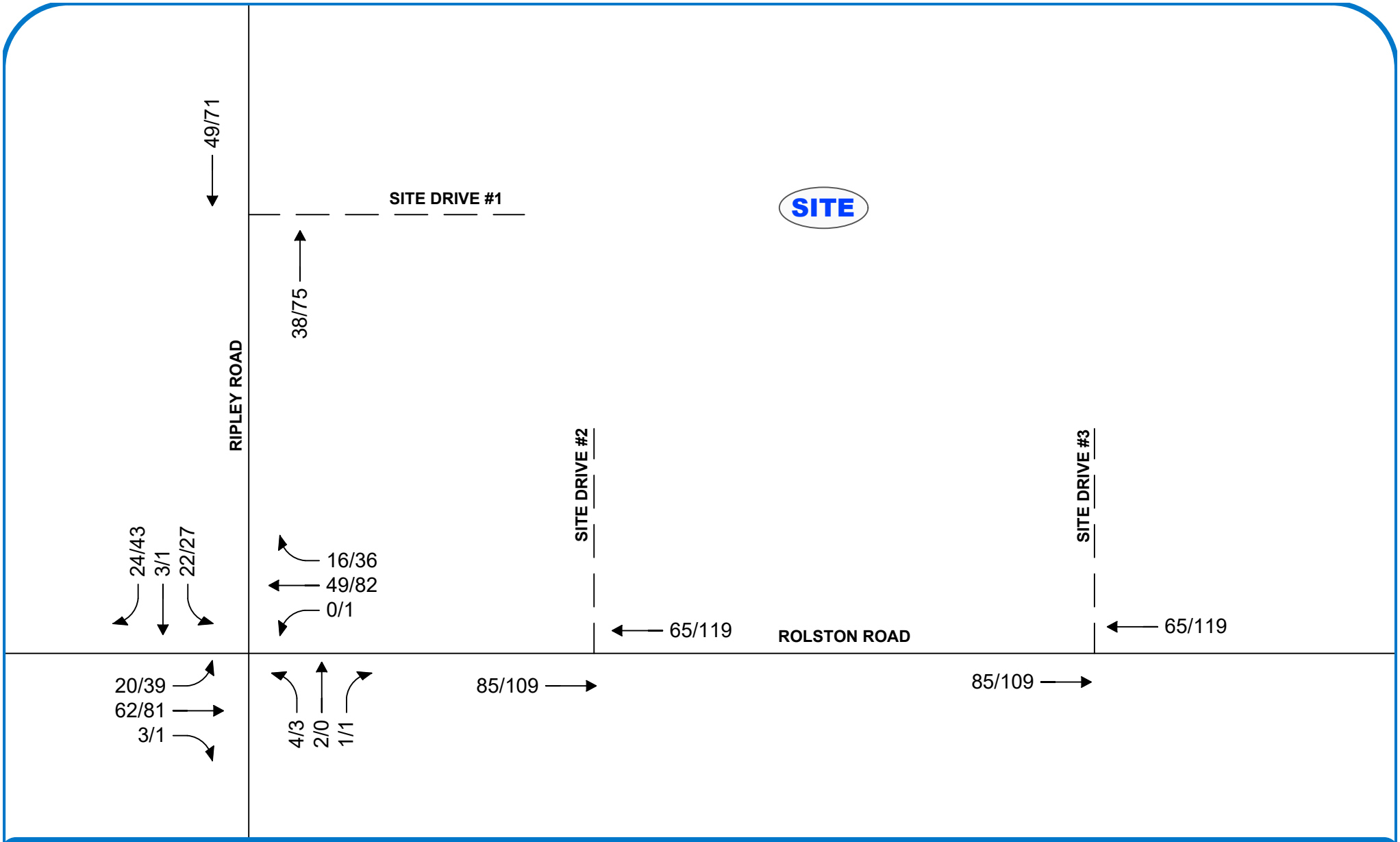


FIGURE 4
BACKGROUND (2031) TRAFFIC VOLUMES

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

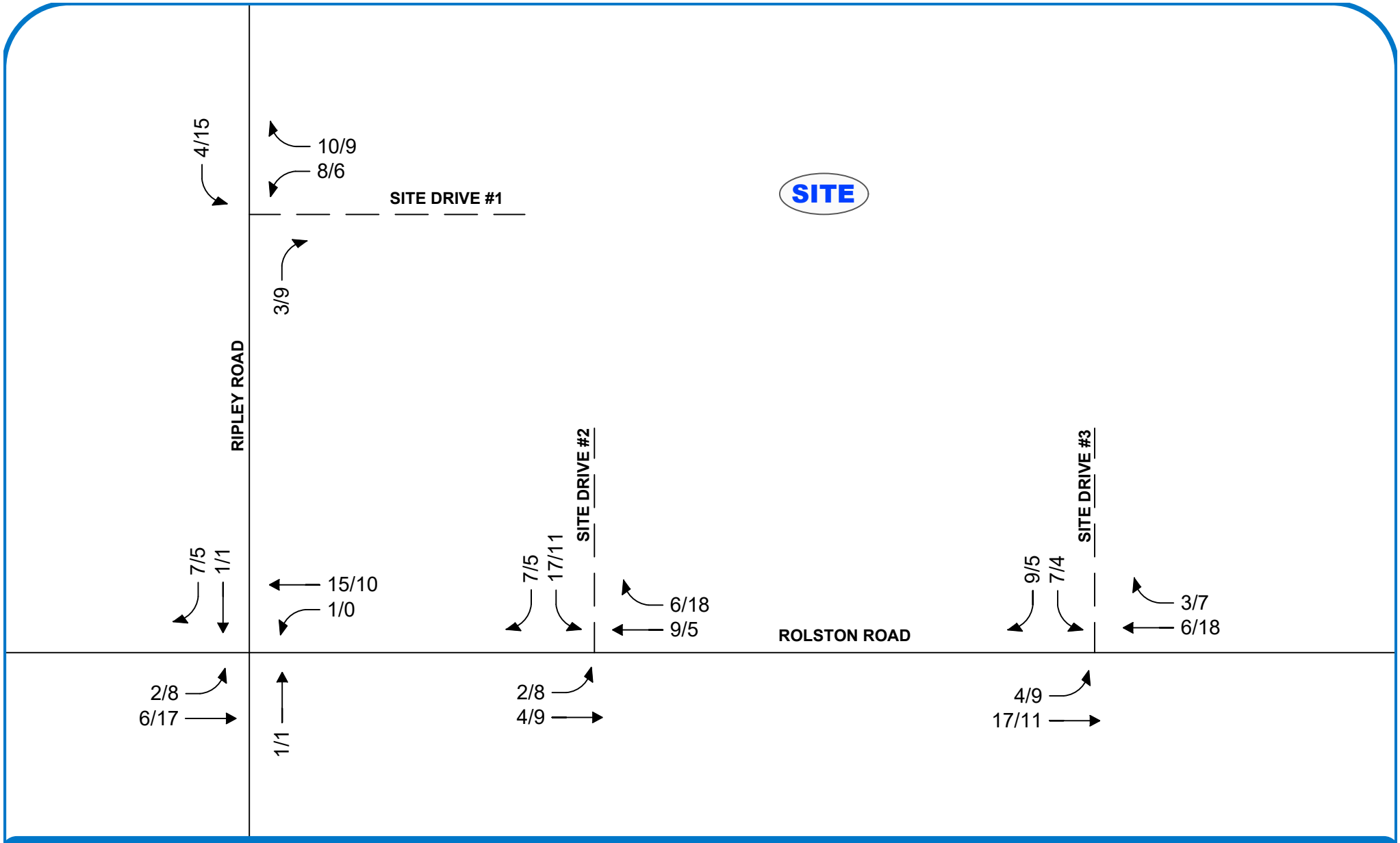


FIGURE 5

SITE-GENERATED TRAFFIC VOLUMES

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

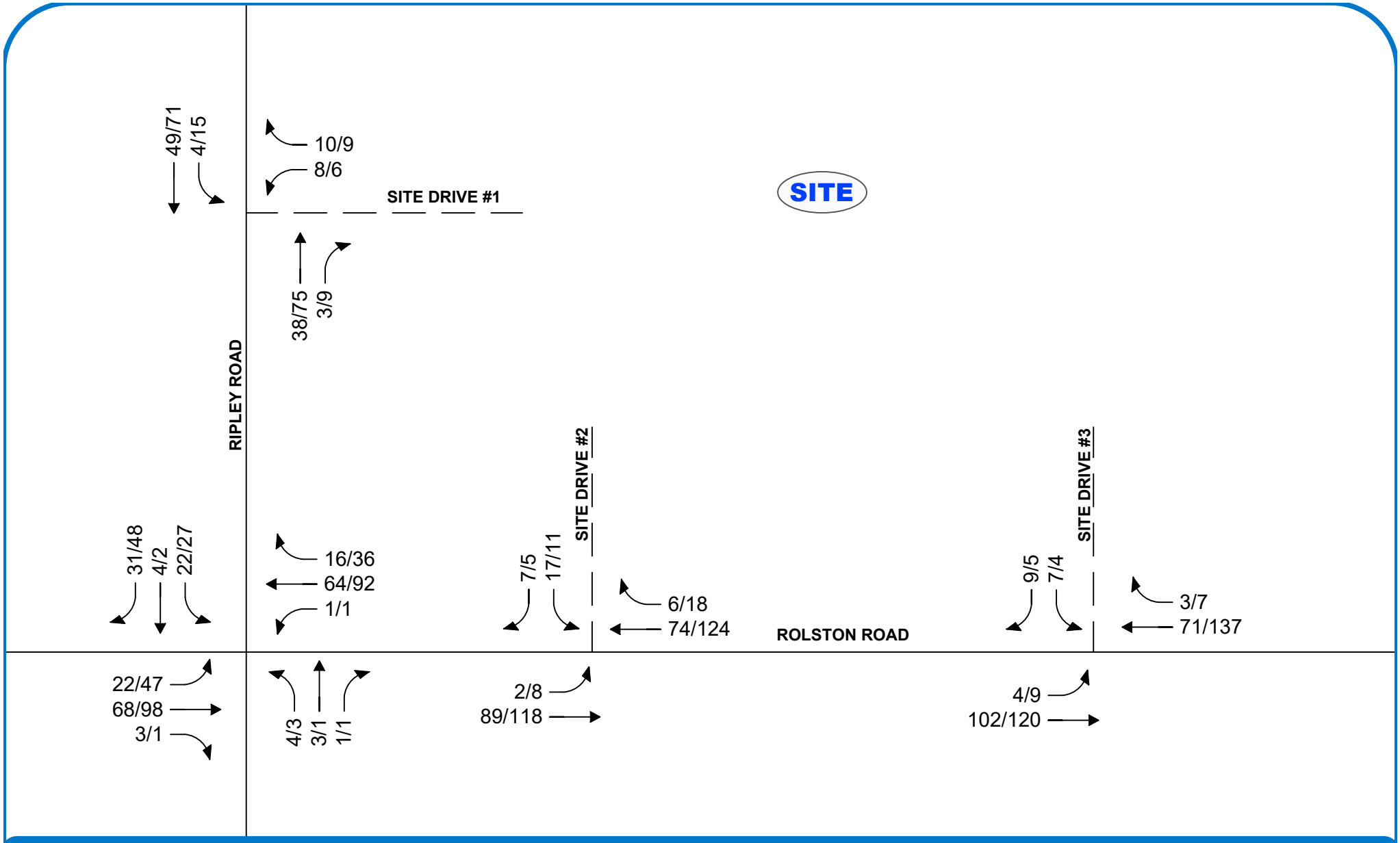


FIGURE 6

FUTURE (2031) TRAFFIC VOLUMES

4436 ROLSTON ROAD TIS - FENTON TWP, MI

LEGEND

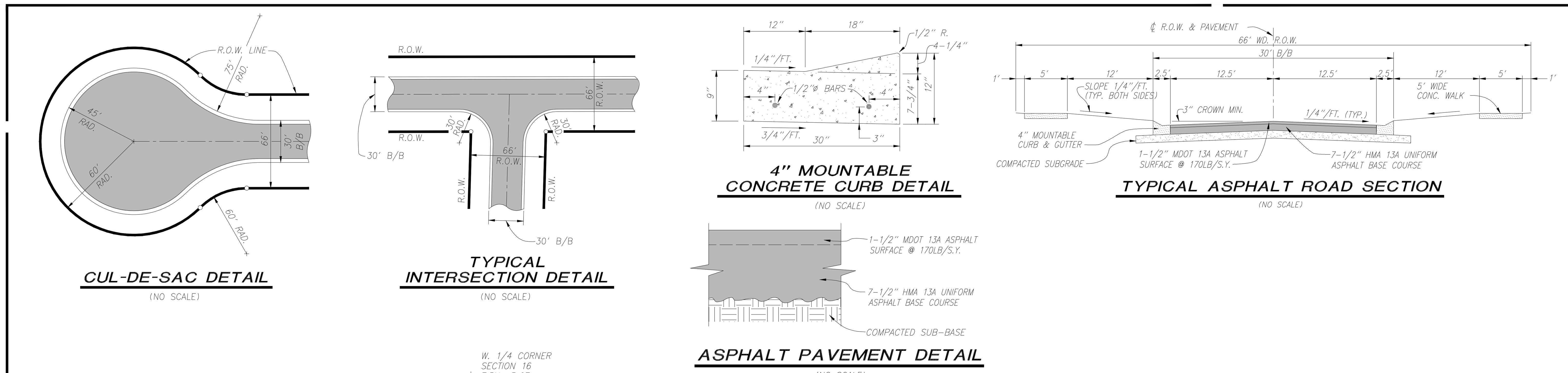
ROADS

PROPOSED ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE



NOTE:
MINIMAL HAZARD FLOOD ZONE X PER FEMA MAP

NOTE:
WETLAND DETERMINATION PERFORMED BY MARX WETLANDS LLC. REPORT DATED MAY 28, 2025

NOTE:
ALL ROADS TO BE 66 FOOT WIDE AND PUBLIC. GENESEE COUNTY ROAD COMMISSION APPROVAL IS REQUIRED.

