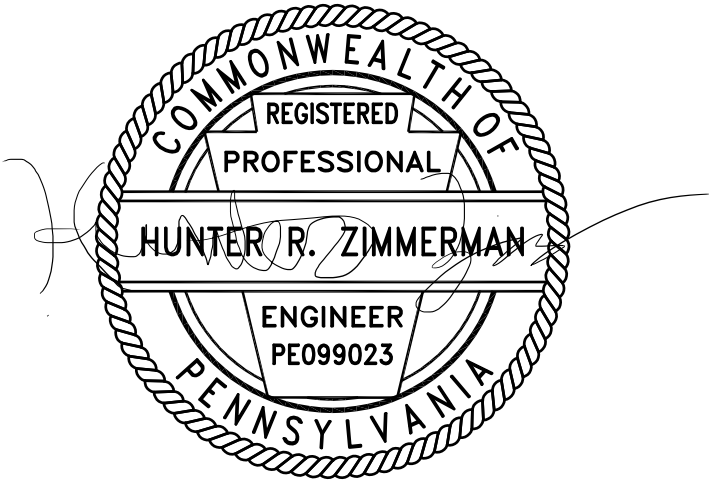
TRANSPORTATION IMPACT STUDY
VOLUME 1 OF 1

JULY 2, 2026

GRANVILLE DC

GRANVILLE TOWNSHIP, PA

PROJECT NO. 1258-57



LIVIC civil

TABLE OF CONTENTS

TABLE OF CONTENTS 1
TECHNICAL APPENDICES 3
INTRODUCTION 4
Proposed Site Access Locations 5
EXECUTIVE SUMMARY 6
RECOMMENDATIONS & CONCLUSIONS 7
EXISTING ROADWAY NETWORK 14
Land Use Context 14
Roadway Typology 15
MULTIMODAL FACILITIES 15
Transit 15
Rail Centers 15
Pedestrian/Bike Facilities 15
EXISTING TRAFFIC CONDITIONS 16
BASE (NO-BUILD) CONDITIONS 17
Background Growth 17
Nearby Planned Developments 17
SCHEDULED ROADWAY IMPROVEMENTS 18
TRIP GENERATION 18
TRIP DISTRIBUTION AND ASSIGNMENT 19
JOURNEY TO WORK MODEL PROCEDURE 20
PROJECTED (BUILD) CONDITIONS 20
PROPOSED SITE ANALYSIS DRIVEWAYS 20
Sight Distance Analysis 20
DRIVEWAY CLASSIFICATION 22
CAPACITY ANALYSIS 23
Levels of Service 23
Capacity Analysis Methodology 23
Study Area Levels of Service 24
AUXILIARY TURN LANE ANALYSIS 29

TRAFFIC SIGNAL WARRANT SUMMARY 33
RECOMMENDATIONS & CONCLUSIONS 33

TECHNICAL APPENDICES

Appendix A	Existing Traffic Volume Figures
Appendix B	Existing Level-Of Service Figures
Appendix C	Trip Assignment Figures
Appendix D	Opening Year Traffic Volumes Figures
Appendix E	Opening Year Level-Of-Service Figures
Appendix F	Design Year Traffic Volume Figures
Appendix G	Design Year Level-Of-Service Figures
Appendix H	Site Layout Plan
Appendix I	Scoping Meeting Application & Project Correspondence
Appendix J	Automatic Traffic Recorder (ATR) Data Turning Movement Counts
Appendix K	Traffic Calculations
Appendix L	Study Area Photographs
Appendix M	Sight Distance
Appendix N	Synchro Capacity Analysis and Queue Reports
Appendix O	Auxiliary Turn Lane Warrants
Appendix P	Traffic Signal Permit Plans

INTRODUCTION

LIVIC Civil has completed a Transportation Impact Study (TIS) for **Granville DC**, a proposed hyperscale data center campus in Granville Township, Mifflin County, PA. The project site consists of approximately 265 acres of farmland along Loop Road and Middle Road. located to the South of Middle Road and bounded by Loop Road from the East, West, and South, as shown in **Figure 1 – Location Map** .

Granville DC will be developed in **one phase**; the project includes six two-story data center buildings. At full buildout, the site will total a gross development of approximately **1.54 million square feet.** Construction is to begin in late 2027. The project is to be completed by end of year 2032.

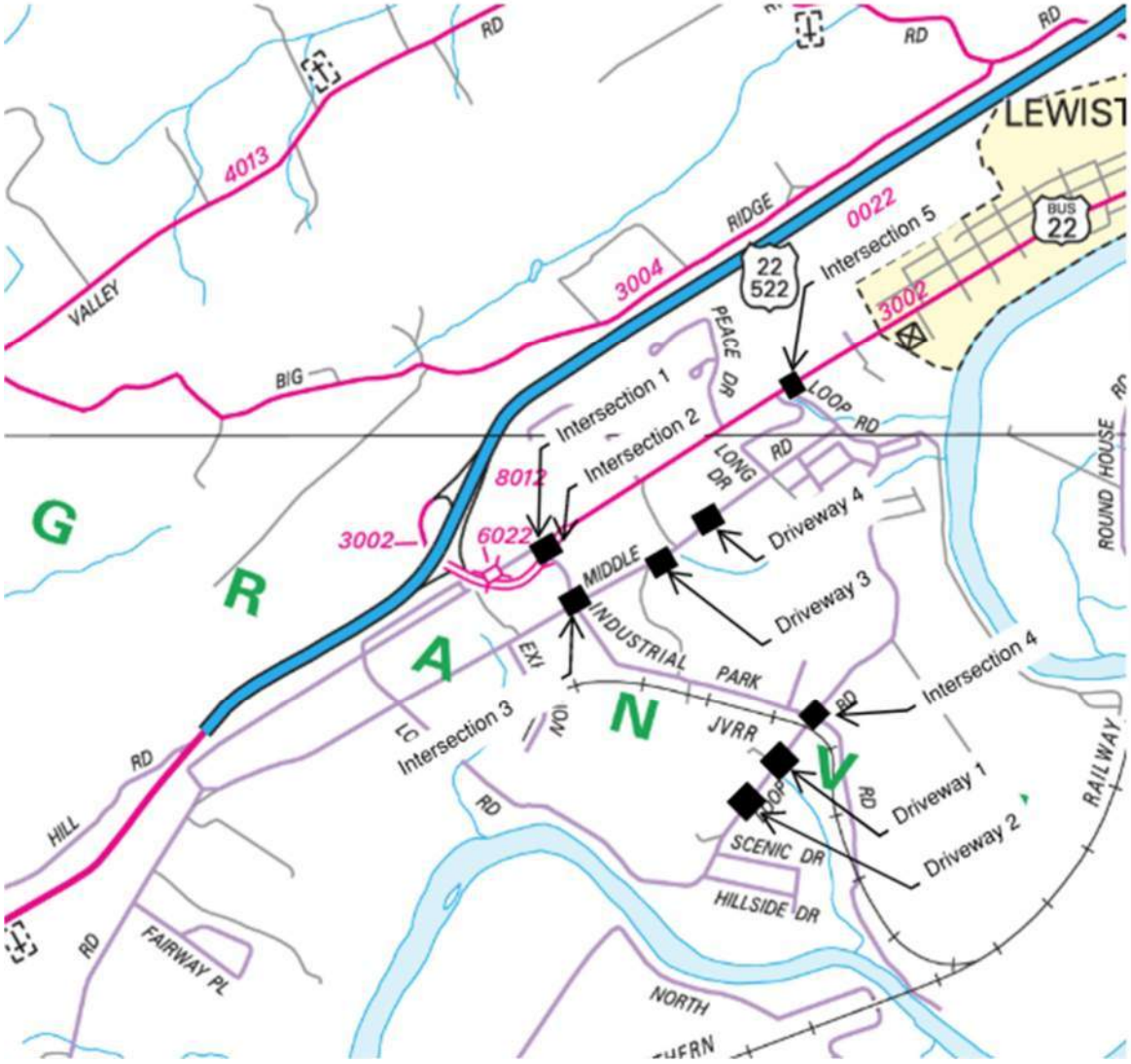
From a traffic perspective, Granville DC and the proposed Sub Station is expected to generate approximately 1,118 total daily vehicle trips at full buildout. The TIS evaluates the traffic at full buildout condition plus 5 years post development The impacts and any necessary improvements to maintain safe and efficient traffic operations in and around the site have been analyzed as part of this study.

Figure 1 – Location Map

Proposed Site Access Locations

The project site will be served by four (4) full access driveways. The passenger car traffic entering and exiting the site will be determined through the Journey to Work model provided in the appendices. See **Appendix K**

- Loop Road & Western Driveway (Secondary Driveway)
- Loop Road & Eastern Driveway (Main Driveway)
- Middle Road & Western Driveway (Main Driveway)
- Middle Road & Eastern Driveway (Secondary Driveway)



EXECUTIVE SUMMARY

The purpose of this study is to determine the potential increase in traffic associated with the Data Center development and its impact on the surrounding roadway network in Granville Township, Mifflin County, PA. Based on the analyses presented, the following conclusions have been reached:

1. The study area intersections included in this report are as follows:
    - Highway 522 & Industrial Park Road
    - Business 22 & Industrial Park Road
    - Middle Road and Industrial Park Road
    - Loop Road and Industrial Park Road
    - Business 22 and Loop Road
    - Loop Road & Western Driveway
    - Loop Road & Eastern Driveway
    - Middle Road & Western Driveway
    - Middle Road & Eastern Driveway

2. The project site is located along Loop Road and Middle Road. The proposed development will consist of a 1,531,440 square foot (SF) Data Center and the proposed opening year build date is set for 2032.

3. The project site will be served by four (4) full access driveways. Two (2) driveways will access Loop Road and two (2) driveways will access Middle Road. The traffic entering and exiting the site will be determined through the Journey to Work Model provided in the appendices. See **Appendix K**

4. The measured sight distance at the proposed driveway locations will meet or exceed the minimum required PennDOT Safe Stopping Sight Distance (SSSD) requirements.

5. Upon full build-out, the proposed site is estimated to generate 137 new vehicle trips during the Weekday/Weekend AM peak hour, 123 new vehicle trips during the Weekday/Weekend PM peak hour.

6. Capacity analyses were completed to determine the Level of Service (LOS) at the study area intersections during the 2026 Existing, 2032 Opening Year (No-Build), 2032 Opening Year (Build), 2037 Design Year (No Build), and 2037 Design Year (Build) conditions. These capacity analyses were completed in accordance with Granville Township's SALDO.

7. Levels of Service (LOS) for the study area intersections are provided in **Table E1** for the Weekday AM peak hour, **Table E2** for the Weekday PM peak hour, **Table E3** for the Saturday AM peak hour, and **Table E4** for the Saturday PM peak hour.

8. The 95th percentile queue lengths for the study area intersections are provided in **Table E5** for the Weekday AM peak hour, Weekday PM peak hour and **Table E6** for Saturday AM peak hour and Saturday PM peak hour.

RECOMMENDATIONS & CONCLUSIONS

LIVIC Civil, LLC recommends the following roadway improvements as part of the proposed development project:

Highway 522 & Industrial Park Road:
- There are no proposed improvements.

Business 22 & Industrial Park Road:
- There are no proposed improvements.

Middle Road & Industrial Park Road:
- There are no proposed improvements.

Loop Road & Industrial Park Road:
- There are no proposed improvements

Business 22 & Loop Road:
- There are no proposed improvements

Loop Road & Western Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Loop Road & Eastern Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Middle Road & Western Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Middle Road & Eastern Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

TABLE E1
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
WEEKDAY AM PEAK HOUR

Intersection	Approach Direction	Movement /Approach	Weekday (AM) Peak Hour				
			Existing Condition 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037
Hwy 522 & Industrial Park Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(0)	A(0)	A(0)	A(0)	A(0)
		WBT	A(0)	A(0)	A(0)	A(0)	A(0)
	NB	NBL	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(0)**	**A(0)**	**A(0)**
Business 22 & Industrial Park Rd	EB	EBL	A(7)	A(7)	A(7.2)	A(7)	A(7.2)
		EBT	A(7.8)	A(7.9)	A(8.2)	A(8)	A(8.2)
		EBR	A(7.8)	A(7.9)	A(8.2)	A(8)	A(8.2)
	WB	WBL	A(8.7)	A(8.8)	A(9.2)	A(8.9)	A(9.3)
		WBT	A(6.9)	A(7)	A(7.2)	A(7)	A(7.2)
		WBR	A(7)	A(7)	A(7.2)	A(7.1)	A(7.2)
	NB	NBL	B(13)	B(13)	B(13.1)	B(13)	B(13.1)
		NBT	B(13)	B(13)	B(13.1)	B(13)	B(13.1)
		NBR	B(14.1)	B(14.1)	B(13.8)	B(14.1)	B(13.8)
	SB	SBL	B(16.6)	B(16.7)	B(16.9)	B(16.8)	B(17)
		SBT	B(16.6)	B(16.7)	B(16.9)	B(16.8)	B(17)
		SBR	B(16.6)	B(16.7)	B(16.9)	B(16.8)	B(17)
	ILOS		**A(9.9)**	**B(10)**	**B(10.3)**	**B(10)**	**B(10.3)**
Industrial Park Rd & Middle Rd	EB	EBL	B(11.5)	B(11.6)	B(13.8)	B(11.8)	B(14)
		EBT	B(11.5)	B(11.6)	B(13.8)	B(11.8)	B(14)
		EBR	B(11.5)	B(11.6)	B(13.8)	B(11.8)	B(14)
	WB	WBL	A(9.6)	A(9.6)	A(9.7)	A(9.7)	A(9.7)
		WBT	A(9.6)	A(9.6)	A(9.7)	A(9.7)	A(9.7)
		WBR	A(9.6)	A(9.6)	A(9.7)	A(9.7)	A(9.7)
	NB	NBL	A(8.9)	A(8.9)	A(9.2)	A(8.9)	A(9.2)
		NBT	A(8.9)	A(8.9)	A(9.2)	A(8.9)	A(9.2)
		NBR	A(8.9)	A(8.9)	A(9.2)	A(8.9)	A(9.2)
	SB	SBL	A(8.6)	A(8.6)	A(8.5)	A(8.6)	A(8.5)
		SBT	A(8.6)	A(8.6)	A(8.5)	A(8.6)	A(8.5)
		SBR	A(8.6)	A(8.6)	A(8.5)	A(8.6)	A(8.5)
	ILOS		**A(8.86)**	**A(8.87)**	**A(8.93)**	**A(8.87)**	**A(8.94)**
Industrial Park Rd & Loop Rd	EB	EBL	A(7.9)	A(7.9)	A(8.6)	A(7.9)	A(8.7)
		EBT	A(7.9)	A(7.9)	A(8.6)	A(7.9)	A(8.7)
		EBR	A(7.9)	A(7.9)	A(8.6)	A(7.9)	A(8.7)
	WB	WBL	A(8.4)	A(8.5)	A(8.9)	A(8.6)	A(8.9)
		WBT	A(8.4)	A(8.5)	A(8.9)	A(8.6)	A(8.9)
		WBR	A(8.4)	A(8.5)	A(8.9)	A(8.6)	A(8.9)
	NB	NBL	A(9.1)	A(9.2)	A(9.5)	A(9.2)	A(9.5)
		NBT	A(9.1)	A(9.2)	A(9.5)	A(9.2)	A(9.5)
		NBR	A(9.1)	A(9.2)	A(9.5)	A(9.2)	A(9.5)
	SB	SBL	A(8.6)	A(8.7)	A(9.5)	A(8.8)	A(9.6)
		SBT	A(8.6)	A(8.7)	A(9.5)	A(8.8)	A(9.6)
		SBR	A(8.6)	A(8.7)	A(9.5)	A(8.8)	A(9.6)
	ILOS		**A(8.67)**	**A(8.77)**	**A(9.31)**	**A(8.84)**	**A(9.37)**
Business 22 & Loop Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(9)	A(9)	A(9)	A(9)	A(9)
		WBT	A(9)	A(9)	A(9)	A(9)	A(9)
	NB	NBL	B(10.6)	B(10.7)	B(10.7)	B(10.7)	B(10.8)
		NBR	B(10.6)	B(10.7)	B(10.7)	B(10.7)	B(10.8)
	ILOS		**A(5.02)**	**A(5.03)**	**A(5.05)**	**A(5.02)**	**A(5.05)**
Loop Rd & Western Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(0)	-(-)	A(0)
		SBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**
Loop Rd & Eastern Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(8.6)	-(-)	A(8.7)
		SBR	-(-)	-(-)	A(8.6)	-(-)	A(8.7)
	ILOS		**-(-)**	**-(-)**	**A(1.81)**	**-(-)**	**A(1.82)**
Middle Rd & Western Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(8.4)	-(-)	A(8.4)
		NBR	-(-)	-(-)	A(8.4)	-(-)	A(8.4)
	ILOS		**-(-)**	**-(-)**	**A(0.9)**	**-(-)**	**A(0.89)**
Middle Rd & Eastern Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(0)	-(-)	A(0)
		NBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**

TABLE E2
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
WEEKDAY PM PEAK HOUR

Intersection	Approach Direction	Movement /Approach	Weekday (PM) Peak Hour				
			Existing Condition 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037
Hwy 522 & Industrial Park Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(0)	A(0)	A(0)	A(0)	A(0)
		WBT	A(0)	A(0)	A(0)	A(0)	A(0)
	NB	NBL	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(0)**	**A(0)**	**A(0)**
Business 22 & Industrial Park Rd	EB	EBL	B(12.5)	B(12.8)	B(12.9)	B(13)	B(13.1)
		EBT	B(13.8)	B(14.1)	B(14.2)	B(14.3)	B(14.4)
		EBR	B(13.8)	B(14.4)	B(14.2)	B(14.3)	B(14.4)
	WB	WBL	B(15.4)	B(15.9)	B(16.2)	B(16.2)	B(16.5)
		WBT	B(11.8)	B(12.1)	B(12.1)	B(12.2)	B(12.2)
		WBR	B(12)	B(12.2)	B(12.3)	B(12.3)	B(12.4)
	NB	NBL	B(17)	B(17.4)	B(19.7)	B(17.8)	C(20.3)
		NBT	B(17)	B(17.4)	B(19.7)	B(17.8)	C(20.3)
		NBR	C(23.3)	C(24.9)	C(26.1)	C(26.1)	C(27.4)
	SB	SBL	C(25.6)	C(25.9)	C(26.2)	C(26.3)	C(26.5)
		SBT	C(25.6)	C(25.9)	C(26.2)	C(26.3)	C(26.5)
		SBR	C(25.6)	C(25.9)	C(26.2)	C(26.3)	C(26.5)
	ILOS		**B(15.9)**	**B(16.4)**	**B(17.3)**	**B(16.7)**	**B(17.7)**
Industrial Park Rd & Middle Rd	EB	EBL	D(31.6)	D(33.9)	F(81)	E(37.4)	F(96)
		EBT	D(31.6)	D(33.9)	F(81)	E(37.4)	F(96)
		EBR	D(31.6)	D(33.9)	F(81)	E(37.4)	F(96)
	WB	WBL	C(19.7)	C(20.3)	D(25.2)	C(21.1)	D(26.3)
		WBT	C(19.7)	C(20.3)	D(25.2)	C(21.1)	D(26.3)
		WBR	C(19.7)	C(20.3)	D(25.2)	C(21.1)	D(26.3)
	NB	NBL	A(8.5)	A(8.5)	A(8.7)	A(8.5)	A(8.7)
		NBT	A(8.5)	A(8.5)	A(8.7)	A(8.5)	A(8.7)
		NBR	A(8.5)	A(8.5)	A(8.7)	A(8.5)	A(8.7)
	SB	SBL	B(11.3)	B(11.4)	B(12.4)	B(11.5)	B(12.5)
		SBT	B(11.3)	B(11.4)	B(12.4)	B(11.5)	B(12.5)
		SBR	B(11.3)	B(11.4)	B(12.4)	B(11.5)	B(12.5)
	ILOS		**B(11.22)**	**B(11.42)**	**B(14.98)**	**B(11.77)**	**C(16.14)**
Industrial Park Rd & Loop Rd	EB	EBL	A(7.7)	A(7.7)	A(8.7)	A(7.7)	A(8.8)
		EBT	A(7.7)	A(7.7)	A(8.7)	A(7.7)	A(8.8)
		EBR	A(7.7)	A(7.7)	A(8.7)	A(7.7)	A(8.8)
	WB	WBL	A(7.8)	A(7.9)	A(8.2)	A(7.9)	A(8.2)
		WBT	A(7.8)	A(7.9)	A(8.2)	A(7.9)	A(8.2)
		WBR	A(7.8)	A(7.9)	A(8.2)	A(7.9)	A(8.2)
	NB	NBL	A(8.2)	A(8.2)	A(8.8)	A(8.3)	A(8.8)
		NBT	A(8.2)	A(8.2)	A(8.8)	A(8.3)	A(8.8)
		NBR	A(8.2)	A(8.2)	A(8.8)	A(8.3)	A(8.8)
	SB	SBL	A(7.5)	A(7.5)	A(7.8)	A(7.5)	A(7.9)
		SBT	A(7.5)	A(7.5)	A(7.8)	A(7.5)	A(7.9)
		SBR	A(7.5)	A(7.5)	A(7.8)	A(7.5)	A(7.9)
	ILOS		**A(7.98)**	**A(7.99)**	**A(8.48)**	**A(8.06)**	**A(8.53)**
Business 22 & Loop Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(9.7)	A(9.8)	A(9.8)	A(9.9)	A(9.9)
		WBT	A(9.7)	A(9.8)	A(9.8)	A(9.9)	A(9.9)
	NB	NBL	B(13.4)	B(13.6)	B(13.7)	B(13.9)	B(14)
		NBR	B(13.4)	B(13.6)	B(13.7)	B(13.9)	B(14)
	ILOS		**A(5.64)**	**A(5.7)**	**A(5.7)**	**A(5.77)**	**A(5.76)**
Loop Rd & Western Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(0)	-(-)	A(0)
		SBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**
Loop Rd & Eastern Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(8.6)	-(-)	A(8.6)
		SBR	-(-)	-(-)	A(8.6)	-(-)	A(8.6)
	ILOS		**-(-)**	**-(-)**	**A(3.82)**	**-(-)**	**A(3.82)**
Middle Rd & Western Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(8.4)	-(-)	A(8.4)
		NBR	-(-)	-(-)	A(8.4)	-(-)	A(8.4)
	ILOS		**-(-)**	**-(-)**	**A(1.54)**	**-(-)**	**A(1.53)**
Middle Rd & Eastern Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(0)	-(-)	A(0)
		NBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**

TABLE E3
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
WEEKEND AM PEAK HOUR

Intersection	Approach Direction	Movement /Approach	Weekday (AM) Peak Hour				
			Existing Condition 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037
Hwy 522 & Industrial Park Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(0)	A(0)	A(0)	A(0)	A(0)
		WBT	A(0)	A(0)	A(0)	A(0)	A(0)
	NB	NBL	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(0)**	**A(0)**	**A(0)**
Business 22 & Industrial Park Rd	EB	EBL	A(7.4)	A(7.4)	A(7.7)	A(7.5)	A(7.8)
		EBT	A(8)	A(8.1)	A(8.4)	A(8.2)	A(8.5)
		EBR	A(8)	A(8.1)	A(8.4)	A(8.2)	A(8.5)
	WB	WBL	A(8.2)	A(8.3)	A(8.7)	A(8.4)	A(8.8)
		WBT	A(7.3)	A(7.4)	A(7.7)	A(7.5)	A(7.8)
		WBR	A(7.4)	A(7.5)	A(7.8)	A(7.6)	A(7.9)
	NB	NBL	B(13.3)	B(13.3)	B(13.3)	B(13.3)	B(13.2)
		NBT	B(13.3)	B(13.3)	B(13.3)	B(13.3)	B(13.2)
		NBR	B(15.4)	B(15.4)	B(14.5)	B(15.4)	B(14.6)
	SB	SBL	B(16.6)	B(16.7)	B(17)	B(16.8)	B(17.1)
		SBT	B(16.6)	B(16.7)	B(17)	B(16.8)	B(17.1)
		SBR	B(16.6)	B(16.7)	B(17)	B(16.8)	B(17.1)
	ILOS		**A(9.2)**	**A(9.3)**	**A(9.7)**	**A(9.3)**	**A(9.7)**
Industrial Park Rd & Middle Rd	EB	EBL	A(9.6)	A(9.6)	B(11.1)	A(9.7)	B(11.2)
		EBT	A(9.6)	A(9.6)	B(11.1)	A(9.7)	B(11.2)
		EBR	A(9.6)	A(9.6)	B(11.1)	A(9.7)	B(11.2)
	WB	WBL	A(9.6)	A(9.7)	B(10)	A(9.7)	B(10)
		WBT	A(9.6)	A(9.7)	B(10)	A(9.7)	B(10)
		WBR	A(9.6)	A(9.7)	B(10)	A(9.7)	B(10)
	NB	NBL	A(8.4)	A(8.4)	A(8.7)	A(8.4)	A(8.7)
		NBT	A(8.4)	A(8.4)	A(8.7)	A(8.4)	A(8.7)
		NBR	A(8.4)	A(8.4)	A(8.7)	A(8.4)	A(8.7)
	SB	SBL	A(8.8)	A(8.9)	A(8.6)	A(8.9)	A(8.6)
		SBT	A(8.8)	A(8.9)	A(8.6)	A(8.9)	A(8.6)
		SBR	A(8.8)	A(8.9)	A(8.6)	A(8.9)	A(8.6)
	ILOS		**A(8.74)**	**A(8.79)**	**A(8.79)**	**A(8.8)**	**A(8.79)**
Industrial Park Rd & Loop Rd	EB	EBL	A(7.5)	A(7.5)	A(8.2)	A(7.6)	A(8.2)
		EBT	A(7.5)	A(7.5)	A(8.2)	A(7.6)	A(8.2)
		EBR	A(7.5)	A(7.5)	A(8.2)	A(7.6)	A(8.2)
	WB	WBL	A(7.7)	A(7.7)	A(8)	A(7.7)	A(8)
		WBT	A(7.7)	A(7.7)	A(8)	A(7.7)	A(8)
		WBR	A(7.7)	A(7.7)	A(8)	A(7.7)	A(8)
	NB	NBL	A(7.5)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
		NBT	A(7.5)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
		NBR	A(7.5)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
	SB	SBL	A(7.6)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
		SBT	A(7.6)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
		SBR	A(7.6)	A(7.6)	A(7.9)	A(7.6)	A(7.9)
	ILOS		**A(7.56)**	**A(7.61)**	**A(7.94)**	**A(7.62)**	**A(7.94)**
Business 22 & Loop Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(9.4)	A(9.4)	A(9.4)	A(9.5)	A(9.5)
		WBT	A(9.4)	A(9.4)	A(9.4)	A(9.5)	A(9.5)
	NB	NBL	B(12.1)	B(12.3)	B(12.3)	B(12.5)	B(12.5)
		NBR	B(12.1)	B(12.3)	B(12.3)	B(12.5)	B(12.5)
	ILOS		**A(5.49)**	**A(5.51)**	**A(5.53)**	**A(5.57)**	**A(5.59)**
Loop Rd & Western Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(0)	-(-)	A(0)
		SBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**
Loop Rd & Eastern Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(8.6)	-(-)	A(8.6)
		SBR	-(-)	-(-)	A(8.6)	-(-)	A(8.6)
	ILOS		**-(-)**	**-(-)**	**A(1.7)**	**-(-)**	**A(1.68)**
Middle Rd & Western Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(8.3)	-(-)	A(8.3)
		NBR	-(-)	-(-)	A(8.3)	-(-)	A(8.3)
	ILOS		**-(-)**	**-(-)**	**A(0.82)**	**-(-)**	**A(0.82)**
Middle Rd & Eastern Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(0)	-(-)	A(0)
		NBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**

TABLE E4
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY
WEEKEND PM PEAK HOUR

Intersection	Approach Direction	Movement /Approach	Weekday (PM) Peak Hour				
			Existing Condition 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037
Hwy 522 & Industrial Park Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(0)	A(0)	A(0)	A(0)	A(0)
		WBT	A(0)	A(0)	A(0)	A(0)	A(0)
	NB	NBL	A(0)	A(0)	A(0)	A(0)	A(0)
		NBR	A(0)	A(0)	A(0)	A(0)	A(0)
	ILOS		**A(0)**	**A(0)**	**A(0)**	**A(0)**	**A(0)**
Business 22 & Industrial Park Rd	EB	EBL	A(7.7)	A(7.7)	A(8.5)	A(7.8)	A(8.5)
		EBT	A(8.1)	A(8.2)	A(8.9)	A(8.1)	A(8.9)
		EBR	A(8.1)	A(8.2)	A(8.9)	A(8.1)	A(8.9)
	WB	WBL	A(8.5)	A(8.5)	A(9.4)	A(8.6)	A(9.5)
		WBT	A(7.6)	A(7.6)	A(8.3)	A(7.6)	A(8.3)
		WBR	A(7.6)	A(7.6)	A(8.4)	A(7.6)	A(8.4)
	NB	NBL	B(14.3)	B(14.5)	B(14.7)	B(14.7)	B(14.8)
		NBT	B(14.3)	B(14.5)	B(14.7)	B(14.7)	B(14.8)
		NBR	B(15.5)	B(15.8)	B(14.6)	B(15.9)	B(14.8)
	SB	SBL	B(18.1)	B(18.3)	B(19.5)	B(18.5)	B(19.7)
		SBT	B(18.1)	B(18.3)	B(19.5)	B(18.5)	B(19.7)
		SBR	B(18.1)	B(18.3)	B(19.5)	B(18.5)	B(19.7)
	ILOS		**A(9.2)**	**A(9.3)**	**B(10.4)**	**A(9.3)**	**B(10.5)**
Industrial Park Rd & Middle Rd	EB	EBL	A(9.4)	A(9.4)	B(10.6)	A(9.4)	B(10.6)
		EBT	A(9.4)	A(9.4)	B(10.6)	A(9.4)	B(10.6)
		EBR	A(9.4)	A(9.4)	B(10.6)	A(9.4)	B(10.6)
	WB	WBL	A(9.3)	A(9.3)	A(9.8)	A(9.4)	A(9.8)
		WBT	A(9.3)	A(9.3)	A(9.8)	A(9.4)	A(9.8)
		WBR	A(9.3)	A(9.3)	A(9.8)	A(9.4)	A(9.8)
	NB	NBL	A(8.2)	A(8.2)	A(8.3)	A(8.2)	A(8.3)
		NBT	A(8.2)	A(8.2)	A(8.3)	A(8.2)	A(8.3)
		NBR	A(8.2)	A(8.2)	A(8.3)	A(8.2)	A(8.3)
	SB	SBL	A(8.1)	A(8.1)	A(8.4)	A(8.1)	A(8.4)
		SBT	A(8.1)	A(8.1)	A(8.4)	A(8.1)	A(8.4)
		SBR	A(8.1)	A(8.1)	A(8.4)	A(8.1)	A(8.4)
	ILOS		**A(8.54)**	**A(8.54)**	**A(8.8)**	**A(8.55)**	**A(8.8)**
Industrial Park Rd & Loop Rd	EB	EBL	A(7.3)	A(7.3)	A(8.1)	A(7.3)	A(8.1)
		EBT	A(7.3)	A(7.3)	A(8.1)	A(7.3)	A(8.1)
		EBR	A(7.3)	A(7.3)	A(8.1)	A(7.3)	A(8.1)
	WB	WBL	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
		WBT	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
		WBR	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
	NB	NBL	A(7)	A(7.1)	A(7.3)	A(7.1)	A(7.3)
		NBT	A(7)	A(7.1)	A(7.3)	A(7.1)	A(7.3)
		NBR	A(7)	A(7.1)	A(7.3)	A(7.1)	A(7.3)
	SB	SBL	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
		SBT	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
		SBR	A(7.2)	A(7.2)	A(7.4)	A(7.2)	A(7.4)
	ILOS		**A(7.16)**	**A(7.19)**	**A(7.64)**	**A(7.19)**	**A(7.63)**
Business 22 & Loop Rd	EB	EBT	A(0)	A(0)	A(0)	A(0)	A(0)
		EBR	A(0)	A(0)	A(0)	A(0)	A(0)
	WB	WBL	A(9.8)	A(9.8)	A(9.8)	A(9.9)	A(9.9)
		WBT	A(9.8)	A(9.8)	A(9.8)	A(9.9)	A(9.9)
	NB	NBL	B(12)	B(12.1)	B(12.2)	B(12.3)	B(12.4)
		NBR	B(12)	B(12.1)	B(12.2)	B(12.3)	B(12.4)
	ILOS		**A(5.55)**	**A(5.55)**	**A(5.54)**	**A(5.61)**	**A(5.6)**
Loop Rd & Western Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(0)	-(-)	A(0)
		SBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**
Loop Rd & Eastern Access	EB	EBL	-(-)	-(-)	A(0)	-(-)	A(0)
		EBT	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBT	-(-)	-(-)	A(0)	-(-)	A(0)
		WBR	-(-)	-(-)	A(0)	-(-)	A(0)
	SB	SBL	-(-)	-(-)	A(8.7)	-(-)	A(8.7)
		SBR	-(-)	-(-)	A(8.7)	-(-)	A(8.7)
	ILOS		**-(-)**	**-(-)**	**A(4.03)**	**-(-)**	**A(4.03)**
Middle Rd & Western Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(8.5)	-(-)	A(8.5)
		NBR	-(-)	-(-)	A(8.5)	-(-)	A(8.5)
	ILOS		**-(-)**	**-(-)**	**A(1.79)**	**-(-)**	**A(1.79)**
Middle Rd & Eastern Access	EB	EBT	-(-)	-(-)	A(0)	-(-)	A(0)
		EBR	-(-)	-(-)	A(0)	-(-)	A(0)
	WB	WBL	-(-)	-(-)	A(0)	-(-)	A(0)
		WBT	-(-)	-(-)	A(0)	-(-)	A(0)
	NB	NBL	-(-)	-(-)	A(0)	-(-)	A(0)
		NBR	-(-)	-(-)	A(0)	-(-)	A(0)
	ILOS		**-(-)**	**-(-)**	**A(0)**	**-(-)**	**A(0)**

TABLE E5
WEEKDAY 95TH PERCENTILE QUEUE (FEET) ANALYSIS

WEEKDAY			QUEUE LENGTH (FEET)												
			Existing Conditions 2026		Opening Year (No Build) 2032		Opening Year (Build) 2032		Design Year (No Build) 2037		Design Year (Build) 2037		Existing Available Storage (to Nearest Intersection)	New Available Storage (to Nearest Intersection)	Adequate Storage?
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
Hwy 522 & Industrial Park Rd	EB	EBT	0	0	0	0	0	0	0	0	0	0	325	325	YES
		EBR	0	0	0	0	0	0	0	0	0	0	125	125	YES
	WB	WBL	18	18	13	9	23	13	25	0	30	13	200	200	YES
		WBT	18	18	13	9	23	13	25	0	30	13	200	200	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	165	165	YES
		NBR	0	0	0	0	0	0	0	0	0	0	165	165	YES
Business 22 & Industrial Park Rd	EB	EBL	18	26	17	26	13	33	21	26	19	31	1000+	1000+	YES
		EBT	78	142	98	165	84	140	88	155	87	167	1000+	1000+	YES
		EBR	78	142	98	165	84	140	88	155	87	167	250	250	YES
	WB	WBL	51	44	41	37	47	58	45	49	41	42	160	160	YES
		WBT	54	107	53	95	51	96	54	116	54	87	1000+	1000+	YES
		WBR	19	67	26	78	22	70	27	74	25	68	160	160	YES
	NB	NBL	31	89	19	86	34	99	30	85	32	88	150	150	YES
		NBT	51	110	57	118	62	113	61	120	57	119	770	770	YES
		NBR	41	54	46	55	40	74	41	75	39	73	150	150	YES
	SB	SBL	16	48	23	40	19	39	17	36	18	52	165	165	YES
		SBT	16	48	23	40	19	39	17	36	18	52	165	165	YES
		SBR	16	48	23	40	19	39	17	36	18	52	165	165	YES
Industrial Park Rd & Middle Rd	EB	EBL	34	68	43	66	54	54	49	57	40	110	1000+	1000+	YES
		EBT	34	68	43	66	54	54	49	57	40	110	1000+	1000+	YES
		EBR	34	68	43	66	54	54	49	57	40	110	1000+	1000+	YES
	WB	WBL	36	39	38	41	26	52	34	43	36	61	125	125	YES
		WBT	36	39	38	41	26	52	34	43	36	61	125	125	YES
		WBR	36	39	38	41	26	52	34	43	36	61	125	125	YES
	NB	NBL	0	0	9	44	0	0	0	7	0	6	220	220	YES
		NBT	0	0	9	44	0	0	0	7	0	6	220	220	YES
		NBR	0	0	9	44	0	0	0	7	0	6	220	220	YES
	SB	SBL	9	19	0	46	21	124	0	37	19	57	770	770	YES
		SBT	9	19	0	46	21	124	0	37	19	57	770	770	YES
		SBR	9	19	0	46	21	124	0	37	19	57	770	770	YES
Industrial Park Rd & Loop Rd	EB	EBL	29	26	27	22	35	35	28	24	44	39	830	830	YES
		EBT	29	26	27	22	35	35	28	24	44	39	830	830	YES
		EBR	29	26	27	22	35	35	28	24	44	39	830	830	YES
	WB	WBL	32	27	26	28	36	29	27	29	39	29	550	550	YES
		WBT	32	27	26	28	36	29	27	29	39	29	550	550	YES
		WBR	32	27	26	28	36	29	27	29	39	29	550	550	YES
	NB	NBL	49	55	45	62	48	60	50	61	52	72	750	750	YES
		NBT	49	55	45	62	48	60	50	61	52	72	750	750	YES
		NBR	49	55	45	62	48	60	50	61	52	72	750	750	YES
	SB	SBL	79	61	0	0	48	60	50	61	52	72	355	355	YES
		SBT	79	61	0	62	48	60	50	61	52	72	355	355	YES
		SBR	79	61	0	62	48	60	50	61	52	72	355	355	YES
Business 22 & Loop Rd	EB	EBT	0	0	0	0	0	0	0	0	0	0	115	115	YES
		EBR	0	0	0	0	0	0	0	0	0	0	115	115	YES
	WB	WBL	21	70	46	90	20	49	42	72	36	51	165	165	YES
		WBT	21	70	46	90	20	49	42	72	36	51	165	165	YES
	NB	NBL	39	57	42	45	37	70	39	54	42	56	140	140	YES
		NBR	39	57	42	45	37	70	39	54	42	56	140	140	YES
Loop Rd & Western Access	EB	EBL	0	0	0	0	0	0	0	0	0	0	775	775	YES
		EBT	0	0	0	0	0	0	0	0	0	0	775	775	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	540	540	YES
		WBR	0	0	0	0	0	0	0	0	0	0	540	540	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
		SBR	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
Loop Rd & Eastern Access	EB	EBL	0	0	0	0	0	0	0	0	0	0	540	540	YES
		EBT	0	0	0	0	0	0	0	0	0	0	540	540	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	830	830	YES
		WBR	0	0	0	0	0	0	0	0	0	0	830	830	YES
	SB	SBL	0	0	0	0	41	50	0	0	43	54	N/A	150	YES
		SBR	0	0	0	0	41	50	0	0	43	54	N/A	150	YES
Middle Rd & Western Access	EB	EBT	0	0	0	0	0	0	0	0	0	0	510	510	YES
		EBR	0	0	0	0	0	0	0	0	0	0	510	510	YES
	WB	WBL	0	0	0	0	0	0	0	0	0	0	910	910	YES
		WBT	0	0	0	0	0	0	0	0	0	0	910	910	YES
	NB	NBL	0	0	0	0	28	33	0	0	22	39	N/A	150	YES
		NBR	0	0	0	0	28	33	0	0	22	39	N/A	150	YES
Middle Rd & Eastern Access	EB	EBT	0	0	0	0	0	0	0	0	0	0	910	910	YES
		EBR	0	0	0	0	0	0	0	0	0	0	910	910	YES
		WBL	0	0	0	0	0	0	0	0	0	0	275	275	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	275	275	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
		NBR	0	0	0	0	0	0	0	0	0	0	N/A	150	YES

TABLE E6
WEEKEND 95TH PERCENTILE QUEUE (FEET) ANALYSIS

WEEKEND			QUEUE LENGTH (FEET)												
			Existing Conditions 2026		Opening Year (No Build) 2032		Opening Year (Build) 2032		Design Year (No Build) 2037		Design Year (Build) 2037		Existing Available Storage (to Nearest Intersection)	New Available Storage (to Nearest Intersection)	Adequate Storage?
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM			
Hwy 522 & Industrial Park Rd	EB	EBT	0	0	0	0	0	0	0	0	0	0	325	325	YES
		EBR	0	0	0	0	0	0	0	0	0	0	125	125	YES
	WB	WBL	0	0	9	0	9	0	14	0	0	0	200	200	YES
		WBT	0	0	9	0	9	0	14	0	0	0	200	200	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	165	165	YES
		NBR	0	0	0	0	0	0	0	0	0	0	165	165	YES
Business 22 & Industrial Park Rd	EB	EBL	17	24	25	27	32	27	21	26	33	29	1000+	1000+	YES
		EBT	64	72	76	81	98	113	85	80	101	90	1000+	1000+	YES
		EBR	64	72	76	81	98	113	85	80	101	90	250	250	YES
	WB	WBL	34	26	42	41	43	31	39	28	26	39	160	160	YES
		WBT	71	64	70	81	73	85	62	73	70	84	1000+	1000+	YES
		WBR	38	46	47	44	37	46	47	49	40	55	160	160	YES
	NB	NBL	15	14	17	8	8	39	8	7	11	26	150	150	YES
		NBT	59	48	52	52	55	60	42	52	49	53	770	770	YES
		NBR	39	36	42	34	36	37	39	33	42	31	150	150	YES
	SB	SBL	31	30	28	26	32	41	31	24	31	38	165	165	YES
		SBT	31	30	28	26	32	41	31	24	31	38	165	165	YES
		SBR	31	30	28	26	32	41	31	24	31	38	165	165	YES
Industrial Park Rd & Middle Rd	EB	EBL	27	45	29	46	32	49	29	46	34	46	1000+	1000+	YES
		EBT	27	45	29	46	32	49	29	46	34	46	1000+	1000+	YES
		EBR	27	45	29	46	32	49	29	46	34	46	1000+	1000+	YES
	WB	WBL	26	35	29	34	34	44	25	38	38	40	125	125	YES
		WBT	26	35	29	34	34	44	25	38	38	40	125	125	YES
		WBR	26	35	29	34	34	44	25	38	38	40	125	125	YES
	NB	NBL	9	0	9	0	0	0	9	0	11	0	220	220	YES
		NBT	9	0	9	0	0	0	9	0	11	0	220	220	YES
		NBR	9	0	9	0	0	0	9	0	11	0	220	220	YES
	SB	SBL	23	0	0	0	19	0	9	0	8	13	770	770	YES
		SBT	23	0	0	0	19	0	9	0	8	13	770	770	YES
		SBR	23	0	0	0	19	0	9	0	8	13	770	770	YES
Industrial Park Rd & Loop Rd	EB	EBL	23	31	21	33	34	37	24	32	37	38	830	830	YES
		EBT	23	31	21	33	34	37	24	32	37	38	830	830	YES
		EBR	23	31	21	33	34	37	24	32	37	38	830	830	YES
	WB	WBL	31	28	32	28	32	26	29	28	29	26	550	550	YES
		WBT	31	28	32	28	32	26	29	28	29	26	550	550	YES
		WBR	31	28	32	28	32	26	29	28	29	26	550	550	YES
	NB	NBL	55	54	52	56	46	42	49	54	46	56	750	750	YES
		NBT	55	54	52	56	46	42	49	54	46	56	750	750	YES
		NBR	55	54	52	56	46	42	49	54	46	56	750	750	YES
	SB	SBL	56	41	56	42	69	59	55	46	68	57	355	355	YES
		SBT	56	41	56	42	69	59	55	46	68	57	355	355	YES
		SBR	56	41	56	42	69	59	55	46	68	57	355	355	YES
Business 22 & Loop Rd	EB	EBT	0	0	0	0	0	0	0	0	0	0	115	115	YES
		EBR	0	0	0	0	0	0	0	0	0	0	115	115	YES
	WB	WBL	39	83	44	78	48	80	38	74	53	82	165	165	YES
		WBT	39	83	44	78	48	80	38	74	53	82	165	165	YES
	NB	NBL	47	37	46	42	38	42	48	41	26	40	140	140	YES
		NBR	47	37	46	42	38	42	48	41	26	40	140	140	YES
Loop Rd & Western Access	EB	EBL	0	0	0	0	0	0	0	0	0	0	775	775	YES
		EBT	0	0	0	0	0	0	0	0	0	0	775	775	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	540	540	YES
		WBR	0	0	0	0	0	0	0	0	0	0	540	540	YES
	SB	SBL	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
		SBR	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
Loop Rd & Eastern Access	EB	EBL	0	0	0	0	0	0	0	0	0	0	540	540	YES
		EBT	0	0	0	0	0	0	0	0	0	0	540	540	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	830	830	YES
		WBR	0	0	0	0	0	0	0	0	0	0	830	830	YES
	SB	SBL	0	0	0	0	41	57	0	0	45	56	N/A	150	YES
		SBR	0	0	0	0	41	57	0	0	45	56	N/A	150	YES
Middle Rd & Western Access	EB	EBT	0	0	0	0	0	0	0	0	0	0	510	510	YES
		EBR	0	0	0	0	0	0	0	0	0	0	510	510	YES
	WB	WBL	0	0	0	0	0	0	0	0	0	0	910	910	YES
		WBT	0	0	0	0	0	0	0	0	0	0	910	910	YES
	NB	NBL	0	0	0	0	21	38	0	0	36	42	N/A	150	YES
		NBR	0	0	0	0	21	38	0	0	36	42	N/A	150	YES
Middle Rd & Eastern Access	EB	EBT	0	0	0	0	0	0	0	0	0	0	910	910	YES
		EBR	0	0	0	0	0	0	0	0	0	0	910	910	YES
		WBL	0	0	0	0	0	0	0	0	0	0	275	275	YES
	WB	WBT	0	0	0	0	0	0	0	0	0	0	275	275	YES
	NB	NBL	0	0	0	0	0	0	0	0	0	0	N/A	150	YES
		NBR	0	0	0	0	0	0	0	0	0	0	N/A	150	YES

EXISTING ROADWAY NETWORK

The roadway network within the study area has been reviewed to determine the existing roadway characteristics. A summary of these roadways is shown in **Table 1**.

TABLE 1
EXISTING STUDY AREA ROADWAY CHARACTERISTICS

Roadway	Pavement		Shoulders	Speed Limit (MPH)	Roadway Class	Smart Transportation	
	Lanes	Markings				Land Use Context	Transportation Context
Highway 522	24' (two lanes)	Center and Edge Lines	~6-11' Shoulders	35	Urban Collector	Urban	Community Collector
Business 22	48' (four lanes)	Center and Edge Lines	~7-10'	30	Other Principal Arterial	Urban	Regional Arterial
Industrial Park Road	24-28' (two lanes)	Center and Edge Lines	~3'	35	Urban Collector	Urban	Community Collector
Middle Road	23' (two lanes)	Center Line	N/A	35	Local	Urban	Local
Loop Road	23' (two lanes)	Center Line	N/A	25	Local	Rural	Local
Western Driveway on Loop Road	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local
Eastern Driveway on Loop Road	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local
Western Driveway on Middle Road	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local
Eastern Driveway on Middle Road	TBD' (two lanes)	TBD	TBD	15	Local	Rural	Local

Land Use Context

PennDOT Design Manual, Part 1X, Appendix B, was referenced in determining the land use context of the surrounding areas. Based upon a review of this information, the project site and surrounding area appears to be best described as a Typology Corridor as outlined below:

Rural - Consists of a few houses/structures dotting a farm or forested landscape. Most land is undeveloped or cultivated. Small commercial establishments are often located at intersections of arterial or collector roads.

Roadway Typology

PennDOT Design Manual, Part 1X, Appendix B provides additional guidance to further define the roadway contexts for the given area. Using the table under the "Transportation Context" definition in PennDOT Design Manual, Part 1X, Appendix B, the study area roadways can be classified as the following:

Regional Arterial, roadways with a desired operating speed between 30 mph and 55 mph, daily traffic volumes of 10,000<X<40,000 vehicles per day and intersection spacing between 660-1320 ft.

- Business 22

Community Collector, roadways with a desired operating speed between 25 mph and 55 mph, daily traffic volumes of 5,000<15,000 vehicles per day and intersection spacing between 300-660 ft.

- Highway 522
- Industrial Park Road

Local Road, roadways with a desired operating speed between 20 mph and 30 mph, daily traffic volumes of X<3,000 vehicles per day and intersection spacing between 200-660 ft.

- Middle Road
- Loop Road
- Western Driveway on Loop Road
- Eastern Driveway on Loop Road
- Western Driveway on Middle Road
- Eastern Driveway on Middle Road

MULTIMODAL FACILITIES

Transit

Based upon field observations and research of the study area intersections and roadways, there are no existing bus routes within the study area.

Rail Centers

Based upon field observations of the study area intersections and roadways, Norfolk Southern has a rail line in operation running parallel to a portion of industrial park boulevard and running perpendicular to Loop Road.

Pedestrian/Bike Facilities

Based upon field observations of the study area intersections and roadways, there are existing pushbuttons to cross the Northern and Eastern quadrant of Business 22 and Industrial Park Road. No other pedestrian facilities were identified in the study area.

EXISTING TRAFFIC CONDITIONS

Miovision Turning Movement (MTM) counts were conducted at the study intersections on Weekday, June 18, 2026, and June 20, 2026. The counts conducted at the study intersections on Weekday, June 18, 2026, summarized in 15-minute periods were used for this analysis to determine the Weekday AM (6:00-10:00 AM) and Weekday PM (2:00-6:00 PM) peak periods. The counts conducted at the study intersections on Weekend, February 20, 2026, summarized in 15-minute periods were used for this analysis to determine the Weekend AM (6:00-10:00 AM) and Weekend PM (2:00-6:00 PM) peak period. Data for heavy vehicles observed during the counts were also recorded. Count dates and peak hours observed for the study area intersections are shown in **Table 2**.

TABLE 2
EXISTING COUNT TIMES

Intersection	2025 Traffic Count Date	Time Period	Intersection Peak Hour[1]
Highway 522 & Industrial Park Road	6/18/26	Weekday AM	8:45 AM to 9:45 AM
	6/18/26	Weekday PM	3:00 PM to 4:00 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	4:15 PM to 5:15 PM
Business 22 & Industrial Park Road	6/18/26	Weekday AM	6:15 AM to 7:15 AM
	6/18/26	Weekday PM	2:15 PM to 3:15 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	2:45 PM to 3:45 PM
Middle Road & Industrial Park Road	6/18/26	Weekday AM	6:15 AM to 7:15 AM
	6/18/26	Weekday PM	2:15 PM to 3:15 PM
	6/20/26	Weekend AM	6:15 AM to 7:15 AM
	6/20/26	Weekend PM	3:15 PM to 4:15 PM
Loop Road & Industrial Park Road	6/18/26	Weekday AM	6:15 AM to 7:15 AM
	6/18/26	Weekday PM	3:00 PM to 4:00 PM
	6/20/26	Weekend AM	6:30 AM to 7:30 AM
	6/20/26	Weekend PM	3:15 PM to 4:15 PM
Business 22 & Loop Road	6/18/26	Weekday AM	9:00 AM to 10:00 AM
	6/18/26	Weekday PM	4:15 PM to 5:15 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	2:15 PM to 3:15 PM
Loop Road & Western Driveway	6/18/26	Weekday AM	6:45 AM to 7:45 AM
	6/18/26	Weekday PM	4:00 PM to 5:00 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	3:15 PM to 4:15 PM
Loop Road & Eastern Driveway	6/18/26	Weekday AM	6:45 AM to 7:45 AM
	6/18/26	Weekday PM	4:00 PM to 5:00 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	3:15 PM to 4:15 PM

Middle Road & Western Driveway	6/18/26	Weekday AM	8:45 AM to 9:45AM
	6/18/26	Weekday PM	2:30 PM to 3:30 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	2:00 PM to 3:00 PM
Middle Road & Eastern Driveway	6/18/26	Weekday AM	8:45 AM to 9:45AM
	6/18/26	Weekday PM	2:30 PM to 3:30 PM
	6/20/26	Weekend AM	9:00 AM to 10:00 AM
	6/20/26	Weekend PM	2:00 PM to 3:00 PM

[1]The peak hour consists of four consecutive 15 minute intervals where the highest volumes occur.

TABLE 3
ATR ADT COUNTS

Roadway	Traffic Count Date	ADT
Industrial Park Road	6/18/2026	4,474
Loop Road	6/18/2026	433
Business 22	4/11/2026	8,826*

*Indicates that ADT was pulled from PennDOT Traffic Information Repository

Traffic volumes for the Existing Weekday AM, Weekday PM, and Saturday Midday peak hours are shown in **Appendix A**. MTM and ATR count sheets are provided in **Appendix J**. The 15-minute raw count data is found at the end of **Appendix J.**

BASE (NO-BUILD) CONDITIONS

Background Growth

A background growth factor was developed for the study area intersections based upon the Growth Factors for August 2025 to July 2026 obtained from the PennDOT Bureau of Planning and Research. (BPR). The BPR recommends using a background growth factor of 0.48% per year in Mifflin County for Rural Non-Interstate roadways. This corresponds to an overall growth factor of 2.88% (0.48% per year, compounded for 6 years) for the 2032 opening year.

Growth Factors for August 2025 to July 2026				
County	**Urban Interstate**	**Rural Interstate**	**Urban Non-Interstate**	**Rural Non-Interstate**
MIFFLIN	1.07	*	0.00	0.48

Nearby Planned Developments

During the initial review of the surrounding area there was no indication of a new development to be included in the traffic impact study.

SCHEDULED ROADWAY IMPROVEMENTS

Upon reviewing the PennDOT Transportation Improvement Program (TIP), there is a highway restoration project to take place on Business 22 with a LET date of 3-13-2031. This project should not change the operation of the signalized intersection of Business 22 and Industrial Park Road.

TRIP GENERATION

Trip generation data for the proposed Data Center was obtained the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, Twelfth Edition, 2025. The data estimates total vehicular trips based on independent variables using statistically calculated rates. The time periods in which rates were calculated are listed below:

- Average Weekday
- Weekday AM Peak Hour
- Weekday PM Peak Hour

Table 4 provides a summary of the rates, independent variables and directional proportion of trips for the analyzed scenario.

TABLE 4
TRIP GENERATION DATA

Land Use	Time Period	Rate/Equation (New Trips)	Variable (SF)	Entering	Exiting
Local Trip Generation	Average Weekday:	T=0.73x (1118)	1,531,440 SF	50%	50%
	Weekday, Peak Hour of Adjacent Street Traffic (7-9 AM)	T=0.09x (137)	1,531,440 SF	75%	25%
	Weekday, Peak Hour of Adjacent Street Traffic (4-6 PM)	T=0.08x (123)	1,531,440 SF	35%	65%

T=number of site generated trips
X=independent variable

Table 5 summarizes the number of new entering and exiting vehicles generated by the proposed Data Center during the time periods analyzed.

TABLE 5
TRIP GENERATION SUMMARY

Local Trip Generation	Size	Daily Trips	Peak Hour Trips	
			Inbound	Outbound
Data Center	1,531,440 SF	1118	103/43	34/80
			AM/PM	AM/PM
Total Trips:			103/43	34/80

Based upon the trip generation summary shown in **Table 5**, the proposed development will generate approximately 137 new trips during the Weekday/Weekend AM peak hour, 123 new trips during the Weekday/Weekend PM peak hour.

Due to the nature of the project, the Heavy Vehicle/Truck Traffic is assumed to be minimal to the site. 2% of the newly generated trips are assumed to be Heavy Vehicles to account for garbage trucks, deliveries, etc. Therefore, any approach with new trips will have a minimum of 2% Heavy Vehicle Percentage in the model. All other approaches that currently have a Heavy Vehicle Percentage will calculate a new percentage based on the 2% increase from the newly generated trips. In some scenarios, the Heavy Vehicle Percentage will calculate to the same percentage as the existing conditions due to a negligible increase in volume.

TRIP DISTRIBUTION AND ASSIGNMENT

Projected new trips generated by the proposed development were distributed throughout the study area intersections based upon a population Journey to Work model with a 2-hour drive time. These percentages can be found in **Table 6**.

TABLE 6
NEW TRIP DISTRIBUTION PERCENTAGES

Period	Direction (From)	Assignment	Distribution Percentage
WEEKDAY/WEEKEND AM/PM PEAKS	East	Business 22	6%
		Loop Road	1%
	West	Business 22	93%
		Total	100%

The new trip distribution methodology is described in the steps below:

- 93% of new trips will come from the western side of the proposed site.
- 7% of the new trips will come from the eastern side of the site.

The trip distribution and assignment of the proposed site generated vehicular traffic during the Weekday/Weekend AM, Weekend/Weekday PM peak hours are shown in **Appendix C**.

JOURNEY TO WORK MODEL PROCEDURE

The Journey to Work counts are sourced from the 2016-2020 5 Year ACS Commuting Flow and the Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) tables. The Commuting Flow and LODES list the number of employees for each workplace-residence relationship at the county- or census block-level, respectively. The counties and census blocks with employees who work in Mifflin County and live within a 2-hour drive were mapped and routed using ArcGIS Pro and the Network Analyst extension. The Network Analyst Closest Facility tool determines the least-cost network path from an origin (e.g., residence census block) to a destination (e.g., project location). For this Journey to Work analysis, the least-cost path was determined by the shortest travel time between the place or residence and workplace. The routes were summarized to provide a count of the total employees per approach per intersection. The Journey to Work Model calculations and maps are also included in **Appendix K.**

PROJECTED (BUILD) CONDITIONS

In order to develop the 2027 and 2037 Projected (Build) Condition traffic volumes, the site generated vehicular trips for the proposed development were added to the 2027 and 2037 Base (no-build) condition traffic volumes. Projected condition traffic volumes for the 2027 opening year and 2037 design year peak hours are shown in **Appendix D and F**.

PROPOSED SITE ANALYSIS DRIVEWAYS

The project site will be served by four (4) full access driveways.

Sight Distance Analysis

Sight distance analysis was performed for the proposed site driveway locations. The recommended minimum Safe Stopping Sight Distances (SSSD) is typically determined based upon travel speed and roadway approach grades. Existing available sight distances were measured at the proposed driveway(s) according to PennDOT Publication 282 *Highway Occupancy Permit Guidelines.* The existing sight distance measurements were compared to the PennDOT desirable sight distances outlined in Pennsylvania Code Title 67, Chapter 441.8(h), "Access to and Occupancy of Highways by Driveways and Local Roads", and PennDOT safe stopping sight distance requirement as determined by the following equation:

$$SSSD=1.47VT + V^2/[30(f\pm g)]$$

SSSD=safe stopping sight distance
V=Vehicle Speed
T=Driver Perception and Reaction Time (2.5 seconds)
f=Coefficient of Friction for Wet Pavement
g=Roadway Approach Grade Divided by 100 (percentage)

Table 7 provides a comparison between the measured, safe stopping and desirable sight distances at the proposed site access locations. The sight distance was measured 10 feet back from the travel lane.

TABLE 7.1
SIGHT DISTANCE ANALYSIS
PROPOSED WESTERN FULL ACCESS DRIVEWAY TO LOOP ROAD

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	DES	REQ	**EXIST**
Exiting Movements	To the left	25	2	280	144	**1000+**
	To the right	25	-3	240	151	**1000+**
Entering Left Turn	Approaching same direction	25	-3	280	151	**1000+**
	Approach opposite direction	25	2	240	144	**1000+**

TABLE 7.2
SIGHT DISTANCE ANALYSIS
PROPOSED MAIN FULL ACCESS DRIVEWAY TO LOOP ROAD

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	DES	REQ	**EXIST**
Exiting Movements	To the left	25	2	280	144	**1000+**
	To the right	25	-3	240	151	**1000+**
Entering Left Turn	Approaching same direction	25	-3	280	151	**1000+**
	Approach opposite direction	25	2	240	144	**1000+**

TABLE 7.3
SIGHT DISTANCE ANALYSIS
PROPOSED EASTERN FULL ACCESS DRIVEWAY TO MIDDLE ROAD

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	DES	REQ	**EXIST**
Exiting Movements	To the left	35	5	437	233	**800**
	To the right	35	-4	360	265	**585**
Entering Left Turn	Approaching same direction	35	-4	437	265	**585**
	Approach opposite direction	35	5	360	233	**800**

TABLE 7.4
SIGHT DISTANCE ANALYSIS
PROPOSED WESTERN FULL ACCESS DRIVEWAY TO MIDDLE ROAD

	Direction	Speed (mph)	Sight Distance (feet)			
			Grade[1] (%)	DES	REQ	**EXIST**
Exiting Movements	To the left	35	-2	390	256	**275**
	To the right	35	1	335	245	**800**
Entering Left Turn	Approaching same direction	35	1	390	245	**800**
	Approach opposite direction	35	-2	335	256	**275**

DES=PennDOT Desirable Sight Distance [1]=Roadway Grade Approaching Driveway
EXIST=Measured Sight Distance REQ = Minimum Stopping Sight Distance

As shown in **Table 7** the measured sight distances at the proposed site access locations meet or exceed the PennDOT sight distance requirements.

DRIVEWAY CLASSIFICATION

All driveways accessing state owned roadways are classified according to the Pennsylvania Code Title 67, Chapter 441.8. "Driveway Design Requirements" as one of the following:

- Minimum Use – Less than 25 vehicles per day
- Low Volume – 25 to 750 vehicles per day
- Medium Volume – 750 to 1500 vehicles per day
- High Volume – Greater than 1500 vehicles per day

The classification for each site driveway, based upon the average weekday trip generation for the site and the proposed trip distributions for each of the proposed site driveways, is shown in **Table 8**. All driveways will access a municipally owned road. The driveway classification, assuming a single access point, is shown for informational purposes.

TABLE 8
DRIVEWAY CLASSIFICATION

Roadway	Driveway	Weekday Trips	Weekday Vehicles	Classification
Western Driveway on Loop Road	Full-Access	894	447	Low Volume
Eastern Driveway on Loop Road	Full-Access	0	0	Minimum Use
Western Driveway on Middle Road	Full-Access	224	112	Low Volume
Western Driveway on Middle Road	Full-Access	0	0	Minimum Use

CAPACITY ANALYSIS

Levels of Service

Levels of Service is defined in terms of average control delay per vehicle, which is a measure of lost travel time, fuel consumption and driver frustration. Highway capacity analysis uses Level of Service (LOS) to qualitatively relate capacity to operational conditions. HCM LOS is delay-based and ranges from "A" to "F", with "A" being the best operating condition and "F" being the worst. Generally, LOS "C" is desirable, but in built-up or suburban areas with substantial traffic congestion or flows, LOS "D" or "E" is considered acceptable. LOS for intersections is measured by control delay per vehicle. **Table 9** shows the relationship between LOS and delay for signalized and unsignalized intersections.

TABLE 9
LEVEL OF SERVICE CRITERIA

LOS	Control Delay Per Vehicle (seconds/vehicle)		Signalized Description	Unsignalized Description
	Signalized	Unsignalized		
A	≤ 10.0	≤ 10.0	Very low delay, good progression; most vehicles do not stop at intersection;	Little to no delay; acceptable gaps are easily found.
B	10.1 to 20.0	10.1 to 15.0	Generally good signal progression and/or short cycle length;	Short delays; acceptable gaps are generally available
C	20.1 to 35.0	15.1 to 25.0	Fair progression and/or longer cycle length; significant number of vehicles stop at intersection.	Moderate delays; drivers often stop and wait for gaps.
D	35.1 to 55.0	25.1 to 35.0	Congestion becomes noticeable; individual cycle failures; longer delays from unfavorable progression, long cycle length, or high volume/capacity ratios; most vehicles stop at intersection.	Long delays; drivers experience difficulty finding acceptable gaps.
E	55.1 to 80.0	35.1 to 50.0	Considered limit of acceptable delay, indicative of poor progression, long cycle length, high volume/capacity ratio; frequent individual cycle failures.	Very long delays; acceptable gaps are rare, operations at or near capacity.
F	> 80.0	> 50.0	Unacceptable delay, frequently an indication of over saturation	Excessive delays; demand exceeds capacity, unstable flow conditions.

Capacity Analysis Methodology

Capacity analyses were performed for each of the analyzed peak hours at the study area intersections. A level-of-service analysis of the study area intersections was conducted in accordance with the methodology presented in the *Highway Capacity Manual* (HCM), *7th Edition*, utilizing *Synchro 12,* a Trafficware software package. Pennsylvania default values were applied. The following conditions were analyzed:

- 2026 Existing Conditions;
- 2032 Base (No-build) Conditions – Opening year without development;
- 2032 Projected (Build) Conditions – Opening year with development;
- 2037 Base (No-build) Conditions – Design year without development;
- 2037 Projected (Build) Conditions – Design year with development.

Additionally, capacity analyses were conducted at the proposed site driveway intersection during the 2032 and 2037 projected conditions. Capacity analysis reports are provided in **Appendix B, E, G**.

Study Area Levels of Service

Levels of Service (LOS) for the study area intersections for the Weekday AM and Weekday PM midday peak hours are shown in **Appendix B** for existing conditions, **Appendix E** for 2032 Opening Year (No-Build) and 2032 Opening Year (Build) conditions and **Appendix G** for 2037 Design Year (No-Build) and 2037 Design Year (Build) conditions. A Level of Service summary for the study area intersection and proposed site driveways is provided in **Tables 10, 11, 12 and 13**. According to the PennDOT *Policies and Procedures for Transportation Impact Studies*, page 30 indicates the "Analysis of traffic signals should assume optimized signal timing for the without development and with development conditions." Optimization was not performed in this study to maintain the existing cycles/splits for the coordinated systems.

TABLE 10
WEEKDAY AM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

AM ILOS Variance Comparison							
Intersection	Existing Conditions 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037	10 Second Variance	Meets LOS Requirement?
Hwy 522 & Industrial Park Rd	A(0)	A(0)	A(0)	A(0)	A(0)	<10	Yes
Business 22 & Industrial Park Rd	A(9.9)	B(10)	B(10.3)	B(10)	B(10.3)	<10	Yes
Industrial Park Rd & Middle Rd	A(8.86)	A(8.87)	A(8.93)	A(8.87)	A(8.94)	<10	Yes
Industrial Park Rd & Loop Rd	A(8.67)	A(8.77)	A(9.31)	A(8.84)	A(9.37)	<10	Yes
Business 22 & Loop Rd	A(5.02)	A(5.03)	A(5.05)	A(5.02)	A(5.05)	<10	Yes
Loop Rd & Western Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes
Loop Rd & Eastern Access	-(-)	-(-)	A(1.81)	-(-)	A(1.82)	<10	Yes
Middle Rd & Western Access	-(-)	-(-)	A(0.9)	-(-)	A(0.89)	<10	Yes
Middle Rd & Eastern Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes

ILOS = Overall Intersection Level of Service. Unsignalized ILOS calculated using Figure 5 of *Policies and Procedures for Transportation Impact Studies*.

TABLE 11
WEEKDAY PM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

PM ILOS Variance Comparison							
Intersection	Existing Conditions 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037	10 Second Variance	Meets LOS Requirement?
Hwy 522 & Industrial Park Rd	A(0)	A(0)	A(0)	A(0)	A(0)	<10	Yes
Business 22 & Industrial Park Rd	B(15.9)	B(16.4)	B(17.3)	B(16.7)	B(17.7)	<10	Yes
Industrial Park Rd & Middle Rd	B(11.22)	B(11.42)	B(14.98)	B(11.77)	C(16.14)	<10	Yes
Industrial Park Rd & Loop Rd	A(7.98)	A(7.99)	A(8.48)	A(8.06)	A(8.53)	<10	Yes
Business 22 & Loop Rd	A(5.64)	A(5.7)	A(5.7)	A(5.77)	A(5.76)	<10	Yes
Loop Rd & Western Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes
Loop Rd & Eastern Access	-(-)	-(-)	A(3.82)	-(-)	A(3.82)	<10	Yes
Middle Rd & Western Access	-(-)	-(-)	A(1.54)	-(-)	A(1.53)	<10	Yes
Middle Rd & Eastern Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes

ILOS = Overall Intersection Level of Service. Unsignalized ILOS calculated using Figure 5 of *Policies and Procedures for Transportation Impact Studies*.

TABLE 12
WEEKEND AM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

AM ILOS Variance Comparison							
Intersection	Existing Conditions 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037	10 Second Variance	Meets LOS Requirement?
Hwy 522 & Industrial Park Rd	A(0)	A(0)	A(0)	A(0)	A(0)	<10	Yes
Business 22 & Industrial Park Rd	A(9.2)	A(9.3)	A(9.7)	A(9.3)	A(9.7)	<10	Yes
Industrial Park Rd & Middle Rd	A(8.74)	A(8.79)	A(8.79)	A(8.8)	A(8.79)	<10	Yes
Industrial Park Rd & Loop Rd	A(7.56)	A(7.61)	A(7.94)	A(7.62)	A(7.94)	<10	Yes
Business 22 & Loop Rd	A(5.49)	A(5.51)	A(5.53)	A(5.57)	A(5.59)	<10	Yes
Loop Rd & Western Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes
Loop Rd & Eastern Access	-(-)	-(-)	A(1.7)	-(-)	A(1.68)	<10	Yes
Middle Rd & Western Access	-(-)	-(-)	A(0.82)	-(-)	A(0.82)	<10	Yes
Middle Rd & Eastern Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes

ILOS = Overall Intersection Level of Service. Unsignalized ILOS calculated using Figure 5 of *Policies and Procedures for Transportation Impact Studies*.

TABLE 13
WEEKEND PM LEVEL OF SERVICE DELAY (SECONDS) SUMMARY

PM ILOS Variance Comparison							
Intersection	Existing Conditions 2026	Opening Year (No Build) 2032	Opening Year (Build) 2032	Design Year (No Build) 2037	Design Year (Build) 2037	10 Second Variance	Meets LOS Requirement?
Hwy 522 & Industrial Park Rd	A(0)	A(0)	A(0)	A(0)	A(0)	<10	Yes
Business 22 & Industrial Park Rd	A(9.2)	A(9.3)	B(10.4)	A(9.3)	B(10.5)	<10	Yes
Industrial Park Rd & Middle Rd	A(8.54)	A(8.54)	A(8.8)	A(8.55)	A(8.8)	<10	Yes
Industrial Park Rd & Loop Rd	A(7.16)	A(7.19)	A(7.64)	A(7.19)	A(7.63)	<10	Yes
Business 22 & Loop Rd	A(5.55)	A(5.55)	A(5.54)	A(5.61)	A(5.6)	<10	Yes
Loop Rd & Western Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes
Loop Rd & Eastern Access	-(-)	-(-)	A(4.03)	-(-)	A(4.03)	<10	Yes
Middle Rd & Western Access	-(-)	-(-)	A(1.79)	-(-)	A(1.79)	<10	Yes
Middle Rd & Eastern Access	-(-)	-(-)	A(0)	-(-)	A(0)	<10	Yes

ILOS = Overall Intersection Level of Service. Unsignalized ILOS calculated using Figure 5 of *Policies and Procedures for Transportation Impact Studies*.

AUXILIARY TURN LANE ANALYSIS

A PennDOT auxiliary turn-lane warrant analysis was performed at the study locations to determine the need for auxiliary turn lanes at these locations. The analyses were performed in accordance with PennDOT Publication 46, Chapter 11 and Strike-off Letter 470-08-07.

Based upon the above referenced methodologies, the results are as follows:

- Highway 522 & Industrial Park Road:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Business 22 & Industrial Park Road:
  - Left-turn lane warrants **are not satisfied** during the;
  - Right-turn lane warrants **are satisfied**.
    - Existing | AM, Eastbound
    - 2037 (No-Build) | AM, Eastbound
    - 2037 (Build) | AM, PM, Eastbound

Although warranted no turn lane is to be installed due to the Eastbound Right already being a channelized movement and operates with an acceptable level of service

- Middle Road & Industrial Park Road:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Loop Road & Industrial Park Road:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Business 22 & Loop Road:
  - Left-turn lane warrants **are satisfied**.
    - Existing | PM, SAT AM, SAT PM, Westbound
    - 2037 (No-Build) | PM, SAT AM, SAT PM, Westbound
    - 2037 (Build) | PM, SAT AM, SAT PM, Westbound
  - Right-turn lane warrants **are not satisfied**.

Although warranted, no turn lane is to be installed due to the Westbound lane of Business 22 operating at an acceptable level of service with no queuing problems identified in the analysis.

- Loop Road & Western Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Loop Road & Eastern Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

- Middle Road & Western Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.
- Middle Road & Eastern Driveway:
  - Left-turn lane warrants **are not satisfied**.
  - Right-turn lane warrants **are not satisfied**.

TABLE 14
TURN LANE WARRANT SUMMARY

			TURN LANE WARRANTS								
			Existing Conditions 2026		Design Year (No Build) 2037		Design Year (Build) 2037		Existing Turn Lane Length (ft)	New Turn Lane Length (Per Mitigation)	Adequate Turn Lane Length?
			AM	PM	AM	PM	AM	PM			
Hwy 522 & Industrial Park Rd	EB	EBR	0	0	0	0	0	0	125	125	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Business 22 & Industrial Park Rd	EB	EBL	0	0	0	0	0	0	365	365	YES
		EBR	200	0	250	0	275	150	250	250	YES**
	WB	WBL	0	0	0	0	0	0	160	160	YES
		WBR	0	0	0	0	0	0	160	160	YES
	NB	NBL	0	0	0	0	0	0	150	150	YES
		NBR	0	0	0	0	0	0	150	150	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Industrial Park Rd & Middle Rd	EB	EBL	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
		WBR	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Industrial Park Rd & Loop Rd	EB	EBL	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
		WBR	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Business 22 & Loop Rd	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	125	0	125	0	125	0	0	YES**
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Loop Rd & Western Access	EB	EBL	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Loop Rd & Eastern Access	EB	EBL	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Middle Rd & Western Access	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Middle Rd & Eastern Access	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES

TABLE 15
WEEKEND TURN LANE WARRANT SUMMARY

			WEEKEND TURN LANE WARRANTS								
			Existing Conditions 2026		Design Year (No Build) 2037		Design Year (Build) 2037		Existing Turn Lane Length (ft)	New Turn Lane Length (Per Mitigation)	Adequate Turn Lane Length?
			AM	PM	AM	PM	AM	PM			
Hwy 522 & Industrial Park Rd	EB	EBR	0	0	0	0	0	0	125	125	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Business 22 & Industrial Park Rd	EB	EBL	0	0	0	0	0	0	365	365	YES
		EBR	0	0	0	0	0	0	250	250	YES
	WB	WBL	0	0	0	0	0	0	160	160	YES
		WBR	0	0	0	0	0	0	160	160	YES
	NB	NBL	0	0	0	0	0	0	150	150	YES
		NBR	0	0	0	0	0	0	150	150	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Industrial Park Rd & Middle Rd	EB	EBL	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
		WBR	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Industrial Park Rd & Loop Rd	EB	EBL	0	0	0	0	0	0	0	0	YES
		EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
		WBR	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Business 22 & Loop Rd	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	125	125	125	125	125	125	0	0	YES**
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Loop Rd & Western Access	EB	EBL	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Loop Rd & Eastern Access	EB	EBL	0	0	0	0	0	0	0	0	YES
	WB	WBR	0	0	0	0	0	0	0	0	YES
	SB	SBL	0	0	0	0	0	0	0	0	YES
		SBR	0	0	0	0	0	0	0	0	YES
Middle Rd & Western Access	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES
Middle Rd & Eastern Access	EB	EBR	0	0	0	0	0	0	0	0	YES
	WB	WBL	0	0	0	0	0	0	0	0	YES
	NB	NBL	0	0	0	0	0	0	0	0	YES
		NBR	0	0	0	0	0	0	0	0	YES

The auxiliary turn-lane warrant analysis worksheets are provided in **Appendix O**.

TRAFFIC SIGNAL WARRANT SUMMARY

Traffic signal warrants were not analyzed as part of this study because all unsignalized intersections continued to operate at acceptable levels of service.

RECOMMENDATIONS & CONCLUSIONS

LIVIC Civil, LLC recommends the following roadway improvements as part of the proposed development project:

Highway 522 & Industrial Park Road:
- There are no proposed improvements.

Business 22 & Industrial Park Road:
- There are no proposed improvements.

Middle Road & Industrial Park Road:
- There are no proposed improvements.

Loop Road & Industrial Park Road:
- There are no proposed improvements

Business 22 & Loop Road:
- There are no proposed improvements

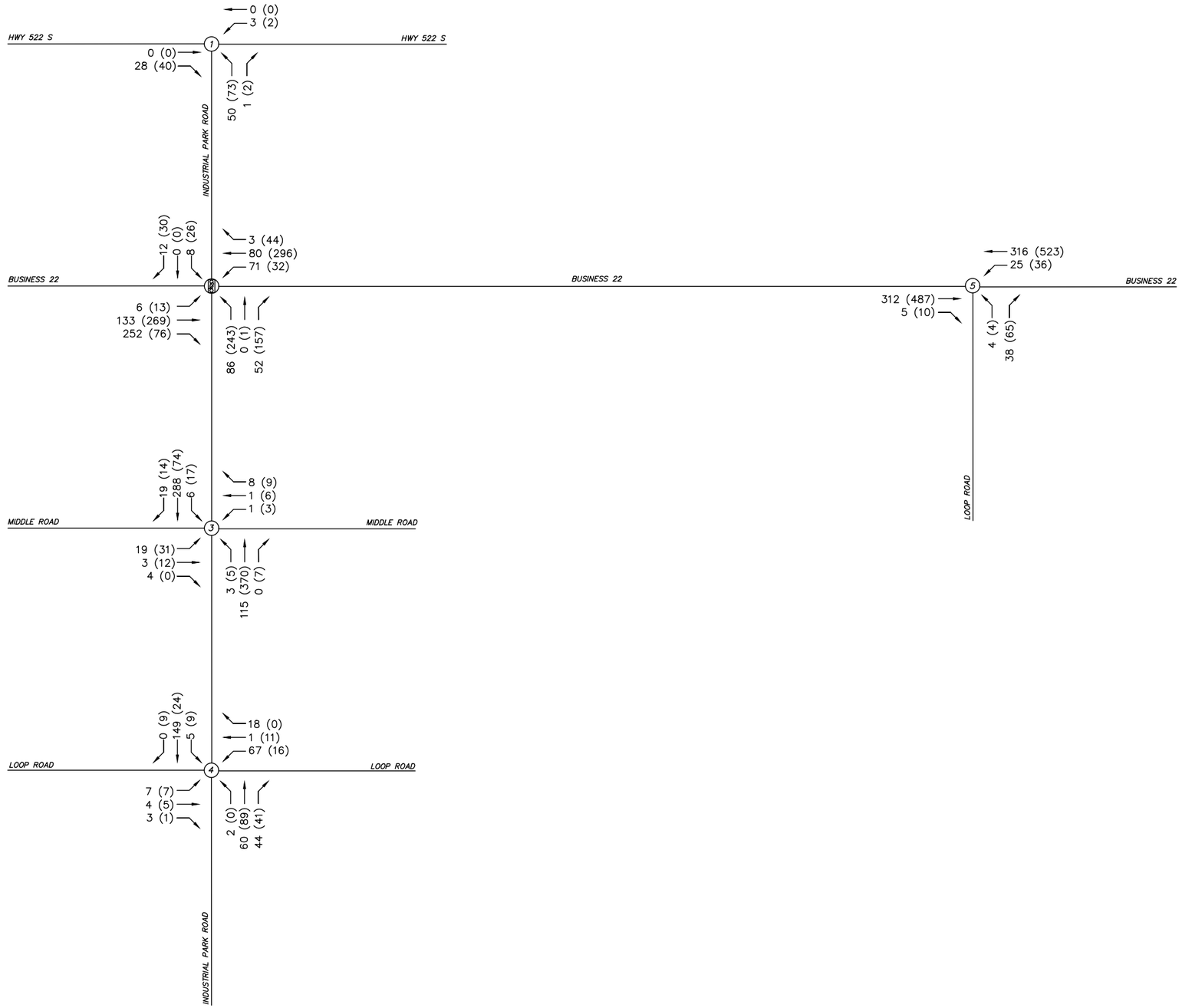
Loop Road & Western Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Loop Road & Eastern Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Middle Road & Western Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Middle Road & Eastern Driveway:
- Design the driveway according to PennDOT standards for a Low Volume driveway.
- Provide the required sight distance at the proposed driveway intersection.
- Install a Stop Sign (PennDOT designation R1-1) for the exiting driveway approach.

Appendix A - Existing Traffic Volume Figures



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX (XX) – AM (PM) 2026 EXISTING VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

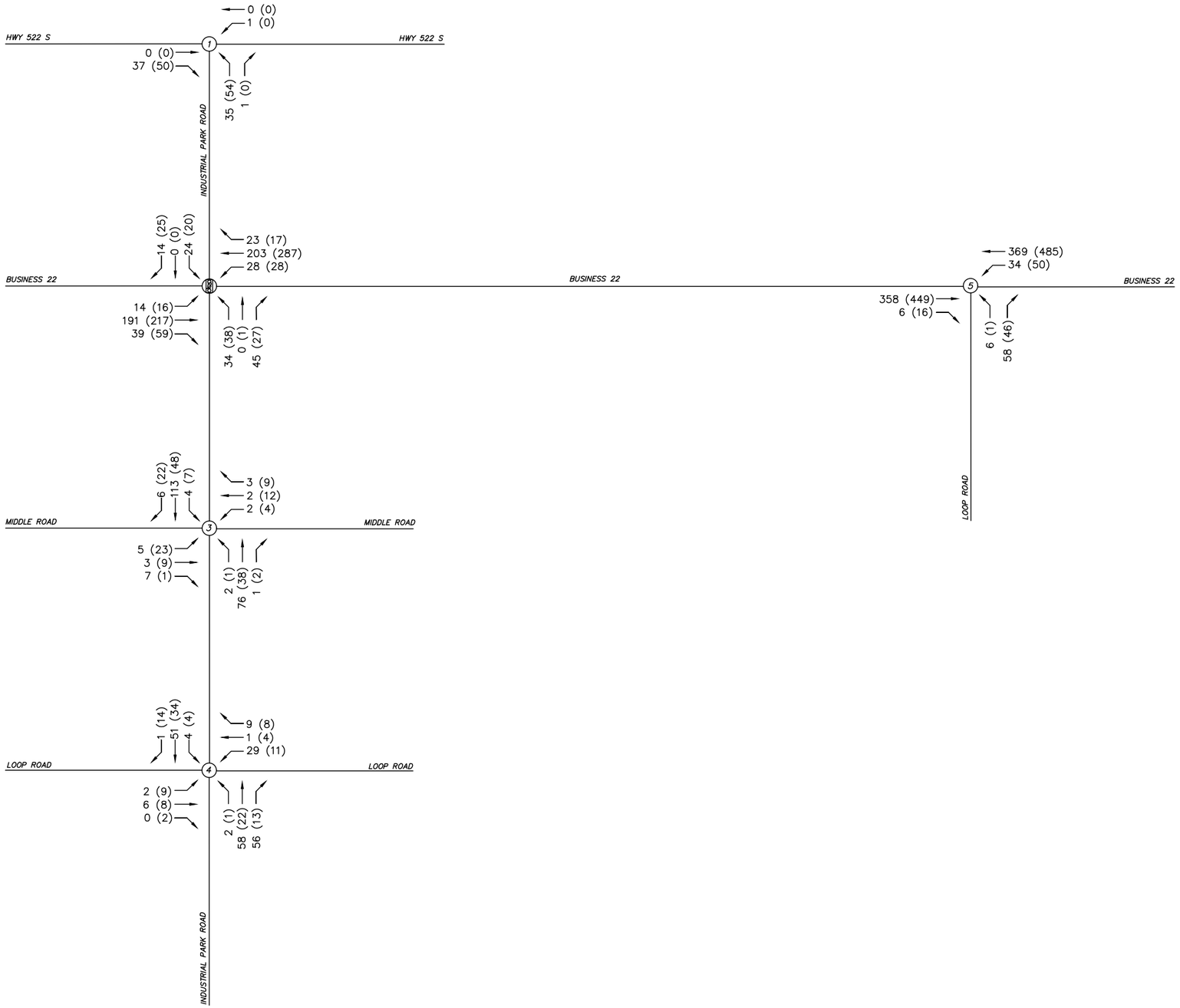
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2026
EXISTING YEAR
WEEKDAY
VOLUME FIGURE

SHEET NO.

APPENDIX A-1



LEGEND

XX (XX) – AM (PM) 2026 EXISTING VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

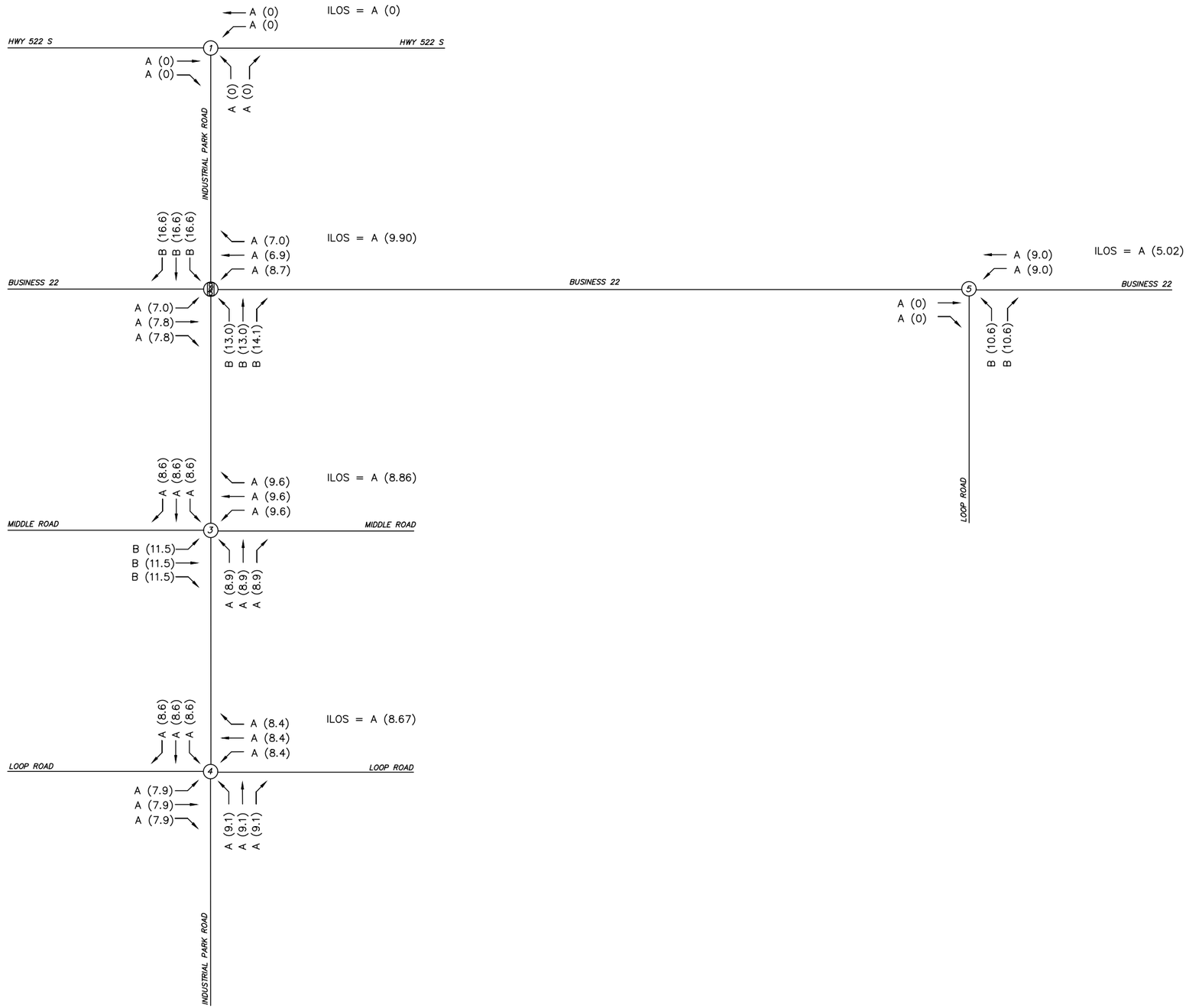
SHEET TITLE

2026 EXISTING YEAR WEEKEND VOLUME FIGURE

SHEET NO.