NORTH

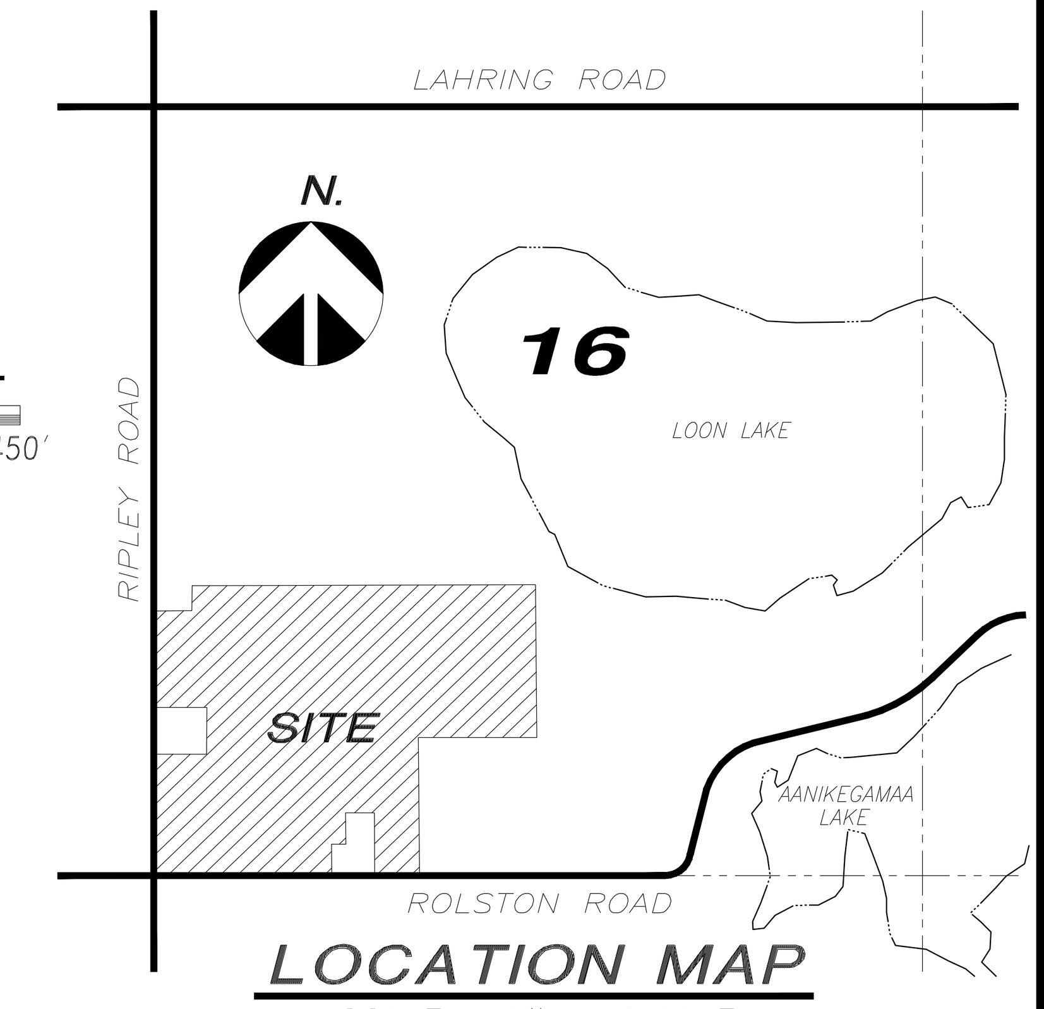
SCALE: 1"=150'

0' 75' 150' 300' 450'

BENCHMARKS

DATUM=NAVD88

1. T/HYD. @ N.E. CORNER ROLSTON RD. & RIPLEY RD.
   ELEVATION=896.42
2. T/HYD. E. SIDE RIPLEY RD. OPP. DRIVE TO GOLF COURSE
   ELEVATION=909.23
3. T/HYD. @ N.W. CORNER OF PARCEL
   ELEVATION=896.39



LOCATION MAP

SCALE: 4" = 1 MILE

PROPERTY DESCRIPTION

"As Surveyed" (Rotated to Loon Harbor Preserve and "Lakeside Acres")

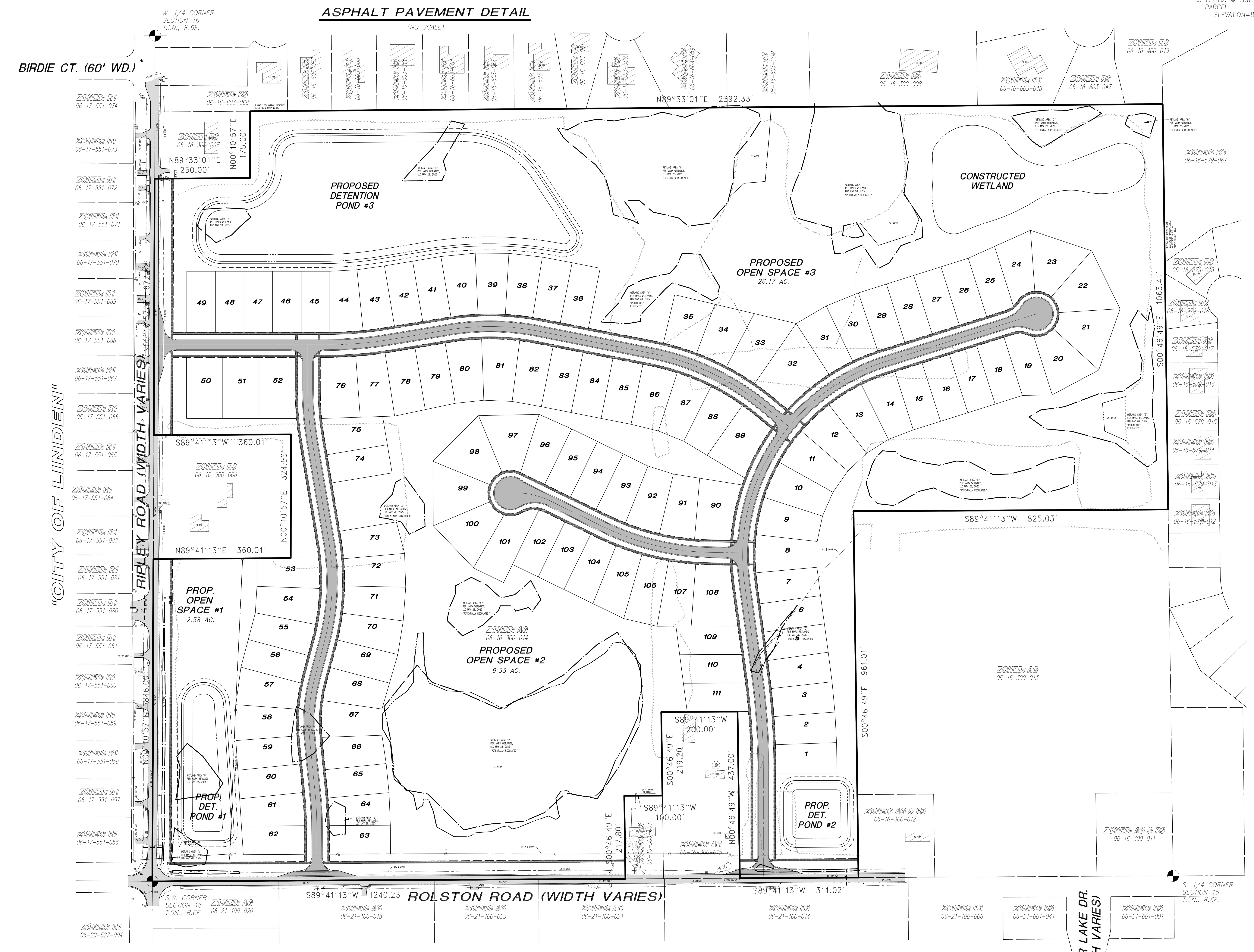
A parcel of land in the SW 1/4 of Section 16, T.05N., R.06E., Fenton Township, Genesee County, Michigan described as; Beginning at the SW corner of section 16; thence N.00°10'57"E., 846.00 feet along the west line of section 16; thence N.89°41'13"E., 360.01 feet; thence N.00°10'57"E., 324.50 feet; thence S.89°41'13"W., 360.01 feet to a point on the west line of section 16; thence along said line N.00°10'57"E., 672.62 feet; thence N.89°33'01"E., 250.00 feet; thence N.00°10'57"E., 175.00 feet to a point on the south line of "Loon Harbor Preserve," Replat No.2 of GCCP No. 203; thence along said line N.89°33'01"E., 2392.33 feet to a point on the north-south 1/4 line of section 16 and the west line of "Lakeside Acres" as recorded in Instr. No. 200212100138524 of Genesee County records; thence along said line S.00°46'49"E., 1063.41 feet; thence S.89°41'13"W., 825.03 feet; thence S.00°46'49"E., 961.01 feet to a point on the south line of section 16; thence along said line S.89°41'13"W., 311.02 feet; thence N.00°46'49"W., 437.00 feet; thence S.89°41'13"W., 200.00 feet; thence S.00°46'49"E., 219.20 feet; thence S.89°41'13"W., 100.00 feet; thence S.00°46'49"E., 217.80 feet to a point on the south line of section 16; thence along said line S.89°41'13"W., 1240.23 feet to the Point of Beginning and containing 99.000 acres. Subject to the rights of the public for highway purposes along Rolston Road, Ripley Road, and to all other easements of record.

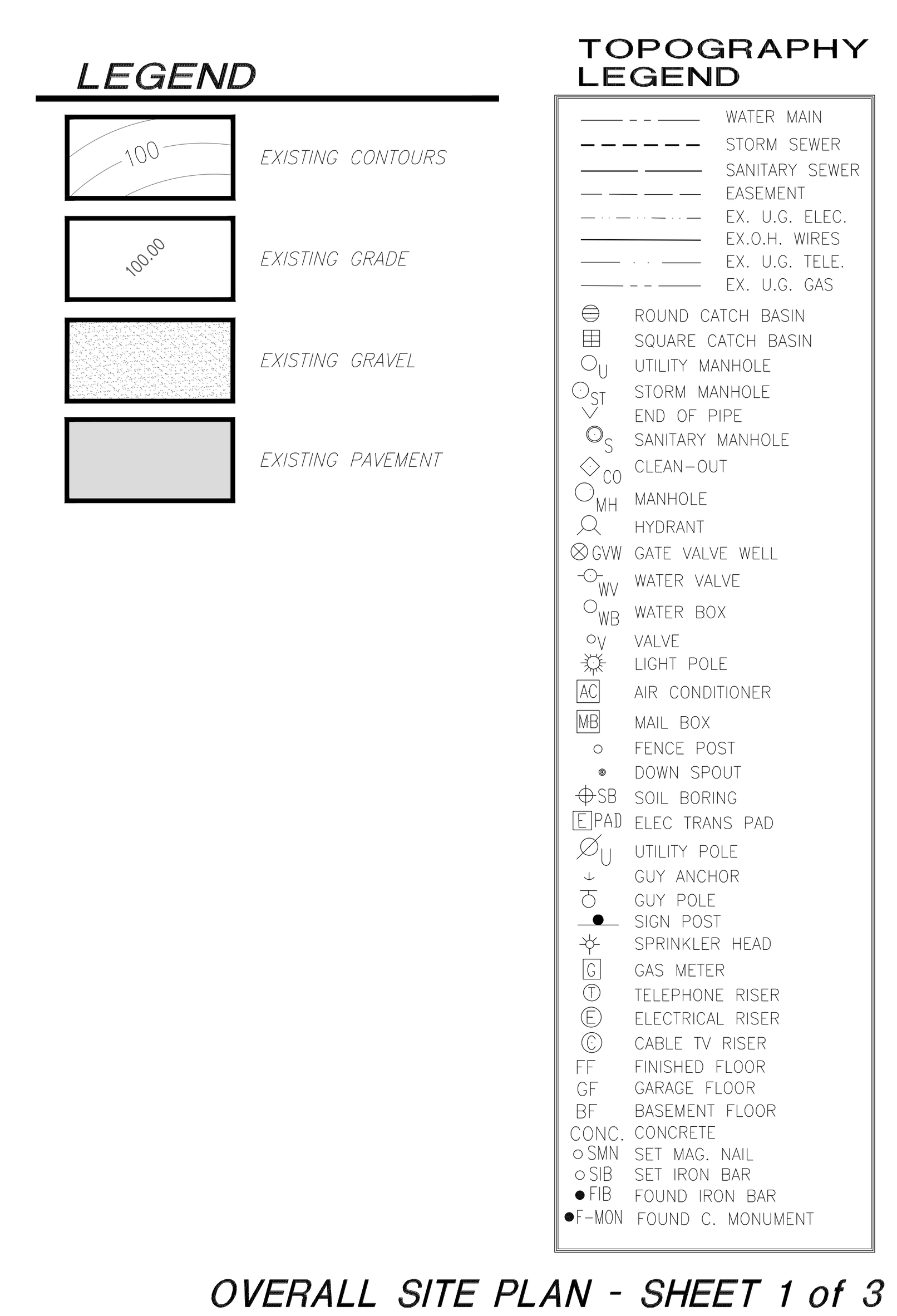
SITE CRITERIA

- PARCEL IDENTIFICATION #: 06-16-300-014
- ADDRESS: VACANT ROLSTON ROAD
- EXISTING ZONING: AG
- PROPOSED ZONING: R3
- ADJACENT ZONINGS: AG, R3, R1 (CITY OF LINDEN)
- AREA OF SITE: 99.000 ACRES
- PROPOSED USE: SINGLE FAMILY RESIDENTIAL
- PROPOSED NUMBER OF UNITS: 111 UNITS
  * ROAD RIGHTS OF WAY, WETLANDS, FLOODPLAINS OR SUBMERGED LAND SUCH AS A LAKE, POND OR STREAM SHALL BE EXCLUDED FROM THE LAND AREA CALCULATION. SEE OPEN SPACE CALCULATIONS BELOW.

OPEN SPACE and DENSITY CALCULATIONS

- TOTAL SITE AREA = 99.000 AC.
  LESS RIPLEY & ROLSTON R.O.W. (3.47 AC.)
- NET SITE AREA = 95.53 AC.
  LESS ALL WETLANDS (14.84 AC.)
- NET USEABLE SPACE = 80.69 AC.
  TOTAL DEVELOPED (LOTS & ROADS) = 42.29 AC.
  DETENTION PONDS = 5.65 AC.
  OPEN SPACE = 32.75 AC. (40.59%)
- PER R-3 CLUSTERING OPTION, 40% OPEN SPACE YIELDS 1.40 UNITS PER ACRE. (ASSUMES NO BENEFIT FROM DETENTION PONDS)
- ALLOWABLE = 80.69 x 1.40 = 112 LOTS MAXIMUM ALLOWED
- PROPOSED = 111 LOTS PROPOSED





811
KNOW WHAT'S BELOW. CALL BEFORE YOU DIG.

Contractor Note:
The locations of existing underground utilities are shown in an approximate way only. The contractor shall determine the exact location of all existing utilities before commencing work. He agrees to be fully responsible for any and all damages which might be occasioned by his failure to exactly locate and preserve any and all underground utilities.

OVERALL SITE PLAN - SHEET 1 of 3

OVERALL SITE PLAN

PART OF THE S.W. 1/4 OF SECTION 16 T.5N., R.6E., FENTON TOWNSHIP, GENESEE COUNTY, MICHIGAN

SHEET NO. 1 OF 3

BY: | ADDITIONS AND/OR REVISIONS | DATE

260344-8900 Job No.
Date 6-5-2026
Scale 1"=150'
Drawn DKZ
Check PGS
Sheet 1 OF 3
Fld. Bk.

PROPOSED SINGLE FAMILY RESIDENTIAL

FOR: MIKE DeMIL
STATEWIDE MANAGEMENT
PO BOX 480485
NEW HAVEN, MI 48048
586-270-2038

URBAN LAND CONSULTANTS ©
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
8800 23 MILE ROAD SHELBY TWP., MI 48316-4516
PHONE 586 731-8030
WWW.URBAN-LAND.COM

TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

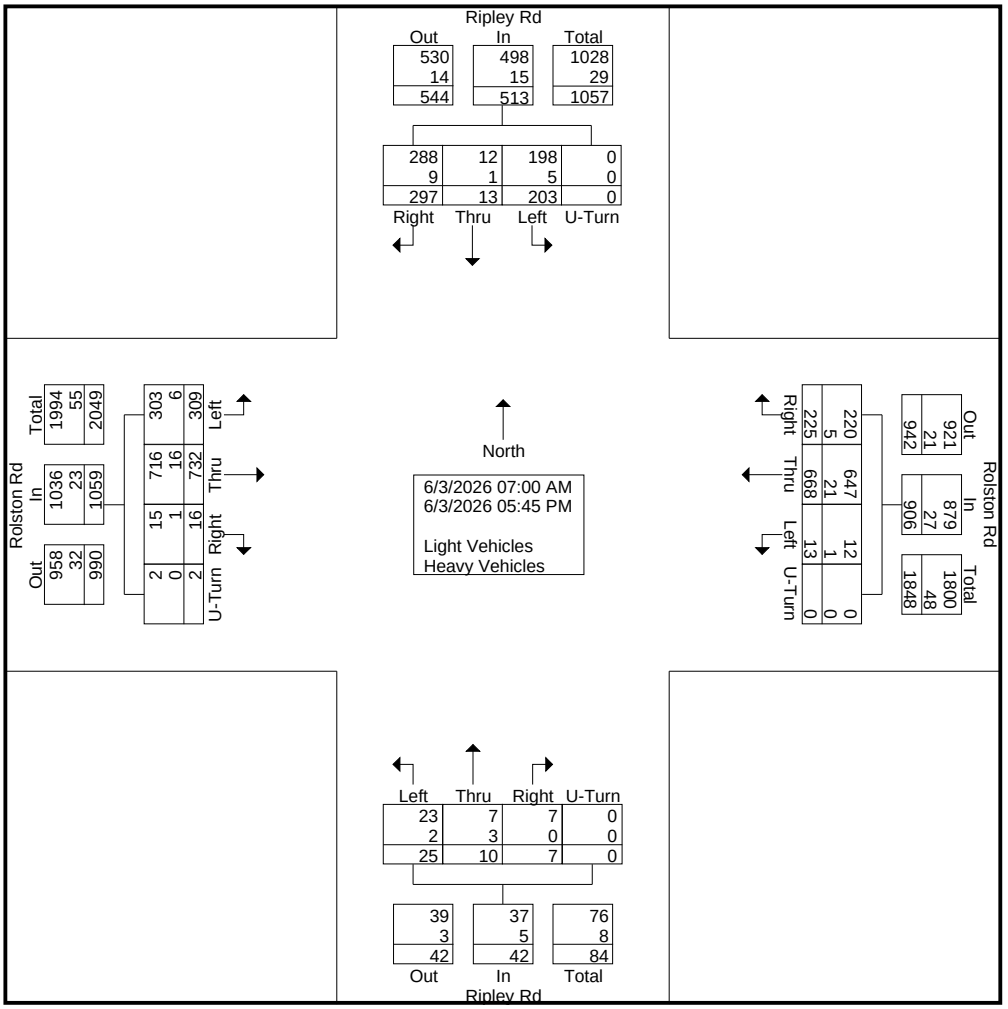
	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	4	12	0	0	16	0	13	2	0	15	1	0	0	0	1	5	0	10	0	15	47
07:15 AM	4	13	0	0	17	0	9	1	0	10	0	0	0	0	0	5	0	2	0	7	34
07:30 AM	1	14	2	0	17	0	4	2	0	6	1	1	1	0	3	8	1	7	0	16	42
07:45 AM	4	20	0	0	24	0	16	9	0	25	0	0	0	0	0	5	1	7	0	13	62
Total	13	59	2	0	74	0	42	14	0	56	2	1	1	0	4	23	2	26	0	51	185
08:00 AM	7	6	1	0	14	0	16	2	0	18	2	0	0	0	2	0	0	6	0	6	40
08:15 AM	7	19	0	0	26	0	11	2	0	13	1	1	0	0	2	8	1	3	0	12	53
08:30 AM	4	19	0	0	23	2	5	5	0	12	1	0	0	0	1	3	0	1	0	4	40
08:45 AM	4	24	0	0	28	0	10	4	0	14	2	0	1	0	3	4	1	7	0	12	57
Total	22	68	1	0	91	2	42	13	0	57	6	1	1	0	8	15	2	17	0	34	190
09:00 AM	7	21	0	0	28	0	12	2	0	14	0	0	0	0	0	3	0	3	0	6	48
09:15 AM	3	14	0	0	17	0	10	3	0	13	0	1	0	0	1	1	0	4	0	5	36
09:30 AM	3	12	0	1	16	0	20	5	0	25	1	0	0	0	1	5	1	4	0	10	52
09:45 AM	5	10	0	0	15	1	4	5	0	10	1	0	0	0	1	6	0	4	0	10	36
Total	18	57	0	1	76	1	46	15	0	62	2	1	0	0	3	15	1	15	0	31	172
10:00 AM	3	15	0	0	18	0	8	0	0	8	1	0	0	0	1	3	2	3	0	8	35
10:15 AM	6	12	0	0	18	1	8	4	0	13	1	0	0	0	1	5	0	4	0	9	41
10:30 AM	5	16	0	0	21	0	15	4	0	19	0	0	0	0	0	3	0	4	0	7	47
10:45 AM	6	15	0	0	21	0	10	2	0	12	1	0	0	0	1	5	0	6	0	11	45
Total	20	58	0	0	78	1	41	10	0	52	3	0	0	0	3	16	2	17	0	35	168
11:00 AM	6	15	2	0	23	0	21	2	0	23	1	0	0	0	1	4	0	4	0	8	55
11:15 AM	4	16	0	0	20	1	17	6	0	24	0	0	0	0	0	2	0	5	0	7	51
11:30 AM	11	17	0	0	28	0	15	5	0	20	0	0	0	0	0	2	0	4	0	6	54
11:45 AM	8	18	3	0	29	0	14	9	0	23	0	1	0	0	1	3	0	8	0	11	64
Total	29	66	5	0	100	1	67	22	0	90	1	1	0	0	2	11	0	21	0	32	224
12:00 PM	5	9	0	0	14	0	21	6	0	27	1	0	0	0	1	8	0	7	0	15	57
12:15 PM	8	21	0	1	30	0	12	4	0	16	1	0	0	0	1	2	0	2	0	4	51
12:30 PM	11	15	0	0	26	1	17	5	0	23	2	1	0	0	3	4	0	7	0	11	63
12:45 PM	6	26	0	0	32	1	10	11	0	22	0	0	0	0	0	4	0	8	0	12	66
Total	30	71	0	1	102	2	60	26	0	88	4	1	0	0	5	18	0	24	0	42	237
01:00 PM	6	20	0	0	26	0	12	4	0	16	0	0	0	0	0	2	1	8	0	11	53
01:15 PM	7	15	1	0	23	0	13	2	0	15	0	0	1	0	1	5	1	8	0	14	53
01:30 PM	9	17	0	0	26	0	10	2	0	12	0	1	0	0	1	3	0	6	0	9	48
01:45 PM	7	17	2	0	26	0	17	2	0	19	1	0	1	0	2	4	0	5	0	9	56
Total	29	69	3	0	101	0	52	10	0	62	1	1	2	0	4	14	2	27	0	43	210
02:00 PM	6	16	1	0	23	0	18	5	0	23	0	0	0	0	0	8	1	3	0	12	58
02:15 PM	8	18	0	0	26	0	18	8	0	26	1	1	0	0	2	2	0	10	0	12	66
02:30 PM	9	17	0	0	26	0	16	10	0	26	0	1	0	0	1	8	0	14	0	22	75
02:45 PM	12	21	0	0	33	1	18	7	0	26	0	0	0	0	0	6	1	7	0	14	73
Total	35	72	1	0	108	1	70	30	0	101	1	2	0	0	3	24	2	34	0	60	272
03:00 PM	9	17	1	0	27	0	11	8	0	19	0	1	0	0	1	6	0	13	0	19	66
03:15 PM	7	24	0	0	31	0	17	10	0	27	0	0	1	0	1	3	0	8	0	11	70
03:30 PM	14	17	0	0	31	0	16	4	0	20	0	0	0	0	0	5	1	10	0	16	67
03:45 PM	9	19	0	0	28	0	14	11	0	25	0	0	0	0	0	8	1	13	0	22	75
Total	39	77	1	0	117	0	58	33	0	91	0	1	1	0	2	22	2	44	0	68	278
04:00 PM	9	24	0	0	33	0	21	7	0	28	0	0	0	0	0	8	0	7	0	15	76
04:15 PM	7	19	1	0	27	0	22	8	0	30	2	0	0	0	2	5	0	14	0	19	78
04:30 PM	12	15	0	0	27	1	21	8	0	30	1	0	1	0	2	5	0	7	0	12	71
04:45 PM	12	22	0	0	34	1	29	4	0	34	1	0	0	0	1	3	0	3	0	6	75
Total	40	80	1	0	121	2	93	27	0	122	4	0	1	0	5	21	0	31	0	52	300
05:00 PM	7	12	1	0	20	1	21	6	0	28	0	0	0	0	0	1	0	8	0	9	57

TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 2

Groups Printed- Light Vehicles - Heavy Vehicles

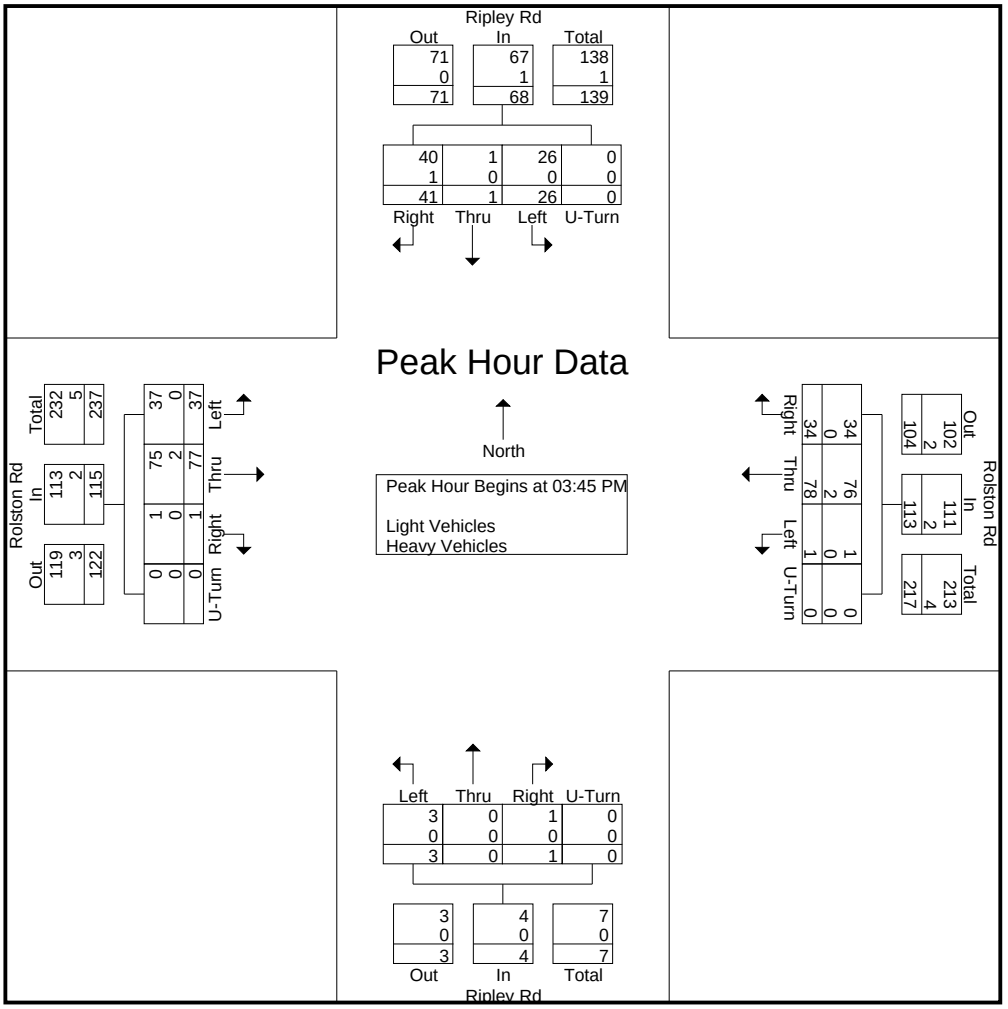
	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
05:15 PM	13	10	0	0	23	1	18	8	0	27	1	0	0	0	1	12	0	11	0	23	74
05:30 PM	3	14	0	0	17	0	21	8	0	29	0	0	0	0	0	4	0	8	0	12	58
05:45 PM	11	19	1	0	31	1	37	3	0	41	0	1	1	0	2	7	0	14	0	21	95
Total	34	55	2	0	91	3	97	25	0	125	1	1	1	0	3	24	0	41	0	65	284
Grand Total	309	732	16	2	1059	13	668	225	0	906	25	10	7	0	42	203	13	297	0	513	2520
Apprch %	29.2	69.1	1.5	0.2		1.4	73.7	24.8	0		59.5	23.8	16.7	0		39.6	2.5	57.9	0		
Total %	12.3	29	0.6	0.1	42	0.5	26.5	8.9	0	36	1	0.4	0.3	0	1.7	8.1	0.5	11.8	0	20.4	
Light Vehicles	303	716	15	2	1036	12	647	220	0	879	23	7	7	0	37	198	12	288	0	498	2450
% Light Vehicles	98.1	97.8	93.8	100	97.8	92.3	96.9	97.8	0	97	92	70	100	0	88.1	97.5	92.3	97	0	97.1	97.2
Heavy Vehicles	6	16	1	0	23	1	21	5	0	27	2	3	0	0	5	5	1	9	0	15	70
% Heavy Vehicles	1.9	2.2	6.2	0	2.2	7.7	3.1	2.2	0	3	8	30	0	0	11.9	2.5	7.7	3	0	2.9	2.8



TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 4

	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	9	19	0	0	28	0	14	**11**	0	25	0	0	0	0	0	**8**	**1**	13	0	**22**	75
04:00 PM	9	**24**	0	0	**33**	0	21	7	0	28	0	0	0	0	0	8	0	7	0	15	76
04:15 PM	7	19	**1**	0	27	0	**22**	8	0	**30**	**2**	0	0	0	**2**	5	0	**14**	0	19	**78**
04:30 PM	**12**	15	0	0	27	**1**	21	8	0	30	1	0	**1**	0	2	5	0	7	0	12	71
Total Volume	37	77	1	0	115	1	78	34	0	113	3	0	1	0	4	26	1	41	0	68	300
% App. Total	32.2	67	0.9	0		0.9	69	30.1	0		75	0	25	0		38.2	1.5	60.3	0		
PHF	.771	.802	.250	.000	.871	.250	.886	.773	.000	.942	.375	.000	.250	.000	.500	.813	.250	.732	.000	.773	.962
Light Vehicles	37	75	1	0	113	1	76	34	0	111	3	0	1	0	4	26	1	40	0	67	295
% Light Vehicles	100	97.4	100	0	98.3	100	97.4	100	0	98.2	100	0	100	0	100	100	100	97.6	0	98.5	98.3
Heavy Vehicles	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	5
% Heavy Vehicles	0	2.6	0	0	1.7	0	2.6	0	0	1.8	0	0	0	0	0	0	0	2.4	0	1.5	1.7



TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 1

Groups Printed- Bikes, Peds

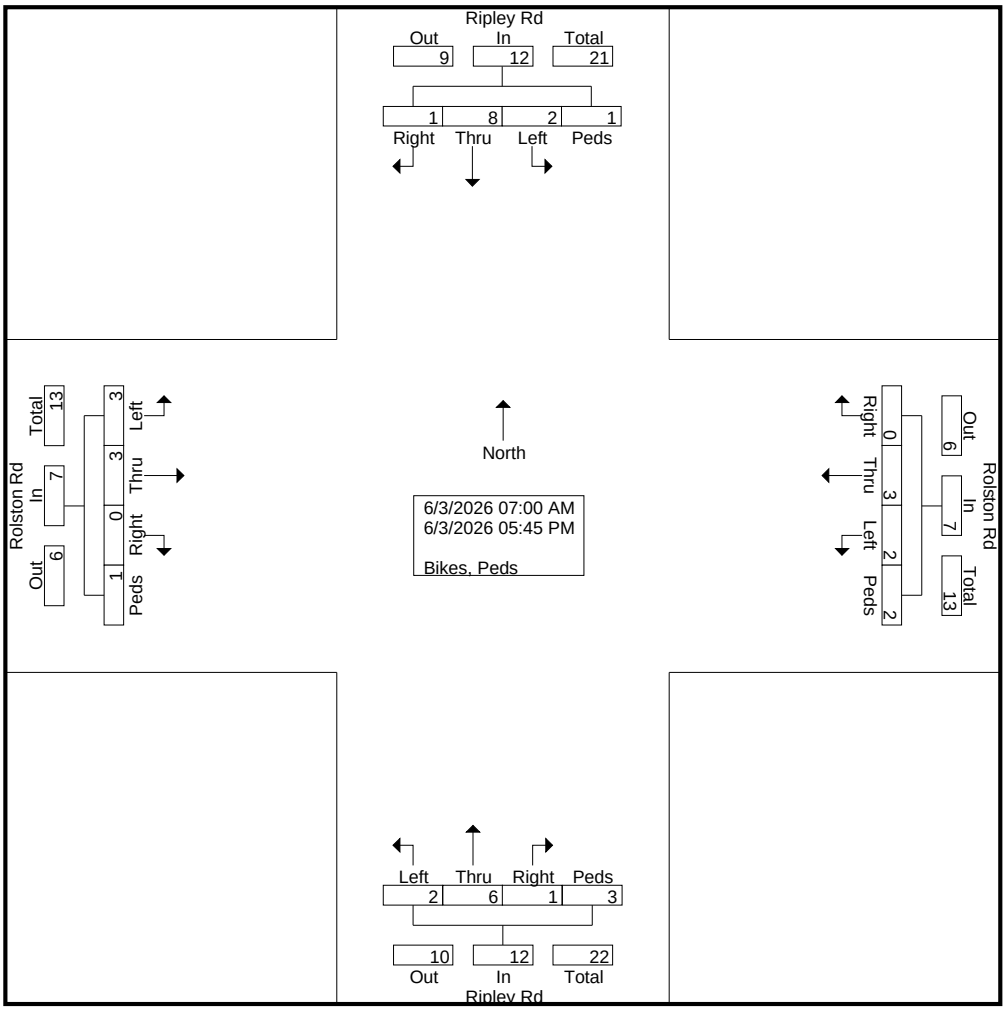
	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	1	1	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 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	2	0	0	2	0	0	0	1	1	0	0	0	1	1	4
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45 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
10:00 AM	0	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	1	0	0	0	1	0	1	0	0	1	2
10:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	3
11:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
11:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
11:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	2	0	1	4	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	6
12:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	2
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	1	0	1	0	1	2	0	0	0	0	0	3
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	3
01:45 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	4	1	0	5	0	3	0	0	3	8
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	1	0	0	0	1	0	1	0	0	1	2	4	0	0	6	8
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	1	0	0	0	1	0	1	0	0	1	2	4	0	0	6	8
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1

TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 2

Groups Printed- Bikes, Peds

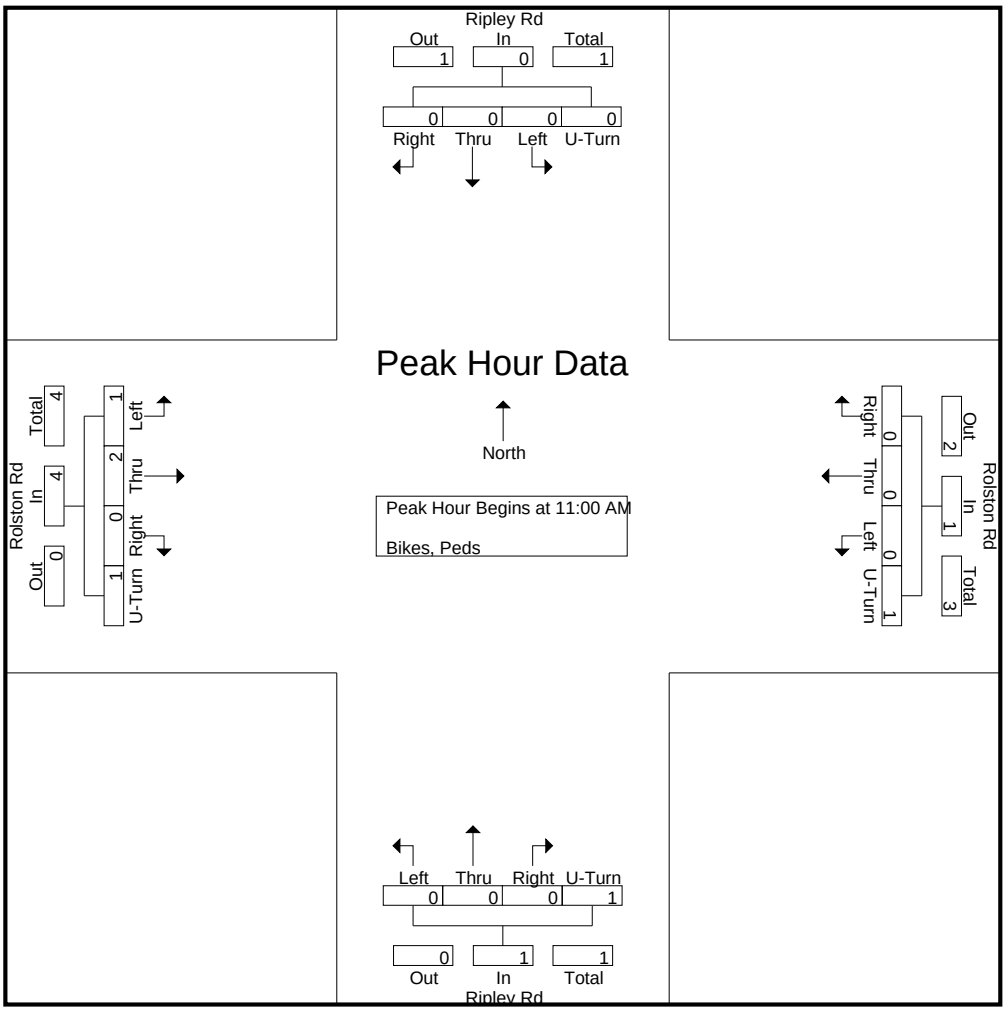
	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Grand Total	3	3	0	1	7	2	3	0	2	7	2	6	1	3	12	2	8	1	1	12	38
Apprch %	42.9	42.9	0	14.3		28.6	42.9	0	28.6		16.7	50	8.3	25		16.7	66.7	8.3	8.3		
Total %	7.9	7.9	0	2.6	18.4	5.3	7.9	0	5.3	18.4	5.3	15.8	2.6	7.9	31.6	5.3	21.1	2.6	2.6	31.6	



TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 3

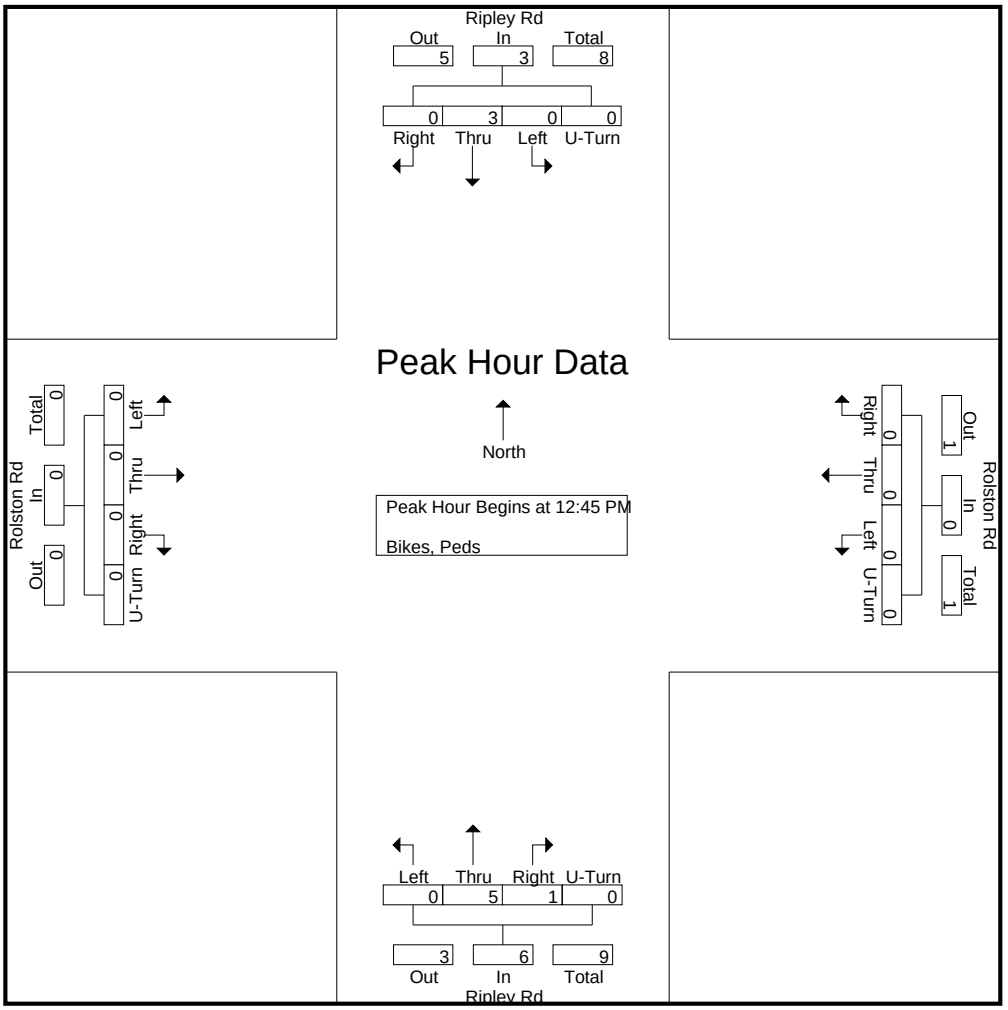
	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:00 AM																					
11:00 AM	0	**2**	0	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**
11:15 AM	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	1
11:30 AM	0	0	0	**1**	1	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	2
11:45 AM	**1**	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	1	2	0	1	4	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	6
% App. Total	25	50	0	25		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.250	.250	.000	.250	.500	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.750



TRUE DATA TO IMPROVE MOBILITY

File Name : 17661001 - Ripley Rd -- Rolston Rd
Site Code : 17661001
Start Date : 6/3/2026
Page No : 4

	Rolston Rd Eastbound					Rolston Rd Westbound					Ripley Rd Northbound					Ripley Rd Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:45 PM																					
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
01:00 PM	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	2	0	0	0	0	0	2
01:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	0	**3**	**3**
01:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	**1**	0	**3**	0	0	0	0	0	3
Total Volume	0	0	0	0	0	0	0	0	0	0	0	5	1	0	6	0	3	0	0	3	9
% App. Total	0	0	0	0		0	0	0	0		0	83.3	16.7	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.625	.250	.000	.500	.000	.250	.000	.000	.250	.750



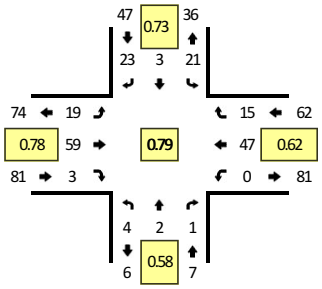
Type of peak hour being reported: User-Defined

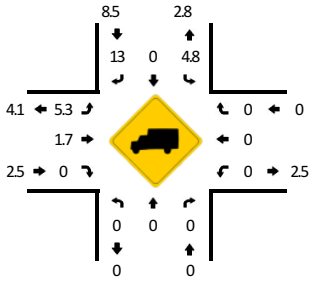
Method for determining peak hour: Total Entering Volume