APPENDIX A-2

Appendix B - Existing Level-Of Service Figures



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

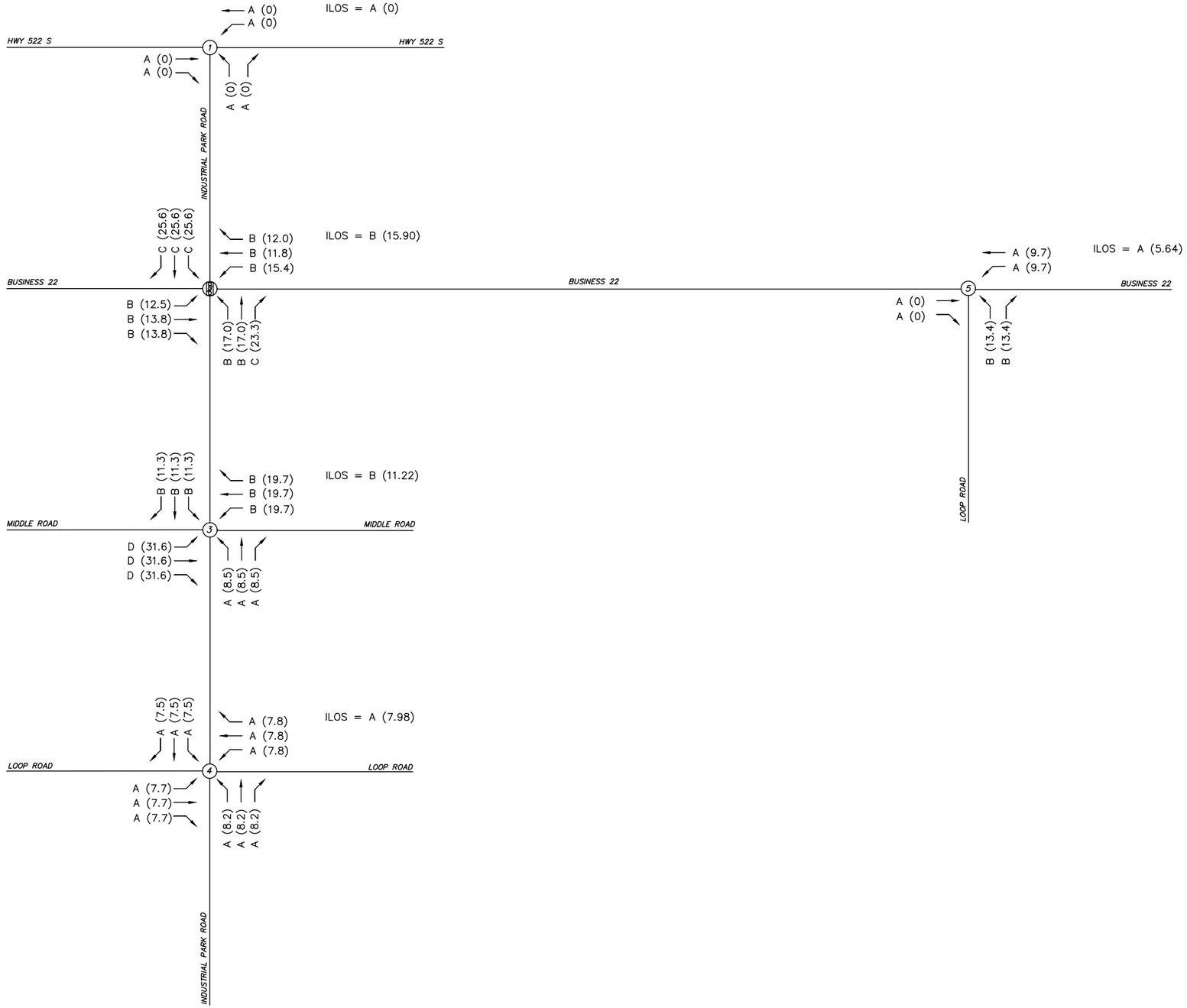
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2026
EXISTING YEAR
WEEKDAY
AM LOS FIGURE

SHEET NO.

APPENDIX B-1



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

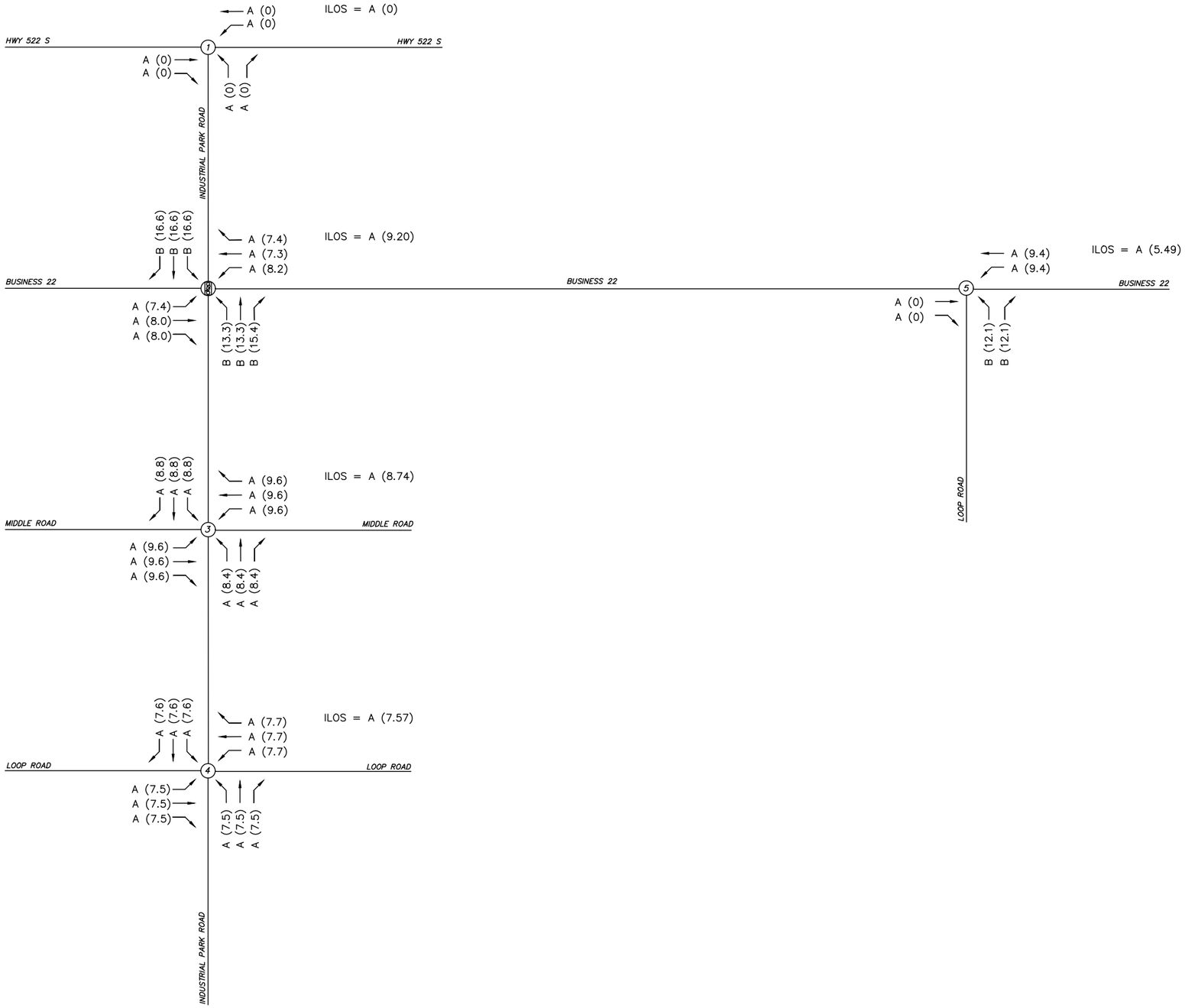
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2025 EXISTING YEAR WEEKDAY PM LOS FIGURE

SHEET NO.

APPENDIX B-2



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

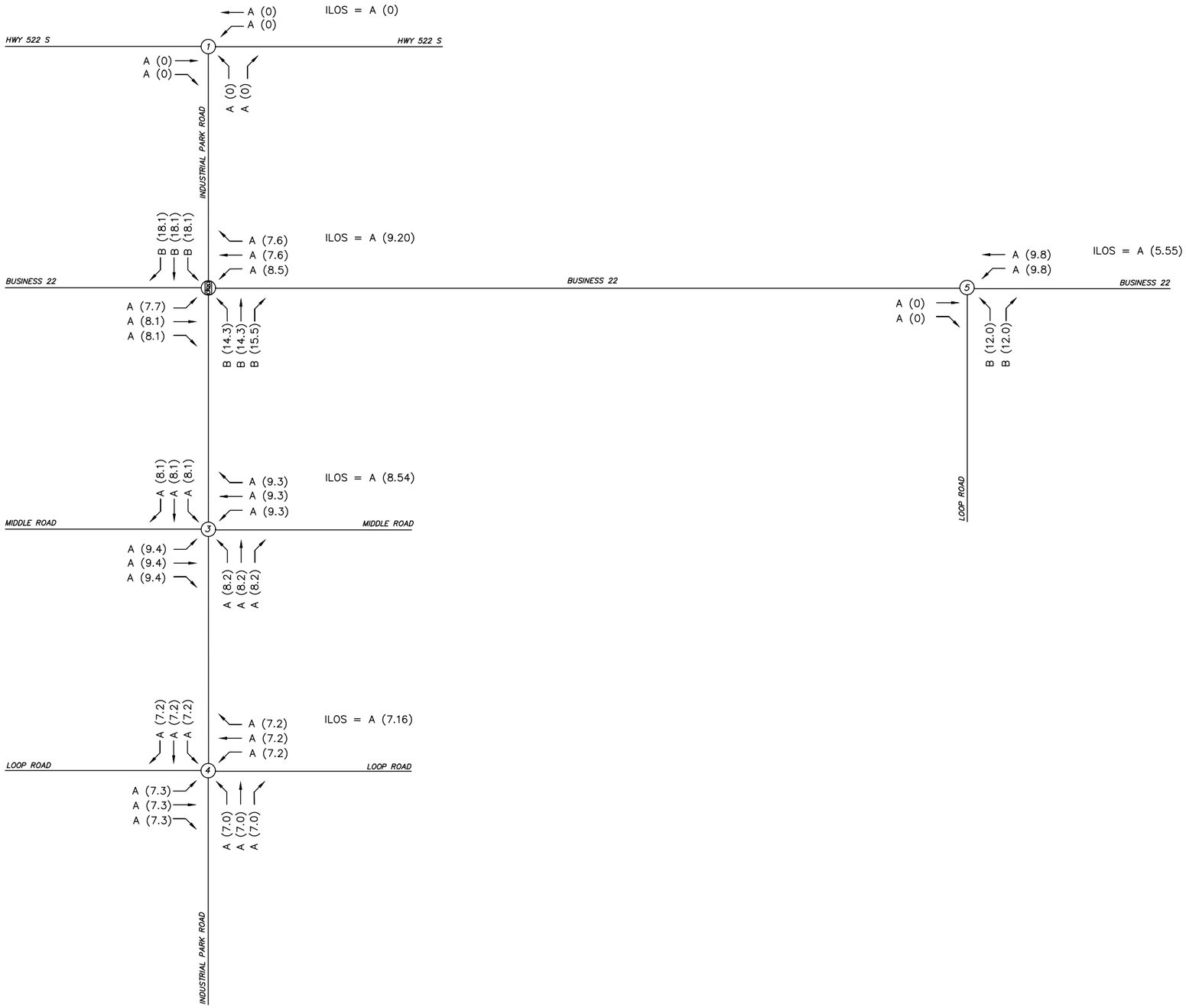
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2026 EXISTING YEAR WEEKEND AM LOS FIGURE

SHEET NO.

APPENDIX B-3



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

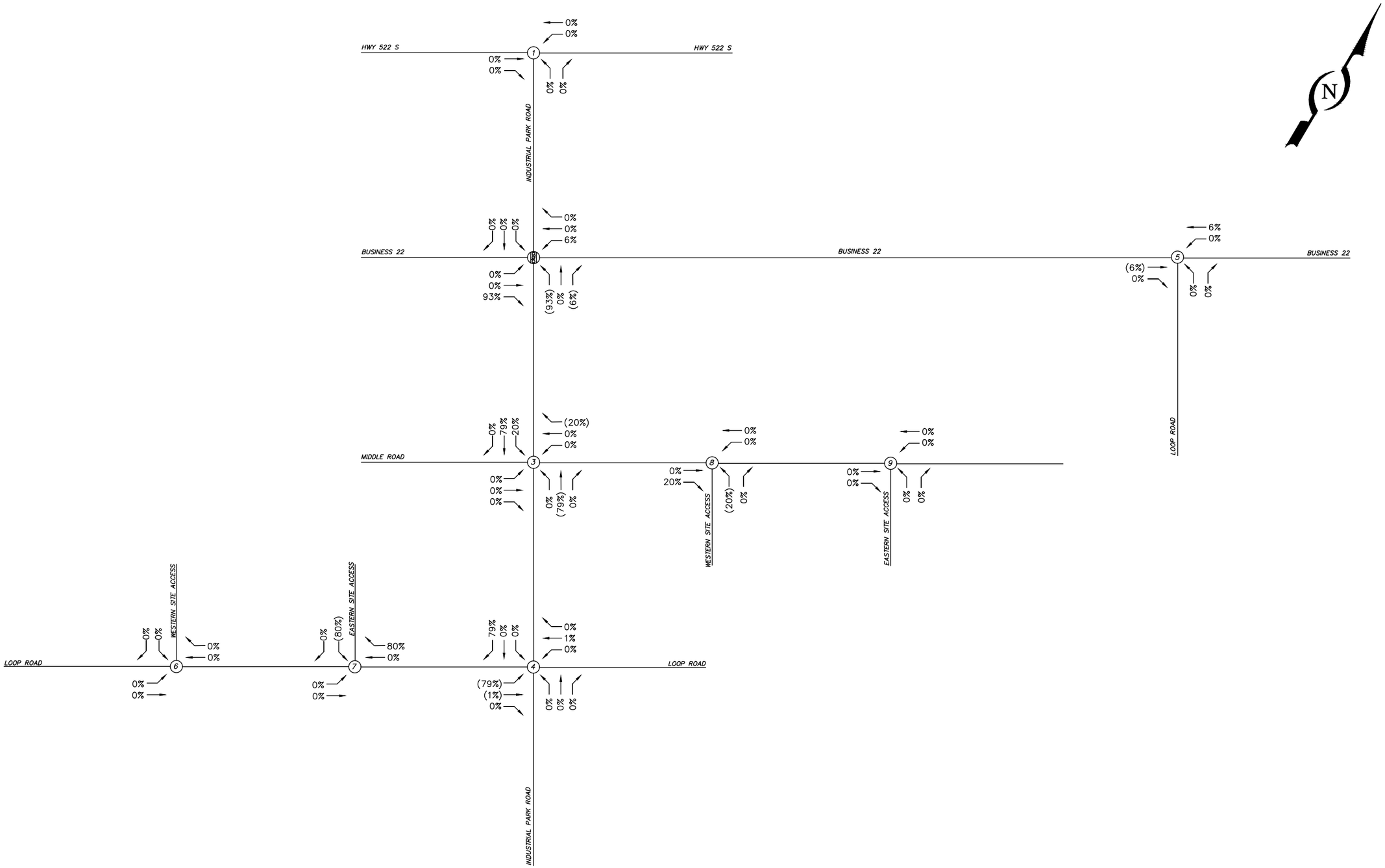
SHEET TITLE

2026
EXISTING YEAR
WEEKEND
PM LOS FIGURE

SHEET NO.

APPENDIX B-3

Appendix C - Trip Assignment Figures



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP ASSIGNMENT %

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

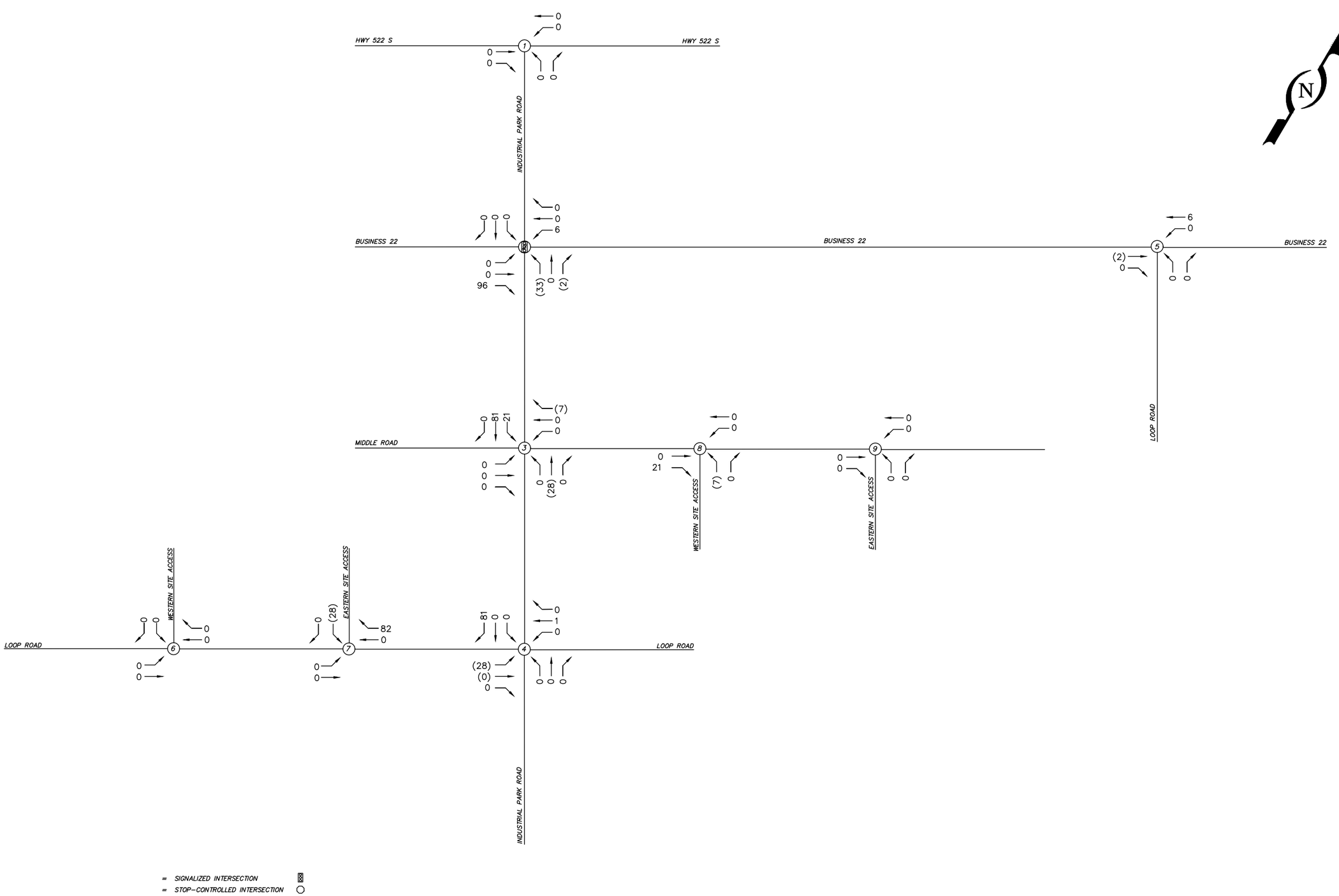
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

NEW TRIP ASSIGNMENT % FIGURE

SHEET NO.

APPENDIX C-1



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP ASSIGNMENT VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

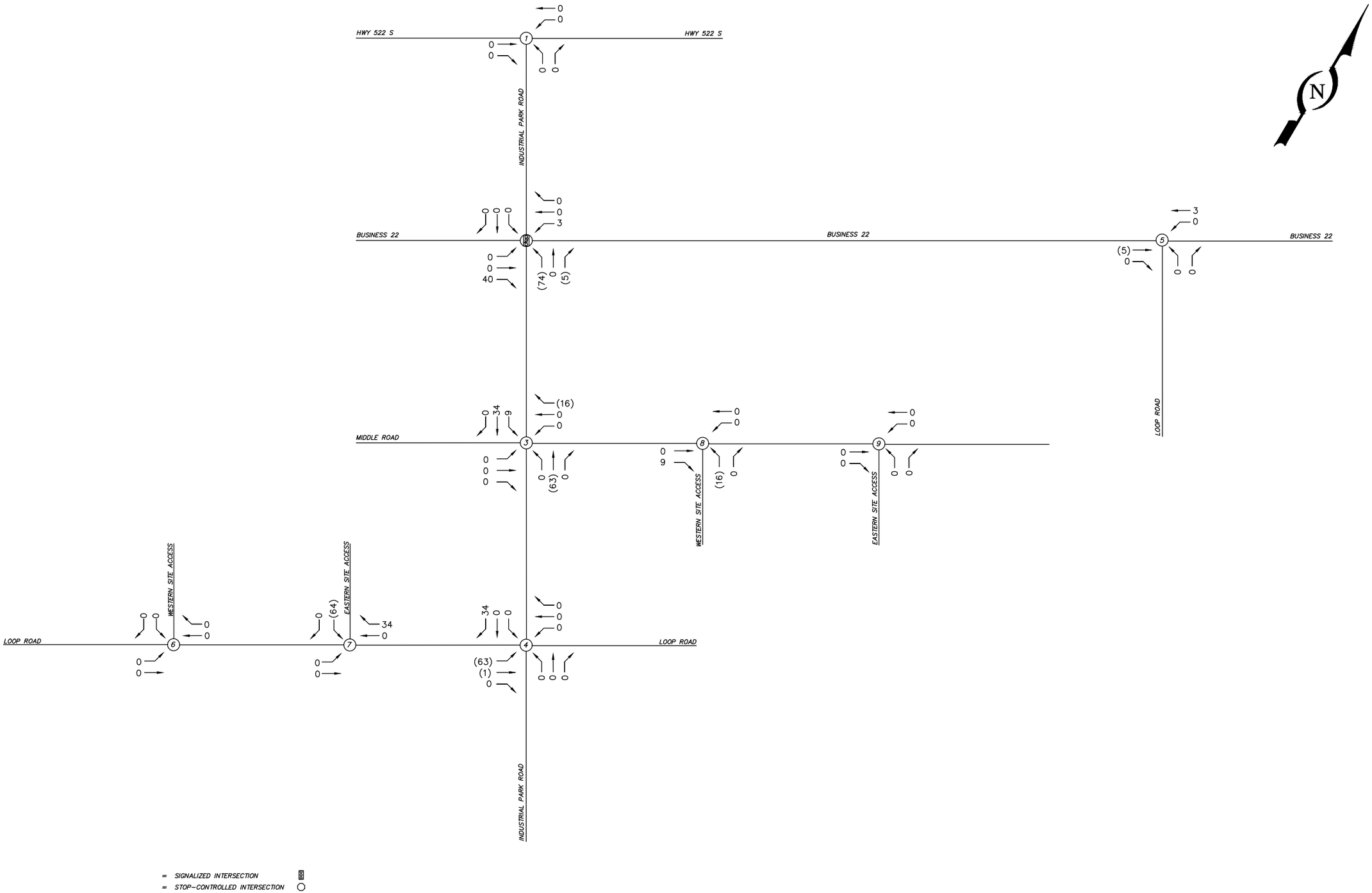
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

NEW TRIP ASSIGNMENT VOLUME FIGURE AM

SHEET NO.

APPENDIX C-2



LEGEND

XX (XX) – ENTERING (EXITING) NEW TRIP ASSIGNMENT VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

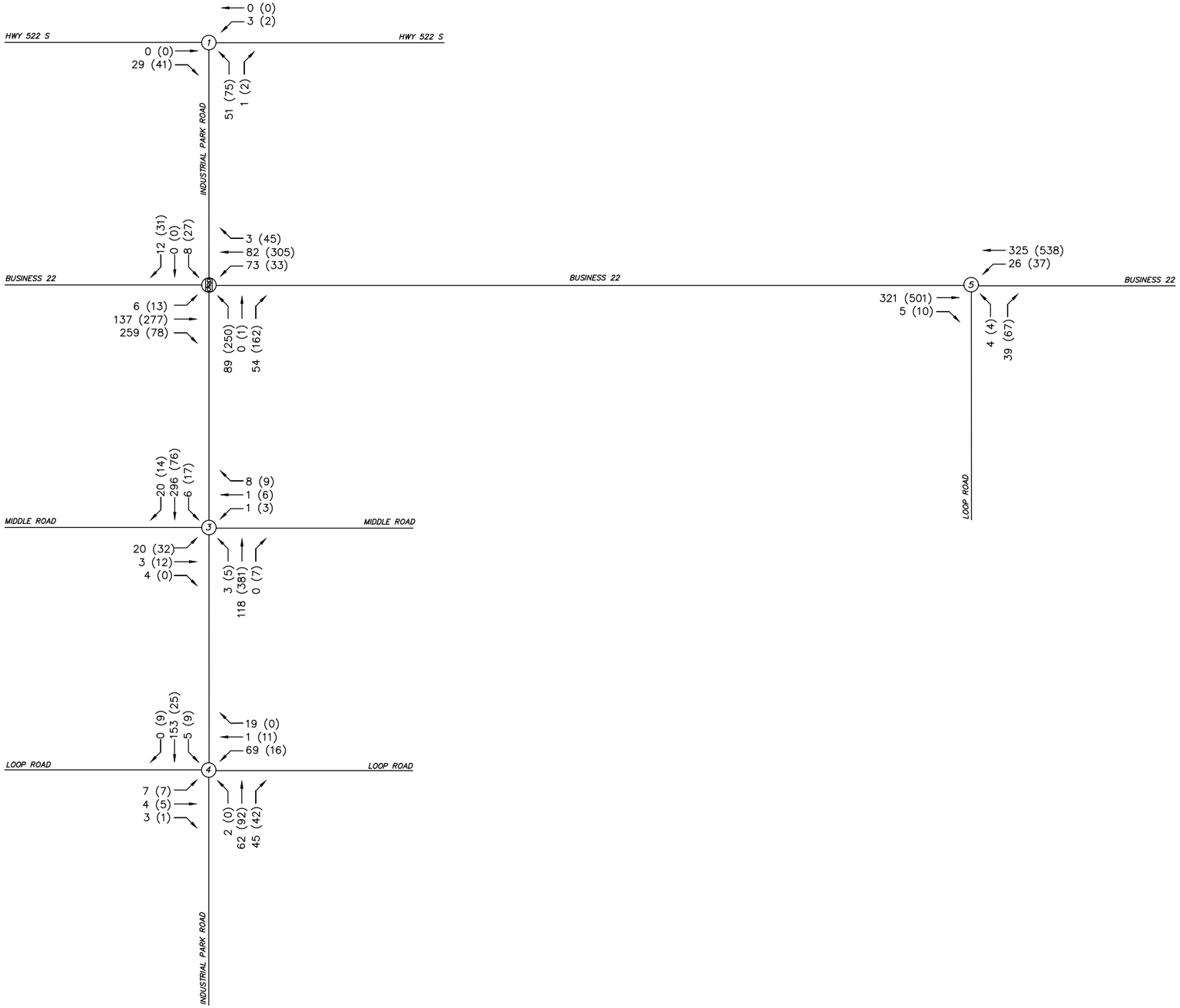
SHEET TITLE

NEW TRIP ASSIGNMENT VOLUME FIGURE PM

SHEET NO.

APPENDIX C-3

Appendix D - Opening Year Traffic Volumes Figures



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX (XX) – AM (PM) 2032 NO BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

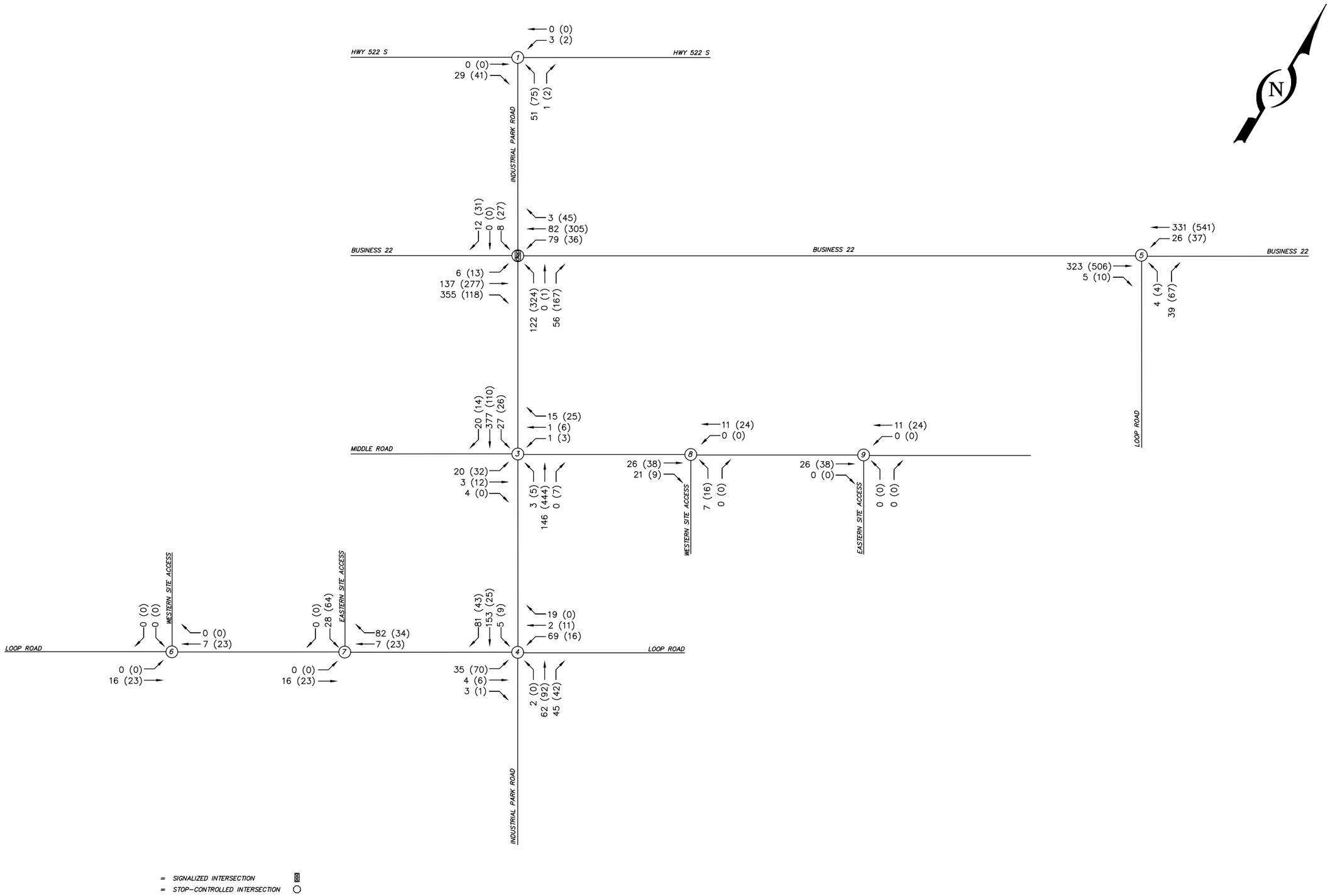
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKDAY VOLUME FIGURE

SHEET NO.

APPENDIX D-1



LEGEND

XX (XX) – AM (PM) 2032 BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY:	JBS | CHECKED BY: HRZ

PROJECT

GRANVILLE DC

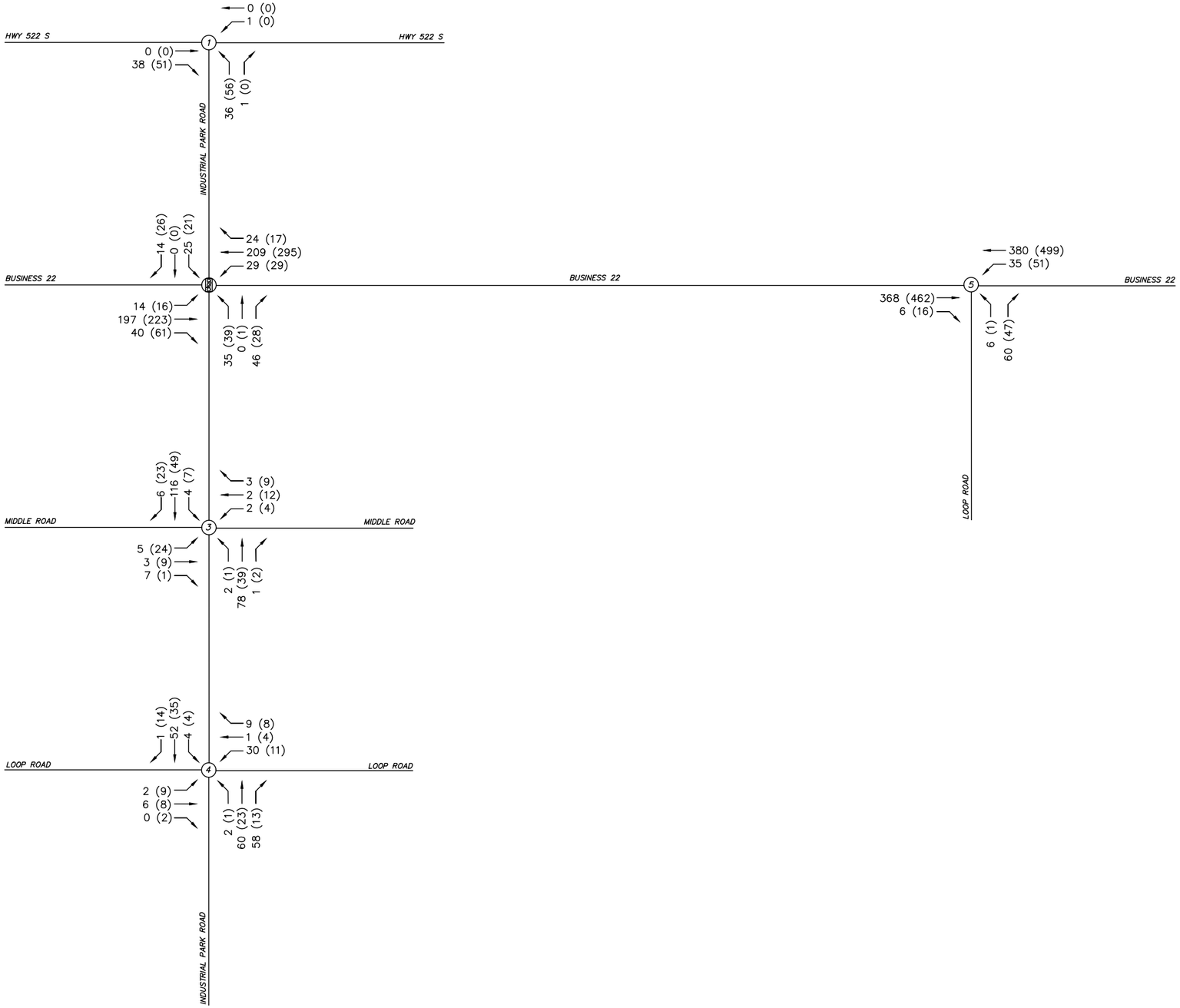
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKDAY VOLUME FIGURE

SHEET NO.

APPENDIX D-2



LEGEND

XX (XX) – AM (PM) 2032 NO BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

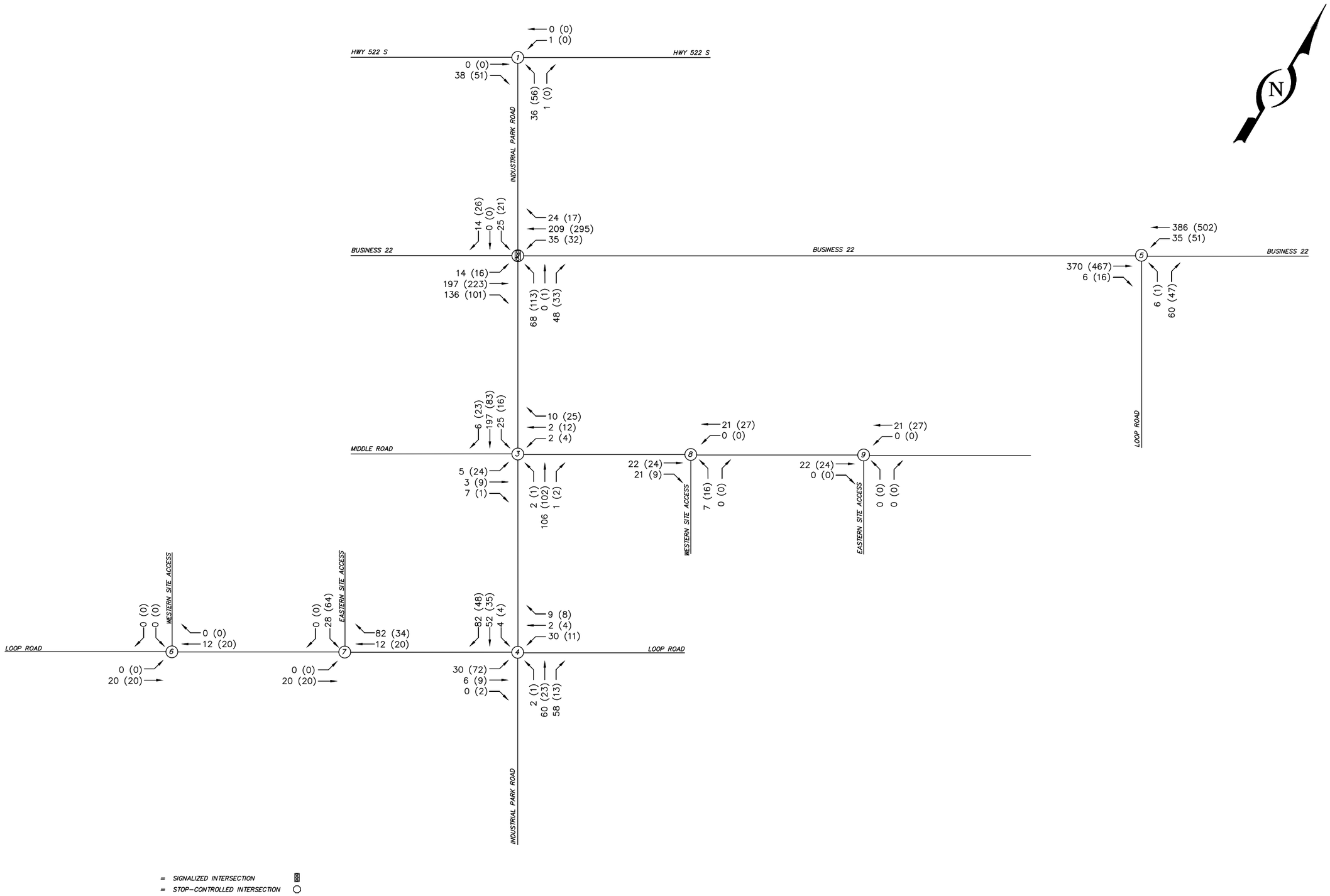
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKEND VOLUME FIGURE

SHEET NO.

APPENDIX D-3



LEGEND

XX (XX) – AM (PM) 2032 BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY:	JBS | CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

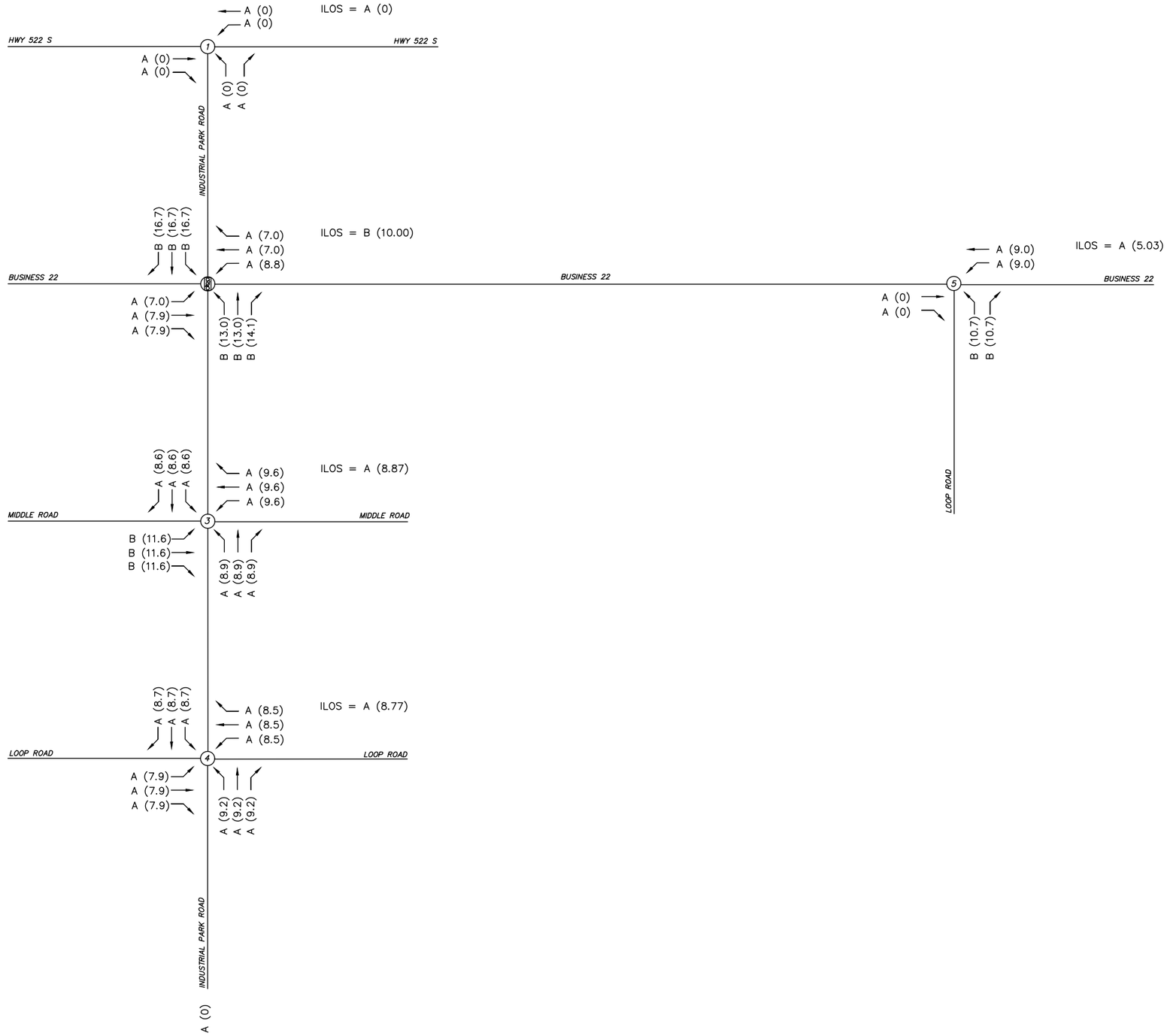
SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKEND VOLUME FIGURE

SHEET NO.

APPENDIX D-4

Appendix E - Opening Year Level-Of-Service Figures



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

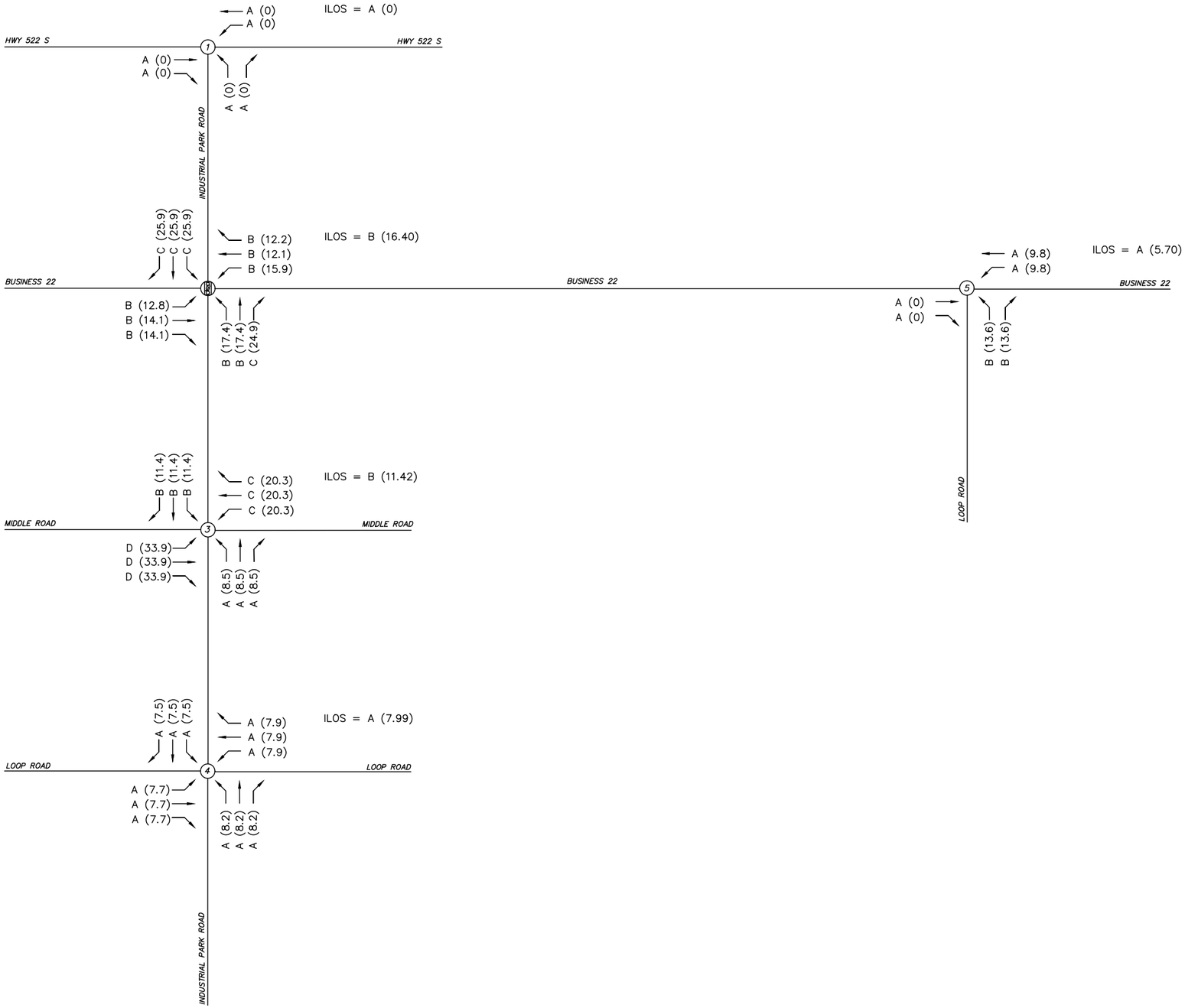
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKDAY AM LOS FIGURE

SHEET NO.

APPENDIX E-1



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

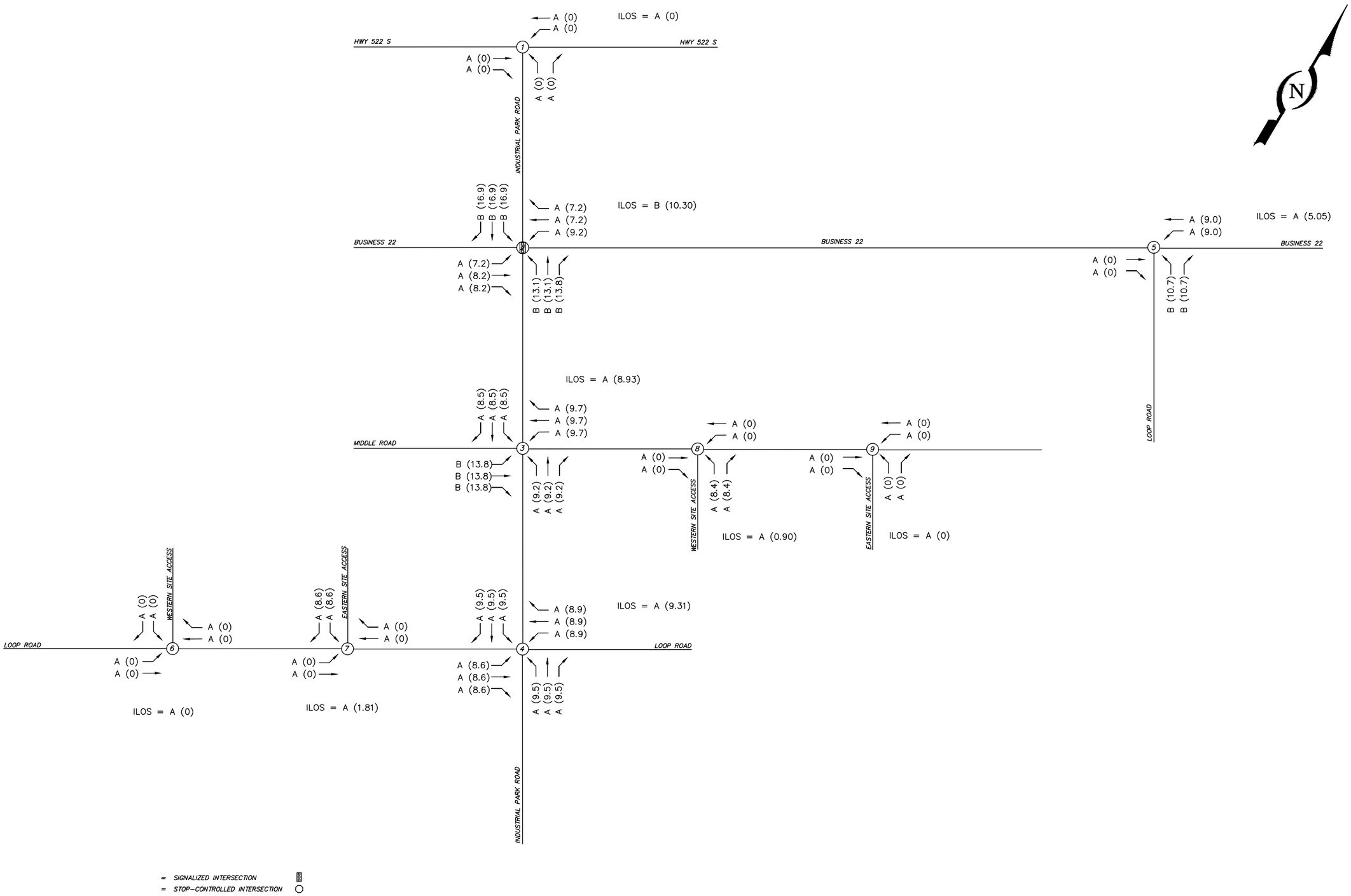
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKDAY PM LOS FIGURE

SHEET NO.

APPENDIX E-2



REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

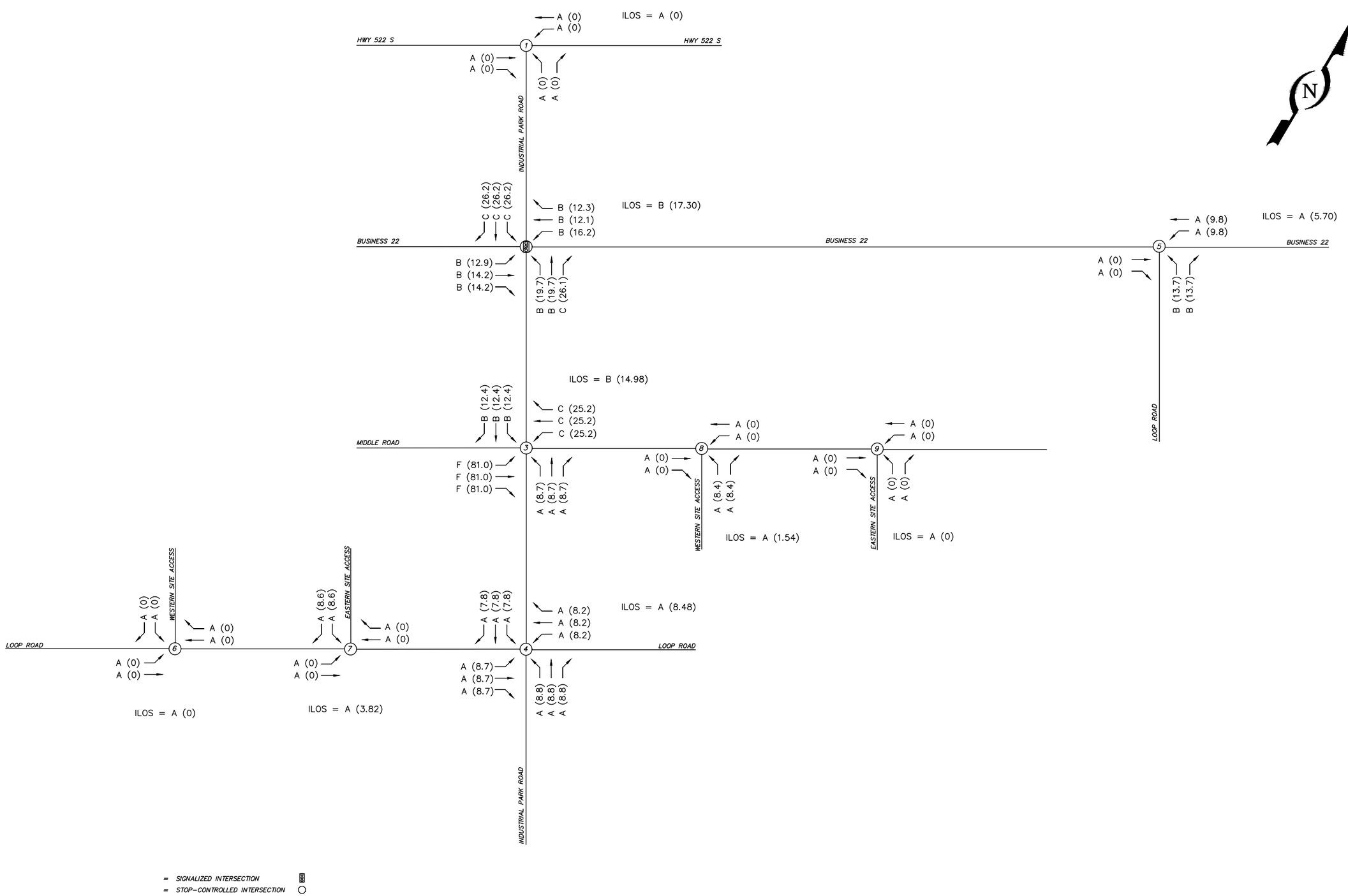
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKDAY AM LOS FIGURE

SHEET NO.

APPENDIX E-3



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

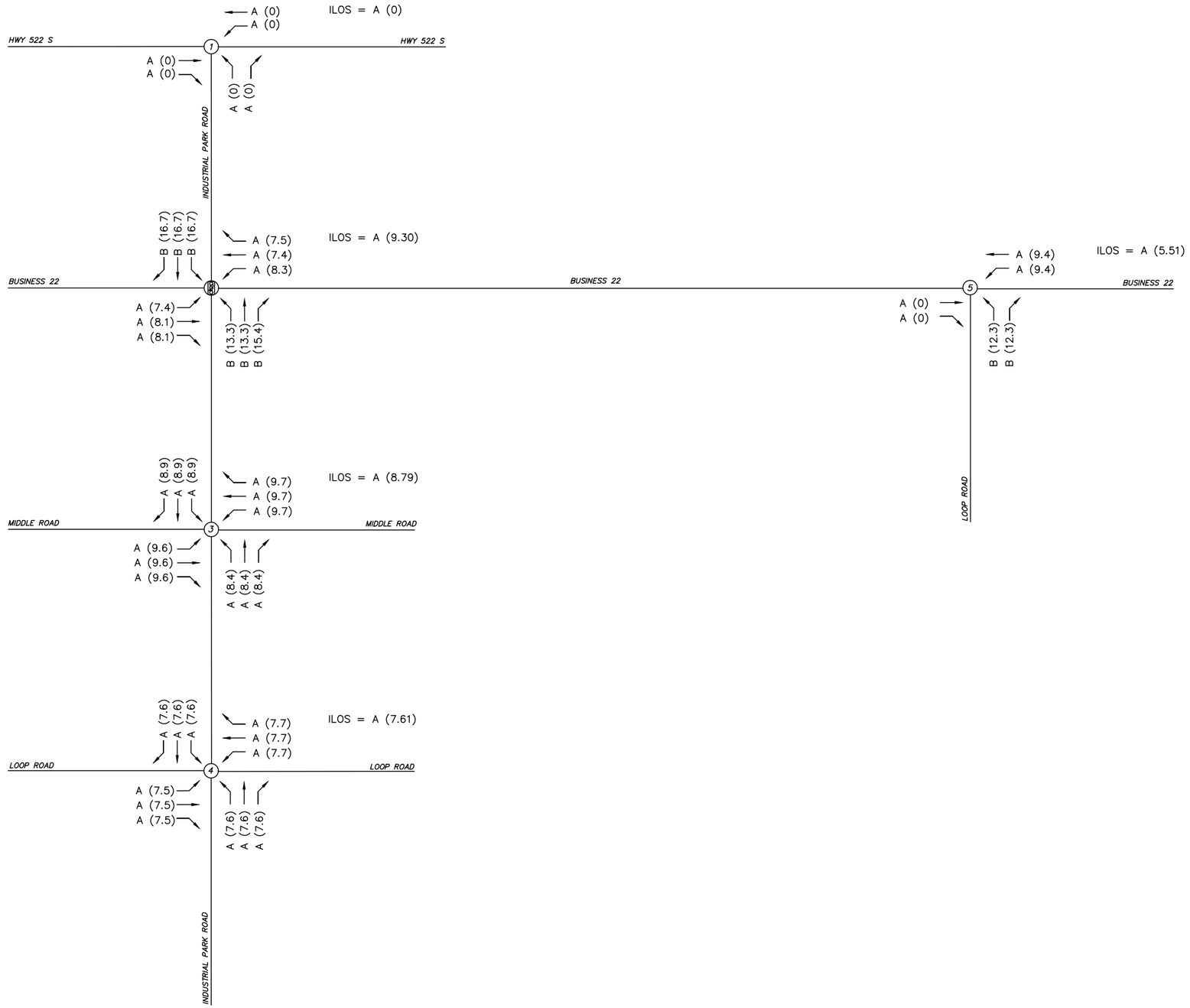
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKDAY PM LOS FIGURE

SHEET NO.

APPENDIX E-4



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

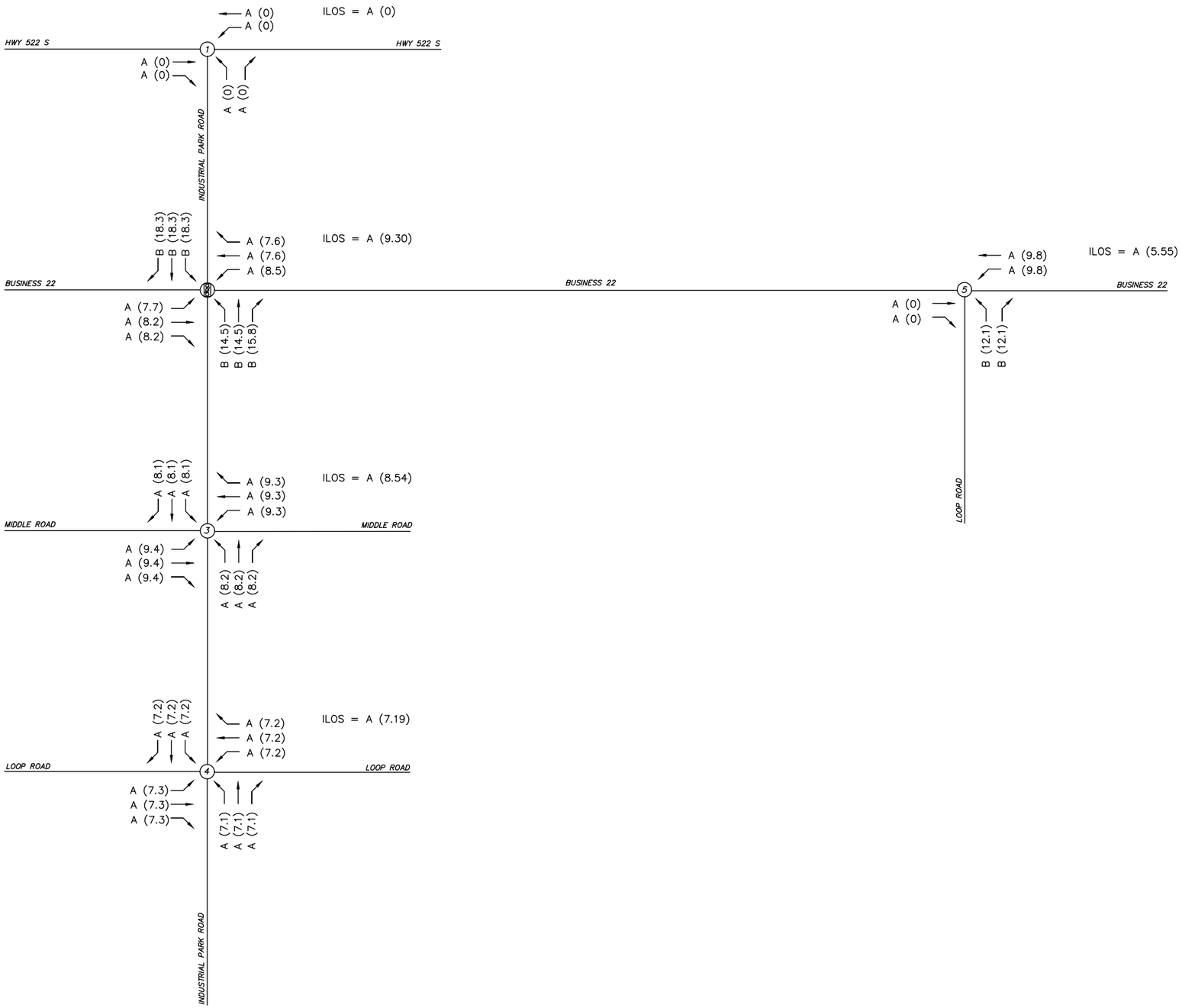
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKEND AM LOS FIGURE

SHEET NO.

APPENDIX E-5



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

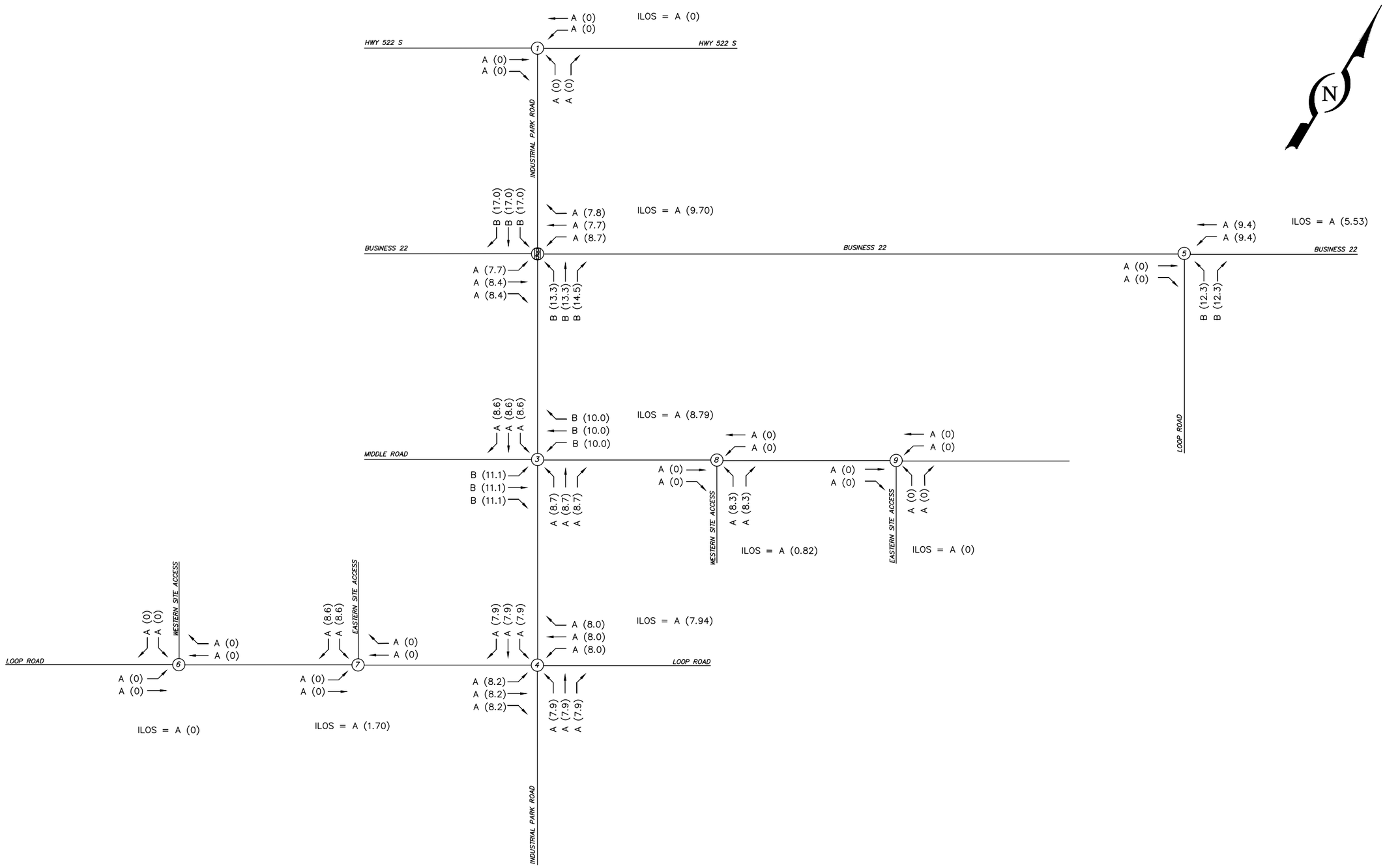
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (NO-BUILD) WEEKEND PM LOS FIGURE

SHEET NO.

APPENDIX E-6



XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

REV	DATE	COMMENTS

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

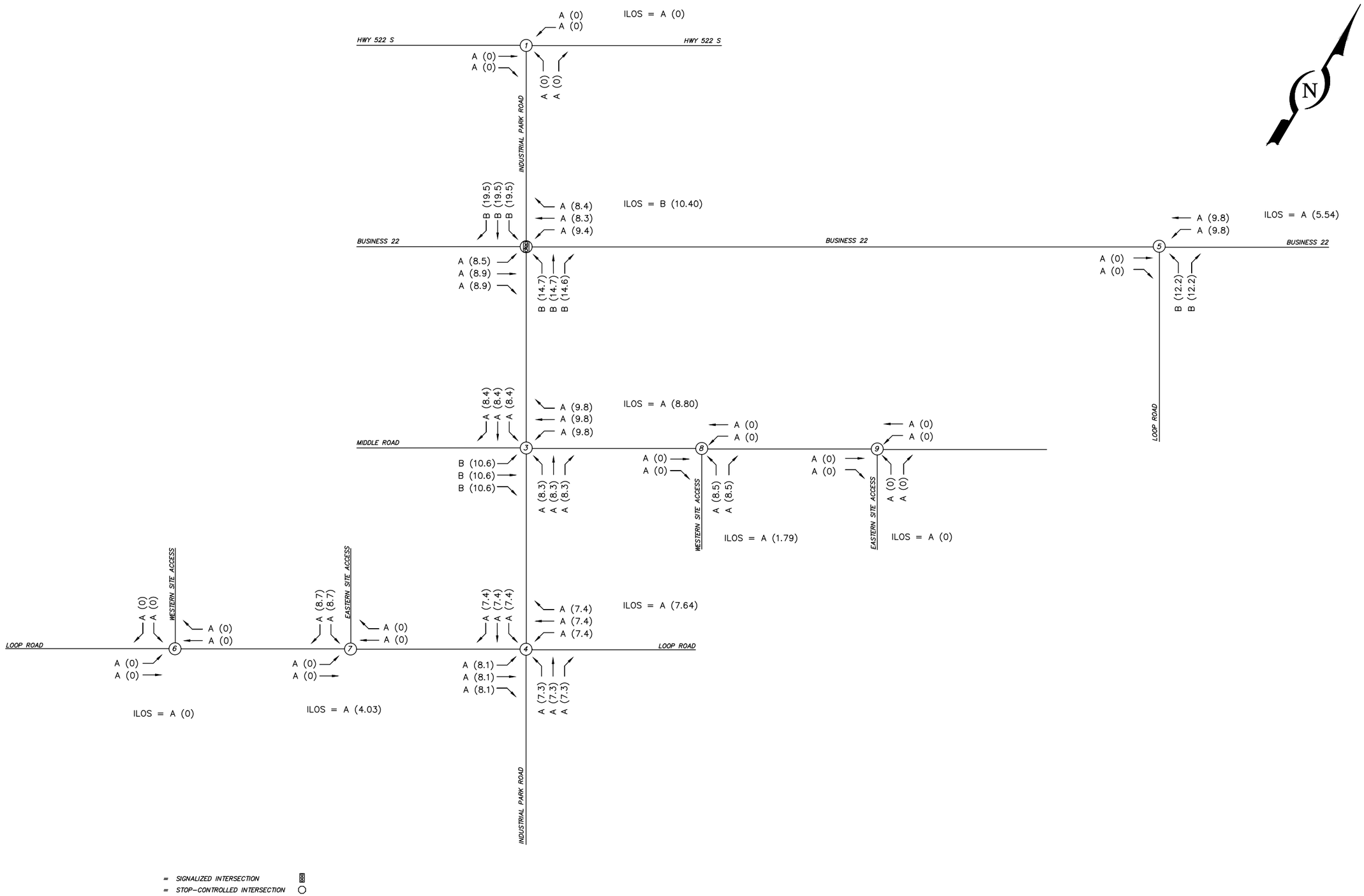
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKEND AM LOS FIGURE

SHEET NO.

APPENDIX E-7



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

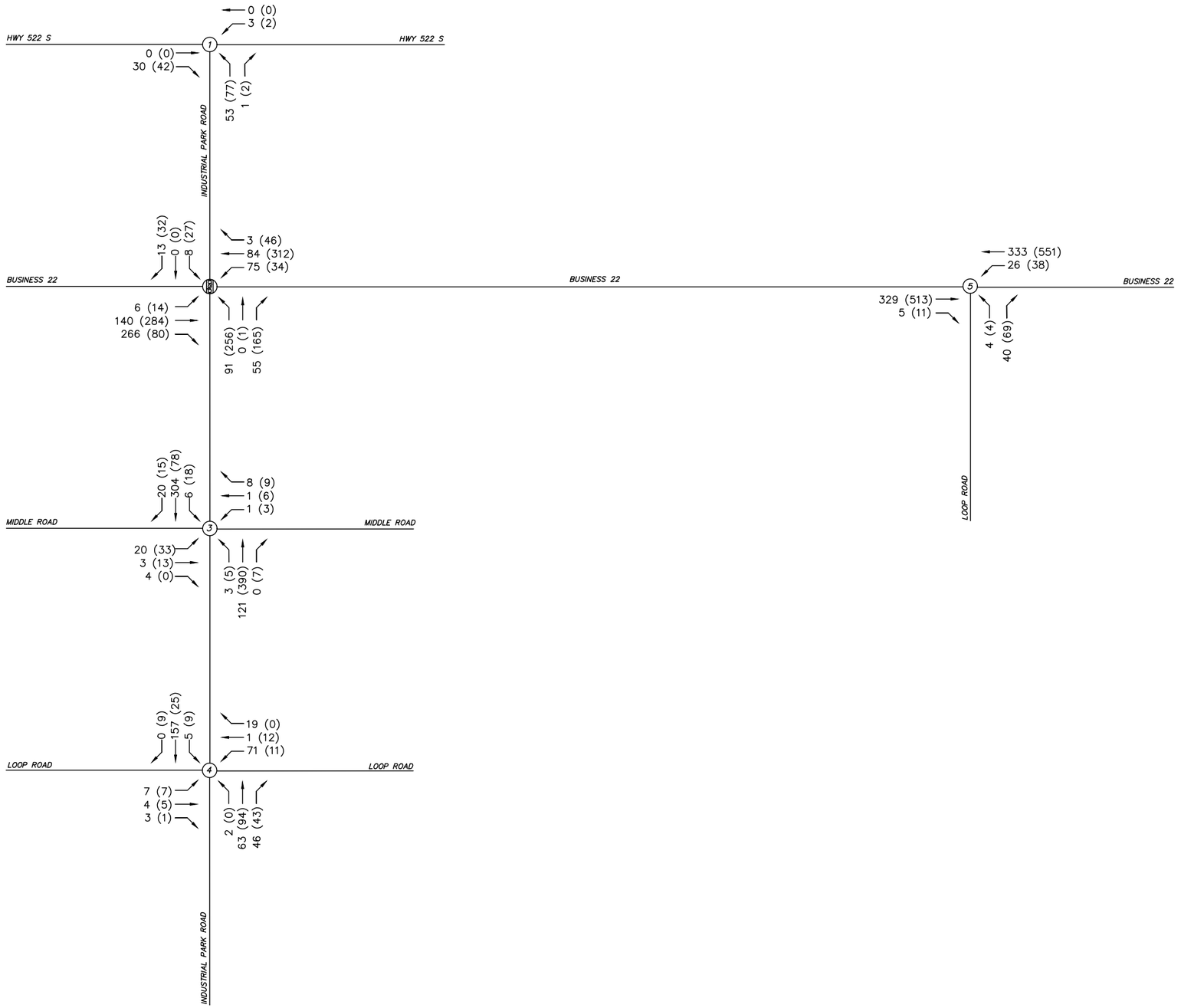
SHEET TITLE

2032 OPENING YEAR (BUILD) WEEKEND PM LOS FIGURE

SHEET NO.

APPENDIX E-8

Appendix F - Design Year Traffic Volume Figures



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX (XX) – AM (PM) 2037 NO BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY:	JBS
CHECKED BY:	HRZ

PROJECT

GRANVILLE DC

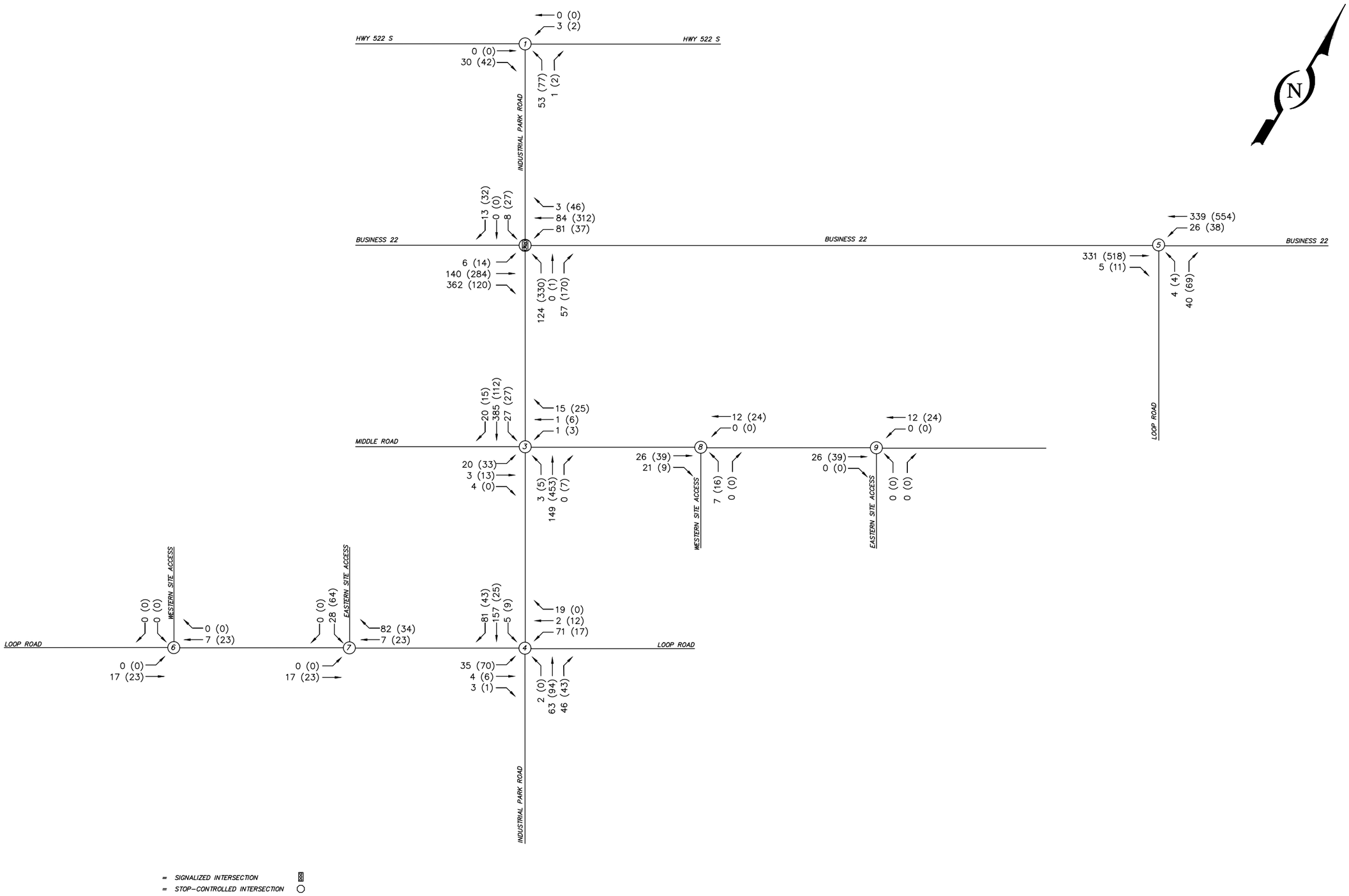
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKDAY VOLUME FIGURE

SHEET NO.

APPENDIX F-1



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX (XX) – AM (PM) 2037 BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

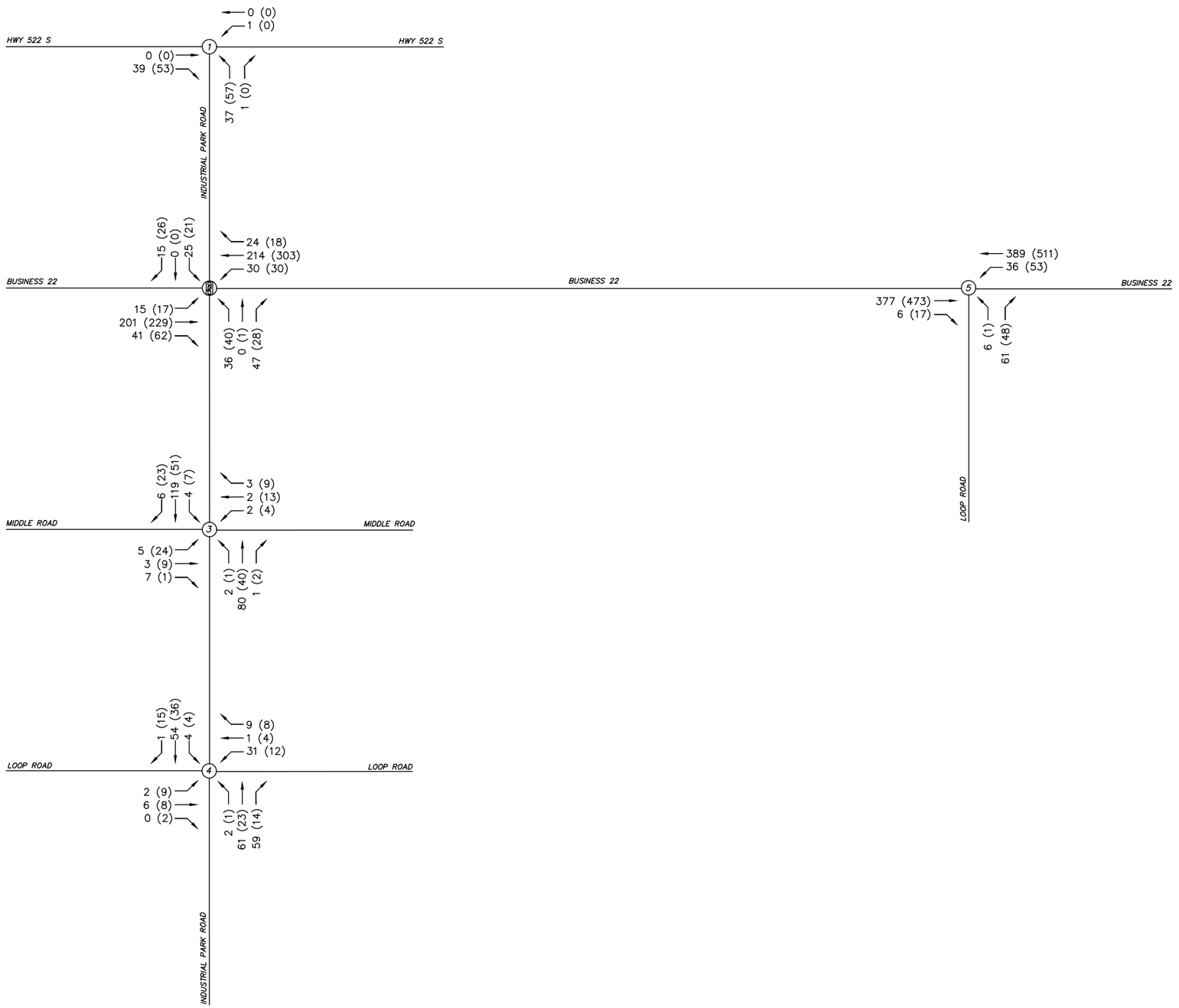
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (BUILD) WEEKDAY VOLUME FIGURE

SHEET NO.

APPENDIX F-2



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX (XX) – AM (PM) 2037 NO BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

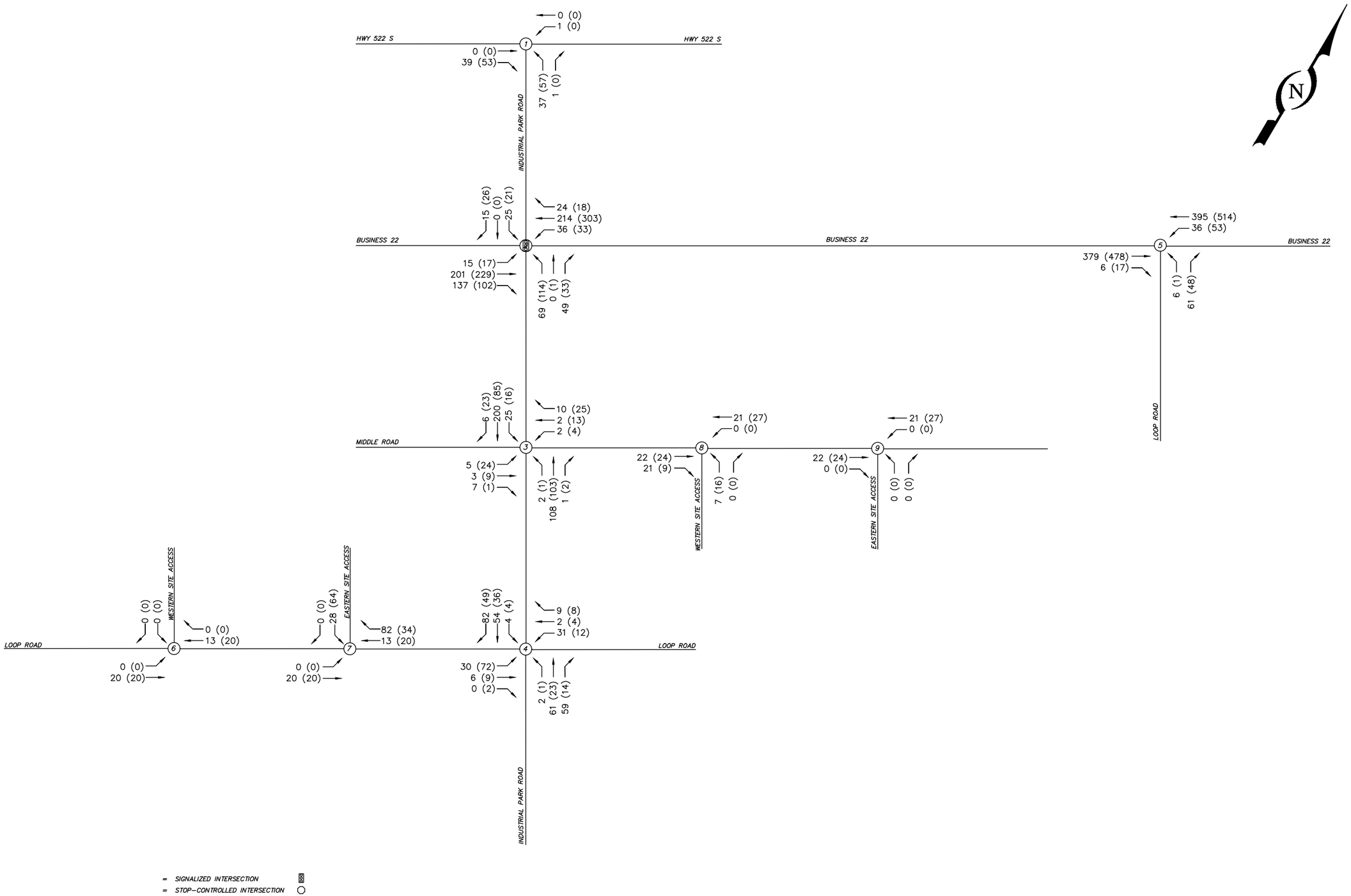
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKEND VOLUME FIGURE

SHEET NO.

APPENDIX F-3



LEGEND

XX (XX) – AM (PM) 2037 BUILD VOLUMES

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY:	JBS
CHECKED BY:	HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

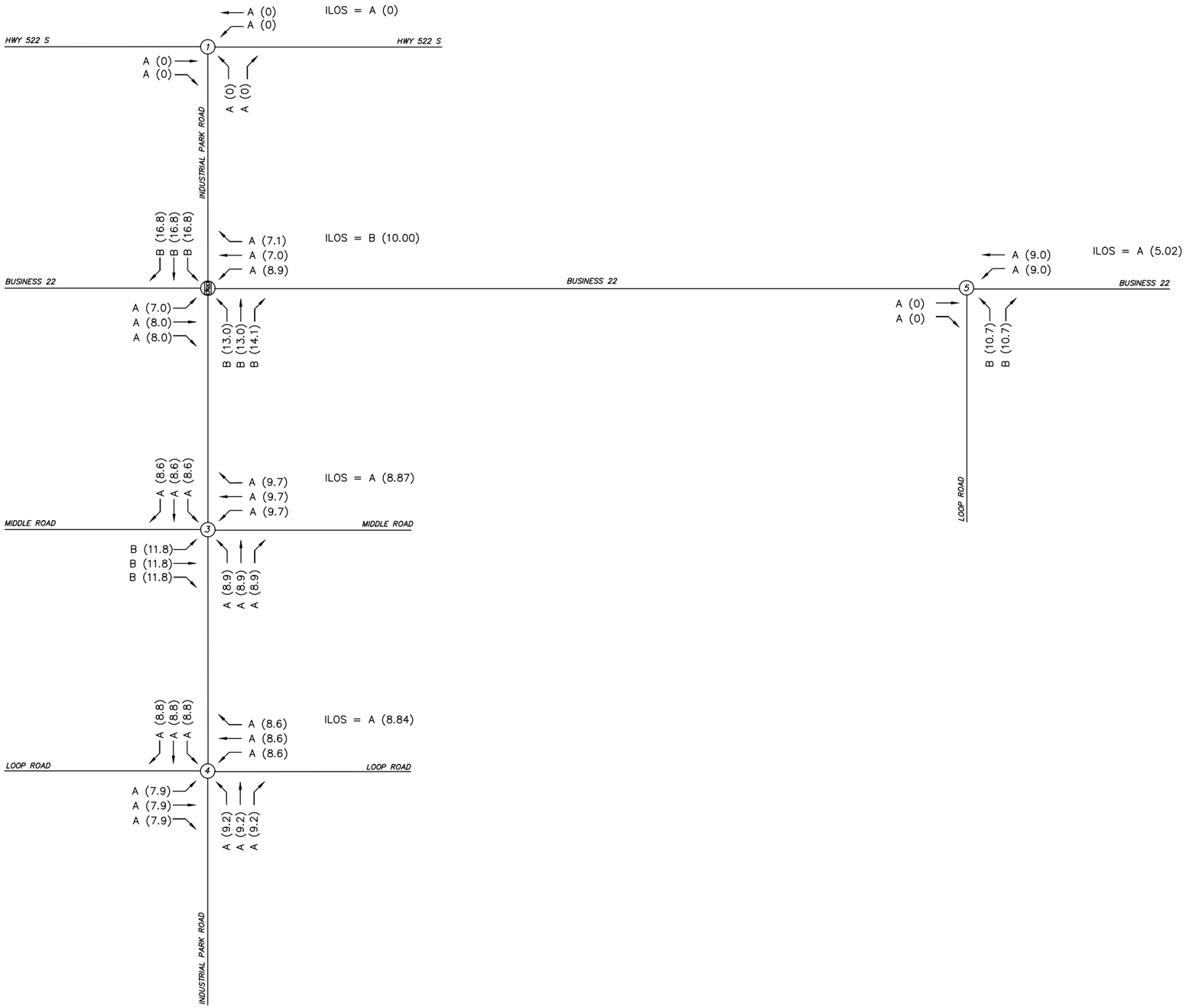
SHEET TITLE

2037 DESIGN YEAR (BUILD) WEEKEND VOLUME FIGURE

SHEET NO.

APPENDIX F-4

Appendix G - Design Year Level-Of-Service Figures



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

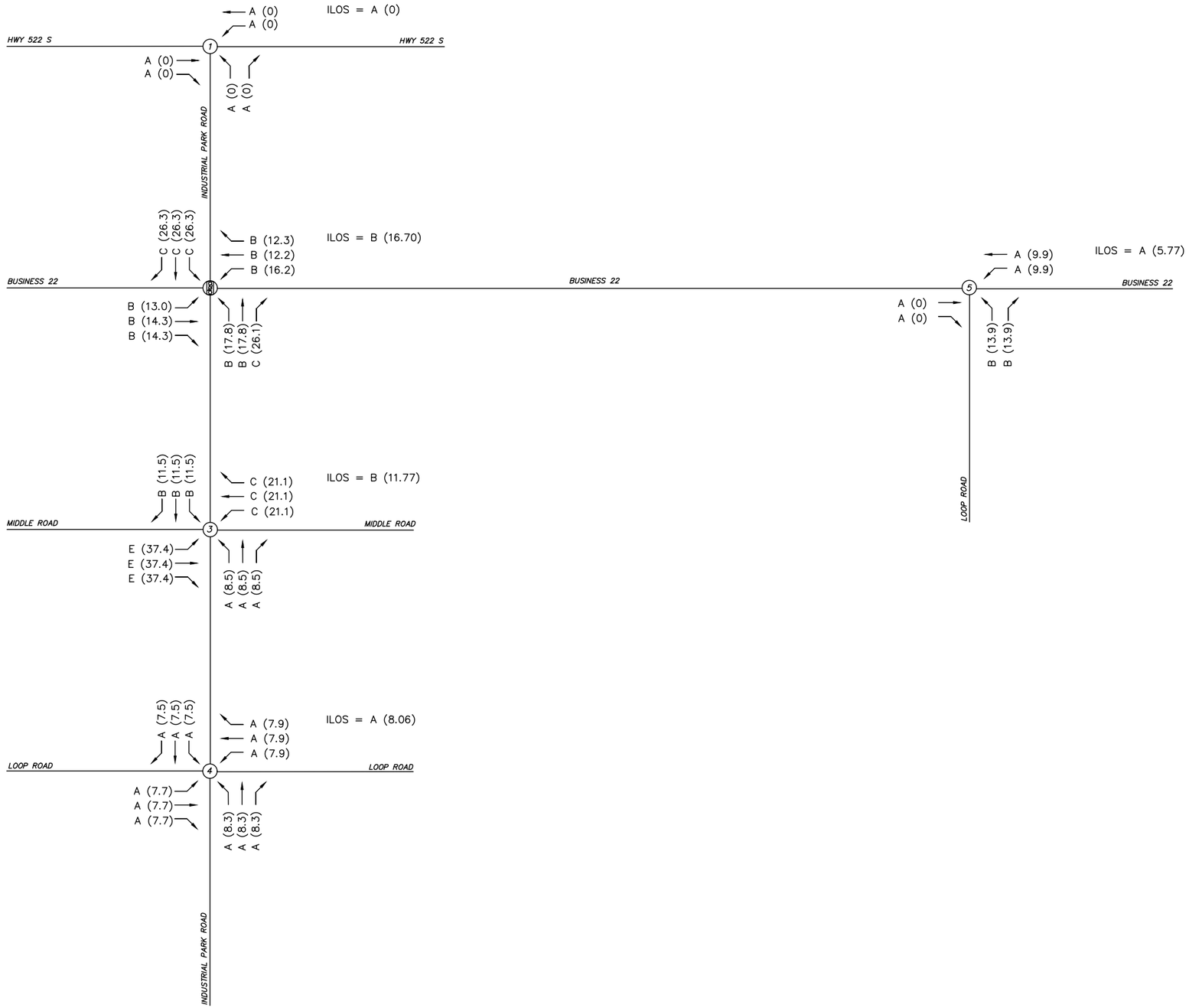
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKDAY AM LOS FIGURE

SHEET NO.

APPENDIX G-1



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

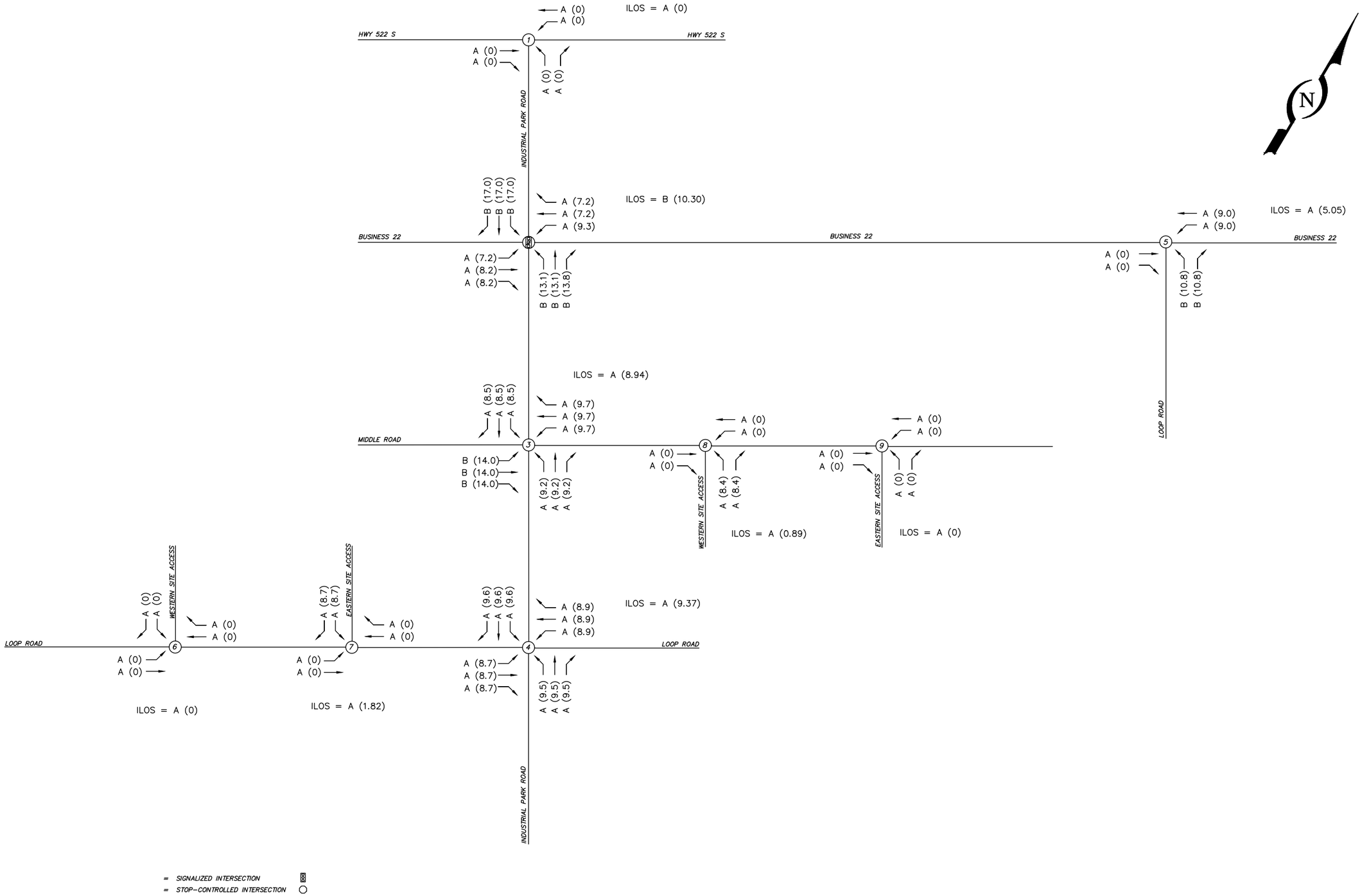
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKDAY PM LOS FIGURE

SHEET NO.

APPENDIX G-2



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

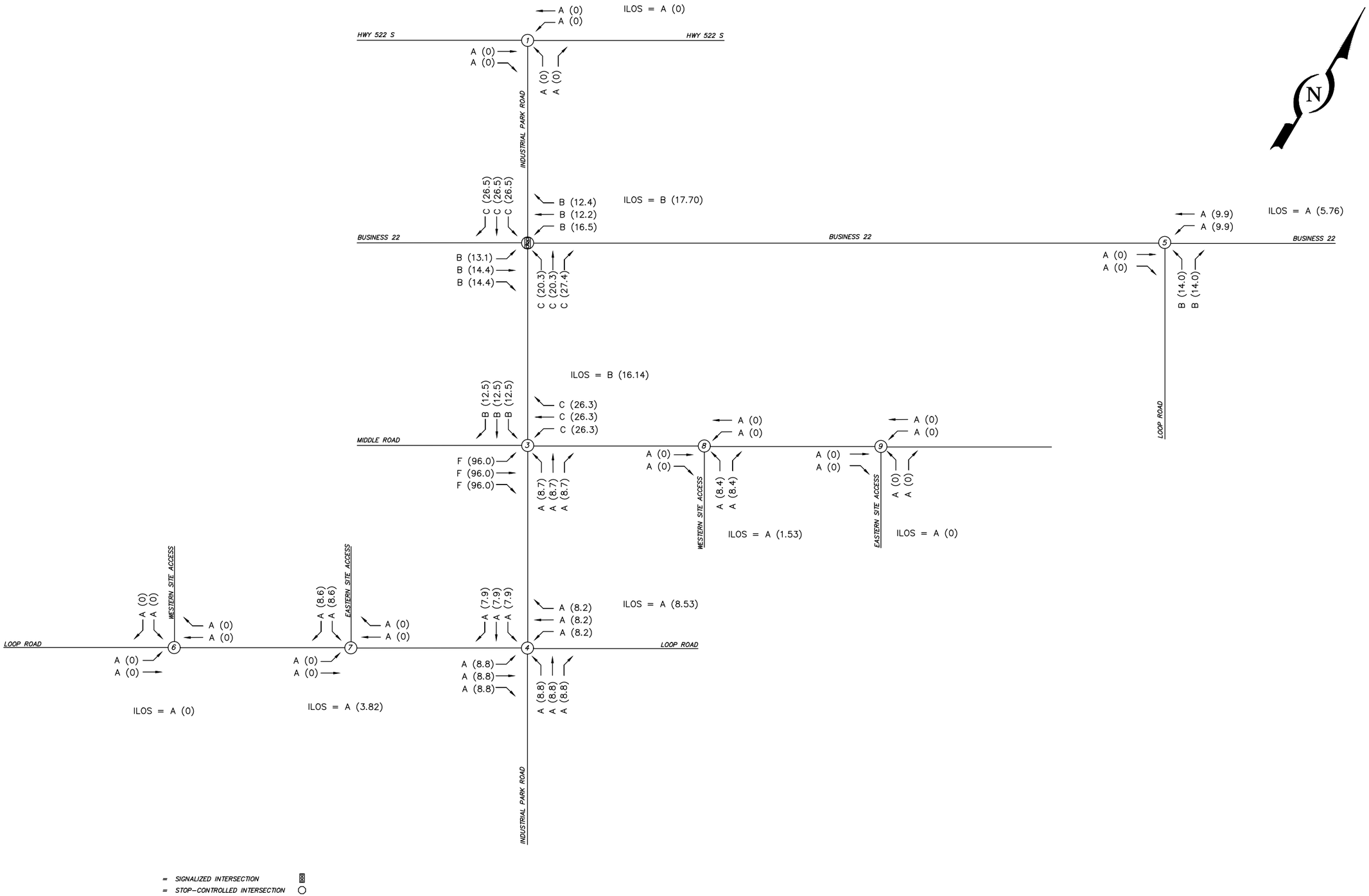
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (BUILD) AM WEEKDAY AM LOS FIGURE

SHEET NO.

APPENDIX G-3



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

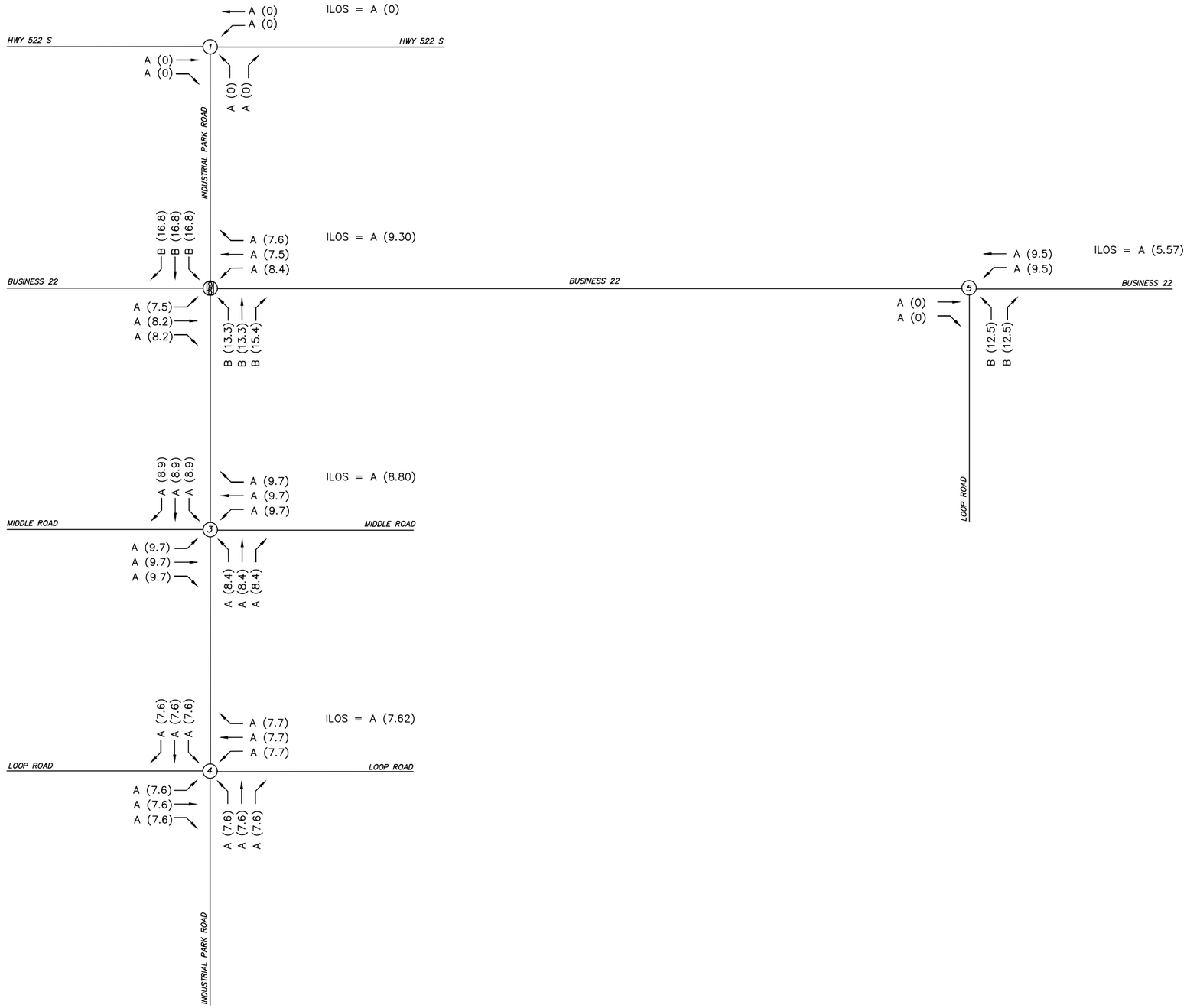
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (BUILD) WEEKDAY PM LOS FIGURE

SHEET NO.

APPENDIX G-4



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV | DATE | COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

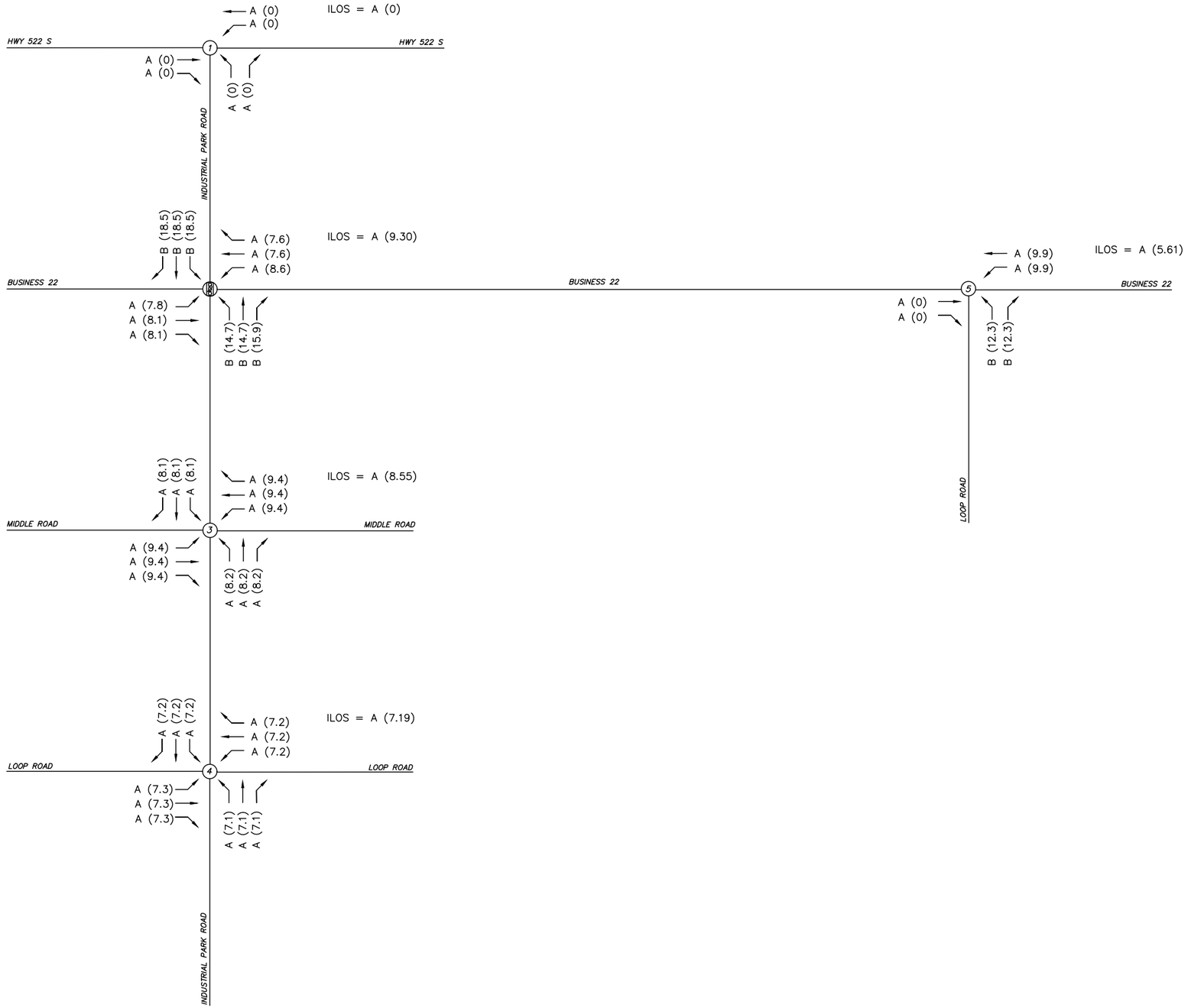
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKEND AM LOS FIGURE

SHEET NO.

APPENDIX G-5



= SIGNALIZED INTERSECTION

= STOP-CONTROLLED INTERSECTION

LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

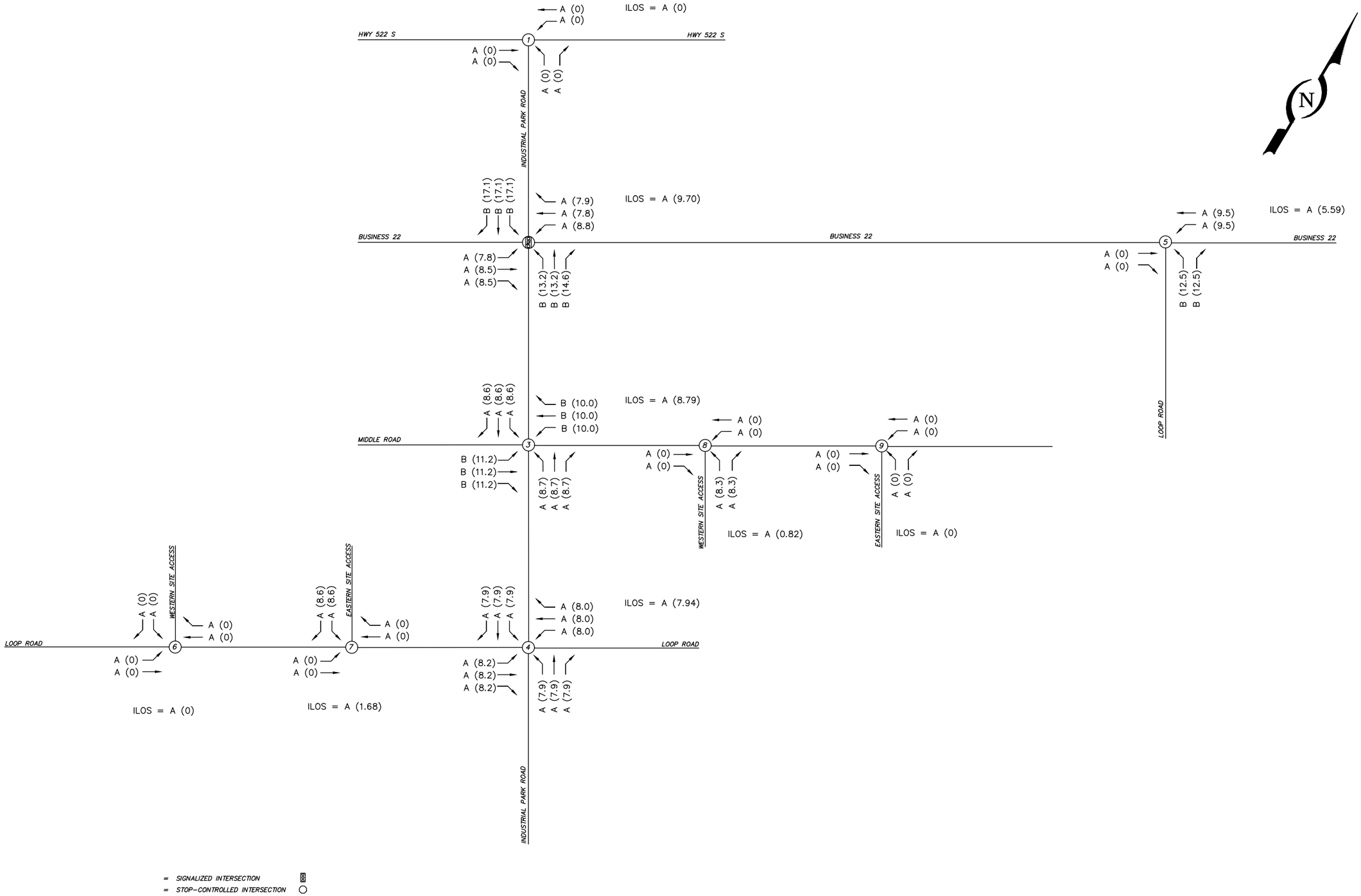
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (NO-BUILD) WEEKEND PM LOS FIGURE

SHEET NO.

APPENDIX G-6



LEGEND

XX – AM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

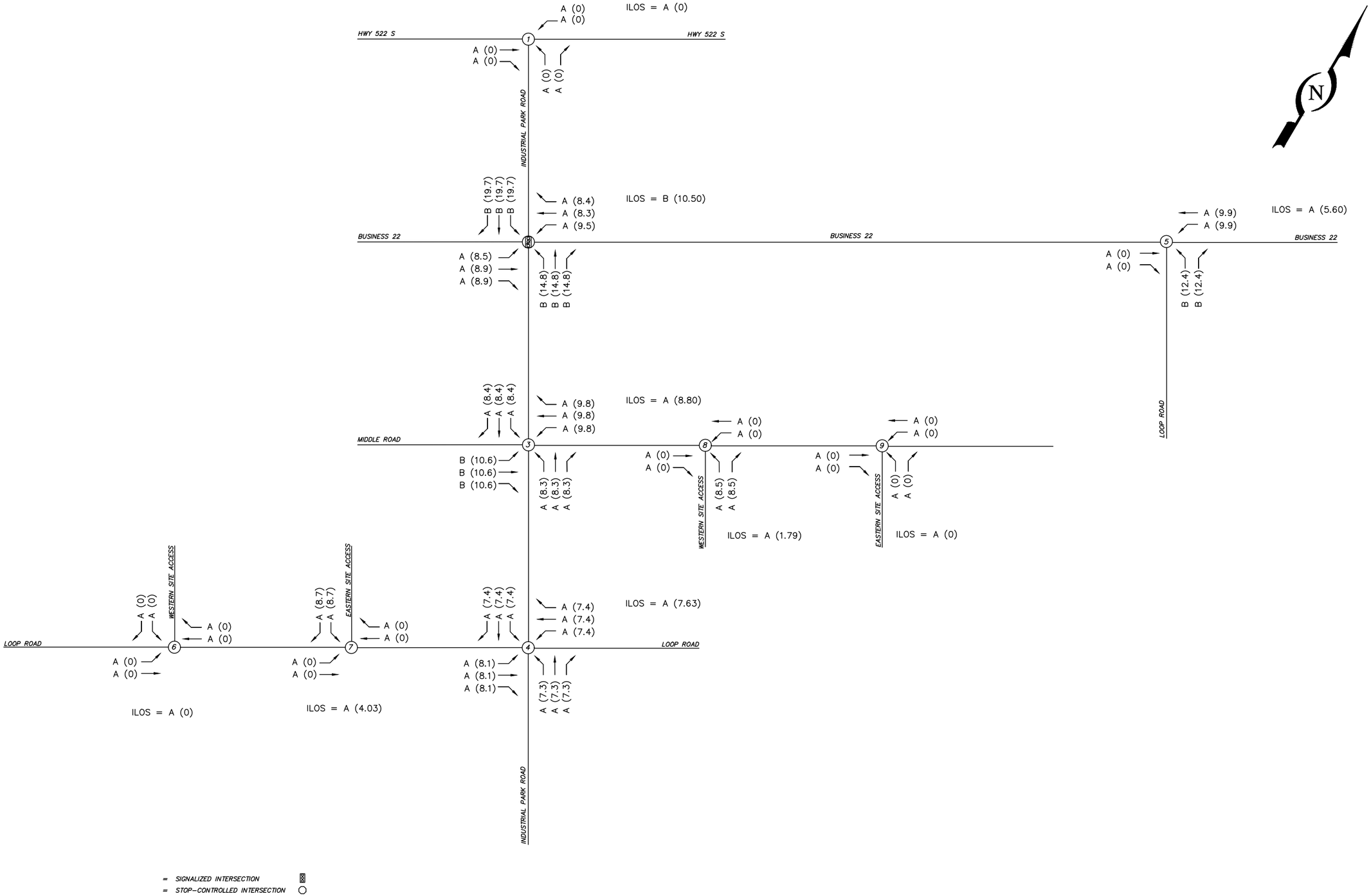
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

2037 DESIGN YEAR (BUILD) AM WEEKEND AM LOS FIGURE

SHEET NO.

APPENDIX G-7



LEGEND

XX – PM PEAK HOUR LEVEL-OF-SERVICE/DELAY

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

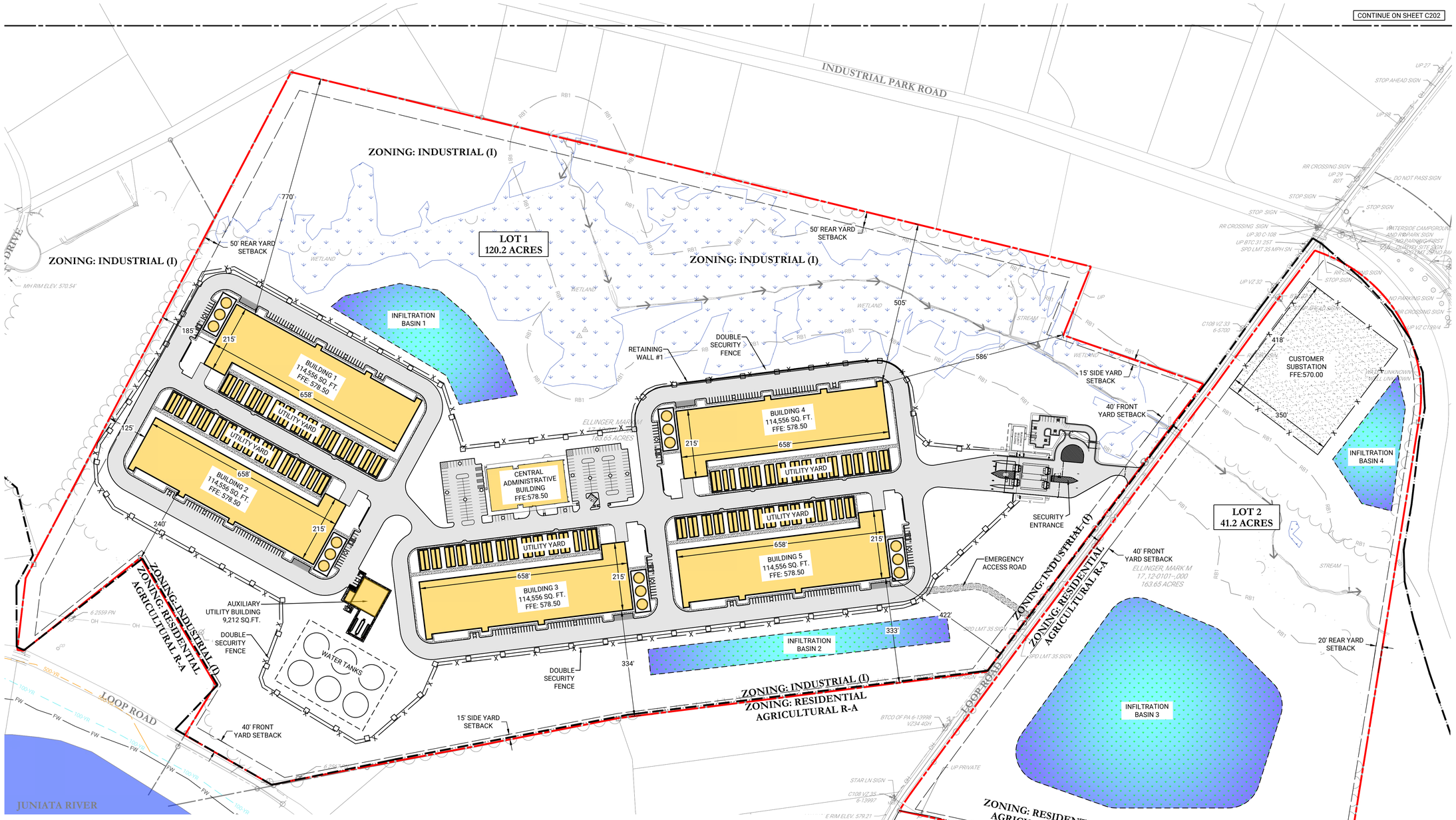
2037 DESIGN YEAR (BUILD) WEEKEND PM LOS FIGURE

SHEET NO.

APPENDIX G-8

Appendix H - Site Layout Plan

CONTINUE ON SHEET C202



HORIZONTAL SCALE: 1 INCH = 150 FEET

ZONING REGULATIONS

THE FOLLOWING INFORMATION HAS BEEN OBTAINED FROM THE GRANVILLE TOWNSHIP ZONING ORDINANCE, DATED JUNE 5, 2023.

SITE LOCATION: LOOP ROAD | LEWISTOWN, PA 17044

ZONING DISTRICT
- INDUSTRIAL (I)

PROPOSED USE: DATA CENTER

LOT REQUIREMENTS	REQUIRED	PROPOSED
MIN LOT SIZE	1 AC	120.18 AC
MIN LOT WIDTH	125 FT	± 1,125 FT
MIN LOT DEPTH	200 FT	± 2,926 FT
MAX LOT COVERAGE	70%	12.2% (14.16 AC)
MAX BUILDING HEIGHT	150 FT	66 FT
YARD SETBACKS		
FRONT	40 FT	40 FT
SIDE	15 FT	15 FT
REAR	50 FT	50 FT

ZONING DISTRICT
- RESIDENTIAL AGRICULTURAL (R-A)

PROPOSED USE: DATA CENTER

LOT REQUIREMENTS	REQUIRED	PROPOSED
MIN LOT SIZE	5 AC	41.16 AC
MIN LOT WIDTH	125 FT	± 2,122 FT
MIN LOT DEPTH	200 FT	± 1000 FT
MAX BUILDING HEIGHT	50 FT	< 50 FT
YARD SETBACKS		
FRONT	40 FT	40 FT
SIDE	15 FT	15 FT
REAR	20 FT	50 FT

LEGEND

- BUILDING LINE
- EASEMENT LINE
- EDGE OF PAVEMENT
- FENCE LINE
- PROPOSED PROPERTY LINE
- PROPOSED PROPERTY SETBACK
- PROPOSED RIGHT-OF-WAY LINE
- PROPOSED GRAVEL
- PROPOSED ACCESS DRIVE
- PROPOSED SIDEWALK
- 50' TOWNSHIP RIPARIAN BUFFER
- FLOODWAY
- 100 YEAR FEMA FLOODPLAIN
- 500 YEAR FEMA FLOODPLAIN
- JUNIATA RIVER

REV	DATE	COMMENTS	BY	CHKD
01	07.06.2026	INITIAL SUBMISSION	RJG	CMJ

ISSUE / REVISIONS

LIVIC civil
29 EAST MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2026 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	JULY, 6, 2026
SCALE:	AS SHOWN
DRAWN BY: RJG	CHECKED BY: CMJ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY

PENNSYLVANIA

CLIENT

PA DATA CENTER PARTNERS

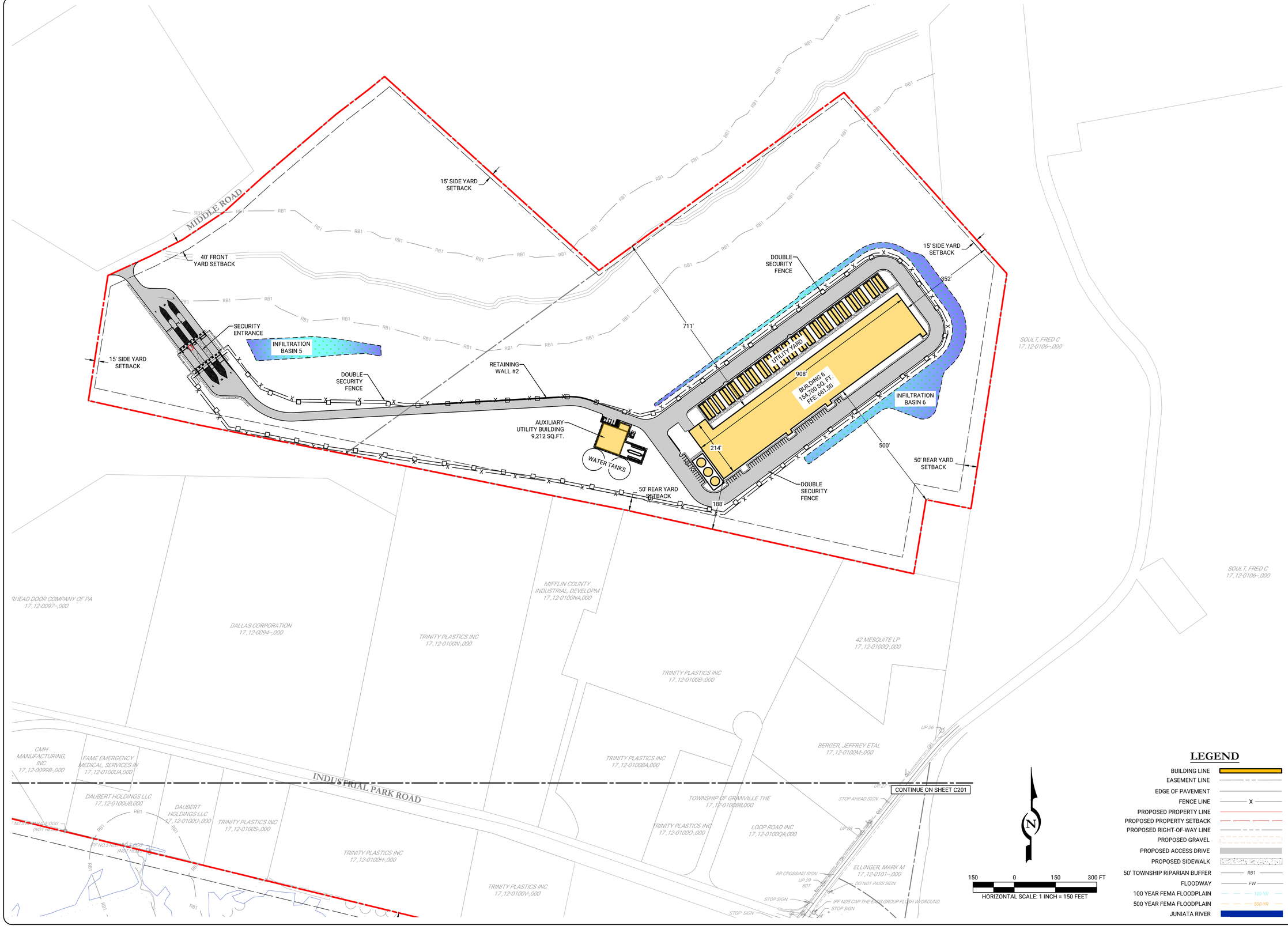
CLIENT STREET
CITY, PA, XXXXX
PHONE: (XXX) XXX-XXXX

SHEET TITLE

OVERALL SITE LAYOUT PLAN

SHEET NO.

C201



LEGEND

- BUILDING LINE
- EASEMENT LINE
- EDGE OF PAVEMENT
- FENCE LINE — X
- PROPOSED PROPERTY LINE
- PROPOSED PROPERTY SETBACK
- PROPOSED RIGHT-OF-WAY LINE
- PROPOSED GRAVEL
- PROPOSED ACCESS DRIVE
- PROPOSED SIDEWALK
- 50' TOWNSHIP RIPARIAN BUFFER — RB1
- FLOODWAY — FW
- 100 YEAR FEMA FLOODPLAIN — 100-YR
- 500 YEAR FEMA FLOODPLAIN — 500-YR
- JUNIATA RIVER

N

150 0 150 300 FT

HORIZONTAL SCALE: 1 INCH = 150 FEET

REV	DATE	COMMENTS	BY	CHKD
01	07.06.2026	INITIAL SUBMISSION	RJG	CMJ

ISSUE / REVISIONS

LIVIC civil
29 EAST MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2026 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	JULY, 6, 2026
SCALE:	AS SHOWN
DRAWN BY: RJG	CHECKED BY: CMJ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP MIFFLIN COUNTY

PENNSYLVANIA

CLIENT

PA DATA CENTER PARTNERS

CLIENT STREET
CITY, PA, XXXXX
PHONE: (XXX) XXX-XXXX

SHEET TITLE

OVERALL SITE LAYOUT PLAN

SHEET NO.

C202

Appendix I - Scoping Meeting Application & Project Correspondence

THERE IS NO PROJECT CORRESPONDENCE AT THIS TIME

Appendix J - Automatic Traffic Recorder (ATR) Data
Turning Movement Counts

Loop Road
btwn Industrial Park Road & Starr Lane
Granville Township, Mifflin County, PA

Setup: KB

Imperial
TRAFFIC & DATA COLLECTION
1804 HADDONFIELD-BERLIN ROAD
CHERRY HILL, NJ 08003 | 609.706.6100
WWW.IMPERIALTDC.COM

File Name: ATR 1. Loop Road, btwn Industrial Park Road & Starr Lane
Start Date: 6/18/2026
End Date: 6/20/2026
Date Printed: ATR 1. Loop Road, btwn Industrial Park Road & Starr Lane
Latitude: 40.568247
Longitude: -77.610152

6/18/2026		SB, Loop Road		NB, Loop Road		Combined		6/19/26	SB, Loop Road		NB, Loop Road		Combined	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Fri	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		0	2	0	3	0	5		0	8	0	5	0	13
12:15		0	2	0	2	0	4		0	4	0	0	0	4
12:30		0	3	0	1	0	4		0	6	0	6	0	12
12:45		0	2	0	1	0	3		1	7	0	4	1	11
01:00		0	5	0	2	0	7		0	4	0	3	0	7
01:15		0	3	0	3	0	6		0	4	0	3	0	7
01:30		1	2	0	1	1	3		0	2	0	4	0	6
01:45		0	2	0	3	0	5		0	4	0	4	0	8
02:00		0	3	0	4	0	7		0	3	0	4	0	7
02:15		0	4	0	2	0	6		0	2	0	3	0	5
02:30		0	9	0	5	0	14		0	4	0	2	0	6
02:45		0	5	0	5	0	10		0	5	0	0	0	5
03:00		0	6	0	4	0	10		0	2	1	2	1	4
03:15		0	5	1	5	1	10		0	8	0	3	0	11
03:30		0	1	0	4	0	5		0	4	1	2	1	6
03:45		0	8	2	0	2	8		0	5	0	4	0	9
04:00		0	7	1	5	1	12		0	8	0	6	0	14
04:15		0	3	0	5	0	8		0	3	0	0	0	3
04:30		0	5	0	8	0	13		0	3	0	5	0	8
04:45		1	8	2	5	3	13		0	7	2	2	2	9
05:00		1	4	1	2	2	6		0	1	1	2	1	3
05:15		0	6	3	3	3	9		0	1	0	5	0	6
05:30		2	4	1	12	3	16		2	2	3	1	5	3
05:45		0	7	2	4	2	11		0	3	3	3	3	6
06:00		0	3	1	3	1	6		0	3	1	4	1	7
06:15		0	3	1	2	1	5		1	4	2	4	3	8
06:30		0	1	2	3	2	4		1	3	1	3	2	6
06:45		1	6	5	3	6	9		0	3	6	1	6	4
07:00		2	5	6	4	8	9		2	5	2	5	4	10
07:15		4	2	2	1	6	3		3	5	3	3	6	8
07:30		0	3	3	3	3	6		1	1	3	3	4	4
07:45		3	2	2	1	5	3		5	2	2	8	7	10
08:00		1	2	5	2	6	4		3	3	5	3	8	6
08:15		1	2	2	0	3	2		3	5	1	2	4	7
08:30		1	5	4	4	5	9		3	3	4	4	7	7
08:45		0	3	0	4	0	7		3	2	3	0	6	2
09:00		1	3	4	2	5	5		3	1	2	1	5	2
09:15		3	8	1	2	4	10		5	4	3	3	8	7
09:30		4	1	5	0	9	1		3	0	4	2	7	2
09:45		2	3	3	3	5	6		4	1	2	3	6	4
10:00		4	0	2	1	6	1		1	2	5	1	6	3
10:15		2	3	2	0	4	3		3	2	5	1	8	3
10:30		3	2	2	0	5	2		3	0	1	1	4	1
10:45		4	1	4	1	8	2		4	0	2	0	6	0
11:00		2	1	2	1	4	2		3	5	3	0	6	5
11:15		4	0	2	1	6	1		2	2	4	1	6	3
11:30		4	2	5	1	9	3		6	1	4	0	10	1
11:45		4	0	2	0	6	0		5	0	6	1	11	1
Total		55	167	80	131	135	298		70	157	85	127	155	284
Day Total		222		211		433			227		212		439	
% Total		12.7%	38.6%	18.5%	30.3%				15.9%	35.8%	19.4%	28.9%		
Peak		10:45	02:30	06:45	04:00	10:45	04:00		11:00	12:00	11:00	07:00	11:00	12:00
Volume		14	25	16	23	27	46		16	25	17	19	33	40
Int. Time		10:45	02:30	07:00	04:30	11:30	04:30		11:30	12:00	11:45	07:45	11:45	12:00
Int. Vol.		4	9	6	8	9	13		6	8	6	8	11	13
Peak Factor		0.875	0.694	0.667	0.719	0.750	0.885		0.667	0.781	0.708	0.594	0.750	0.769

Loop Road
btwn Industrial Park Road & Starr Lane
Granville Township, Mifflin County, PA

Setup: KB

Imperial
TRAFFIC & DATA COLLECTION
1804 HADDONFIELD-BERLIN ROAD
CHERRY HILL, NJ 08003 | 609.706.6100
WWW.IMPERIALTDC.COM

File Name: ATR 1. Loop Road, btwn Industrial Park Road & Starr Lane
Start Date: 6/18/2026
End Date: 6/20/2026
Date Printed: ATR 1. Loop Road, btwn Industrial Park Road & Starr Lane
Latitude: 40.568247
Longitude: -77.610152

6/20/2026		SB, Loop Road		NB, Loop Road		Combined		6/21/26	SB, Loop Road		NB, Loop Road		Combined	
Time	Sat	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Sun	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	1	0	4	1	5		*	*	*	*	0	0
12:15		1	2	0	0	1	2		*	*	*	*	0	0
12:30		0	6	0	1	0	7		*	*	*	*	0	0
12:45		1	7	0	2	1	9		*	*	*	*	0	0
01:00		0	9	0	6	0	15		*	*	*	*	0	0
01:15		3	4	0	2	3	6		*	*	*	*	0	0
01:30		0	2	0	9	0	11		*	*	*	*	0	0
01:45		0	7	0	5	0	12		*	*	*	*	0	0
02:00		0	2	0	3	0	5		*	*	*	*	0	0
02:15		0	1	0	6	0	7		*	*	*	*	0	0
02:30		0	3	1	2	1	5		*	*	*	*	0	0
02:45		0	2	0	8	0	10		*	*	*	*	0	0
03:00		0	3	0	0	0	3		*	*	*	*	0	0
03:15		0	7	0	4	0	11		*	*	*	*	0	0
03:30		0	2	1	5	1	7		*	*	*	*	0	0
03:45		0	6	0	5	0	11		*	*	*	*	0	0
04:00		1	3	0	4	1	7		*	*	*	*	0	0
04:15		0	4	0	4	0	8		*	*	*	*	0	0
04:30		0	5	1	1	1	6		*	*	*	*	0	0
04:45		0	2	0	1	0	3		*	*	*	*	0	0
05:00		0	2	0	5	0	7		*	*	*	*	0	0
05:15		0	4	0	8	0	12		*	*	*	*	0	0
05:30		0	4	1	3	1	7		*	*	*	*	0	0
05:45		1	5	0	7	1	12		*	*	*	*	0	0
06:00		1	5	1	1	2	6		*	*	*	*	0	0
06:15		0	4	0	1	0	5		*	*	*	*	0	0
06:30		1	1	3	4	4	5		*	*	*	*	0	0
06:45		0	6	1	3	1	9		*	*	*	*	0	0
07:00		0	1	3	1	3	2		*	*	*	*	0	0
07:15		3	2	0	0	3	2		*	*	*	*	0	0
07:30		1	0	2	3	3	3		*	*	*	*	0	0
07:45		1	1	4	3	5	4		*	*	*	*	0	0
08:00		3	2	2	2	5	4		*	*	*	*	0	0
08:15		3	2	2	3	5	5		*	*	*	*	0	0
08:30		2	6	2	2	4	8		*	*	*	*	0	0
08:45		1	5	3	0	4	5		*	*	*	*	0	0
09:00		1	2	6	3	7	5		*	*	*	*	0	0
09:15		3	1	5	0	8	1		*	*	*	*	0	0
09:30		5	2	6	1	11	3		*	*	*	*	0	0
09:45		3	0	2	0	5	0		*	*	*	*	0	0
10:00		2	2	3	1	5	3		*	*	*	*	0	0
10:15		4	2	3	1	7	3		*	*	*	*	0	0
10:30		8	1	5	1	13	2		*	*	*	*	0	0
10:45		3	2	4	0	7	2		*	*	*	*	0	0
11:00		1	4	2	0	3	4		*	*	*	*	0	0
11:15		7	*	7	*	14	0		*	*	*	*	0	0
11:30		2	*	1	*	3	0		*	*	*	*	0	0
11:45		6	*	2	*	8	0		*	*	*	*	0	0
Total		69	144	73	125	142	269		0	0	0	0	0	0
Day Total		213		198		411			0		0		0	
% Total		16.8%	35.0%	17.8%	30.4%				-	-	-	-		
Peak		10:30	12:30	08:45	01:30	10:30	01:00							
Volume		19	26	20	23	37	44		0	0	0	0	0	0
Int. Time		10:30	01:00	09:00	01:30	11:15	01:00							
Int. Vol.		8	9	6	9	14	15		0	0	0	0	0	0
Peak Factor		0.594	0.722	0.833	0.639	0.661	0.733		0.000	0.000	0.000	0.000	0.000	0.000
ADT		ADT: 430		AADT: 430										

Industrial Park Road
btwn Middle Road & Rt 22
Granville Township, Mifflin County, PA

Setup: KB

Imperial
TRAFFIC & DATA COLLECTION
1804 HADDONFIELD-BERLIN ROAD
CHERRY HILL, NJ 08003 | 609.706.6100
WWW.IMPERIALTDC.COM

File Name: ATR 2. Industrial Park Road, btwn Middle Road & Rt 22
Start Date: 6/18/2026
End Date: 6/20/2026
Date Printed: ATR 2. Industrial Park Road, btwn Middle Road & Rt 22
Latitude: 40.577171
Longitude: -77.620371

6/18/2026		WB, Industrial Park Rd		EB, Industrial Park Rd		Combined		6/19/26	WB, Industrial Park Rd		EB, Industrial Park Rd		Combined	
Time	Thu	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Fri	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		1	65	3	42	4	107		2	46	2	27	4	73
12:15		2	29	0	30	2	59		1	20	0	39	1	59
12:30		8	21	1	39	9	60		4	27	2	24	6	51
12:45		1	13	0	31	1	44		1	27	3	32	4	59
01:00		1	28	1	19	2	47		1	25	2	23	3	48
01:15		0	25	4	28	4	53		2	20	5	29	7	49
01:30		0	24	5	30	5	54		1	34	0	27	1	61
01:45		3	35	4	33	7	68		4	31	2	25	6	56
02:00		0	32	1	30	1	62		0	38	3	47	3	85
02:15		4	38	4	34	8	72		1	41	1	44	2	85
02:30		0	228	2	32	2	260		4	201	2	17	6	218
02:45		1	69	2	18	3	87		2	68	1	21	3	89
03:00		4	81	2	24	6	105		5	64	1	27	6	91
03:15		1	44	6	20	7	64		0	36	2	21	2	57
03:30		0	54	6	24	6	78		1	43	6	16	7	59
03:45		7	32	4	23	11	55		5	29	10	25	15	54
04:00		1	61	11	21	12	82		2	40	10	28	12	68
04:15		2	35	32	32	34	67		2	21	29	17	31	38
04:30		10	51	17	19	27	70		4	23	14	35	18	58
04:45		13	23	20	31	33	54		7	28	21	32	28	60
05:00		2	21	24	23	26	44		13	29	23	23	36	52
05:15		11	26	52	36	63	62		17	20	50	23	67	43
05:30		7	31	91	19	98	50		14	23	74	23	88	46
05:45		22	30	96	23	118	53		12	21	99	32	111	53
06:00		16	17	73	29	89	46		11	22	62	31	73	53
06:15		26	15	91	39	117	54		26	18	96	32	122	50
06:30		21	9	102	46	123	55		18	12	89	48	107	60
06:45		17	21	87	32	104	53		17	9	70	29	87	38
07:00		79	85	41	14	120	99		67	76	35	14	102	90
07:15		34	41	39	22	73	63		60	55	39	13	99	68
07:30		39	17	32	14	71	31		24	15	33	17	57	32
07:45		29	4	47	9	76	13		17	13	26	11	43	24
08:00		38	6	36	6	74	12		29	15	35	14	64	29
08:15		18	11	21	11	39	22		21	29	23	12	44	41
08:30		22	9	18	17	40	26		19	17	21	15	40	32
08:45		25	7	23	8	48	15		26	5	18	7	44	12
09:00		18	11	18	7	36	18		18	8	23	14	41	22
09:15		25	2	21	24	46	26		19	13	22	16	41	29
09:30		19	6	23	16	42	22		28	5	21	11	49	16
09:45		14	6	30	8	44	14		20	10	18	15	38	25
10:00		15	13	21	10	36	23		22	6	22	3	44	9
10:15		23	1	26	15	49	16		19	7	22	10	41	17
10:30		26	44	18	5	44	49		25	46	27	7	52	53
10:45		26	5	17	3	43	8		33	4	20	7	53	11
11:00		29	9	25	4	54	13		25	13	30	8	55	21
11:15		22	4	17	4	39	8		26	5	22	8	48	13
11:30		34	1	31	3	65	4		48	2	50	2	98	4
11:45		23	6	35	2	58	8		25	4	39	2	64	6
Total		739	1446	1280	1009	2019	2455		748	1364	1225	1003	1973	2367
Day Total		2185		2289		4474			2112		2228		4340	
% Total		16.5%	32.3%	28.6%	22.6%				17.2%	31.4%	28.2%	23.1%		
Peak		07:00	02:30	05:45	06:00	06:15	02:15		06:45	02:15	05:45	01:30	06:15	02:15
Volume		181	422	362	146	464	524		168	374	346	143	418	483
Int. Time		07:00	02:30	06:30	06:30	06:30	02:30		07:00	02:30	05:45	02:00	06:15	02:30
Int. Vol.		79	228	102	46	123	260		67	201	99	47	122	218
Peak Factor		0.573	0.463	0.887	0.793	0.943	0.504		0.627	0.465	0.874	0.761	0.857	0.554

Industrial Park Road
btwn Middle Road & Rt 22
Granville Township, Mifflin County, PA

Setup: KB

Imperial
TRAFFIC & DATA COLLECTION
1804 HADDONFIELD-BERLIN ROAD
CHERRY HILL, NJ 08003 | 609.706.6100
WWW.IMPERIALTDC.COM

File Name: ATR 2. Industrial Park Road, btwn Middle Road & Rt 22
Start Date: 6/18/2026
End Date: 6/20/2026
Date Printed: ATR 2. Industrial Park Road, btwn Middle Road & Rt 22
Latitude: 40.577171
Longitude: -77.620371

6/20/2026		WB, Industrial Park Rd		EB, Industrial Park Rd		Combined		6/21/26	WB, Industrial Park Rd		EB, Industrial Park Rd		Combined	
Time	Sat	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Sun	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00		3	47	1	13	4	60		*	*	*	*	0	0
12:15		4	18	4	22	8	40		*	*	*	*	0	0
12:30		1	9	2	20	3	29		*	*	*	*	0	0
12:45		0	16	3	18	3	34		*	*	*	*	0	0
01:00		2	19	1	24	3	43		*	*	*	*	0	0
01:15		6	11	1	19	7	30		*	*	*	*	0	0
01:30		1	14	1	17	2	31		*	*	*	*	0	0
01:45		0	15	0	16	0	31		*	*	*	*	0	0
02:00		0	12	4	11	4	23		*	*	*	*	0	0
02:15		1	17	0	16	1	33		*	*	*	*	0	0
02:30		1	15	2	16	3	31		*	*	*	*	0	0
02:45		0	12	0	21	0	33		*	*	*	*	0	0
03:00		3	16	2	20	5	36		*	*	*	*	0	0
03:15		0	20	0	26	0	46		*	*	*	*	0	0
03:30		1	17	1	19	2	36		*	*	*	*	0	0
03:45		1	13	1	18	2	31		*	*	*	*	0	0
04:00		4	20	3	17	7	37		*	*	*	*	0	0
04:15		3	18	5	17	8	35		*	*	*	*	0	0
04:30		1	19	16	15	17	34		*	*	*	*	0	0
04:45		3	7	24	20	27	27		*	*	*	*	0	0
05:00		12	16	7	12	19	28		*	*	*	*	0	0
05:15		4	17	5	13	9	30		*	*	*	*	0	0
05:30		3	12	6	12	9	24		*	*	*	*	0	0
05:45		2	24	10	19	12	43		*	*	*	*	0	0
06:00		5	14	10	26	15	40		*	*	*	*	0	0
06:15		9	18	37	22	46	40		*	*	*	*	0	0
06:30		7	17	48	41	55	58		*	*	*	*	0	0
06:45		10	13	27	25	37	38		*	*	*	*	0	0
07:00		60	82	15	14	75	96		*	*	*	*	0	0
07:15		28	42	8	14	36	56		*	*	*	*	0	0
07:30		11	14	9	8	20	22		*	*	*	*	0	0
07:45		15	6	10	11	25	17		*	*	*	*	0	0
08:00		14	4	7	9	21	13		*	*	*	*	0	0
08:15		18	8	6	11	24	19		*	*	*	*	0	0
08:30		15	4	7	8	22	12		*	*	*	*	0	0
08:45		14	11	9	12	23	23		*	*	*	*	0	0
09:00		28	10	19	6	47	16		*	*	*	*	0	0
09:15		21	7	12	7	33	14		*	*	*	*	0	0
09:30		16	4	22	13	38	17		*	*	*	*	0	0
09:45		15	5	17	4	32	9		*	*	*	*	0	0
10:00		15	2	7	8	22	10		*	*	*	*	0	0
10:15		10	5	19	6	29	11		*	*	*	*	0	0
10:30		22	4	13	4	35	8		*	*	*	*	0	0
10:45		22	4	24	8	46	12		*	*	*	*	0	0
11:00		16	5	22	3	38	8		*	*	*	*	0	0
11:15		17	*	19	*	36	0		*	*	*	*	0	0
11:30		14	*	23	*	37	0		*	*	*	*	0	0
11:45		11	*	20	*	31	0		*	*	*	*	0	0
Total		469	683	509	681	978	1364		0	0	0	0	0	0
Day Total		1152		1190		2342			0		0		0	
% Total		20.0%	29.2%	21.7%	29.1%				-	-	-	-		
Peak		07:00	06:30	06:15	06:00	06:15	06:30							
Volume		114	154	127	114	213	248		0	0	0	0	0	0
Int. Time		07:00	07:00	06:30	06:30	07:00	07:00							
Int. Vol.		60	82	48	41	75	96		0	0	0	0	0	0
Peak Factor		0.475	0.470	0.661	0.695	0.710	0.646		0.000	0.000	0.000	0.000	0.000	0.000
ADT		ADT: 3,753		AADT: 3,753										

1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 4:00AM	0	1	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	**1**
4:15AM	0	1	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	**1**
4:30AM	0	1	0	**1**	0	0	0	0	**0**	0	1	0	0	**1**	0	**2**
4:45AM	0	2	0	**2**	0	0	0	0	**0**	0	2	0	0	**2**	0	**4**
Hourly Total	0	5	0	**5**	0	0	0	0	**0**	0	3	0	0	**3**	0	**8**
5:00AM	0	8	0	**8**	0	0	0	0	**0**	0	2	0	0	**2**	0	**10**
5:15AM	0	3	0	**3**	0	1	0	0	**1**	0	6	0	0	**6**	0	**10**
5:30AM	0	13	0	**13**	0	0	1	0	**1**	0	3	0	0	**3**	0	**17**
5:45AM	0	6	0	**6**	0	0	0	0	**0**	0	5	0	0	**5**	0	**11**
Hourly Total	0	30	0	**30**	0	1	1	0	**2**	0	16	0	0	**16**	0	**48**
6:00AM	0	3	0	**3**	0	0	0	0	**0**	0	4	0	0	**4**	0	**7**
6:15AM	0	3	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	0	**3**
6:30AM	0	4	0	**4**	0	1	0	0	**1**	0	4	0	0	**4**	0	**9**
6:45AM	0	5	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	0	**5**
Hourly Total	0	15	0	**15**	0	1	0	0	**1**	0	8	0	0	**8**	0	**24**
7:00AM	0	7	0	**7**	0	0	0	0	**0**	0	5	0	0	**5**	0	**12**
7:15AM	0	13	0	**13**	0	1	0	0	**1**	0	7	0	0	**7**	0	**21**
7:30AM	0	12	0	**12**	0	0	0	0	**0**	0	8	0	0	**8**	0	**20**
7:45AM	0	10	0	**10**	0	0	0	0	**0**	0	4	0	0	**4**	0	**14**
Hourly Total	0	42	0	**42**	0	1	0	0	**1**	0	24	0	0	**24**	0	**67**
8:00AM	0	10	0	**10**	0	1	1	0	**2**	0	7	0	0	**7**	0	**19**
8:15AM	0	11	0	**11**	0	0	0	0	**0**	0	6	0	0	**6**	0	**17**
8:30AM	0	10	0	**10**	0	0	0	0	**0**	0	7	1	0	**8**	0	**18**
8:45AM	0	10	0	**10**	0	2	0	0	**2**	0	12	0	0	**12**	0	**24**
Hourly Total	0	41	0	**41**	0	3	1	0	**4**	0	32	1	0	**33**	0	**78**
9:00AM	0	9	0	**9**	0	0	0	0	**0**	0	7	1	0	**8**	0	**17**
9:15AM	0	3	0	**3**	0	1	0	0	**1**	0	17	0	0	**17**	0	**21**
9:30AM	0	6	0	**6**	0	0	0	0	**0**	0	14	0	0	**14**	0	**20**
9:45AM	0	8	0	**8**	0	1	0	0	**1**	0	5	0	0	**5**	0	**14**
Hourly Total	0	26	0	**26**	0	2	0	0	**2**	0	43	1	0	**44**	0	**72**
10:00AM	0	5	0	**5**	0	1	0	0	**1**	0	7	1	0	**8**	0	**14**
10:15AM	1	1	0	**2**	0	1	0	0	**1**	0	10	2	0	**12**	0	**15**
10:30AM	0	7	0	**7**	0	2	0	0	**2**	0	10	1	0	**11**	0	**20**
10:45AM	0	6	0	**6**	0	1	0	0	**1**	0	10	0	0	**10**	0	**17**
Hourly Total	1	19	0	**20**	0	5	0	0	**5**	0	37	4	0	**41**	0	**66**
11:00AM	0	7	0	**7**	0	0	0	0	**0**	0	5	0	0	**5**	0	**12**
11:15AM	0	7	0	**7**	0	1	0	0	**1**	0	6	0	0	**6**	0	**14**
11:30AM	1	4	0	**5**	0	0	1	0	**1**	0	13	0	0	**13**	0	**19**

Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
11:45AM	1	9	0	**10**	0	1	1	0	**2**	0	7	2	0	**9**	0	**21**
Hourly Total	2	27	0	**29**	0	2	2	0	**4**	0	31	2	0	**33**	0	**66**
12:00PM	0	9	0	**9**	0	3	0	0	**3**	0	12	1	0	**13**	0	**25**
12:15PM	0	9	0	**9**	0	1	1	0	**2**	0	11	1	0	**12**	0	**23**
12:30PM	0	4	0	**4**	0	2	0	0	**2**	0	9	3	0	**12**	0	**18**
12:45PM	0	11	0	**11**	0	1	0	0	**1**	0	12	0	0	**12**	0	**24**
Hourly Total	0	33	0	**33**	0	7	1	0	**8**	0	44	5	0	**49**	0	**90**
1:00PM	0	7	0	**7**	0	2	0	0	**2**	0	9	1	0	**10**	0	**19**
1:15PM	0	11	0	**11**	0	0	0	0	**0**	0	8	0	0	**8**	0	**19**
1:30PM	0	5	0	**5**	0	0	0	0	**0**	0	10	2	0	**12**	0	**17**
1:45PM	0	14	0	**14**	0	0	1	0	**1**	0	11	0	0	**11**	0	**26**
Hourly Total	0	37	0	**37**	0	2	1	0	**3**	0	38	3	0	**41**	0	**81**
2:00PM	0	13	0	**13**	0	0	0	0	**0**	0	6	0	0	**6**	0	**19**
2:15PM	0	6	0	**6**	0	0	0	0	**0**	0	8	0	0	**8**	0	**14**
2:30PM	0	29	0	**29**	0	0	0	0	**0**	0	7	0	0	**7**	0	**36**
2:45PM	0	7	0	**7**	0	3	0	0	**3**	0	17	0	0	**17**	0	**27**
Hourly Total	0	55	0	**55**	0	3	0	0	**3**	0	38	0	0	**38**	0	**96**
3:00PM	0	9	0	**9**	0	1	0	0	**1**	0	19	1	1	**21**	0	**31**
3:15PM	0	8	0	**8**	0	0	0	0	**0**	0	13	0	0	**13**	0	**21**
3:30PM	0	10	0	**10**	0	1	0	0	**1**	0	21	0	0	**21**	0	**32**
3:45PM	0	13	0	**13**	0	0	0	0	**0**	0	20	1	0	**21**	0	**34**
Hourly Total	0	40	0	**40**	0	2	0	0	**2**	0	73	2	1	**76**	0	**118**
4:00PM	0	5	0	**5**	0	0	0	0	**0**	0	14	0	0	**14**	0	**19**
4:15PM	0	7	0	**7**	0	4	0	0	**4**	0	12	0	0	**12**	0	**23**
4:30PM	0	13	0	**13**	0	0	0	0	**0**	0	9	0	0	**9**	0	**22**
4:45PM	0	6	0	**6**	0	0	0	0	**0**	0	21	0	0	**21**	0	**27**
Hourly Total	0	31	0	**31**	0	4	0	0	**4**	0	56	0	0	**56**	0	**91**
5:00PM	0	8	0	**8**	0	0	0	0	**0**	0	23	0	0	**23**	0	**31**
5:15PM	0	12	0	**12**	0	0	0	0	**0**	0	15	1	0	**16**	0	**28**
5:30PM	0	11	0	**11**	0	1	0	0	**1**	0	16	0	0	**16**	0	**28**
5:45PM	0	9	0	**9**	0	1	0	0	**1**	0	6	0	0	**6**	0	**16**
Hourly Total	0	40	0	**40**	0	2	0	0	**2**	0	60	1	0	**61**	0	**103**
6:00PM	0	7	0	**7**	0	1	0	0	**1**	0	10	3	0	**13**	0	**21**
6:15PM	0	10	0	**10**	0	1	0	0	**1**	0	7	0	0	**7**	0	**18**
6:30PM	0	9	0	**9**	0	0	0	0	**0**	0	6	0	0	**6**	0	**15**
6:45PM	0	5	0	**5**	0	1	0	0	**1**	0	6	0	1	**7**	0	**13**
Hourly Total	0	31	0	**31**	0	3	0	0	**3**	0	29	3	1	**33**	0	**67**
7:00PM	0	9	0	**9**	0	0	0	0	**0**	0	8	0	0	**8**	0	**17**
7:15PM	0	4	0	**4**	0	0	0	0	**0**	0	6	0	0	**6**	0	**10**
7:30PM	0	4	0	**4**	0	1	0	0	**1**	0	9	0	0	**9**	0	**14**
7:45PM	0	4	0	**4**	0	0	0	0	**0**	0	7	0	0	**7**	0	**11**
Hourly Total	0	21	0	**21**	0	1	0	0	**1**	0	30	0	0	**30**	0	**52**
2026-06-20 4:00AM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
4:15AM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**
4:30AM	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	**0**

Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
4:45AM	0	3	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	0	**3**
Hourly Total	0	3	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	0	**3**
5:00AM	0	1	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	**1**
5:15AM	0	0	0	**0**	0	0	0	0	**0**	0	1	0	0	**1**	0	**1**
5:30AM	0	1	0	**1**	0	0	0	0	**0**	0	1	0	0	**1**	0	**2**
5:45AM	0	1	0	**1**	0	1	0	0	**1**	0	2	0	0	**2**	0	**4**
Hourly Total	0	3	0	**3**	0	1	0	0	**1**	0	4	0	0	**4**	0	**8**
6:00AM	0	2	0	**2**	0	0	0	0	**0**	0	4	0	0	**4**	0	**6**
6:15AM	0	3	0	**3**	0	1	0	0	**1**	0	3	0	0	**3**	0	**7**
6:30AM	0	6	0	**6**	0	0	0	0	**0**	0	3	0	0	**3**	0	**9**
6:45AM	0	4	0	**4**	0	0	0	0	**0**	0	3	0	0	**3**	0	**7**
Hourly Total	0	15	0	**15**	0	1	0	0	**1**	0	13	0	0	**13**	0	**29**
7:00AM	0	7	0	**7**	0	0	0	0	**0**	0	6	0	0	**6**	0	**13**
7:15AM	0	2	0	**2**	0	0	0	0	**0**	0	13	0	0	**13**	0	**15**
7:30AM	0	6	0	**6**	0	0	0	0	**0**	0	6	0	0	**6**	0	**12**
7:45AM	0	3	0	**3**	0	0	0	0	**0**	0	8	0	0	**8**	0	**11**
Hourly Total	0	18	0	**18**	0	0	0	0	**0**	0	33	0	0	**33**	0	**51**
8:00AM	0	9	0	**9**	0	0	0	0	**0**	0	3	0	0	**3**	0	**12**
8:15AM	0	5	0	**5**	0	0	0	0	**0**	0	12	0	0	**12**	0	**17**
8:30AM	0	5	0	**5**	0	0	0	0	**0**	0	7	0	0	**7**	0	**12**
8:45AM	0	8	0	**8**	0	0	0	0	**0**	0	8	0	0	**8**	0	**16**
Hourly Total	0	27	0	**27**	0	0	0	0	**0**	0	30	0	0	**30**	0	**57**
9:00AM	0	7	0	**7**	0	0	0	0	**0**	0	11	0	0	**11**	0	**18**
9:15AM	0	13	0	**13**	0	0	0	0	**0**	0	8	0	0	**8**	0	**21**
9:30AM	0	9	0	**9**	0	0	0	0	**0**	0	3	0	0	**3**	0	**12**
9:45AM	0	8	0	**8**	0	1	0	0	**1**	0	13	1	0	**14**	0	**23**
Hourly Total	0	37	0	**37**	0	1	0	0	**1**	0	35	1	0	**36**	0	**74**
10:00AM	0	13	0	**13**	0	2	0	0	**2**	0	12	0	0	**12**	0	**27**
10:15AM	0	11	0	**11**	0	0	0	0	**0**	0	8	0	0	**8**	0	**19**
10:30AM	0	6	0	**6**	0	0	0	0	**0**	0	11	0	0	**11**	0	**17**
10:45AM	0	8	0	**8**	0	0	0	0	**0**	0	12	0	0	**12**	0	**20**
Hourly Total	0	38	0	**38**	0	2	0	0	**2**	0	43	0	0	**43**	0	**83**
11:00AM	0	5	0	**5**	0	0	0	0	**0**	0	16	0	0	**16**	0	**21**
11:15AM	0	6	0	**6**	0	1	0	0	**1**	0	12	0	0	**12**	0	**19**
11:30AM	0	11	0	**11**	0	0	0	0	**0**	0	11	0	0	**11**	0	**22**
11:45AM	1	5	0	**6**	0	0	0	0	**0**	0	8	0	0	**8**	0	**14**
Hourly Total	1	27	0	**28**	0	1	0	0	**1**	0	47	0	0	**47**	0	**76**
12:00PM	0	6	0	**6**	0	0	0	0	**0**	0	12	0	0	**12**	0	**18**
12:15PM	0	8	0	**8**	0	0	0	0	**0**	0	9	0	0	**9**	0	**17**
12:30PM	0	7	0	**7**	0	0	0	0	**0**	0	9	0	0	**9**	0	**16**
12:45PM	0	10	0	**10**	0	0	0	0	**0**	0	12	0	0	**12**	0	**22**
Hourly Total	0	31	0	**31**	0	0	0	0	**0**	0	42	0	0	**42**	0	**73**
1:00PM	0	14	0	**14**	0	0	0	0	**0**	0	11	0	0	**11**	0	**25**
1:15PM	0	11	0	**11**	0	0	0	0	**0**	0	6	0	0	**6**	0	**17**
1:30PM	0	9	0	**9**	0	0	1	0	**1**	0	13	0	0	**13**	0	**23**

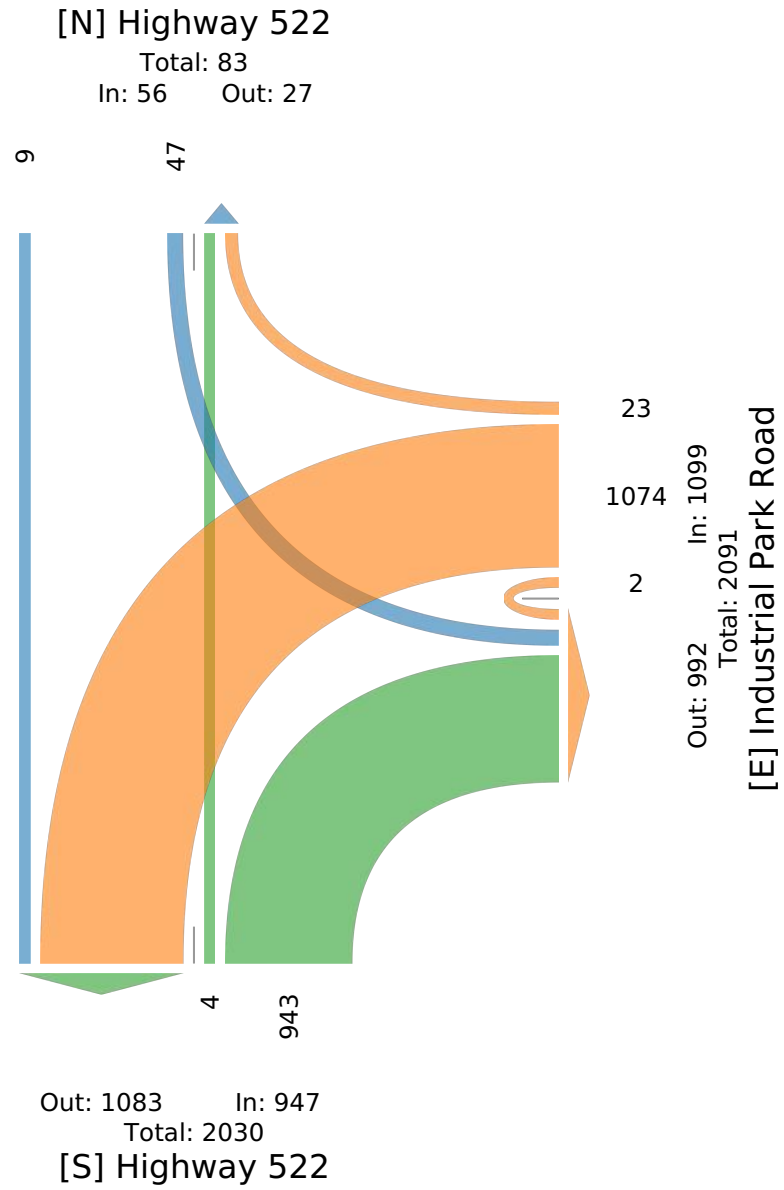
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
1:45PM	0	10	0	**10**	0	0	0	0	**0**	0	12	0	0	**12**	0	**22**
Hourly Total	0	44	0	**44**	0	0	1	0	**1**	0	42	0	0	**42**	0	**87**
2:00PM	0	7	0	**7**	0	0	0	0	**0**	0	11	0	0	**11**	0	**18**
2:15PM	0	14	0	**14**	0	0	0	0	**0**	0	12	0	0	**12**	0	**26**
2:30PM	0	9	0	**9**	0	0	0	0	**0**	0	12	0	0	**12**	0	**21**
2:45PM	0	4	0	**4**	0	0	0	0	**0**	0	8	0	0	**8**	0	**12**
Hourly Total	0	34	0	**34**	0	0	0	0	**0**	0	43	0	0	**43**	0	**77**
3:00PM	0	14	0	**14**	0	0	0	0	**0**	0	8	0	0	**8**	0	**22**
3:15PM	0	20	0	**20**	0	0	1	0	**1**	0	9	0	0	**9**	0	**30**
3:30PM	0	6	0	**6**	0	0	0	0	**0**	0	7	0	0	**7**	0	**13**
3:45PM	0	9	0	**9**	0	0	0	0	**0**	0	6	0	0	**6**	0	**15**
Hourly Total	0	49	0	**49**	0	0	1	0	**1**	0	30	0	0	**30**	0	**80**
4:00PM	0	8	0	**8**	0	0	0	0	**0**	0	10	0	0	**10**	0	**18**
4:15PM	0	13	0	**13**	0	0	0	0	**0**	0	11	0	0	**11**	0	**24**
4:30PM	0	16	0	**16**	0	0	0	0	**0**	0	13	0	0	**13**	0	**29**
4:45PM	0	11	0	**11**	0	0	0	0	**0**	0	17	0	0	**17**	0	**28**
Hourly Total	0	48	0	**48**	0	0	0	0	**0**	0	51	0	0	**51**	0	**99**
5:00PM	0	10	0	**10**	0	0	0	0	**0**	0	13	0	0	**13**	0	**23**
5:15PM	0	7	0	**7**	0	0	0	0	**0**	0	11	0	0	**11**	0	**18**
5:30PM	0	3	0	**3**	0	0	0	0	**0**	0	6	0	0	**6**	0	**9**
5:45PM	0	9	0	**9**	0	0	0	0	**0**	0	7	0	0	**7**	0	**16**
Hourly Total	0	29	0	**29**	0	0	0	0	**0**	0	37	0	0	**37**	0	**66**
6:00PM	0	7	0	**7**	0	0	0	0	**0**	0	11	0	0	**11**	0	**18**
6:15PM	0	5	0	**5**	0	0	0	0	**0**	0	9	0	0	**9**	0	**14**
6:30PM	0	8	0	**8**	0	0	0	0	**0**	0	5	0	0	**5**	0	**13**
6:45PM	0	4	0	**4**	0	1	0	0	**1**	0	9	0	0	**9**	0	**14**
Hourly Total	0	24	0	**24**	0	1	0	0	**1**	0	34	0	0	**34**	0	**59**
7:00PM	0	5	0	**5**	0	0	1	0	**1**	0	8	0	0	**8**	0	**14**
7:15PM	0	5	0	**5**	0	0	0	0	**0**	0	8	0	0	**8**	0	**13**
7:30PM	0	8	0	**8**	0	1	0	0	**1**	0	5	0	0	**5**	0	**14**
7:45PM	0	5	0	**5**	0	0	0	0	**0**	0	7	0	0	**7**	0	**12**
Hourly Total	0	23	0	**23**	0	1	1	0	**2**	0	28	0	0	**28**	0	**53**
Total	4	943	0	**947**	0	47	9	0	**56**	0	1074	23	2	**1099**	0	**2102**
% Approach	0.4%	99.6%	0%	**-**	-	83.9%	16.1%	0%	**-**	-	97.7%	2.1%	0.2%	**-**	-	-
% Total	0.2%	44.9%	0%	**45.1%**	-	2.2%	0.4%	0%	**2.7%**	-	51.1%	1.1%	0.1%	**52.3%**	-	-
Lights and Motorcycles	4	917	0	**921**	-	45	8	0	**53**	-	1046	21	2	**1069**	-	2043
% Lights and Motorcycles	100%	97.2%	0%	**97.3%**	-	95.7%	88.9%	0%	**94.6%**	-	97.4%	91.3%	100%	**97.3%**	-	97.2%
Heavy	0	26	0	**26**	-	2	1	0	**3**	-	28	2	0	**30**	-	59
% Heavy	0%	2.8%	0%	**2.7%**	-	4.3%	11.1%	0%	**5.4%**	-	2.6%	8.7%	0%	**2.7%**	-	2.8%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
AM Peak (Jun 18 2026 8:45AM - 9:45 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

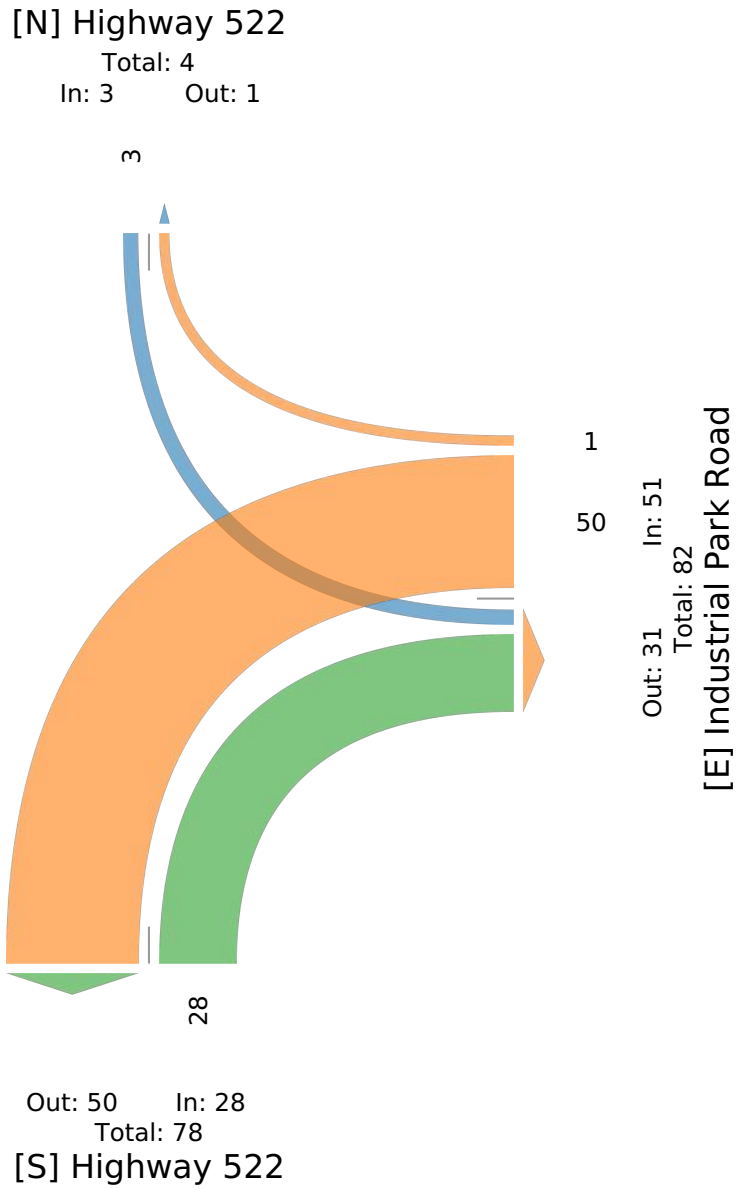
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 8:45AM	0	10	0	**10**	0	2	0	0	**2**	0	12	0	0	**12**	0	**24**
9:00AM	0	9	0	**9**	0	0	0	0	**0**	0	7	1	0	**8**	0	**17**
9:15AM	0	3	0	**3**	0	1	0	0	**1**	0	17	0	0	**17**	0	**21**
9:30AM	0	6	0	**6**	0	0	0	0	**0**	0	14	0	0	**14**	0	**20**
Total	0	28	0	**28**	0	3	0	0	**3**	0	50	1	0	**51**	0	**82**
% Approach	0%	100%	0%	**-**	-	100%	0%	0%	**-**	-	98.0%	2.0%	0%	**-**	-	-
% Total	0%	34.1%	0%	**34.1%**	-	3.7%	0%	0%	**3.7%**	-	61.0%	1.2%	0%	**62.2%**	-	-
PHF	-	0.700	-	**0.700**	-	0.375	-	-	**0.375**	-	0.735	0.250	-	**0.750**	-	0.854
Lights and Motorcycles	0	26	0	**26**	-	2	0	0	**2**	-	49	0	0	**49**	-	77
% Lights and Motorcycles	0%	92.9%	0%	**92.9%**	-	66.7%	0%	0%	**66.7%**	-	98.0%	0%	0%	**96.1%**	-	93.9%
Heavy	0	2	0	**2**	-	1	0	0	**1**	-	1	1	0	**2**	-	5
% Heavy	0%	7.1%	0%	**7.1%**	-	33.3%	0%	0%	**33.3%**	-	2.0%	100%	0%	**3.9%**	-	6.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Thu Jun 18, 2026
AM Peak (Jun 18 2026 8:45AM - 9:45 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 12PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

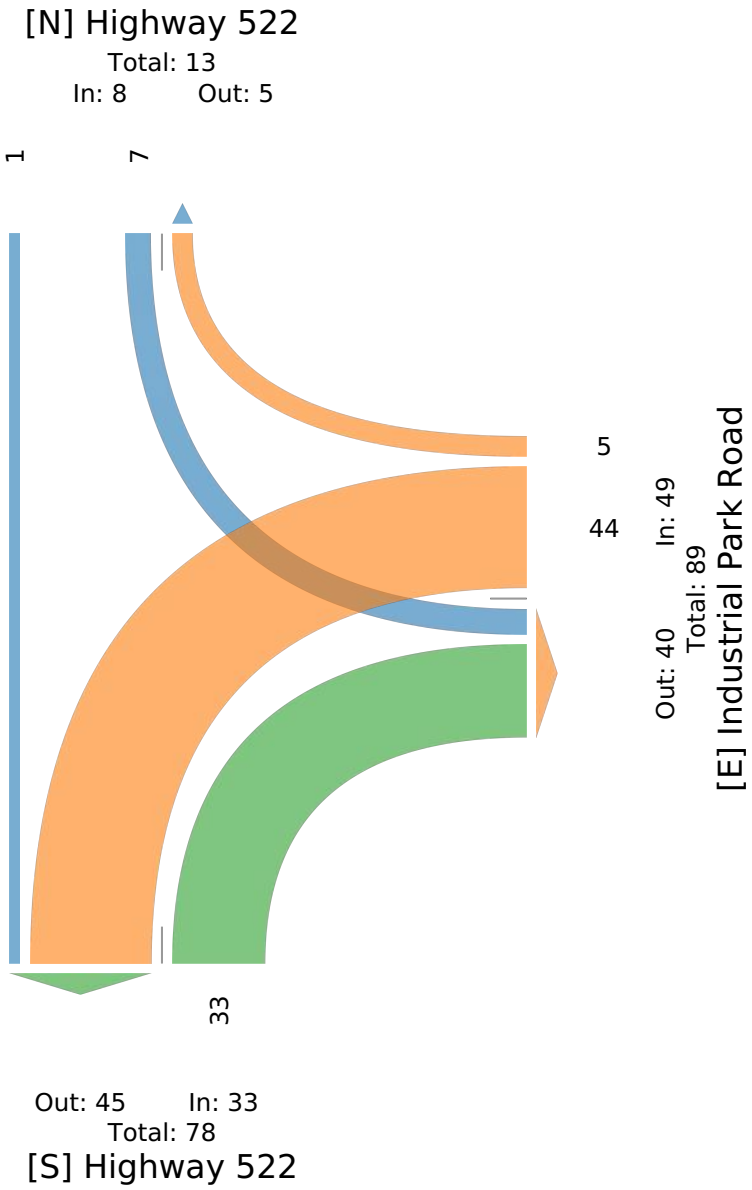
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 12:00PM	0	9	0	**9**	0	3	0	0	**3**	0	12	1	0	**13**	0	**25**
12:15PM	0	9	0	**9**	0	1	1	0	**2**	0	11	1	0	**12**	0	**23**
12:30PM	0	4	0	**4**	0	2	0	0	**2**	0	9	3	0	**12**	0	**18**
12:45PM	0	11	0	**11**	0	1	0	0	**1**	0	12	0	0	**12**	0	**24**
Total	0	33	0	**33**	0	7	1	0	**8**	0	44	5	0	**49**	0	**90**
% Approach	0%	100%	0%	**-**	-	87.5%	12.5%	0%	**-**	-	89.8%	10.2%	0%	**-**	-	-
% Total	0%	36.7%	0%	**36.7%**	-	7.8%	1.1%	0%	**8.9%**	-	48.9%	5.6%	0%	**54.4%**	-	-
PHF	-	0.750	-	**0.750**	-	0.583	0.250	-	**0.667**	-	0.917	0.417	-	**0.942**	-	0.900
Lights and Motorcycles	0	30	0	**30**	-	6	1	0	**7**	-	42	4	0	**46**	-	83
% Lights and Motorcycles	0%	90.9%	0%	**90.9%**	-	85.7%	100%	0%	**87.5%**	-	95.5%	80.0%	0%	**93.9%**	-	92.2%
Heavy	0	3	0	**3**	-	1	0	0	**1**	-	2	1	0	**3**	-	7
% Heavy	0%	9.1%	0%	**9.1%**	-	14.3%	0%	0%	**12.5%**	-	4.5%	20.0%	0%	**6.1%**	-	7.8%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 12PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
PM Peak (Jun 18 2026 3PM - 4 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

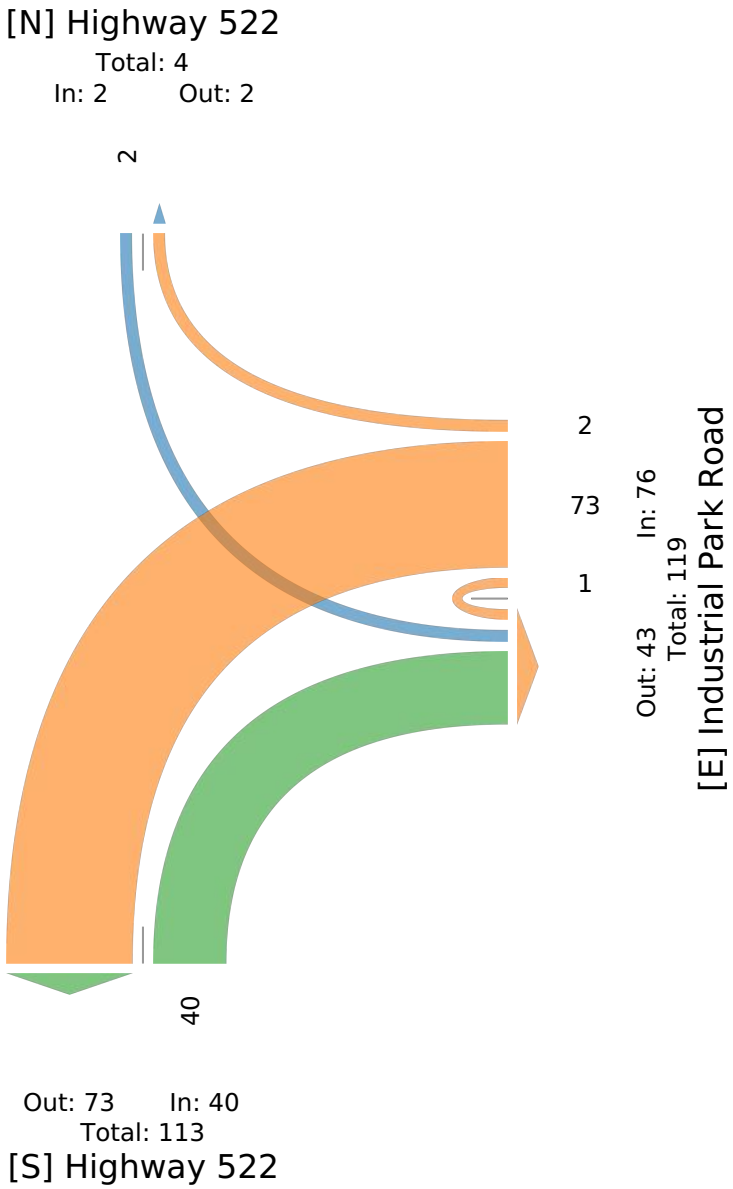
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 3:00PM	0	9	0	**9**	0	1	0	0	**1**	0	19	1	1	**21**	0	**31**
3:15PM	0	8	0	**8**	0	0	0	0	**0**	0	13	0	0	**13**	0	**21**
3:30PM	0	10	0	**10**	0	1	0	0	**1**	0	21	0	0	**21**	0	**32**
3:45PM	0	13	0	**13**	0	0	0	0	**0**	0	20	1	0	**21**	0	**34**
Total	0	40	0	**40**	0	2	0	0	**2**	0	73	2	1	**76**	0	**118**
% Approach	0%	100%	0%	**-**	-	100%	0%	0%	**-**	-	96.1%	2.6%	1.3%	**-**	-	**-**
% Total	0%	33.9%	0%	**33.9%**	-	1.7%	0%	0%	**1.7%**	-	61.9%	1.7%	0.8%	**64.4%**	-	**-**
PHF	**-**	0.769	**-**	**0.769**	-	0.500	**-**	**-**	**0.500**	-	0.869	0.500	0.250	**0.905**	-	0.868
Lights and Motorcycles	0	40	0	**40**	-	2	0	0	**2**	-	70	2	1	**73**	-	115
% Lights and Motorcycles	0%	100%	0%	**100%**	-	100%	0%	0%	**100%**	-	95.9%	100%	100%	**96.1%**	-	97.5%
Heavy	0	0	0	**0**	-	0	0	0	**0**	-	3	0	0	**3**	-	3
% Heavy	0%	0%	0%	**0%**	-	0%	0%	0%	**0%**	-	4.1%	0%	0%	**3.9%**	-	2.5%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Thu Jun 18, 2026
PM Peak (Jun 18 2026 3PM - 4 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 9:45AM - 10:45 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