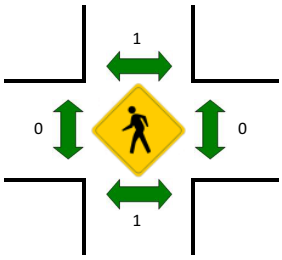
LOCATION: Ripley Rd -- Rolston Rd
CITY/STATE: Genesee, MI

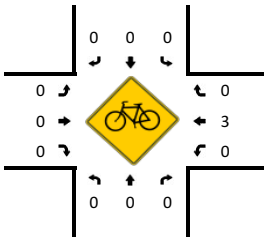
QC JOB #: 17661001
DATE: Wed, Jun 3 2026

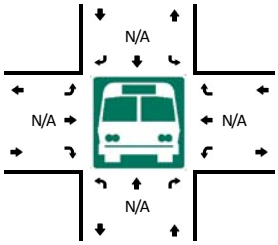
Peak-Hour: 7:30 AM -- 8:30 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

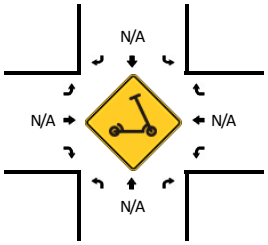












15-Min Count Period Beginning At	Ripley Rd (Northbound)				Ripley Rd (Southbound)				Rolston Rd (Eastbound)				Rolston Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	0	0	5	0	10	0	4	12	0	0	0	13	2	0	47	
7:15 AM	0	0	0	0	5	0	2	0	4	13	0	0	0	9	1	0	34	
7:30 AM	1	1	1	0	8	1	7	0	1	14	2	0	0	4	2	0	42	
7:45 AM	0	0	0	0	5	1	7	0	4	20	0	0	0	16	9	0	62	185
8:00 AM	2	0	0	0	0	0	6	0	7	6	1	0	0	16	2	0	40	178
8:15 AM	1	1	0	0	8	1	3	0	7	19	0	0	0	11	2	0	53	197
8:30 AM	1	0	0	0	3	0	1	0	4	19	0	0	2	5	5	0	40	195
8:45 AM	2	0	1	0	4	1	7	0	4	24	0	0	0	10	4	0	57	190
9:00 AM	0	0	0	0	3	0	3	0	7	21	0	0	0	12	2	0	48	198
9:15 AM	0	1	0	0	1	0	4	0	3	14	0	0	0	10	3	0	36	181
9:30 AM	1	0	0	0	5	1	4	0	3	12	0	1	0	20	5	0	52	193
9:45 AM	1	0	0	0	6	0	4	0	5	10	0	0	1	4	5	0	36	172
10:00 AM	1	0	0	0	3	2	3	0	3	15	0	0	0	8	0	0	35	159
10:15 AM	1	0	0	0	5	0	4	0	6	12	0	0	1	8	4	0	41	164
10:30 AM	0	0	0	0	3	0	4	0	5	16	0	0	0	15	4	0	47	159
10:45 AM	1	0	0	0	5	0	6	0	6	15	0	0	0	10	2	0	45	168
11:00 AM	1	0	0	0	4	0	4	0	6	15	2	0	0	21	2	0	55	188
11:15 AM	0	0	0	0	2	0	5	0	4	16	0	0	1	17	6	0	51	198
11:30 AM	0	0	0	0	2	0	4	0	11	17	0	0	0	15	5	0	54	205
11:45 AM	0	1	0	0	3	0	8	0	8	18	3	0	0	14	9	0	64	224
12:00 PM	1	0	0	0	8	0	7	0	5	9	0	0	0	21	6	0	57	226
12:15 PM	1	0	0	0	2	0	2	0	8	21	0	1	0	12	4	0	51	226
12:30 PM	2	1	0	0	4	0	7	0	11	15	0	0	1	17	5	0	63	235
12:45 PM	0	0	0	0	4	0	8	0	6	26	0	0	1	10	11	0	66	237
1:00 PM	0	0	0	0	2	1	8	0	6	20	0	0	0	12	4	0	53	233
1:15 PM	0	0	1	0	5	1	8	0	7	15	1	0	0	13	2	0	53	235
1:30 PM	0	1	0	0	3	0	6	0	9	17	0	0	0	10	2	0	48	220
1:45 PM	1	0	1	0	4	0	5	0	7	17	2	0	0	17	2	0	56	210
2:00 PM	0	0	0	0	8	1	3	0	6	16	1	0	0	18	5	0	58	215
2:15 PM	1	1	0	0	2	0	10	0	8	18	0	0	0	18	8	0	66	228
2:30 PM	0	1	0	0	8	0	14	0	9	17	0	0	0	16	10	0	75	255
2:45 PM	0	0	0	0	6	1	7	0	12	21	0	0	1	18	7	0	73	272
3:00 PM	0	1	0	0	6	0	13	0	9	17	1	0	0	11	8	0	66	280
3:15 PM	0	0	1	0	3	0	8	0	7	24	0	0	0	17	10	0	70	284
3:30 PM	0	0	0	0	5	1	10	0	14	17	0	0	0	16	4	0	67	276
3:45 PM	0	0	0	0	8	1	13	0	9	19	0	0	0	14	11	0	75	278
4:00 PM	0	0	0	0	8	0	7	0	9	24	0	0	0	21	7	0	76	288
4:15 PM	2	0	0	0	5	0	14	0	7	19	1	0	0	22	8	0	78	296

15-Min Count Period Beginning At	Ripley Rd (Northbound)				Ripley Rd (Southbound)				Rolston Rd (Eastbound)				Rolston Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:30 PM	1	0	1	0	5	0	7	0	12	15	0	0	1	21	8	0	71	300
4:45 PM	1	0	0	0	3	0	3	0	12	22	0	0	1	29	4	0	75	300
5:00 PM	0	0	0	0	1	0	8	0	7	12	1	0	1	21	6	0	57	281
5:15 PM	1	0	0	0	12	0	11	0	13	10	0	0	1	18	8	0	74	277
5:30 PM	0	0	0	0	4	0	8	0	3	14	0	0	0	21	8	0	58	264
5:45 PM	0	1	1	0	7	0	14	0	11	19	1	0	1	37	3	0	95	284

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	20	4	28	0	16	80	0	0	0	64	36	0	248
Heavy Trucks	0	0	0		0	0	8		0	0	0		0	0	0		8
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 6/11/2026 6:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

MDOT Michigan Department of Transportation

Traffic Count (TCDS)

Home Locate Locate All Email This Auto-Locate:

Disclaimer: The Michigan Department of Transportation (MDOT) works with individual agencies (cities/villages, counties, metropolitan planning organizations (MPOs), regional planning organizations (RPOs), and other areas of MDOT) to identify existing traffic count programs and/or traffic data. ... more

List View Report Center

Record 1 of 1 Goto Record go

Location ID	25-5181	**MPO ID**	
Type	SPOT	**HPMS ID**	
On NHS	No	**On HPMS**	No
LRS ID	1510710	**LRS Loc Pt.**	0.543
SF Group	Urban Non State (2026)	**Route Type**	
AF Group	NoFactor (2026)	**Route**	
GF Group	Urban Non State (2026)	**Active**	Yes
Class Dist Grp	NTL_5 (2026)	**Category**	Primary
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	(5) Major Collector	**Milepost**	
Located On	RIPLEY RD		
Loc On Alias			
NORTH OF	Silver Lake Rd		

More Detail

STATION DATA

Directions: 2-WAY NB SB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2025	1,607[3]		10	52	1,560 (97%)	47 (3%)	Grown from 2024
2024	1,631[3]		10	52	1,583 (97%)	48 (3%)	Grown from 2023
2023	1,623	166	10	52	1,578 (97%)	45 (3%)	
2022	984[3]		12	52	955 (97%)	29 (3%)	Grown from 2021
2021	1,011[3]		12	52	950 (94%)	61 (6%)	Grown from 2020

|<< < > >>| 1-5 of 10

VOLUME COUNT

	Date	Int	Total
	Wed 5/10/2023	15	1,660
	Tue 5/9/2023	15	1,635
	Wed 10/25/2017	15	1,182
	Tue 10/24/2017	15	895
	Tue 10/25/2011	60	785
	Mon 10/24/2011	60	642

VOLUME TREND

Year	Annual Growth
2025	-1%
2024	0%
2023	65%
2022	-3%
2021	11%
2020	-13%
2019	0%
2018	1%
2017	34%

Traffic Count (TCDS)

Home Locate Locate All Email This Auto-Locate:

Disclaimer: The Michigan Department of Transportation (MDOT) works with individual agencies (cities/villages, counties, metropolitan planning organizations (MPOs), regional planning organizations (RPOs), and other areas of MDOT) to identify existing traffic count programs and/or traffic data. ... more

List View Report Center

Record 1 of 1 Goto Record go

Location ID	25-5180	**MPO ID**	Lin0003
Type	SPOT	**HPMS ID**	5_4_49_101
On NHS	No	**On HPMS**	Yes
LRS ID	1511203	**LRS Loc Pt.**	0.376
SF Group	Urban Non State (2026)	**Route Type**	
AF Group	NoFactor (2026)	**Route**	
GF Group	Urban Non State (2026)	**Active**	Yes
Class Dist Grp	NTL_5 (2026)	**Category**	Primary
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	(5) Major Collector	**Milepost**	
Located On	ROLSTON RD		
Loc On Alias			
EAST OF	Bridge St		
More Detail			

STATION DATA

Directions: 2-WAY EB WB

1 1

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2026	2,047				2,009 (98%)	37 (2%)	
2025	2,296[3]		10	53	2,232 (97%)	64 (3%)	Grown from 2024
2024	2,331[3]		10	53	2,264 (97%)	67 (3%)	Grown from 2023
2023	2,319[3]		10	53	2,257 (97%)	62 (3%)	Grown from 2022
2022	2,269[3]		10	53	2,203 (97%)	66 (3%)	Grown from 2021

|<< < > >>| 1-5 of 11

VOLUME COUNT

	Date	Int	Total
	Tue 1/13/2026	15	2,081
	Mon 1/12/2026	15	2,013
	Tue 11/9/2021	15	2,404
	Mon 11/8/2021	15	2,370
	Wed 8/26/2020	15	1,886
	Tue 8/25/2020	15	1,797
	Wed 10/25/2017	15	1,811
	Tue 10/24/2017	15	1,656
	Tue 8/12/2014	60	1,654

VOLUME TREND

Year	Annual Growth
2026	-11%
2025	-2%
2024	1%
2023	2%
2022	-3%
2021	27%
2020	5%
2019	0%

United States Census Bureau

QuickFacts

Fenton charter township, Genesee County, Michigan

QuickFacts provides statistics for all states and counties. Also for cities and towns with a ***population of 5,000 or more***.

Enter state, county, city, town, or zip code -- Select a fact -- CLEAR TABLE

Table

All Topics	Fenton charter township, Genesee County, Michigan
Population estimates, July 1, 2025, (V2025)	**17,408**
PEOPLE	
Population	
Population estimates, July 1, 2025, (V2025)	**17,408**
Population estimates, July 1, 2024, (V2024)	17,238
Population estimates base, April 1, 2020, (V2025)	16,897
Population estimates base, April 1, 2020, (V2024)	16,847
Population, percent change - April 1, 2020 (estimates base) to July 1, 2025, (V2025)	3.0%
Population, percent change - April 1, 2020 (estimates base) to July 1, 2024, (V2024)	2.3%
Population, Census, April 1, 2020	16,843
Population, Census, April 1, 2010	15,552
Age and Sex	
Persons under 5 years, percent	6.0%
Persons under 18 years, percent	20.1%
Persons 65 years and over, percent	24.4%
Female persons, percent	52.1%
Race and Hispanic Origin	
White alone, percent	92.2%
Black alone, percent (a)	2.6%
American Indian and Alaska Native alone, percent (a)	0.2%
Asian alone, percent (a)	0.5%
Native Hawaiian and Other Pacific Islander alone, percent (a)	0.0%
Two or More Races, percent	3.8%
Hispanic or Latino, percent (b)	1.6%
White alone, not Hispanic or Latino, percent	91.9%
Population Characteristics	
Veterans, 2020-2024	1,115
Foreign-born persons, percent, 2020-2024	2.3%
Housing	
Housing Units, July 1, 2025, (V2025)	X
Owner-occupied housing unit rate, 2020-2024	91.9%
Median value of owner-occupied housing units, 2020-2024	$354,800
Median selected monthly owner costs - with a mortgage, 2020-2024	$1,936
Median selected monthly owner costs - without a mortage, 2020-2024	$905
Median gross rent, 2020-2024	$1,508
Building Permits, 2025	X
Families & Living Arrangements	
Households, 2020-2024	6,857
Persons per household, 2020-2024	2.48
Living in the same house 1 year ago, percent of persons age 1 year+ , 2020-2024	94.0%
Language other than English spoken at home, percent of persons age 5 years+, 2020-2024	
Computer and Internet Use	
Households with a computer, percent, 2020-2024	

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Exhibit 20-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular controlled movement is a function three (capacity) factors: distribution of gaps in the major-street traffic stream, driver judgment in selecting gaps through which to execute the desired maneuvers, and the follow-up headways required by each driver in a queue.

The basic capacity model assumes gaps in the conflicting movements are randomly distributed. When traffic signals are present on the major street, upstream of the subject intersection, flows may not be random but will likely have some platoon structure. Although the procedures in this chapter provide a method for approximating the operations of a TWSC intersection with an upstream signal, the operations of such an intersection is arguably best handled by including it in a complete simulation

Exhibit 20-2. Level of Service Criteria for Stop-Controlled Intersections (Motor Vehciles)

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	$\leq$ 10
B	> 10 and $\leq$ 15
C	> 15 and $\leq$ 25
D	> 25 and $\leq$ 35
E	> 35 and $\leq$ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. A total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The LOS criteria for TWSC intersections differ somewhat from the criteria used in Chapter 19 for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle. The criteria are given in Exhibit 19-8. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with a control delay of 10 s/veh or less. This level is typically assigned when the volume-to-capacity ratio is low and either progression is extremely favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during a green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Exhibit 19.8. Level-of-Service Criteria for Signalized Intersections (Motorized Vehicles)

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

1. If the v/c ratio for a lane group exceeds 1.0, a LOS F is assigned to the individual lane group. LOS for approach-based and intersection-wide assessments are determined solely by the control delay.

LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number if vehicle stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level, considered to be unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. This level is typically assigned when the volume-to-capacity ratio is high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	59	3	0	47	15	4	2	1	21	3	23
Future Vol, veh/h	19	59	3	0	47	15	4	2	1	21	3	23
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	62	62	62	60	60	60	73	73	73
Heavy Vehicles, %	3	3	3	0	0	0	0	0	0	9	9	9
Mvmt Flow	24	76	4	0	76	24	7	3	2	29	4	32

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	101	0	0	80	0	0	205	228	79	215	218	89
Stage 1	-	-	-	-	-	-	127	127	-	89	89	-
Stage 2	-	-	-	-	-	-	78	101	-	126	129	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.59	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.581	4.081	3.381
Pot Cap-1 Maneuver	1485	-	-	1530	-	-	757	675	988	727	668	950
Stage 1	-	-	-	-	-	-	881	795	-	902	808	-
Stage 2	-	-	-	-	-	-	936	815	-	861	776	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1484	-	-	1529	-	-	714	662	987	709	655	949
Mov Cap-2 Maneuver	-	-	-	-	-	-	714	662	-	709	655	-
Stage 1	-	-	-	-	-	-	865	780	-	901	807	-
Stage 2	-	-	-	-	-	-	900	815	-	841	762	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.75	0	10.04	9.86
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	726	418	-	-	1529	-	-	804
HCM Lane V/C Ratio	0.016	0.016	-	-	-	-	-	0.08
HCM Ctrl Dly (s/v)	10	7.5	0	-	0	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	77	1	1	78	34	3	0	1	26	1	41
Future Vol, veh/h	37	77	1	1	78	34	3	0	1	26	1	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	94	94	94	60	60	60	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	2	2	2
Mvmt Flow	43	89	1	1	83	36	5	0	2	34	1	53

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	119	0	0	90	0	0	260	295	89	277	278	101
Stage 1	-	-	-	-	-	-	174	174	-	103	103	-
Stage 2	-	-	-	-	-	-	86	121	-	174	175	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1469	-	-	1506	-	-	697	619	974	676	630	954
Stage 1	-	-	-	-	-	-	832	759	-	903	810	-
Stage 2	-	-	-	-	-	-	927	799	-	828	754	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1469	-	-	1506	-	-	636	600	974	653	610	954
Mov Cap-2 Maneuver	-	-	-	-	-	-	636	600	-	653	610	-
Stage 1	-	-	-	-	-	-	807	736	-	902	809	-
Stage 2	-	-	-	-	-	-	873	799	-	802	731	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.42	0.07	10.22	10.02
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	697	578	-	-	15	-	-	806
HCM Lane V/C Ratio	0.01	0.029	-	-	0.001	-	-	0.11
HCM Ctrl Dly (s/v)	10.2	7.5	0	-	7.4	0	-	10
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	62	3	0	49	16	4	2	1	22	3	24
Future Vol, veh/h	20	62	3	0	49	16	4	2	1	22	3	24
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	62	62	62	60	60	60	73	73	73
Heavy Vehicles, %	3	3	3	0	0	0	0	0	0	9	9	9
Mvmt Flow	26	79	4	0	79	26	7	3	2	30	4	33

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	106	0	0	84	0	0	215	240	82	225	229	93
Stage 1	-	-	-	-	-	-	134	134	-	93	93	-
Stage 2	-	-	-	-	-	-	81	106	-	132	136	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.59	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.581	4.081	3.381
Pot Cap-1 Maneuver	1479	-	-	1525	-	-	746	665	983	715	659	945
Stage 1	-	-	-	-	-	-	875	790	-	897	805	-
Stage 2	-	-	-	-	-	-	932	812	-	854	771	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1478	-	-	1524	-	-	702	652	982	697	646	944
Mov Cap-2 Maneuver	-	-	-	-	-	-	702	652	-	697	646	-
Stage 1	-	-	-	-	-	-	858	774	-	896	804	-
Stage 2	-	-	-	-	-	-	895	811	-	834	756	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.76	0	10.12	9.94
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	715	420	-	-	1524	-	-	795
HCM Lane V/C Ratio	0.016	0.017	-	-	-	-	-	0.084
HCM Ctrl Dly (s/v)	10.1	7.5	0	-	0	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	81	1	1	82	36	3	0	1	27	1	43
Future Vol, veh/h	39	81	1	1	82	36	3	0	1	27	1	43
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	94	94	94	60	60	60	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	2	2	2
Mvmt Flow	45	93	1	1	87	38	5	0	2	35	1	56

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	126	0	0	94	0	0	273	311	94	291	292	106
Stage 1	-	-	-	-	-	-	183	183	-	109	109	-
Stage 2	-	-	-	-	-	-	90	128	-	183	184	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1461	-	-	1500	-	-	683	607	969	661	618	948
Stage 1	-	-	-	-	-	-	823	752	-	897	806	-
Stage 2	-	-	-	-	-	-	922	794	-	819	748	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1461	-	-	1500	-	-	620	587	969	638	598	948
Mov Cap-2 Maneuver	-	-	-	-	-	-	620	587	-	638	598	-
Stage 1	-	-	-	-	-	-	796	727	-	896	805	-
Stage 2	-	-	-	-	-	-	866	794	-	791	723	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.43	0.06	10.33	10.13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	682	579	-	-	14	-	-	795
HCM Lane V/C Ratio	0.01	0.031	-	-	0.001	-	-	0.116
HCM Ctrl Dly (s/v)	10.3	7.5	0	-	7.4	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	68	3	1	64	16	4	3	1	22	4	31
Future Vol, veh/h	22	68	3	1	64	16	4	3	1	22	4	31
Conflicting Peds, #/hr	1	0	1	1	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	78	78	78	62	62	62	60	60	60	73	73	73
Heavy Vehicles, %	3	3	3	0	0	0	0	0	0	9	9	9
Mvmt Flow	28	87	4	2	103	26	7	5	2	30	5	42

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	130	0	0	92	0	0	256	280	90	266	269	117
Stage 1	-	-	-	-	-	-	147	147	-	120	120	-
Stage 2	-	-	-	-	-	-	109	133	-	146	148	-
Critical Hdwy	4.13	-	-	4.1	-	-	7.1	6.5	6.2	7.19	6.59	6.29
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.19	5.59	-
Follow-up Hdwy	2.227	-	-	2.2	-	-	3.5	4	3.3	3.581	4.081	3.381
Pot Cap-1 Maneuver	1449	-	-	1515	-	-	702	632	973	672	626	916
Stage 1	-	-	-	-	-	-	861	780	-	867	783	-
Stage 2	-	-	-	-	-	-	901	790	-	840	761	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1514	-	-	648	617	972	651	611	915
Mov Cap-2 Maneuver	-	-	-	-	-	-	648	617	-	651	611	-
Stage 1	-	-	-	-	-	-	842	763	-	865	781	-
Stage 2	-	-	-	-	-	-	852	788	-	816	745	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	1.78	0.09	10.54	10.22
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	663	422	-	-	21	-	-	768
HCM Lane V/C Ratio	0.02	0.019	-	-	0.001	-	-	0.102
HCM Ctrl Dly (s/v)	10.5	7.5	0	-	7.4	0	-	10.2
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.3

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	10	38	3	4	49
Future Vol, veh/h	8	10	38	3	4	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	73	73
Heavy Vehicles, %	2	2	2	2	9	9
Mvmt Flow	9	11	41	3	5	67

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	121	43	0	0	45	0
Stage 1	43	-	-	-	-	-
Stage 2	78	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.19	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.281	-
Pot Cap-1 Maneuver	874	1027	-	-	1520	-
Stage 1	980	-	-	-	-	-
Stage 2	945	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	871	1027	-	-	1520	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	945	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	8.86	0	0.56
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	952	136	-
HCM Lane V/C Ratio	-	-	0.021	0.004	-
HCM Ctrl Dly (s/v)	-	-	8.9	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	2	89	74	6	17	7
Future Vol, veh/h	2	89	74	6	17	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	62	62	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	2	97	119	10	18	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	129	0	-	0	225	124
Stage 1	-	-	-	-	124	-
Stage 2	-	-	-	-	101	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1457	-	-	-	763	927
Stage 1	-	-	-	-	901	-
Stage 2	-	-	-	-	923	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1457	-	-	-	762	927
Mov Cap-2 Maneuver	-	-	-	-	762	-
Stage 1	-	-	-	-	900	-
Stage 2	-	-	-	-	923	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.16	0	9.63
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	40	-	-	-	803
HCM Lane V/C Ratio	0.001	-	-	-	0.032
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	102	71	3	7	9
Future Vol, veh/h	4	102	71	3	7	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	62	62	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	4	111	115	5	8	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	119	0	-	0	237	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	120	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1469	-	-	-	752	935
Stage 1	-	-	-	-	908	-
Stage 2	-	-	-	-	906	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1469	-	-	-	749	935
Mov Cap-2 Maneuver	-	-	-	-	749	-
Stage 1	-	-	-	-	905	-
Stage 2	-	-	-	-	906	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.28	0	9.36
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	68	-	-	-	844
HCM Lane V/C Ratio	0.003	-	-	-	0.021
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	47	98	1	1	92	36	3	1	1	27	2	48
Future Vol, veh/h	47	98	1	1	92	36	3	1	1	27	2	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	94	94	94	60	60	60	77	77	77
Heavy Vehicles, %	2	2	2	2	2	2	0	0	0	2	2	2
Mvmt Flow	54	113	1	1	98	38	5	2	2	35	3	62

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	136	0	0	114	0	0	323	360	113	341	341	117
Stage 1	-	-	-	-	-	-	221	221	-	119	119	-
Stage 2	-	-	-	-	-	-	101	138	-	222	222	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	1448	-	-	1475	-	-	634	570	945	613	581	935
Stage 1	-	-	-	-	-	-	786	724	-	885	797	-
Stage 2	-	-	-	-	-	-	910	786	-	781	720	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1448	-	-	1475	-	-	565	547	945	586	557	935
Mov Cap-2 Maneuver	-	-	-	-	-	-	565	547	-	586	557	-
Stage 1	-	-	-	-	-	-	754	695	-	885	796	-
Stage 2	-	-	-	-	-	-	846	785	-	747	691	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	2.44	0.06	10.98	10.44
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	610	578	-	-	13	-	-	762
HCM Lane V/C Ratio	0.014	0.037	-	-	0.001	-	-	0.131
HCM Ctrl Dly (s/v)	11	7.6	0	-	7.4	0	-	10.4
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	9	75	9	15	71
Future Vol, veh/h	6	9	75	9	15	71
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	77	77
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	10	82	10	19	92

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	218	86	0	0	91	0
Stage 1	86	-	-	-	-	-
Stage 2	131	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	771	972	-	-	1504	-
Stage 1	937	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	760	972	-	-	1504	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	924	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	9.19	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	875	314	-
HCM Lane V/C Ratio	-	-	0.019	0.013	-
HCM Ctrl Dly (s/v)	-	-	9.2	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	8	118	124	18	11	5
Future Vol, veh/h	8	118	124	18	11	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	94	94	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	128	132	19	12	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	151	0	-	0	287	141
Stage 1	-	-	-	-	141	-
Stage 2	-	-	-	-	146	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1430	-	-	-	703	906
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	882	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1430	-	-	-	699	906
Mov Cap-2 Maneuver	-	-	-	-	699	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	882	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.48	0	9.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	114	-	-	-	753
HCM Lane V/C Ratio	0.006	-	-	-	0.023
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	9	120	137	7	4	5
Future Vol, veh/h	9	120	137	7	4	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	94	94	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	130	146	7	4	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	153	0	-	0	299	149
Stage 1	-	-	-	-	149	-
Stage 2	-	-	-	-	150	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1427	-	-	-	692	897
Stage 1	-	-	-	-	878	-
Stage 2	-	-	-	-	878	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1427	-	-	-	687	897
Mov Cap-2 Maneuver	-	-	-	-	687	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	878	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0.53	0	9.62
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	126	-	-	-	790
HCM Lane V/C Ratio	0.007	-	-	-	0.012
HCM Ctrl Dly (s/v)	7.5	0	-	-	9.6
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	21	31	61
Average Queue (ft)	1	7	26
95th Queue (ft)	10	28	52
Link Distance (ft)	2023	1673	1390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ripley Road & Site Drive #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Rolston Road & Site Drive #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Rolston Road & Site Drive #3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	46	36	67
Average Queue (ft)	4	5	28
95th Queue (ft)	23	24	51
Link Distance (ft)	2023	1673	1390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ripley Road & Site Drive #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Rolston Road & Site Drive #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Rolston Road & Site Drive #3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	33	31	72
Average Queue (ft)	2	7	27
95th Queue (ft)	16	27	53
Link Distance (ft)	2023	1673	1390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ripley Road & Site Drive #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Rolston Road & Site Drive #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Rolston Road & Site Drive #3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	52	31	57
Average Queue (ft)	5	3	29
95th Queue (ft)	26	19	49
Link Distance (ft)	2023	1673	1390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ripley Road & Site Drive #1

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 3: Rolston Road & Site Drive #2

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 4: Rolston Road & Site Drive #3

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	NB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	24	40	67
Average Queue (ft)	2	9	28
95th Queue (ft)	12	32	53
Link Distance (ft)	2023	1673	1390
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Ripley Road & Site Drive #1

Movement	WB
Directions Served	LR
Maximum Queue (ft)	36
Average Queue (ft)	15
95th Queue (ft)	40
Link Distance (ft)	661
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 3: Rolston Road & Site Drive #2

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	16	31
Average Queue (ft)	1	16
95th Queue (ft)	10	41
Link Distance (ft)	406	425
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Rolston Road & Site Drive #3

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	10	31
Average Queue (ft)	0	13
95th Queue (ft)	5	37
Link Distance (ft)	1116	461
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection: 1: Ripley Road & Rolston Road

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	38	6	36	59
Average Queue (ft)	4	0	6	29
95th Queue (ft)	24	5	27	51
Link Distance (ft)	2023	406	1673	1390
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Ripley Road & Site Drive #1

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	31	16
Average Queue (ft)	13	1
95th Queue (ft)	38	10
Link Distance (ft)	661	1842
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Rolston Road & Site Drive #2

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	17	31
Average Queue (ft)	1	14
95th Queue (ft)	8	39
Link Distance (ft)	406	425
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