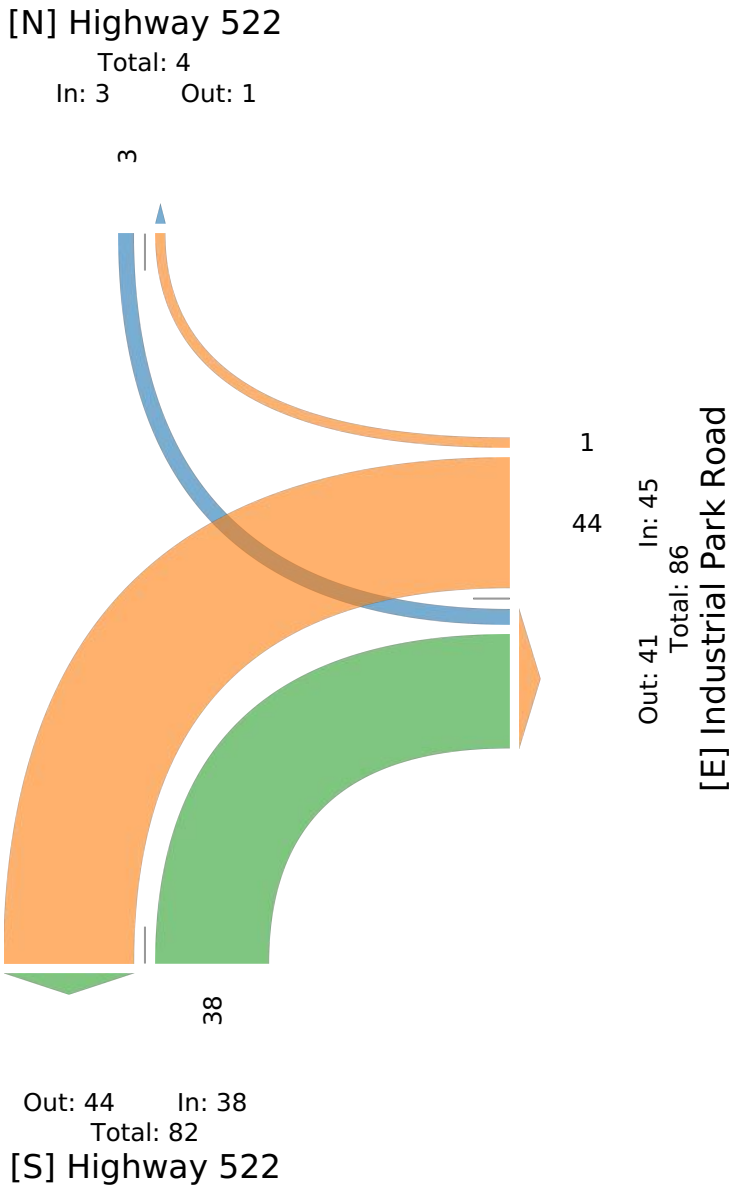
Leg Direction	Highway 522 Northbound					Highway 522 Southbound					Industrial Park Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 9:45AM	0	8	0	**8**	0	1	0	0	**1**	0	13	1	0	**14**	0	**23**
10:00AM	0	13	0	**13**	0	2	0	0	**2**	0	12	0	0	**12**	0	**27**
10:15AM	0	11	0	**11**	0	0	0	0	**0**	0	8	0	0	**8**	0	**19**
10:30AM	0	6	0	**6**	0	0	0	0	**0**	0	11	0	0	**11**	0	**17**
Total	0	38	0	**38**	0	3	0	0	**3**	0	44	1	0	**45**	0	**86**
% Approach	0%	100%	0%	**-**	-	100%	0%	0%	**-**	-	97.8%	2.2%	0%	**-**	-	**-**
% Total	0%	44.2%	0%	**44.2%**	-	3.5%	0%	0%	**3.5%**	-	51.2%	1.2%	0%	**52.3%**	-	**-**
PHF	**-**	0.731	**-**	**0.731**	-	0.375	**-**	**-**	**0.375**	-	0.846	0.250	**-**	**0.804**	-	0.796
Lights and Motorcycles	0	37	0	**37**	-	3	0	0	**3**	-	43	1	0	**44**	-	84
% Lights and Motorcycles	0%	97.4%	0%	**97.4%**	-	100%	0%	0%	**100%**	-	97.7%	100%	0%	**97.8%**	-	97.7%
Heavy	0	1	0	**1**	-	0	0	0	**0**	-	1	0	0	**1**	-	2
% Heavy	0%	2.6%	0%	**2.6%**	-	0%	0%	0%	**0%**	-	2.3%	0%	0%	**2.2%**	-	2.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 9:45AM - 10:45 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 12:45PM - 1:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

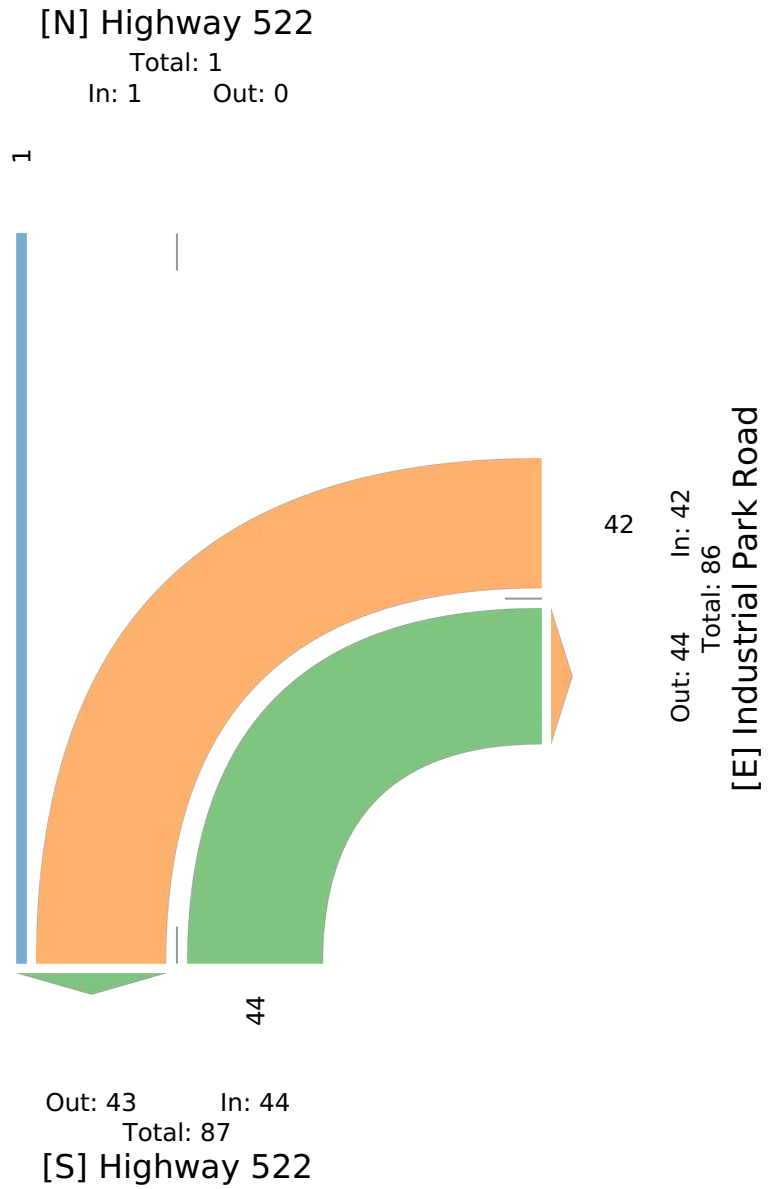
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 12:45PM	0	10	0	**10**	0	0	0	0	**0**	0	12	0	0	**12**	0	**22**
1:00PM	0	14	0	**14**	0	0	0	0	**0**	0	11	0	0	**11**	0	**25**
1:15PM	0	11	0	**11**	0	0	0	0	**0**	0	6	0	0	**6**	0	**17**
1:30PM	0	9	0	**9**	0	0	1	0	**1**	0	13	0	0	**13**	0	**23**
Total	0	44	0	**44**	0	0	1	0	**1**	0	42	0	0	**42**	0	**87**
% Approach	0%	100%	0%	**-**	-	0%	100%	0%	**-**	-	100%	0%	0%	**-**	-	**-**
% Total	0%	50.6%	0%	**50.6%**	-	0%	1.1%	0%	**1.1%**	-	48.3%	0%	0%	**48.3%**	-	**-**
PHF	-	0.786	-	**0.786**	-	-	0.250	-	**0.250**	-	0.808	-	-	**0.808**	-	0.870
Lights and Motorcycles	0	43	0	**43**	-	0	1	0	**1**	-	41	0	0	**41**	-	85
% Lights and Motorcycles	0%	97.7%	0%	**97.7%**	-	0%	100%	0%	**100%**	-	97.6%	0%	0%	**97.6%**	-	97.7%
Heavy	0	1	0	**1**	-	0	0	0	**0**	-	1	0	0	**1**	-	2
% Heavy	0%	2.3%	0%	**2.3%**	-	0%	0%	0%	**0%**	-	2.4%	0%	0%	**2.4%**	-	2.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 12:45PM - 1:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



1. Highway 522 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 4:15PM - 5:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

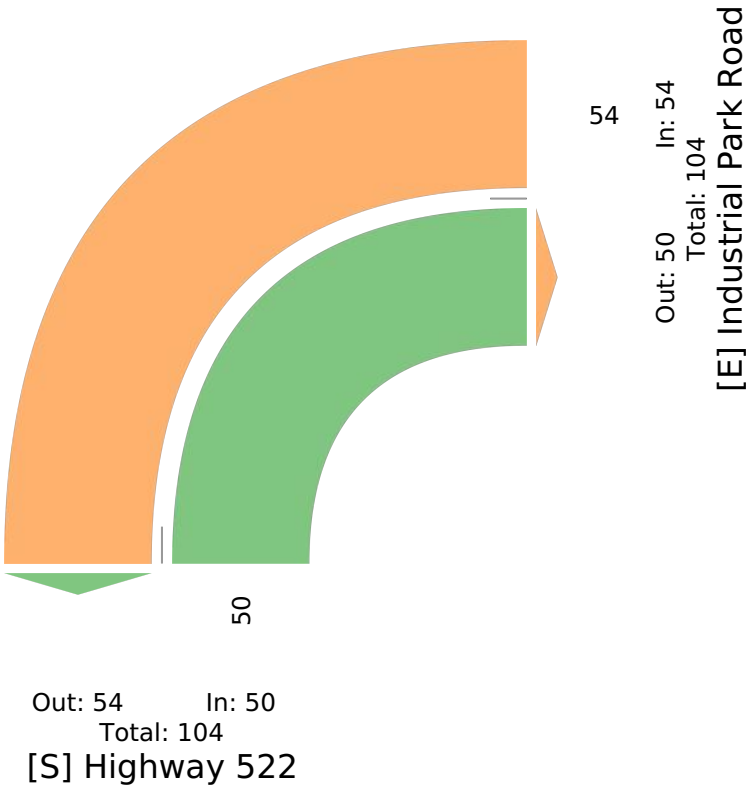
Leg	Highway 522					Highway 522					Industrial Park Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 4:15PM	0	13	0	**13**	0	0	0	0	**0**	0	11	0	0	**11**	0	**24**
4:30PM	0	16	0	**16**	0	0	0	0	**0**	0	13	0	0	**13**	0	**29**
4:45PM	0	11	0	**11**	0	0	0	0	**0**	0	17	0	0	**17**	0	**28**
5:00PM	0	10	0	**10**	0	0	0	0	**0**	0	13	0	0	**13**	0	**23**
Total	0	50	0	**50**	0	0	0	0	**0**	0	54	0	0	**54**	0	**104**
% Approach	0%	100%	0%	**-**	-	0%	0%	0%	**-**	-	100%	0%	0%	**-**	-	-
% Total	0%	48.1%	0%	**48.1%**	-	0%	0%	0%	**0%**	-	51.9%	0%	0%	**51.9%**	-	-
PHF	-	0.781	-	**0.781**	-	-	-	-	**-**	-	0.794	-	-	**0.794**	-	0.897
Lights and Motorcycles	0	49	0	**49**	-	0	0	0	**0**	-	54	0	0	**54**	-	103
% Lights and Motorcycles	0%	98.0%	0%	**98.0%**	-	0%	0%	0%	**-**	-	100%	0%	0%	**100%**	-	99.0%
Heavy	0	1	0	**1**	-	0	0	0	**0**	-	0	0	0	**0**	-	1
% Heavy	0%	2.0%	0%	**2.0%**	-	0%	0%	0%	**-**	-	0%	0%	0%	**0%**	-	1.0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

1. Highway 522 & Industrial Park Road - TMC

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 4:15PM - 5:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414015, Location: 40.578696, -77.621931, Site Code: 1

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

Turning Movement Data

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
4:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
4:30 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
4:45 AM	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	4
Hourly Total	0	3	0	0	3	0	0	5	0	5	0	0	0	0	0	8
5:00 AM	0	2	0	0	2	0	0	8	0	8	0	0	0	0	0	10
5:15 AM	0	6	0	0	6	0	0	3	0	3	0	1	0	0	1	10
5:30 AM	0	3	0	0	3	0	0	13	0	13	0	0	1	0	1	17
5:45 AM	0	5	0	0	5	0	0	6	0	6	0	0	0	0	0	11
Hourly Total	0	16	0	0	16	0	0	30	0	30	0	1	1	0	2	48
6:00 AM	0	4	0	0	4	0	0	3	0	3	0	0	0	0	0	7
6:15 AM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	3
6:30 AM	0	4	0	0	4	0	0	4	0	4	0	1	0	0	1	9
6:45 AM	0	0	0	0	0	0	0	5	0	5	0	0	0	0	0	5
Hourly Total	0	8	0	0	8	0	0	15	0	15	0	1	0	0	1	24
7:00 AM	0	5	0	0	5	0	0	7	0	7	0	0	0	0	0	12
7:15 AM	0	7	0	0	7	0	0	13	0	13	0	1	0	0	1	21
7:30 AM	0	8	0	0	8	0	0	12	0	12	0	0	0	0	0	20
7:45 AM	0	4	0	0	4	0	0	10	0	10	0	0	0	0	0	14
Hourly Total	0	24	0	0	24	0	0	42	0	42	0	1	0	0	1	67
8:00 AM	0	7	0	0	7	0	0	10	0	10	0	1	1	0	2	19
8:15 AM	0	6	0	0	6	0	0	11	0	11	0	0	0	0	0	17
8:30 AM	0	7	1	0	8	0	0	10	0	10	0	0	0	0	0	18
8:45 AM	0	12	0	0	12	0	0	10	0	10	0	2	0	0	2	24
Hourly Total	0	32	1	0	33	0	0	41	0	41	0	3	1	0	4	78
9:00 AM	0	7	1	0	8	0	0	9	0	9	0	0	0	0	0	17
9:15 AM	0	17	0	0	17	0	0	3	0	3	0	1	0	0	1	21
9:30 AM	0	14	0	0	14	0	0	6	0	6	0	0	0	0	0	20
9:45 AM	0	5	0	0	5	0	0	8	0	8	0	1	0	0	1	14
Hourly Total	0	43	1	0	44	0	0	26	0	26	0	2	0	0	2	72
10:00 AM	0	7	1	0	8	0	0	5	0	5	0	1	0	0	1	14
10:15 AM	0	10	2	0	12	0	1	1	0	2	0	1	0	0	1	15
10:30 AM	0	10	1	0	11	0	0	7	0	7	0	2	0	0	2	20
10:45 AM	0	10	0	0	10	0	0	6	0	6	0	1	0	0	1	17
Hourly Total	0	37	4	0	41	0	1	19	0	20	0	5	0	0	5	66
11:00 AM	0	5	0	0	5	0	0	7	0	7	0	0	0	0	0	12

11:15 AM	0	6	0	0	6	0	0	7	0	7	0	1	0	0	1	14
11:30 AM	0	13	0	0	13	0	1	4	0	5	0	0	1	0	1	19
11:45 AM	0	7	2	0	9	0	1	9	0	10	0	1	1	0	2	21
Hourly Total	0	31	2	0	33	0	2	27	0	29	0	2	2	0	4	66
12:00 PM	0	12	1	0	13	0	0	9	0	9	0	3	0	0	3	25
12:15 PM	0	11	1	0	12	0	0	9	0	9	0	1	1	0	2	23
12:30 PM	0	9	3	0	12	0	0	4	0	4	0	2	0	0	2	18
12:45 PM	0	12	0	0	12	0	0	11	0	11	0	1	0	0	1	24
Hourly Total	0	44	5	0	49	0	0	33	0	33	0	7	1	0	8	90
1:00 PM	0	9	1	0	10	0	0	7	0	7	0	2	0	0	2	19
1:15 PM	0	8	0	0	8	0	0	11	0	11	0	0	0	0	0	19
1:30 PM	0	10	2	0	12	0	0	5	0	5	0	0	0	0	0	17
1:45 PM	0	11	0	0	11	0	0	14	0	14	0	0	1	0	1	26
Hourly Total	0	38	3	0	41	0	0	37	0	37	0	2	1	0	3	81
2:00 PM	0	6	0	0	6	0	0	13	0	13	0	0	0	0	0	19
2:15 PM	0	8	0	0	8	0	0	6	0	6	0	0	0	0	0	14
2:30 PM	0	7	0	0	7	0	0	29	0	29	0	0	0	0	0	36
2:45 PM	0	17	0	0	17	0	0	7	0	7	0	3	0	0	3	27
Hourly Total	0	38	0	0	38	0	0	55	0	55	0	3	0	0	3	96
3:00 PM	1	19	1	0	21	0	0	9	0	9	0	1	0	0	1	31
3:15 PM	0	13	0	0	13	0	0	8	0	8	0	0	0	0	0	21
3:30 PM	0	21	0	0	21	0	0	10	0	10	0	1	0	0	1	32
3:45 PM	0	20	1	0	21	0	0	13	0	13	0	0	0	0	0	34
Hourly Total	1	73	2	0	76	0	0	40	0	40	0	2	0	0	2	118
4:00 PM	0	14	0	0	14	0	0	5	0	5	0	0	0	0	0	19
4:15 PM	0	12	0	0	12	0	0	7	0	7	0	4	0	0	4	23
4:30 PM	0	9	0	0	9	0	0	13	0	13	0	0	0	0	0	22
4:45 PM	0	21	0	0	21	0	0	6	0	6	0	0	0	0	0	27
Hourly Total	0	56	0	0	56	0	0	31	0	31	0	4	0	0	4	91
5:00 PM	0	23	0	0	23	0	0	8	0	8	0	0	0	0	0	31
5:15 PM	0	15	1	0	16	0	0	12	0	12	0	0	0	0	0	28
5:30 PM	0	16	0	0	16	0	0	11	0	11	0	1	0	0	1	28
5:45 PM	0	6	0	0	6	0	0	9	0	9	0	1	0	0	1	16
Hourly Total	0	60	1	0	61	0	0	40	0	40	0	2	0	0	2	103
6:00 PM	0	10	3	0	13	0	0	7	0	7	0	1	0	0	1	21
6:15 PM	0	7	0	0	7	0	0	10	0	10	0	1	0	0	1	18
6:30 PM	0	6	0	0	6	0	0	9	0	9	0	0	0	0	0	15
6:45 PM	1	6	0	0	7	0	0	5	0	5	0	1	0	0	1	13
Hourly Total	1	29	3	0	33	0	0	31	0	31	0	3	0	0	3	67
7:00 PM	0	8	0	0	8	0	0	9	0	9	0	0	0	0	0	17
7:15 PM	0	6	0	0	6	0	0	4	0	4	0	0	0	0	0	10
7:30 PM	0	9	0	0	9	0	0	4	0	4	0	1	0	0	1	14
7:45 PM	0	7	0	0	7	0	0	4	0	4	0	0	0	0	0	11
Hourly Total	0	30	0	0	30	0	0	21	0	21	0	1	0	0	1	52
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 AM	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	3
Hourly Total	0	0	0	0	0	0	0	3	0	3	0	0	0	0	0	3
5:00 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
5:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1

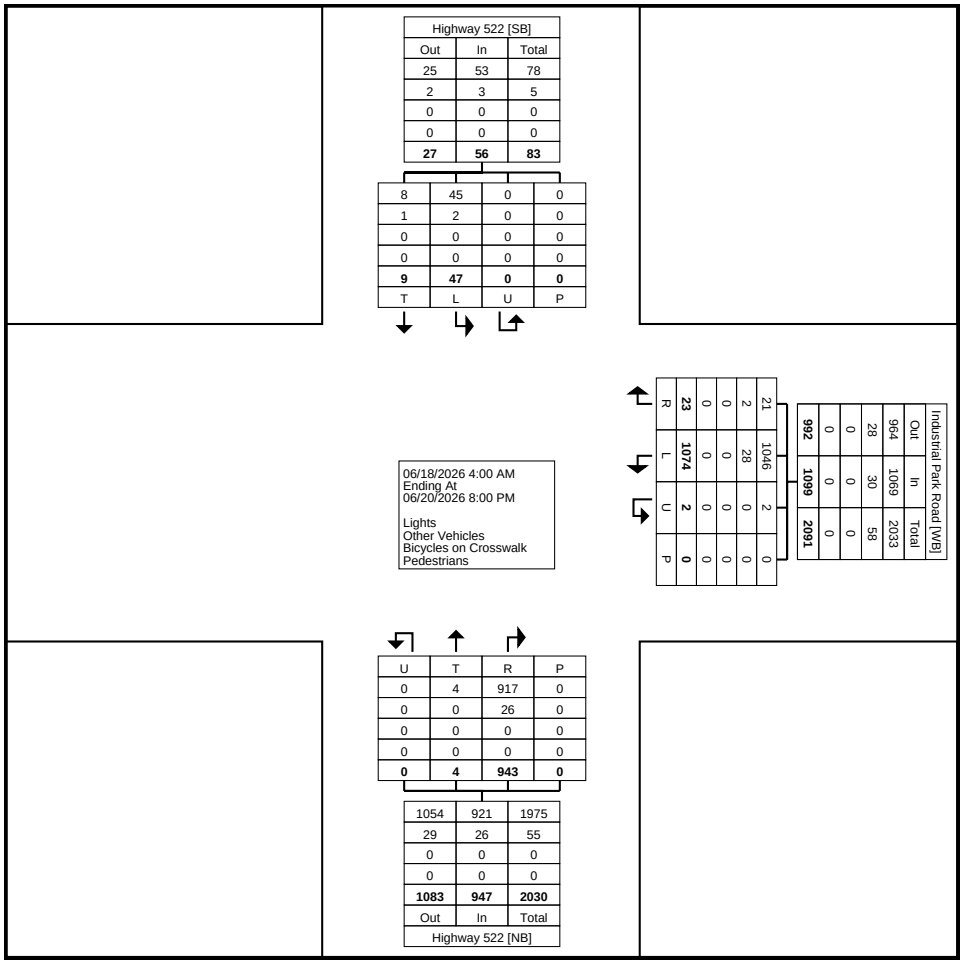
5:30 AM	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	2
5:45 AM	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	4
Hourly Total	0	4	0	0	4	0	0	3	0	3	0	1	0	0	1	8
6:00 AM	0	4	0	0	4	0	0	2	0	2	0	0	0	0	0	6
6:15 AM	0	3	0	0	3	0	0	3	0	3	0	1	0	0	1	7
6:30 AM	0	3	0	0	3	0	0	6	0	6	0	0	0	0	0	9
6:45 AM	0	3	0	0	3	0	0	4	0	4	0	0	0	0	0	7
Hourly Total	0	13	0	0	13	0	0	15	0	15	0	1	0	0	1	29
7:00 AM	0	6	0	0	6	0	0	7	0	7	0	0	0	0	0	13
7:15 AM	0	13	0	0	13	0	0	2	0	2	0	0	0	0	0	15
7:30 AM	0	6	0	0	6	0	0	6	0	6	0	0	0	0	0	12
7:45 AM	0	8	0	0	8	0	0	3	0	3	0	0	0	0	0	11
Hourly Total	0	33	0	0	33	0	0	18	0	18	0	0	0	0	0	51
8:00 AM	0	3	0	0	3	0	0	9	0	9	0	0	0	0	0	12
8:15 AM	0	12	0	0	12	0	0	5	0	5	0	0	0	0	0	17
8:30 AM	0	7	0	0	7	0	0	5	0	5	0	0	0	0	0	12
8:45 AM	0	8	0	0	8	0	0	8	0	8	0	0	0	0	0	16
Hourly Total	0	30	0	0	30	0	0	27	0	27	0	0	0	0	0	57
9:00 AM	0	11	0	0	11	0	0	7	0	7	0	0	0	0	0	18
9:15 AM	0	8	0	0	8	0	0	13	0	13	0	0	0	0	0	21
9:30 AM	0	3	0	0	3	0	0	9	0	9	0	0	0	0	0	12
9:45 AM	0	13	1	0	14	0	0	8	0	8	0	1	0	0	1	23
Hourly Total	0	35	1	0	36	0	0	37	0	37	0	1	0	0	1	74
10:00 AM	0	12	0	0	12	0	0	13	0	13	0	2	0	0	2	27
10:15 AM	0	8	0	0	8	0	0	11	0	11	0	0	0	0	0	19
10:30 AM	0	11	0	0	11	0	0	6	0	6	0	0	0	0	0	17
10:45 AM	0	12	0	0	12	0	0	8	0	8	0	0	0	0	0	20
Hourly Total	0	43	0	0	43	0	0	38	0	38	0	2	0	0	2	83
11:00 AM	0	16	0	0	16	0	0	5	0	5	0	0	0	0	0	21
11:15 AM	0	12	0	0	12	0	0	6	0	6	0	1	0	0	1	19
11:30 AM	0	11	0	0	11	0	0	11	0	11	0	0	0	0	0	22
11:45 AM	0	8	0	0	8	0	1	5	0	6	0	0	0	0	0	14
Hourly Total	0	47	0	0	47	0	1	27	0	28	0	1	0	0	1	76
12:00 PM	0	12	0	0	12	0	0	6	0	6	0	0	0	0	0	18
12:15 PM	0	9	0	0	9	0	0	8	0	8	0	0	0	0	0	17
12:30 PM	0	9	0	0	9	0	0	7	0	7	0	0	0	0	0	16
12:45 PM	0	12	0	0	12	0	0	10	0	10	0	0	0	0	0	22
Hourly Total	0	42	0	0	42	0	0	31	0	31	0	0	0	0	0	73
1:00 PM	0	11	0	0	11	0	0	14	0	14	0	0	0	0	0	25
1:15 PM	0	6	0	0	6	0	0	11	0	11	0	0	0	0	0	17
1:30 PM	0	13	0	0	13	0	0	9	0	9	0	0	1	0	1	23
1:45 PM	0	12	0	0	12	0	0	10	0	10	0	0	0	0	0	22
Hourly Total	0	42	0	0	42	0	0	44	0	44	0	0	1	0	1	87
2:00 PM	0	11	0	0	11	0	0	7	0	7	0	0	0	0	0	18
2:15 PM	0	12	0	0	12	0	0	14	0	14	0	0	0	0	0	26
2:30 PM	0	12	0	0	12	0	0	9	0	9	0	0	0	0	0	21
2:45 PM	0	8	0	0	8	0	0	4	0	4	0	0	0	0	0	12
Hourly Total	0	43	0	0	43	0	0	34	0	34	0	0	0	0	0	77
3:00 PM	0	8	0	0	8	0	0	14	0	14	0	0	0	0	0	22
3:15 PM	0	9	0	0	9	0	0	20	0	20	0	0	1	0	1	30
3:30 PM	0	7	0	0	7	0	0	6	0	6	0	0	0	0	0	13
3:45 PM	0	6	0	0	6	0	0	9	0	9	0	0	0	0	0	15

Hourly Total	0	30	0	0	30	0	0	49	0	49	0	0	1	0	1	80
4:00 PM	0	10	0	0	10	0	0	8	0	8	0	0	0	0	0	18
4:15 PM	0	11	0	0	11	0	0	13	0	13	0	0	0	0	0	24
4:30 PM	0	13	0	0	13	0	0	16	0	16	0	0	0	0	0	29
4:45 PM	0	17	0	0	17	0	0	11	0	11	0	0	0	0	0	28
Hourly Total	0	51	0	0	51	0	0	48	0	48	0	0	0	0	0	99
5:00 PM	0	13	0	0	13	0	0	10	0	10	0	0	0	0	0	23
5:15 PM	0	11	0	0	11	0	0	7	0	7	0	0	0	0	0	18
5:30 PM	0	6	0	0	6	0	0	3	0	3	0	0	0	0	0	9
5:45 PM	0	7	0	0	7	0	0	9	0	9	0	0	0	0	0	16
Hourly Total	0	37	0	0	37	0	0	29	0	29	0	0	0	0	0	66
6:00 PM	0	11	0	0	11	0	0	7	0	7	0	0	0	0	0	18
6:15 PM	0	9	0	0	9	0	0	5	0	5	0	0	0	0	0	14
6:30 PM	0	5	0	0	5	0	0	8	0	8	0	0	0	0	0	13
6:45 PM	0	9	0	0	9	0	0	4	0	4	0	1	0	0	1	14
Hourly Total	0	34	0	0	34	0	0	24	0	24	0	1	0	0	1	59
7:00 PM	0	8	0	0	8	0	0	5	0	5	0	0	1	0	1	14
7:15 PM	0	8	0	0	8	0	0	5	0	5	0	0	0	0	0	13
7:30 PM	0	5	0	0	5	0	0	8	0	8	0	1	0	0	1	14
7:45 PM	0	7	0	0	7	0	0	5	0	5	0	0	0	0	0	12
Hourly Total	0	28	0	0	28	0	0	23	0	23	0	1	1	0	2	53
Grand Total	2	1074	23	0	1099	0	4	943	0	947	0	47	9	0	56	2102
Approach %	0.2	97.7	2.1	-	-	0.0	0.4	99.6	-	-	0.0	83.9	16.1	-	-	-
Total %	0.1	51.1	1.1	-	52.3	0.0	0.2	44.9	-	45.1	0.0	2.2	0.4	-	2.7	-
Lights	2	1046	21	-	1069	0	4	917	-	921	0	45	8	-	53	2043
% Lights	100.0	97.4	91.3	-	97.3	-	100.0	97.2	-	97.3	-	95.7	88.9	-	94.6	97.2
Other Vehicles	0	28	2	-	30	0	0	26	-	26	0	2	1	-	3	59
% Other Vehicles	0.0	2.6	8.7	-	2.7	-	0.0	2.8	-	2.7	-	4.3	11.1	-	5.4	2.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Data Plot

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

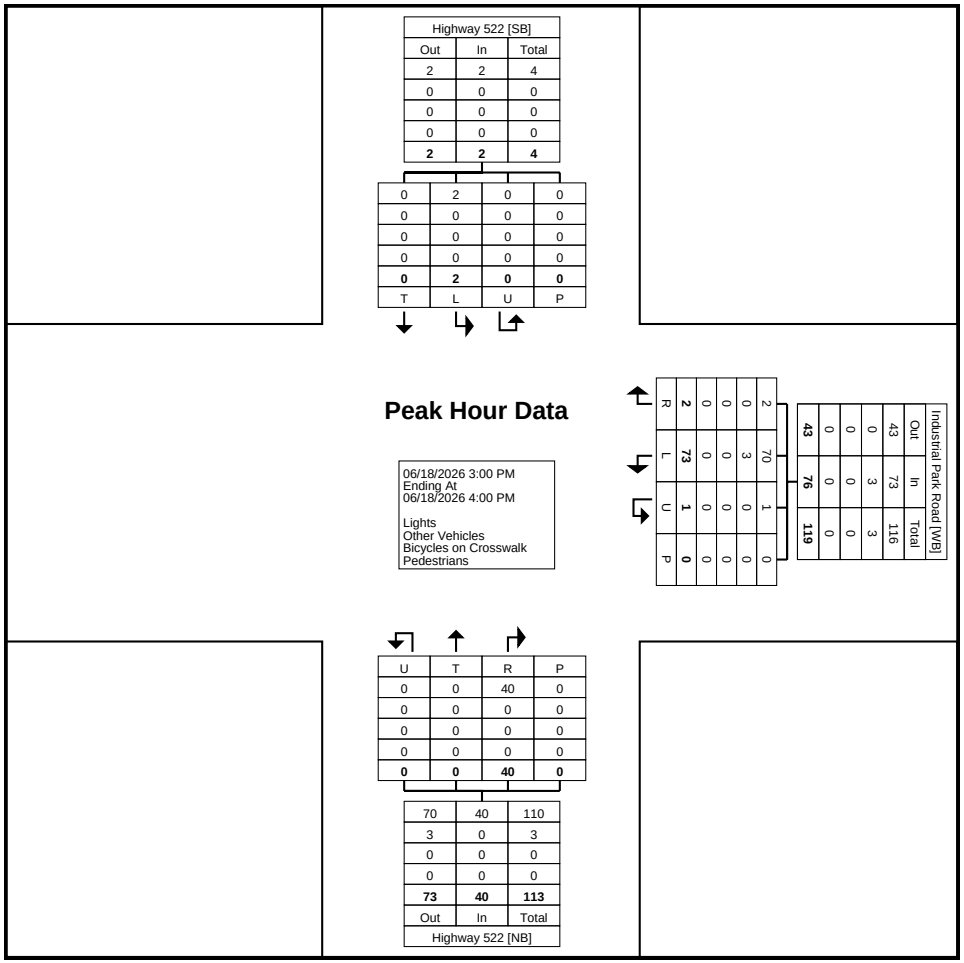
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
3:00 PM	1	19	1	0	21	0	0	9	0	9	0	1	0	0	1	31
3:15 PM	0	13	0	0	13	0	0	8	0	8	0	0	0	0	0	21
3:30 PM	0	21	0	0	21	0	0	10	0	10	0	1	0	0	1	32
3:45 PM	0	20	1	0	21	0	0	13	0	13	0	0	0	0	0	34
Total	1	73	2	0	76	0	0	40	0	40	0	2	0	0	2	118
Approach %	1.3	96.1	2.6	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.8	61.9	1.7	-	64.4	0.0	0.0	33.9	-	33.9	0.0	1.7	0.0	-	1.7	-
PHF	0.250	0.869	0.500	-	0.905	0.000	0.000	0.769	-	0.769	0.000	0.500	0.000	-	0.500	0.868
Lights	1	70	2	-	73	0	0	40	-	40	0	2	0	-	2	115
% Lights	100.0	95.9	100.0	-	96.1	-	-	100.0	-	100.0	-	100.0	-	-	100.0	97.5
Other Vehicles	0	3	0	-	3	0	0	0	-	0	0	0	0	-	0	3
% Other Vehicles	0.0	4.1	0.0	-	3.9	-	-	0.0	-	0.0	-	0.0	-	-	0.0	2.5
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (3:00 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

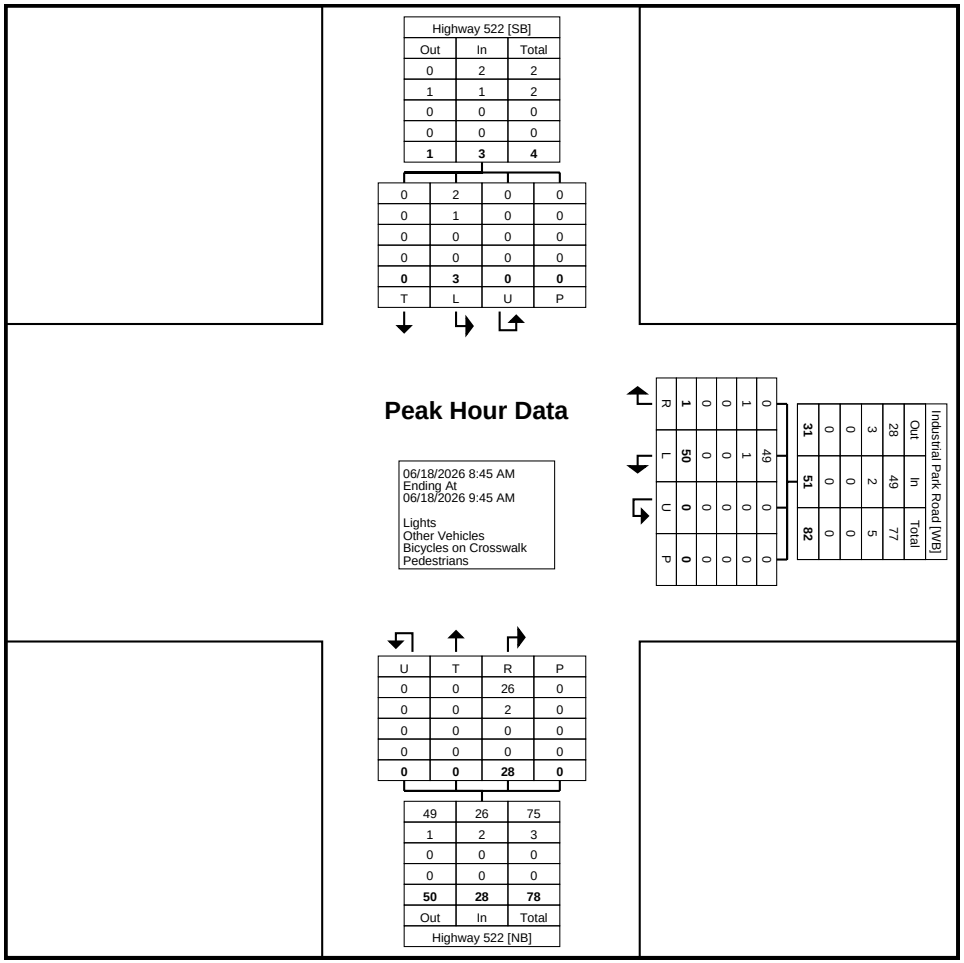
Turning Movement Peak Hour Data (8:45 AM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
8:45 AM	0	12	0	0	12	0	0	10	0	10	0	2	0	0	2	24
9:00 AM	0	7	1	0	8	0	0	9	0	9	0	0	0	0	0	17
9:15 AM	0	17	0	0	17	0	0	3	0	3	0	1	0	0	1	21
9:30 AM	0	14	0	0	14	0	0	6	0	6	0	0	0	0	0	20
Total	0	50	1	0	51	0	0	28	0	28	0	3	0	0	3	82
Approach %	0.0	98.0	2.0	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	61.0	1.2	-	62.2	0.0	0.0	34.1	-	34.1	0.0	3.7	0.0	-	3.7	-
PHF	0.000	0.735	0.250	-	0.750	0.000	0.000	0.700	-	0.700	0.000	0.375	0.000	-	0.375	0.854
Lights	0	49	0	-	49	0	0	26	-	26	0	2	0	-	2	77
% Lights	-	98.0	0.0	-	96.1	-	-	92.9	-	92.9	-	66.7	-	-	66.7	93.9
Other Vehicles	0	1	1	-	2	0	0	2	-	2	0	1	0	-	1	5
% Other Vehicles	-	2.0	100.0	-	3.9	-	-	7.1	-	7.1	-	33.3	-	-	33.3	6.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (8:45 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

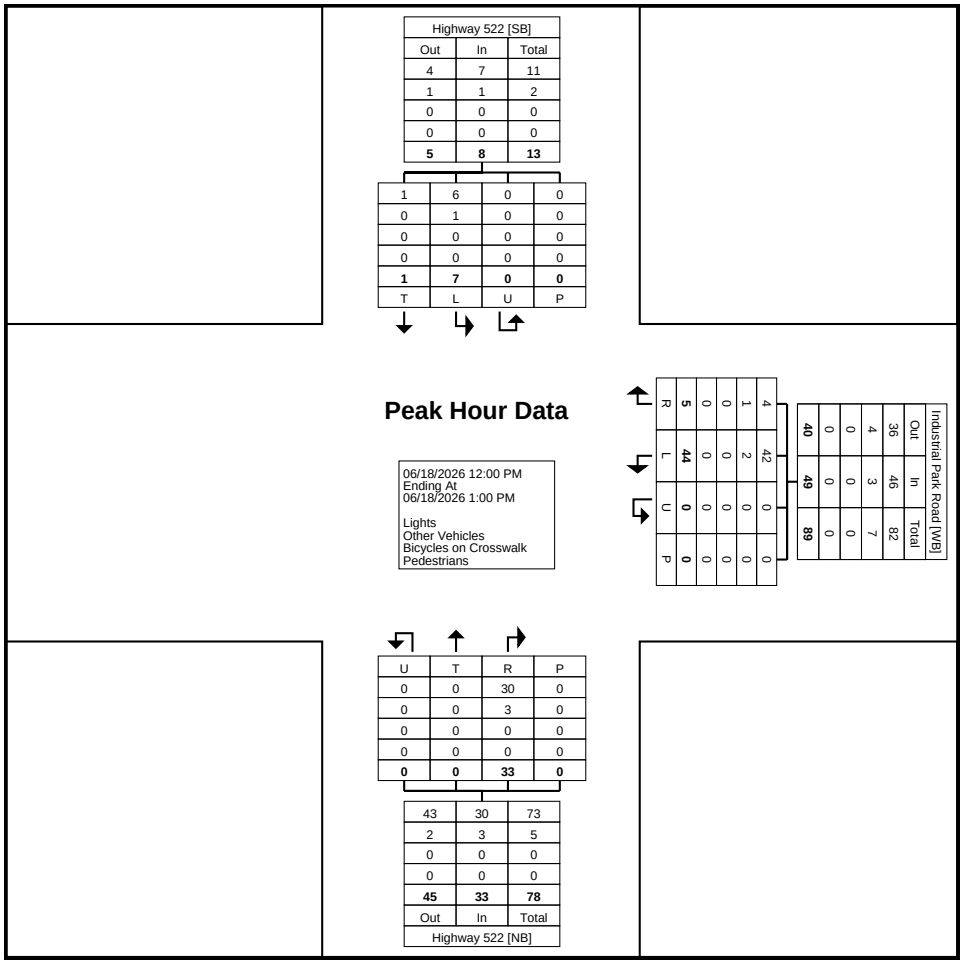
Turning Movement Peak Hour Data (12:00 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:00 PM	0	12	1	0	13	0	0	9	0	9	0	3	0	0	3	25
12:15 PM	0	11	1	0	12	0	0	9	0	9	0	1	1	0	2	23
12:30 PM	0	9	3	0	12	0	0	4	0	4	0	2	0	0	2	18
12:45 PM	0	12	0	0	12	0	0	11	0	11	0	1	0	0	1	24
Total	0	44	5	0	49	0	0	33	0	33	0	7	1	0	8	90
Approach %	0.0	89.8	10.2	-	-	0.0	0.0	100.0	-	-	0.0	87.5	12.5	-	-	-
Total %	0.0	48.9	5.6	-	54.4	0.0	0.0	36.7	-	36.7	0.0	7.8	1.1	-	8.9	-
PHF	0.000	0.917	0.417	-	0.942	0.000	0.000	0.750	-	0.750	0.000	0.583	0.250	-	0.667	0.900
Lights	0	42	4	-	46	0	0	30	-	30	0	6	1	-	7	83
% Lights	-	95.5	80.0	-	93.9	-	-	90.9	-	90.9	-	85.7	100.0	-	87.5	92.2
Other Vehicles	0	2	1	-	3	0	0	3	-	3	0	1	0	-	1	7
% Other Vehicles	-	4.5	20.0	-	6.1	-	-	9.1	-	9.1	-	14.3	0.0	-	12.5	7.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (12:00 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

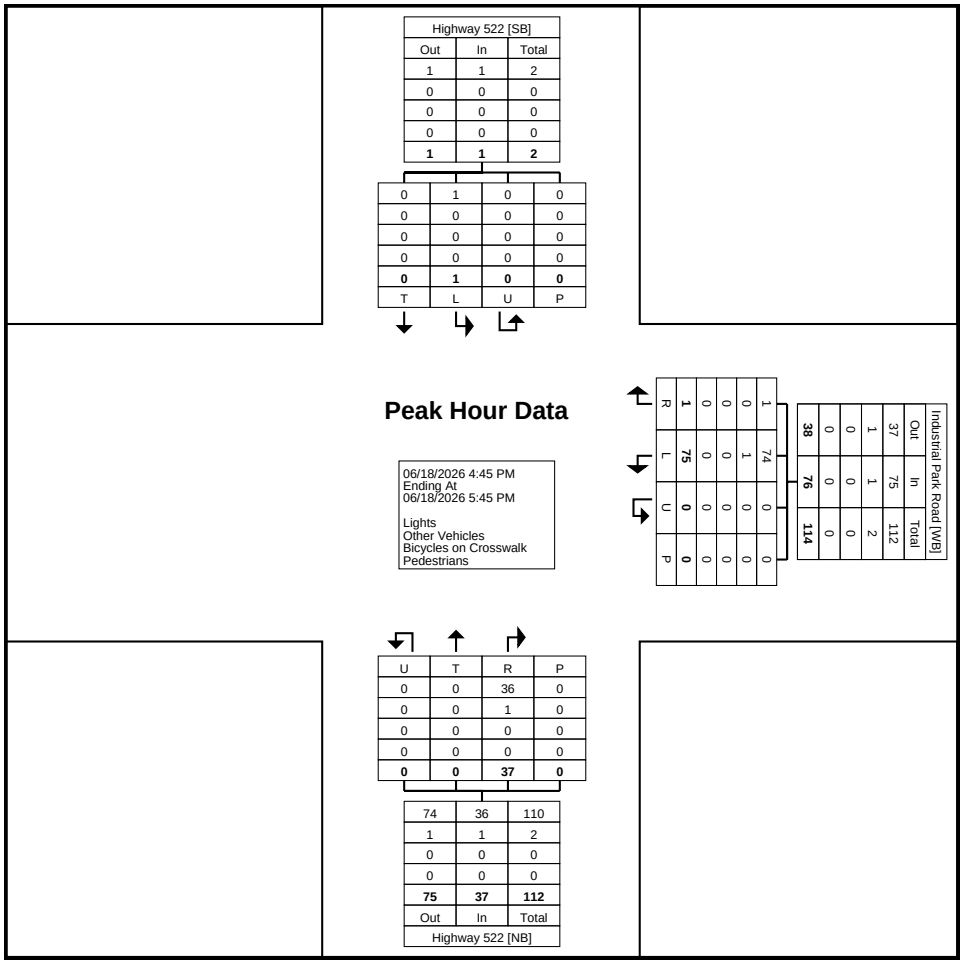
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:45 PM	0	21	0	0	21	0	0	6	0	6	0	0	0	0	0	27
5:00 PM	0	23	0	0	23	0	0	8	0	8	0	0	0	0	0	31
5:15 PM	0	15	1	0	16	0	0	12	0	12	0	0	0	0	0	28
5:30 PM	0	16	0	0	16	0	0	11	0	11	0	1	0	0	1	28
Total	0	75	1	0	76	0	0	37	0	37	0	1	0	0	1	114
Approach %	0.0	98.7	1.3	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	65.8	0.9	-	66.7	0.0	0.0	32.5	-	32.5	0.0	0.9	0.0	-	0.9	-
PHF	0.000	0.815	0.250	-	0.826	0.000	0.000	0.771	-	0.771	0.000	0.250	0.000	-	0.250	0.919
Lights	0	74	1	-	75	0	0	36	-	36	0	1	0	-	1	112
% Lights	-	98.7	100.0	-	98.7	-	-	97.3	-	97.3	-	100.0	-	-	100.0	98.2
Other Vehicles	0	1	0	-	1	0	0	1	-	1	0	0	0	-	0	2
% Other Vehicles	-	1.3	0.0	-	1.3	-	-	2.7	-	2.7	-	0.0	-	-	0.0	1.8
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (4:45 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

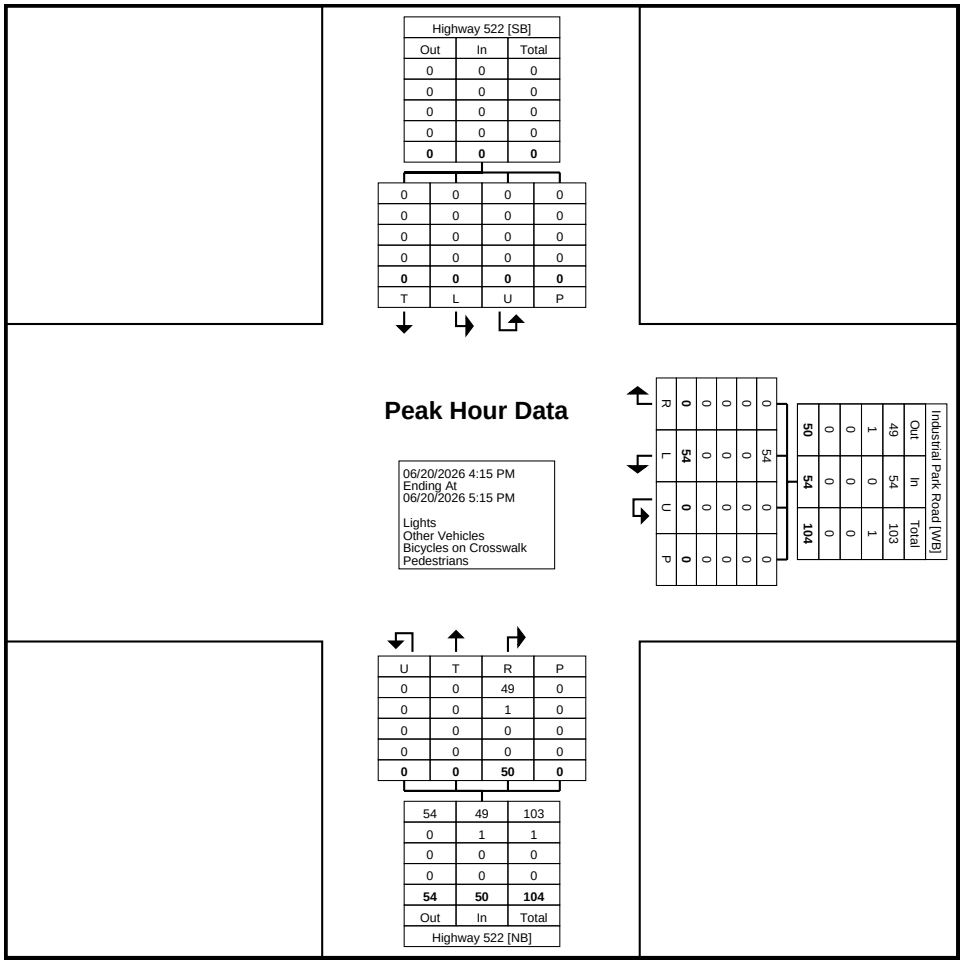
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:15 PM	0	11	0	0	11	0	0	13	0	13	0	0	0	0	0	24
4:30 PM	0	13	0	0	13	0	0	16	0	16	0	0	0	0	0	29
4:45 PM	0	17	0	0	17	0	0	11	0	11	0	0	0	0	0	28
5:00 PM	0	13	0	0	13	0	0	10	0	10	0	0	0	0	0	23
Total	0	54	0	0	54	0	0	50	0	50	0	0	0	0	0	104
Approach %	0.0	100.0	0.0	-	-	0.0	0.0	100.0	-	-	0.0	0.0	0.0	-	-	-
Total %	0.0	51.9	0.0	-	51.9	0.0	0.0	48.1	-	48.1	0.0	0.0	0.0	-	0.0	-
PHF	0.000	0.794	0.000	-	0.794	0.000	0.000	0.781	-	0.781	0.000	0.000	0.000	-	0.000	0.897
Lights	0	54	0	-	54	0	0	49	-	49	0	0	0	-	0	103
% Lights	-	100.0	-	-	100.0	-	-	98.0	-	98.0	-	-	-	-	-	99.0
Other Vehicles	0	0	0	-	0	0	0	1	-	1	0	0	0	-	0	1
% Other Vehicles	-	0.0	-	-	0.0	-	-	2.0	-	2.0	-	-	-	-	-	1.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (4:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

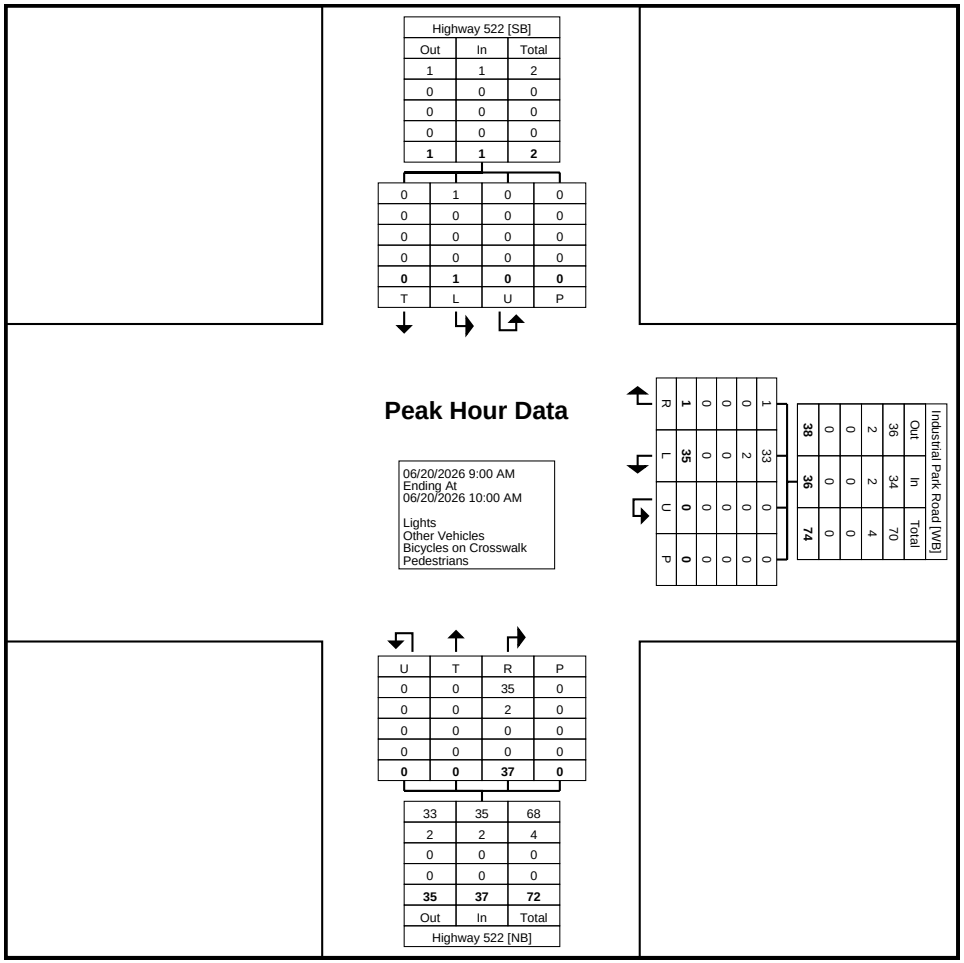
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
9:00 AM	0	11	0	0	11	0	0	7	0	7	0	0	0	0	0	18
9:15 AM	0	8	0	0	8	0	0	13	0	13	0	0	0	0	0	21
9:30 AM	0	3	0	0	3	0	0	9	0	9	0	0	0	0	0	12
9:45 AM	0	13	1	0	14	0	0	8	0	8	0	1	0	0	1	23
Total	0	35	1	0	36	0	0	37	0	37	0	1	0	0	1	74
Approach %	0.0	97.2	2.8	-	-	0.0	0.0	100.0	-	-	0.0	100.0	0.0	-	-	-
Total %	0.0	47.3	1.4	-	48.6	0.0	0.0	50.0	-	50.0	0.0	1.4	0.0	-	1.4	-
PHF	0.000	0.673	0.250	-	0.643	0.000	0.000	0.712	-	0.712	0.000	0.250	0.000	-	0.250	0.804
Lights	0	33	1	-	34	0	0	35	-	35	0	1	0	-	1	70
% Lights	-	94.3	100.0	-	94.4	-	-	94.6	-	94.6	-	100.0	-	-	100.0	94.6
Other Vehicles	0	2	0	-	2	0	0	2	-	2	0	0	0	-	0	4
% Other Vehicles	-	5.7	0.0	-	5.6	-	-	5.4	-	5.4	-	0.0	-	-	0.0	5.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (9:00 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

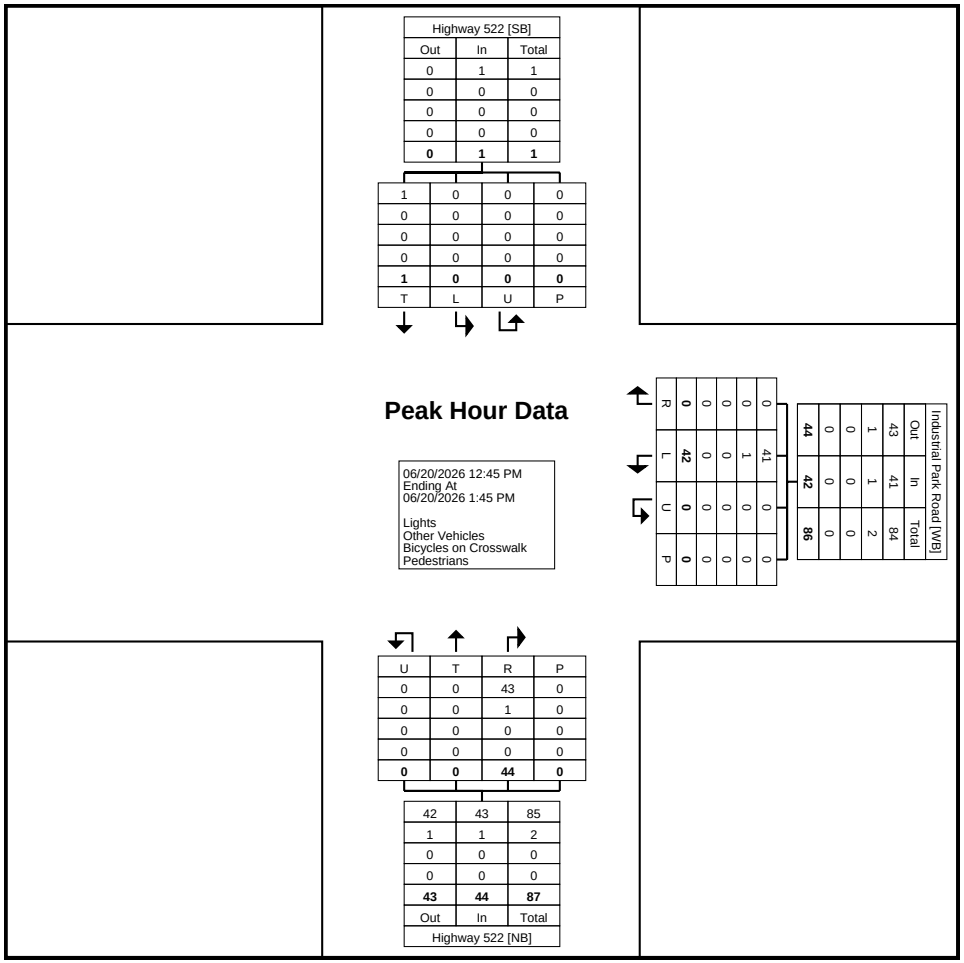
Turning Movement Peak Hour Data (12:45 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
12:45 PM	0	12	0	0	12	0	0	10	0	10	0	0	0	0	0	22
1:00 PM	0	11	0	0	11	0	0	14	0	14	0	0	0	0	0	25
1:15 PM	0	6	0	0	6	0	0	11	0	11	0	0	0	0	0	17
1:30 PM	0	13	0	0	13	0	0	9	0	9	0	0	1	0	1	23
Total	0	42	0	0	42	0	0	44	0	44	0	0	1	0	1	87
Approach %	0.0	100.0	0.0	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	48.3	0.0	-	48.3	0.0	0.0	50.6	-	50.6	0.0	0.0	1.1	-	1.1	-
PHF	0.000	0.808	0.000	-	0.808	0.000	0.000	0.786	-	0.786	0.000	0.000	0.250	-	0.250	0.870
Lights	0	41	0	-	41	0	0	43	-	43	0	0	1	-	1	85
% Lights	-	97.6	-	-	97.6	-	-	97.7	-	97.7	-	-	100.0	-	100.0	97.7
Other Vehicles	0	1	0	-	1	0	0	1	-	1	0	0	0	-	0	2
% Other Vehicles	-	2.4	-	-	2.4	-	-	2.3	-	2.3	-	-	0.0	-	0.0	2.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (12:45 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026

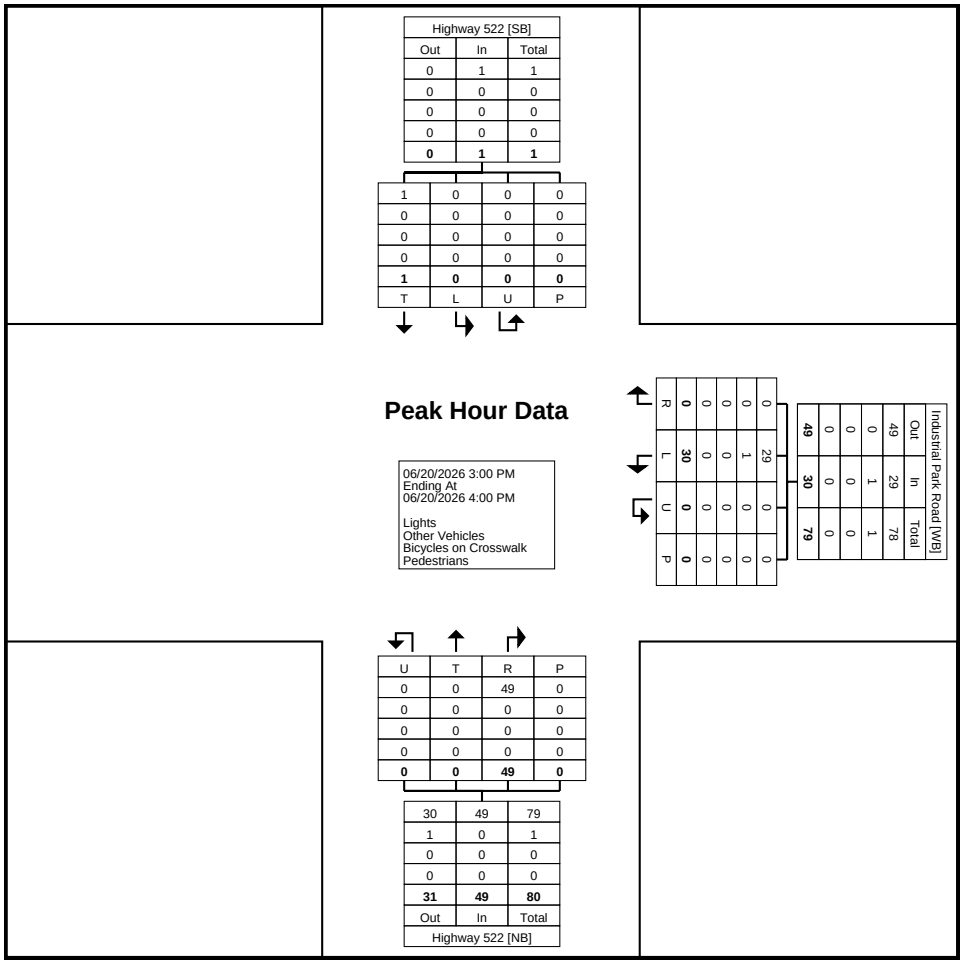
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Industrial Park Road Westbound					Highway 522 Northbound					Highway 522 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
3:00 PM	0	8	0	0	8	0	0	14	0	14	0	0	0	0	0	22
3:15 PM	0	9	0	0	9	0	0	20	0	20	0	0	1	0	1	30
3:30 PM	0	7	0	0	7	0	0	6	0	6	0	0	0	0	0	13
3:45 PM	0	6	0	0	6	0	0	9	0	9	0	0	0	0	0	15
Total	0	30	0	0	30	0	0	49	0	49	0	0	1	0	1	80
Approach %	0.0	100.0	0.0	-	-	0.0	0.0	100.0	-	-	0.0	0.0	100.0	-	-	-
Total %	0.0	37.5	0.0	-	37.5	0.0	0.0	61.3	-	61.3	0.0	0.0	1.3	-	1.3	-
PHF	0.000	0.833	0.000	-	0.833	0.000	0.000	0.613	-	0.613	0.000	0.000	0.250	-	0.250	0.667
Lights	0	29	0	-	29	0	0	49	-	49	0	0	1	-	1	79
% Lights	-	96.7	-	-	96.7	-	-	100.0	-	100.0	-	-	100.0	-	100.0	98.8
Other Vehicles	0	1	0	-	1	0	0	0	-	0	0	0	0	-	0	1
% Other Vehicles	-	3.3	-	-	3.3	-	-	0.0	-	0.0	-	-	0.0	-	0.0	1.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578696, -77.621931

Count Name: 1. Highway 522 & Industrial Park Road
Site Code: 1
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (3:00 PM)

2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-18 4:00AM	0	3	5	0	**8**	0	7	3	0	0	0	**10**	0	0	0	1	0	0	**1**	0	2	0	0	0	0	**2**	0	**21**
4:15AM	0	5	18	0	**23**	0	13	1	0	0	0	**14**	0	0	0	1	0	0	**1**	0	0	0	2	0	0	**2**	0	**40**
4:30AM	1	4	10	0	**15**	0	7	4	0	0	0	**11**	0	0	0	1	0	0	**1**	0	6	0	3	0	1	**10**	0	**37**
4:45AM	1	10	18	0	**29**	0	4	2	0	0	0	**6**	0	1	0	0	0	0	**1**	0	10	0	4	0	1	**15**	0	**51**
Hourly Total	2	22	51	0	**75**	0	31	10	0	0	0	**41**	0	1	0	3	0	0	**4**	0	18	0	9	0	2	**29**	0	**149**
5:00AM	1	3	10	0	**14**	0	13	6	1	0	0	**20**	0	1	1	7	0	0	**9**	0	1	0	1	0	0	**2**	0	**45**
5:15AM	3	12	31	0	**46**	0	19	7	1	0	1	**28**	0	2	1	1	0	0	**4**	0	9	1	1	0	0	**11**	0	**89**
5:30AM	2	14	51	0	**67**	0	39	4	1	0	0	**44**	0	5	1	7	0	2	**15**	0	6	0	0	0	0	**6**	0	**132**
5:45AM	4	10	60	0	**74**	0	37	11	1	0	0	**49**	0	0	0	4	0	0	**4**	0	13	0	3	0	4	**20**	0	**147**
Hourly Total	10	39	152	0	**201**	0	108	28	4	0	1	**141**	0	8	3	19	0	2	**32**	0	29	1	5	0	4	**39**	0	**413**
6:00AM	3	21	51	0	**75**	0	23	13	1	0	0	**37**	0	2	1	2	0	1	**6**	0	11	0	3	0	2	**16**	0	**134**
6:15AM	0	31	68	0	**99**	0	22	16	0	0	0	**38**	0	1	0	3	0	0	**4**	0	17	0	5	0	4	**26**	0	**167**
6:30AM	3	27	89	0	**119**	0	14	17	1	0	0	**32**	0	2	0	3	0	0	**5**	0	9	0	5	0	5	**19**	0	**175**
6:45AM	0	39	65	0	**104**	0	27	16	0	0	0	**43**	0	1	0	2	0	1	**4**	0	9	0	4	0	3	**16**	0	**167**
Hourly Total	6	118	273	0	**397**	0	86	62	2	0	0	**150**	0	6	1	10	0	2	**19**	0	46	0	17	0	14	**77**	0	**643**
7:00AM	3	36	30	0	**69**	0	8	31	2	0	0	**41**	0	4	0	2	0	1	**7**	0	51	0	17	0	9	**77**	0	**194**
7:15AM	4	27	32	0	**63**	0	6	29	2	0	1	**38**	0	5	0	5	0	4	**14**	0	22	0	3	0	8	**33**	0	**148**
7:30AM	3	50	22	0	**75**	0	9	31	2	0	1	**43**	0	5	0	6	0	1	**12**	0	26	2	8	0	5	**41**	0	**171**
7:45AM	3	48	29	0	**80**	0	14	28	2	0	0	**44**	0	5	0	4	0	0	**9**	0	20	0	2	0	5	**27**	0	**160**
Hourly Total	13	161	113	0	**287**	0	37	119	8	0	2	**166**	0	19	0	17	0	6	**42**	0	119	2	30	0	27	**178**	0	**673**
8:00AM	3	40	26	0	**69**	0	6	32	2	0	0	**40**	0	6	0	4	0	1	**11**	0	22	2	6	0	4	**34**	0	**154**
8:15AM	4	44	15	0	**63**	0	7	30	1	0	1	**39**	0	5	0	4	0	2	**11**	0	13	0	2	0	3	**18**	0	**131**
8:30AM	4	49	11	0	**64**	0	5	35	5	0	0	**45**	0	4	0	6	0	0	**10**	0	12	0	5	0	3	**20**	0	**139**
8:45AM	5	51	16	1	**73**	0	6	39	7	0	0	**52**	0	4	0	4	0	4	**12**	0	15	0	5	0	6	**26**	0	**163**
Hourly Total	16	184	68	1	**269**	0	24	136	15	0	1	**176**	0	19	0	18	0	7	**44**	0	62	2	18	0	16	**98**	0	**587**
9:00AM	1	52	13	0	**66**	0	4	39	5	0	2	**50**	0	5	0	3	0	0	**8**	0	10	0	5	0	1	**16**	0	**140**
9:15AM	7	56	15	0	**78**	0	4	37	7	0	1	**49**	0	0	0	4	0	0	**4**	0	12	0	7	0	4	**23**	0	**154**
9:30AM	10	51	17	0	**78**	0	4	38	2	0	2	**46**	0	1	0	3	0	0	**4**	0	15	0	3	0	1	**19**	0	**147**
9:45AM	1	54	14	0	**69**	0	15	39	5	0	0	**59**	0	3	0	4	0	0	**7**	0	13	0	2	0	1	**16**	0	**151**
Hourly Total	19	213	59	0	**291**	0	27	153	19	0	5	**204**	0	9	0	14	0	0	**23**	0	50	0	17	0	7	**74**	0	**592**
10:00AM	4	56	19	0	**79**	0	2	42	2	0	2	**48**	0	3	0	2	0	2	**7**	0	9	0	1	0	3	**13**	0	**147**
10:15AM	6	57	19	0	**82**	0	6	44	6	0	0	**56**	0	1	0	1	0	0	**2**	0	17	0	2	0	2	**21**	0	**161**
10:30AM	4	50	10	0	**64**	0	7	53	5	0	1	**66**	0	3	0	3	0	3	**9**	0	13	1	5	0	6	**25**	0	**164**
10:45AM	3	67	14	0	**84**	0	3	42	4	0	1	**50**	0	3	0	3	0	0	**6**	0	17	1	6	0	5	**29**	0	**169**
Hourly Total	17	230	62	0	**309**	0	18	181	17	0	4	**220**	0	10	0	9	0	5	**24**	0	56	2	14	0	16	**88**	0	**641**
11:00AM	1	56	19	0	**76**	0	5	60	5	0	0	**70**	0	6	0	0	0	1	**7**	0	15	0	8	0	2	**25**	0	**178**
11:15AM	2	46	5	0	**53**	0	13	55	4	0	0	**72**	0	7	0	3	0	0	**10**	0	14	0	3	0	8	**25**	0	**160**
11:30AM	1	60	13	0	**74**	0	16	65	12	0	0	**93**	0	2	1	2	0	0	**5**	0	13	1	15	0	3	**32**	0	**204**

Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
11:45AM	3	65	19	0	**87**	0	14	45	6	0	0	**65**	0	3	0	3	0	4	**10**	0	13	0	5	0	2	**20**	0	**182**
Hourly Total	7	227	56	0	**290**	0	48	225	27	0	0	**300**	0	18	1	8	0	5	**32**	0	55	1	31	0	15	**102**	0	**724**
12:00PM	1	67	14	0	**82**	0	26	52	10	0	2	**90**	0	9	1	3	0	1	**14**	0	28	1	19	0	18	**66**	0	**252**
12:15PM	4	66	8	0	**78**	0	22	58	8	0	1	**89**	0	4	0	4	0	2	**10**	0	18	0	2	0	7	**27**	0	**204**
12:30PM	8	70	21	0	**99**	0	16	65	4	1	2	**88**	0	1	0	3	0	1	**5**	0	10	0	5	0	7	**22**	0	**214**
12:45PM	2	52	17	0	**71**	0	10	64	8	0	3	**85**	0	8	0	4	0	1	**13**	0	6	0	3	0	3	**12**	0	**181**
Hourly Total	15	255	60	0	**330**	0	74	239	30	1	8	**352**	0	22	1	14	0	5	**42**	0	62	1	29	0	35	**127**	0	**851**
1:00PM	3	43	12	0	**58**	0	7	73	6	0	0	**86**	0	4	0	5	0	0	**9**	0	7	1	7	0	5	**20**	0	**173**
1:15PM	4	56	21	0	**81**	0	9	58	2	0	0	**69**	0	6	0	2	0	4	**12**	0	15	0	5	0	3	**23**	0	**185**
1:30PM	6	63	22	0	**91**	0	7	61	2	1	2	**73**	0	4	0	0	0	1	**5**	0	11	0	4	0	4	**19**	0	**188**
1:45PM	3	65	23	0	**91**	0	8	50	0	0	0	**58**	0	4	0	5	0	3	**12**	0	23	0	10	0	3	**36**	0	**197**
Hourly Total	16	227	78	0	**321**	0	31	242	10	1	2	**286**	0	18	0	12	0	8	**38**	0	56	1	26	0	15	**98**	0	**743**
2:00PM	5	65	13	0	**83**	0	14	61	2	0	0	**77**	0	5	0	6	0	3	**14**	0	16	0	5	0	10	**31**	0	**205**
2:15PM	0	74	20	0	**94**	0	14	82	7	0	0	**103**	0	4	0	2	0	1	**7**	0	18	0	7	0	9	**34**	0	**238**
2:30PM	1	65	18	0	**84**	0	12	69	5	0	1	**87**	0	14	0	11	0	3	**28**	0	121	1	66	0	31	**219**	0	**418**
2:45PM	1	66	16	0	**83**	0	4	83	16	0	4	**107**	0	4	0	7	0	0	**11**	0	43	0	13	0	13	**69**	0	**270**
Hourly Total	7	270	67	0	**344**	0	44	295	30	0	5	**374**	0	27	0	26	0	7	**60**	0	198	1	91	0	63	**353**	0	**1131**
3:00PM	11	64	22	0	**97**	0	2	62	11	0	0	**75**	0	4	0	6	0	0	**10**	0	61	0	10	0	8	**79**	1	**261**
3:15PM	6	50	13	0	**69**	0	4	94	6	0	0	**104**	0	3	1	4	0	0	**8**	0	30	0	8	0	7	**45**	0	**226**
3:30PM	10	53	14	0	**77**	0	7	72	9	0	1	**89**	0	7	1	5	0	0	**13**	0	40	1	9	0	3	**53**	0	**232**
3:45PM	7	64	16	0	**87**	0	7	79	13	0	1	**100**	0	8	0	4	0	1	**13**	0	27	0	5	0	1	**33**	0	**233**
Hourly Total	34	231	65	0	**330**	0	20	307	39	0	2	**368**	0	22	2	19	0	1	**44**	0	158	1	32	0	19	**210**	1	**952**
4:00PM	8	77	15	0	**100**	0	5	75	11	0	0	**91**	0	3	0	0	0	2	**5**	0	34	0	14	0	11	**59**	0	**255**
4:15PM	3	64	22	0	**89**	0	8	72	8	0	2	**90**	0	7	0	4	0	1	**12**	0	28	0	2	0	4	**34**	0	**225**
4:30PM	4	62	11	0	**77**	0	8	73	6	0	0	**87**	0	6	1	6	0	0	**13**	0	32	0	11	0	6	**49**	0	**226**
4:45PM	8	75	24	0	**107**	0	6	67	12	0	1	**86**	0	5	0	1	0	0	**6**	0	18	0	2	0	1	**21**	0	**220**
Hourly Total	23	278	72	0	**373**	0	27	287	37	0	3	**354**	0	21	1	11	0	3	**36**	0	112	0	29	0	22	**163**	0	**926**
5:00PM	12	72	16	0	**100**	0	7	78	8	0	2	**95**	0	3	0	5	0	0	**8**	0	16	0	4	0	4	**24**	0	**227**
5:15PM	6	69	22	0	**97**	0	13	82	13	0	0	**108**	0	4	1	4	0	3	**12**	0	16	0	3	0	5	**24**	0	**241**
5:30PM	7	70	11	0	**88**	0	8	68	7	0	0	**83**	0	7	0	2	0	3	**12**	0	19	2	5	0	5	**31**	0	**214**
5:45PM	2	67	14	0	**83**	0	9	62	3	0	1	**75**	0	4	0	4	0	3	**11**	0	17	0	8	0	3	**28**	0	**197**
Hourly Total	27	278	63	0	**368**	0	37	290	31	0	3	**361**	0	18	1	15	0	9	**43**	0	68	2	20	0	17	**107**	0	**879**
6:00PM	5	51	28	0	**84**	0	7	59	6	0	1	**73**	0	4	0	4	0	0	**8**	0	13	0	0	0	4	**17**	0	**182**
6:15PM	2	59	32	1	**94**	0	10	42	5	0	0	**57**	0	3	0	3	0	6	**12**	0	2	1	7	0	3	**13**	0	**176**
6:30PM	2	53	33	0	**88**	0	14	54	4	0	0	**72**	0	8	0	1	0	1	**10**	0	7	0	2	0	0	**9**	0	**179**
6:45PM	2	36	25	0	**63**	0	7	46	3	0	0	**56**	0	3	1	1	0	0	**5**	0	4	1	6	0	8	**19**	0	**143**
Hourly Total	11	199	118	1	**329**	0	38	201	18	0	1	**258**	0	18	1	9	0	7	**35**	0	26	2	15	0	15	**58**	0	**680**
7:00PM	1	54	7	0	**62**	0	6	51	5	0	2	**64**	0	4	0	4	0	2	**10**	0	46	0	25	0	13	**84**	0	**220**
7:15PM	4	41	9	0	**54**	0	13	44	2	0	0	**59**	0	2	0	1	0	1	**4**	0	28	0	7	0	7	**42**	0	**159**
7:30PM	4	29	9	1	**43**	0	4	55	5	0	0	**64**	0	4	0	1	0	0	**5**	0	13	0	6	0	1	**20**	0	**132**
7:45PM	1	38	6	0	**45**	0	3	50	5	0	1	**59**	0	3	0	0	0	0	**3**	0	4	0	0	0	0	**4**	0	**111**
Hourly Total	10	162	31	1	**204**	0	26	200	17	0	3	**246**	0	13	0	6	0	3	**22**	0	91	0	38	0	21	**150**	0	**622**
2026-06-20 4:00AM	0	2	0	0	**2**	0	3	0	0	0	0	**3**	0	0	0	0	0	0	**0**	0	1	0	3	0	0	**4**	0	**9**
4:15AM	0	1	2	0	**3**	0	3	3	0	0	0	**6**	0	0	0	0	0	0	**0**	0	1	0	1	0	0	**2**	0	**11**
4:30AM	0	5	5	0	**10**	0	11	0	0	0	0	**11**	0	0	0	0	0	0	**0**	0	1	0	0	0	0	**1**	0	**22**

Leg	Business 22						Business 22						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
4:45AM	0	2	14	0	**16**	0	10	1	0	0	0	**11**	0	1	0	2	0	0	**3**	0	1	0	2	0	0	**3**	0	**33**
Hourly Total	0	10	21	0	**31**	0	27	4	0	0	0	**31**	0	1	0	2	0	0	**3**	0	4	0	6	0	0	**10**	0	**75**
5:00AM	0	1	5	0	**6**	0	2	3	0	0	0	**5**	0	0	0	1	0	0	**1**	0	7	0	2	0	3	**12**	0	**24**
5:15AM	1	5	2	0	**8**	0	3	2	0	0	0	**5**	0	0	0	0	0	0	**0**	0	3	0	0	0	1	**4**	0	**17**
5:30AM	1	6	4	0	**11**	0	2	2	0	0	0	**4**	0	1	0	0	0	0	**1**	0	3	0	0	0	0	**3**	0	**19**
5:45AM	1	13	6	0	**20**	0	4	2	0	0	0	**6**	0	0	0	1	0	0	**1**	0	2	0	0	0	0	**2**	0	**29**
Hourly Total	3	25	17	0	**45**	0	11	9	0	0	0	**20**	0	1	0	2	0	0	**3**	0	15	0	2	0	4	**21**	0	**89**
6:00AM	3	14	9	0	**26**	0	2	2	0	0	0	**4**	0	1	0	1	0	0	**2**	0	2	0	1	0	0	**3**	0	**35**
6:15AM	2	12	21	0	**35**	0	12	10	1	0	0	**23**	0	1	0	3	0	0	**4**	0	8	0	0	0	0	**8**	0	**70**
6:30AM	2	17	37	0	**56**	0	9	12	1	0	0	**22**	0	2	1	2	0	1	**6**	0	5	0	2	0	0	**7**	0	**91**
6:45AM	2	21	19	0	**42**	0	8	25	0	0	0	**33**	0	0	0	2	0	0	**2**	0	2	0	4	0	3	**9**	0	**86**
Hourly Total	9	64	86	0	**159**	0	31	49	2	0	0	**82**	0	4	1	8	0	1	**14**	0	17	0	7	0	3	**27**	0	**282**
7:00AM	2	22	8	0	**32**	0	5	19	2	0	1	**27**	0	5	0	1	0	2	**8**	0	35	1	17	0	5	**58**	0	**125**
7:15AM	8	27	5	0	**40**	0	4	25	3	0	0	**32**	0	2	0	0	0	0	**2**	0	20	1	6	0	3	**30**	0	**104**
7:30AM	2	24	3	0	**29**	0	6	27	1	0	0	**34**	0	4	0	2	0	0	**6**	0	7	0	1	0	3	**11**	0	**80**
7:45AM	4	38	6	0	**48**	0	3	25	4	0	0	**32**	0	1	0	1	0	0	**2**	0	9	0	4	0	1	**14**	0	**96**
Hourly Total	16	111	22	0	**149**	0	18	96	10	0	1	**125**	0	12	0	4	0	2	**18**	0	71	2	28	0	12	**113**	0	**405**
8:00AM	2	28	4	0	**34**	0	3	18	0	0	0	**21**	0	8	0	0	0	2	**10**	0	7	0	7	0	1	**15**	0	**80**
8:15AM	3	45	2	0	**50**	0	4	30	2	0	1	**37**	0	4	0	1	0	0	**5**	0	11	0	7	0	0	**18**	0	**110**
8:30AM	3	61	4	0	**68**	0	3	31	4	0	0	**38**	0	4	0	1	0	0	**5**	0	11	0	0	0	1	**12**	0	**123**
8:45AM	7	61	6	1	**75**	0	4	28	1	0	0	**33**	0	2	0	5	0	2	**9**	0	8	0	5	0	2	**15**	0	**132**
Hourly Total	15	195	16	1	**227**	0	14	107	7	0	1	**129**	0	18	0	7	0	4	**29**	0	37	0	19	0	4	**60**	0	**445**
9:00AM	5	47	12	0	**64**	0	7	46	6	0	0	**59**	0	4	0	1	0	2	**7**	0	12	0	10	0	6	**28**	0	**158**
9:15AM	2	43	4	0	**49**	0	8	56	5	1	1	**71**	0	8	0	4	0	1	**13**	0	8	0	3	0	8	**19**	0	**152**
9:30AM	1	47	13	0	**61**	0	8	51	2	0	0	**61**	0	6	0	2	0	1	**9**	0	7	0	8	0	1	**16**	0	**147**
9:45AM	6	54	10	0	**70**	0	5	50	9	0	0	**64**	0	6	0	3	0	0	**9**	0	7	0	8	0	1	**16**	0	**159**
Hourly Total	14	191	39	0	**244**	0	28	203	22	1	1	**255**	0	24	0	10	0	4	**38**	0	34	0	29	0	16	**79**	0	**616**
10:00AM	7	73	4	0	**84**	0	3	61	2	0	0	**66**	0	6	0	6	0	1	**13**	0	11	0	2	0	1	**14**	0	**177**
10:15AM	2	67	11	0	**80**	0	7	53	6	0	0	**66**	0	6	0	3	0	2	**11**	0	7	0	1	0	1	**9**	0	**166**
10:30AM	2	81	9	0	**92**	0	4	65	10	0	0	**79**	0	5	0	2	0	0	**7**	0	14	0	6	0	4	**24**	0	**202**
10:45AM	6	78	19	0	**103**	0	5	71	4	0	0	**80**	0	6	0	0	0	1	**7**	0	12	0	6	0	2	**20**	0	**210**
Hourly Total	17	299	43	0	**359**	0	19	250	22	0	0	**291**	0	23	0	11	0	4	**38**	0	44	0	15	0	8	**67**	0	**755**
11:00AM	5	69	17	0	**91**	0	5	60	8	1	2	**76**	0	2	0	1	0	1	**4**	0	7	0	2	0	5	**14**	0	**185**
11:15AM	1	75	11	1	**88**	0	6	77	9	1	0	**93**	0	5	1	1	0	1	**8**	0	13	0	1	0	7	**21**	0	**210**
11:30AM	4	64	13	0	**81**	0	9	69	5	0	1	**84**	0	3	1	5	0	0	**9**	0	6	0	3	0	4	**13**	0	**187**
11:45AM	2	84	11	0	**97**	0	9	80	6	0	0	**95**	0	3	0	0	0	3	**6**	0	6	0	0	0	5	**11**	0	**209**
Hourly Total	12	292	52	1	**357**	0	29	286	28	2	3	**348**	0	13	2	7	0	5	**27**	0	32	0	6	0	21	**59**	0	**791**
12:00PM	2	62	7	0	**71**	0	4	78	6	0	2	**90**	0	3	1	1	0	2	**7**	0	25	1	13	0	7	**46**	0	**214**
12:15PM	7	78	10	0	**95**	0	13	59	3	0	0	**75**	0	5	0	3	0	0	**8**	0	6	0	4	0	7	**17**	0	**195**
12:30PM	4	66	9	0	**79**	0	11	75	5	0	0	**91**	0	3	0	2	0	2	**7**	0	6	0	1	0	1	**8**	0	**185**
12:45PM	3	68	10	0	**81**	0	8	83	9	0	0	**100**	0	4	0	2	0	3	**9**	0	7	0	3	0	7	**17**	0	**207**
Hourly Total	16	274	36	0	**326**	0	36	295	23	0	2	**356**	0	15	1	8	0	7	**31**	0	44	1	21	0	22	**88**	0	**801**
1:00PM	0	75	13	0	**88**	0	11	106	9	0	0	**126**	0	8	0	3	0	4	**15**	0	12	0	4	0	1	**17**	0	**246**
1:15PM	4	71	8	0	**83**	0	11	71	3	0	0	**85**	0	7	0	2	0	0	**9**	0	7	0	3	0	0	**10**	0	**187**
1:30PM	1	82	12	0	**95**	0	3	70	9	0	3	**85**	0	5	0	6	0	0	**11**	0	9	0	6	0	0	**15**	0	**206**