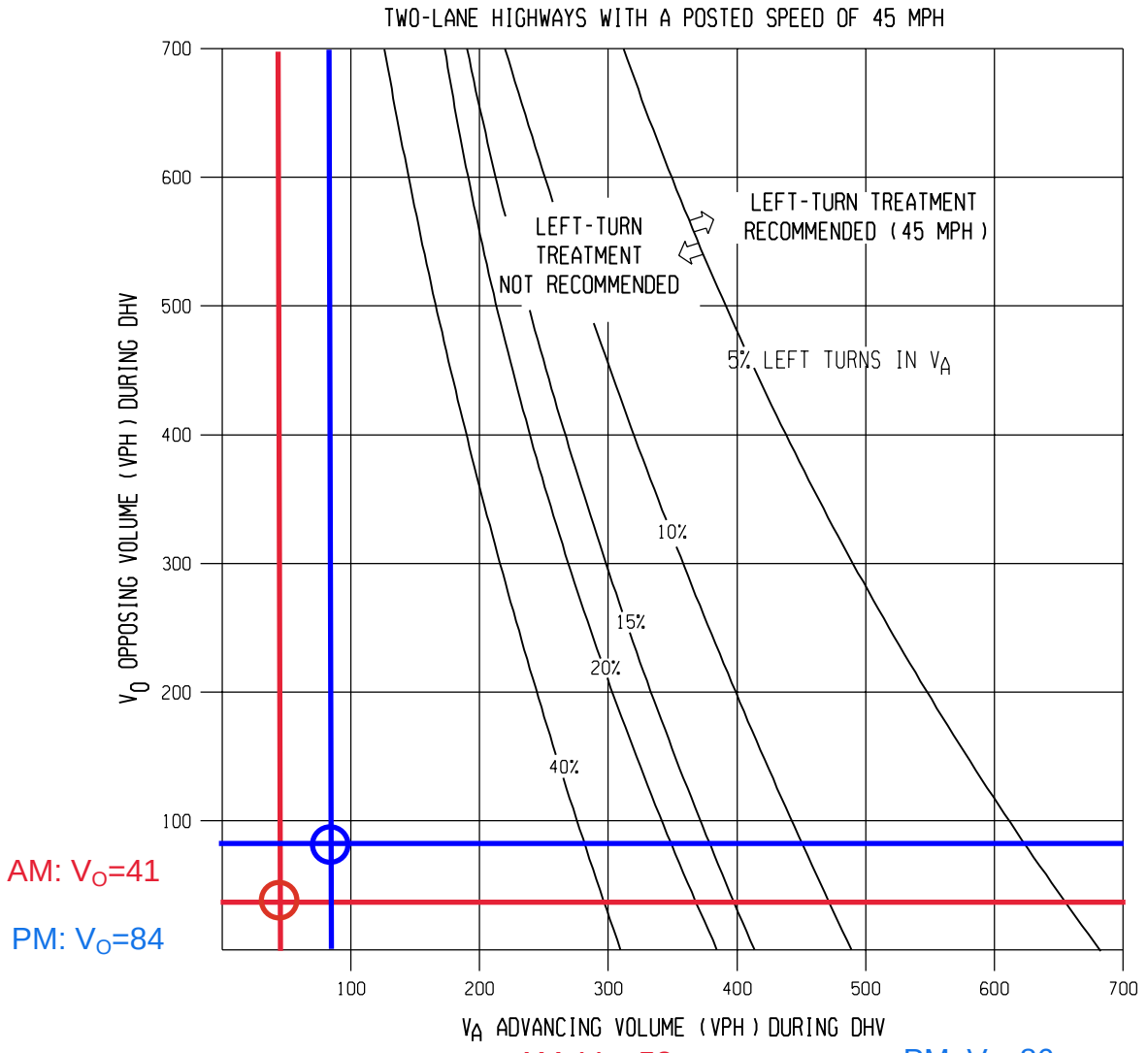
Intersection: 4: Rolston Road & Site Drive #3

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	26	31
Average Queue (ft)	1	7
95th Queue (ft)	12	29
Link Distance (ft)	1116	461
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

RIPLEY ROAD & SITE DRIVE #1 - LEFT TURN EVALUATION



AM: V_A=53
7.5% LEFT TURNS IN V_A

PM: V_A=86
17.4% LEFT TURNS IN V_A

Instructions:

1. The family of curves represent the percentage of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

2. Read V_A and V_O into the chart and locate the intersection of the two volumes.

3. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is recommended. If the point is to the left of the line, then a left-turn is not recommended based on traffic volumes.

NO LEFT TURN TREATMENT RECOMMENDED

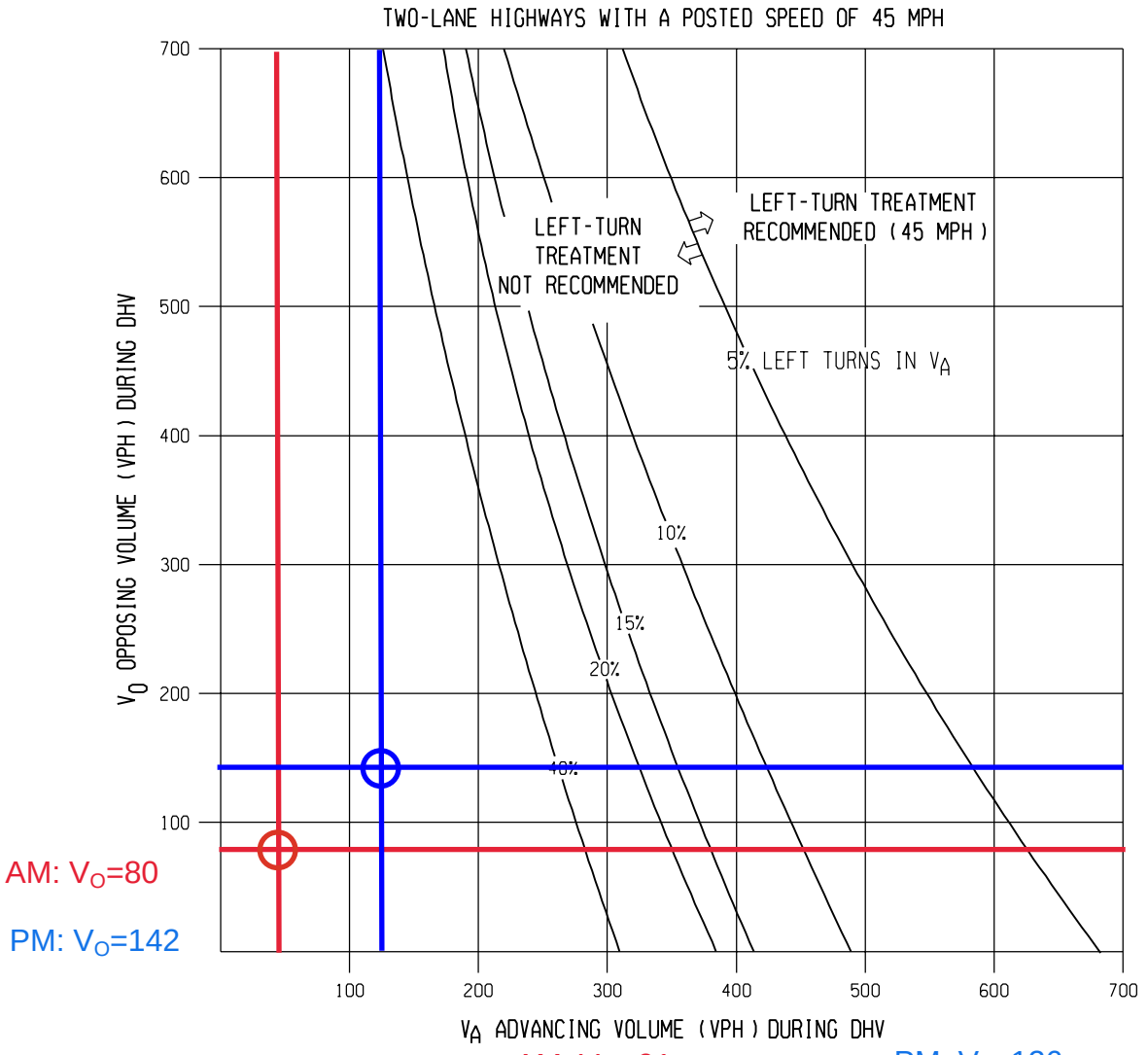
MDOT Michigan Department of Transportation

TRAFFIC AND SAFETY NOTE

TRAFFIC VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS

DRAWN BY: MTS	08/05/2004	605A	SHEET 4 OF 6
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note605A tsn.dgn		REV. 08/05/2004	

ROLSTON ROAD & SITE DRIVE #2 - LEFT TURN EVALUATION



AM: V_A =91
2.2% LEFT TURNS IN V_A

PM: V_A=126
6.3% LEFT TURNS IN V_A

Instructions:

1. The family of curves represent the percentage of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

2. Read V_A and V_O into the chart and locate the intersection of the two volumes.

3. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is recommended. If the point is to the left of the line, then a left-turn is not recommended based on traffic volumes.

NO LEFT TURN TREATMENT RECOMMENDED

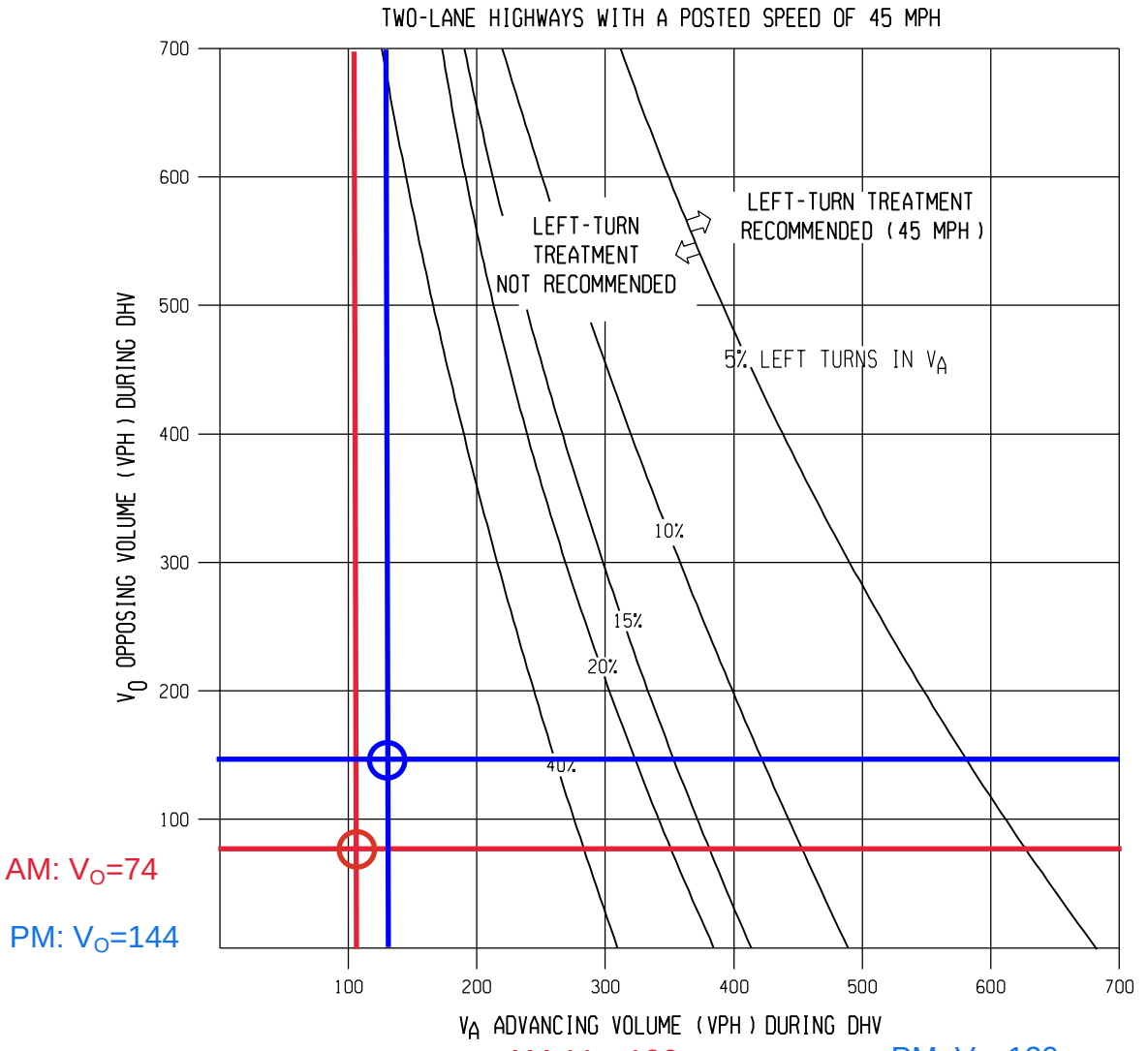
MDOT Michigan Department of Transportation

TRAFFIC AND SAFETY NOTE

TRAFFIC VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS

DRAWN BY: MTS	08/05/2004	605A	SHEET 4 OF 6
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note605A tsn.dgn		REV. 08/05/2004	

ROLSTON ROAD & SITE DRIVE #3 - LEFT TURN EVALUATION



Instructions:

1. The family of curves represent the percentage of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.

2. Read V_A and V_O into the chart and locate the intersection of the two volumes.

3. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is recommended. If the point is to the left of the line, then a left-turn is not recommended based on traffic volumes.