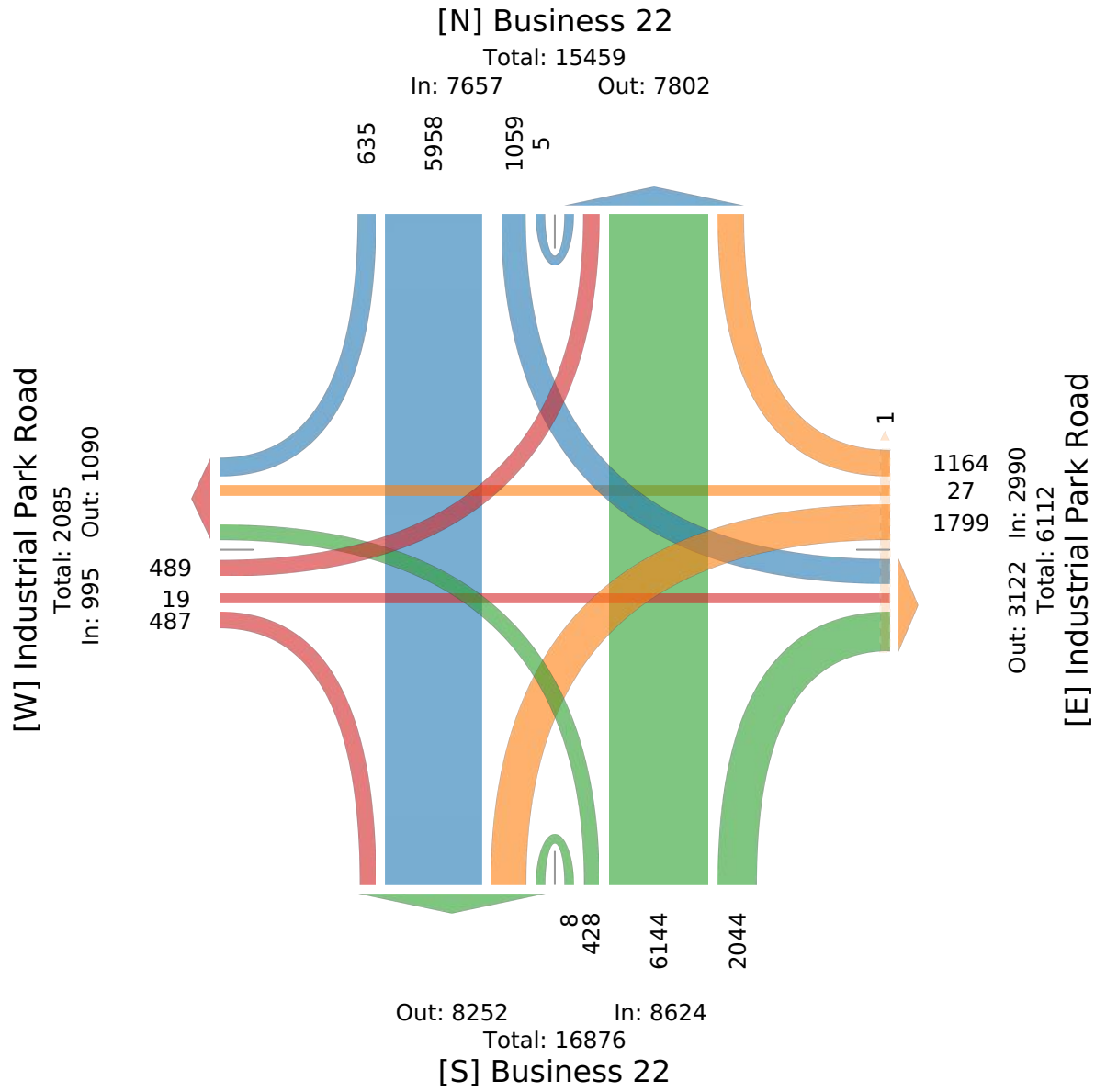
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
1:45PM	5	69	9	0	**83**	0	7	77	8	0	0	**92**	0	5	0	3	0	1	**9**	0	6	0	2	0	4	**12**	0	**196**
Hourly Total	10	297	42	0	**349**	0	32	324	29	0	3	**388**	0	25	0	14	0	5	**44**	0	34	0	15	0	5	**54**	0	**835**
2:00PM	3	55	8	0	**66**	0	3	55	8	0	0	**66**	0	5	0	1	0	1	**7**	0	8	1	2	0	3	**14**	0	**153**
2:15PM	7	73	8	0	**88**	0	8	65	4	0	0	**77**	0	4	0	6	0	2	**12**	0	5	1	3	0	8	**17**	0	**194**
2:30PM	5	50	9	0	**64**	0	5	55	6	0	2	**68**	0	7	2	2	0	0	**11**	0	9	0	2	0	3	**14**	0	**157**
2:45PM	5	62	13	0	**80**	0	8	64	3	0	0	**75**	0	1	0	4	0	0	**5**	0	7	0	3	0	1	**11**	0	**171**
Hourly Total	20	240	38	0	**298**	0	24	239	21	0	2	**286**	0	17	2	13	0	3	**35**	0	29	2	10	0	15	**56**	0	**675**
3:00PM	6	49	12	0	**67**	0	9	89	1	0	1	**100**	0	5	0	4	0	4	**13**	0	8	0	3	0	5	**16**	0	**196**
3:15PM	4	58	17	0	**79**	0	9	73	4	0	2	**88**	0	9	0	7	0	4	**20**	0	11	1	8	0	2	**22**	0	**209**
3:30PM	1	48	17	0	**66**	0	2	61	4	0	2	**69**	0	5	0	1	0	1	**7**	0	12	0	3	0	2	**17**	0	**159**
3:45PM	3	61	8	0	**72**	0	7	65	1	0	1	**74**	0	5	0	2	0	2	**9**	0	8	1	3	0	1	**13**	0	**168**
Hourly Total	14	216	54	0	**284**	0	27	288	10	0	6	**331**	0	24	0	14	0	11	**49**	0	39	2	17	0	10	**68**	0	**732**
4:00PM	4	47	15	0	**66**	0	2	52	6	0	1	**61**	0	4	0	2	0	2	**8**	0	11	0	5	0	4	**20**	0	**155**
4:15PM	6	55	13	0	**74**	0	3	58	5	0	0	**66**	0	4	0	8	0	0	**12**	0	9	0	4	0	3	**16**	0	**168**
4:30PM	4	66	10	1	**81**	0	5	53	5	0	4	**67**	0	10	0	4	0	2	**16**	0	11	0	4	0	4	**19**	0	**183**
4:45PM	5	64	11	0	**80**	0	9	55	10	0	2	**76**	0	3	0	7	0	1	**11**	0	8	0	1	0	0	**9**	0	**176**
Hourly Total	19	232	49	1	**301**	0	19	218	26	0	7	**270**	0	21	0	21	0	5	**47**	0	39	0	14	0	11	**64**	0	**682**
5:00PM	3	67	8	0	**78**	0	3	58	6	0	4	**71**	0	7	0	3	0	1	**11**	0	8	0	3	0	4	**15**	0	**175**
5:15PM	4	65	9	1	**79**	0	3	65	7	0	0	**75**	0	2	0	2	0	3	**7**	0	12	1	4	0	1	**18**	0	**179**
5:30PM	4	51	6	0	**61**	0	5	60	2	0	0	**67**	0	1	0	2	0	0	**3**	0	7	0	3	0	2	**12**	0	**143**
5:45PM	3	46	10	0	**59**	0	7	63	3	0	1	**74**	0	3	1	3	0	2	**9**	0	12	0	2	0	7	**21**	0	**163**
Hourly Total	14	229	33	1	**277**	0	18	246	18	0	5	**287**	0	13	1	10	0	6	**30**	0	39	1	12	0	14	**66**	0	**660**
6:00PM	3	50	18	0	**71**	0	8	56	6	0	1	**71**	0	3	0	2	0	2	**7**	0	5	1	5	0	4	**15**	0	**164**
6:15PM	2	52	16	0	**70**	0	6	52	3	0	3	**64**	0	3	0	1	0	0	**4**	0	12	1	2	0	4	**19**	0	**157**
6:30PM	3	54	29	1	**87**	0	9	45	1	0	0	**55**	0	3	1	2	0	2	**8**	0	10	0	3	0	4	**17**	0	**167**
6:45PM	3	45	17	0	**65**	0	9	41	4	0	1	**55**	0	2	0	2	0	0	**4**	0	6	0	3	0	3	**12**	0	**136**
Hourly Total	11	201	80	1	**293**	0	32	194	14	0	5	**245**	0	11	1	7	0	4	**23**	0	33	2	13	0	15	**63**	0	**624**
7:00PM	1	43	8	0	**52**	0	6	43	5	0	3	**57**	0	1	0	3	0	1	**5**	0	44	0	27	0	10	**81**	0	**195**
7:15PM	2	44	8	0	**54**	0	5	37	5	0	0	**47**	0	5	0	0	0	0	**5**	0	23	1	9	0	6	**39**	0	**145**
7:30PM	1	38	7	0	**46**	0	1	47	4	0	0	**52**	0	6	0	3	0	0	**9**	0	11	0	4	0	1	**16**	0	**123**
7:45PM	1	49	5	0	**55**	0	6	48	4	0	2	**60**	0	6	0	1	0	0	**7**	0	4	0	2	0	2	**8**	0	**130**
Hourly Total	5	174	28	0	**207**	0	18	175	18	0	5	**216**	0	18	0	7	0	1	**26**	0	82	1	42	0	19	**144**	0	**593**
Total	428	6144	2044	8	**8624**	0	1059	5958	554	5	81	**7657**	0	489	19	355	0	132	**995**	0	1799	27	677	0	487	**2990**	1	**20266**
% Approach	5.0%	71.2%	23.7%	0.1%	**-**	-	13.8%	77.8%	7.2%	0.1%	1.1%	**-**	-	49.1%	1.9%	35.7%	0%	13.3%	**-**	-	60.2%	0.9%	22.6%	0%	16.3%	**-**	-	**-**
% Total	2.1%	30.3%	10.1%	0%	**42.6%**	-	5.2%	29.4%	2.7%	0%	0.4%	**37.8%**	-	2.4%	0.1%	1.8%	0%	0.7%	**4.9%**	-	8.9%	0.1%	3.3%	0%	2.4%	**14.8%**	-	**-**
Lights and Motorcycles	413	6049	1746	8	**8216**	-	982	5874	540	5	79	**7480**	-	479	16	339	0	128	**962**	-	1502	24	614	0	461	**2601**	-	19259
% Lights and Motorcycles	96.5%	98.5%	85.4%	100%	**95.3%**	-	92.7%	98.6%	97.5%	100%	97.5%	**97.7%**	-	98.0%	84.2%	95.5%	0%	97.0%	**96.7%**	-	83.5%	88.9%	90.7%	0%	94.7%	**87.0%**	-	95.0%
Heavy	15	95	298	0	**408**	-	77	84	14	0	2	**177**	-	10	3	16	0	4	**33**	-	297	3	63	0	26	**389**	-	1007
% Heavy	3.5%	1.5%	14.6%	0%	**4.7%**	-	7.3%	1.4%	2.5%	0%	2.5%	**2.3%**	-	2.0%	15.8%	4.5%	0%	3.0%	**3.3%**	-	16.5%	11.1%	9.3%	0%	5.3%	**13.0%**	-	5.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

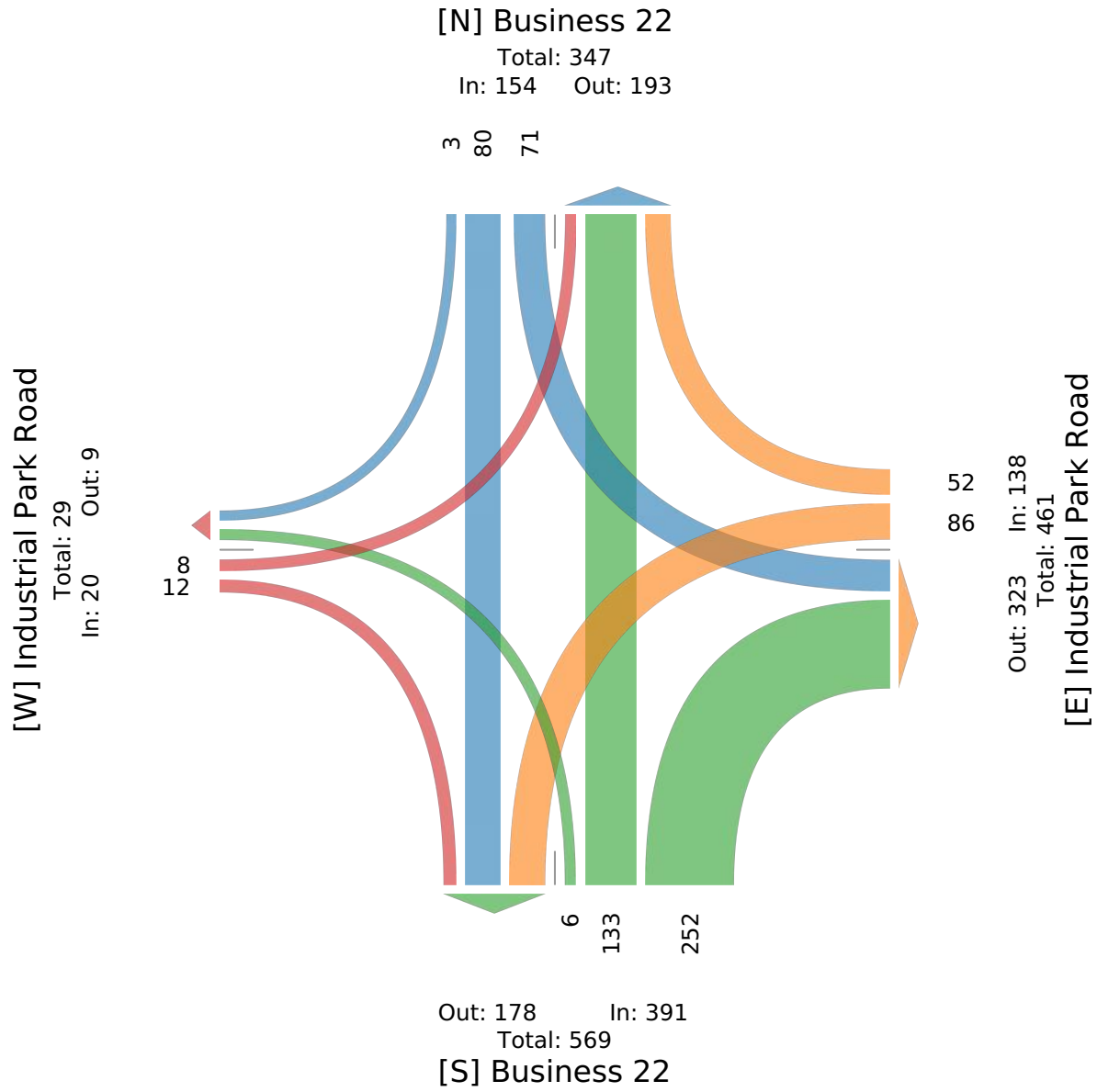
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-18 6:15AM	0	31	68	0	**99**	0	22	16	0	0	0	**38**	0	1	0	3	0	0	**4**	0	17	0	5	0	4	**26**	0	**167**
6:30AM	3	27	89	0	**119**	0	14	17	1	0	0	**32**	0	2	0	3	0	0	**5**	0	9	0	5	0	5	**19**	0	**175**
6:45AM	0	39	65	0	**104**	0	27	16	0	0	0	**43**	0	1	0	2	0	1	**4**	0	9	0	4	0	3	**16**	0	**167**
7:00AM	3	36	30	0	**69**	0	8	31	2	0	0	**41**	0	4	0	2	0	1	**7**	0	51	0	17	0	9	**77**	0	**194**
Total	6	133	252	0	**391**	0	71	80	3	0	0	**154**	0	8	0	10	0	2	**20**	0	86	0	31	0	21	**138**	0	**703**
% Approach	1.5%	34.0%	64.5%	0%	**-**	-	46.1%	51.9%	1.9%	0%	0%	**-**	-	40.0%	0%	50.0%	0%	10.0%	**-**	-	62.3%	0%	22.5%	0%	15.2%	**-**	-	-
% Total	0.9%	18.9%	35.8%	0%	**55.6%**	-	10.1%	11.4%	0.4%	0%	0%	**21.9%**	-	1.1%	0%	1.4%	0%	0.3%	**2.8%**	-	12.2%	0%	4.4%	0%	3.0%	**19.6%**	-	-
PHF	0.500	0.853	0.708	-	**0.821**	-	0.657	0.645	0.375	-	-	**0.895**	-	0.500	-	0.833	-	0.500	**0.714**	-	0.422	-	0.456	-	0.583	**0.448**	-	0.906
Lights and Motorcycles	6	131	234	0	**371**	-	68	78	2	0	0	**148**	-	8	0	9	0	2	**19**	-	80	0	29	0	19	**128**	-	666
% Lights and Motorcycles	100%	98.5%	92.9%	0%	**94.9%**	-	95.8%	97.5%	66.7%	0%	0%	**96.1%**	-	100%	0%	90.0%	0%	100%	**95.0%**	-	93.0%	0%	93.5%	0%	90.5%	**92.8%**	-	94.7%
Heavy	0	2	18	0	**20**	-	3	2	1	0	0	**6**	-	0	0	1	0	0	**1**	-	6	0	2	0	2	**10**	-	37
% Heavy	0%	1.5%	7.1%	0%	**5.1%**	-	4.2%	2.5%	33.3%	0%	0%	**3.9%**	-	0%	0%	10.0%	0%	0%	**5.0%**	-	7.0%	0%	6.5%	0%	9.5%	**7.2%**	-	5.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:45AM - 12:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

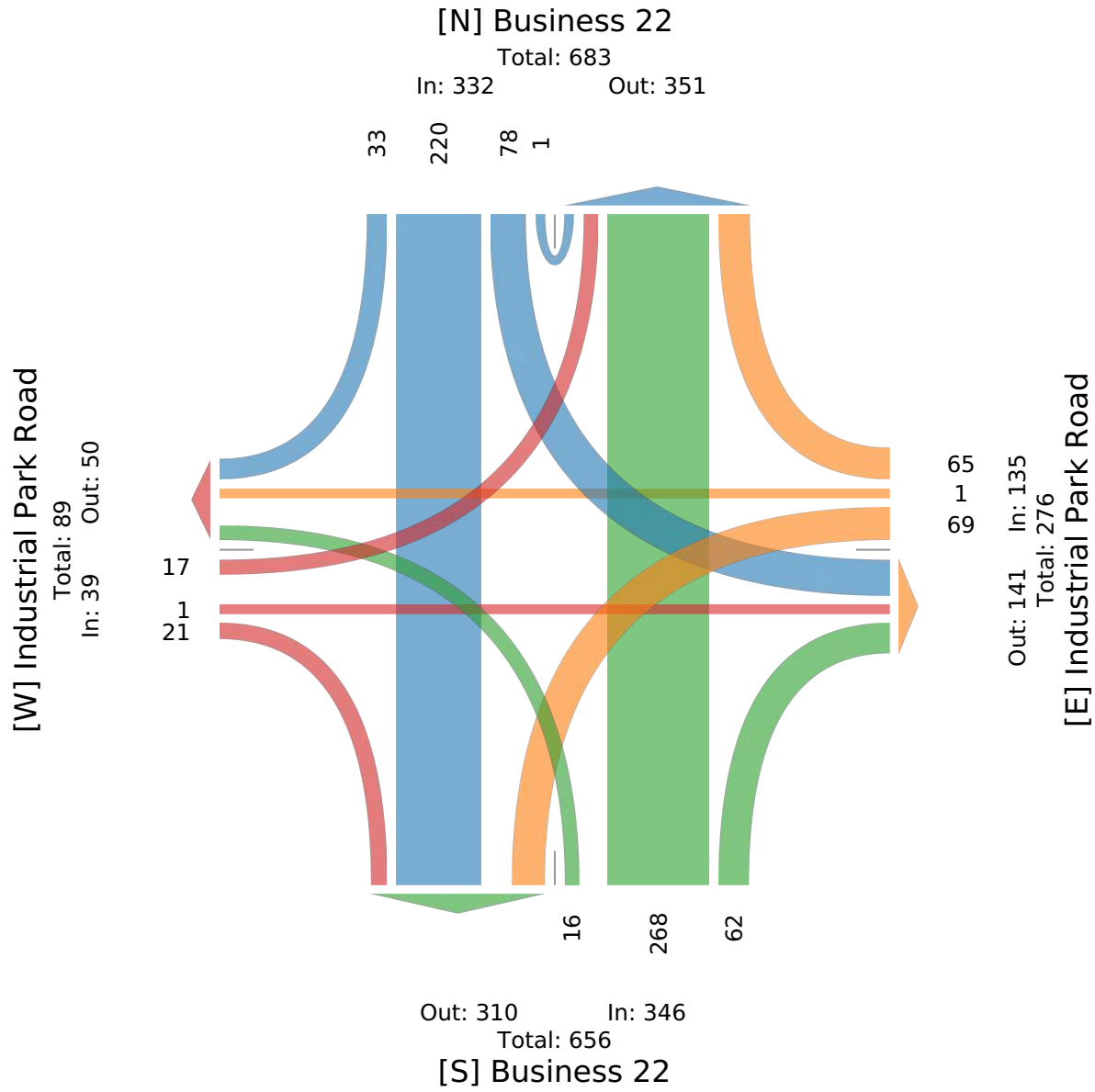
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-18 11:45AM	3	65	19	0	**87**	0	14	45	6	0	0	**65**	0	3	0	3	0	4	**10**	0	13	0	5	0	2	**20**	0	**182**
12:00PM	1	67	14	0	**82**	0	26	52	10	0	2	**90**	0	9	1	3	0	1	**14**	0	28	1	19	0	18	**66**	0	**252**
12:15PM	4	66	8	0	**78**	0	22	58	8	0	1	**89**	0	4	0	4	0	2	**10**	0	18	0	2	0	7	**27**	0	**204**
12:30PM	8	70	21	0	**99**	0	16	65	4	1	2	**88**	0	1	0	3	0	1	**5**	0	10	0	5	0	7	**22**	0	**214**
Total	16	268	62	0	**346**	0	78	220	28	1	5	**332**	0	17	1	13	0	8	**39**	0	69	1	31	0	34	**135**	0	**852**
% Approach	4.6%	77.5%	17.9%	0%	**-**	-	23.5%	66.3%	8.4%	0.3%	1.5%	**-**	-	43.6%	2.6%	33.3%	0%	20.5%	**-**	-	51.1%	0.7%	23.0%	0%	25.2%	**-**	-	-
% Total	1.9%	31.5%	7.3%	0%	**40.6%**	-	9.2%	25.8%	3.3%	0.1%	0.6%	**39.0%**	-	2.0%	0.1%	1.5%	0%	0.9%	**4.6%**	-	8.1%	0.1%	3.6%	0%	4.0%	**15.8%**	-	-
PHF	0.500	0.957	0.738	-	**0.874**	-	0.750	0.846	0.700	0.250	0.625	**0.922**	-	0.472	0.250	0.813	-	0.500	**0.696**	-	0.616	0.250	0.408	-	0.472	**0.511**	-	0.845
Lights and Motorcycles	16	261	45	0	**322**	-	69	214	26	1	4	**314**	-	17	1	12	0	6	**36**	-	46	1	23	0	31	**101**	-	773
% Lights and Motorcycles	100%	97.4%	72.6%	0%	**93.1%**	-	88.5%	97.3%	92.9%	100%	80.0%	**94.6%**	-	100%	100%	92.3%	0%	75.0%	**92.3%**	-	66.7%	100%	74.2%	0%	91.2%	**74.8%**	-	90.7%
Heavy	0	7	17	0	**24**	-	9	6	2	0	1	**18**	-	0	0	1	0	2	**3**	-	23	0	8	0	3	**34**	-	79
% Heavy	0%	2.6%	27.4%	0%	**6.9%**	-	11.5%	2.7%	7.1%	0%	20.0%	**5.4%**	-	0%	0%	7.7%	0%	25.0%	**7.7%**	-	33.3%	0%	25.8%	0%	8.8%	**25.2%**	-	9.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:45AM - 12:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
PM Peak (Jun 18 2026 2:15PM - 3:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

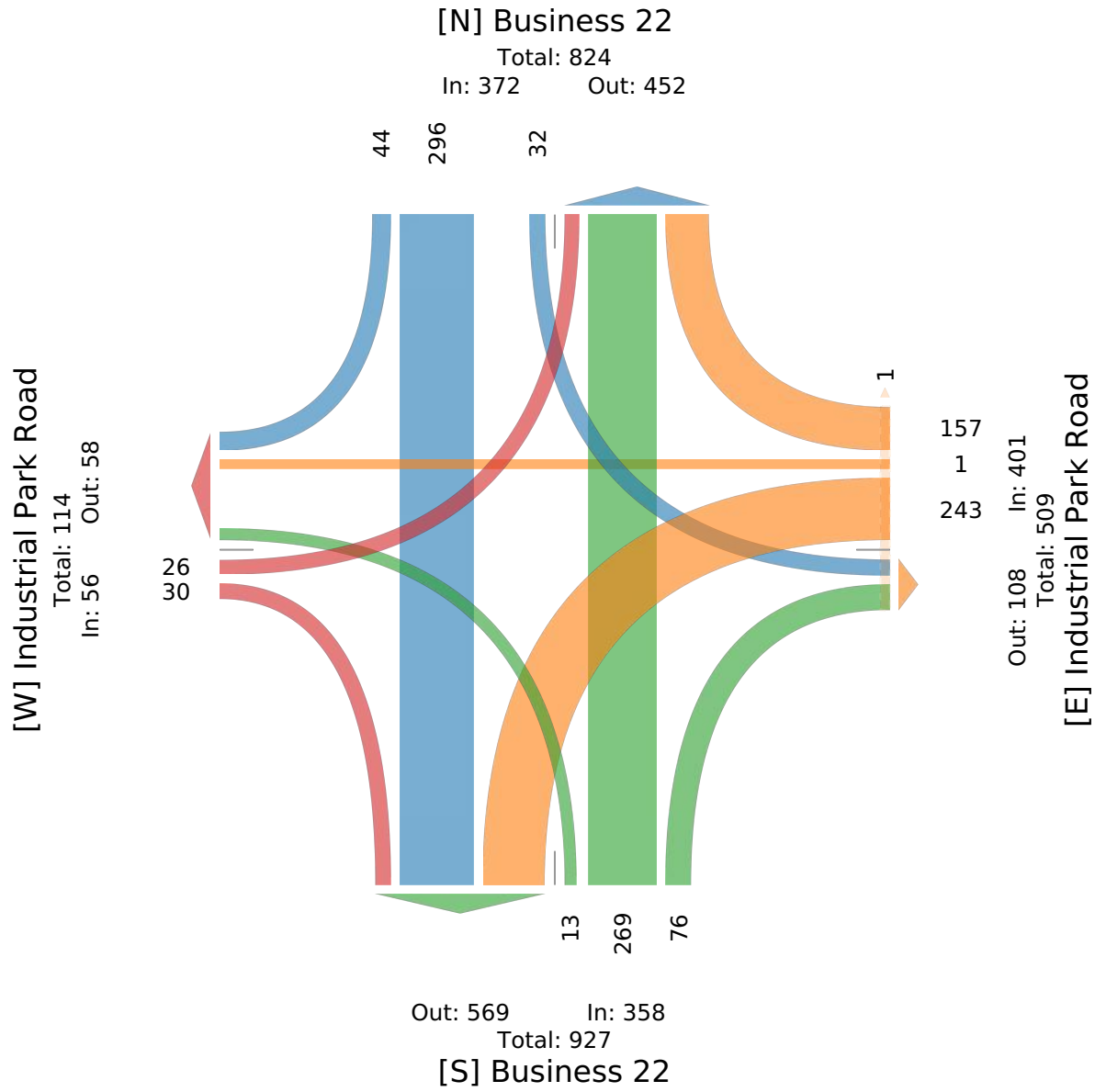
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-18 2:15PM	0	74	20	0	**94**	0	14	82	7	0	0	**103**	0	4	0	2	0	1	**7**	0	18	0	7	0	9	**34**	0	**238**
2:30PM	1	65	18	0	**84**	0	12	69	5	0	1	**87**	0	14	0	11	0	3	**28**	0	121	1	66	0	31	**219**	0	**418**
2:45PM	1	66	16	0	**83**	0	4	83	16	0	4	**107**	0	4	0	7	0	0	**11**	0	43	0	13	0	13	**69**	0	**270**
3:00PM	11	64	22	0	**97**	0	2	62	11	0	0	**75**	0	4	0	6	0	0	**10**	0	61	0	10	0	8	**79**	1	**261**
Total	13	269	76	0	**358**	0	32	296	39	0	5	**372**	0	26	0	26	0	4	**56**	0	243	1	96	0	61	**401**	1	**1187**
% Approach	3.6%	75.1%	21.2%	0%	**-**	-	8.6%	79.6%	10.5%	0%	1.3%	**-**	-	46.4%	0%	46.4%	0%	7.1%	**-**	-	60.6%	0.2%	23.9%	0%	15.2%	**-**	-	-
% Total	1.1%	22.7%	6.4%	0%	**30.2%**	-	2.7%	24.9%	3.3%	0%	0.4%	**31.3%**	-	2.2%	0%	2.2%	0%	0.3%	**4.7%**	-	20.5%	0.1%	8.1%	0%	5.1%	**33.8%**	-	-
PHF	0.295	0.909	0.864	-	**0.923**	-	0.571	0.892	0.609	-	0.313	**0.869**	-	0.464	-	0.591	-	0.333	**0.500**	-	0.502	0.250	0.364	-	0.492	**0.458**	-	0.710
Lights and Motorcycles	13	264	63	0	**340**	-	30	293	39	0	5	**367**	-	26	0	26	0	4	**56**	-	223	1	94	0	60	**378**	-	1141
% Lights and Motorcycles	100%	98.1%	82.9%	0%	**95.0%**	-	93.8%	99.0%	100%	0%	100%	**98.7%**	-	100%	0%	100%	0%	100%	**100%**	-	91.8%	100%	97.9%	0%	98.4%	**94.3%**	-	96.1%
Heavy	0	5	13	0	**18**	-	2	3	0	0	0	**5**	-	0	0	0	0	0	**0**	-	20	0	2	0	1	**23**	-	46
% Heavy	0%	1.9%	17.1%	0%	**5.0%**	-	6.3%	1.0%	0%	0%	0%	**1.3%**	-	0%	0%	0%	0%	0%	**0%**	-	8.2%	0%	2.1%	0%	1.6%	**5.7%**	-	3.9%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Thu Jun 18, 2026
PM Peak (Jun 18 2026 2:15PM - 3:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

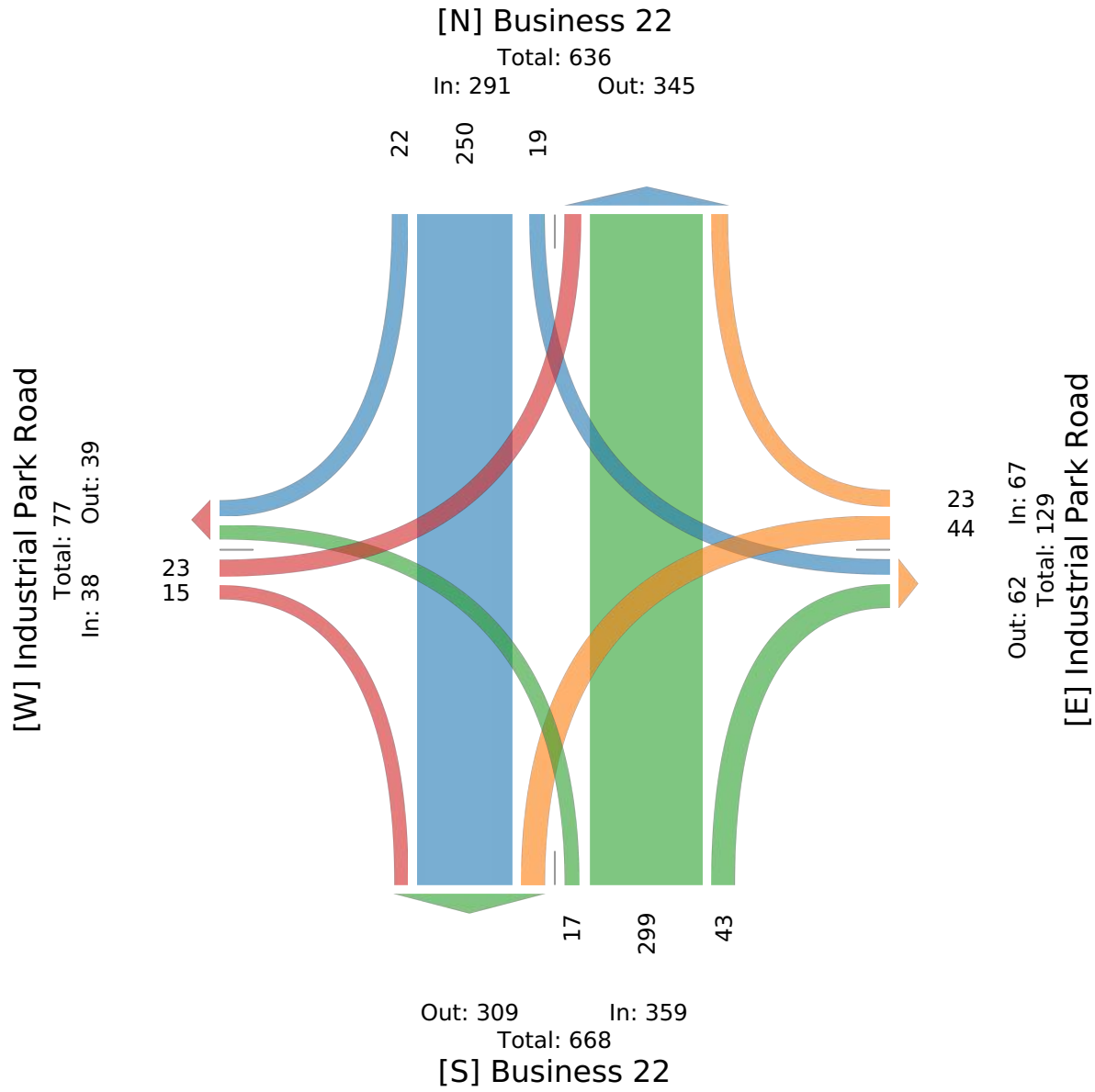
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-20 10:00AM	7	73	4	0	**84**	0	3	61	2	0	0	**66**	0	6	0	6	0	1	**13**	0	11	0	2	0	1	**14**	0	**177**
10:15AM	2	67	11	0	**80**	0	7	53	6	0	0	**66**	0	6	0	3	0	2	**11**	0	7	0	1	0	1	**9**	0	**166**
10:30AM	2	81	9	0	**92**	0	4	65	10	0	0	**79**	0	5	0	2	0	0	**7**	0	14	0	6	0	4	**24**	0	**202**
10:45AM	6	78	19	0	**103**	0	5	71	4	0	0	**80**	0	6	0	0	0	1	**7**	0	12	0	6	0	2	**20**	0	**210**
Total	17	299	43	0	**359**	0	19	250	22	0	0	**291**	0	23	0	11	0	4	**38**	0	44	0	15	0	8	**67**	0	**755**
% Approach	4.7%	83.3%	12.0%	0%	**-**	-	6.5%	85.9%	7.6%	0%	0%	**-**	-	60.5%	0%	28.9%	0%	10.5%	**-**	-	65.7%	0%	22.4%	0%	11.9%	**-**	-	-
% Total	2.3%	39.6%	5.7%	0%	**47.5%**	-	2.5%	33.1%	2.9%	0%	0%	**38.5%**	-	3.0%	0%	1.5%	0%	0.5%	**5.0%**	-	5.8%	0%	2.0%	0%	1.1%	**8.9%**	-	-
PHF	0.607	0.923	0.566	-	**0.871**	-	0.679	0.880	0.550	-	-	**0.909**	-	0.958	-	0.458	-	0.500	**0.731**	-	0.786	-	0.625	-	0.500	**0.698**	-	0.899
Lights and Motorcycles	17	296	43	0	**356**	-	18	250	21	0	0	**289**	-	23	0	11	0	4	**38**	-	37	0	12	0	8	**57**	-	740
% Lights and Motorcycles	100%	99.0%	100%	0%	**99.2%**	-	94.7%	100%	95.5%	0%	0%	**99.3%**	-	100%	0%	100%	0%	100%	**100%**	-	84.1%	0%	80.0%	0%	100%	**85.1%**	-	98.0%
Heavy	0	3	0	0	**3**	-	1	0	1	0	0	**2**	-	0	0	0	0	0	**0**	-	7	0	3	0	0	**10**	-	15
% Heavy	0%	1.0%	0%	0%	**0.8%**	-	5.3%	0%	4.5%	0%	0%	**0.7%**	-	0%	0%	0%	0%	0%	**0%**	-	15.9%	0%	20.0%	0%	0%	**14.9%**	-	2.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 12:45PM - 1:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

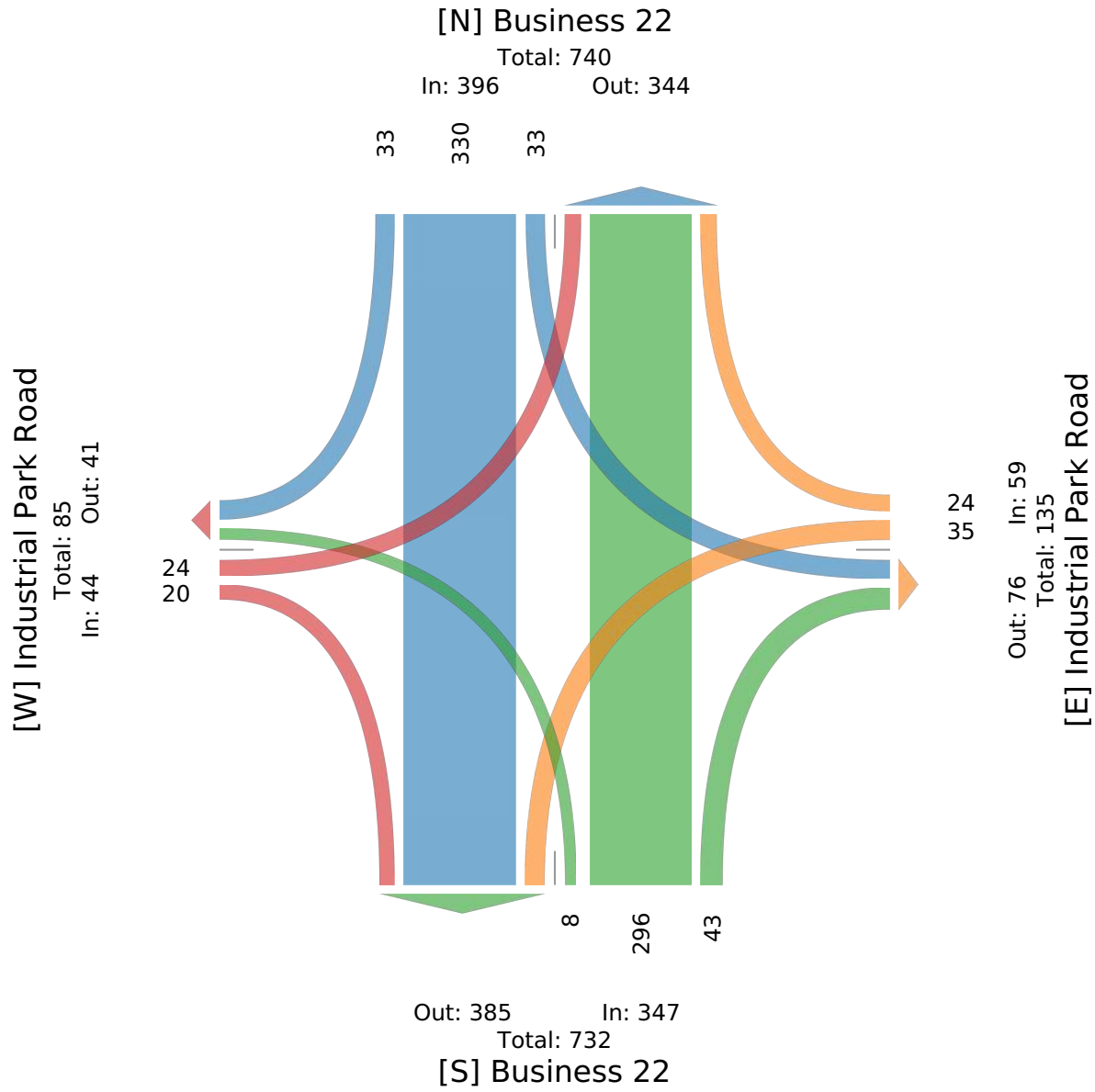
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-20 12:45PM	3	68	10	0	**81**	0	8	83	9	0	0	**100**	0	4	0	2	0	3	**9**	0	7	0	3	0	7	**17**	0	**207**
1:00PM	0	75	13	0	**88**	0	11	106	9	0	0	**126**	0	8	0	3	0	4	**15**	0	12	0	4	0	1	**17**	0	**246**
1:15PM	4	71	8	0	**83**	0	11	71	3	0	0	**85**	0	7	0	2	0	0	**9**	0	7	0	3	0	0	**10**	0	**187**
1:30PM	1	82	12	0	**95**	0	3	70	9	0	3	**85**	0	5	0	6	0	0	**11**	0	9	0	6	0	0	**15**	0	**206**
Total	8	296	43	0	**347**	0	33	330	30	0	3	**396**	0	24	0	13	0	7	**44**	0	35	0	16	0	8	**59**	0	**846**
% Approach	2.3%	85.3%	12.4%	0%	**-**	-	8.3%	83.3%	7.6%	0%	0.8%	**-**	-	54.5%	0%	29.5%	0%	15.9%	**-**	-	59.3%	0%	27.1%	0%	13.6%	**-**	-	-
% Total	0.9%	35.0%	5.1%	0%	**41.0%**	-	3.9%	39.0%	3.5%	0%	0.4%	**46.8%**	-	2.8%	0%	1.5%	0%	0.8%	**5.2%**	-	4.1%	0%	1.9%	0%	0.9%	**7.0%**	-	-
PHF	0.500	0.902	0.827	-	**0.913**	-	0.750	0.778	0.833	-	0.250	**0.786**	-	0.750	-	0.542	-	0.438	**0.733**	-	0.729	-	0.667	-	0.286	**0.868**	-	0.860
Lights and Motorcycles	7	291	38	0	**336**	-	32	329	30	0	3	**394**	-	23	0	13	0	7	**43**	-	29	0	14	0	8	**51**	-	824
% Lights and Motorcycles	87.5%	98.3%	88.4%	0%	**96.8%**	-	97.0%	99.7%	100%	0%	100%	**99.5%**	-	95.8%	0%	100%	0%	100%	**97.7%**	-	82.9%	0%	87.5%	0%	100%	**86.4%**	-	97.4%
Heavy	1	5	5	0	**11**	-	1	1	0	0	0	**2**	-	1	0	0	0	0	**1**	-	6	0	2	0	0	**8**	-	22
% Heavy	12.5%	1.7%	11.6%	0%	**3.2%**	-	3.0%	0.3%	0%	0%	0%	**0.5%**	-	4.2%	0%	0%	0%	0%	**2.3%**	-	17.1%	0%	12.5%	0%	0%	**13.6%**	-	2.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 12:45PM - 1:45 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



2. Business 22 & Industrial Park Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

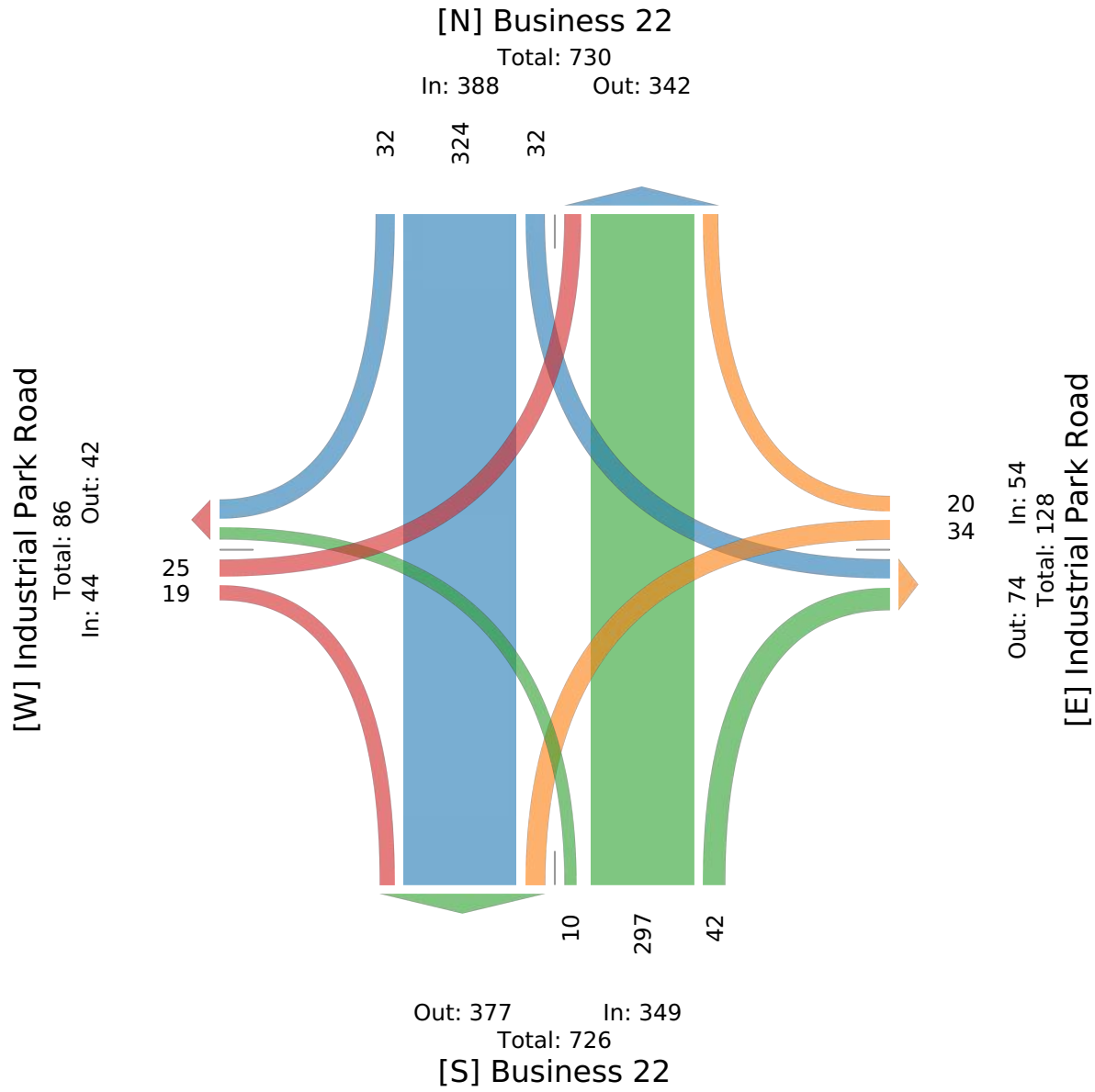
Leg	Business 22						Business 22							Industrial Park Road							Industrial Park Road							
Direction	Northbound						Southbound							Eastbound							Westbound							
Time	L	T	R	U	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	L	T	R	U	RR	**App**	Ped*	**Int**
2026-06-20 1:00PM	0	75	13	0	**88**	0	11	106	9	0	0	**126**	0	8	0	3	0	4	**15**	0	12	0	4	0	1	**17**	0	**246**
1:15PM	4	71	8	0	**83**	0	11	71	3	0	0	**85**	0	7	0	2	0	0	**9**	0	7	0	3	0	0	**10**	0	**187**
1:30PM	1	82	12	0	**95**	0	3	70	9	0	3	**85**	0	5	0	6	0	0	**11**	0	9	0	6	0	0	**15**	0	**206**
1:45PM	5	69	9	0	**83**	0	7	77	8	0	0	**92**	0	5	0	3	0	1	**9**	0	6	0	2	0	4	**12**	0	**196**
Total	10	297	42	0	**349**	0	32	324	29	0	3	**388**	0	25	0	14	0	5	**44**	0	34	0	15	0	5	**54**	0	**835**
% Approach	2.9%	85.1%	12.0%	0%	**-**	-	8.2%	83.5%	7.5%	0%	0.8%	**-**	-	56.8%	0%	31.8%	0%	11.4%	**-**	-	63.0%	0%	27.8%	0%	9.3%	**-**	-	-
% Total	1.2%	35.6%	5.0%	0%	**41.8%**	-	3.8%	38.8%	3.5%	0%	0.4%	**46.5%**	-	3.0%	0%	1.7%	0%	0.6%	**5.3%**	-	4.1%	0%	1.8%	0%	0.6%	**6.5%**	-	-
PHF	0.500	0.905	0.808	-	**0.918**	-	0.727	0.764	0.806	-	0.250	**0.770**	-	0.781	-	0.583	-	0.313	**0.733**	-	0.708	-	0.625	-	0.313	**0.794**	-	0.849
Lights and Motorcycles	10	294	35	0	**339**	-	29	323	28	0	3	**383**	-	24	0	13	0	5	**42**	-	28	0	13	0	4	**45**	-	809
% Lights and Motorcycles	100%	99.0%	83.3%	0%	**97.1%**	-	90.6%	99.7%	96.6%	0%	100%	**98.7%**	-	96.0%	0%	92.9%	0%	100%	**95.5%**	-	82.4%	0%	86.7%	0%	80.0%	**83.3%**	-	96.9%
Heavy	0	3	7	0	**10**	-	3	1	1	0	0	**5**	-	1	0	1	0	0	**2**	-	6	0	2	0	1	**9**	-	26
% Heavy	0%	1.0%	16.7%	0%	**2.9%**	-	9.4%	0.3%	3.4%	0%	0%	**1.3%**	-	4.0%	0%	7.1%	0%	0%	**4.5%**	-	17.6%	0%	13.3%	0%	20.0%	**16.7%**	-	3.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

2. Business 22 & Industrial Park Road - TMC

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 1PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414017, Location: 40.578201, -77.621443, Site Code: 2

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

Turning Movement Data

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							Int. Total
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
4:00 AM	0	0	0	1	0	0	1	0	2	0	0	0	0	2	0	0	3	5	0	8	0	7	3	0	0	0	10	21
4:15 AM	0	0	0	1	0	0	1	0	0	0	2	0	0	2	0	0	5	18	0	23	0	13	1	0	0	0	14	40
4:30 AM	0	0	0	1	0	0	1	0	6	0	3	1	0	10	0	1	4	10	0	15	0	7	4	0	0	0	11	37
4:45 AM	0	1	0	0	0	0	1	0	10	0	4	1	0	15	0	1	10	18	0	29	0	4	2	0	0	0	6	51
Hourly Total	0	1	0	3	0	0	4	0	18	0	9	2	0	29	0	2	22	51	0	75	0	31	10	0	0	0	41	149
5:00 AM	0	1	1	7	0	0	9	0	1	0	1	0	0	2	0	1	3	10	0	14	0	13	6	1	0	0	20	45
5:15 AM	0	2	1	1	0	0	4	0	9	1	1	0	0	11	0	3	12	31	0	46	0	19	7	1	1	0	28	89
5:30 AM	0	5	1	7	2	0	15	0	6	0	0	0	0	6	0	2	14	51	0	67	0	39	4	1	0	0	44	132
5:45 AM	0	0	0	4	0	0	4	0	13	0	3	4	0	20	0	4	10	60	0	74	0	37	11	1	0	0	49	147
Hourly Total	0	8	3	19	2	0	32	0	29	1	5	4	0	39	0	10	39	152	0	201	0	108	28	4	1	0	141	413
6:00 AM	0	2	1	2	1	0	6	0	11	0	3	2	0	16	0	3	21	51	0	75	0	23	13	1	0	0	37	134
6:15 AM	0	1	0	3	0	0	4	0	17	0	5	4	0	26	0	0	31	68	0	99	0	22	16	0	0	0	38	167
6:30 AM	0	2	0	3	0	0	5	0	9	0	5	5	0	19	0	3	27	89	0	119	0	14	17	1	0	0	32	175
6:45 AM	0	1	0	2	1	0	4	0	9	0	4	3	0	16	0	0	39	65	0	104	0	27	16	0	0	0	43	167
Hourly Total	0	6	1	10	2	0	19	0	46	0	17	14	0	77	0	6	118	273	0	397	0	86	62	2	0	0	150	643
7:00 AM	0	4	0	2	1	0	7	0	51	0	17	9	0	77	0	3	36	30	0	69	0	8	31	2	0	0	41	194
7:15 AM	0	5	0	5	4	0	14	0	22	0	3	8	0	33	0	4	27	32	0	63	0	6	29	2	1	0	38	148
7:30 AM	0	5	0	6	1	0	12	0	26	2	8	5	0	41	0	3	50	22	0	75	0	9	31	2	1	0	43	171
7:45 AM	0	5	0	4	0	0	9	0	20	0	2	5	0	27	0	3	48	29	0	80	0	14	28	2	0	0	44	160
Hourly Total	0	19	0	17	6	0	42	0	119	2	30	27	0	178	0	13	161	113	0	287	0	37	119	8	2	0	166	673
8:00 AM	0	6	0	4	1	0	11	0	22	2	6	4	0	34	0	3	40	26	0	69	0	6	32	2	0	0	40	154
8:15 AM	0	5	0	4	2	0	11	0	13	0	2	3	0	18	0	4	44	15	0	63	0	7	30	1	1	0	39	131
8:30 AM	0	4	0	6	0	0	10	0	12	0	5	3	0	20	0	4	49	11	0	64	0	5	35	5	0	0	45	139
8:45 AM	0	4	0	4	4	0	12	0	15	0	5	6	0	26	1	5	51	16	0	73	0	6	39	7	0	0	52	163
Hourly Total	0	19	0	18	7	0	44	0	62	2	18	16	0	98	1	16	184	68	0	269	0	24	136	15	1	0	176	587
9:00 AM	0	5	0	3	0	0	8	0	10	0	5	1	0	16	0	1	52	13	0	66	0	4	39	5	2	0	50	140
9:15 AM	0	0	0	4	0	0	4	0	12	0	7	4	0	23	0	7	56	15	0	78	0	4	37	7	1	0	49	154
9:30 AM	0	1	0	3	0	0	4	0	15	0	3	1	0	19	0	10	51	17	0	78	0	4	38	2	2	0	46	147
9:45 AM	0	3	0	4	0	0	7	0	13	0	2	1	0	16	0	1	54	14	0	69	0	15	39	5	0	0	59	151
Hourly Total	0	9	0	14	0	0	23	0	50	0	17	7	0	74	0	19	213	59	0	291	0	27	153	19	5	0	204	592
10:00 AM	0	3	0	2	2	0	7	0	9	0	1	3	0	13	0	4	56	19	0	79	0	2	42	2	2	0	48	147
10:15 AM	0	1	0	1	0	0	2	0	17	0	2	2	0	21	0	6	57	19	0	82	0	6	44	6	0	0	56	161
10:30 AM	0	3	0	3	3	0	9	0	13	1	5	6	0	25	0	4	50	10	0	64	0	7	53	5	1	0	66	164
10:45 AM	0	3	0	3	0	0	6	0	17	1	6	5	0	29	0	3	67	14	0	84	0	3	42	4	1	0	50	169
Hourly Total	0	10	0	9	5	0	24	0	56	2	14	16	0	88	0	17	230	62	0	309	0	18	181	17	4	0	220	641

11:00 AM	0	6	0	0	1	0	7	0	15	0	8	2	0	25	0	1	56	19	0	76	0	5	60	5	0	0	70	178
11:15 AM	0	7	0	3	0	0	10	0	14	0	3	8	0	25	0	2	46	5	0	53	0	13	55	4	0	0	72	160
11:30 AM	0	2	1	2	0	0	5	0	13	1	15	3	0	32	0	1	60	13	0	74	0	16	65	12	0	0	93	204
11:45 AM	0	3	0	3	4	0	10	0	13	0	5	2	0	20	0	3	65	19	0	87	0	14	45	6	0	0	65	182
Hourly Total	0	18	1	8	5	0	32	0	55	1	31	15	0	102	0	7	227	56	0	290	0	48	225	27	0	0	300	724
12:00 PM	0	9	1	3	1	0	14	0	28	1	19	18	0	66	0	1	67	14	0	82	0	26	52	10	2	0	90	252
12:15 PM	0	4	0	4	2	0	10	0	18	0	2	7	0	27	0	4	66	8	0	78	0	22	58	8	1	0	89	204
12:30 PM	0	1	0	3	1	0	5	0	10	0	5	7	0	22	0	8	70	21	0	99	1	16	65	4	2	0	88	214
12:45 PM	0	8	0	4	1	0	13	0	6	0	3	3	0	12	0	2	52	17	0	71	0	10	64	8	3	0	85	181
Hourly Total	0	22	1	14	5	0	42	0	62	1	29	35	0	127	0	15	255	60	0	330	1	74	239	30	8	0	352	851
1:00 PM	0	4	0	5	0	0	9	0	7	1	7	5	0	20	0	3	43	12	0	58	0	7	73	6	0	0	86	173
1:15 PM	0	6	0	2	4	0	12	0	15	0	5	3	0	23	0	4	56	21	0	81	0	9	58	2	0	0	69	185
1:30 PM	0	4	0	0	1	0	5	0	11	0	4	4	0	19	0	6	63	22	0	91	1	7	61	2	2	0	73	188
1:45 PM	0	4	0	5	3	0	12	0	23	0	10	3	0	36	0	3	65	23	0	91	0	8	50	0	0	0	58	197
Hourly Total	0	18	0	12	8	0	38	0	56	1	26	15	0	98	0	16	227	78	0	321	1	31	242	10	2	0	286	743
2:00 PM	0	5	0	6	3	0	14	0	16	0	5	10	0	31	0	5	65	13	0	83	0	14	61	2	0	0	77	205
2:15 PM	0	4	0	2	1	0	7	0	18	0	7	9	0	34	0	0	74	20	0	94	0	14	82	7	0	0	103	238
2:30 PM	0	14	0	11	3	0	28	0	121	1	66	31	0	219	0	1	65	18	0	84	0	12	69	5	1	0	87	418
2:45 PM	0	4	0	7	0	0	11	0	43	0	13	13	0	69	0	1	66	16	0	83	0	4	83	16	4	0	107	270
Hourly Total	0	27	0	26	7	0	60	0	198	1	91	63	0	353	0	7	270	67	0	344	0	44	295	30	5	0	374	1131
3:00 PM	0	4	0	6	0	0	10	0	61	0	10	8	1	79	0	11	64	22	0	97	0	2	62	11	0	0	75	261
3:15 PM	0	3	1	4	0	0	8	0	30	0	8	7	0	45	0	6	50	13	0	69	0	4	94	6	0	0	104	226
3:30 PM	0	7	1	5	0	0	13	0	40	1	9	3	0	53	0	10	53	14	0	77	0	7	72	9	1	0	89	232
3:45 PM	0	8	0	4	1	0	13	0	27	0	5	1	0	33	0	7	64	16	0	87	0	7	79	13	1	0	100	233
Hourly Total	0	22	2	19	1	0	44	0	158	1	32	19	1	210	0	34	231	65	0	330	0	20	307	39	2	0	368	952
4:00 PM	0	3	0	0	2	0	5	0	34	0	14	11	0	59	0	8	77	15	0	100	0	5	75	11	0	0	91	255
4:15 PM	0	7	0	4	1	0	12	0	28	0	2	4	0	34	0	3	64	22	0	89	0	8	72	8	2	0	90	225
4:30 PM	0	6	1	6	0	0	13	0	32	0	11	6	0	49	0	4	62	11	0	77	0	8	73	6	0	0	87	226
4:45 PM	0	5	0	1	0	0	6	0	18	0	2	1	0	21	0	8	75	24	0	107	0	6	67	12	1	0	86	220
Hourly Total	0	21	1	11	3	0	36	0	112	0	29	22	0	163	0	23	278	72	0	373	0	27	287	37	3	0	354	926
5:00 PM	0	3	0	5	0	0	8	0	16	0	4	4	0	24	0	12	72	16	0	100	0	7	78	8	2	0	95	227
5:15 PM	0	4	1	4	3	0	12	0	16	0	3	5	0	24	0	6	69	22	0	97	0	13	82	13	0	0	108	241
5:30 PM	0	7	0	2	3	0	12	0	19	2	5	5	0	31	0	7	70	11	0	88	0	8	68	7	0	0	83	214
5:45 PM	0	4	0	4	3	0	11	0	17	0	8	3	0	28	0	2	67	14	0	83	0	9	62	3	1	0	75	197
Hourly Total	0	18	1	15	9	0	43	0	68	2	20	17	0	107	0	27	278	63	0	368	0	37	290	31	3	0	361	879
6:00 PM	0	4	0	4	0	0	8	0	13	0	0	4	0	17	0	5	51	28	0	84	0	7	59	6	1	0	73	182
6:15 PM	0	3	0	3	6	0	12	0	2	1	7	3	0	13	1	2	59	32	0	94	0	10	42	5	0	0	57	176
6:30 PM	0	8	0	1	1	0	10	0	7	0	2	0	0	9	0	2	53	33	0	88	0	14	54	4	0	0	72	179
6:45 PM	0	3	1	1	0	0	5	0	4	1	6	8	0	19	0	2	36	25	0	63	0	7	46	3	0	0	56	143
Hourly Total	0	18	1	9	7	0	35	0	26	2	15	15	0	58	1	11	199	118	0	329	0	38	201	18	1	0	258	680
7:00 PM	0	4	0	4	2	0	10	0	46	0	25	13	0	84	0	1	54	7	0	62	0	6	51	5	2	0	64	220
7:15 PM	0	2	0	1	1	0	4	0	28	0	7	7	0	42	0	4	41	9	0	54	0	13	44	2	0	0	59	159
7:30 PM	0	4	0	1	0	0	5	0	13	0	6	1	0	20	1	4	29	9	0	43	0	4	55	5	0	0	64	132
7:45 PM	0	3	0	0	0	0	3	0	4	0	0	0	0	4	0	1	38	6	0	45	0	3	50	5	1	0	59	111
Hourly Total	0	13	0	6	3	0	22	0	91	0	38	21	0	150	1	10	162	31	0	204	0	26	200	17	3	0	246	622
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	0	0	0	0	0	0	0	0	1	0	3	0	0	4	0	0	2	0	0	2	0	3	0	0	0	0	3	9
4:15 AM	0	0	0	0	0	0	0	0	1	0	1	0	0	2	0	0	1	2	0	3	0	3	3	0	0	0	6	11
4:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	5	5	0	10	0	11	0	0	0	0	11	22
4:45 AM	0	1	0	2	0	0	3	0	1	0	2	0	0	3	0	0	2	14	0	16	0	10	1	0	0	0	11	33
Hourly Total	0	1	0	2	0	0	3	0	4	0	6	0	0	10	0	0	10	21	0	31	0	27	4	0	0	0	31	75
5:00 AM	0	0	0	1	0	0	1	0	7	0	2	3	0	12	0	0	1	5	0	6	0	2	3	0	0	0	5	24

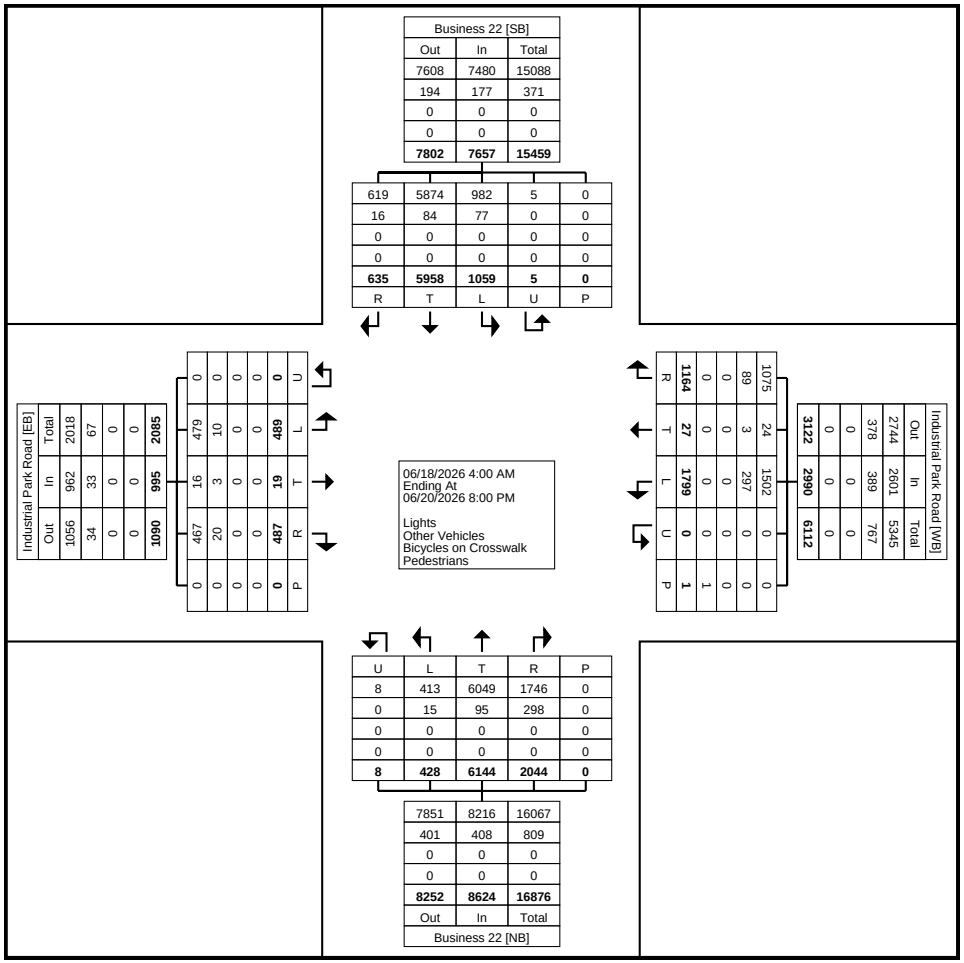
5:15 AM	0	0	0	0	0	0	0	0	3	0	0	1	0	4	0	1	5	2	0	8	0	3	2	0	0	0	5	17
5:30 AM	0	1	0	0	0	0	1	0	3	0	0	0	0	3	0	1	6	4	0	11	0	2	2	0	0	0	4	19
5:45 AM	0	0	0	1	0	0	1	0	2	0	0	0	0	2	0	1	13	6	0	20	0	4	2	0	0	0	6	29
Hourly Total	0	1	0	2	0	0	3	0	15	0	2	4	0	21	0	3	25	17	0	45	0	11	9	0	0	0	20	89
6:00 AM	0	1	0	1	0	0	2	0	2	0	1	0	0	3	0	3	14	9	0	26	0	2	2	0	0	0	4	35
6:15 AM	0	1	0	3	0	0	4	0	8	0	0	0	0	8	0	2	12	21	0	35	0	12	10	1	0	0	23	70
6:30 AM	0	2	1	2	1	0	6	0	5	0	2	0	0	7	0	2	17	37	0	56	0	9	12	1	0	0	22	91
6:45 AM	0	0	0	2	0	0	2	0	2	0	4	3	0	9	0	2	21	19	0	42	0	8	25	0	0	0	33	86
Hourly Total	0	4	1	8	1	0	14	0	17	0	7	3	0	27	0	9	64	86	0	159	0	31	49	2	0	0	82	282
7:00 AM	0	5	0	1	2	0	8	0	35	1	17	5	0	58	0	2	22	8	0	32	0	5	19	2	1	0	27	125
7:15 AM	0	2	0	0	0	0	2	0	20	1	6	3	0	30	0	8	27	5	0	40	0	4	25	3	0	0	32	104
7:30 AM	0	4	0	2	0	0	6	0	7	0	1	3	0	11	0	2	24	3	0	29	0	6	27	1	0	0	34	80
7:45 AM	0	1	0	1	0	0	2	0	9	0	4	1	0	14	0	4	38	6	0	48	0	3	25	4	0	0	32	96
Hourly Total	0	12	0	4	2	0	18	0	71	2	28	12	0	113	0	16	111	22	0	149	0	18	96	10	1	0	125	405
8:00 AM	0	8	0	0	2	0	10	0	7	0	7	1	0	15	0	2	28	4	0	34	0	3	18	0	0	0	21	80
8:15 AM	0	4	0	1	0	0	5	0	11	0	7	0	0	18	0	3	45	2	0	50	0	4	30	2	1	0	37	110
8:30 AM	0	4	0	1	0	0	5	0	11	0	0	1	0	12	0	3	61	4	0	68	0	3	31	4	0	0	38	123
8:45 AM	0	2	0	5	2	0	9	0	8	0	5	2	0	15	1	7	61	6	0	75	0	4	28	1	0	0	33	132
Hourly Total	0	18	0	7	4	0	29	0	37	0	19	4	0	60	1	15	195	16	0	227	0	14	107	7	1	0	129	445
9:00 AM	0	4	0	1	2	0	7	0	12	0	10	6	0	28	0	5	47	12	0	64	0	7	46	6	0	0	59	158
9:15 AM	0	8	0	4	1	0	13	0	8	0	3	8	0	19	0	2	43	4	0	49	1	8	56	5	1	0	71	152
9:30 AM	0	6	0	2	1	0	9	0	7	0	8	1	0	16	0	1	47	13	0	61	0	8	51	2	0	0	61	147
9:45 AM	0	6	0	3	0	0	9	0	7	0	8	1	0	16	0	6	54	10	0	70	0	5	50	9	0	0	64	159
Hourly Total	0	24	0	10	4	0	38	0	34	0	29	16	0	79	0	14	191	39	0	244	1	28	203	22	1	0	255	616
10:00 AM	0	6	0	6	1	0	13	0	11	0	2	1	0	14	0	7	73	4	0	84	0	3	61	2	0	0	66	177
10:15 AM	0	6	0	3	2	0	11	0	7	0	1	1	0	9	0	2	67	11	0	80	0	7	53	6	0	0	66	166
10:30 AM	0	5	0	2	0	0	7	0	14	0	6	4	0	24	0	2	81	9	0	92	0	4	65	10	0	0	79	202
10:45 AM	0	6	0	0	1	0	7	0	12	0	6	2	0	20	0	6	78	19	0	103	0	5	71	4	0	0	80	210
Hourly Total	0	23	0	11	4	0	38	0	44	0	15	8	0	67	0	17	299	43	0	359	0	19	250	22	0	0	291	755
11:00 AM	0	2	0	1	1	0	4	0	7	0	2	5	0	14	0	5	69	17	0	91	1	5	60	8	2	0	76	185
11:15 AM	0	5	1	1	1	0	8	0	13	0	1	7	0	21	1	1	75	11	0	88	1	6	77	9	0	0	93	210
11:30 AM	0	3	1	5	0	0	9	0	6	0	3	4	0	13	0	4	64	13	0	81	0	9	69	5	1	0	84	187
11:45 AM	0	3	0	0	3	0	6	0	6	0	0	5	0	11	0	2	84	11	0	97	0	9	80	6	0	0	95	209
Hourly Total	0	13	2	7	5	0	27	0	32	0	6	21	0	59	1	12	292	52	0	357	2	29	286	28	3	0	348	791
12:00 PM	0	3	1	1	2	0	7	0	25	1	13	7	0	46	0	2	62	7	0	71	0	4	78	6	2	0	90	214
12:15 PM	0	5	0	3	0	0	8	0	6	0	4	7	0	17	0	7	78	10	0	95	0	13	59	3	0	0	75	195
12:30 PM	0	3	0	2	2	0	7	0	6	0	1	1	0	8	0	4	66	9	0	79	0	11	75	5	0	0	91	185
12:45 PM	0	4	0	2	3	0	9	0	7	0	3	7	0	17	0	3	68	10	0	81	0	8	83	9	0	0	100	207
Hourly Total	0	15	1	8	7	0	31	0	44	1	21	22	0	88	0	16	274	36	0	326	0	36	295	23	2	0	356	801
1:00 PM	0	8	0	3	4	0	15	0	12	0	4	1	0	17	0	0	75	13	0	88	0	11	106	9	0	0	126	246
1:15 PM	0	7	0	2	0	0	9	0	7	0	3	0	0	10	0	4	71	8	0	83	0	11	71	3	0	0	85	187
1:30 PM	0	5	0	6	0	0	11	0	9	0	6	0	0	15	0	1	82	12	0	95	0	3	70	9	3	0	85	206
1:45 PM	0	5	0	3	1	0	9	0	6	0	2	4	0	12	0	5	69	9	0	83	0	7	77	8	0	0	92	196
Hourly Total	0	25	0	14	5	0	44	0	34	0	15	5	0	54	0	10	297	42	0	349	0	32	324	29	3	0	388	835
2:00 PM	0	5	0	1	1	0	7	0	8	1	2	3	0	14	0	3	55	8	0	66	0	3	55	8	0	0	66	153
2:15 PM	0	4	0	6	2	0	12	0	5	1	3	8	0	17	0	7	73	8	0	88	0	8	65	4	0	0	77	194
2:30 PM	0	7	2	2	0	0	11	0	9	0	2	3	0	14	0	5	50	9	0	64	0	5	55	6	2	0	68	157
2:45 PM	0	1	0	4	0	0	5	0	7	0	3	1	0	11	0	5	62	13	0	80	0	8	64	3	0	0	75	171
Hourly Total	0	17	2	13	3	0	35	0	29	2	10	15	0	56	0	20	240	38	0	298	0	24	239	21	2	0	286	675
3:00 PM	0	5	0	4	4	0	13	0	8	0	3	5	0	16	0	6	49	12	0	67	0	9	89	1	1	0	100	196
3:15 PM	0	9	0	7	4	0	20	0	11	1	8	2	0	22	0	4	58	17	0	79	0	9	73	4	2	0	88	209
3:30 PM	0	5	0	1	1	0	7	0	12	0	3	2	0	17	0	1	48	17	0	66	0	2	61	4	2	0	69	159

3:45 PM	0	5	0	2	2	0	9	0	8	1	3	1	0	13	0	3	61	8	0	72	0	7	65	1	1	0	74	168
Hourly Total	0	24	0	14	11	0	49	0	39	2	17	10	0	68	0	14	216	54	0	284	0	27	288	10	6	0	331	732
4:00 PM	0	4	0	2	2	0	8	0	11	0	5	4	0	20	0	4	47	15	0	66	0	2	52	6	1	0	61	155
4:15 PM	0	4	0	8	0	0	12	0	9	0	4	3	0	16	0	6	55	13	0	74	0	3	58	5	0	0	66	168
4:30 PM	0	10	0	4	2	0	16	0	11	0	4	4	0	19	1	4	66	10	0	81	0	5	53	5	4	0	67	183
4:45 PM	0	3	0	7	1	0	11	0	8	0	1	0	0	9	0	5	64	11	0	80	0	9	55	10	2	0	76	176
Hourly Total	0	21	0	21	5	0	47	0	39	0	14	11	0	64	1	19	232	49	0	301	0	19	218	26	7	0	270	682
5:00 PM	0	7	0	3	1	0	11	0	8	0	3	4	0	15	0	3	67	8	0	78	0	3	58	6	4	0	71	175
5:15 PM	0	2	0	2	3	0	7	0	12	1	4	1	0	18	1	4	65	9	0	79	0	3	65	7	0	0	75	179
5:30 PM	0	1	0	2	0	0	3	0	7	0	3	2	0	12	0	4	51	6	0	61	0	5	60	2	0	0	67	143
5:45 PM	0	3	1	3	2	0	9	0	12	0	2	7	0	21	0	3	46	10	0	59	0	7	63	3	1	0	74	163
Hourly Total	0	13	1	10	6	0	30	0	39	1	12	14	0	66	1	14	229	33	0	277	0	18	246	18	5	0	287	660
6:00 PM	0	3	0	2	2	0	7	0	5	1	5	4	0	15	0	3	50	18	0	71	0	8	56	6	1	0	71	164
6:15 PM	0	3	0	1	0	0	4	0	12	1	2	4	0	19	0	2	52	16	0	70	0	6	52	3	3	0	64	157
6:30 PM	0	3	1	2	2	0	8	0	10	0	3	4	0	17	1	3	54	29	0	87	0	9	45	1	0	0	55	167
6:45 PM	0	2	0	2	0	0	4	0	6	0	3	3	0	12	0	3	45	17	0	65	0	9	41	4	1	0	55	136
Hourly Total	0	11	1	7	4	0	23	0	33	2	13	15	0	63	1	11	201	80	0	293	0	32	194	14	5	0	245	624
7:00 PM	0	1	0	3	1	0	5	0	44	0	27	10	0	81	0	1	43	8	0	52	0	6	43	5	3	0	57	195
7:15 PM	0	5	0	0	0	0	5	0	23	1	9	6	0	39	0	2	44	8	0	54	0	5	37	5	0	0	47	145
7:30 PM	0	6	0	3	0	0	9	0	11	0	4	1	0	16	0	1	38	7	0	46	0	1	47	4	0	0	52	123
7:45 PM	0	6	0	1	0	0	7	0	4	0	2	2	0	8	0	1	49	5	0	55	0	6	48	4	2	0	60	130
Hourly Total	0	18	0	7	1	0	26	0	82	1	42	19	0	144	0	5	174	28	0	207	0	18	175	18	5	0	216	593
Grand Total	0	489	19	355	132	0	995	0	1799	27	677	487	1	2990	8	428	6144	2044	0	8624	5	1059	5958	554	81	0	7657	20266
Approach %	0.0	49.1	1.9	35.7	13.3	-	-	0.0	60.2	0.9	22.6	16.3	-	-	0.1	5.0	71.2	23.7	-	-	0.1	13.8	77.8	7.2	1.1	-	-	-
Total %	0.0	2.4	0.1	1.8	0.7	-	4.9	0.0	8.9	0.1	3.3	2.4	-	14.8	0.0	2.1	30.3	10.1	-	42.6	0.0	5.2	29.4	2.7	0.4	-	37.8	-
Lights	0	479	16	339	128	-	962	0	1502	24	614	461	-	2601	8	413	6049	1746	-	8216	5	982	5874	540	79	-	7480	19259
% Lights	-	98.0	84.2	95.5	97.0	-	96.7	-	83.5	88.9	90.7	94.7	-	87.0	100.0	96.5	98.5	85.4	-	95.3	100.0	92.7	98.6	97.5	97.5	-	97.7	95.0
Other Vehicles	0	10	3	16	4	-	33	0	297	3	63	26	-	389	0	15	95	298	-	408	0	77	84	14	2	-	177	1007
% Other Vehicles	-	2.0	15.8	4.5	3.0	-	3.3	-	16.5	11.1	9.3	5.3	-	13.0	0.0	3.5	1.5	14.6	-	4.7	0.0	7.3	1.4	2.5	2.5	-	2.3	5.0
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Data Plot

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

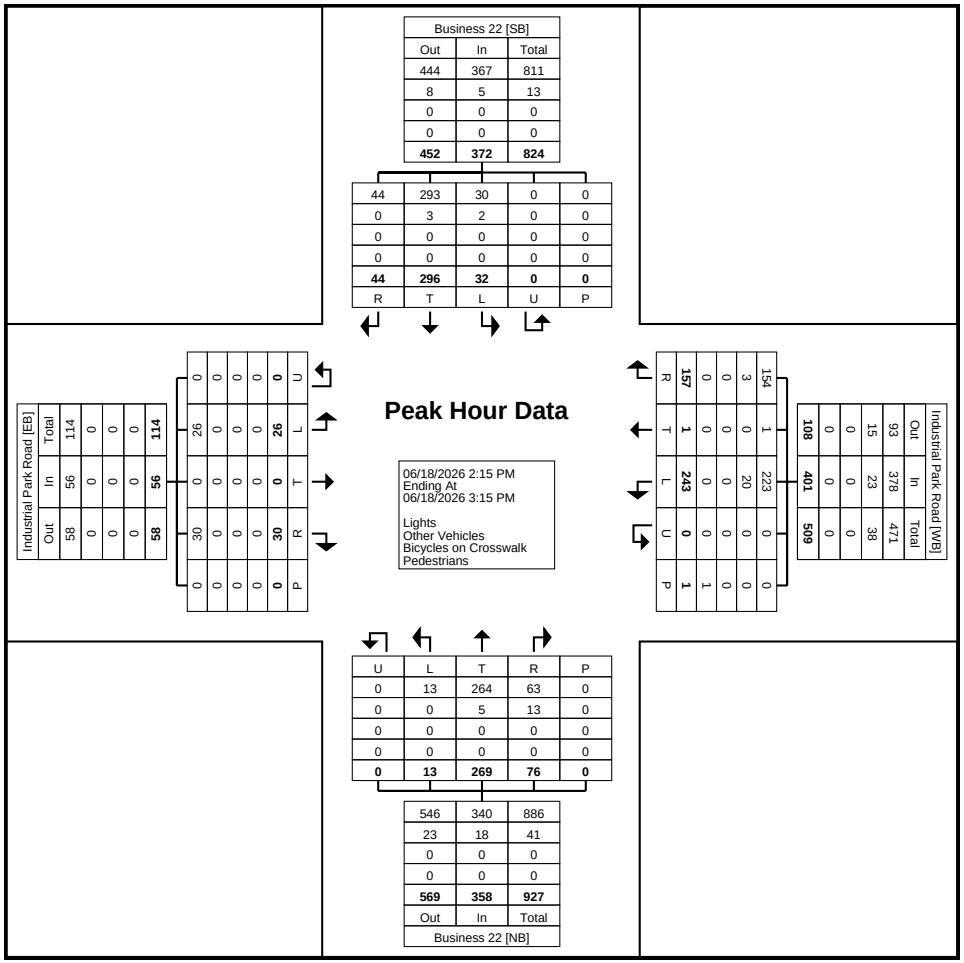
Turning Movement Peak Hour Data (2:15 PM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							Int. Total
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
2:15 PM	0	4	0	2	1	0	7	0	18	0	7	9	0	34	0	0	74	20	0	94	0	14	82	7	0	0	103	238
2:30 PM	0	14	0	11	3	0	28	0	121	1	66	31	0	219	0	1	65	18	0	84	0	12	69	5	1	0	87	418
2:45 PM	0	4	0	7	0	0	11	0	43	0	13	13	0	69	0	1	66	16	0	83	0	4	83	16	4	0	107	270
3:00 PM	0	4	0	6	0	0	10	0	61	0	10	8	1	79	0	11	64	22	0	97	0	2	62	11	0	0	75	261
Total	0	26	0	26	4	0	56	0	243	1	96	61	1	401	0	13	269	76	0	358	0	32	296	39	5	0	372	1187
Approach %	0.0	46.4	0.0	46.4	7.1	-	-	0.0	60.6	0.2	23.9	15.2	-	-	0.0	3.6	75.1	21.2	-	-	0.0	8.6	79.6	10.5	1.3	-	-	-
Total %	0.0	2.2	0.0	2.2	0.3	-	4.7	0.0	20.5	0.1	8.1	5.1	-	33.8	0.0	1.1	22.7	6.4	-	30.2	0.0	2.7	24.9	3.3	0.4	-	31.3	-
PHF	0.000	0.464	0.000	0.591	0.333	-	0.500	0.000	0.502	0.250	0.364	0.492	-	0.458	0.000	0.295	0.909	0.864	-	0.923	0.000	0.571	0.892	0.609	0.313	-	0.869	0.710
Lights	0	26	0	26	4	-	56	0	223	1	94	60	-	378	0	13	264	63	-	340	0	30	293	39	5	-	367	1141
% Lights	-	100.0	-	100.0	100.0	-	100.0	-	91.8	100.0	97.9	98.4	-	94.3	-	100.0	98.1	82.9	-	95.0	-	93.8	99.0	100.0	100.0	-	98.7	96.1
Other Vehicles	0	0	0	0	0	-	0	0	20	0	2	1	-	23	0	0	5	13	-	18	0	2	3	0	0	-	5	46
% Other Vehicles	-	0.0	-	0.0	0.0	-	0.0	-	8.2	0.0	2.1	1.6	-	5.7	-	0.0	1.9	17.1	-	5.0	-	6.3	1.0	0.0	0.0	-	1.3	3.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (2:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

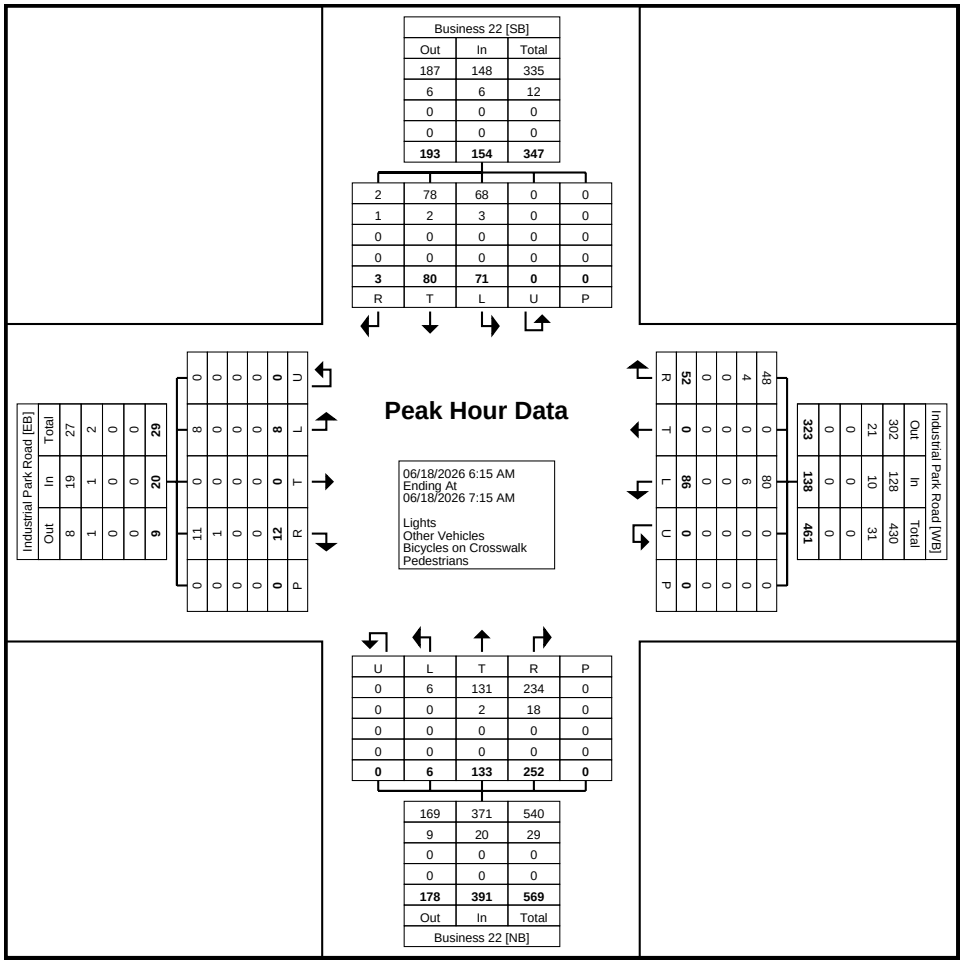
Turning Movement Peak Hour Data (6:15 AM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
6:15 AM	0	1	0	3	0	0	4	0	17	0	5	4	0	26	0	0	31	68	0	99	0	22	16	0	0	0	38	167
6:30 AM	0	2	0	3	0	0	5	0	9	0	5	5	0	19	0	3	27	89	0	119	0	14	17	1	0	0	32	175
6:45 AM	0	1	0	2	1	0	4	0	9	0	4	3	0	16	0	0	39	65	0	104	0	27	16	0	0	0	43	167
7:00 AM	0	4	0	2	1	0	7	0	51	0	17	9	0	77	0	3	36	30	0	69	0	8	31	2	0	0	41	194
Total	0	8	0	10	2	0	20	0	86	0	31	21	0	138	0	6	133	252	0	391	0	71	80	3	0	0	154	703
Approach %	0.0	40.0	0.0	50.0	10.0	-	-	0.0	62.3	0.0	22.5	15.2	-	-	0.0	1.5	34.0	64.5	-	-	0.0	46.1	51.9	1.9	0.0	-	-	-
Total %	0.0	1.1	0.0	1.4	0.3	-	2.8	0.0	12.2	0.0	4.4	3.0	-	19.6	0.0	0.9	18.9	35.8	-	55.6	0.0	10.1	11.4	0.4	0.0	-	21.9	-
PHF	0.000	0.500	0.000	0.833	0.500	-	0.714	0.000	0.422	0.000	0.456	0.583	-	0.448	0.000	0.500	0.853	0.708	-	0.821	0.000	0.657	0.645	0.375	0.000	-	0.895	0.906
Lights	0	8	0	9	2	-	19	0	80	0	29	19	-	128	0	6	131	234	-	371	0	68	78	2	0	-	148	666
% Lights	-	100.0	-	90.0	100.0	-	95.0	-	93.0	-	93.5	90.5	-	92.8	-	100.0	98.5	92.9	-	94.9	-	95.8	97.5	66.7	-	-	96.1	94.7
Other Vehicles	0	0	0	1	0	-	1	0	6	0	2	2	-	10	0	0	2	18	-	20	0	3	2	1	0	-	6	37
% Other Vehicles	-	0.0	-	10.0	0.0	-	5.0	-	7.0	-	6.5	9.5	-	7.2	-	0.0	1.5	7.1	-	5.1	-	4.2	2.5	33.3	-	-	3.9	5.3
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

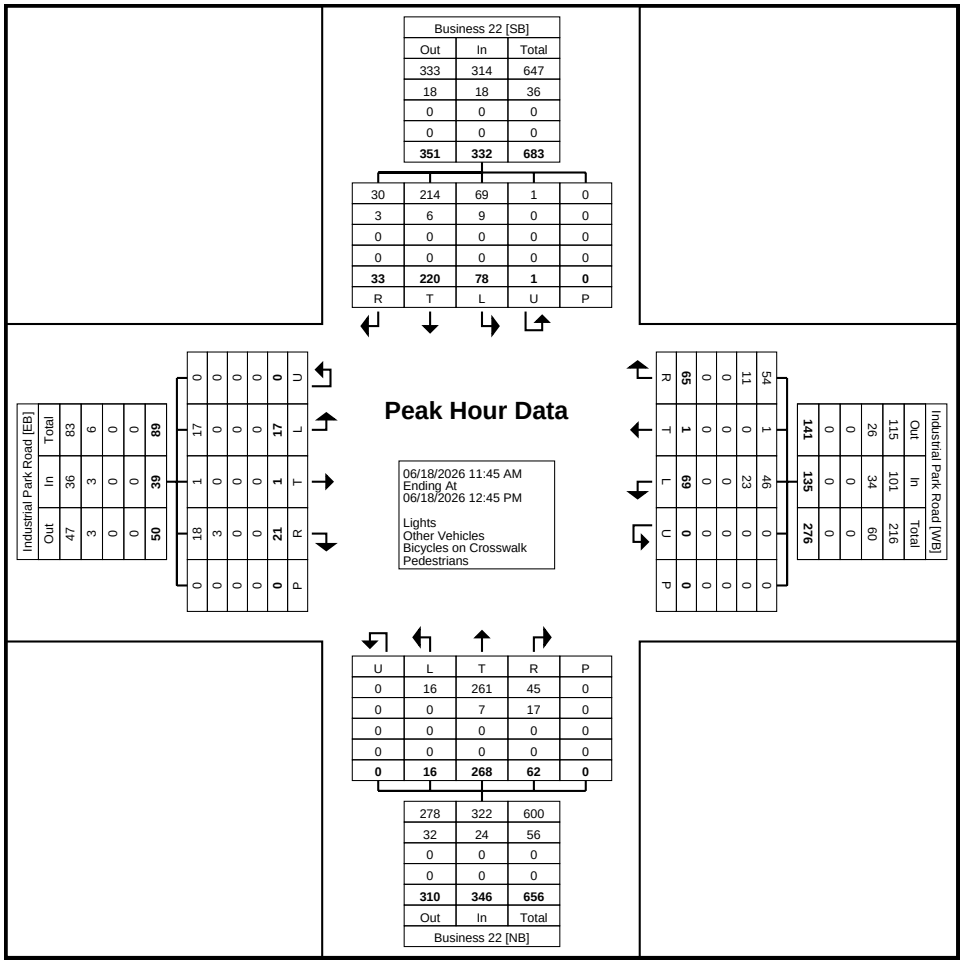
Turning Movement Peak Hour Data (11:45 AM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							Int. Total
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	
11:45 AM	0	3	0	3	4	0	10	0	13	0	5	2	0	20	0	3	65	19	0	87	0	14	45	6	0	0	65	182
12:00 PM	0	9	1	3	1	0	14	0	28	1	19	18	0	66	0	1	67	14	0	82	0	26	52	10	2	0	90	252
12:15 PM	0	4	0	4	2	0	10	0	18	0	2	7	0	27	0	4	66	8	0	78	0	22	58	8	1	0	89	204
12:30 PM	0	1	0	3	1	0	5	0	10	0	5	7	0	22	0	8	70	21	0	99	1	16	65	4	2	0	88	214
Total	0	17	1	13	8	0	39	0	69	1	31	34	0	135	0	16	268	62	0	346	1	78	220	28	5	0	332	852
Approach %	0.0	43.6	2.6	33.3	20.5	-	-	0.0	51.1	0.7	23.0	25.2	-	-	0.0	4.6	77.5	17.9	-	-	0.3	23.5	66.3	8.4	1.5	-	-	-
Total %	0.0	2.0	0.1	1.5	0.9	-	4.6	0.0	8.1	0.1	3.6	4.0	-	15.8	0.0	1.9	31.5	7.3	-	40.6	0.1	9.2	25.8	3.3	0.6	-	39.0	-
PHF	0.000	0.472	0.250	0.813	0.500	-	0.696	0.000	0.616	0.250	0.408	0.472	-	0.511	0.000	0.500	0.957	0.738	-	0.874	0.250	0.750	0.846	0.700	0.625	-	0.922	0.845
Lights	0	17	1	12	6	-	36	0	46	1	23	31	-	101	0	16	261	45	-	322	1	69	214	26	4	-	314	773
% Lights	-	100.0	100.0	92.3	75.0	-	92.3	-	66.7	100.0	74.2	91.2	-	74.8	-	100.0	97.4	72.6	-	93.1	100.0	88.5	97.3	92.9	80.0	-	94.6	90.7
Other Vehicles	0	0	0	1	2	-	3	0	23	0	8	3	-	34	0	0	7	17	-	24	0	9	6	2	1	-	18	79
% Other Vehicles	-	0.0	0.0	7.7	25.0	-	7.7	-	33.3	0.0	25.8	8.8	-	25.2	-	0.0	2.6	27.4	-	6.9	0.0	11.5	2.7	7.1	20.0	-	5.4	9.3
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:45 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

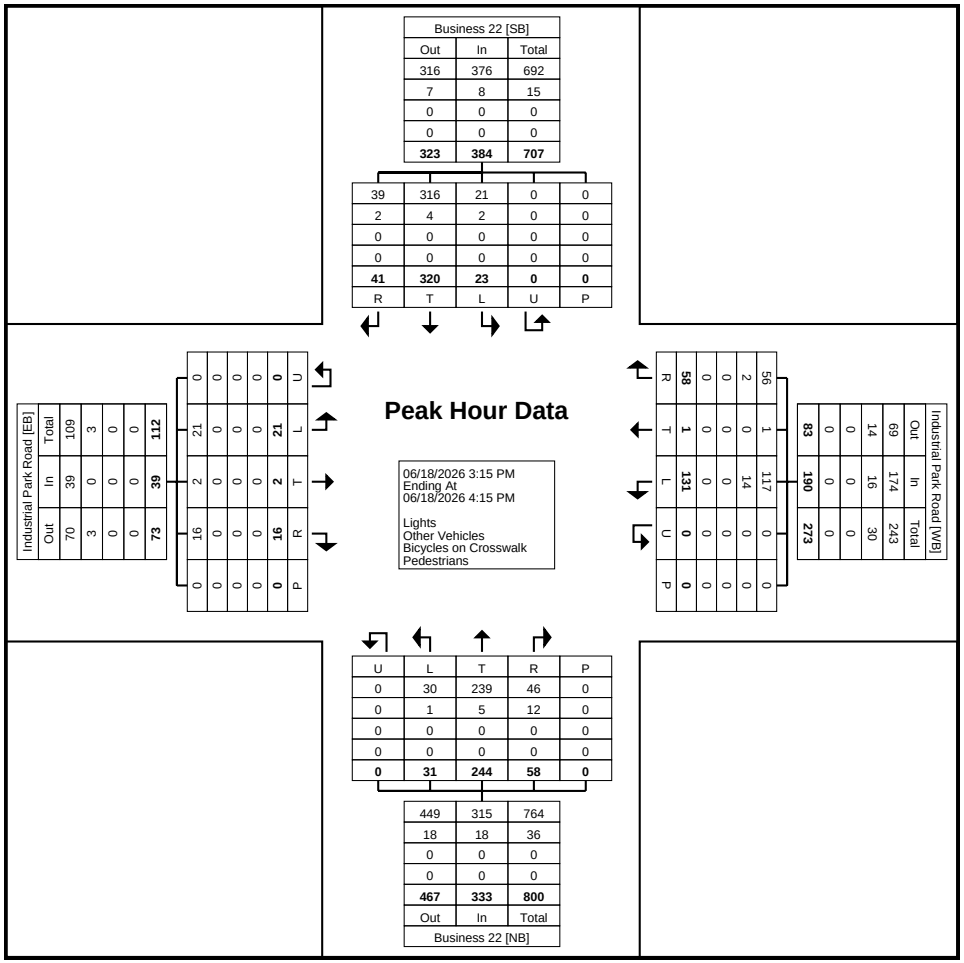
Turning Movement Peak Hour Data (3:15 PM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
3:15 PM	0	3	1	4	0	0	8	0	30	0	8	7	0	45	0	6	50	13	0	69	0	4	94	6	0	0	104	226
3:30 PM	0	7	1	5	0	0	13	0	40	1	9	3	0	53	0	10	53	14	0	77	0	7	72	9	1	0	89	232
3:45 PM	0	8	0	4	1	0	13	0	27	0	5	1	0	33	0	7	64	16	0	87	0	7	79	13	1	0	100	233
4:00 PM	0	3	0	0	2	0	5	0	34	0	14	11	0	59	0	8	77	15	0	100	0	5	75	11	0	0	91	255
Total	0	21	2	13	3	0	39	0	131	1	36	22	0	190	0	31	244	58	0	333	0	23	320	39	2	0	384	946
Approach %	0.0	53.8	5.1	33.3	7.7	-	-	0.0	68.9	0.5	18.9	11.6	-	-	0.0	9.3	73.3	17.4	-	-	0.0	6.0	83.3	10.2	0.5	-	-	-
Total %	0.0	2.2	0.2	1.4	0.3	-	4.1	0.0	13.8	0.1	3.8	2.3	-	20.1	0.0	3.3	25.8	6.1	-	35.2	0.0	2.4	33.8	4.1	0.2	-	40.6	-
PHF	0.000	0.656	0.500	0.650	0.375	-	0.750	0.000	0.819	0.250	0.643	0.500	-	0.805	0.000	0.775	0.792	0.906	-	0.833	0.000	0.821	0.851	0.750	0.500	-	0.923	0.927
Lights	0	21	2	13	3	-	39	0	117	1	35	21	-	174	0	30	239	46	-	315	0	21	316	37	2	-	376	904
% Lights	-	100.0	100.0	100.0	100.0	-	100.0	-	89.3	100.0	97.2	95.5	-	91.6	-	96.8	98.0	79.3	-	94.6	-	91.3	98.8	94.9	100.0	-	97.9	95.6
Other Vehicles	0	0	0	0	0	-	0	0	14	0	1	1	-	16	0	1	5	12	-	18	0	2	4	2	0	-	8	42
% Other Vehicles	-	0.0	0.0	0.0	0.0	-	0.0	-	10.7	0.0	2.8	4.5	-	8.4	-	3.2	2.0	20.7	-	5.4	-	8.7	1.3	5.1	0.0	-	2.1	4.4
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (3:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

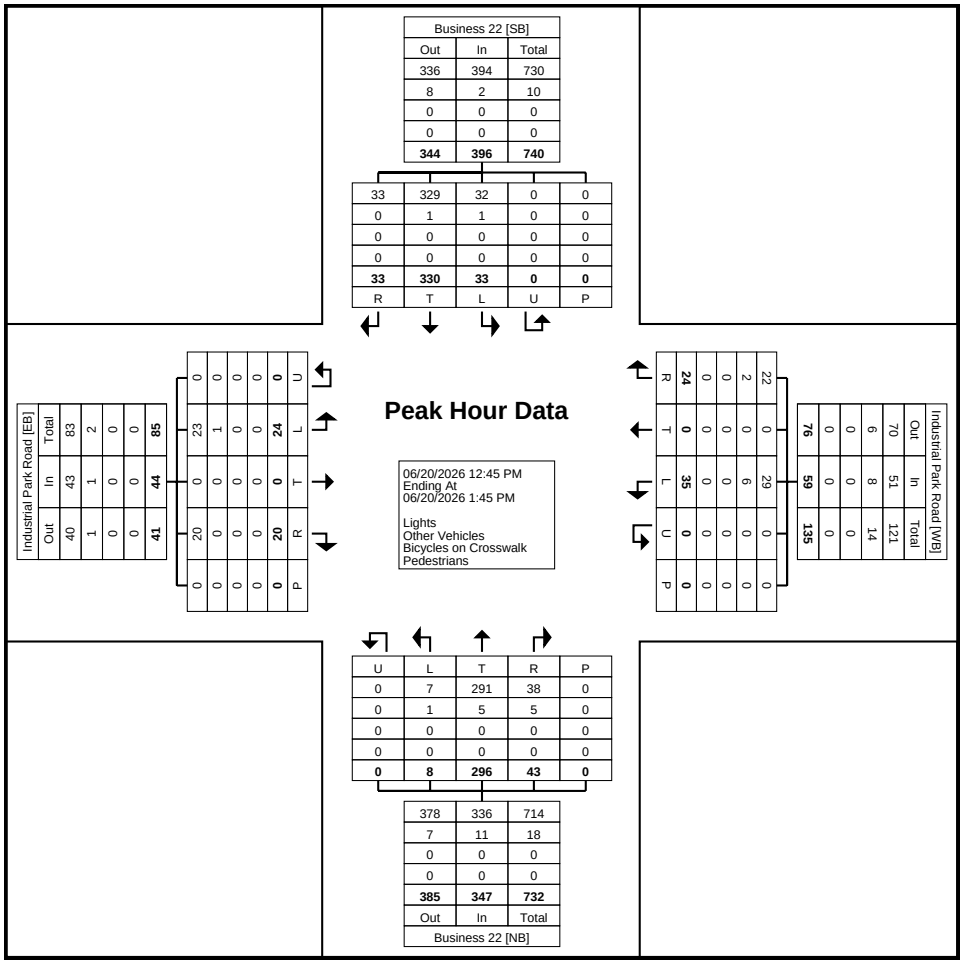
Turning Movement Peak Hour Data (12:45 PM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
12:45 PM	0	4	0	2	3	0	9	0	7	0	3	7	0	17	0	3	68	10	0	81	0	8	83	9	0	0	100	207
1:00 PM	0	8	0	3	4	0	15	0	12	0	4	1	0	17	0	0	75	13	0	88	0	11	106	9	0	0	126	246
1:15 PM	0	7	0	2	0	0	9	0	7	0	3	0	0	10	0	4	71	8	0	83	0	11	71	3	0	0	85	187
1:30 PM	0	5	0	6	0	0	11	0	9	0	6	0	0	15	0	1	82	12	0	95	0	3	70	9	3	0	85	206
Total	0	24	0	13	7	0	44	0	35	0	16	8	0	59	0	8	296	43	0	347	0	33	330	30	3	0	396	846
Approach %	0.0	54.5	0.0	29.5	15.9	-	-	0.0	59.3	0.0	27.1	13.6	-	-	0.0	2.3	85.3	12.4	-	-	0.0	8.3	83.3	7.6	0.8	-	-	-
Total %	0.0	2.8	0.0	1.5	0.8	-	5.2	0.0	4.1	0.0	1.9	0.9	-	7.0	0.0	0.9	35.0	5.1	-	41.0	0.0	3.9	39.0	3.5	0.4	-	46.8	-
PHF	0.000	0.750	0.000	0.542	0.438	-	0.733	0.000	0.729	0.000	0.667	0.286	-	0.868	0.000	0.500	0.902	0.827	-	0.913	0.000	0.750	0.778	0.833	0.250	-	0.786	0.860
Lights	0	23	0	13	7	-	43	0	29	0	14	8	-	51	0	7	291	38	-	336	0	32	329	30	3	-	394	824
% Lights	-	95.8	-	100.0	100.0	-	97.7	-	82.9	-	87.5	100.0	-	86.4	-	87.5	98.3	88.4	-	96.8	-	97.0	99.7	100.0	100.0	-	99.5	97.4
Other Vehicles	0	1	0	0	0	-	1	0	6	0	2	0	-	8	0	1	5	5	-	11	0	1	1	0	0	-	2	22
% Other Vehicles	-	4.2	-	0.0	0.0	-	2.3	-	17.1	-	12.5	0.0	-	13.6	-	12.5	1.7	11.6	-	3.2	-	3.0	0.3	0.0	0.0	-	0.5	2.6
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (12:45 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

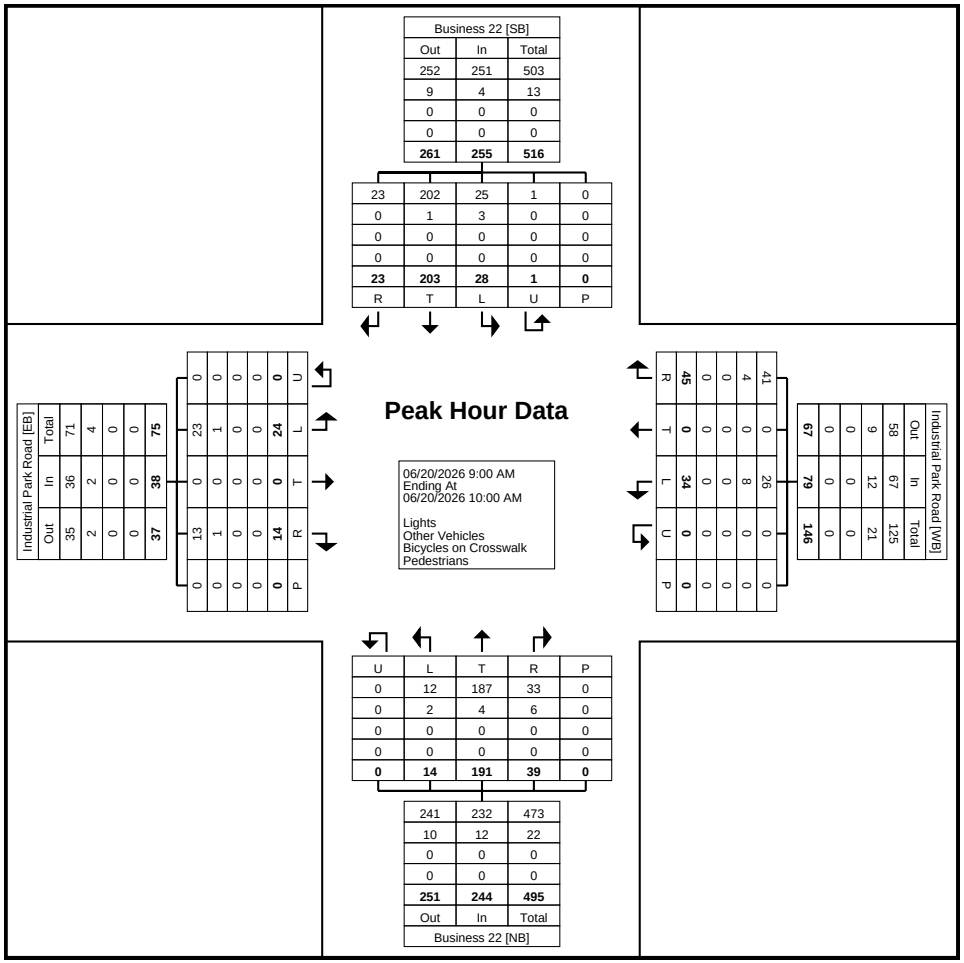
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
9:00 AM	0	4	0	1	2	0	7	0	12	0	10	6	0	28	0	5	47	12	0	64	0	7	46	6	0	0	59	158
9:15 AM	0	8	0	4	1	0	13	0	8	0	3	8	0	19	0	2	43	4	0	49	1	8	56	5	1	0	71	152
9:30 AM	0	6	0	2	1	0	9	0	7	0	8	1	0	16	0	1	47	13	0	61	0	8	51	2	0	0	61	147
9:45 AM	0	6	0	3	0	0	9	0	7	0	8	1	0	16	0	6	54	10	0	70	0	5	50	9	0	0	64	159
Total	0	24	0	10	4	0	38	0	34	0	29	16	0	79	0	14	191	39	0	244	1	28	203	22	1	0	255	616
Approach %	0.0	63.2	0.0	26.3	10.5	-	-	0.0	43.0	0.0	36.7	20.3	-	-	0.0	5.7	78.3	16.0	-	-	0.4	11.0	79.6	8.6	0.4	-	-	-
Total %	0.0	3.9	0.0	1.6	0.6	-	6.2	0.0	5.5	0.0	4.7	2.6	-	12.8	0.0	2.3	31.0	6.3	-	39.6	0.2	4.5	33.0	3.6	0.2	-	41.4	-
PHF	0.000	0.750	0.000	0.625	0.500	-	0.731	0.000	0.708	0.000	0.725	0.500	-	0.705	0.000	0.583	0.884	0.750	-	0.871	0.250	0.875	0.906	0.611	0.250	-	0.898	0.969
Lights	0	23	0	9	4	-	36	0	26	0	26	15	-	67	0	12	187	33	-	232	1	25	202	22	1	-	251	586
% Lights	-	95.8	-	90.0	100.0	-	94.7	-	76.5	-	89.7	93.8	-	84.8	-	85.7	97.9	84.6	-	95.1	100.0	89.3	99.5	100.0	100.0	-	98.4	95.1
Other Vehicles	0	1	0	1	0	-	2	0	8	0	3	1	-	12	0	2	4	6	-	12	0	3	1	0	0	-	4	30
% Other Vehicles	-	4.2	-	10.0	0.0	-	5.3	-	23.5	-	10.3	6.3	-	15.2	-	14.3	2.1	15.4	-	4.9	0.0	10.7	0.5	0.0	0.0	-	1.6	4.9
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (9:00 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

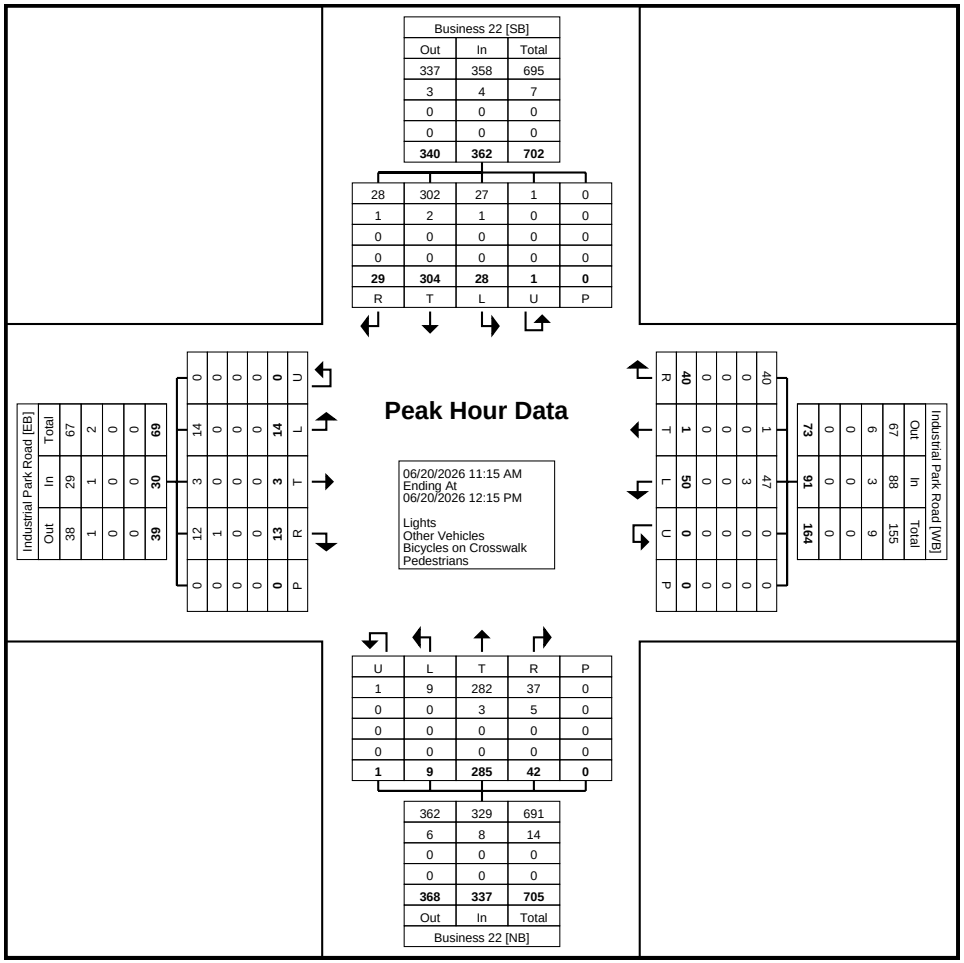
Turning Movement Peak Hour Data (11:15 AM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
11:15 AM	0	5	1	1	1	0	8	0	13	0	1	7	0	21	1	1	75	11	0	88	1	6	77	9	0	0	93	210
11:30 AM	0	3	1	5	0	0	9	0	6	0	3	4	0	13	0	4	64	13	0	81	0	9	69	5	1	0	84	187
11:45 AM	0	3	0	0	3	0	6	0	6	0	0	5	0	11	0	2	84	11	0	97	0	9	80	6	0	0	95	209
12:00 PM	0	3	1	1	2	0	7	0	25	1	13	7	0	46	0	2	62	7	0	71	0	4	78	6	2	0	90	214
Total	0	14	3	7	6	0	30	0	50	1	17	23	0	91	1	9	285	42	0	337	1	28	304	26	3	0	362	820
Approach %	0.0	46.7	10.0	23.3	20.0	-	-	0.0	54.9	1.1	18.7	25.3	-	-	0.3	2.7	84.6	12.5	-	-	0.3	7.7	84.0	7.2	0.8	-	-	-
Total %	0.0	1.7	0.4	0.9	0.7	-	3.7	0.0	6.1	0.1	2.1	2.8	-	11.1	0.1	1.1	34.8	5.1	-	41.1	0.1	3.4	37.1	3.2	0.4	-	44.1	-
PHF	0.000	0.700	0.750	0.350	0.500	-	0.833	0.000	0.500	0.250	0.327	0.821	-	0.495	0.250	0.563	0.848	0.808	-	0.869	0.250	0.778	0.950	0.722	0.375	-	0.953	0.958
Lights	0	14	3	6	6	-	29	0	47	1	17	23	-	88	1	9	282	37	-	329	1	27	302	25	3	-	358	804
% Lights	-	100.0	100.0	85.7	100.0	-	96.7	-	94.0	100.0	100.0	100.0	-	96.7	100.0	100.0	98.9	88.1	-	97.6	100.0	96.4	99.3	96.2	100.0	-	98.9	98.0
Other Vehicles	0	0	0	1	0	-	1	0	3	0	0	0	-	3	0	0	3	5	-	8	0	1	2	1	0	-	4	16
% Other Vehicles	-	0.0	0.0	14.3	0.0	-	3.3	-	6.0	0.0	0.0	0.0	-	3.3	0.0	0.0	1.1	11.9	-	2.4	0.0	3.6	0.7	3.8	0.0	-	1.1	2.0
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026

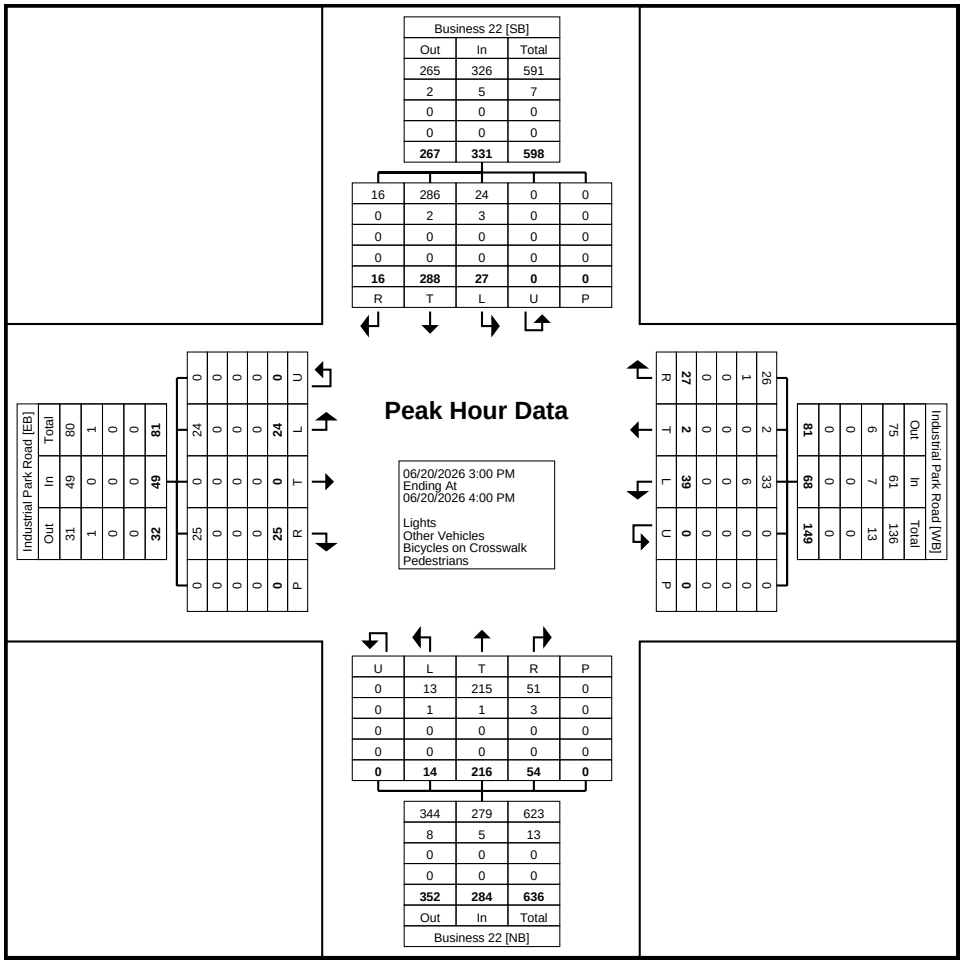
Turning Movement Peak Hour Data (3:00 PM)

Start Time	Industrial Park Road Eastbound							Industrial Park Road Westbound							Business 22 Northbound						Business 22 Southbound							
	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Right on Red	Peds	App. Total	Int. Total
3:00 PM	0	5	0	4	4	0	13	0	8	0	3	5	0	16	0	6	49	12	0	67	0	9	89	1	1	0	100	196
3:15 PM	0	9	0	7	4	0	20	0	11	1	8	2	0	22	0	4	58	17	0	79	0	9	73	4	2	0	88	209
3:30 PM	0	5	0	1	1	0	7	0	12	0	3	2	0	17	0	1	48	17	0	66	0	2	61	4	2	0	69	159
3:45 PM	0	5	0	2	2	0	9	0	8	1	3	1	0	13	0	3	61	8	0	72	0	7	65	1	1	0	74	168
Total	0	24	0	14	11	0	49	0	39	2	17	10	0	68	0	14	216	54	0	284	0	27	288	10	6	0	331	732
Approach %	0.0	49.0	0.0	28.6	22.4	-	-	0.0	57.4	2.9	25.0	14.7	-	-	0.0	4.9	76.1	19.0	-	-	0.0	8.2	87.0	3.0	1.8	-	-	-
Total %	0.0	3.3	0.0	1.9	1.5	-	6.7	0.0	5.3	0.3	2.3	1.4	-	9.3	0.0	1.9	29.5	7.4	-	38.8	0.0	3.7	39.3	1.4	0.8	-	45.2	-
PHF	0.000	0.667	0.000	0.500	0.688	-	0.613	0.000	0.813	0.500	0.531	0.500	-	0.773	0.000	0.583	0.885	0.794	-	0.899	0.000	0.750	0.809	0.625	0.750	-	0.828	0.876
Lights	0	24	0	14	11	-	49	0	33	2	16	10	-	61	0	13	215	51	-	279	0	24	286	10	6	-	326	715
% Lights	-	100.0	-	100.0	100.0	-	100.0	-	84.6	100.0	94.1	100.0	-	89.7	-	92.9	99.5	94.4	-	98.2	-	88.9	99.3	100.0	100.0	-	98.5	97.7
Other Vehicles	0	0	0	0	0	-	0	0	6	0	1	0	-	7	0	1	1	3	-	5	0	3	2	0	0	-	5	17
% Other Vehicles	-	0.0	-	0.0	0.0	-	0.0	-	15.4	0.0	5.9	0.0	-	10.3	-	7.1	0.5	5.6	-	1.8	-	11.1	0.7	0.0	0.0	-	1.5	2.3
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.578201, -77.621443

Count Name: 2. Business 22 & Industrial Park Road
Site Code: 2
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (3:00 PM)

3. Industrial Park Road & Middle Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 4:00AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	0	10	1	0	**11**	0	0	1	0	0	**1**	0	**12**
4:15AM	1	0	0	0	**1**	0	0	0	0	0	**0**	0	0	27	2	0	**29**	0	0	0	0	0	**0**	0	**30**
4:30AM	5	0	0	0	**5**	0	0	0	0	0	**0**	0	1	14	1	0	**16**	0	0	3	0	0	**3**	0	**24**
4:45AM	2	0	0	0	**2**	0	0	0	4	0	**4**	0	3	12	1	0	**16**	0	0	7	0	0	**7**	0	**29**
Hourly Total	8	0	0	0	**8**	0	0	0	4	0	**4**	0	4	63	5	0	**72**	0	0	11	0	0	**11**	0	**95**
5:00AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	3	18	3	0	**24**	0	0	2	0	0	**2**	0	**26**
5:15AM	0	0	0	0	**0**	0	0	0	4	0	**4**	0	2	44	3	0	**49**	0	0	7	0	0	**7**	0	**60**
5:30AM	2	1	0	0	**3**	0	2	1	2	0	**5**	0	2	77	14	0	**93**	0	0	2	0	0	**2**	0	**103**
5:45AM	4	0	0	0	**4**	0	2	0	3	0	**5**	0	1	84	11	0	**96**	0	0	13	1	0	**14**	0	**119**
Hourly Total	6	1	0	0	**7**	0	4	1	9	0	**14**	0	8	223	31	0	**262**	0	0	24	1	0	**25**	0	**308**
6:00AM	3	0	1	0	**4**	0	1	0	6	0	**7**	0	3	63	7	0	**73**	0	0	7	0	0	**7**	0	**91**
6:15AM	13	1	2	0	**16**	0	0	0	2	0	**2**	0	2	83	4	0	**89**	0	0	11	0	0	**11**	0	**118**
6:30AM	3	1	1	0	**5**	0	0	0	1	0	**1**	0	1	97	3	0	**101**	0	0	17	0	0	**17**	0	**124**
6:45AM	0	1	1	0	**2**	0	1	1	2	0	**4**	0	2	74	9	0	**85**	0	0	14	0	0	**14**	0	**105**
Hourly Total	19	3	5	0	**27**	0	2	1	11	0	**14**	0	8	317	23	0	**348**	0	0	49	0	0	**49**	0	**438**
7:00AM	3	0	0	0	**3**	0	0	0	3	0	**3**	0	1	34	3	0	**38**	0	3	73	0	0	**76**	0	**120**
7:15AM	2	1	0	0	**3**	0	0	0	2	0	**2**	0	1	34	3	0	**38**	0	1	29	1	0	**31**	0	**74**
7:30AM	5	0	0	0	**5**	0	2	2	5	0	**9**	0	0	28	2	0	**30**	0	0	30	0	0	**30**	0	**74**
7:45AM	4	2	0	0	**6**	0	1	1	6	0	**8**	0	0	41	3	0	**44**	0	0	16	0	0	**16**	0	**74**
Hourly Total	14	3	0	0	**17**	0	3	3	16	0	**22**	0	2	137	11	0	**150**	0	4	148	1	0	**153**	0	**342**
8:00AM	6	3	0	0	**9**	0	0	0	3	0	**3**	0	1	24	7	0	**32**	0	0	26	0	0	**26**	0	**70**
8:15AM	6	4	1	0	**11**	0	1	1	2	0	**4**	0	0	15	6	0	**21**	0	0	9	0	0	**9**	0	**45**
8:30AM	7	2	1	0	**10**	0	0	2	2	0	**4**	0	1	9	5	0	**15**	0	1	12	1	0	**14**	0	**43**
8:45AM	7	3	0	0	**10**	0	0	0	2	0	**2**	0	2	13	8	0	**23**	0	0	16	0	0	**16**	0	**51**
Hourly Total	26	12	2	0	**40**	0	1	3	9	0	**13**	0	4	61	26	0	**91**	0	1	63	1	0	**65**	0	**209**
9:00AM	3	2	0	0	**5**	0	1	2	2	0	**5**	0	2	13	2	0	**17**	0	1	12	0	0	**13**	1	**40**
9:15AM	9	1	2	0	**12**	0	1	1	1	0	**3**	0	2	15	2	0	**19**	0	0	14	0	0	**14**	0	**48**
9:30AM	1	3	0	0	**4**	0	0	0	1	0	**1**	0	8	10	4	0	**22**	0	0	17	2	0	**19**	0	**46**
9:45AM	2	0	1	0	**3**	0	0	1	1	0	**2**	0	2	16	11	0	**29**	1	0	11	1	0	**12**	0	**46**
Hourly Total	15	6	3	0	**24**	0	2	4	5	0	**11**	0	14	54	19	0	**87**	1	1	54	3	0	**58**	1	**180**
10:00AM	4	0	0	0	**4**	0	0	0	2	0	**2**	0	4	13	4	0	**21**	0	1	8	0	0	**9**	0	**36**
10:15AM	8	2	0	1	**11**	0	0	0	3	0	**3**	0	3	16	5	1	**25**	0	1	12	0	0	**13**	0	**52**
10:30AM	9	2	0	0	**11**	0	0	3	1	0	**4**	0	0	15	1	0	**16**	0	0	15	0	0	**15**	0	**46**
10:45AM	9	2	0	0	**11**	0	0	0	2	0	**2**	0	3	10	5	0	**18**	0	0	15	0	0	**15**	0	**46**
Hourly Total	30	6	0	1	**37**	0	0	3	8	0	**11**	0	10	54	15	1	**80**	0	2	50	0	0	**52**	0	**180**
11:00AM	7	3	0	0	**10**	0	2	1	3	0	**6**	0	3	19	2	0	**24**	0	0	18	1	0	**19**	0	**59**
11:15AM	6	2	1	0	**9**	0	1	0	1	0	**2**	0	0	12	5	0	**17**	0	0	14	4	0	**18**	0	**46**
11:30AM	8	1	0	0	**9**	0	2	1	1	0	**4**	0	1	17	12	0	**30**	0	0	24	1	0	**25**	0	**68**

Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
11:45AM	8	5	0	0	**13**	0	3	0	2	0	**5**	0	2	23	8	0	**33**	0	0	13	1	0	**14**	0	**65**
Hourly Total	29	11	1	0	**41**	0	8	2	7	0	**17**	0	6	71	27	0	**104**	0	0	69	7	0	**76**	0	**238**
12:00PM	10	5	1	0	**16**	0	1	0	2	0	**3**	0	0	30	12	0	**42**	0	2	50	2	0	**54**	0	**115**
12:15PM	3	5	1	0	**9**	0	2	3	4	0	**9**	0	2	22	6	0	**30**	0	0	20	0	0	**20**	0	**68**
12:30PM	3	3	2	0	**8**	0	0	0	1	0	**1**	0	3	22	12	0	**37**	0	0	15	1	0	**16**	0	**62**
12:45PM	4	2	1	0	**7**	0	3	1	0	0	**4**	0	3	18	6	0	**27**	0	1	9	0	0	**10**	0	**48**
Hourly Total	20	15	5	0	**40**	0	6	4	7	0	**17**	0	8	92	36	0	**136**	0	3	94	3	0	**100**	0	**293**
1:00PM	5	0	0	0	**5**	0	0	1	2	0	**3**	0	4	10	5	0	**19**	0	0	21	0	0	**21**	0	**48**
1:15PM	5	1	2	0	**8**	0	1	1	3	0	**5**	0	1	22	5	0	**28**	0	0	17	0	0	**17**	0	**58**
1:30PM	5	3	0	0	**8**	0	0	3	3	0	**6**	0	1	20	7	0	**28**	0	0	15	0	0	**15**	0	**57**
1:45PM	7	2	1	0	**10**	0	1	1	1	0	**3**	0	2	27	4	0	**33**	0	0	25	0	0	**25**	0	**71**
Hourly Total	22	6	3	0	**31**	0	2	6	9	0	**17**	0	8	79	21	0	**108**	0	0	78	0	0	**78**	0	**234**
2:00PM	7	1	0	0	**8**	0	1	2	0	0	**3**	0	2	22	3	0	**27**	0	0	25	1	0	**26**	0	**64**
2:15PM	2	0	0	0	**2**	0	1	1	1	0	**3**	0	3	27	4	0	**34**	0	1	31	0	0	**32**	0	**71**
2:30PM	11	4	0	0	**15**	0	2	2	2	0	**6**	0	4	22	4	0	**30**	0	2	216	2	0	**220**	0	**271**
2:45PM	5	3	0	0	**8**	0	0	1	3	0	**4**	0	4	12	3	0	**19**	0	0	60	4	0	**64**	1	**95**
Hourly Total	25	8	0	0	**33**	0	4	6	6	0	**16**	0	13	83	14	0	**110**	0	3	332	7	0	**342**	1	**501**
3:00PM	13	5	0	0	**18**	0	0	2	3	0	**5**	0	6	13	3	0	**22**	0	2	63	1	0	**66**	0	**111**
3:15PM	5	1	0	0	**6**	0	0	5	3	0	**8**	0	3	13	3	0	**19**	0	0	36	0	0	**36**	0	**69**
3:30PM	8	1	1	0	**10**	0	0	2	1	0	**3**	0	6	8	8	0	**22**	0	1	45	1	0	**47**	0	**82**
3:45PM	2	1	1	0	**4**	0	0	1	2	0	**3**	0	4	14	5	0	**23**	0	1	28	0	0	**29**	0	**59**
Hourly Total	28	8	2	0	**38**	0	0	10	9	0	**19**	0	19	48	19	0	**86**	0	4	172	2	0	**178**	0	**321**
4:00PM	9	3	0	0	**12**	0	0	2	4	0	**6**	0	4	10	6	0	**20**	0	0	48	1	0	**49**	0	**87**
4:15PM	6	3	0	0	**9**	0	0	1	5	0	**6**	0	3	20	8	0	**31**	0	2	24	2	0	**28**	0	**74**
4:30PM	6	5	0	0	**11**	0	0	1	3	0	**4**	0	3	10	7	0	**20**	0	0	43	1	0	**44**	0	**79**
4:45PM	4	5	0	0	**9**	0	2	2	3	0	**7**	0	5	19	6	0	**30**	0	0	18	0	0	**18**	0	**64**
Hourly Total	25	16	0	0	**41**	0	2	6	15	0	**23**	0	15	59	27	0	**101**	0	2	133	4	0	**139**	0	**304**
5:00PM	1	4	1	0	**6**	0	1	2	3	0	**6**	0	3	12	8	0	**23**	0	1	19	1	0	**21**	0	**56**
5:15PM	8	4	0	0	**12**	0	0	0	1	0	**1**	0	1	18	15	0	**34**	0	0	20	1	0	**21**	0	**68**
5:30PM	7	3	0	0	**10**	0	1	4	1	0	**6**	0	1	12	6	0	**19**	0	0	25	0	0	**25**	0	**60**
5:45PM	5	2	0	0	**7**	0	1	1	5	0	**7**	0	1	17	5	0	**23**	0	0	24	3	0	**27**	0	**64**
Hourly Total	21	13	1	0	**35**	0	3	7	10	0	**20**	0	6	59	34	0	**99**	0	1	88	5	0	**94**	0	**248**
6:00PM	1	2	0	0	**3**	0	1	3	6	0	**10**	0	2	20	8	0	**30**	0	0	10	0	0	**10**	0	**53**
6:15PM	5	0	2	0	**7**	0	2	1	1	0	**4**	0	3	29	6	0	**38**	0	0	9	0	0	**9**	0	**58**
6:30PM	2	5	1	0	**8**	0	0	1	0	0	**1**	0	1	42	4	0	**47**	0	0	7	0	0	**7**	0	**63**
6:45PM	6	2	2	0	**10**	0	0	0	2	0	**2**	0	4	26	2	0	**32**	0	0	14	2	0	**16**	0	**60**
Hourly Total	14	9	5	0	**28**	0	3	5	9	0	**17**	0	10	117	20	0	**147**	0	0	40	2	0	**42**	0	**234**
7:00PM	7	2	0	0	**9**	0	1	2	1	0	**4**	0	1	7	5	0	**13**	0	1	76	0	0	**77**	0	**103**
7:15PM	3	1	0	0	**4**	0	0	1	1	0	**2**	0	3	12	6	0	**21**	0	0	38	0	0	**38**	0	**65**
7:30PM	1	2	0	0	**3**	0	0	2	0	0	**2**	0	4	6	3	0	**13**	0	0	15	2	0	**17**	0	**35**
7:45PM	1	6	1	0	**8**	0	2	1	0	0	**3**	0	2	4	3	0	**9**	0	1	3	0	0	**4**	0	**24**
Hourly Total	12	11	1	0	**24**	0	3	6	2	0	**11**	0	10	29	17	0	**56**	0	2	132	2	0	**136**	0	**227**
2026-06-20 4:00AM	3	0	0	0	**3**	0	0	0	1	0	**1**	0	0	2	1	0	**3**	0	0	0	0	0	**0**	0	**7**
4:15AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	0	5	0	0	**5**	0	0	3	0	0	**3**	0	**8**
4:30AM	0	0	0	0	**0**	0	0	0	1	0	**1**	0	0	16	0	0	**16**	0	0	0	1	0	**1**	0	**18**

Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
4:45AM	0	0	0	0	**0**	0	0	0	0	0	**0**	0	0	24	0	0	**24**	0	0	3	0	0	**3**	0	**27**
Hourly Total	3	0	0	0	**3**	0	0	0	2	0	**2**	0	0	47	1	0	**48**	0	0	6	1	0	**7**	0	**60**
5:00AM	1	0	0	0	**1**	0	0	0	0	0	**0**	0	2	4	0	0	**6**	0	0	12	0	0	**12**	0	**19**
5:15AM	1	0	0	0	**1**	0	0	0	0	0	**0**	0	0	5	1	0	**6**	0	0	3	0	0	**3**	0	**10**
5:30AM	0	0	0	0	**0**	0	0	0	1	0	**1**	0	0	5	1	0	**6**	0	0	2	0	0	**2**	0	**9**
5:45AM	0	0	0	0	**0**	0	0	0	1	0	**1**	0	0	8	1	0	**9**	0	0	1	0	0	**1**	0	**11**
Hourly Total	2	0	0	0	**2**	0	0	0	2	0	**2**	0	2	22	3	0	**27**	0	0	18	0	0	**18**	0	**49**
6:00AM	2	2	1	0	**5**	0	0	0	1	0	**1**	0	1	9	0	0	**10**	0	0	1	0	0	**1**	0	**17**
6:15AM	1	0	1	0	**2**	0	0	1	1	0	**2**	0	2	31	2	0	**35**	0	0	7	0	0	**7**	0	**46**
6:30AM	2	1	3	0	**6**	0	1	1	0	0	**2**	0	0	48	0	0	**48**	0	0	5	0	0	**5**	0	**61**
6:45AM	2	0	3	0	**5**	0	1	0	0	0	**1**	0	2	25	0	0	**27**	0	1	7	0	0	**8**	0	**41**
Hourly Total	7	3	8	0	**18**	0	2	2	2	0	**6**	0	5	113	2	0	**120**	0	1	20	0	0	**21**	0	**165**
7:00AM	0	2	0	0	**2**	0	0	0	2	0	**2**	0	0	9	4	0	**13**	0	1	57	1	0	**59**	0	**76**
7:15AM	2	1	0	0	**3**	0	0	1	2	0	**3**	0	0	6	2	0	**8**	0	1	24	1	0	**26**	0	**40**
7:30AM	3	0	0	0	**3**	0	0	1	0	0	**1**	0	0	7	2	0	**9**	0	0	8	1	0	**9**	0	**22**
7:45AM	3	0	0	0	**3**	0	0	0	1	0	**1**	0	1	6	2	0	**9**	0	0	11	0	0	**11**	0	**24**
Hourly Total	8	3	0	0	**11**	0	0	2	5	0	**7**	0	1	28	10	0	**39**	0	2	100	3	0	**105**	0	**162**
8:00AM	4	0	0	0	**4**	0	0	0	0	0	**0**	0	0	6	1	0	**7**	0	0	10	0	0	**10**	0	**21**
8:15AM	5	1	0	0	**6**	0	1	0	4	0	**5**	0	2	1	3	0	**6**	0	1	9	0	0	**10**	0	**27**
8:30AM	3	2	0	0	**5**	0	1	0	3	0	**4**	0	1	6	0	0	**7**	0	0	7	1	0	**8**	0	**24**
8:45AM	6	1	0	0	**7**	0	0	2	3	0	**5**	0	1	6	2	0	**9**	0	0	5	2	0	**7**	0	**28**
Hourly Total	18	4	0	0	**22**	0	2	2	10	0	**14**	0	4	19	6	0	**29**	0	1	31	3	0	**35**	0	**100**
9:00AM	7	3	0	0	**10**	0	1	2	0	0	**3**	0	3	9	7	0	**19**	0	0	21	1	0	**22**	0	**54**
9:15AM	8	1	0	0	**9**	0	3	2	4	0	**9**	0	0	6	5	0	**11**	0	0	7	0	0	**7**	0	**36**
9:30AM	4	3	1	0	**8**	0	2	1	1	0	**4**	0	2	11	8	0	**21**	0	1	10	1	0	**12**	0	**45**
9:45AM	2	5	0	0	**7**	0	1	0	3	0	**4**	0	2	9	4	0	**15**	0	0	10	0	0	**10**	0	**36**
Hourly Total	21	12	1	0	**34**	0	7	5	8	0	**20**	0	7	35	24	0	**66**	0	1	48	2	0	**51**	0	**171**
10:00AM	3	2	1	0	**6**	0	0	1	1	0	**2**	0	1	3	3	0	**7**	0	2	11	1	0	**14**	0	**29**
10:15AM	2	0	0	0	**2**	0	0	2	1	0	**3**	0	0	7	10	1	**18**	0	0	6	1	0	**7**	0	**30**
10:30AM	6	1	0	0	**7**	0	2	2	3	0	**7**	0	1	6	6	0	**13**	0	1	13	0	0	**14**	0	**41**
10:45AM	3	3	1	0	**7**	0	0	3	2	0	**5**	0	6	14	4	0	**24**	0	1	17	1	0	**19**	0	**55**
Hourly Total	14	6	2	0	**22**	0	2	8	7	0	**17**	0	8	30	23	1	**62**	0	4	47	3	0	**54**	0	**155**
11:00AM	6	3	0	0	**9**	0	2	0	0	0	**2**	0	4	13	4	0	**21**	0	0	10	0	0	**10**	0	**42**
11:15AM	6	1	0	0	**7**	0	2	4	3	0	**9**	0	2	12	6	0	**20**	0	0	8	2	0	**10**	0	**46**
11:30AM	4	3	0	0	**7**	0	1	1	0	0	**2**	0	3	14	6	0	**23**	0	0	10	0	0	**10**	0	**42**
11:45AM	2	2	0	0	**4**	0	1	4	2	0	**7**	0	1	18	1	0	**20**	0	0	7	1	0	**8**	0	**39**
Hourly Total	18	9	0	0	**27**	0	6	9	5	0	**20**	0	10	57	17	0	**84**	0	0	35	3	0	**38**	0	**169**
12:00PM	7	1	0	0	**8**	0	1	3	5	0	**9**	0	1	6	6	0	**13**	0	0	35	1	0	**36**	0	**66**
12:15PM	7	2	0	0	**9**	1	1	2	3	0	**6**	0	5	8	10	0	**23**	0	1	7	0	0	**8**	0	**46**
12:30PM	1	2	0	0	**3**	0	0	5	1	0	**6**	0	3	13	4	0	**20**	0	0	7	0	0	**7**	0	**36**
12:45PM	9	3	0	0	**12**	0	1	1	2	0	**4**	0	1	9	8	0	**18**	0	0	5	1	0	**6**	0	**40**
Hourly Total	24	8	0	0	**32**	1	3	11	11	0	**25**	0	10	36	28	0	**74**	0	1	54	2	0	**57**	0	**188**
1:00PM	4	3	0	0	**7**	0	1	8	3	0	**12**	0	5	10	10	0	**25**	0	0	11	0	0	**11**	0	**55**
1:15PM	3	2	0	0	**5**	0	0	0	1	0	**1**	0	1	8	9	0	**18**	0	0	7	1	0	**8**	0	**32**
1:30PM	3	3	1	0	**7**	0	0	1	1	0	**2**	0	5	8	2	0	**15**	0	0	10	0	0	**10**	0	**34**

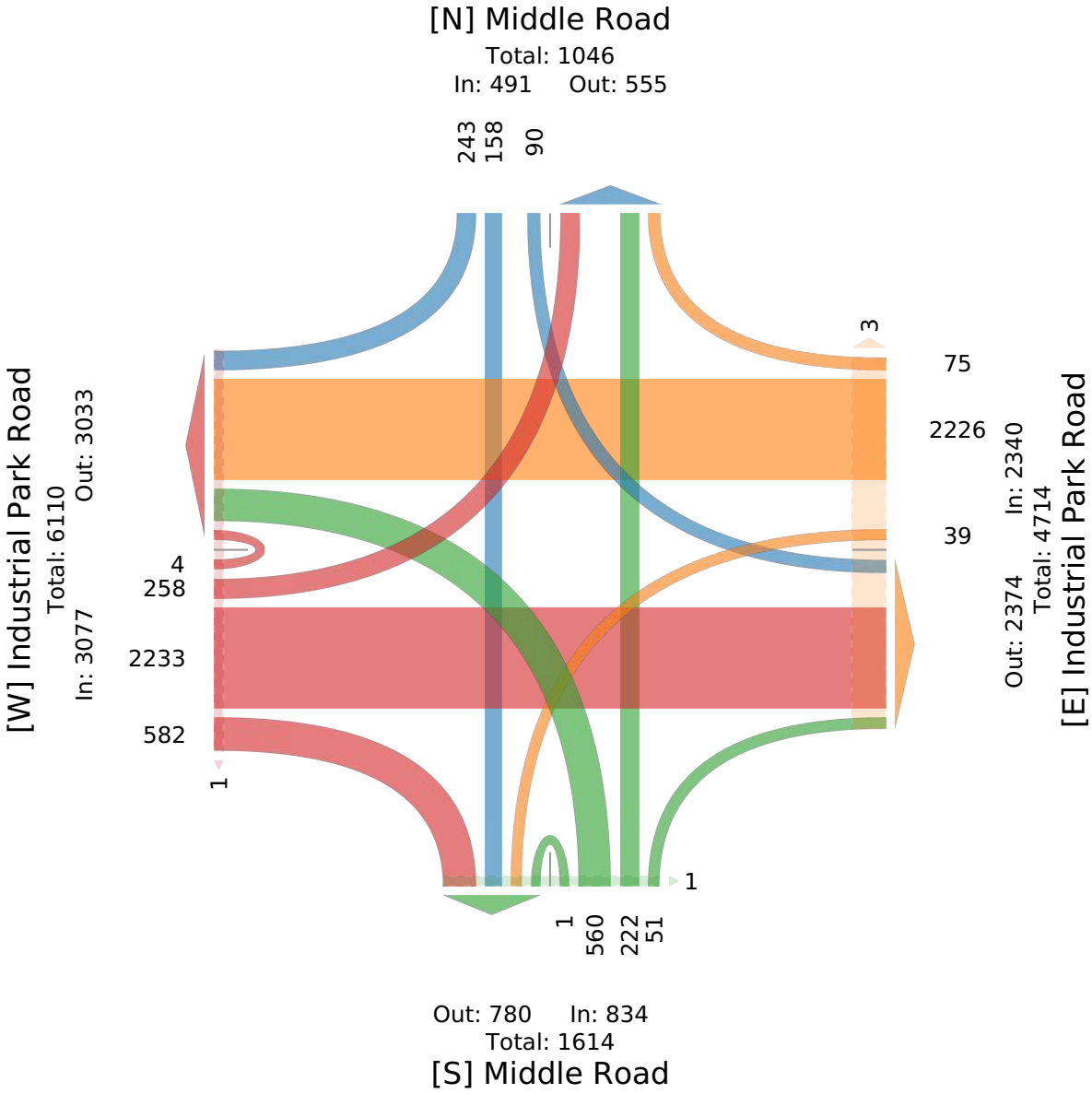
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
1:45PM	4	3	0	0	**7**	0	1	1	4	0	**6**	0	1	11	4	0	**16**	0	0	8	0	0	**8**	0	**37**
Hourly Total	14	11	1	0	**26**	0	2	10	9	0	**21**	0	12	37	25	0	**74**	0	0	36	1	0	**37**	0	**158**
2:00PM	3	1	0	0	**4**	0	1	1	2	0	**4**	0	3	4	4	0	**11**	0	0	7	1	0	**8**	0	**27**
2:15PM	7	2	1	0	**10**	0	3	1	2	0	**6**	0	3	6	7	0	**16**	0	0	8	1	0	**9**	0	**41**
2:30PM	2	6	0	0	**8**	0	0	4	6	0	**10**	0	3	5	8	0	**16**	0	0	7	0	0	**7**	0	**41**
2:45PM	4	1	0	0	**5**	0	1	4	1	0	**6**	0	2	11	8	0	**21**	0	0	7	0	0	**7**	0	**39**
Hourly Total	16	10	1	0	**27**	0	5	10	11	0	**26**	0	11	26	27	0	**64**	0	0	29	2	0	**31**	0	**148**
3:00PM	4	1	0	0	**5**	0	1	1	0	0	**2**	0	2	10	8	0	**20**	0	0	11	1	0	**12**	0	**39**
3:15PM	4	1	0	0	**5**	0	3	3	5	0	**11**	0	1	20	5	0	**26**	0	0	11	0	0	**11**	0	**53**
3:30PM	7	4	0	0	**11**	0	0	2	1	0	**3**	0	3	7	9	0	**19**	0	0	10	1	0	**11**	0	**44**
3:45PM	5	3	0	0	**8**	0	0	2	1	0	**3**	0	1	9	5	0	**15**	0	0	6	1	0	**7**	0	**33**
Hourly Total	20	9	0	0	**29**	0	4	8	7	0	**19**	0	7	46	27	0	**80**	0	0	38	3	0	**41**	0	**169**
4:00PM	7	1	1	0	**9**	0	1	5	2	0	**8**	0	2	12	3	0	**17**	0	1	11	0	0	**12**	0	**46**
4:15PM	4	2	0	0	**6**	0	1	2	1	0	**4**	0	2	11	4	0	**17**	0	0	13	0	0	**13**	0	**40**
4:30PM	7	2	0	0	**9**	0	3	1	3	0	**7**	0	3	5	6	0	**14**	0	0	9	0	0	**9**	0	**39**
4:45PM	1	1	1	0	**3**	0	2	3	1	0	**6**	0	4	10	6	0	**20**	0	0	5	0	0	**5**	1	**34**
Hourly Total	19	6	2	0	**27**	0	7	11	7	0	**25**	0	11	38	19	0	**68**	0	1	38	0	0	**39**	1	**159**
5:00PM	6	1	0	0	**7**	0	0	1	2	0	**3**	0	3	6	2	0	**11**	0	0	8	2	0	**10**	0	**31**
5:15PM	6	1	0	0	**7**	0	1	4	2	0	**7**	0	3	6	3	0	**12**	0	0	9	2	0	**11**	0	**37**
5:30PM	6	1	0	0	**7**	0	0	0	1	0	**1**	0	3	8	0	0	**11**	0	0	6	0	0	**6**	0	**25**
5:45PM	9	3	1	0	**13**	0	1	0	4	0	**5**	0	4	11	2	1	**18**	0	0	10	1	0	**11**	0	**47**
Hourly Total	27	6	1	0	**34**	0	2	5	9	0	**16**	0	13	31	7	1	**52**	0	0	33	5	0	**38**	0	**140**
6:00PM	3	1	3	0	**7**	0	1	2	1	0	**4**	0	0	20	1	0	**21**	0	0	9	0	0	**9**	0	**41**
6:15PM	6	1	2	0	**9**	0	0	1	4	0	**5**	0	0	17	4	1	**22**	0	0	7	0	0	**7**	0	**43**
6:30PM	6	1	1	0	**8**	0	1	1	0	0	**2**	0	0	38	2	0	**40**	0	0	11	1	0	**12**	0	**62**
6:45PM	3	2	1	0	**6**	0	0	0	3	0	**3**	0	2	21	1	0	**24**	0	0	7	1	0	**8**	0	**41**
Hourly Total	18	5	7	0	**30**	0	2	4	8	0	**14**	0	2	96	8	1	**107**	0	0	34	2	0	**36**	0	**187**
7:00PM	2	1	0	0	**3**	0	0	1	0	0	**1**	0	4	7	3	0	**14**	0	3	80	1	0	**84**	0	**102**
7:15PM	8	0	0	0	**8**	0	1	1	1	0	**3**	0	2	9	2	0	**13**	0	1	32	1	0	**34**	0	**58**
7:30PM	4	1	0	0	**5**	0	1	2	2	0	**5**	0	2	3	3	0	**8**	0	0	8	1	0	**9**	0	**27**
7:45PM	3	0	0	0	**3**	0	1	0	1	0	**2**	0	2	7	2	0	**11**	0	1	2	4	0	**7**	0	**23**
Hourly Total	17	2	0	0	**19**	0	3	4	4	0	**11**	0	10	26	10	0	**46**	0	5	122	7	0	**134**	0	**210**
Total	560	222	51	1	**834**	1	90	158	243	0	**491**	0	258	2233	582	4	**3077**	1	39	2226	75	0	**2340**	3	**6742**
% Approach	67.1%	26.6%	6.1%	0.1%	**-**	-	18.3%	32.2%	49.5%	0%	**-**	-	8.4%	72.6%	18.9%	0.1%	**-**	-	1.7%	95.1%	3.2%	0%	**-**	-	-
% Total	8.3%	3.3%	0.8%	0%	**12.4%**	-	1.3%	2.3%	3.6%	0%	**7.3%**	-	3.8%	33.1%	8.6%	0.1%	**45.6%**	-	0.6%	33.0%	1.1%	0%	**34.7%**	-	-
Lights and Motorcycles	525	220	49	1	**795**	-	84	157	220	0	**461**	-	234	1922	549	4	**2709**	-	36	1909	74	0	**2019**	-	5984
% Lights and Motorcycles	93.8%	99.1%	96.1%	100%	**95.3%**	-	93.3%	99.4%	90.5%	0%	**93.9%**	-	90.7%	86.1%	94.3%	100%	**88.0%**	-	92.3%	85.8%	98.7%	0%	**86.3%**	-	88.8%
Heavy	35	2	2	0	**39**	-	6	1	23	0	**30**	-	24	311	33	0	**368**	-	3	317	1	0	**321**	-	758
% Heavy	6.3%	0.9%	3.9%	0%	**4.7%**	-	6.7%	0.6%	9.5%	0%	**6.1%**	-	9.3%	13.9%	5.7%	0%	**12.0%**	-	7.7%	14.2%	1.3%	0%	**13.7%**	-	11.2%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	66.7%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	33.3%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

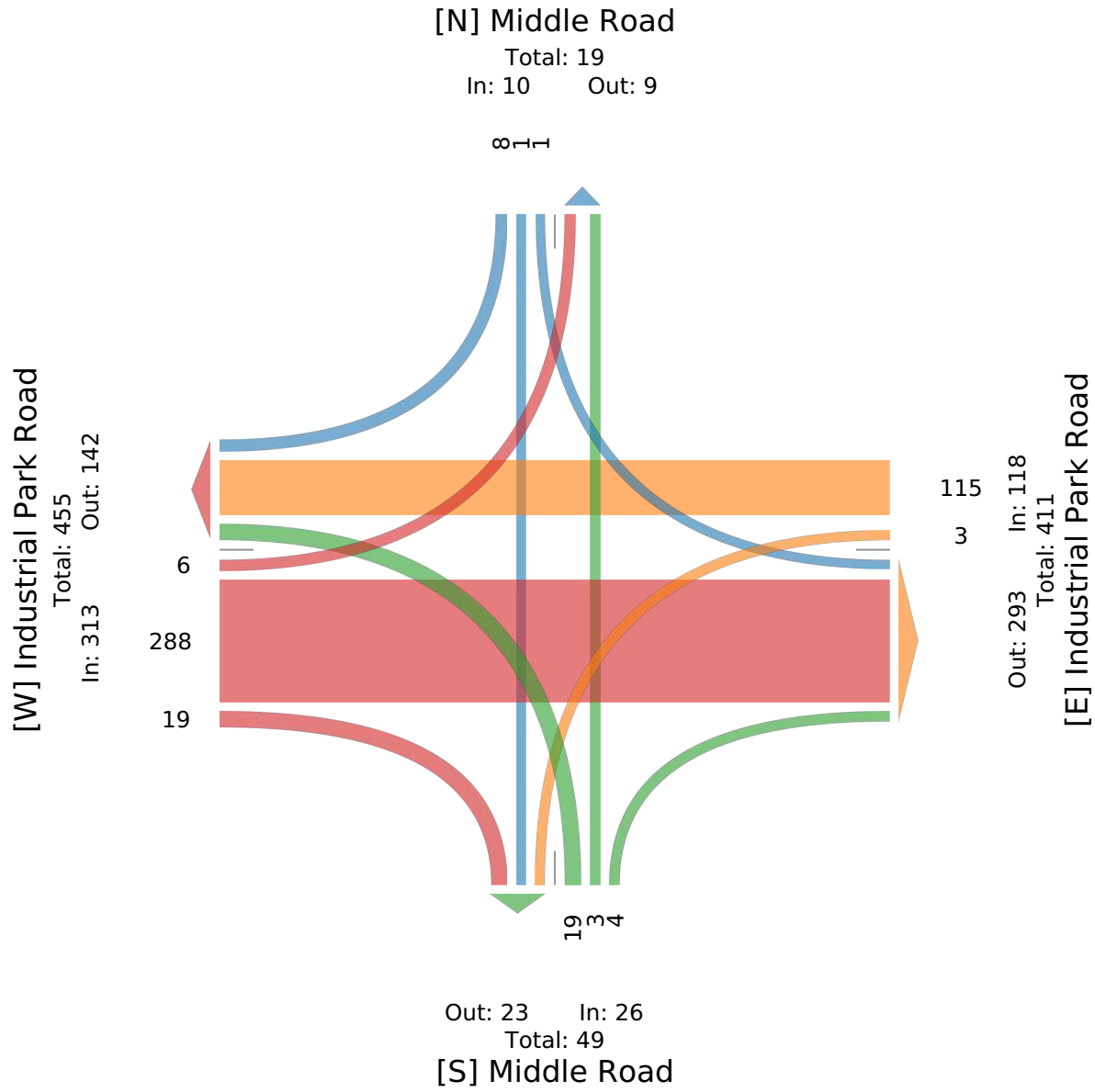
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 6:15AM	13	1	2	0	**16**	0	0	0	2	0	**2**	0	2	83	4	0	**89**	0	0	11	0	0	**11**	0	**118**
6:30AM	3	1	1	0	**5**	0	0	0	1	0	**1**	0	1	97	3	0	**101**	0	0	17	0	0	**17**	0	**124**
6:45AM	0	1	1	0	**2**	0	1	1	2	0	**4**	0	2	74	9	0	**85**	0	0	14	0	0	**14**	0	**105**
7:00AM	3	0	0	0	**3**	0	0	0	3	0	**3**	0	1	34	3	0	**38**	0	3	73	0	0	**76**	0	**120**
Total	19	3	4	0	**26**	0	1	1	8	0	**10**	0	6	288	19	0	**313**	0	3	115	0	0	**118**	0	**467**
% Approach	73.1%	11.5%	15.4%	0%	**-**	-	10.0%	10.0%	80.0%	0%	**-**	-	1.9%	92.0%	6.1%	0%	**-**	-	2.5%	97.5%	0%	0%	**-**	-	**-**
% Total	4.1%	0.6%	0.9%	0%	**5.6%**	-	0.2%	0.2%	1.7%	0%	**2.1%**	-	1.3%	61.7%	4.1%	0%	**67.0%**	-	0.6%	24.6%	0%	0%	**25.3%**	-	**-**
PHF	0.365	0.750	0.500	-	**0.406**	-	0.250	0.250	0.667	-	**0.625**	-	0.750	0.742	0.528	-	**0.775**	-	0.250	0.394	-	-	**0.388**	-	0.942
Lights and Motorcycles	18	3	4	0	**25**	-	1	1	6	0	**8**	-	5	272	17	0	**294**	-	3	107	0	0	**110**	-	437
% Lights and Motorcycles	94.7%	100%	100%	0%	**96.2%**	-	100%	100%	75.0%	0%	**80.0%**	-	83.3%	94.4%	89.5%	0%	**93.9%**	-	100%	93.0%	0%	0%	**93.2%**	-	93.6%
Heavy	1	0	0	0	**1**	-	0	0	2	0	**2**	-	1	16	2	0	**19**	-	0	8	0	0	**8**	-	30
% Heavy	5.3%	0%	0%	0%	**3.8%**	-	0%	0%	25.0%	0%	**20.0%**	-	16.7%	5.6%	10.5%	0%	**6.1%**	-	0%	7.0%	0%	0%	**6.8%**	-	6.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:30AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

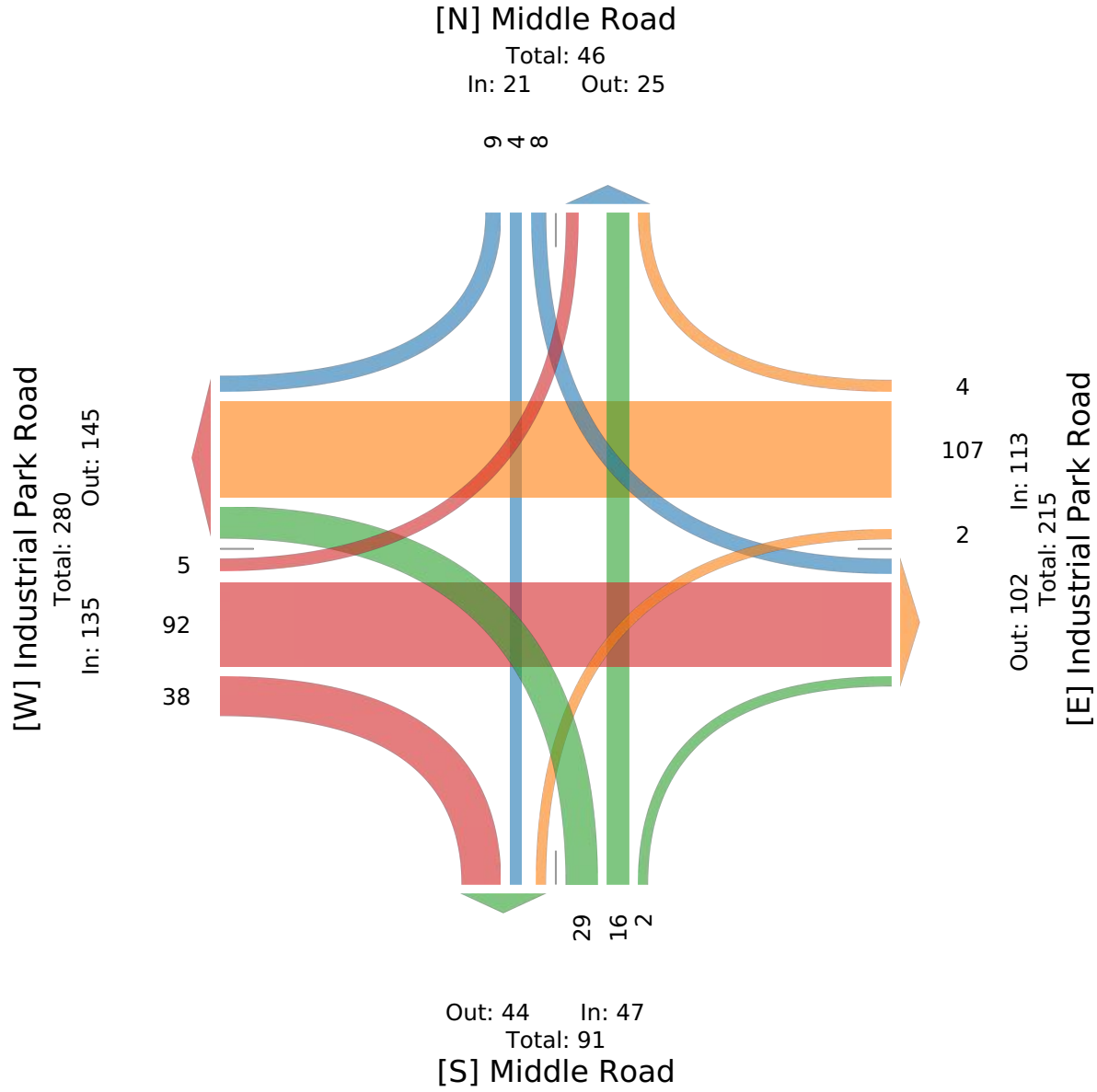
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 11:30AM	8	1	0	0	**9**	0	2	1	1	0	**4**	0	1	17	12	0	**30**	0	0	24	1	0	**25**	0	**68**
11:45AM	8	5	0	0	**13**	0	3	0	2	0	**5**	0	2	23	8	0	**33**	0	0	13	1	0	**14**	0	**65**
12:00PM	10	5	1	0	**16**	0	1	0	2	0	**3**	0	0	30	12	0	**42**	0	2	50	2	0	**54**	0	**115**
12:15PM	3	5	1	0	**9**	0	2	3	4	0	**9**	0	2	22	6	0	**30**	0	0	20	0	0	**20**	0	**68**
Total	29	16	2	0	**47**	0	8	4	9	0	**21**	0	5	92	38	0	**135**	0	2	107	4	0	**113**	0	**316**
% Approach	61.7%	34.0%	4.3%	0%	**-**	-	38.1%	19.0%	42.9%	0%	**-**	-	3.7%	68.1%	28.1%	0%	**-**	-	1.8%	94.7%	3.5%	0%	**-**	-	-
% Total	9.2%	5.1%	0.6%	0%	**14.9%**	-	2.5%	1.3%	2.8%	0%	**6.6%**	-	1.6%	29.1%	12.0%	0%	**42.7%**	-	0.6%	33.9%	1.3%	0%	**35.8%**	-	-
PHF	0.725	0.800	0.500	-	**0.734**	-	0.667	0.333	0.563	-	**0.583**	-	0.625	0.767	0.792	-	**0.804**	-	0.250	0.535	0.500	-	**0.523**	-	0.687
Lights and Motorcycles	20	16	2	0	**38**	-	6	4	9	0	**19**	-	4	69	35	0	**108**	-	1	82	4	0	**87**	-	252
% Lights and Motorcycles	69.0%	100%	100%	0%	**80.9%**	-	75.0%	100%	100%	0%	**90.5%**	-	80.0%	75.0%	92.1%	0%	**80.0%**	-	50.0%	76.6%	100%	0%	**77.0%**	-	79.7%
Heavy	9	0	0	0	**9**	-	2	0	0	0	**2**	-	1	23	3	0	**27**	-	1	25	0	0	**26**	-	64
% Heavy	31.0%	0%	0%	0%	**19.1%**	-	25.0%	0%	0%	0%	**9.5%**	-	20.0%	25.0%	7.9%	0%	**20.0%**	-	50.0%	23.4%	0%	0%	**23.0%**	-	20.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:30AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
PM Peak (Jun 18 2026 2:15PM - 3:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

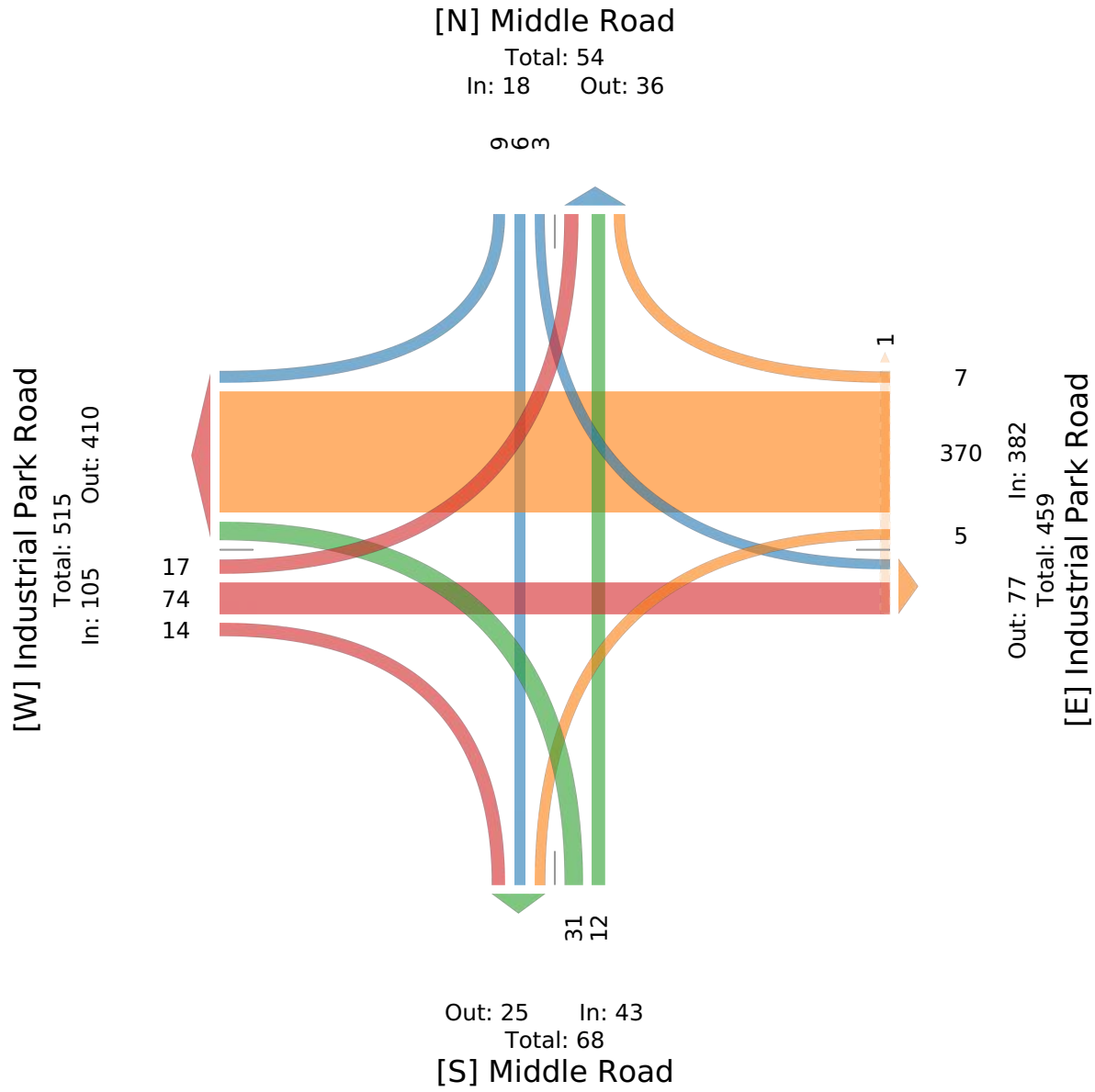
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 2:15PM	2	0	0	0	**2**	0	1	1	1	0	**3**	0	3	27	4	0	**34**	0	1	31	0	0	**32**	0	**71**
2:30PM	11	4	0	0	**15**	0	2	2	2	0	**6**	0	4	22	4	0	**30**	0	2	216	2	0	**220**	0	**271**
2:45PM	5	3	0	0	**8**	0	0	1	3	0	**4**	0	4	12	3	0	**19**	0	0	60	4	0	**64**	1	**95**
3:00PM	13	5	0	0	**18**	0	0	2	3	0	**5**	0	6	13	3	0	**22**	0	2	63	1	0	**66**	0	**111**
Total	31	12	0	0	**43**	0	3	6	9	0	**18**	0	17	74	14	0	**105**	0	5	370	7	0	**382**	1	**548**
% Approach	72.1%	27.9%	0%	0%	**-**	-	16.7%	33.3%	50.0%	0%	**-**	-	16.2%	70.5%	13.3%	0%	**-**	-	1.3%	96.9%	1.8%	0%	**-**	-	**-**
% Total	5.7%	2.2%	0%	0%	**7.8%**	-	0.5%	1.1%	1.6%	0%	**3.3%**	-	3.1%	13.5%	2.6%	0%	**19.2%**	-	0.9%	67.5%	1.3%	0%	**69.7%**	-	**-**
PHF	0.596	0.600	-	-	**0.597**	-	0.375	0.750	0.750	-	**0.750**	-	0.708	0.685	0.875	-	**0.772**	-	0.625	0.428	0.438	-	**0.434**	-	0.506
Lights and Motorcycles	30	12	0	0	**42**	-	3	6	8	0	**17**	-	14	63	13	0	**90**	-	5	351	7	0	**363**	-	512
% Lights and Motorcycles	96.8%	100%	0%	0%	**97.7%**	-	100%	100%	88.9%	0%	**94.4%**	-	82.4%	85.1%	92.9%	0%	**85.7%**	-	100%	94.9%	100%	0%	**95.0%**	-	93.4%
Heavy	1	0	0	0	**1**	-	0	0	1	0	**1**	-	3	11	1	0	**15**	-	0	19	0	0	**19**	-	36
% Heavy	3.2%	0%	0%	0%	**2.3%**	-	0%	0%	11.1%	0%	**5.6%**	-	17.6%	14.9%	7.1%	0%	**14.3%**	-	0%	5.1%	0%	0%	**5.0%**	-	6.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Thu Jun 18, 2026
PM Peak (Jun 18 2026 2:15PM - 3:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

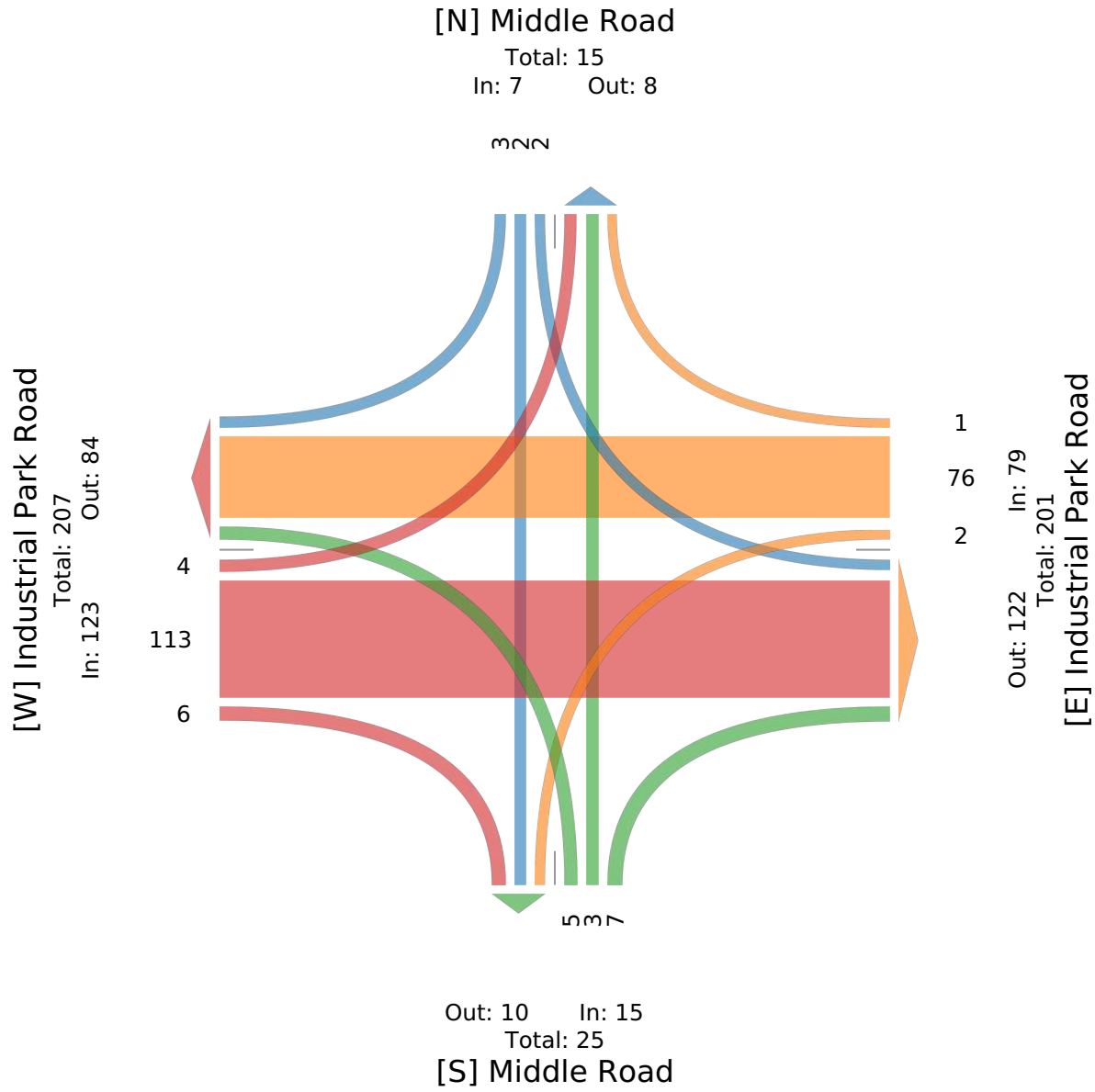
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 6:15AM	1	0	1	0	**2**	0	0	1	1	0	**2**	0	2	31	2	0	**35**	0	0	7	0	0	**7**	0	**46**
6:30AM	2	1	3	0	**6**	0	1	1	0	0	**2**	0	0	48	0	0	**48**	0	0	5	0	0	**5**	0	**61**
6:45AM	2	0	3	0	**5**	0	1	0	0	0	**1**	0	2	25	0	0	**27**	0	1	7	0	0	**8**	0	**41**
7:00AM	0	2	0	0	**2**	0	0	0	2	0	**2**	0	0	9	4	0	**13**	0	1	57	1	0	**59**	0	**76**
Total	5	3	7	0	**15**	0	2	2	3	0	**7**	0	4	113	6	0	**123**	0	2	76	1	0	**79**	0	**224**
% Approach	33.3%	20.0%	46.7%	0%	**-**	-	28.6%	28.6%	42.9%	0%	**-**	-	3.3%	91.9%	4.9%	0%	**-**	-	2.5%	96.2%	1.3%	0%	**-**	-	-
% Total	2.2%	1.3%	3.1%	0%	**6.7%**	-	0.9%	0.9%	1.3%	0%	**3.1%**	-	1.8%	50.4%	2.7%	0%	**54.9%**	-	0.9%	33.9%	0.4%	0%	**35.3%**	-	-
PHF	0.625	0.375	0.583	-	**0.625**	-	0.500	0.500	0.375	-	**0.875**	-	0.500	0.589	0.375	-	**0.641**	-	0.500	0.333	0.250	-	**0.335**	-	0.737
Lights and Motorcycles	5	3	7	0	**15**	-	2	2	3	0	**7**	-	2	108	6	0	**116**	-	2	71	1	0	**74**	-	212
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	50.0%	95.6%	100%	0%	**94.3%**	-	100%	93.4%	100%	0%	**93.7%**	-	94.6%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	2	5	0	0	**7**	-	0	5	0	0	**5**	-	12
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	50.0%	4.4%	0%	0%	**5.7%**	-	0%	6.6%	0%	0%	**6.3%**	-	5.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 6:15AM - 7:15 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

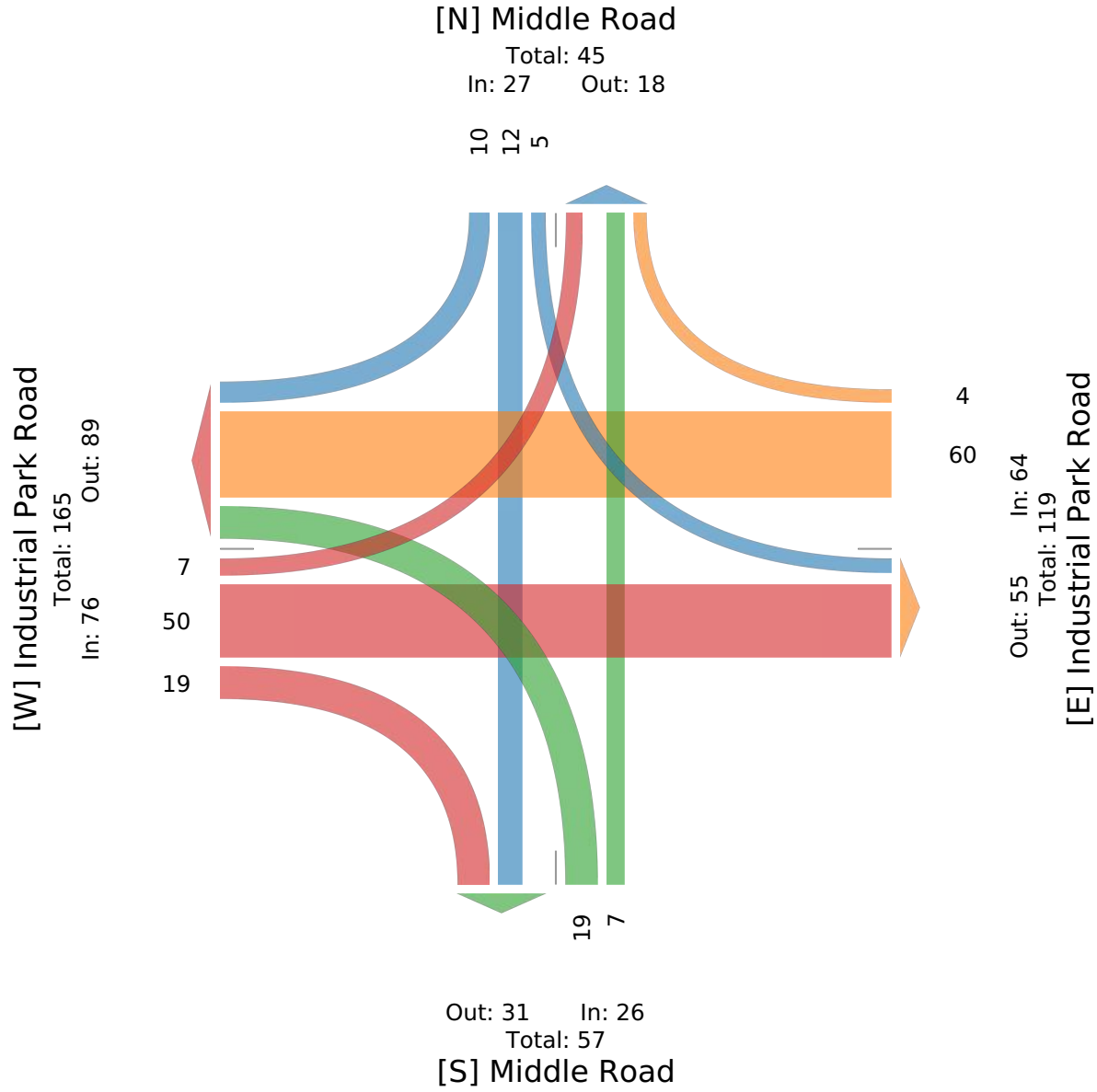
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 11:15AM	6	1	0	0	**7**	0	2	4	3	0	**9**	0	2	12	6	0	**20**	0	0	8	2	0	**10**	0	**46**
11:30AM	4	3	0	0	**7**	0	1	1	0	0	**2**	0	3	14	6	0	**23**	0	0	10	0	0	**10**	0	**42**
11:45AM	2	2	0	0	**4**	0	1	4	2	0	**7**	0	1	18	1	0	**20**	0	0	7	1	0	**8**	0	**39**
12:00PM	7	1	0	0	**8**	0	1	3	5	0	**9**	0	1	6	6	0	**13**	0	0	35	1	0	**36**	0	**66**
Total	19	7	0	0	**26**	0	5	12	10	0	**27**	0	7	50	19	0	**76**	0	0	60	4	0	**64**	0	**193**
% Approach	73.1%	26.9%	0%	0%	**-**	-	18.5%	44.4%	37.0%	0%	**-**	-	9.2%	65.8%	25.0%	0%	**-**	-	0%	93.8%	6.3%	0%	**-**	-	-
% Total	9.8%	3.6%	0%	0%	**13.5%**	-	2.6%	6.2%	5.2%	0%	**14.0%**	-	3.6%	25.9%	9.8%	0%	**39.4%**	-	0%	31.1%	2.1%	0%	**33.2%**	-	-
PHF	0.679	0.583	-	-	**0.813**	-	0.625	0.750	0.500	-	**0.750**	-	0.583	0.694	0.792	-	**0.826**	-	-	0.429	0.500	-	**0.444**	-	0.731
Lights and Motorcycles	19	7	0	0	**26**	-	5	12	10	0	**27**	-	7	45	19	0	**71**	-	0	58	4	0	**62**	-	186
% Lights and Motorcycles	100%	100%	0%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	90.0%	100%	0%	**93.4%**	-	0%	96.7%	100%	0%	**96.9%**	-	96.4%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	5	0	0	**5**	-	0	2	0	0	**2**	-	7
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	10.0%	0%	0%	**6.6%**	-	0%	3.3%	0%	0%	**3.1%**	-	3.6%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