NO LEFT TURN TREATMENT RECOMMENDED

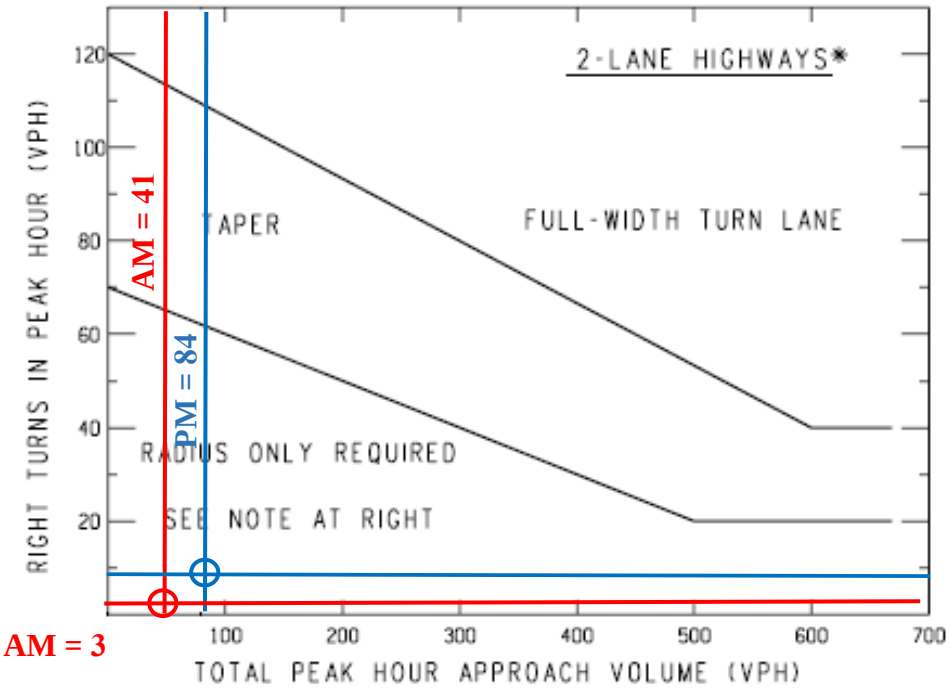
MDOT Michigan Department of Transportation

TRAFFIC AND SAFETY NOTE

TRAFFIC VOLUME GUIDELINES FOR LEFT-TURN LANES AT UNSIGNALIZED INTERSECTIONS

DRAWN BY: MTS	08/05/2004	605A	SHEET 4 OF 6
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note605A tsn.dgn		REV. 08/05/2004	

RIPLEY ROAD & SITE DRIVE #1 RIGHT TURN LANE WARRANT



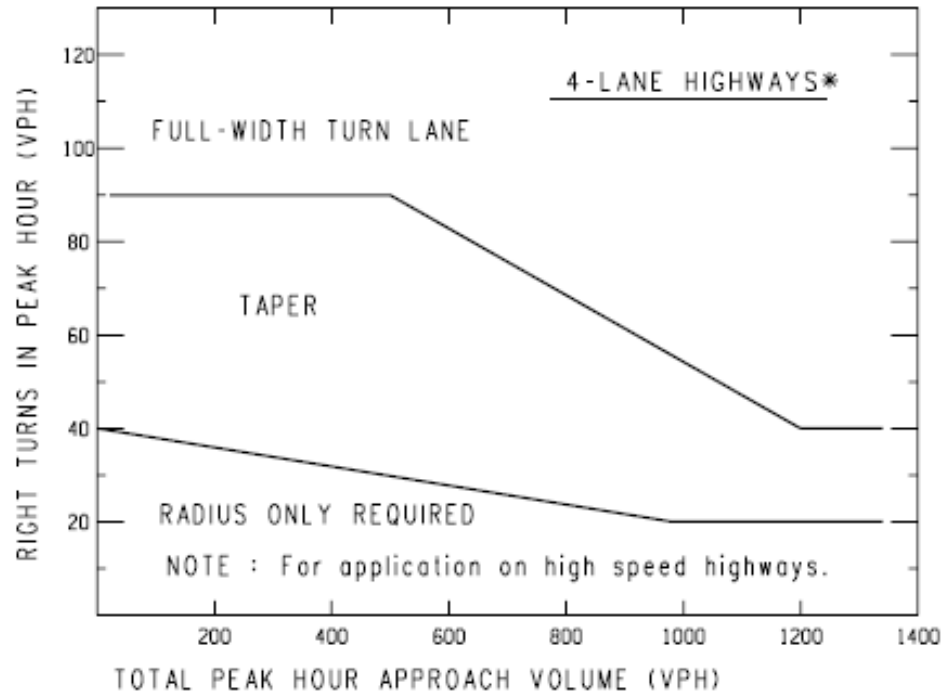
NOTE:
For posted speeds at or under 45 mph, peak hour right turns greater than 40 vph, and total peak hour approach less than 300 vph, adjust right turn volumes.

Adjust peak hour right turns = Peak hour right turns - 20

AM = 3

PM = 9

NO RIGHT TURN TREATMENT RECOMMENDED



*If a center left-turn lane exists(i.e. 3 or 5 lane highway), subtract the number of left turns in approach volume from the total approach volume to get an adjusted total approach volume.

Sample Problem:
The Design Speed is 55 mph. The Peak Hour Approach Volume is 300 vph. The Number of Right Turns in the Peak Hour is 100 vph. Determine if a right turn lane is recommended.

Solution:
Figure indicates that the intersection of 300 vph and 100 vph is located above the upper trend line; thus,a right-turn lane may be recommended.

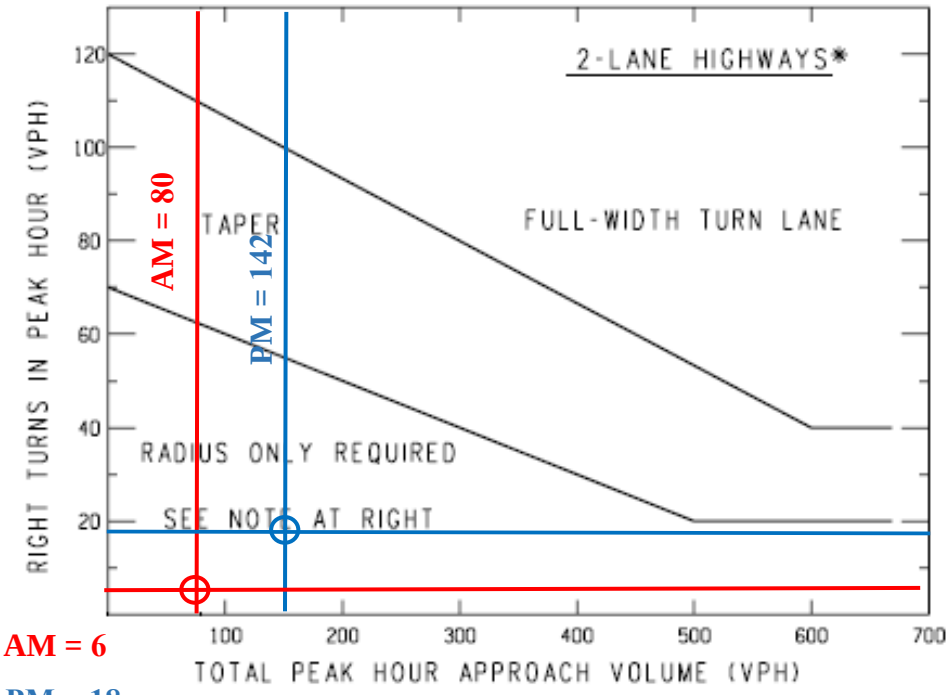
MDOT Michigan Department of Transportation

TRAFFIC AND SAFETY NOTE

TRAFFIC VOLUME GUIDELINES FOR RIGHT-TURN LANES AND TAPERS

DRAWN BY: MTS	08/05/2004	604A	SHEET 2 OF 2
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note604A tsn.dgn		REV. 08/05/2004	

ROLSTON ROAD & SITE DRIVE #2 RIGHT TURN LANE WARRANT



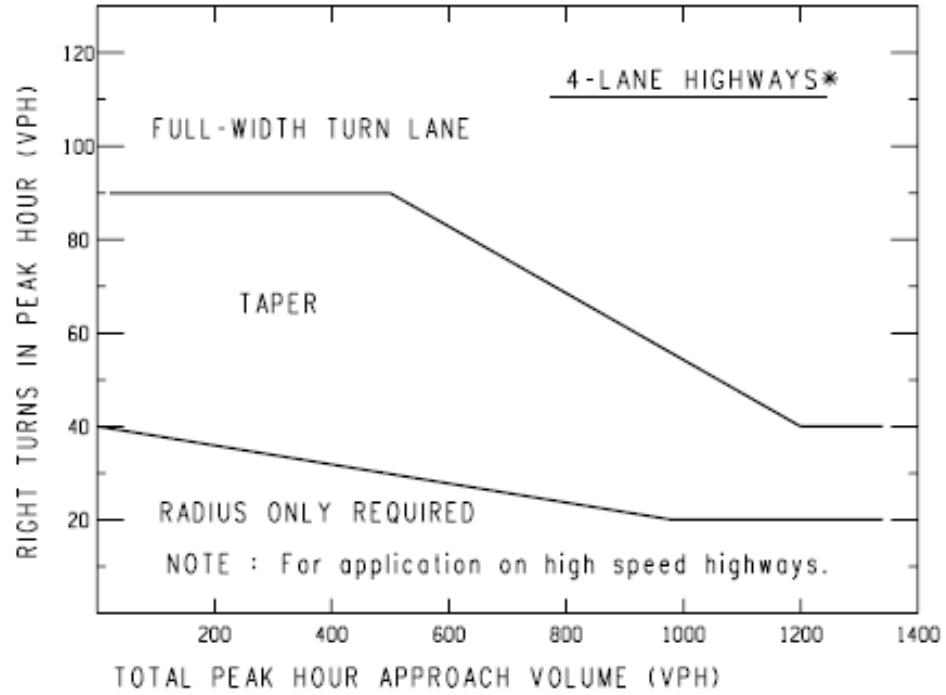
NOTE:
For posted speeds at or under 45 mph, peak hour right turns greater than 40 vph, and total peak hour approach less than 300 vph, adjust right turn volumes.

Adjust peak hour right turns = Peak hour right turns - 20

AM = 6

PM = 18

NO RIGHT TURN TREATMENT RECOMMENDED



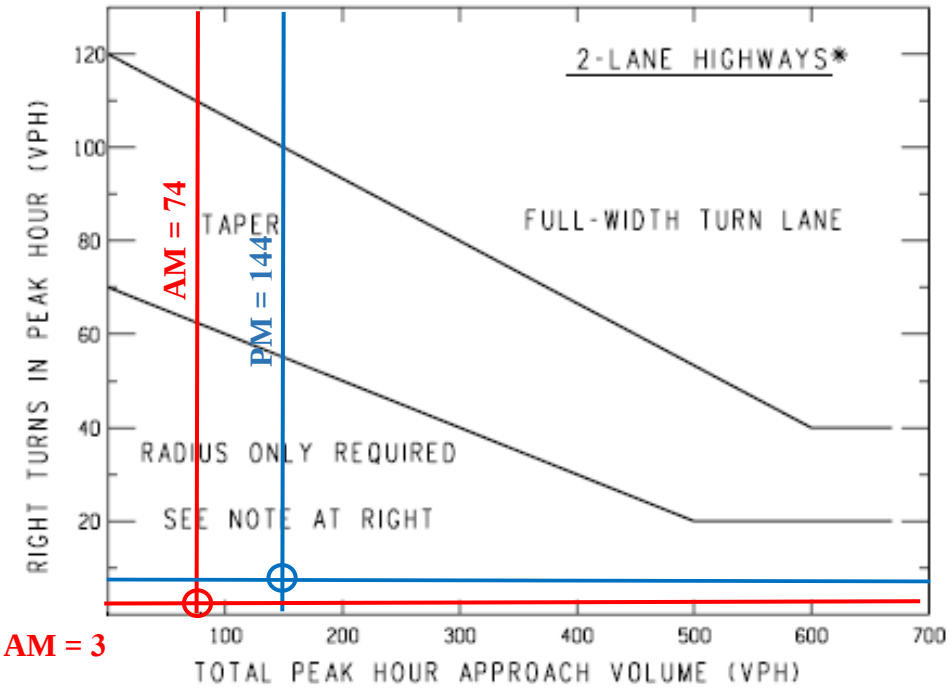
*If a center left-turn lane exists(i.e. 3 or 5 lane highway), subtract the number of left turns in approach volume from the total approach volume to get an adjusted total approach volume.

Sample Problem:
The Design Speed is 55 mph. The Peak Hour Approach Volume is 300 vph. The Number of Right Turns in the Peak Hour is 100 vph. Determine if a right turn lane is recommended.

Solution:
Figure indicates that the intersection of 300 vph and 100 vph is located above the upper trend line; thus, a right-turn lane may be recommended.

MDOT Michigan Department of Transportation TRAFFIC AND SAFETY NOTE	TRAFFIC VOLUME GUIDELINES FOR RIGHT-TURN LANES AND TAPERS		
DRAWN BY: MTS CHECKED BY: JAT	08/05/2004 PLAN DATE:	604A	SHEET 2 OF 2
FILE: K:/DGN/ts notes/Note604A tsn.dgn		REV. 08/05/2004	

ROLSTON ROAD & SITE DRIVE #3 RIGHT TURN LANE WARRANT



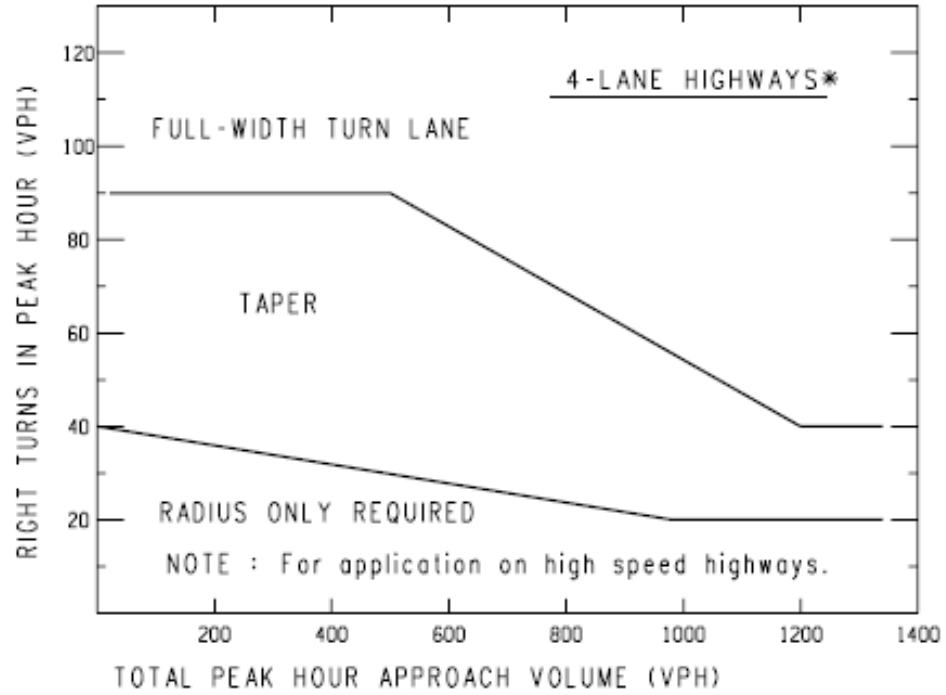
NOTE:
For posted speeds at or under 45 mph, peak hour right turns greater than 40 vph, and total peak hour approach less than 300 vph, adjust right turn volumes.

Adjust peak hour right turns = Peak hour right turns - 20

AM = 3

PM =7

NO RIGHT TURN TREATMENT RECOMMENDED



*If a center left-turn lane exists(i.e. 3 or 5 lane highway), subtract the number of left turns in approach volume from the total approach volume to get an adjusted total approach volume.

Sample Problem:
The Design Speed is 55 mph. The Peak Hour Approach Volume is 300 vph. The Number of Right Turns in the Peak Hour is 100 vph. Determine if a right turn lane is recommended.

Solution:
Figure indicates that the intersection of 300 vph and 100 vph is located above the upper trend line; thus,a right-turn lane may be recommended.

MDOT Michigan Department of Transportation

TRAFFIC AND SAFETY NOTE

TRAFFIC VOLUME GUIDELINES FOR RIGHT-TURN LANES AND TAPERS

DRAWN BY: MTS	08/05/2004	604A	SHEET 2 OF 2
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note604A tan.dgn		REV. 08/05/2004	