3. Industrial Park Road & Middle Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 6:30PM - 7:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

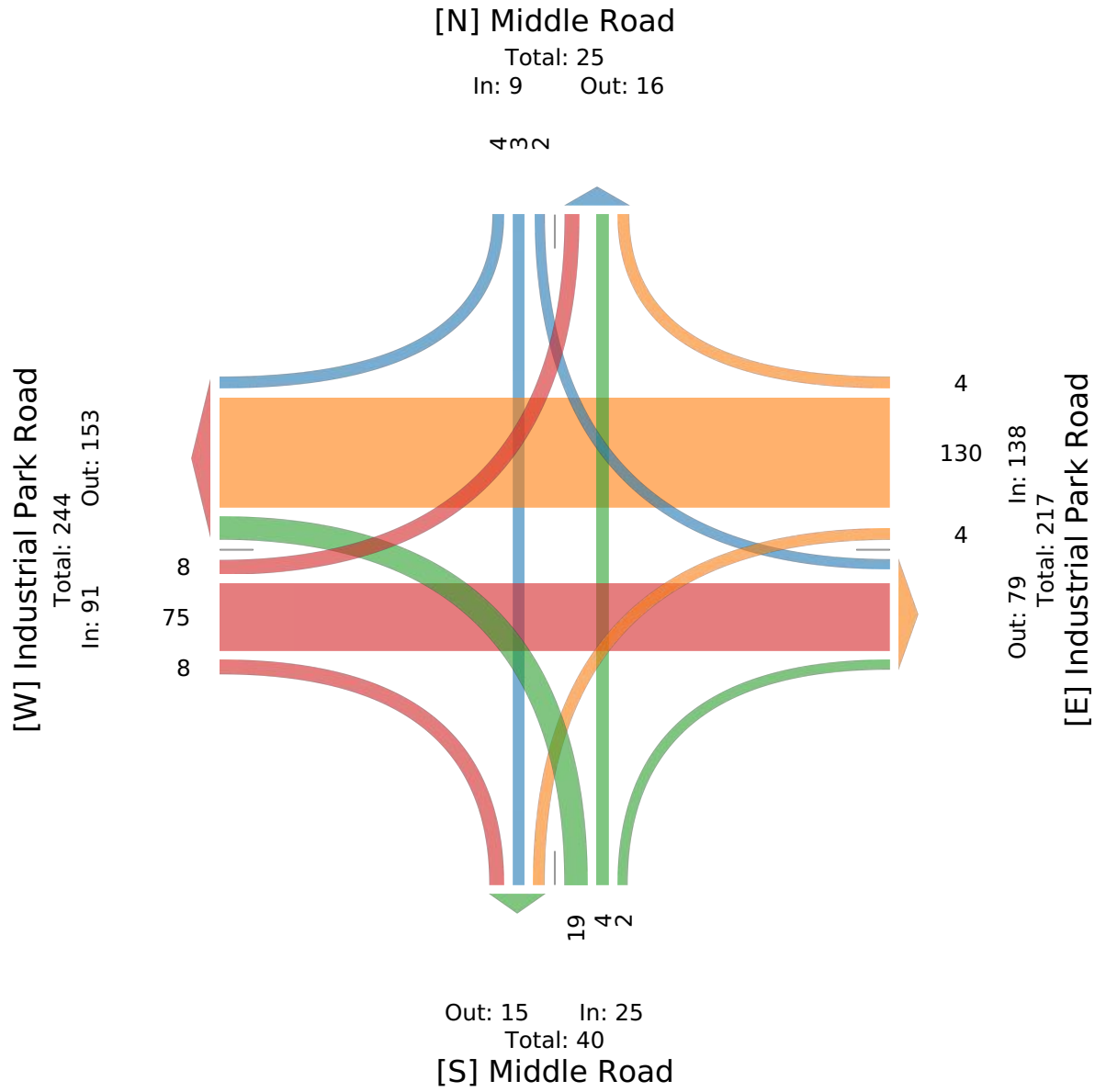
Leg	Middle Road						Middle Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 6:30PM	6	1	1	0	**8**	0	1	1	0	0	**2**	0	0	38	2	0	**40**	0	0	11	1	0	**12**	0	**62**
6:45PM	3	2	1	0	**6**	0	0	0	3	0	**3**	0	2	21	1	0	**24**	0	0	7	1	0	**8**	0	**41**
7:00PM	2	1	0	0	**3**	0	0	1	0	0	**1**	0	4	7	3	0	**14**	0	3	80	1	0	**84**	0	**102**
7:15PM	8	0	0	0	**8**	0	1	1	1	0	**3**	0	2	9	2	0	**13**	0	1	32	1	0	**34**	0	**58**
Total	19	4	2	0	**25**	0	2	3	4	0	**9**	0	8	75	8	0	**91**	0	4	130	4	0	**138**	0	**263**
% Approach	76.0%	16.0%	8.0%	0%	**-**	-	22.2%	33.3%	44.4%	0%	**-**	-	8.8%	82.4%	8.8%	0%	**-**	-	2.9%	94.2%	2.9%	0%	**-**	-	-
% Total	7.2%	1.5%	0.8%	0%	**9.5%**	-	0.8%	1.1%	1.5%	0%	**3.4%**	-	3.0%	28.5%	3.0%	0%	**34.6%**	-	1.5%	49.4%	1.5%	0%	**52.5%**	-	-
PHF	0.594	0.500	0.500	-	**0.781**	-	0.500	0.750	0.333	-	**0.750**	-	0.500	0.493	0.667	-	**0.569**	-	0.333	0.406	1.000	-	**0.411**	-	0.645
Lights and Motorcycles	19	4	2	0	**25**	-	2	3	4	0	**9**	-	8	71	8	0	**87**	-	4	126	4	0	**134**	-	255
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	94.7%	100%	0%	**95.6%**	-	100%	96.9%	100%	0%	**97.1%**	-	97.0%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	4	0	0	**4**	-	0	4	0	0	**4**	-	8
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	5.3%	0%	0%	**4.4%**	-	0%	3.1%	0%	0%	**2.9%**	-	3.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

3. Industrial Park Road & Middle Road - TMC

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 6:30PM - 7:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414020, Location: 40.576259, -77.619838, Site Code: 3

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

Turning Movement Data

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:00 AM	0	0	10	1	0	11	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	12
4:15 AM	0	0	27	2	0	29	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	30
4:30 AM	0	1	14	1	0	16	0	0	3	0	0	3	0	5	0	0	0	5	0	0	0	0	0	0	24
4:45 AM	0	3	12	1	0	16	0	0	7	0	0	7	0	2	0	0	0	2	0	0	0	4	0	4	29
Hourly Total	0	4	63	5	0	72	0	0	11	0	0	11	0	8	0	0	0	8	0	0	0	4	0	4	95
5:00 AM	0	3	18	3	0	24	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	26
5:15 AM	0	2	44	3	0	49	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	4	0	4	60
5:30 AM	0	2	77	14	0	93	0	0	2	0	0	2	0	2	1	0	0	3	0	2	1	2	0	5	103
5:45 AM	0	1	84	11	0	96	0	0	13	1	0	14	0	4	0	0	0	4	0	2	0	3	0	5	119
Hourly Total	0	8	223	31	0	262	0	0	24	1	0	25	0	6	1	0	0	7	0	4	1	9	0	14	308
6:00 AM	0	3	63	7	0	73	0	0	7	0	0	7	0	3	0	1	0	4	0	1	0	6	0	7	91
6:15 AM	0	2	83	4	0	89	0	0	11	0	0	11	0	13	1	2	0	16	0	0	0	2	0	2	118
6:30 AM	0	1	97	3	0	101	0	0	17	0	0	17	0	3	1	1	0	5	0	0	0	1	0	1	124
6:45 AM	0	2	74	9	0	85	0	0	14	0	0	14	0	0	1	1	0	2	0	1	1	2	0	4	105
Hourly Total	0	8	317	23	0	348	0	0	49	0	0	49	0	19	3	5	0	27	0	2	1	11	0	14	438
7:00 AM	0	1	34	3	0	38	0	3	73	0	0	76	0	3	0	0	0	3	0	0	0	3	0	3	120
7:15 AM	0	1	34	3	0	38	0	1	29	1	0	31	0	2	1	0	0	3	0	0	0	2	0	2	74
7:30 AM	0	0	28	2	0	30	0	0	30	0	0	30	0	5	0	0	0	5	0	2	2	5	0	9	74
7:45 AM	0	0	41	3	0	44	0	0	16	0	0	16	0	4	2	0	0	6	0	1	1	6	0	8	74
Hourly Total	0	2	137	11	0	150	0	4	148	1	0	153	0	14	3	0	0	17	0	3	3	16	0	22	342
8:00 AM	0	1	24	7	0	32	0	0	26	0	0	26	0	6	3	0	0	9	0	0	0	3	0	3	70
8:15 AM	0	0	15	6	0	21	0	0	9	0	0	9	0	6	4	1	0	11	0	1	1	2	0	4	45
8:30 AM	0	1	9	5	0	15	0	1	12	1	0	14	0	7	2	1	0	10	0	0	2	2	0	4	43
8:45 AM	0	2	13	8	0	23	0	0	16	0	0	16	0	7	3	0	0	10	0	0	0	2	0	2	51
Hourly Total	0	4	61	26	0	91	0	1	63	1	0	65	0	26	12	2	0	40	0	1	3	9	0	13	209
9:00 AM	0	2	13	2	0	17	0	1	12	0	1	13	0	3	2	0	0	5	0	1	2	2	0	5	40
9:15 AM	0	2	15	2	0	19	0	0	14	0	0	14	0	9	1	2	0	12	0	1	1	1	0	3	48
9:30 AM	0	8	10	4	0	22	0	0	17	2	0	19	0	1	3	0	0	4	0	0	0	1	0	1	46
9:45 AM	0	2	16	11	1	29	0	0	11	1	0	12	0	2	0	1	0	3	0	0	1	1	0	2	46
Hourly Total	0	14	54	19	1	87	0	1	54	3	1	58	0	15	6	3	0	24	0	2	4	5	0	11	180
10:00 AM	0	4	13	4	0	21	0	1	8	0	0	9	0	4	0	0	0	4	0	0	0	2	0	2	36
10:15 AM	1	3	16	5	0	25	0	1	12	0	0	13	1	8	2	0	0	11	0	0	0	3	0	3	52
10:30 AM	0	0	15	1	0	16	0	0	15	0	0	15	0	9	2	0	0	11	0	0	3	1	0	4	46
10:45 AM	0	3	10	5	0	18	0	0	15	0	0	15	0	9	2	0	0	11	0	0	0	2	0	2	46
Hourly Total	1	10	54	15	0	80	0	2	50	0	0	52	1	30	6	0	0	37	0	0	3	8	0	11	180

11:00 AM	0	3	19	2	0	24	0	0	18	1	0	19	0	7	3	0	0	10	0	2	1	3	0	6	59
11:15 AM	0	0	12	5	0	17	0	0	14	4	0	18	0	6	2	1	0	9	0	1	0	1	0	2	46
11:30 AM	0	1	17	12	0	30	0	0	24	1	0	25	0	8	1	0	0	9	0	2	1	1	0	4	68
11:45 AM	0	2	23	8	0	33	0	0	13	1	0	14	0	8	5	0	0	13	0	3	0	2	0	5	65
Hourly Total	0	6	71	27	0	104	0	0	69	7	0	76	0	29	11	1	0	41	0	8	2	7	0	17	238
12:00 PM	0	0	30	12	0	42	0	2	50	2	0	54	0	10	5	1	0	16	0	1	0	2	0	3	115
12:15 PM	0	2	22	6	0	30	0	0	20	0	0	20	0	3	5	1	0	9	0	2	3	4	0	9	68
12:30 PM	0	3	22	12	0	37	0	0	15	1	0	16	0	3	3	2	0	8	0	0	0	1	0	1	62
12:45 PM	0	3	18	6	0	27	0	1	9	0	0	10	0	4	2	1	0	7	0	3	1	0	0	4	48
Hourly Total	0	8	92	36	0	136	0	3	94	3	0	100	0	20	15	5	0	40	0	6	4	7	0	17	293
1:00 PM	0	4	10	5	0	19	0	0	21	0	0	21	0	5	0	0	0	5	0	0	1	2	0	3	48
1:15 PM	0	1	22	5	0	28	0	0	17	0	0	17	0	5	1	2	0	8	0	1	1	3	0	5	58
1:30 PM	0	1	20	7	0	28	0	0	15	0	0	15	0	5	3	0	0	8	0	0	3	3	0	6	57
1:45 PM	0	2	27	4	0	33	0	0	25	0	0	25	0	7	2	1	0	10	0	1	1	1	0	3	71
Hourly Total	0	8	79	21	0	108	0	0	78	0	0	78	0	22	6	3	0	31	0	2	6	9	0	17	234
2:00 PM	0	2	22	3	0	27	0	0	25	1	0	26	0	7	1	0	0	8	0	1	2	0	0	3	64
2:15 PM	0	3	27	4	0	34	0	1	31	0	0	32	0	2	0	0	0	2	0	1	1	1	0	3	71
2:30 PM	0	4	22	4	0	30	0	2	216	2	0	220	0	11	4	0	0	15	0	2	2	2	0	6	271
2:45 PM	0	4	12	3	0	19	0	0	60	4	1	64	0	5	3	0	0	8	0	0	1	3	0	4	95
Hourly Total	0	13	83	14	0	110	0	3	332	7	1	342	0	25	8	0	0	33	0	4	6	6	0	16	501
3:00 PM	0	6	13	3	0	22	0	2	63	1	0	66	0	13	5	0	0	18	0	0	2	3	0	5	111
3:15 PM	0	3	13	3	0	19	0	0	36	0	0	36	0	5	1	0	0	6	0	0	5	3	0	8	69
3:30 PM	0	6	8	8	0	22	0	1	45	1	0	47	0	8	1	1	0	10	0	0	2	1	0	3	82
3:45 PM	0	4	14	5	0	23	0	1	28	0	0	29	0	2	1	1	0	4	0	0	1	2	0	3	59
Hourly Total	0	19	48	19	0	86	0	4	172	2	0	178	0	28	8	2	0	38	0	0	10	9	0	19	321
4:00 PM	0	4	10	6	0	20	0	0	48	1	0	49	0	9	3	0	0	12	0	0	2	4	0	6	87
4:15 PM	0	3	20	8	0	31	0	2	24	2	0	28	0	6	3	0	0	9	0	0	1	5	0	6	74
4:30 PM	0	3	10	7	0	20	0	0	43	1	0	44	0	6	5	0	0	11	0	0	1	3	0	4	79
4:45 PM	0	5	19	6	0	30	0	0	18	0	0	18	0	4	5	0	0	9	0	2	2	3	0	7	64
Hourly Total	0	15	59	27	0	101	0	2	133	4	0	139	0	25	16	0	0	41	0	2	6	15	0	23	304
5:00 PM	0	3	12	8	0	23	0	1	19	1	0	21	0	1	4	1	0	6	0	1	2	3	0	6	56
5:15 PM	0	1	18	15	0	34	0	0	20	1	0	21	0	8	4	0	0	12	0	0	0	1	0	1	68
5:30 PM	0	1	12	6	0	19	0	0	25	0	0	25	0	7	3	0	0	10	0	1	4	1	0	6	60
5:45 PM	0	1	17	5	0	23	0	0	24	3	0	27	0	5	2	0	0	7	0	1	1	5	0	7	64
Hourly Total	0	6	59	34	0	99	0	1	88	5	0	94	0	21	13	1	0	35	0	3	7	10	0	20	248
6:00 PM	0	2	20	8	0	30	0	0	10	0	0	10	0	1	2	0	0	3	0	1	3	6	0	10	53
6:15 PM	0	3	29	6	0	38	0	0	9	0	0	9	0	5	0	2	0	7	0	2	1	1	0	4	58
6:30 PM	0	1	42	4	0	47	0	0	7	0	0	7	0	2	5	1	0	8	0	0	1	0	0	1	63
6:45 PM	0	4	26	2	0	32	0	0	14	2	0	16	0	6	2	2	0	10	0	0	0	2	0	2	60
Hourly Total	0	10	117	20	0	147	0	0	40	2	0	42	0	14	9	5	0	28	0	3	5	9	0	17	234
7:00 PM	0	1	7	5	0	13	0	1	76	0	0	77	0	7	2	0	0	9	0	1	2	1	0	4	103
7:15 PM	0	3	12	6	0	21	0	0	38	0	0	38	0	3	1	0	0	4	0	0	1	1	0	2	65
7:30 PM	0	4	6	3	0	13	0	0	15	2	0	17	0	1	2	0	0	3	0	0	2	0	0	2	35
7:45 PM	0	2	4	3	0	9	0	1	3	0	0	4	0	1	6	1	0	8	0	2	1	0	0	3	24
Hourly Total	0	10	29	17	0	56	0	2	132	2	0	136	0	12	11	1	0	24	0	3	6	2	0	11	227
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	0	0	2	1	0	3	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	1	0	1	7
4:15 AM	0	0	5	0	0	5	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	8
4:30 AM	0	0	16	0	0	16	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	18
4:45 AM	0	0	24	0	0	24	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	27
Hourly Total	0	0	47	1	0	48	0	0	6	1	0	7	0	3	0	0	0	3	0	0	0	2	0	2	60
5:00 AM	0	2	4	0	0	6	0	0	12	0	0	12	0	1	0	0	0	1	0	0	0	0	0	0	19

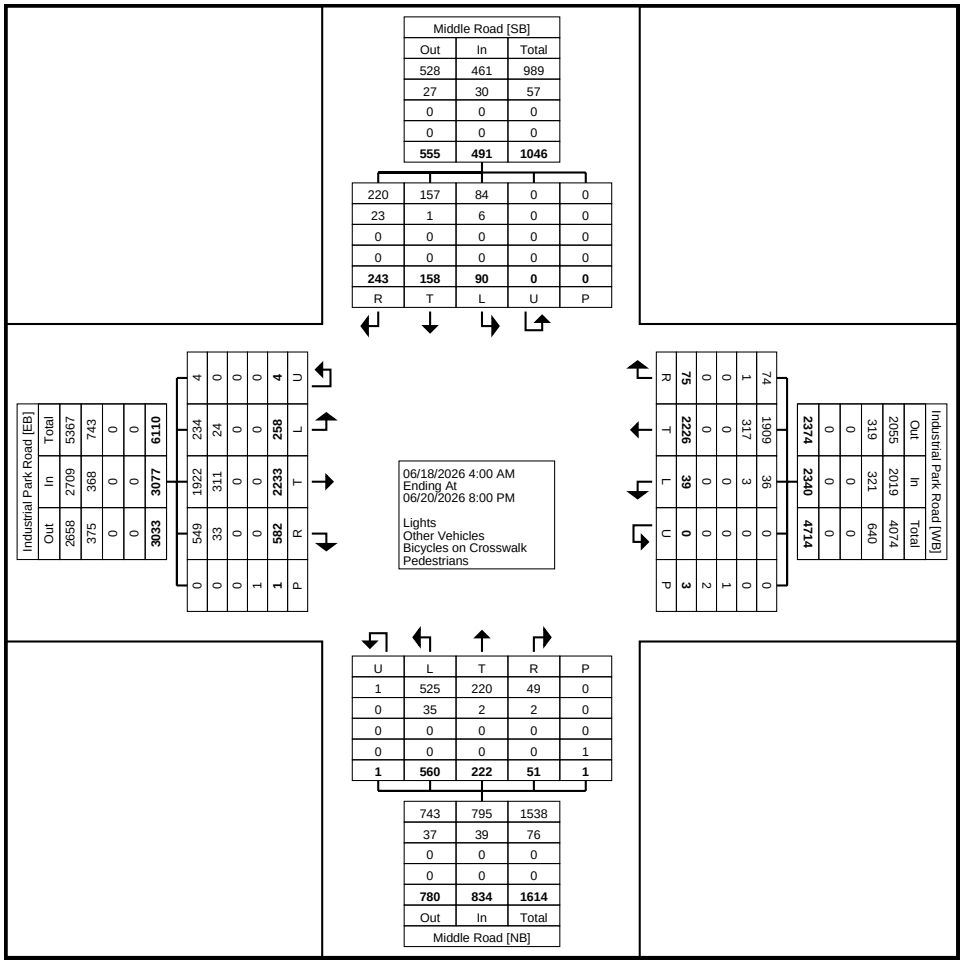
5:15 AM	0	0	5	1	0	6	0	0	3	0	0	3	0	1	0	0	0	1	0	0	0	0	0	0	10
5:30 AM	0	0	5	1	0	6	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	1	0	1	9
5:45 AM	0	0	8	1	0	9	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	11
Hourly Total	0	2	22	3	0	27	0	0	18	0	0	18	0	2	0	0	0	2	0	0	0	2	0	2	49
6:00 AM	0	1	9	0	0	10	0	0	1	0	0	1	0	2	2	1	0	5	0	0	0	1	0	1	17
6:15 AM	0	2	31	2	0	35	0	0	7	0	0	7	0	1	0	1	0	2	0	0	1	1	0	2	46
6:30 AM	0	0	48	0	0	48	0	0	5	0	0	5	0	2	1	3	0	6	0	1	1	0	0	2	61
6:45 AM	0	2	25	0	0	27	0	1	7	0	0	8	0	2	0	3	0	5	0	1	0	0	0	1	41
Hourly Total	0	5	113	2	0	120	0	1	20	0	0	21	0	7	3	8	0	18	0	2	2	2	0	6	165
7:00 AM	0	0	9	4	0	13	0	1	57	1	0	59	0	0	2	0	0	2	0	0	0	2	0	2	76
7:15 AM	0	0	6	2	0	8	0	1	24	1	0	26	0	2	1	0	0	3	0	0	1	2	0	3	40
7:30 AM	0	0	7	2	0	9	0	0	8	1	0	9	0	3	0	0	0	3	0	0	1	0	0	1	22
7:45 AM	0	1	6	2	0	9	0	0	11	0	0	11	0	3	0	0	0	3	0	0	0	1	0	1	24
Hourly Total	0	1	28	10	0	39	0	2	100	3	0	105	0	8	3	0	0	11	0	0	2	5	0	7	162
8:00 AM	0	0	6	1	0	7	0	0	10	0	0	10	0	4	0	0	0	4	0	0	0	0	0	0	21
8:15 AM	0	2	1	3	0	6	0	1	9	0	0	10	0	5	1	0	0	6	0	1	0	4	0	5	27
8:30 AM	0	1	6	0	0	7	0	0	7	1	0	8	0	3	2	0	0	5	0	1	0	3	0	4	24
8:45 AM	0	1	6	2	0	9	0	0	5	2	0	7	0	6	1	0	0	7	0	0	2	3	0	5	28
Hourly Total	0	4	19	6	0	29	0	1	31	3	0	35	0	18	4	0	0	22	0	2	2	10	0	14	100
9:00 AM	0	3	9	7	0	19	0	0	21	1	0	22	0	7	3	0	0	10	0	1	2	0	0	3	54
9:15 AM	0	0	6	5	0	11	0	0	7	0	0	7	0	8	1	0	0	9	0	3	2	4	0	9	36
9:30 AM	0	2	11	8	0	21	0	1	10	1	0	12	0	4	3	1	0	8	0	2	1	1	0	4	45
9:45 AM	0	2	9	4	0	15	0	0	10	0	0	10	0	2	5	0	0	7	0	1	0	3	0	4	36
Hourly Total	0	7	35	24	0	66	0	1	48	2	0	51	0	21	12	1	0	34	0	7	5	8	0	20	171
10:00 AM	0	1	3	3	0	7	0	2	11	1	0	14	0	3	2	1	0	6	0	0	1	1	0	2	29
10:15 AM	1	0	7	10	0	18	0	0	6	1	0	7	0	2	0	0	0	2	0	0	2	1	0	3	30
10:30 AM	0	1	6	6	0	13	0	1	13	0	0	14	0	6	1	0	0	7	0	2	2	3	0	7	41
10:45 AM	0	6	14	4	0	24	0	1	17	1	0	19	0	3	3	1	0	7	0	0	3	2	0	5	55
Hourly Total	1	8	30	23	0	62	0	4	47	3	0	54	0	14	6	2	0	22	0	2	8	7	0	17	155
11:00 AM	0	4	13	4	0	21	0	0	10	0	0	10	0	6	3	0	0	9	0	2	0	0	0	2	42
11:15 AM	0	2	12	6	0	20	0	0	8	2	0	10	0	6	1	0	0	7	0	2	4	3	0	9	46
11:30 AM	0	3	14	6	0	23	0	0	10	0	0	10	0	4	3	0	0	7	0	1	1	0	0	2	42
11:45 AM	0	1	18	1	0	20	0	0	7	1	0	8	0	2	2	0	0	4	0	1	4	2	0	7	39
Hourly Total	0	10	57	17	0	84	0	0	35	3	0	38	0	18	9	0	0	27	0	6	9	5	0	20	169
12:00 PM	0	1	6	6	0	13	0	0	35	1	0	36	0	7	1	0	0	8	0	1	3	5	0	9	66
12:15 PM	0	5	8	10	0	23	0	1	7	0	0	8	0	7	2	0	1	9	0	1	2	3	0	6	46
12:30 PM	0	3	13	4	0	20	0	0	7	0	0	7	0	1	2	0	0	3	0	0	5	1	0	6	36
12:45 PM	0	1	9	8	0	18	0	0	5	1	0	6	0	9	3	0	0	12	0	1	1	2	0	4	40
Hourly Total	0	10	36	28	0	74	0	1	54	2	0	57	0	24	8	0	1	32	0	3	11	11	0	25	188
1:00 PM	0	5	10	10	0	25	0	0	11	0	0	11	0	4	3	0	0	7	0	1	8	3	0	12	55
1:15 PM	0	1	8	9	0	18	0	0	7	1	0	8	0	3	2	0	0	5	0	0	0	1	0	1	32
1:30 PM	0	5	8	2	0	15	0	0	10	0	0	10	0	3	3	1	0	7	0	0	1	1	0	2	34
1:45 PM	0	1	11	4	0	16	0	0	8	0	0	8	0	4	3	0	0	7	0	1	1	4	0	6	37
Hourly Total	0	12	37	25	0	74	0	0	36	1	0	37	0	14	11	1	0	26	0	2	10	9	0	21	158
2:00 PM	0	3	4	4	0	11	0	0	7	1	0	8	0	3	1	0	0	4	0	1	1	2	0	4	27
2:15 PM	0	3	6	7	0	16	0	0	8	1	0	9	0	7	2	1	0	10	0	3	1	2	0	6	41
2:30 PM	0	3	5	8	0	16	0	0	7	0	0	7	0	2	6	0	0	8	0	0	4	6	0	10	41
2:45 PM	0	2	11	8	0	21	0	0	7	0	0	7	0	4	1	0	0	5	0	1	4	1	0	6	39
Hourly Total	0	11	26	27	0	64	0	0	29	2	0	31	0	16	10	1	0	27	0	5	10	11	0	26	148
3:00 PM	0	2	10	8	0	20	0	0	11	1	0	12	0	4	1	0	0	5	0	1	1	0	0	2	39
3:15 PM	0	1	20	5	0	26	0	0	11	0	0	11	0	4	1	0	0	5	0	3	3	5	0	11	53
3:30 PM	0	3	7	9	0	19	0	0	10	1	0	11	0	7	4	0	0	11	0	0	2	1	0	3	44

3:45 PM	0	1	9	5	0	15	0	0	6	1	0	7	0	5	3	0	0	8	0	0	2	1	0	3	33
Hourly Total	0	7	46	27	0	80	0	0	38	3	0	41	0	20	9	0	0	29	0	4	8	7	0	19	169
4:00 PM	0	2	12	3	0	17	0	1	11	0	0	12	0	7	1	1	0	9	0	1	5	2	0	8	46
4:15 PM	0	2	11	4	0	17	0	0	13	0	0	13	0	4	2	0	0	6	0	1	2	1	0	4	40
4:30 PM	0	3	5	6	0	14	0	0	9	0	0	9	0	7	2	0	0	9	0	3	1	3	0	7	39
4:45 PM	0	4	10	6	0	20	0	0	5	0	1	5	0	1	1	1	0	3	0	2	3	1	0	6	34
Hourly Total	0	11	38	19	0	68	0	1	38	0	1	39	0	19	6	2	0	27	0	7	11	7	0	25	159
5:00 PM	0	3	6	2	0	11	0	0	8	2	0	10	0	6	1	0	0	7	0	0	1	2	0	3	31
5:15 PM	0	3	6	3	0	12	0	0	9	2	0	11	0	6	1	0	0	7	0	1	4	2	0	7	37
5:30 PM	0	3	8	0	0	11	0	0	6	0	0	6	0	6	1	0	0	7	0	0	0	1	0	1	25
5:45 PM	1	4	11	2	0	18	0	0	10	1	0	11	0	9	3	1	0	13	0	1	0	4	0	5	47
Hourly Total	1	13	31	7	0	52	0	0	33	5	0	38	0	27	6	1	0	34	0	2	5	9	0	16	140
6:00 PM	0	0	20	1	0	21	0	0	9	0	0	9	0	3	1	3	0	7	0	1	2	1	0	4	41
6:15 PM	1	0	17	4	0	22	0	0	7	0	0	7	0	6	1	2	0	9	0	0	1	4	0	5	43
6:30 PM	0	0	38	2	0	40	0	0	11	1	0	12	0	6	1	1	0	8	0	1	1	0	0	2	62
6:45 PM	0	2	21	1	0	24	0	0	7	1	0	8	0	3	2	1	0	6	0	0	0	3	0	3	41
Hourly Total	1	2	96	8	0	107	0	0	34	2	0	36	0	18	5	7	0	30	0	2	4	8	0	14	187
7:00 PM	0	4	7	3	0	14	0	3	80	1	0	84	0	2	1	0	0	3	0	0	1	0	0	1	102
7:15 PM	0	2	9	2	0	13	0	1	32	1	0	34	0	8	0	0	0	8	0	1	1	1	0	3	58
7:30 PM	0	2	3	3	0	8	0	0	8	1	0	9	0	4	1	0	0	5	0	1	2	2	0	5	27
7:45 PM	0	2	7	2	0	11	0	1	2	4	0	7	0	3	0	0	0	3	0	1	0	1	0	2	23
Hourly Total	0	10	26	10	0	46	0	5	122	7	0	134	0	17	2	0	0	19	0	3	4	4	0	11	210
Grand Total	4	258	2233	582	1	3077	0	39	2226	75	3	2340	1	560	222	51	1	834	0	90	158	243	0	491	6742
Approach %	0.1	8.4	72.6	18.9	-	-	0.0	1.7	95.1	3.2	-	-	0.1	67.1	26.6	6.1	-	-	0.0	18.3	32.2	49.5	-	-	-
Total %	0.1	3.8	33.1	8.6	-	45.6	0.0	0.6	33.0	1.1	-	34.7	0.0	8.3	3.3	0.8	-	12.4	0.0	1.3	2.3	3.6	-	7.3	-
Lights	4	234	1922	549	-	2709	0	36	1909	74	-	2019	1	525	220	49	-	795	0	84	157	220	-	461	5984
% Lights	100.0	90.7	86.1	94.3	-	88.0	-	92.3	85.8	98.7	-	86.3	100.0	93.8	99.1	96.1	-	95.3	-	93.3	99.4	90.5	-	93.9	88.8
Other Vehicles	0	24	311	33	-	368	0	3	317	1	-	321	0	35	2	2	-	39	0	6	1	23	-	30	758
% Other Vehicles	0.0	9.3	13.9	5.7	-	12.0	-	7.7	14.2	1.3	-	13.7	0.0	6.3	0.9	3.9	-	4.7	-	6.7	0.6	9.5	-	6.1	11.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	33.3	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	66.7	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Data Plot

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

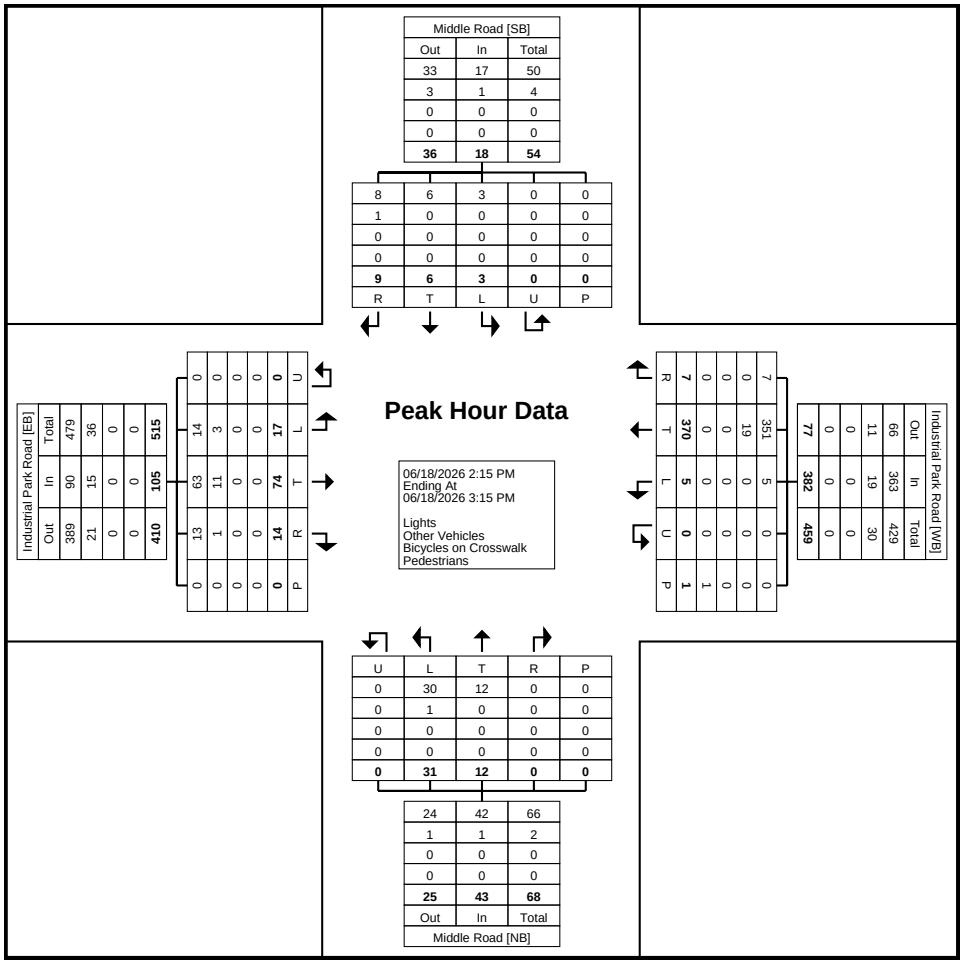
Turning Movement Peak Hour Data (2:15 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
2:15 PM	0	3	27	4	0	34	0	1	31	0	0	32	0	2	0	0	0	2	0	1	1	1	0	3	71
2:30 PM	0	4	22	4	0	30	0	2	216	2	0	220	0	11	4	0	0	15	0	2	2	2	0	6	271
2:45 PM	0	4	12	3	0	19	0	0	60	4	1	64	0	5	3	0	0	8	0	0	1	3	0	4	95
3:00 PM	0	6	13	3	0	22	0	2	63	1	0	66	0	13	5	0	0	18	0	0	2	3	0	5	111
Total	0	17	74	14	0	105	0	5	370	7	1	382	0	31	12	0	0	43	0	3	6	9	0	18	548
Approach %	0.0	16.2	70.5	13.3	-	-	0.0	1.3	96.9	1.8	-	-	0.0	72.1	27.9	0.0	-	-	0.0	16.7	33.3	50.0	-	-	-
Total %	0.0	3.1	13.5	2.6	-	19.2	0.0	0.9	67.5	1.3	-	69.7	0.0	5.7	2.2	0.0	-	7.8	0.0	0.5	1.1	1.6	-	3.3	-
PHF	0.000	0.708	0.685	0.875	-	0.772	0.000	0.625	0.428	0.438	-	0.434	0.000	0.596	0.600	0.000	-	0.597	0.000	0.375	0.750	0.750	-	0.750	0.506
Lights	0	14	63	13	-	90	0	5	351	7	-	363	0	30	12	0	-	42	0	3	6	8	-	17	512
% Lights	-	82.4	85.1	92.9	-	85.7	-	100.0	94.9	100.0	-	95.0	-	96.8	100.0	-	-	97.7	-	100.0	100.0	88.9	-	94.4	93.4
Other Vehicles	0	3	11	1	-	15	0	0	19	0	-	19	0	1	0	0	-	1	0	0	0	1	-	1	36
% Other Vehicles	-	17.6	14.9	7.1	-	14.3	-	0.0	5.1	0.0	-	5.0	-	3.2	0.0	-	-	2.3	-	0.0	0.0	11.1	-	5.6	6.6
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (2:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

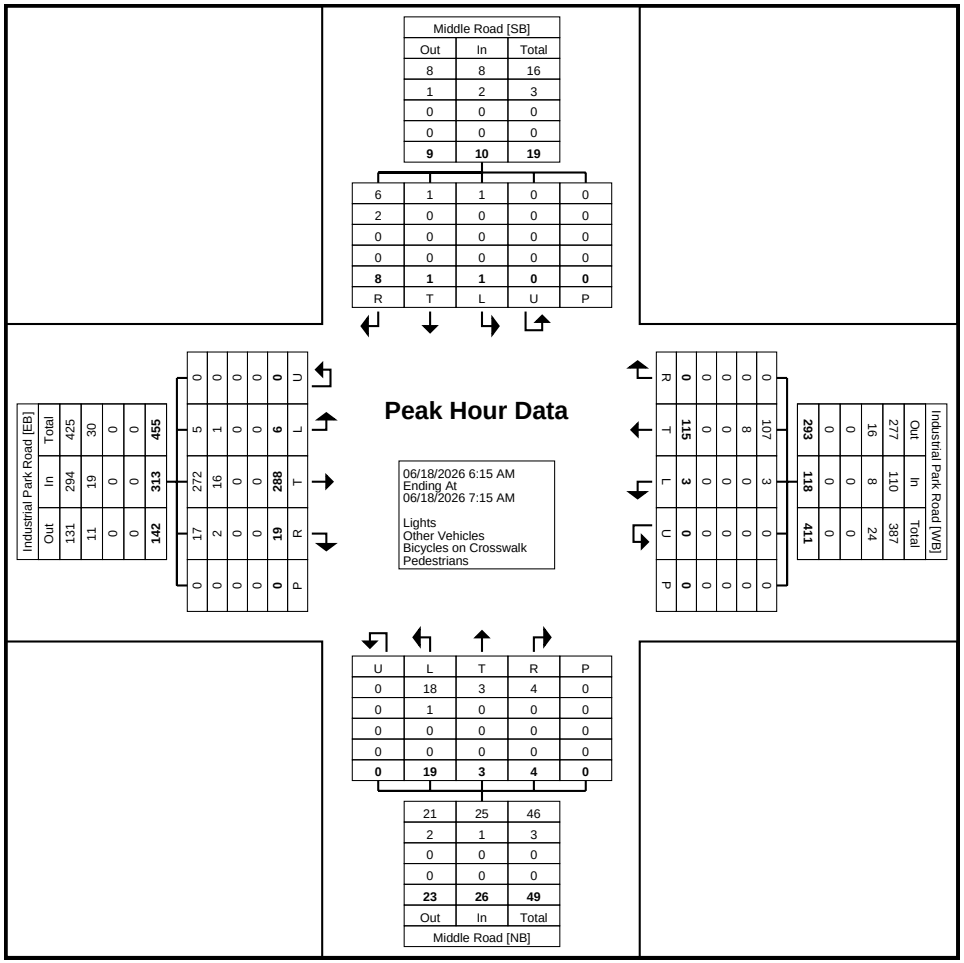
Turning Movement Peak Hour Data (6:15 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:15 AM	0	2	83	4	0	89	0	0	11	0	0	11	0	13	1	2	0	16	0	0	0	2	0	2	118
6:30 AM	0	1	97	3	0	101	0	0	17	0	0	17	0	3	1	1	0	5	0	0	0	1	0	1	124
6:45 AM	0	2	74	9	0	85	0	0	14	0	0	14	0	0	1	1	0	2	0	1	1	2	0	4	105
7:00 AM	0	1	34	3	0	38	0	3	73	0	0	76	0	3	0	0	0	3	0	0	0	3	0	3	120
Total	0	6	288	19	0	313	0	3	115	0	0	118	0	19	3	4	0	26	0	1	1	8	0	10	467
Approach %	0.0	1.9	92.0	6.1	-	-	0.0	2.5	97.5	0.0	-	-	0.0	73.1	11.5	15.4	-	-	0.0	10.0	10.0	80.0	-	-	-
Total %	0.0	1.3	61.7	4.1	-	67.0	0.0	0.6	24.6	0.0	-	25.3	0.0	4.1	0.6	0.9	-	5.6	0.0	0.2	0.2	1.7	-	2.1	-
PHF	0.000	0.750	0.742	0.528	-	0.775	0.000	0.250	0.394	0.000	-	0.388	0.000	0.365	0.750	0.500	-	0.406	0.000	0.250	0.250	0.667	-	0.625	0.942
Lights	0	5	272	17	-	294	0	3	107	0	-	110	0	18	3	4	-	25	0	1	1	6	-	8	437
% Lights	-	83.3	94.4	89.5	-	93.9	-	100.0	93.0	-	-	93.2	-	94.7	100.0	100.0	-	96.2	-	100.0	100.0	75.0	-	80.0	93.6
Other Vehicles	0	1	16	2	-	19	0	0	8	0	-	8	0	1	0	0	-	1	0	0	0	2	-	2	30
% Other Vehicles	-	16.7	5.6	10.5	-	6.1	-	0.0	7.0	-	-	6.8	-	5.3	0.0	0.0	-	3.8	-	0.0	0.0	25.0	-	20.0	6.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

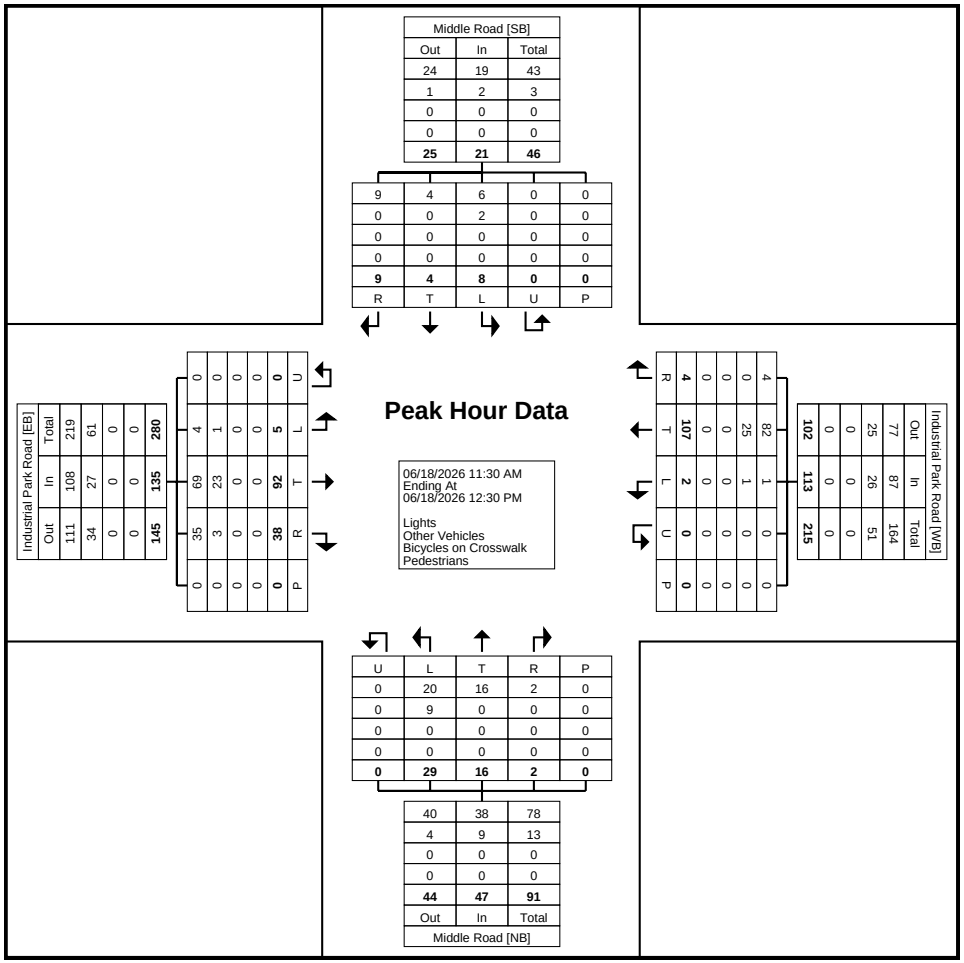
Turning Movement Peak Hour Data (11:30 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
11:30 AM	0	1	17	12	0	30	0	0	24	1	0	25	0	8	1	0	0	9	0	2	1	1	0	4	68
11:45 AM	0	2	23	8	0	33	0	0	13	1	0	14	0	8	5	0	0	13	0	3	0	2	0	5	65
12:00 PM	0	0	30	12	0	42	0	2	50	2	0	54	0	10	5	1	0	16	0	1	0	2	0	3	115
12:15 PM	0	2	22	6	0	30	0	0	20	0	0	20	0	3	5	1	0	9	0	2	3	4	0	9	68
Total	0	5	92	38	0	135	0	2	107	4	0	113	0	29	16	2	0	47	0	8	4	9	0	21	316
Approach %	0.0	3.7	68.1	28.1	-	-	0.0	1.8	94.7	3.5	-	-	0.0	61.7	34.0	4.3	-	-	0.0	38.1	19.0	42.9	-	-	-
Total %	0.0	1.6	29.1	12.0	-	42.7	0.0	0.6	33.9	1.3	-	35.8	0.0	9.2	5.1	0.6	-	14.9	0.0	2.5	1.3	2.8	-	6.6	-
PHF	0.000	0.625	0.767	0.792	-	0.804	0.000	0.250	0.535	0.500	-	0.523	0.000	0.725	0.800	0.500	-	0.734	0.000	0.667	0.333	0.563	-	0.583	0.687
Lights	0	4	69	35	-	108	0	1	82	4	-	87	0	20	16	2	-	38	0	6	4	9	-	19	252
% Lights	-	80.0	75.0	92.1	-	80.0	-	50.0	76.6	100.0	-	77.0	-	69.0	100.0	100.0	-	80.9	-	75.0	100.0	100.0	-	90.5	79.7
Other Vehicles	0	1	23	3	-	27	0	1	25	0	-	26	0	9	0	0	-	9	0	2	0	0	-	2	64
% Other Vehicles	-	20.0	25.0	7.9	-	20.0	-	50.0	23.4	0.0	-	23.0	-	31.0	0.0	0.0	-	19.1	-	25.0	0.0	0.0	-	9.5	20.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:30 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

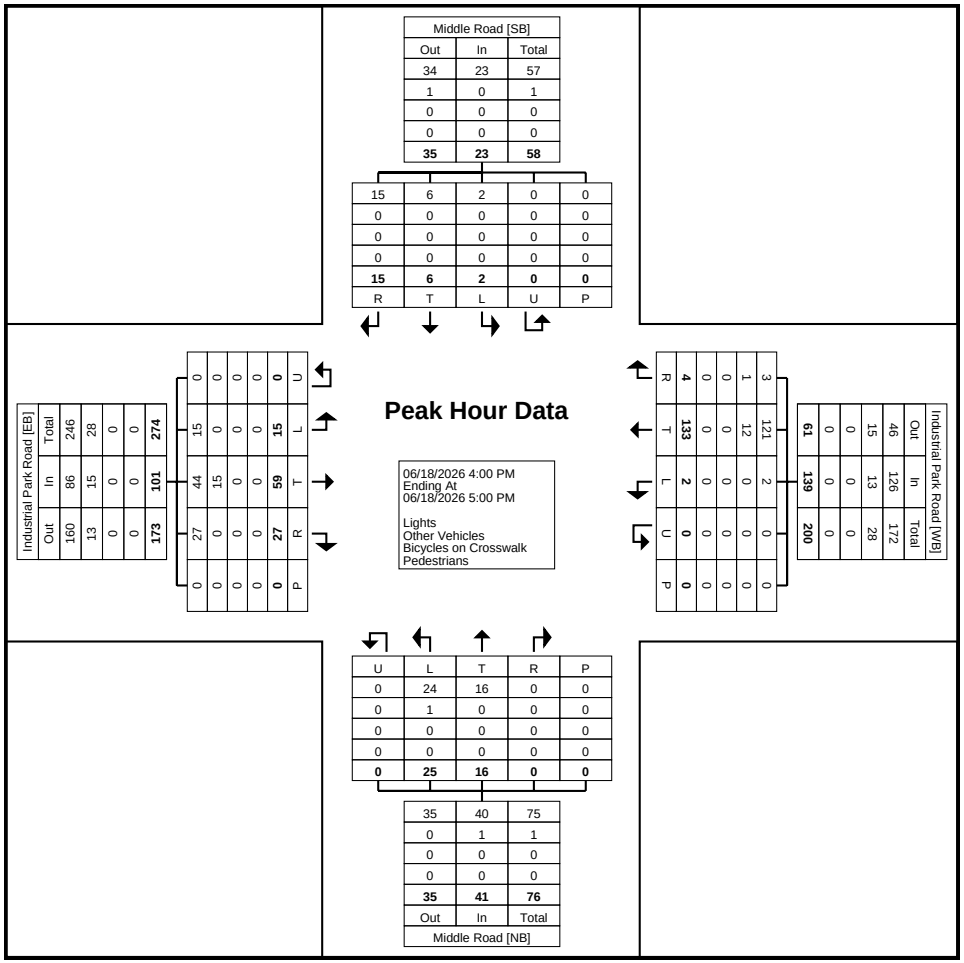
Turning Movement Peak Hour Data (4:00 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:00 PM	0	4	10	6	0	20	0	0	48	1	0	49	0	9	3	0	0	12	0	0	2	4	0	6	87
4:15 PM	0	3	20	8	0	31	0	2	24	2	0	28	0	6	3	0	0	9	0	0	1	5	0	6	74
4:30 PM	0	3	10	7	0	20	0	0	43	1	0	44	0	6	5	0	0	11	0	0	1	3	0	4	79
4:45 PM	0	5	19	6	0	30	0	0	18	0	0	18	0	4	5	0	0	9	0	2	2	3	0	7	64
Total	0	15	59	27	0	101	0	2	133	4	0	139	0	25	16	0	0	41	0	2	6	15	0	23	304
Approach %	0.0	14.9	58.4	26.7	-	-	0.0	1.4	95.7	2.9	-	-	0.0	61.0	39.0	0.0	-	-	0.0	8.7	26.1	65.2	-	-	-
Total %	0.0	4.9	19.4	8.9	-	33.2	0.0	0.7	43.8	1.3	-	45.7	0.0	8.2	5.3	0.0	-	13.5	0.0	0.7	2.0	4.9	-	7.6	-
PHF	0.000	0.750	0.738	0.844	-	0.815	0.000	0.250	0.693	0.500	-	0.709	0.000	0.694	0.800	0.000	-	0.854	0.000	0.250	0.750	0.750	-	0.821	0.874
Lights	0	15	44	27	-	86	0	2	121	3	-	126	0	24	16	0	-	40	0	2	6	15	-	23	275
% Lights	-	100.0	74.6	100.0	-	85.1	-	100.0	91.0	75.0	-	90.6	-	96.0	100.0	-	-	97.6	-	100.0	100.0	100.0	-	100.0	90.5
Other Vehicles	0	0	15	0	-	15	0	0	12	1	-	13	0	1	0	0	-	1	0	0	0	0	-	0	29
% Other Vehicles	-	0.0	25.4	0.0	-	14.9	-	0.0	9.0	25.0	-	9.4	-	4.0	0.0	-	-	2.4	-	0.0	0.0	0.0	-	0.0	9.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (4:00 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026

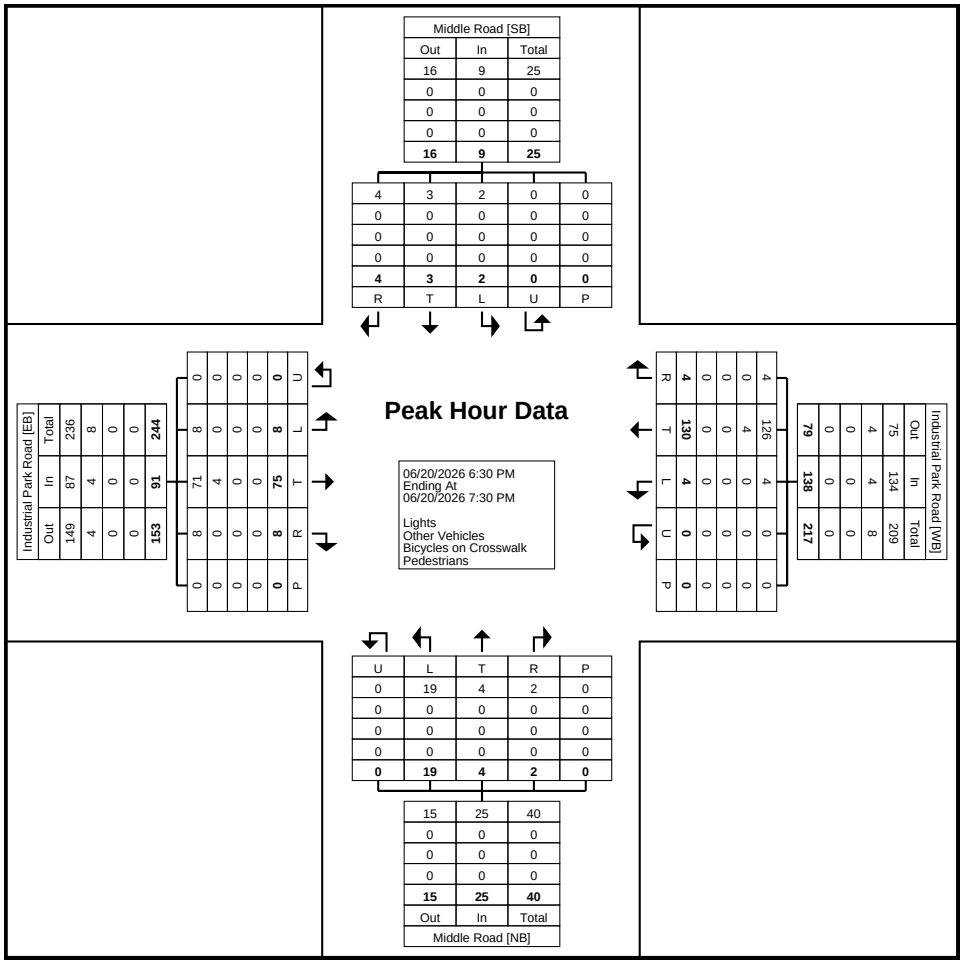
Turning Movement Peak Hour Data (6:30 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Middle Road Northbound						Middle Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:30 PM	0	0	38	2	0	40	0	0	11	1	0	12	0	6	1	1	0	8	0	1	1	0	0	2	62
6:45 PM	0	2	21	1	0	24	0	0	7	1	0	8	0	3	2	1	0	6	0	0	0	3	0	3	41
7:00 PM	0	4	7	3	0	14	0	3	80	1	0	84	0	2	1	0	0	3	0	0	1	0	0	1	102
7:15 PM	0	2	9	2	0	13	0	1	32	1	0	34	0	8	0	0	0	8	0	1	1	1	0	3	58
Total	0	8	75	8	0	91	0	4	130	4	0	138	0	19	4	2	0	25	0	2	3	4	0	9	263
Approach %	0.0	8.8	82.4	8.8	-	-	0.0	2.9	94.2	2.9	-	-	0.0	76.0	16.0	8.0	-	-	0.0	22.2	33.3	44.4	-	-	-
Total %	0.0	3.0	28.5	3.0	-	34.6	0.0	1.5	49.4	1.5	-	52.5	0.0	7.2	1.5	0.8	-	9.5	0.0	0.8	1.1	1.5	-	3.4	-
PHF	0.000	0.500	0.493	0.667	-	0.569	0.000	0.333	0.406	1.000	-	0.411	0.000	0.594	0.500	0.500	-	0.781	0.000	0.500	0.750	0.333	-	0.750	0.645
Lights	0	8	71	8	-	87	0	4	126	4	-	134	0	19	4	2	-	25	0	2	3	4	-	9	255
% Lights	-	100.0	94.7	100.0	-	95.6	-	100.0	96.9	100.0	-	97.1	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	97.0
Other Vehicles	0	0	4	0	-	4	0	0	4	0	-	4	0	0	0	0	-	0	0	0	0	0	-	0	8
% Other Vehicles	-	0.0	5.3	0.0	-	4.4	-	0.0	3.1	0.0	-	2.9	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	3.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.576259, -77.619838

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 3. Industrial Park Road & Middle Road
Site Code: 3
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:30 PM)

4. Industrial Park Road & Loop Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2026-06-18 4:00AM	1	0	0	0	**1**	0	1	0	0	0	**1**	0	0	2	0	0	**2**	0	0	0	0	0	**0**	0	**4**
4:15AM	0	0	0	0	**0**	0	2	0	0	0	**2**	0	0	5	0	0	**5**	0	0	0	0	0	**0**	0	**7**
4:30AM	0	0	0	0	**0**	0	3	0	0	0	**3**	0	0	4	0	0	**4**	0	0	1	1	0	**2**	0	**9**
4:45AM	1	1	0	0	**2**	0	2	0	0	0	**2**	0	0	6	0	0	**6**	0	1	3	0	0	**4**	0	**14**
Hourly Total	2	1	0	0	**3**	0	8	0	0	0	**8**	0	0	17	0	0	**17**	0	1	4	1	0	**6**	0	**34**
5:00AM	1	0	0	0	**1**	0	3	1	0	0	**4**	0	0	3	0	0	**3**	0	0	2	0	0	**2**	0	**10**
5:15AM	1	1	0	0	**2**	0	5	0	0	0	**5**	0	0	10	0	0	**10**	0	0	5	1	0	**6**	0	**23**
5:30AM	0	2	0	0	**2**	0	6	1	2	0	**9**	0	0	11	0	0	**11**	0	1	0	0	0	**1**	0	**23**
5:45AM	2	0	0	0	**2**	0	8	0	0	0	**8**	0	0	14	0	0	**14**	0	0	8	2	0	**10**	0	**34**
Hourly Total	4	3	0	0	**7**	0	22	2	2	0	**26**	0	0	38	0	0	**38**	0	1	15	3	0	**19**	0	**90**
6:00AM	0	1	0	0	**1**	0	14	0	2	0	**16**	0	0	16	0	0	**16**	0	0	4	2	0	**6**	0	**39**
6:15AM	1	0	0	0	**1**	0	19	0	6	0	**25**	0	0	34	0	0	**34**	0	0	9	3	0	**12**	0	**72**
6:30AM	1	0	0	0	**1**	0	28	0	5	0	**33**	0	0	59	0	0	**59**	0	0	4	5	0	**9**	0	**102**
6:45AM	3	2	1	0	**6**	0	10	1	6	0	**17**	0	1	42	0	0	**43**	0	0	6	6	0	**12**	0	**78**
Hourly Total	5	3	1	0	**9**	0	71	1	19	0	**91**	0	1	151	0	0	**152**	0	0	23	16	0	**39**	0	**291**
7:00AM	2	2	2	0	**6**	0	10	0	1	0	**11**	0	4	14	0	0	**18**	0	2	41	30	0	**73**	0	**108**
7:15AM	1	1	0	0	**2**	0	9	0	2	0	**11**	0	1	14	2	0	**17**	0	1	21	15	0	**37**	0	**67**
7:30AM	1	1	0	0	**2**	0	1	0	2	0	**3**	0	3	11	0	0	**14**	0	1	25	6	0	**32**	0	**51**
7:45AM	2	1	0	0	**3**	1	1	2	1	0	**4**	0	1	10	1	0	**12**	0	0	9	7	0	**16**	0	**35**
Hourly Total	6	5	2	0	**13**	1	21	2	6	0	**29**	0	9	49	3	0	**61**	0	4	96	58	0	**158**	0	**261**
8:00AM	3	2	0	0	**5**	0	1	1	0	0	**2**	0	1	11	0	0	**12**	0	0	11	4	0	**15**	0	**34**
8:15AM	1	1	0	0	**2**	0	0	0	1	0	**1**	0	0	5	1	0	**6**	0	0	2	3	0	**5**	0	**14**
8:30AM	0	4	0	0	**4**	0	2	1	1	0	**4**	0	0	7	0	0	**7**	0	0	9	2	0	**11**	0	**26**
8:45AM	0	0	0	0	**0**	0	4	0	0	0	**4**	0	0	8	0	0	**8**	0	0	6	4	0	**10**	0	**22**
Hourly Total	4	7	0	0	**11**	0	7	2	2	0	**11**	0	1	31	1	0	**33**	0	0	28	13	0	**41**	0	**96**
9:00AM	2	1	1	0	**4**	0	3	0	0	0	**3**	0	0	5	1	0	**6**	0	0	6	5	0	**11**	0	**24**
9:15AM	0	1	0	0	**1**	0	4	1	1	0	**6**	0	1	7	1	0	**9**	0	1	6	6	0	**13**	0	**29**
9:30AM	3	2	0	0	**5**	0	1	2	0	0	**3**	0	0	2	2	0	**4**	0	0	7	2	0	**9**	0	**21**
9:45AM	1	1	0	0	**2**	0	0	0	0	0	**0**	0	1	8	1	0	**10**	0	1	4	2	0	**7**	0	**19**
Hourly Total	6	5	1	0	**12**	0	8	3	1	0	**12**	0	2	22	5	0	**29**	0	2	23	15	0	**40**	0	**93**
10:00AM	1	2	0	0	**3**	0	4	4	1	0	**9**	0	1	7	0	0	**8**	0	0	4	5	0	**9**	0	**29**
10:15AM	1	1	0	0	**2**	0	3	0	2	0	**5**	0	2	7	2	0	**11**	0	0	5	3	0	**8**	0	**26**
10:30AM	1	1	0	0	**2**	0	3	1	0	0	**4**	0	1	5	1	0	**7**	0	1	7	1	0	**9**	0	**22**
10:45AM	2	1	1	0	**4**	0	1	4	1	0	**6**	0	4	5	0	0	**9**	0	0	4	4	0	**8**	0	**27**
Hourly Total	5	5	1	0	**11**	0	11	9	4	0	**24**	0	8	24	3	0	**35**	0	1	20	13	0	**34**	0	**104**
11:00AM	1	0	2	0	**3**	0	5	1	3	0	**9**	0	3	14	0	0	**17**	0	1	9	5	0	**15**	0	**44**
11:15AM	1	0	0	0	**1**	0	3	1	3	0	**7**	0	1	8	2	0	**11**	0	1	11	5	0	**17**	0	**36**
11:30AM	0	6	0	0	**6**	0	3	0	2	0	**5**	0	1	9	3	0	**13**	0	1	7	2	0	**10**	0	**34**

Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
11:45AM	0	1	1	0	**2**	0	3	2	0	0	**5**	0	1	7	1	0	**9**	0	1	9	8	0	**18**	0	**34**
Hourly Total	2	7	3	0	**12**	0	14	4	8	0	**26**	0	6	38	6	0	**50**	0	4	36	20	0	**60**	0	**148**
12:00PM	0	1	1	0	**2**	0	2	1	0	0	**3**	0	1	13	0	0	**14**	0	1	19	12	0	**32**	0	**51**
12:15PM	3	0	0	0	**3**	0	2	2	1	0	**5**	0	0	7	0	0	**7**	0	0	9	8	0	**17**	0	**32**
12:30PM	0	1	0	0	**1**	0	6	1	2	0	**9**	0	1	10	2	0	**13**	0	0	8	3	0	**11**	0	**34**
12:45PM	0	1	0	0	**1**	0	9	0	3	0	**12**	0	0	14	2	0	**16**	0	0	3	3	0	**6**	0	**35**
Hourly Total	3	3	1	0	**7**	0	19	4	6	0	**29**	0	2	44	4	0	**50**	0	1	39	26	0	**66**	0	**152**
1:00PM	1	0	1	0	**2**	0	9	2	2	0	**13**	0	0	4	2	0	**6**	0	1	9	3	0	**13**	0	**34**
1:15PM	2	1	0	0	**3**	0	6	1	1	0	**8**	0	3	8	2	0	**13**	0	0	12	1	0	**13**	0	**37**
1:30PM	0	1	0	0	**1**	0	3	1	2	0	**6**	0	0	9	1	0	**10**	0	0	14	5	0	**19**	0	**36**
1:45PM	2	1	0	0	**3**	0	1	2	1	0	**4**	0	0	9	0	0	**9**	0	0	12	4	0	**16**	0	**32**
Hourly Total	5	3	1	0	**9**	0	19	6	6	0	**31**	0	3	30	5	0	**38**	0	1	47	13	0	**61**	0	**139**
2:00PM	2	1	0	0	**3**	0	6	4	2	0	**12**	0	6	5	0	0	**11**	0	0	11	4	0	**15**	0	**41**
2:15PM	1	1	0	0	**2**	0	1	3	1	0	**5**	0	0	3	1	0	**4**	0	0	10	5	0	**15**	0	**26**
2:30PM	1	4	0	0	**5**	0	2	2	1	0	**5**	0	9	13	4	0	**26**	0	0	8	3	0	**11**	0	**47**
2:45PM	3	3	0	0	**6**	0	5	3	0	0	**8**	0	2	12	3	0	**17**	0	0	7	3	0	**10**	0	**41**
Hourly Total	7	9	0	0	**16**	0	14	12	4	0	**30**	0	17	33	8	0	**58**	0	0	36	15	0	**51**	0	**155**
3:00PM	2	3	0	0	**5**	0	5	4	0	0	**9**	0	5	8	2	0	**15**	0	0	33	16	0	**49**	0	**78**
3:15PM	1	2	1	0	**4**	0	3	1	0	0	**4**	0	1	5	4	0	**10**	0	0	13	7	0	**20**	0	**38**
3:30PM	4	0	0	0	**4**	0	3	1	0	0	**4**	0	1	6	0	0	**7**	0	0	24	7	0	**31**	0	**46**
3:45PM	0	0	0	0	**0**	0	5	5	0	0	**10**	0	2	5	3	0	**10**	0	0	19	11	0	**30**	0	**50**
Hourly Total	7	5	1	0	**13**	0	16	11	0	0	**27**	0	9	24	9	0	**42**	0	0	89	41	0	**130**	0	**212**
4:00PM	1	3	0	0	**4**	0	4	3	1	0	**8**	0	5	5	3	0	**13**	0	0	16	13	0	**29**	0	**54**
4:15PM	3	3	0	0	**6**	0	3	2	1	0	**6**	0	3	7	2	0	**12**	0	0	13	7	0	**20**	0	**44**
4:30PM	4	3	0	0	**7**	0	5	2	2	0	**9**	0	4	6	3	0	**13**	0	0	10	4	0	**14**	0	**43**
4:45PM	1	4	0	0	**5**	0	3	1	0	0	**4**	0	0	11	4	0	**15**	0	2	9	7	0	**18**	0	**42**
Hourly Total	9	13	0	0	**22**	0	15	8	4	0	**27**	0	12	29	12	0	**53**	0	2	48	31	0	**81**	0	**183**
5:00PM	1	1	0	0	**2**	0	1	2	1	0	**4**	0	0	6	3	0	**9**	0	0	11	10	0	**21**	0	**36**
5:15PM	2	0	0	0	**2**	0	6	3	2	0	**11**	0	1	11	3	0	**15**	0	0	6	6	0	**12**	0	**40**
5:30PM	5	7	0	0	**12**	0	8	3	0	0	**11**	0	1	7	1	0	**9**	0	0	10	6	0	**16**	0	**48**
5:45PM	1	4	0	0	**5**	0	6	3	1	0	**10**	0	2	10	3	0	**15**	0	0	7	7	0	**14**	0	**44**
Hourly Total	9	12	0	0	**21**	0	21	11	4	0	**36**	0	4	34	10	0	**48**	0	0	34	29	0	**63**	0	**168**
6:00PM	1	1	1	0	**3**	0	9	0	1	0	**10**	0	1	16	3	0	**20**	0	0	8	1	0	**9**	0	**42**
6:15PM	0	2	0	0	**2**	0	20	1	5	0	**26**	0	0	21	3	0	**24**	0	0	5	0	0	**5**	0	**57**
6:30PM	1	1	1	0	**3**	0	29	0	3	0	**32**	0	0	25	1	0	**26**	0	0	6	2	0	**8**	0	**69**
6:45PM	1	0	1	0	**2**	0	3	3	1	0	**7**	0	2	18	4	0	**24**	0	0	3	0	0	**3**	0	**36**
Hourly Total	3	4	3	0	**10**	0	61	4	10	0	**75**	0	3	80	11	0	**94**	0	0	22	3	0	**25**	0	**204**
7:00PM	2	2	0	0	**4**	0	0	1	0	0	**1**	0	6	4	2	0	**12**	0	1	49	26	0	**76**	0	**93**
7:15PM	1	0	0	0	**1**	0	4	2	1	0	**7**	0	1	5	1	0	**7**	0	0	26	15	0	**41**	0	**56**
7:30PM	2	0	1	0	**3**	0	2	1	3	0	**6**	0	2	2	1	0	**5**	0	1	12	4	0	**17**	0	**31**
7:45PM	0	0	1	0	**1**	0	3	2	0	0	**5**	0	0	7	0	0	**7**	0	0	2	2	0	**4**	0	**17**
Hourly Total	5	2	2	0	**9**	0	9	6	4	0	**19**	0	9	18	4	0	**31**	0	2	89	47	0	**138**	0	**197**
2026-06-20 4:00AM	0	0	0	0	**0**	0	0	1	0	0	**1**	0	0	0	0	0	**0**	0	0	0	0	0	**0**	0	**1**
4:15AM	0	0	0	0	**0**	0	0	0	1	0	**1**	0	0	1	0	0	**1**	0	0	2	2	0	**4**	0	**6**
4:30AM	1	0	0	0	**1**	0	1	0	0	0	**1**	0	0	1	0	0	**1**	0	0	0	0	0	**0**	0	**3**

Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
4:45AM	0	0	0	0	**0**	0	1	0	2	0	**3**	0	1	1	0	0	**2**	0	0	1	0	0	**1**	0	**6**
Hourly Total	1	0	0	0	**1**	0	2	1	3	0	**6**	0	1	3	0	0	**4**	0	0	3	2	0	**5**	0	**16**
5:00AM	0	0	0	0	**0**	0	1	0	0	0	**1**	0	1	2	0	0	**3**	0	0	1	0	0	**1**	0	**5**
5:15AM	0	0	0	0	**0**	0	2	0	1	0	**3**	0	0	2	0	0	**2**	0	0	0	3	0	**3**	0	**8**
5:30AM	0	1	0	0	**1**	0	1	0	0	0	**1**	0	0	2	0	0	**2**	0	0	2	0	0	**2**	0	**6**
5:45AM	0	0	0	0	**0**	0	2	1	2	0	**5**	0	0	2	0	0	**2**	0	0	1	0	0	**1**	0	**8**
Hourly Total	0	1	0	0	**1**	0	6	1	3	0	**10**	0	1	8	0	0	**9**	0	0	4	3	0	**7**	0	**27**
6:00AM	0	0	1	0	**1**	0	7	0	1	0	**8**	0	0	8	1	0	**9**	0	0	1	0	0	**1**	0	**19**
6:15AM	0	0	0	0	**0**	0	13	0	1	0	**14**	0	0	25	0	0	**25**	0	0	5	3	0	**8**	0	**47**
6:30AM	1	1	0	0	**2**	0	20	0	6	0	**26**	0	0	33	1	0	**34**	0	0	3	2	0	**5**	0	**67**
6:45AM	0	3	0	0	**3**	0	8	0	3	0	**11**	0	1	12	0	0	**13**	0	0	3	3	0	**6**	0	**33**
Hourly Total	1	4	1	0	**6**	0	48	0	11	0	**59**	0	1	78	2	0	**81**	0	0	12	8	0	**20**	0	**166**
7:00AM	1	2	0	0	**3**	0	0	0	0	0	**0**	0	2	2	0	0	**4**	0	0	29	34	0	**63**	0	**70**
7:15AM	0	0	0	0	**0**	0	1	1	0	0	**2**	0	1	4	0	0	**5**	1	2	23	17	0	**42**	0	**49**
7:30AM	2	0	0	0	**2**	0	0	0	0	0	**0**	0	1	5	1	0	**7**	0	0	3	1	0	**4**	0	**13**
7:45AM	2	2	0	0	**4**	0	1	0	0	0	**1**	0	0	5	1	0	**6**	0	0	6	1	0	**7**	0	**18**
Hourly Total	5	4	0	0	**9**	0	2	1	0	0	**3**	0	4	16	2	0	**22**	1	2	61	53	0	**116**	0	**150**
8:00AM	1	1	0	0	**2**	0	2	2	0	0	**4**	0	1	2	1	0	**4**	0	0	6	1	0	**7**	0	**17**
8:15AM	1	1	0	0	**2**	0	0	1	1	0	**2**	0	0	1	2	0	**3**	0	0	7	3	0	**10**	0	**17**
8:30AM	2	0	0	0	**2**	0	0	1	1	0	**2**	0	0	3	1	0	**4**	0	0	5	0	0	**5**	0	**13**
8:45AM	1	2	0	0	**3**	0	1	1	1	0	**3**	0	1	3	0	0	**4**	0	0	3	2	0	**5**	0	**15**
Hourly Total	5	4	0	0	**9**	0	3	5	3	0	**11**	0	2	9	4	0	**15**	0	0	21	6	0	**27**	0	**62**
9:00AM	6	0	0	0	**6**	0	1	0	0	0	**1**	0	1	3	1	0	**5**	0	0	5	1	0	**6**	0	**18**
9:15AM	2	3	0	0	**5**	0	4	2	4	0	**10**	0	0	7	1	0	**8**	0	0	1	3	0	**4**	0	**27**
9:30AM	1	4	0	0	**5**	0	0	1	0	0	**1**	0	0	8	3	0	**11**	0	0	5	4	0	**9**	0	**26**
9:45AM	1	2	0	0	**3**	0	3	1	0	0	**4**	0	1	5	3	0	**9**	0	0	6	8	0	**14**	0	**30**
Hourly Total	10	9	0	0	**19**	0	8	4	4	0	**16**	0	2	23	8	0	**33**	0	0	17	16	0	**33**	0	**101**
10:00AM	1	1	0	0	**2**	0	1	1	2	0	**4**	0	0	2	2	0	**4**	0	0	6	8	0	**14**	0	**24**
10:15AM	1	3	0	0	**4**	0	1	1	0	0	**2**	0	1	3	3	0	**7**	0	0	6	5	0	**11**	0	**24**
10:30AM	3	2	0	0	**5**	0	0	3	1	0	**4**	0	1	2	4	0	**7**	0	1	8	1	0	**10**	0	**26**
10:45AM	3	1	0	0	**4**	0	4	0	1	0	**5**	0	2	6	2	0	**10**	0	1	12	4	0	**17**	0	**36**
Hourly Total	8	7	0	0	**15**	0	6	5	4	0	**15**	0	4	13	11	0	**28**	0	2	32	18	0	**52**	0	**110**
11:00AM	2	0	0	0	**2**	0	2	0	1	0	**3**	0	0	12	0	0	**12**	0	1	3	3	0	**7**	0	**24**
11:15AM	1	3	3	0	**7**	0	5	2	1	0	**8**	0	2	6	5	0	**13**	0	0	5	8	0	**13**	0	**41**
11:30AM	0	1	0	0	**1**	0	3	0	0	0	**3**	0	1	7	1	0	**9**	0	1	6	5	0	**12**	0	**25**
11:45AM	1	1	0	0	**2**	0	5	4	1	0	**10**	0	2	11	2	0	**15**	0	0	6	7	0	**13**	0	**40**
Hourly Total	4	5	3	0	**12**	0	15	6	3	0	**24**	0	5	36	8	0	**49**	0	2	20	23	0	**45**	0	**130**
12:00PM	1	2	0	0	**3**	0	11	1	0	0	**12**	0	2	5	0	0	**7**	0	0	8	5	0	**13**	0	**35**
12:15PM	1	0	0	0	**1**	0	6	0	0	0	**6**	0	1	4	1	0	**6**	0	1	3	4	0	**8**	0	**21**
12:30PM	1	0	0	0	**1**	0	7	0	0	0	**7**	0	0	8	6	0	**14**	0	0	6	2	0	**8**	0	**30**
12:45PM	1	1	0	0	**2**	0	5	2	0	0	**7**	0	0	6	5	0	**11**	0	0	3	4	0	**7**	0	**27**
Hourly Total	4	3	0	0	**7**	0	29	3	0	0	**32**	0	3	23	12	0	**38**	0	1	20	15	0	**36**	0	**113**
1:00PM	1	4	0	0	**5**	0	4	6	0	0	**10**	0	1	5	2	0	**8**	0	0	8	2	0	**10**	0	**33**
1:15PM	2	0	0	0	**2**	0	2	1	2	0	**5**	0	2	3	4	0	**9**	0	0	5	1	0	**6**	0	**22**
1:30PM	5	3	3	0	**11**	0	2	0	0	0	**2**	0	0	2	2	0	**4**	0	0	3	3	0	**6**	0	**23**

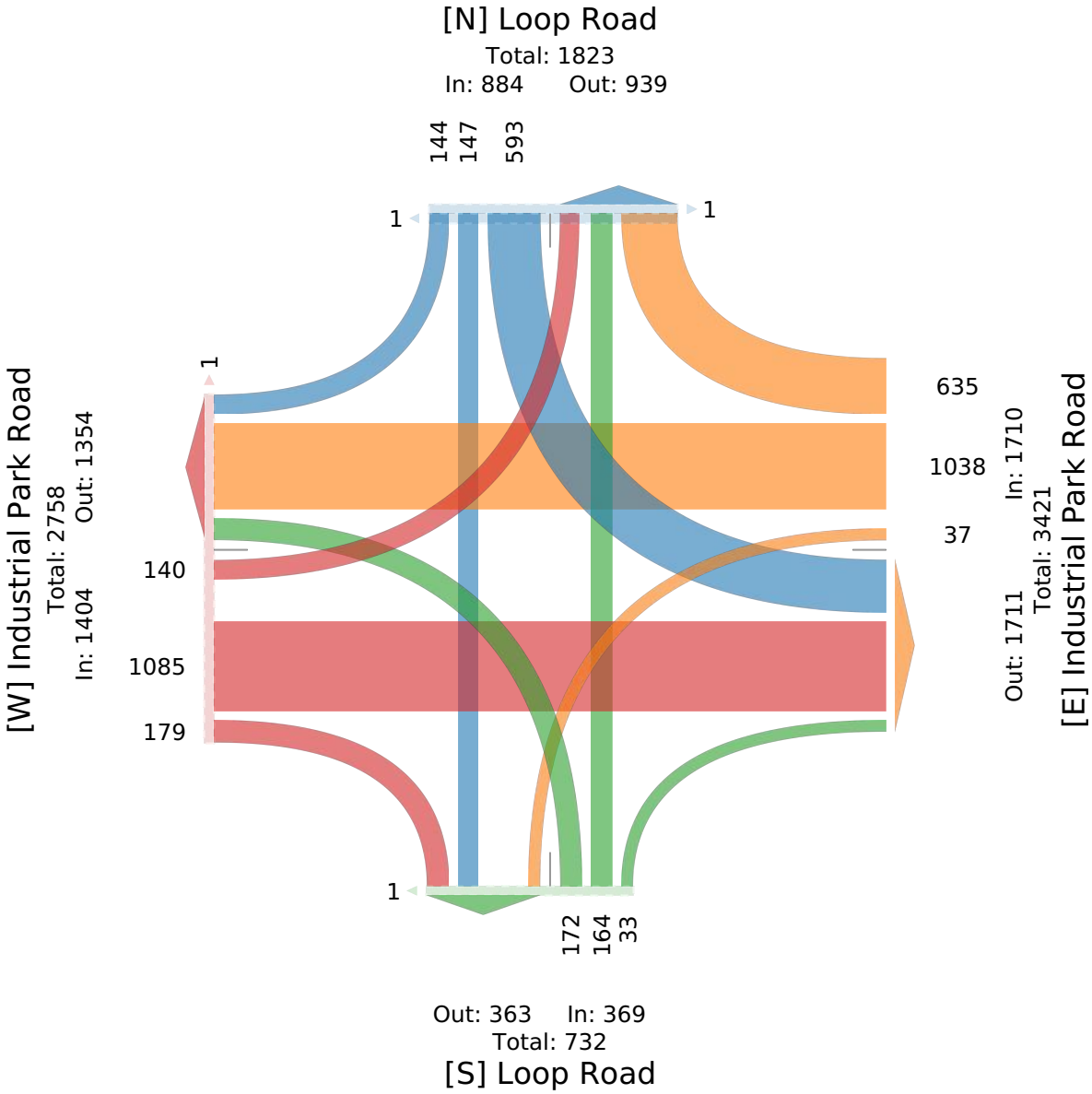
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
1:45PM	2	4	1	0	**7**	0	6	4	0	0	**10**	0	0	5	3	0	**8**	0	0	4	4	0	**8**	0	**33**
Hourly Total	10	11	4	0	**25**	0	14	11	2	0	**27**	0	3	15	11	0	**29**	0	0	20	10	0	**30**	0	**111**
2:00PM	1	1	0	0	**2**	0	1	1	0	0	**2**	0	0	7	1	0	**8**	0	0	7	4	0	**11**	0	**23**
2:15PM	3	4	0	0	**7**	0	3	1	0	0	**4**	0	0	9	0	0	**9**	0	0	1	2	0	**3**	0	**23**
2:30PM	2	1	0	0	**3**	0	4	0	3	0	**7**	0	0	4	2	0	**6**	0	1	2	4	0	**7**	0	**23**
2:45PM	3	4	1	0	**8**	0	3	1	0	0	**4**	0	2	10	1	0	**13**	0	0	3	2	0	**5**	0	**30**
Hourly Total	9	10	1	0	**20**	0	11	3	3	0	**17**	0	2	30	4	0	**36**	0	1	13	12	0	**26**	0	**99**
3:00PM	0	0	0	0	**0**	0	2	1	0	0	**3**	0	0	7	2	0	**9**	0	0	11	5	0	**16**	0	**28**
3:15PM	2	2	0	0	**4**	0	4	1	1	0	**6**	0	0	16	7	0	**23**	0	0	5	1	0	**6**	0	**39**
3:30PM	3	2	0	0	**5**	0	2	0	1	0	**3**	0	1	6	1	0	**8**	0	1	6	5	0	**12**	0	**28**
3:45PM	1	3	1	0	**5**	0	2	1	4	0	**7**	0	1	1	5	0	**7**	0	0	4	1	0	**5**	0	**24**
Hourly Total	6	7	1	0	**14**	0	10	3	6	0	**19**	0	2	30	15	0	**47**	0	1	26	12	0	**39**	0	**119**
4:00PM	3	1	1	0	**5**	0	3	2	2	0	**7**	0	2	11	1	0	**14**	0	0	7	6	0	**13**	0	**39**
4:15PM	4	0	0	0	**4**	0	5	0	1	0	**6**	0	1	11	2	0	**14**	0	2	6	4	0	**12**	0	**36**
4:30PM	0	1	0	0	**1**	0	0	0	0	0	**0**	0	1	4	1	0	**6**	0	4	9	2	0	**15**	0	**22**
4:45PM	0	0	0	0	**0**	0	4	1	0	0	**5**	0	1	7	1	0	**9**	0	0	2	2	0	**4**	0	**18**
Hourly Total	7	2	1	0	**10**	0	12	3	3	0	**18**	0	5	33	5	0	**43**	0	6	24	14	0	**44**	0	**115**
5:00PM	2	2	1	0	**5**	0	6	1	1	0	**8**	0	1	8	1	0	**10**	0	0	3	7	0	**10**	0	**33**
5:15PM	3	2	1	0	**6**	0	7	4	0	0	**11**	0	1	3	0	0	**4**	0	0	8	7	0	**15**	0	**36**
5:30PM	3	1	0	0	**4**	0	5	2	0	0	**7**	0	0	7	2	0	**9**	0	0	2	0	0	**2**	0	**22**
5:45PM	5	0	1	0	**6**	0	6	2	0	0	**8**	0	0	8	3	0	**11**	0	0	4	5	0	**9**	0	**34**
Hourly Total	13	5	3	0	**21**	0	24	9	1	0	**34**	0	2	26	6	0	**34**	0	0	17	19	0	**36**	0	**125**
6:00PM	1	0	0	0	**1**	0	6	2	3	0	**11**	0	2	13	3	0	**18**	0	0	8	5	0	**13**	0	**43**
6:15PM	0	0	1	0	**1**	0	17	1	1	0	**19**	0	1	12	2	0	**15**	0	1	7	1	0	**9**	0	**44**
6:30PM	1	1	1	0	**3**	0	21	0	5	0	**26**	1	1	29	0	0	**30**	0	1	5	2	0	**8**	0	**67**
6:45PM	1	1	0	0	**2**	0	12	3	4	0	**19**	0	2	8	3	0	**13**	0	0	3	2	0	**5**	0	**39**
Hourly Total	3	2	2	0	**7**	0	56	6	13	0	**75**	1	6	62	8	0	**76**	0	2	23	10	0	**35**	0	**193**
7:00PM	0	2	1	0	**3**	0	4	0	3	0	**7**	0	7	6	1	0	**14**	0	0	42	37	0	**79**	0	**103**
7:15PM	0	0	0	0	**0**	0	2	1	0	0	**3**	0	1	6	0	0	**7**	0	1	24	20	0	**45**	0	**55**
7:30PM	1	1	0	0	**2**	0	2	0	1	0	**3**	0	1	0	0	0	**1**	0	0	7	11	0	**18**	0	**24**
7:45PM	3	0	0	0	**3**	0	3	0	1	0	**4**	1	2	6	1	0	**9**	0	0	3	2	0	**5**	0	**21**
Hourly Total	4	3	1	0	**8**	0	11	1	5	0	**17**	1	11	18	2	0	**31**	0	1	76	70	0	**147**	0	**203**
Total	172	164	33	0	**369**	1	593	147	144	0	**884**	2	140	1085	179	0	**1404**	1	37	1038	635	0	**1710**	0	**4367**
% Approach	46.6%	44.4%	8.9%	0%	**-**	-	67.1%	16.6%	16.3%	0%	**-**	-	10.0%	77.3%	12.7%	0%	**-**	-	2.2%	60.7%	37.1%	0%	**-**	-	-
% Total	3.9%	3.8%	0.8%	0%	**8.4%**	-	13.6%	3.4%	3.3%	0%	**20.2%**	-	3.2%	24.8%	4.1%	0%	**32.2%**	-	0.8%	23.8%	14.5%	0%	**39.2%**	-	-
Lights and Motorcycles	172	163	30	0	**365**	-	584	147	137	0	**868**	-	129	882	178	0	**1189**	-	32	832	626	0	**1490**	-	3912
% Lights and Motorcycles	100%	99.4%	90.9%	0%	**98.9%**	-	98.5%	100%	95.1%	0%	**98.2%**	-	92.1%	81.3%	99.4%	0%	**84.7%**	-	86.5%	80.2%	98.6%	0%	**87.1%**	-	89.6%
Heavy	0	1	3	0	**4**	-	9	0	7	0	**16**	-	11	203	1	0	**215**	-	5	206	9	0	**220**	-	455
% Heavy	0%	0.6%	9.1%	0%	**1.1%**	-	1.5%	0%	4.9%	0%	**1.8%**	-	7.9%	18.7%	0.6%	0%	**15.3%**	-	13.5%	19.8%	1.4%	0%	**12.9%**	-	10.4%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

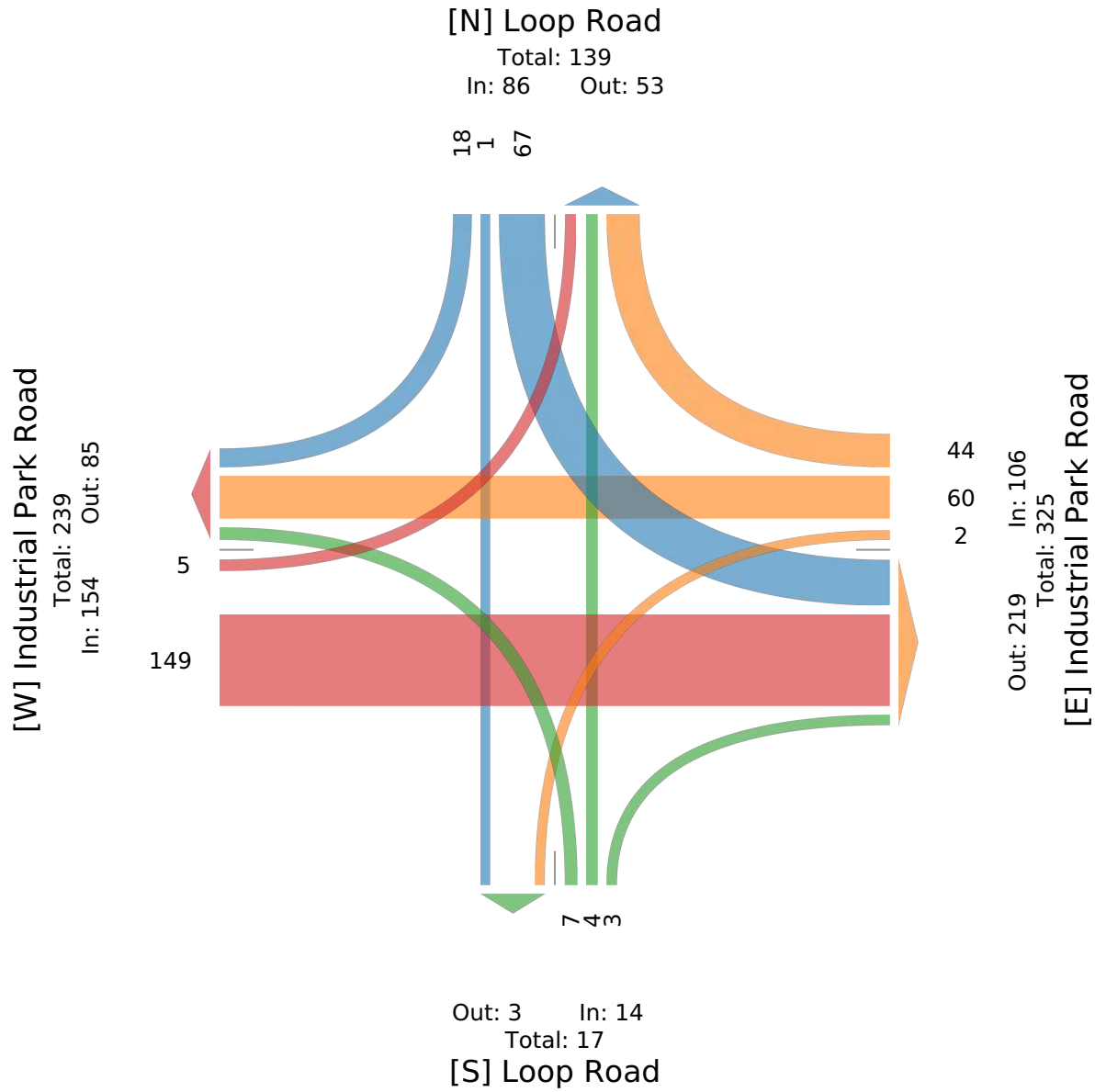
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 6:15AM	1	0	0	0	**1**	0	19	0	6	0	**25**	0	0	34	0	0	**34**	0	0	9	3	0	**12**	0	**72**
6:30AM	1	0	0	0	**1**	0	28	0	5	0	**33**	0	0	59	0	0	**59**	0	0	4	5	0	**9**	0	**102**
6:45AM	3	2	1	0	**6**	0	10	1	6	0	**17**	0	1	42	0	0	**43**	0	0	6	6	0	**12**	0	**78**
7:00AM	2	2	2	0	**6**	0	10	0	1	0	**11**	0	4	14	0	0	**18**	0	2	41	30	0	**73**	0	**108**
Total	7	4	3	0	**14**	0	67	1	18	0	**86**	0	5	149	0	0	**154**	0	2	60	44	0	**106**	0	**360**
% Approach	50.0%	28.6%	21.4%	0%	**-**	-	77.9%	1.2%	20.9%	0%	**-**	-	3.2%	96.8%	0%	0%	**-**	-	1.9%	56.6%	41.5%	0%	**-**	-	**-**
% Total	1.9%	1.1%	0.8%	0%	**3.9%**	-	18.6%	0.3%	5.0%	0%	**23.9%**	-	1.4%	41.4%	0%	0%	**42.8%**	-	0.6%	16.7%	12.2%	0%	**29.4%**	-	**-**
PHF	0.583	0.500	0.375	**-**	**0.583**	-	0.598	0.250	0.750	**-**	**0.652**	-	0.313	0.631	**-**	**-**	**0.653**	-	0.250	0.366	0.367	**-**	**0.363**	-	0.833
Lights and Motorcycles	7	4	3	0	**14**	-	67	1	18	0	**86**	-	5	140	0	0	**145**	-	1	55	44	0	**100**	-	345
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	94.0%	0%	0%	**94.2%**	-	50.0%	91.7%	100%	0%	**94.3%**	-	95.8%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	9	0	0	**9**	-	1	5	0	0	**6**	-	15
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	6.0%	0%	0%	**5.8%**	-	50.0%	8.3%	0%	0%	**5.7%**	-	4.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Thu Jun 18, 2026
AM Peak (Jun 18 2026 6:15AM - 7:15 AM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

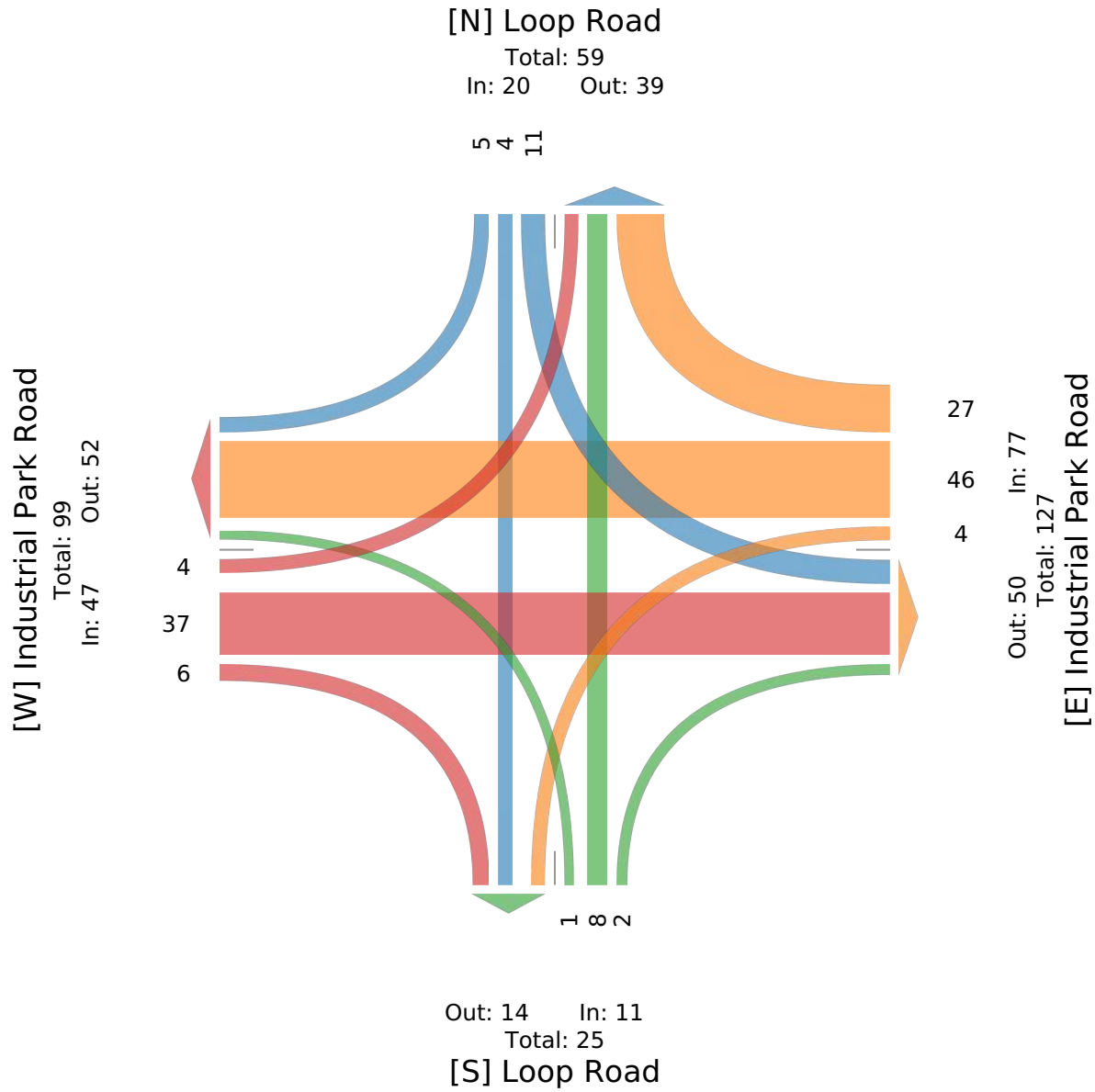
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 11:15AM	1	0	0	0	**1**	0	3	1	3	0	**7**	0	1	8	2	0	**11**	0	1	11	5	0	**17**	0	**36**
11:30AM	0	6	0	0	**6**	0	3	0	2	0	**5**	0	1	9	3	0	**13**	0	1	7	2	0	**10**	0	**34**
11:45AM	0	1	1	0	**2**	0	3	2	0	0	**5**	0	1	7	1	0	**9**	0	1	9	8	0	**18**	0	**34**
12:00PM	0	1	1	0	**2**	0	2	1	0	0	**3**	0	1	13	0	0	**14**	0	1	19	12	0	**32**	0	**51**
Total	1	8	2	0	**11**	0	11	4	5	0	**20**	0	4	37	6	0	**47**	0	4	46	27	0	**77**	0	**155**
% Approach	9.1%	72.7%	18.2%	0%	**-**	-	55.0%	20.0%	25.0%	0%	**-**	-	8.5%	78.7%	12.8%	0%	**-**	-	5.2%	59.7%	35.1%	0%	**-**	-	-
% Total	0.6%	5.2%	1.3%	0%	**7.1%**	-	7.1%	2.6%	3.2%	0%	**12.9%**	-	2.6%	23.9%	3.9%	0%	**30.3%**	-	2.6%	29.7%	17.4%	0%	**49.7%**	-	-
PHF	0.250	0.333	0.500	-	**0.458**	-	0.917	0.500	0.417	-	**0.714**	-	1.000	0.712	0.500	-	**0.839**	-	1.000	0.605	0.563	-	**0.602**	-	0.760
Lights and Motorcycles	1	8	1	0	**10**	-	9	4	4	0	**17**	-	2	21	5	0	**28**	-	3	26	24	0	**53**	-	108
% Lights and Motorcycles	100%	100%	50.0%	0%	**90.9%**	-	81.8%	100%	80.0%	0%	**85.0%**	-	50.0%	56.8%	83.3%	0%	**59.6%**	-	75.0%	56.5%	88.9%	0%	**68.8%**	-	69.7%
Heavy	0	0	1	0	**1**	-	2	0	1	0	**3**	-	2	16	1	0	**19**	-	1	20	3	0	**24**	-	47
% Heavy	0%	0%	50.0%	0%	**9.1%**	-	18.2%	0%	20.0%	0%	**15.0%**	-	50.0%	43.2%	16.7%	0%	**40.4%**	-	25.0%	43.5%	11.1%	0%	**31.2%**	-	30.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
PM Peak (Jun 18 2026 6:15PM - 7:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

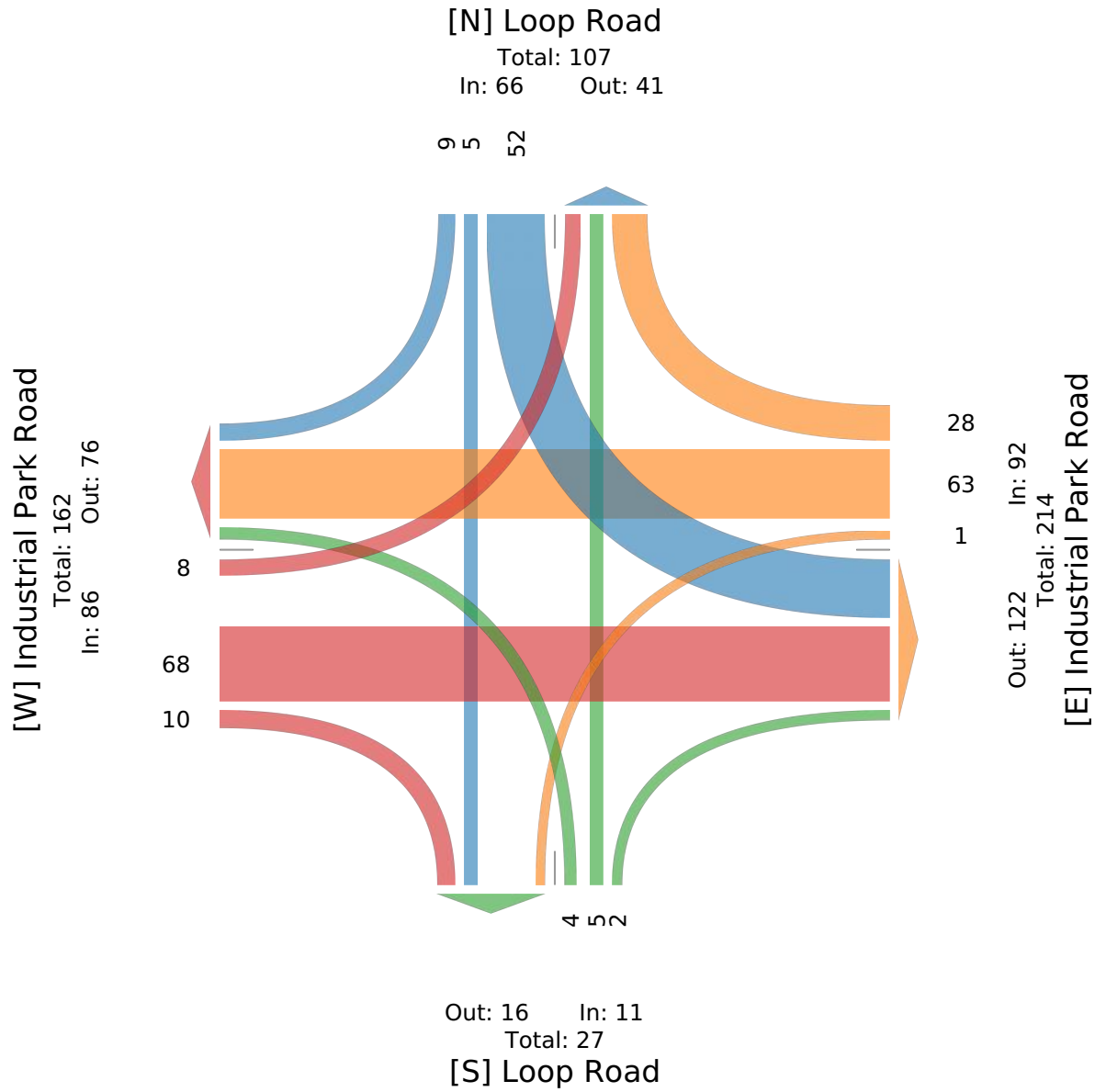
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-18 6:15PM	0	2	0	0	**2**	0	20	1	5	0	**26**	0	0	21	3	0	**24**	0	0	5	0	0	**5**	0	**57**
6:30PM	1	1	1	0	**3**	0	29	0	3	0	**32**	0	0	25	1	0	**26**	0	0	6	2	0	**8**	0	**69**
6:45PM	1	0	1	0	**2**	0	3	3	1	0	**7**	0	2	18	4	0	**24**	0	0	3	0	0	**3**	0	**36**
7:00PM	2	2	0	0	**4**	0	0	1	0	0	**1**	0	6	4	2	0	**12**	0	1	49	26	0	**76**	0	**93**
Total	4	5	2	0	**11**	0	52	5	9	0	**66**	0	8	68	10	0	**86**	0	1	63	28	0	**92**	0	**255**
% Approach	36.4%	45.5%	18.2%	0%	**-**	-	78.8%	7.6%	13.6%	0%	**-**	-	9.3%	79.1%	11.6%	0%	**-**	-	1.1%	68.5%	30.4%	0%	**-**	-	**-**
% Total	1.6%	2.0%	0.8%	0%	**4.3%**	-	20.4%	2.0%	3.5%	0%	**25.9%**	-	3.1%	26.7%	3.9%	0%	**33.7%**	-	0.4%	24.7%	11.0%	0%	**36.1%**	-	**-**
PHF	0.500	0.625	0.500	-	**0.688**	-	0.448	0.417	0.450	-	**0.516**	-	0.333	0.680	0.625	-	**0.827**	-	0.250	0.321	0.269	-	**0.303**	-	0.685
Lights and Motorcycles	4	5	2	0	**11**	-	52	5	9	0	**66**	-	8	64	10	0	**82**	-	1	60	28	0	**89**	-	248
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	94.1%	100%	0%	**95.3%**	-	100%	95.2%	100%	0%	**96.7%**	-	97.3%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	4	0	0	**4**	-	0	3	0	0	**3**	-	7
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	5.9%	0%	0%	**4.7%**	-	0%	4.8%	0%	0%	**3.3%**	-	2.7%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Thu Jun 18, 2026
PM Peak (Jun 18 2026 6:15PM - 7:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

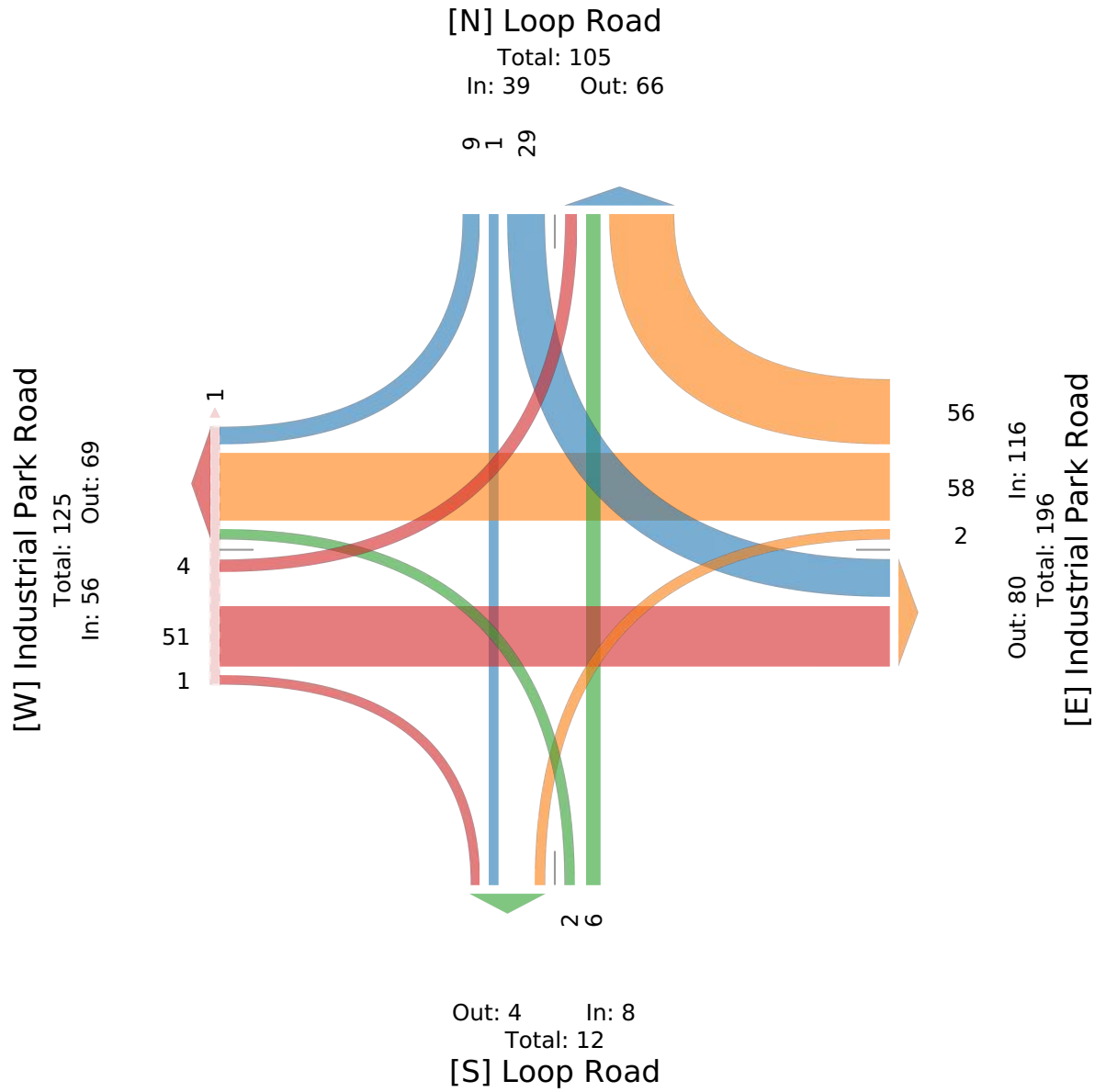
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 6:30AM	1	1	0	0	**2**	0	20	0	6	0	**26**	0	0	33	1	0	**34**	0	0	3	2	0	**5**	0	**67**
6:45AM	0	3	0	0	**3**	0	8	0	3	0	**11**	0	1	12	0	0	**13**	0	0	3	3	0	**6**	0	**33**
7:00AM	1	2	0	0	**3**	0	0	0	0	0	**0**	0	2	2	0	0	**4**	0	0	29	34	0	**63**	0	**70**
7:15AM	0	0	0	0	**0**	0	1	1	0	0	**2**	0	1	4	0	0	**5**	1	2	23	17	0	**42**	0	**49**
Total	2	6	0	0	**8**	0	29	1	9	0	**39**	0	4	51	1	0	**56**	1	2	58	56	0	**116**	0	**219**
% Approach	25.0%	75.0%	0%	0%	**-**	-	74.4%	2.6%	23.1%	0%	**-**	-	7.1%	91.1%	1.8%	0%	**-**	-	1.7%	50.0%	48.3%	0%	**-**	-	-
% Total	0.9%	2.7%	0%	0%	**3.7%**	-	13.2%	0.5%	4.1%	0%	**17.8%**	-	1.8%	23.3%	0.5%	0%	**25.6%**	-	0.9%	26.5%	25.6%	0%	**53.0%**	-	-
PHF	0.500	0.500	-	-	**0.667**	-	0.363	0.250	0.375	-	**0.375**	-	0.500	0.386	0.250	-	**0.412**	-	0.250	0.500	0.412	-	**0.460**	-	0.782
Lights and Motorcycles	2	6	0	0	**8**	-	29	1	9	0	**39**	-	4	47	1	0	**52**	-	2	55	56	0	**113**	-	212
% Lights and Motorcycles	100%	100%	0%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	92.2%	100%	0%	**92.9%**	-	100%	94.8%	100%	0%	**97.4%**	-	96.8%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	4	0	0	**4**	-	0	3	0	0	**3**	-	7
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	7.8%	0%	0%	**7.1%**	-	0%	5.2%	0%	0%	**2.6%**	-	3.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 6:30AM - 7:30 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

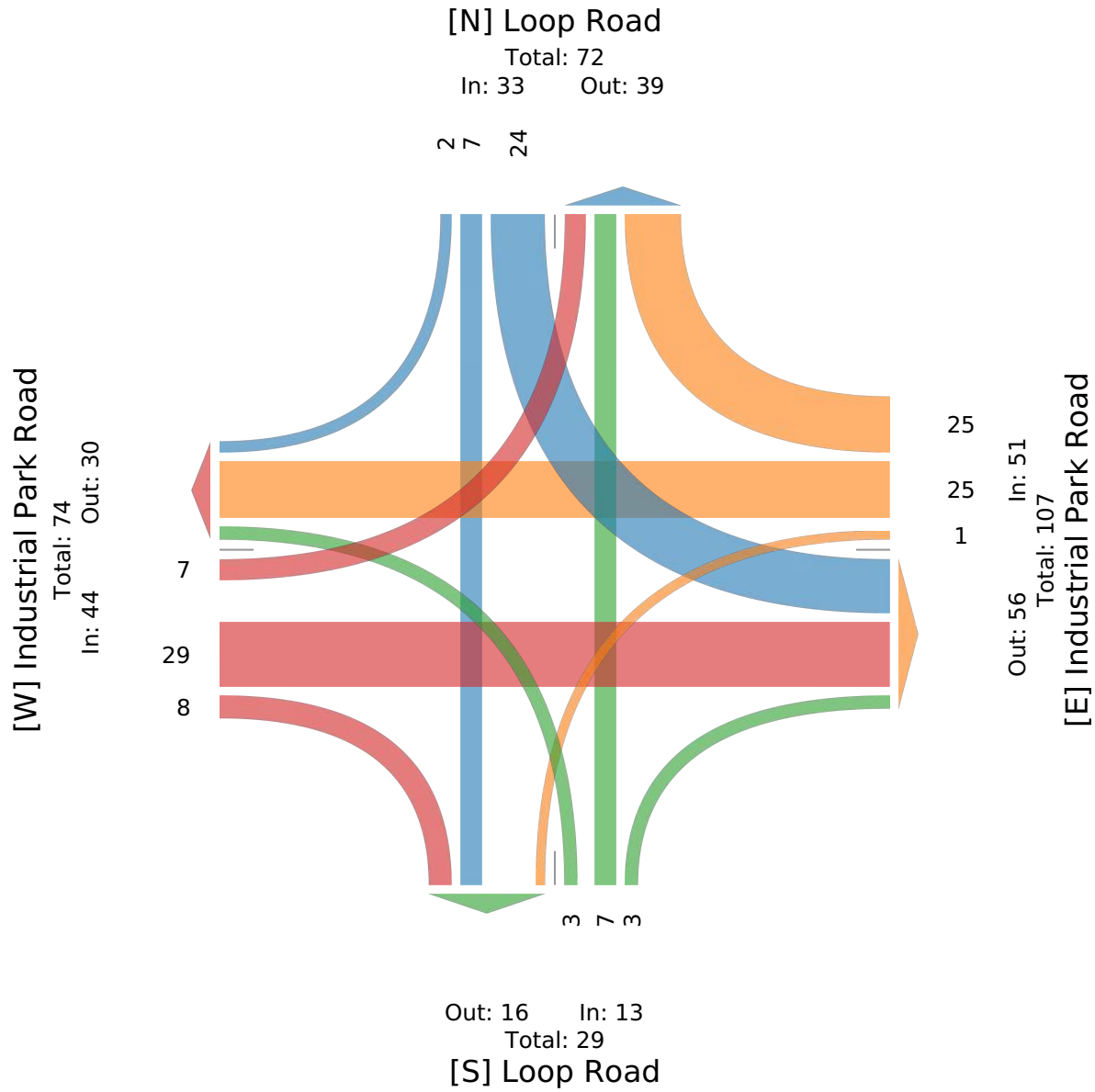
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 11:15AM	1	3	3	0	**7**	0	5	2	1	0	**8**	0	2	6	5	0	**13**	0	0	5	8	0	**13**	0	**41**
11:30AM	0	1	0	0	**1**	0	3	0	0	0	**3**	0	1	7	1	0	**9**	0	1	6	5	0	**12**	0	**25**
11:45AM	1	1	0	0	**2**	0	5	4	1	0	**10**	0	2	11	2	0	**15**	0	0	6	7	0	**13**	0	**40**
12:00PM	1	2	0	0	**3**	0	11	1	0	0	**12**	0	2	5	0	0	**7**	0	0	8	5	0	**13**	0	**35**
Total	3	7	3	0	**13**	0	24	7	2	0	**33**	0	7	29	8	0	**44**	0	1	25	25	0	**51**	0	**141**
% Approach	23.1%	53.8%	23.1%	0%	**-**	-	72.7%	21.2%	6.1%	0%	**-**	-	15.9%	65.9%	18.2%	0%	**-**	-	2.0%	49.0%	49.0%	0%	**-**	-	-
% Total	2.1%	5.0%	2.1%	0%	**9.2%**	-	17.0%	5.0%	1.4%	0%	**23.4%**	-	5.0%	20.6%	5.7%	0%	**31.2%**	-	0.7%	17.7%	17.7%	0%	**36.2%**	-	-
PHF	0.750	0.583	0.250	-	**0.464**	-	0.545	0.438	0.500	-	**0.688**	-	0.875	0.659	0.400	-	**0.733**	-	0.250	0.781	0.781	-	**0.981**	-	0.860
Lights and Motorcycles	3	7	3	0	**13**	-	24	7	2	0	**33**	-	7	25	8	0	**40**	-	1	24	25	0	**50**	-	136
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	86.2%	100%	0%	**90.9%**	-	100%	96.0%	100%	0%	**98.0%**	-	96.5%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	4	0	0	**4**	-	0	1	0	0	**1**	-	5
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	13.8%	0%	0%	**9.1%**	-	0%	4.0%	0%	0%	**2.0%**	-	3.5%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



4. Industrial Park Road & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 6:30PM - 7:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

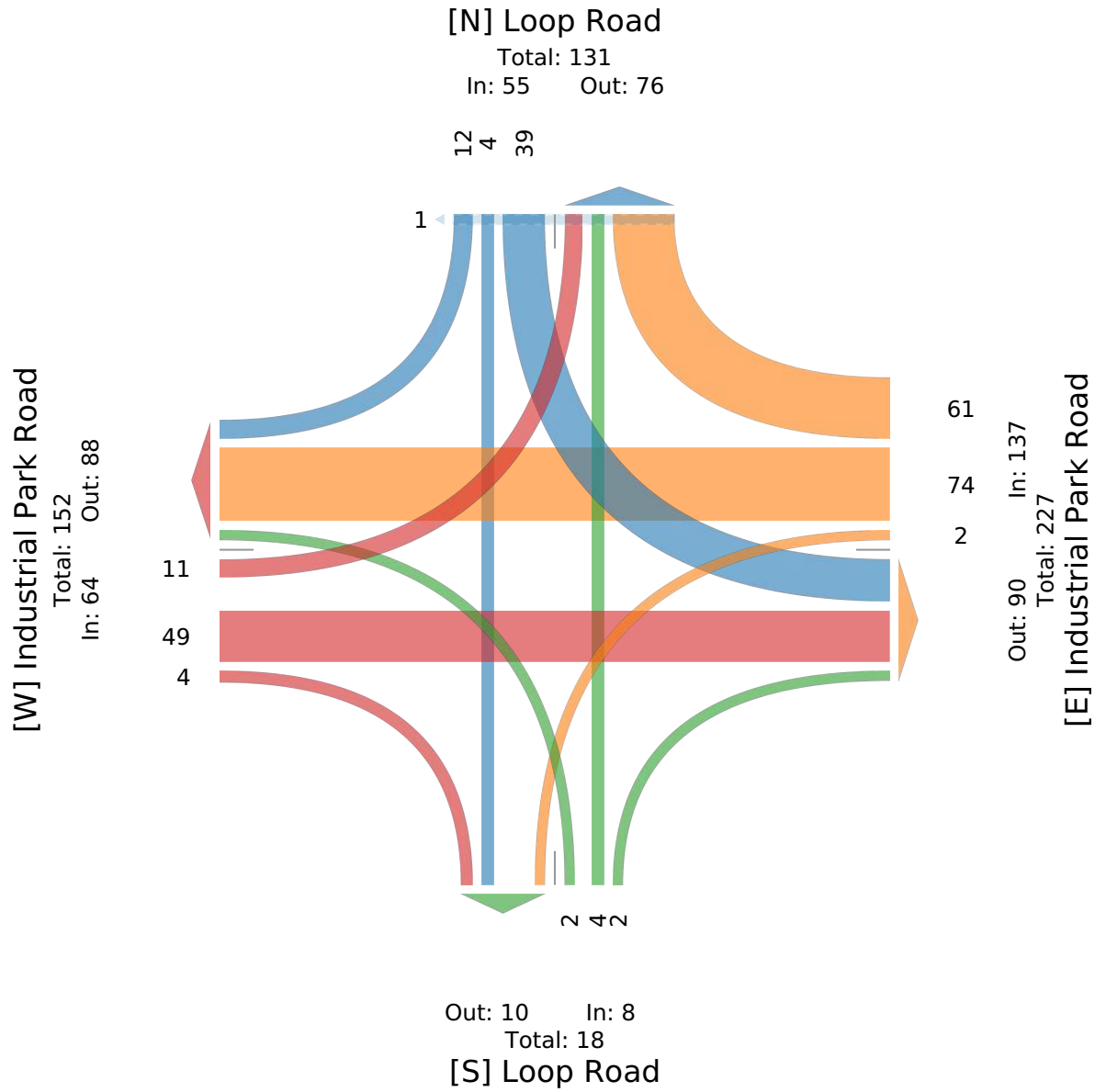
Leg	Loop Road						Loop Road						Industrial Park Road						Industrial Park Road						
Direction	Northbound						Southbound						Eastbound						Westbound						
Time	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	L	T	R	U	**App**	Ped*	**Int**
2026-06-20 6:30PM	1	1	1	0	**3**	0	21	0	5	0	**26**	1	1	29	0	0	**30**	0	1	5	2	0	**8**	0	**67**
6:45PM	1	1	0	0	**2**	0	12	3	4	0	**19**	0	2	8	3	0	**13**	0	0	3	2	0	**5**	0	**39**
7:00PM	0	2	1	0	**3**	0	4	0	3	0	**7**	0	7	6	1	0	**14**	0	0	42	37	0	**79**	0	**103**
7:15PM	0	0	0	0	**0**	0	2	1	0	0	**3**	0	1	6	0	0	**7**	0	1	24	20	0	**45**	0	**55**
Total	2	4	2	0	**8**	0	39	4	12	0	**55**	1	11	49	4	0	**64**	0	2	74	61	0	**137**	0	**264**
% Approach	25.0%	50.0%	25.0%	0%	**-**	-	70.9%	7.3%	21.8%	0%	**-**	-	17.2%	76.6%	6.3%	0%	**-**	-	1.5%	54.0%	44.5%	0%	**-**	-	-
% Total	0.8%	1.5%	0.8%	0%	**3.0%**	-	14.8%	1.5%	4.5%	0%	**20.8%**	-	4.2%	18.6%	1.5%	0%	**24.2%**	-	0.8%	28.0%	23.1%	0%	**51.9%**	-	-
PHF	0.500	0.500	0.500	-	**0.667**	-	0.464	0.333	0.600	-	**0.529**	-	0.393	0.422	0.333	-	**0.533**	-	0.500	0.440	0.412	-	**0.434**	-	0.641
Lights and Motorcycles	2	4	2	0	**8**	-	39	4	12	0	**55**	-	11	48	4	0	**63**	-	2	72	61	0	**135**	-	261
% Lights and Motorcycles	100%	100%	100%	0%	**100%**	-	100%	100%	100%	0%	**100%**	-	100%	98.0%	100%	0%	**98.4%**	-	100%	97.3%	100%	0%	**98.5%**	-	98.9%
Heavy	0	0	0	0	**0**	-	0	0	0	0	**0**	-	0	1	0	0	**1**	-	0	2	0	0	**2**	-	3
% Heavy	0%	0%	0%	0%	**0%**	-	0%	0%	0%	0%	**0%**	-	0%	2.0%	0%	0%	**1.6%**	-	0%	2.7%	0%	0%	**1.5%**	-	1.1%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

4. Industrial Park Road & Loop Road - TMC

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 6:30PM - 7:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414021, Location: 40.571429, -77.606689, Site Code: 4

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

Turning Movement Data

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
4:00 AM	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	4
4:15 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	7
4:30 AM	0	0	4	0	0	4	0	0	1	1	0	2	0	0	0	0	0	0	0	3	0	0	0	3	9
4:45 AM	0	0	6	0	0	6	0	1	3	0	0	4	0	1	1	0	0	2	0	2	0	0	0	2	14
Hourly Total	0	0	17	0	0	17	0	1	4	1	0	6	0	2	1	0	0	3	0	8	0	0	0	8	34
5:00 AM	0	0	3	0	0	3	0	0	2	0	0	2	0	1	0	0	0	1	0	3	1	0	0	4	10
5:15 AM	0	0	10	0	0	10	0	0	5	1	0	6	0	1	1	0	0	2	0	5	0	0	0	5	23
5:30 AM	0	0	11	0	0	11	0	1	0	0	0	1	0	0	2	0	0	2	0	6	1	2	0	9	23
5:45 AM	0	0	14	0	0	14	0	0	8	2	0	10	0	2	0	0	0	2	0	8	0	0	0	8	34
Hourly Total	0	0	38	0	0	38	0	1	15	3	0	19	0	4	3	0	0	7	0	22	2	2	0	26	90
6:00 AM	0	0	16	0	0	16	0	0	4	2	0	6	0	0	1	0	0	1	0	14	0	2	0	16	39
6:15 AM	0	0	34	0	0	34	0	0	9	3	0	12	0	1	0	0	0	1	0	19	0	6	0	25	72
6:30 AM	0	0	59	0	0	59	0	0	4	5	0	9	0	1	0	0	0	1	0	28	0	5	0	33	102
6:45 AM	0	1	42	0	0	43	0	0	6	6	0	12	0	3	2	1	0	6	0	10	1	6	0	17	78
Hourly Total	0	1	151	0	0	152	0	0	23	16	0	39	0	5	3	1	0	9	0	71	1	19	0	91	291
7:00 AM	0	4	14	0	0	18	0	2	41	30	0	73	0	2	2	2	0	6	0	10	0	1	0	11	108
7:15 AM	0	1	14	2	0	17	0	1	21	15	0	37	0	1	1	0	0	2	0	9	0	2	0	11	67
7:30 AM	0	3	11	0	0	14	0	1	25	6	0	32	0	1	1	0	0	2	0	1	0	2	0	3	51
7:45 AM	0	1	10	1	0	12	0	0	9	7	0	16	0	2	1	0	1	3	0	1	2	1	0	4	35
Hourly Total	0	9	49	3	0	61	0	4	96	58	0	158	0	6	5	2	1	13	0	21	2	6	0	29	261
8:00 AM	0	1	11	0	0	12	0	0	11	4	0	15	0	3	2	0	0	5	0	1	1	0	0	2	34
8:15 AM	0	0	5	1	0	6	0	0	2	3	0	5	0	1	1	0	0	2	0	0	0	1	0	1	14
8:30 AM	0	0	7	0	0	7	0	0	9	2	0	11	0	0	4	0	0	4	0	2	1	1	0	4	26
8:45 AM	0	0	8	0	0	8	0	0	6	4	0	10	0	0	0	0	0	0	0	4	0	0	0	4	22
Hourly Total	0	1	31	1	0	33	0	0	28	13	0	41	0	4	7	0	0	11	0	7	2	2	0	11	96
9:00 AM	0	0	5	1	0	6	0	0	6	5	0	11	0	2	1	1	0	4	0	3	0	0	0	3	24
9:15 AM	0	1	7	1	0	9	0	1	6	6	0	13	0	0	1	0	0	1	0	4	1	1	0	6	29
9:30 AM	0	0	2	2	0	4	0	0	7	2	0	9	0	3	2	0	0	5	0	1	2	0	0	3	21
9:45 AM	0	1	8	1	0	10	0	1	4	2	0	7	0	1	1	0	0	2	0	0	0	0	0	0	19
Hourly Total	0	2	22	5	0	29	0	2	23	15	0	40	0	6	5	1	0	12	0	8	3	1	0	12	93
10:00 AM	0	1	7	0	0	8	0	0	4	5	0	9	0	1	2	0	0	3	0	4	4	1	0	9	29
10:15 AM	0	2	7	2	0	11	0	0	5	3	0	8	0	1	1	0	0	2	0	3	0	2	0	5	26
10:30 AM	0	1	5	1	0	7	0	1	7	1	0	9	0	1	1	0	0	2	0	3	1	0	0	4	22
10:45 AM	0	4	5	0	0	9	0	0	4	4	0	8	0	2	1	1	0	4	0	1	4	1	0	6	27
Hourly Total	0	8	24	3	0	35	0	1	20	13	0	34	0	5	5	1	0	11	0	11	9	4	0	24	104

11:00 AM	0	3	14	0	0	17	0	1	9	5	0	15	0	1	0	2	0	3	0	5	1	3	0	9	44
11:15 AM	0	1	8	2	0	11	0	1	11	5	0	17	0	1	0	0	0	1	0	3	1	3	0	7	36
11:30 AM	0	1	9	3	0	13	0	1	7	2	0	10	0	0	6	0	0	6	0	3	0	2	0	5	34
11:45 AM	0	1	7	1	0	9	0	1	9	8	0	18	0	0	1	1	0	2	0	3	2	0	0	5	34
Hourly Total	0	6	38	6	0	50	0	4	36	20	0	60	0	2	7	3	0	12	0	14	4	8	0	26	148
12:00 PM	0	1	13	0	0	14	0	1	19	12	0	32	0	0	1	1	0	2	0	2	1	0	0	3	51
12:15 PM	0	0	7	0	0	7	0	0	9	8	0	17	0	3	0	0	0	3	0	2	2	1	0	5	32
12:30 PM	0	1	10	2	0	13	0	0	8	3	0	11	0	0	1	0	0	1	0	6	1	2	0	9	34
12:45 PM	0	0	14	2	0	16	0	0	3	3	0	6	0	0	1	0	0	1	0	9	0	3	0	12	35
Hourly Total	0	2	44	4	0	50	0	1	39	26	0	66	0	3	3	1	0	7	0	19	4	6	0	29	152
1:00 PM	0	0	4	2	0	6	0	1	9	3	0	13	0	1	0	1	0	2	0	9	2	2	0	13	34
1:15 PM	0	3	8	2	0	13	0	0	12	1	0	13	0	2	1	0	0	3	0	6	1	1	0	8	37
1:30 PM	0	0	9	1	0	10	0	0	14	5	0	19	0	0	1	0	0	1	0	3	1	2	0	6	36
1:45 PM	0	0	9	0	0	9	0	0	12	4	0	16	0	2	1	0	0	3	0	1	2	1	0	4	32
Hourly Total	0	3	30	5	0	38	0	1	47	13	0	61	0	5	3	1	0	9	0	19	6	6	0	31	139
2:00 PM	0	6	5	0	0	11	0	0	11	4	0	15	0	2	1	0	0	3	0	6	4	2	0	12	41
2:15 PM	0	0	3	1	0	4	0	0	10	5	0	15	0	1	1	0	0	2	0	1	3	1	0	5	26
2:30 PM	0	9	13	4	0	26	0	0	8	3	0	11	0	1	4	0	0	5	0	2	2	1	0	5	47
2:45 PM	0	2	12	3	0	17	0	0	7	3	0	10	0	3	3	0	0	6	0	5	3	0	0	8	41
Hourly Total	0	17	33	8	0	58	0	0	36	15	0	51	0	7	9	0	0	16	0	14	12	4	0	30	155
3:00 PM	0	5	8	2	0	15	0	0	33	16	0	49	0	2	3	0	0	5	0	5	4	0	0	9	78
3:15 PM	0	1	5	4	0	10	0	0	13	7	0	20	0	1	2	1	0	4	0	3	1	0	0	4	38
3:30 PM	0	1	6	0	0	7	0	0	24	7	0	31	0	4	0	0	0	4	0	3	1	0	0	4	46
3:45 PM	0	2	5	3	0	10	0	0	19	11	0	30	0	0	0	0	0	0	0	5	5	0	0	10	50
Hourly Total	0	9	24	9	0	42	0	0	89	41	0	130	0	7	5	1	0	13	0	16	11	0	0	27	212
4:00 PM	0	5	5	3	0	13	0	0	16	13	0	29	0	1	3	0	0	4	0	4	3	1	0	8	54
4:15 PM	0	3	7	2	0	12	0	0	13	7	0	20	0	3	3	0	0	6	0	3	2	1	0	6	44
4:30 PM	0	4	6	3	0	13	0	0	10	4	0	14	0	4	3	0	0	7	0	5	2	2	0	9	43
4:45 PM	0	0	11	4	0	15	0	2	9	7	0	18	0	1	4	0	0	5	0	3	1	0	0	4	42
Hourly Total	0	12	29	12	0	53	0	2	48	31	0	81	0	9	13	0	0	22	0	15	8	4	0	27	183
5:00 PM	0	0	6	3	0	9	0	0	11	10	0	21	0	1	1	0	0	2	0	1	2	1	0	4	36
5:15 PM	0	1	11	3	0	15	0	0	6	6	0	12	0	2	0	0	0	2	0	6	3	2	0	11	40
5:30 PM	0	1	7	1	0	9	0	0	10	6	0	16	0	5	7	0	0	12	0	8	3	0	0	11	48
5:45 PM	0	2	10	3	0	15	0	0	7	7	0	14	0	1	4	0	0	5	0	6	3	1	0	10	44
Hourly Total	0	4	34	10	0	48	0	0	34	29	0	63	0	9	12	0	0	21	0	21	11	4	0	36	168
6:00 PM	0	1	16	3	0	20	0	0	8	1	0	9	0	1	1	1	0	3	0	9	0	1	0	10	42
6:15 PM	0	0	21	3	0	24	0	0	5	0	0	5	0	0	2	0	0	2	0	20	1	5	0	26	57
6:30 PM	0	0	25	1	0	26	0	0	6	2	0	8	0	1	1	1	0	3	0	29	0	3	0	32	69
6:45 PM	0	2	18	4	0	24	0	0	3	0	0	3	0	1	0	1	0	2	0	3	3	1	0	7	36
Hourly Total	0	3	80	11	0	94	0	0	22	3	0	25	0	3	4	3	0	10	0	61	4	10	0	75	204
7:00 PM	0	6	4	2	0	12	0	1	49	26	0	76	0	2	2	0	0	4	0	0	1	0	0	1	93
7:15 PM	0	1	5	1	0	7	0	0	26	15	0	41	0	1	0	0	0	1	0	4	2	1	0	7	56
7:30 PM	0	2	2	1	0	5	0	1	12	4	0	17	0	2	0	1	0	3	0	2	1	3	0	6	31
7:45 PM	0	0	7	0	0	7	0	0	2	2	0	4	0	0	0	1	0	1	0	3	2	0	0	5	17
Hourly Total	0	9	18	4	0	31	0	2	89	47	0	138	0	5	2	2	0	9	0	9	6	4	0	19	197
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
4:15 AM	0	0	1	0	0	1	0	0	2	2	0	4	0	0	0	0	0	0	0	0	0	1	0	1	6
4:30 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	3
4:45 AM	0	1	1	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	2	0	3	6
Hourly Total	0	1	3	0	0	4	0	0	3	2	0	5	0	1	0	0	0	1	0	2	1	3	0	6	16
5:00 AM	0	1	2	0	0	3	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	5

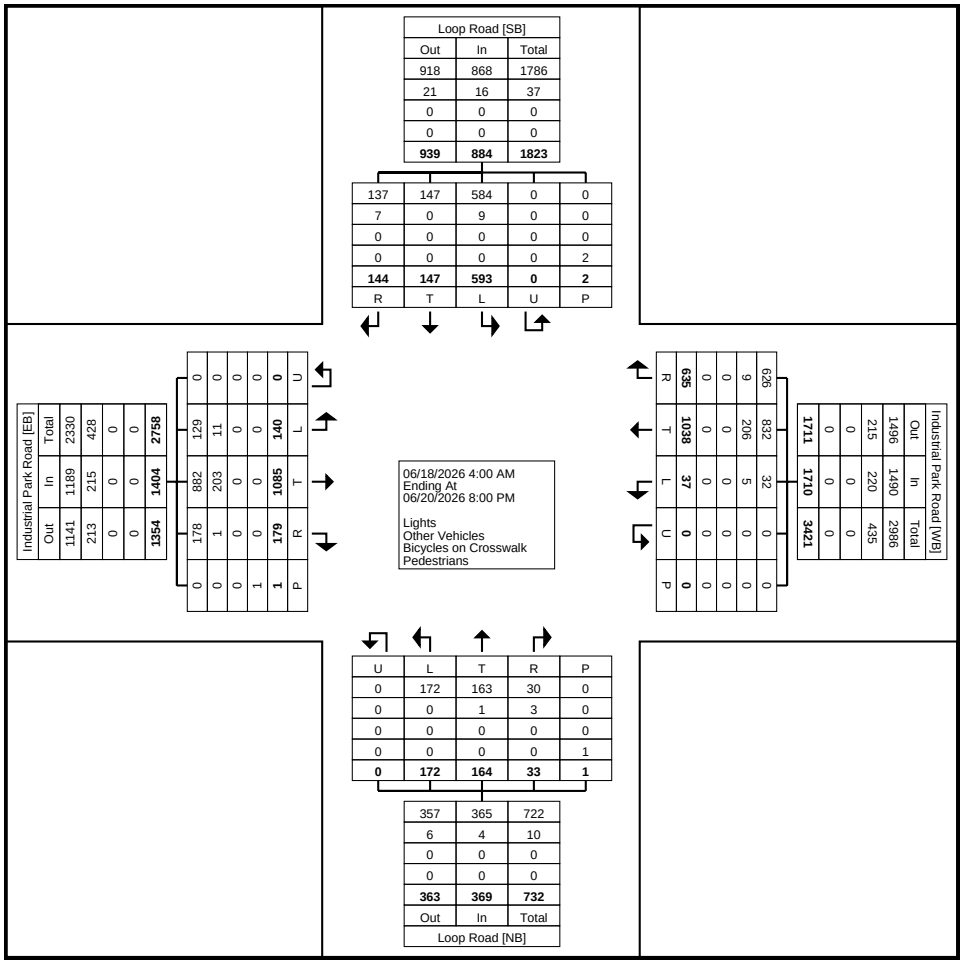
5:15 AM	0	0	2	0	0	2	0	0	0	3	0	3	0	0	0	0	0	0	0	2	0	1	0	3	8
5:30 AM	0	0	2	0	0	2	0	0	2	0	0	2	0	0	1	0	0	1	0	1	0	0	0	1	6
5:45 AM	0	0	2	0	0	2	0	0	1	0	0	1	0	0	0	0	0	0	0	2	1	2	0	5	8
Hourly Total	0	1	8	0	0	9	0	0	4	3	0	7	0	0	1	0	0	1	0	6	1	3	0	10	27
6:00 AM	0	0	8	1	0	9	0	0	1	0	0	1	0	0	0	1	0	1	0	7	0	1	0	8	19
6:15 AM	0	0	25	0	0	25	0	0	5	3	0	8	0	0	0	0	0	0	0	13	0	1	0	14	47
6:30 AM	0	0	33	1	0	34	0	0	3	2	0	5	0	1	1	0	0	2	0	20	0	6	0	26	67
6:45 AM	0	1	12	0	0	13	0	0	3	3	0	6	0	0	3	0	0	3	0	8	0	3	0	11	33
Hourly Total	0	1	78	2	0	81	0	0	12	8	0	20	0	1	4	1	0	6	0	48	0	11	0	59	166
7:00 AM	0	2	2	0	0	4	0	0	29	34	0	63	0	1	2	0	0	3	0	0	0	0	0	0	70
7:15 AM	0	1	4	0	1	5	0	2	23	17	0	42	0	0	0	0	0	0	0	1	1	0	0	2	49
7:30 AM	0	1	5	1	0	7	0	0	3	1	0	4	0	2	0	0	0	2	0	0	0	0	0	0	13
7:45 AM	0	0	5	1	0	6	0	0	6	1	0	7	0	2	2	0	0	4	0	1	0	0	0	1	18
Hourly Total	0	4	16	2	1	22	0	2	61	53	0	116	0	5	4	0	0	9	0	2	1	0	0	3	150
8:00 AM	0	1	2	1	0	4	0	0	6	1	0	7	0	1	1	0	0	2	0	2	2	0	0	4	17
8:15 AM	0	0	1	2	0	3	0	0	7	3	0	10	0	1	1	0	0	2	0	0	1	1	0	2	17
8:30 AM	0	0	3	1	0	4	0	0	5	0	0	5	0	2	0	0	0	2	0	0	1	1	0	2	13
8:45 AM	0	1	3	0	0	4	0	0	3	2	0	5	0	1	2	0	0	3	0	1	1	1	0	3	15
Hourly Total	0	2	9	4	0	15	0	0	21	6	0	27	0	5	4	0	0	9	0	3	5	3	0	11	62
9:00 AM	0	1	3	1	0	5	0	0	5	1	0	6	0	6	0	0	0	6	0	1	0	0	0	1	18
9:15 AM	0	0	7	1	0	8	0	0	1	3	0	4	0	2	3	0	0	5	0	4	2	4	0	10	27
9:30 AM	0	0	8	3	0	11	0	0	5	4	0	9	0	1	4	0	0	5	0	0	1	0	0	1	26
9:45 AM	0	1	5	3	0	9	0	0	6	8	0	14	0	1	2	0	0	3	0	3	1	0	0	4	30
Hourly Total	0	2	23	8	0	33	0	0	17	16	0	33	0	10	9	0	0	19	0	8	4	4	0	16	101
10:00 AM	0	0	2	2	0	4	0	0	6	8	0	14	0	1	1	0	0	2	0	1	1	2	0	4	24
10:15 AM	0	1	3	3	0	7	0	0	6	5	0	11	0	1	3	0	0	4	0	1	1	0	0	2	24
10:30 AM	0	1	2	4	0	7	0	1	8	1	0	10	0	3	2	0	0	5	0	0	3	1	0	4	26
10:45 AM	0	2	6	2	0	10	0	1	12	4	0	17	0	3	1	0	0	4	0	4	0	1	0	5	36
Hourly Total	0	4	13	11	0	28	0	2	32	18	0	52	0	8	7	0	0	15	0	6	5	4	0	15	110
11:00 AM	0	0	12	0	0	12	0	1	3	3	0	7	0	2	0	0	0	2	0	2	0	1	0	3	24
11:15 AM	0	2	6	5	0	13	0	0	5	8	0	13	0	1	3	3	0	7	0	5	2	1	0	8	41
11:30 AM	0	1	7	1	0	9	0	1	6	5	0	12	0	0	1	0	0	1	0	3	0	0	0	3	25
11:45 AM	0	2	11	2	0	15	0	0	6	7	0	13	0	1	1	0	0	2	0	5	4	1	0	10	40
Hourly Total	0	5	36	8	0	49	0	2	20	23	0	45	0	4	5	3	0	12	0	15	6	3	0	24	130
12:00 PM	0	2	5	0	0	7	0	0	8	5	0	13	0	1	2	0	0	3	0	11	1	0	0	12	35
12:15 PM	0	1	4	1	0	6	0	1	3	4	0	8	0	1	0	0	0	1	0	6	0	0	0	6	21
12:30 PM	0	0	8	6	0	14	0	0	6	2	0	8	0	1	0	0	0	1	0	7	0	0	0	7	30
12:45 PM	0	0	6	5	0	11	0	0	3	4	0	7	0	1	1	0	0	2	0	5	2	0	0	7	27
Hourly Total	0	3	23	12	0	38	0	1	20	15	0	36	0	4	3	0	0	7	0	29	3	0	0	32	113
1:00 PM	0	1	5	2	0	8	0	0	8	2	0	10	0	1	4	0	0	5	0	4	6	0	0	10	33
1:15 PM	0	2	3	4	0	9	0	0	5	1	0	6	0	2	0	0	0	2	0	2	1	2	0	5	22
1:30 PM	0	0	2	2	0	4	0	0	3	3	0	6	0	5	3	3	0	11	0	2	0	0	0	2	23
1:45 PM	0	0	5	3	0	8	0	0	4	4	0	8	0	2	4	1	0	7	0	6	4	0	0	10	33
Hourly Total	0	3	15	11	0	29	0	0	20	10	0	30	0	10	11	4	0	25	0	14	11	2	0	27	111
2:00 PM	0	0	7	1	0	8	0	0	7	4	0	11	0	1	1	0	0	2	0	1	1	0	0	2	23
2:15 PM	0	0	9	0	0	9	0	0	1	2	0	3	0	3	4	0	0	7	0	3	1	0	0	4	23
2:30 PM	0	0	4	2	0	6	0	1	2	4	0	7	0	2	1	0	0	3	0	4	0	3	0	7	23
2:45 PM	0	2	10	1	0	13	0	0	3	2	0	5	0	3	4	1	0	8	0	3	1	0	0	4	30
Hourly Total	0	2	30	4	0	36	0	1	13	12	0	26	0	9	10	1	0	20	0	11	3	3	0	17	99
3:00 PM	0	0	7	2	0	9	0	0	11	5	0	16	0	0	0	0	0	0	0	2	1	0	0	3	28
3:15 PM	0	0	16	7	0	23	0	0	5	1	0	6	0	2	2	0	0	4	0	4	1	1	0	6	39
3:30 PM	0	1	6	1	0	8	0	1	6	5	0	12	0	3	2	0	0	5	0	2	0	1	0	3	28

3:45 PM	0	1	1	5	0	7	0	0	4	1	0	5	0	1	3	1	0	5	0	2	1	4	0	7	24
Hourly Total	0	2	30	15	0	47	0	1	26	12	0	39	0	6	7	1	0	14	0	10	3	6	0	19	119
4:00 PM	0	2	11	1	0	14	0	0	7	6	0	13	0	3	1	1	0	5	0	3	2	2	0	7	39
4:15 PM	0	1	11	2	0	14	0	2	6	4	0	12	0	4	0	0	0	4	0	5	0	1	0	6	36
4:30 PM	0	1	4	1	0	6	0	4	9	2	0	15	0	0	1	0	0	1	0	0	0	0	0	0	22
4:45 PM	0	1	7	1	0	9	0	0	2	2	0	4	0	0	0	0	0	0	0	4	1	0	0	5	18
Hourly Total	0	5	33	5	0	43	0	6	24	14	0	44	0	7	2	1	0	10	0	12	3	3	0	18	115
5:00 PM	0	1	8	1	0	10	0	0	3	7	0	10	0	2	2	1	0	5	0	6	1	1	0	8	33
5:15 PM	0	1	3	0	0	4	0	0	8	7	0	15	0	3	2	1	0	6	0	7	4	0	0	11	36
5:30 PM	0	0	7	2	0	9	0	0	2	0	0	2	0	3	1	0	0	4	0	5	2	0	0	7	22
5:45 PM	0	0	8	3	0	11	0	0	4	5	0	9	0	5	0	1	0	6	0	6	2	0	0	8	34
Hourly Total	0	2	26	6	0	34	0	0	17	19	0	36	0	13	5	3	0	21	0	24	9	1	0	34	125
6:00 PM	0	2	13	3	0	18	0	0	8	5	0	13	0	1	0	0	0	1	0	6	2	3	0	11	43
6:15 PM	0	1	12	2	0	15	0	1	7	1	0	9	0	0	0	1	0	1	0	17	1	1	0	19	44
6:30 PM	0	1	29	0	0	30	0	1	5	2	0	8	0	1	1	1	0	3	0	21	0	5	1	26	67
6:45 PM	0	2	8	3	0	13	0	0	3	2	0	5	0	1	1	0	0	2	0	12	3	4	0	19	39
Hourly Total	0	6	62	8	0	76	0	2	23	10	0	35	0	3	2	2	0	7	0	56	6	13	1	75	193
7:00 PM	0	7	6	1	0	14	0	0	42	37	0	79	0	0	2	1	0	3	0	4	0	3	0	7	103
7:15 PM	0	1	6	0	0	7	0	1	24	20	0	45	0	0	0	0	0	0	0	2	1	0	0	3	55
7:30 PM	0	1	0	0	0	1	0	0	7	11	0	18	0	1	1	0	0	2	0	2	0	1	0	3	24
7:45 PM	0	2	6	1	0	9	0	0	3	2	0	5	0	3	0	0	0	3	0	3	0	1	1	4	21
Hourly Total	0	11	18	2	0	31	0	1	76	70	0	147	0	4	3	1	0	8	0	11	1	5	1	17	203
Grand Total	0	140	1085	179	1	1404	0	37	1038	635	0	1710	0	172	164	33	1	369	0	593	147	144	2	884	4367
Approach %	0.0	10.0	77.3	12.7	-	-	0.0	2.2	60.7	37.1	-	-	0.0	46.6	44.4	8.9	-	-	0.0	67.1	16.6	16.3	-	-	-
Total %	0.0	3.2	24.8	4.1	-	32.2	0.0	0.8	23.8	14.5	-	39.2	0.0	3.9	3.8	0.8	-	8.4	0.0	13.6	3.4	3.3	-	20.2	-
Lights	0	129	882	178	-	1189	0	32	832	626	-	1490	0	172	163	30	-	365	0	584	147	137	-	868	3912
% Lights	-	92.1	81.3	99.4	-	84.7	-	86.5	80.2	98.6	-	87.1	-	100.0	99.4	90.9	-	98.9	-	98.5	100.0	95.1	-	98.2	89.6
Other Vehicles	0	11	203	1	-	215	0	5	206	9	-	220	0	0	1	3	-	4	0	9	0	7	-	16	455
% Other Vehicles	-	7.9	18.7	0.6	-	15.3	-	13.5	19.8	1.4	-	12.9	-	0.0	0.6	9.1	-	1.1	-	1.5	0.0	4.9	-	1.8	10.4
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Data Plot

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

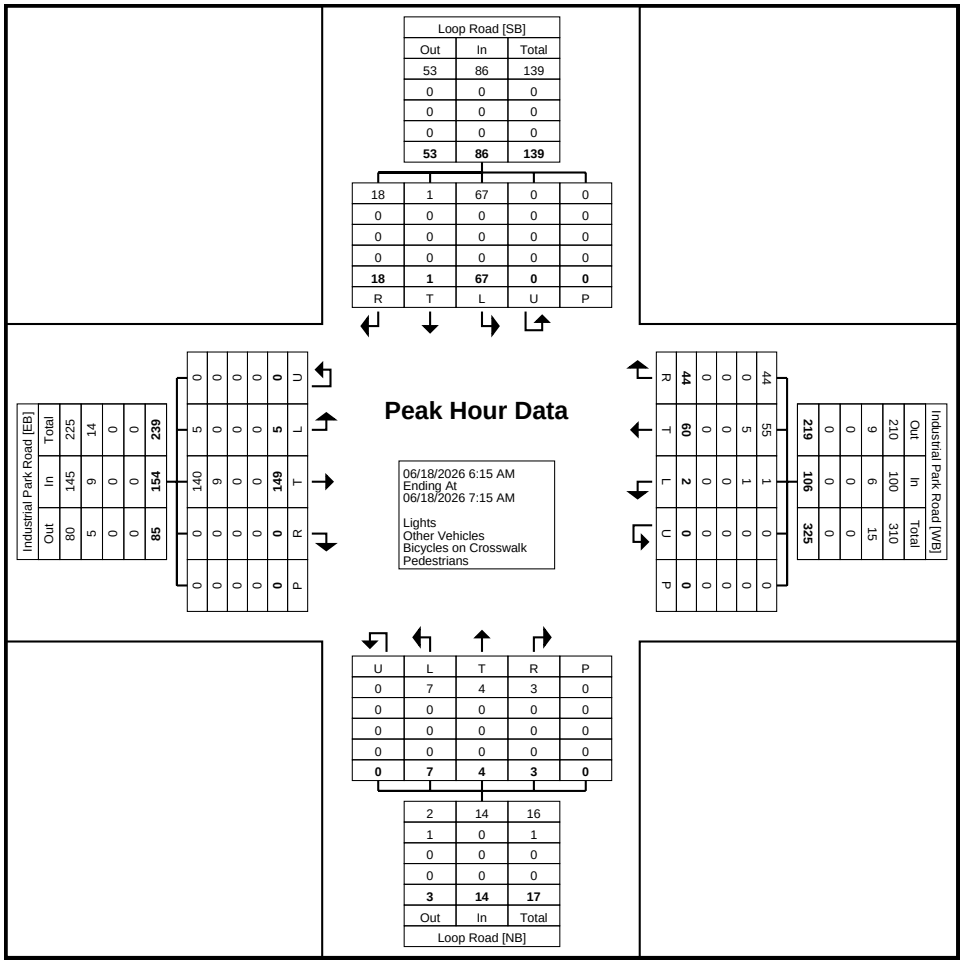
Turning Movement Peak Hour Data (6:15 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:15 AM	0	0	34	0	0	34	0	0	9	3	0	12	0	1	0	0	0	1	0	19	0	6	0	25	72
6:30 AM	0	0	59	0	0	59	0	0	4	5	0	9	0	1	0	0	0	1	0	28	0	5	0	33	102
6:45 AM	0	1	42	0	0	43	0	0	6	6	0	12	0	3	2	1	0	6	0	10	1	6	0	17	78
7:00 AM	0	4	14	0	0	18	0	2	41	30	0	73	0	2	2	2	0	6	0	10	0	1	0	11	108
Total	0	5	149	0	0	154	0	2	60	44	0	106	0	7	4	3	0	14	0	67	1	18	0	86	360
Approach %	0.0	3.2	96.8	0.0	-	-	0.0	1.9	56.6	41.5	-	-	0.0	50.0	28.6	21.4	-	-	0.0	77.9	1.2	20.9	-	-	-
Total %	0.0	1.4	41.4	0.0	-	42.8	0.0	0.6	16.7	12.2	-	29.4	0.0	1.9	1.1	0.8	-	3.9	0.0	18.6	0.3	5.0	-	23.9	-
PHF	0.000	0.313	0.631	0.000	-	0.653	0.000	0.250	0.366	0.367	-	0.363	0.000	0.583	0.500	0.375	-	0.583	0.000	0.598	0.250	0.750	-	0.652	0.833
Lights	0	5	140	0	-	145	0	1	55	44	-	100	0	7	4	3	-	14	0	67	1	18	-	86	345
% Lights	-	100.0	94.0	-	-	94.2	-	50.0	91.7	100.0	-	94.3	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	95.8
Other Vehicles	0	0	9	0	-	9	0	1	5	0	-	6	0	0	0	0	-	0	0	0	0	0	-	0	15
% Other Vehicles	-	0.0	6.0	-	-	5.8	-	50.0	8.3	0.0	-	5.7	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	4.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

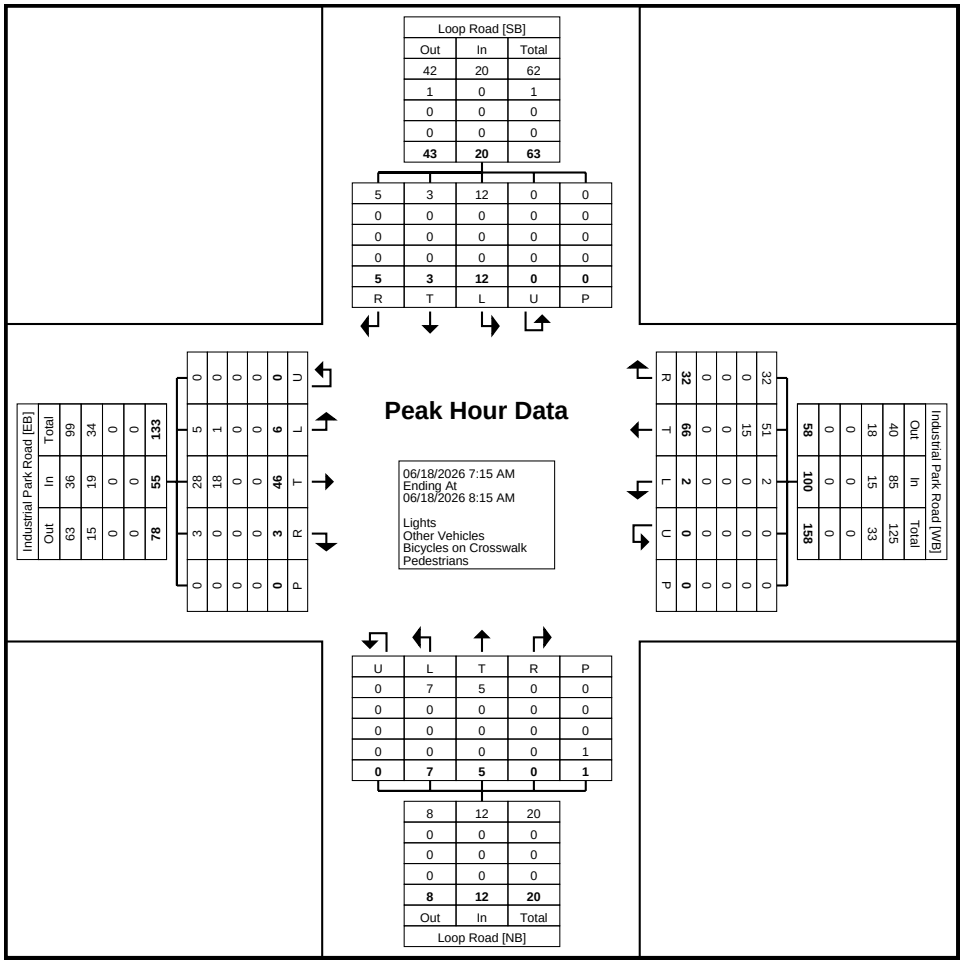
Turning Movement Peak Hour Data (7:15 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
7:15 AM	0	1	14	2	0	17	0	1	21	15	0	37	0	1	1	0	0	2	0	9	0	2	0	11	67
7:30 AM	0	3	11	0	0	14	0	1	25	6	0	32	0	1	1	0	0	2	0	1	0	2	0	3	51
7:45 AM	0	1	10	1	0	12	0	0	9	7	0	16	0	2	1	0	1	3	0	1	2	1	0	4	35
8:00 AM	0	1	11	0	0	12	0	0	11	4	0	15	0	3	2	0	0	5	0	1	1	0	0	2	34
Total	0	6	46	3	0	55	0	2	66	32	0	100	0	7	5	0	1	12	0	12	3	5	0	20	187
Approach %	0.0	10.9	83.6	5.5	-	-	0.0	2.0	66.0	32.0	-	-	0.0	58.3	41.7	0.0	-	-	0.0	60.0	15.0	25.0	-	-	-
Total %	0.0	3.2	24.6	1.6	-	29.4	0.0	1.1	35.3	17.1	-	53.5	0.0	3.7	2.7	0.0	-	6.4	0.0	6.4	1.6	2.7	-	10.7	-
PHF	0.000	0.500	0.821	0.375	-	0.809	0.000	0.500	0.660	0.533	-	0.676	0.000	0.583	0.625	0.000	-	0.600	0.000	0.333	0.375	0.625	-	0.455	0.698
Lights	0	5	28	3	-	36	0	2	51	32	-	85	0	7	5	0	-	12	0	12	3	5	-	20	153
% Lights	-	83.3	60.9	100.0	-	65.5	-	100.0	77.3	100.0	-	85.0	-	100.0	100.0	-	-	100.0	-	100.0	100.0	100.0	-	100.0	81.8
Other Vehicles	0	1	18	0	-	19	0	0	15	0	-	15	0	0	0	0	-	0	0	0	0	0	-	0	34
% Other Vehicles	-	16.7	39.1	0.0	-	34.5	-	0.0	22.7	0.0	-	15.0	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	18.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (7:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

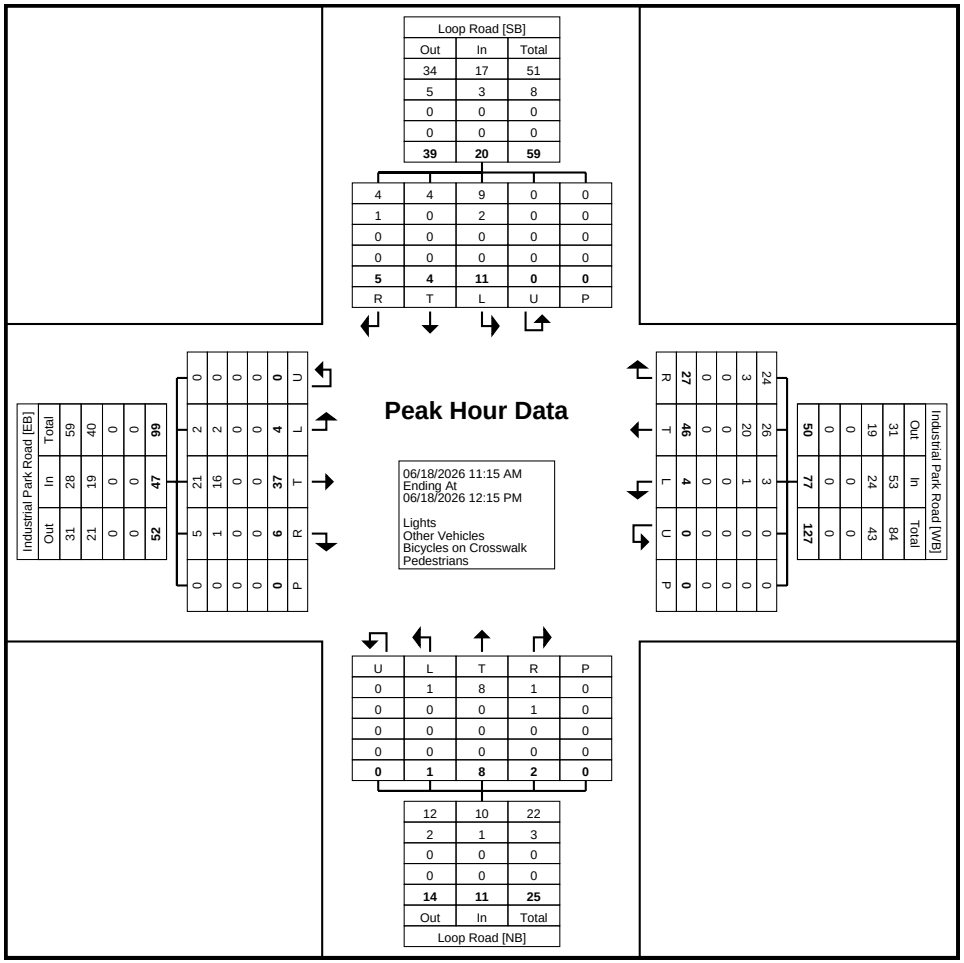
Turning Movement Peak Hour Data (11:15 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
11:15 AM	0	1	8	2	0	11	0	1	11	5	0	17	0	1	0	0	0	1	0	3	1	3	0	7	36
11:30 AM	0	1	9	3	0	13	0	1	7	2	0	10	0	0	6	0	0	6	0	3	0	2	0	5	34
11:45 AM	0	1	7	1	0	9	0	1	9	8	0	18	0	0	1	1	0	2	0	3	2	0	0	5	34
12:00 PM	0	1	13	0	0	14	0	1	19	12	0	32	0	0	1	1	0	2	0	2	1	0	0	3	51
Total	0	4	37	6	0	47	0	4	46	27	0	77	0	1	8	2	0	11	0	11	4	5	0	20	155
Approach %	0.0	8.5	78.7	12.8	-	-	0.0	5.2	59.7	35.1	-	-	0.0	9.1	72.7	18.2	-	-	0.0	55.0	20.0	25.0	-	-	-
Total %	0.0	2.6	23.9	3.9	-	30.3	0.0	2.6	29.7	17.4	-	49.7	0.0	0.6	5.2	1.3	-	7.1	0.0	7.1	2.6	3.2	-	12.9	-
PHF	0.000	1.000	0.712	0.500	-	0.839	0.000	1.000	0.605	0.563	-	0.602	0.000	0.250	0.333	0.500	-	0.458	0.000	0.917	0.500	0.417	-	0.714	0.760
Lights	0	2	21	5	-	28	0	3	26	24	-	53	0	1	8	1	-	10	0	9	4	4	-	17	108
% Lights	-	50.0	56.8	83.3	-	59.6	-	75.0	56.5	88.9	-	68.8	-	100.0	100.0	50.0	-	90.9	-	81.8	100.0	80.0	-	85.0	69.7
Other Vehicles	0	2	16	1	-	19	0	1	20	3	-	24	0	0	0	1	-	1	0	2	0	1	-	3	47
% Other Vehicles	-	50.0	43.2	16.7	-	40.4	-	25.0	43.5	11.1	-	31.2	-	0.0	0.0	50.0	-	9.1	-	18.2	0.0	20.0	-	15.0	30.3
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

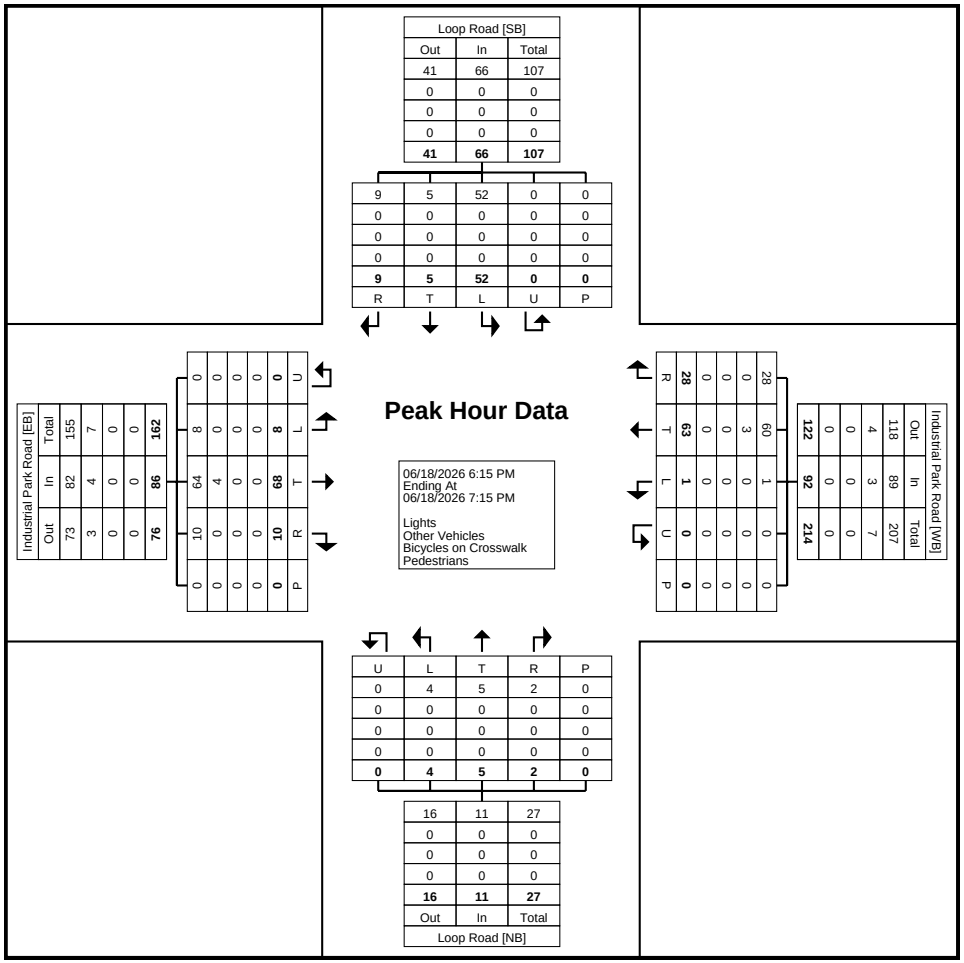
Turning Movement Peak Hour Data (6:15 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:15 PM	0	0	21	3	0	24	0	0	5	0	0	5	0	0	2	0	0	2	0	20	1	5	0	26	57
6:30 PM	0	0	25	1	0	26	0	0	6	2	0	8	0	1	1	1	0	3	0	29	0	3	0	32	69
6:45 PM	0	2	18	4	0	24	0	0	3	0	0	3	0	1	0	1	0	2	0	3	3	1	0	7	36
7:00 PM	0	6	4	2	0	12	0	1	49	26	0	76	0	2	2	0	0	4	0	0	1	0	0	1	93
Total	0	8	68	10	0	86	0	1	63	28	0	92	0	4	5	2	0	11	0	52	5	9	0	66	255
Approach %	0.0	9.3	79.1	11.6	-	-	0.0	1.1	68.5	30.4	-	-	0.0	36.4	45.5	18.2	-	-	0.0	78.8	7.6	13.6	-	-	-
Total %	0.0	3.1	26.7	3.9	-	33.7	0.0	0.4	24.7	11.0	-	36.1	0.0	1.6	2.0	0.8	-	4.3	0.0	20.4	2.0	3.5	-	25.9	-
PHF	0.000	0.333	0.680	0.625	-	0.827	0.000	0.250	0.321	0.269	-	0.303	0.000	0.500	0.625	0.500	-	0.688	0.000	0.448	0.417	0.450	-	0.516	0.685
Lights	0	8	64	10	-	82	0	1	60	28	-	89	0	4	5	2	-	11	0	52	5	9	-	66	248
% Lights	-	100.0	94.1	100.0	-	95.3	-	100.0	95.2	100.0	-	96.7	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	97.3
Other Vehicles	0	0	4	0	-	4	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	7
% Other Vehicles	-	0.0	5.9	0.0	-	4.7	-	0.0	4.8	0.0	-	3.3	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	2.7
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

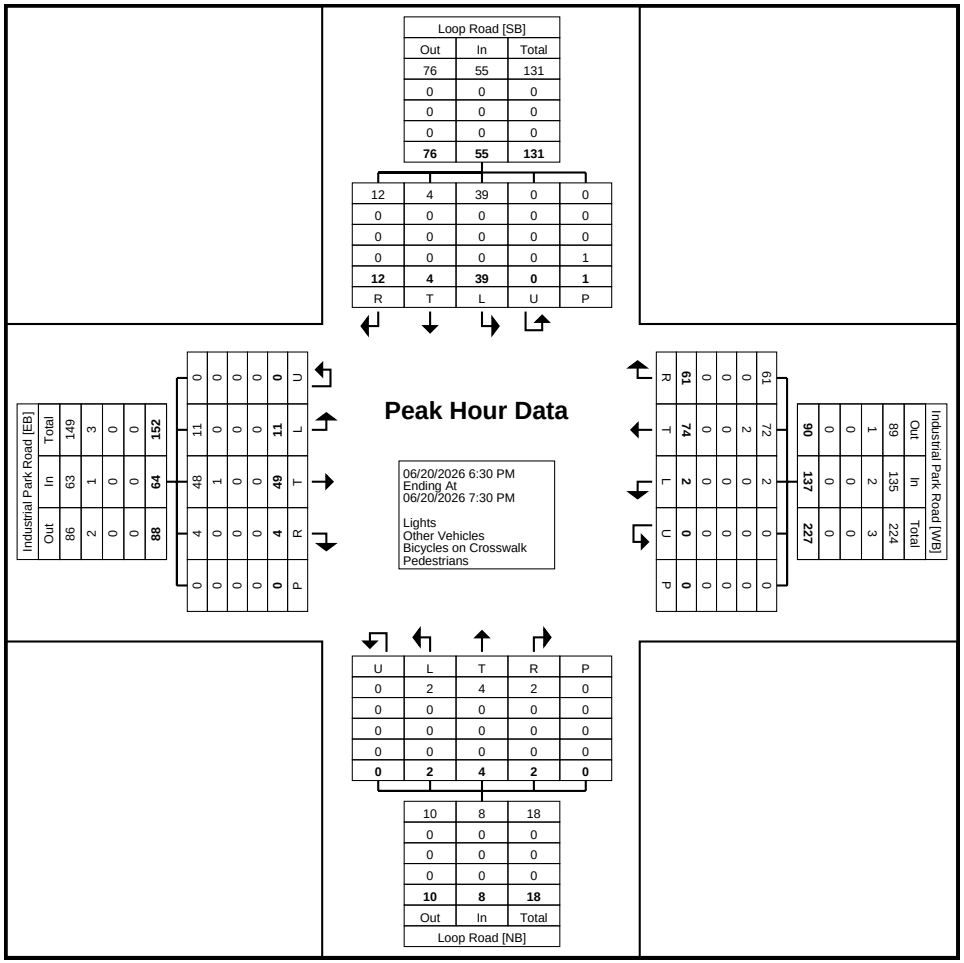
Turning Movement Peak Hour Data (6:30 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:30 PM	0	1	29	0	0	30	0	1	5	2	0	8	0	1	1	1	0	3	0	21	0	5	1	26	67
6:45 PM	0	2	8	3	0	13	0	0	3	2	0	5	0	1	1	0	0	2	0	12	3	4	0	19	39
7:00 PM	0	7	6	1	0	14	0	0	42	37	0	79	0	0	2	1	0	3	0	4	0	3	0	7	103
7:15 PM	0	1	6	0	0	7	0	1	24	20	0	45	0	0	0	0	0	0	0	2	1	0	0	3	55
Total	0	11	49	4	0	64	0	2	74	61	0	137	0	2	4	2	0	8	0	39	4	12	1	55	264
Approach %	0.0	17.2	76.6	6.3	-	-	0.0	1.5	54.0	44.5	-	-	0.0	25.0	50.0	25.0	-	-	0.0	70.9	7.3	21.8	-	-	-
Total %	0.0	4.2	18.6	1.5	-	24.2	0.0	0.8	28.0	23.1	-	51.9	0.0	0.8	1.5	0.8	-	3.0	0.0	14.8	1.5	4.5	-	20.8	-
PHF	0.000	0.393	0.422	0.333	-	0.533	0.000	0.500	0.440	0.412	-	0.434	0.000	0.500	0.500	0.500	-	0.667	0.000	0.464	0.333	0.600	-	0.529	0.641
Lights	0	11	48	4	-	63	0	2	72	61	-	135	0	2	4	2	-	8	0	39	4	12	-	55	261
% Lights	-	100.0	98.0	100.0	-	98.4	-	100.0	97.3	100.0	-	98.5	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	98.9
Other Vehicles	0	0	1	0	-	1	0	0	2	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	3
% Other Vehicles	-	0.0	2.0	0.0	-	1.6	-	0.0	2.7	0.0	-	1.5	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	1.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:30 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

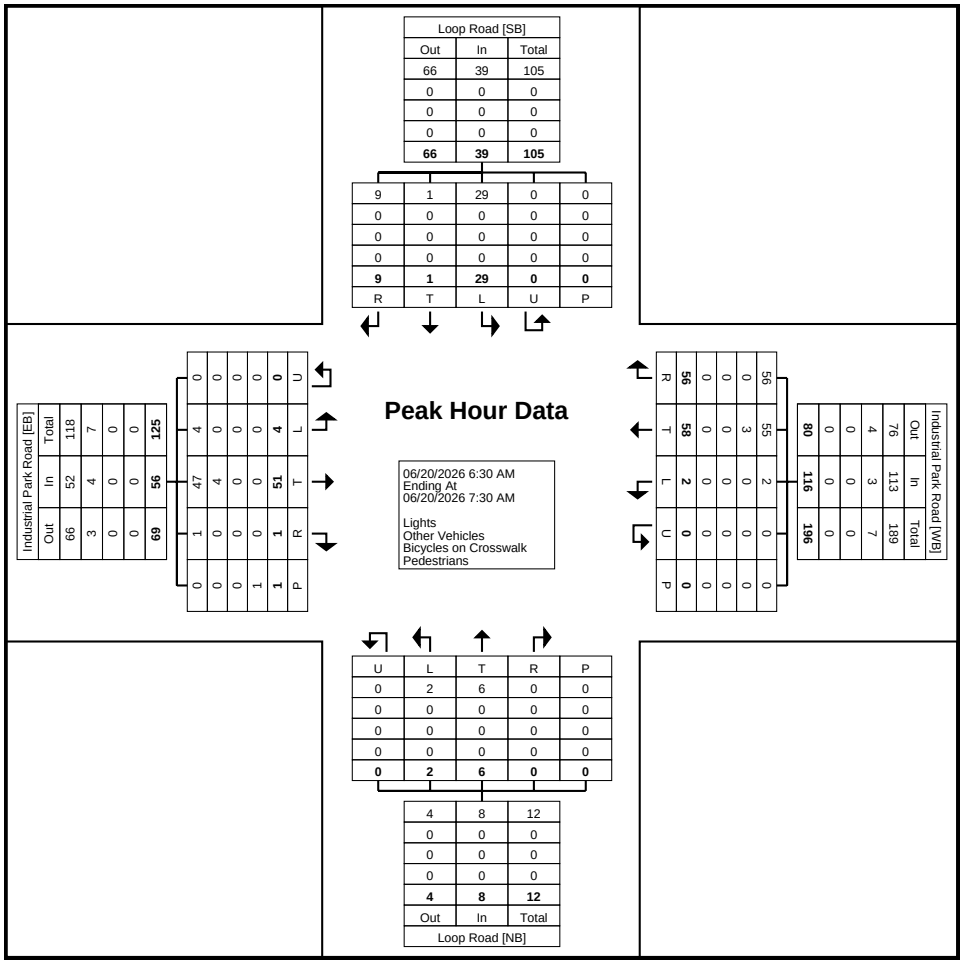
Turning Movement Peak Hour Data (6:30 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
6:30 AM	0	0	33	1	0	34	0	0	3	2	0	5	0	1	1	0	0	2	0	20	0	6	0	26	67
6:45 AM	0	1	12	0	0	13	0	0	3	3	0	6	0	0	3	0	0	3	0	8	0	3	0	11	33
7:00 AM	0	2	2	0	0	4	0	0	29	34	0	63	0	1	2	0	0	3	0	0	0	0	0	0	70
7:15 AM	0	1	4	0	1	5	0	2	23	17	0	42	0	0	0	0	0	0	0	1	1	0	0	2	49
Total	0	4	51	1	1	56	0	2	58	56	0	116	0	2	6	0	0	8	0	29	1	9	0	39	219
Approach %	0.0	7.1	91.1	1.8	-	-	0.0	1.7	50.0	48.3	-	-	0.0	25.0	75.0	0.0	-	-	0.0	74.4	2.6	23.1	-	-	-
Total %	0.0	1.8	23.3	0.5	-	25.6	0.0	0.9	26.5	25.6	-	53.0	0.0	0.9	2.7	0.0	-	3.7	0.0	13.2	0.5	4.1	-	17.8	-
PHF	0.000	0.500	0.386	0.250	-	0.412	0.000	0.250	0.500	0.412	-	0.460	0.000	0.500	0.500	0.000	-	0.667	0.000	0.363	0.250	0.375	-	0.375	0.782
Lights	0	4	47	1	-	52	0	2	55	56	-	113	0	2	6	0	-	8	0	29	1	9	-	39	212
% Lights	-	100.0	92.2	100.0	-	92.9	-	100.0	94.8	100.0	-	97.4	-	100.0	100.0	-	-	100.0	-	100.0	100.0	100.0	-	100.0	96.8
Other Vehicles	0	0	4	0	-	4	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	7
% Other Vehicles	-	0.0	7.8	0.0	-	7.1	-	0.0	5.2	0.0	-	2.6	-	0.0	0.0	-	-	0.0	-	0.0	0.0	0.0	-	0.0	3.2
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (6:30 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

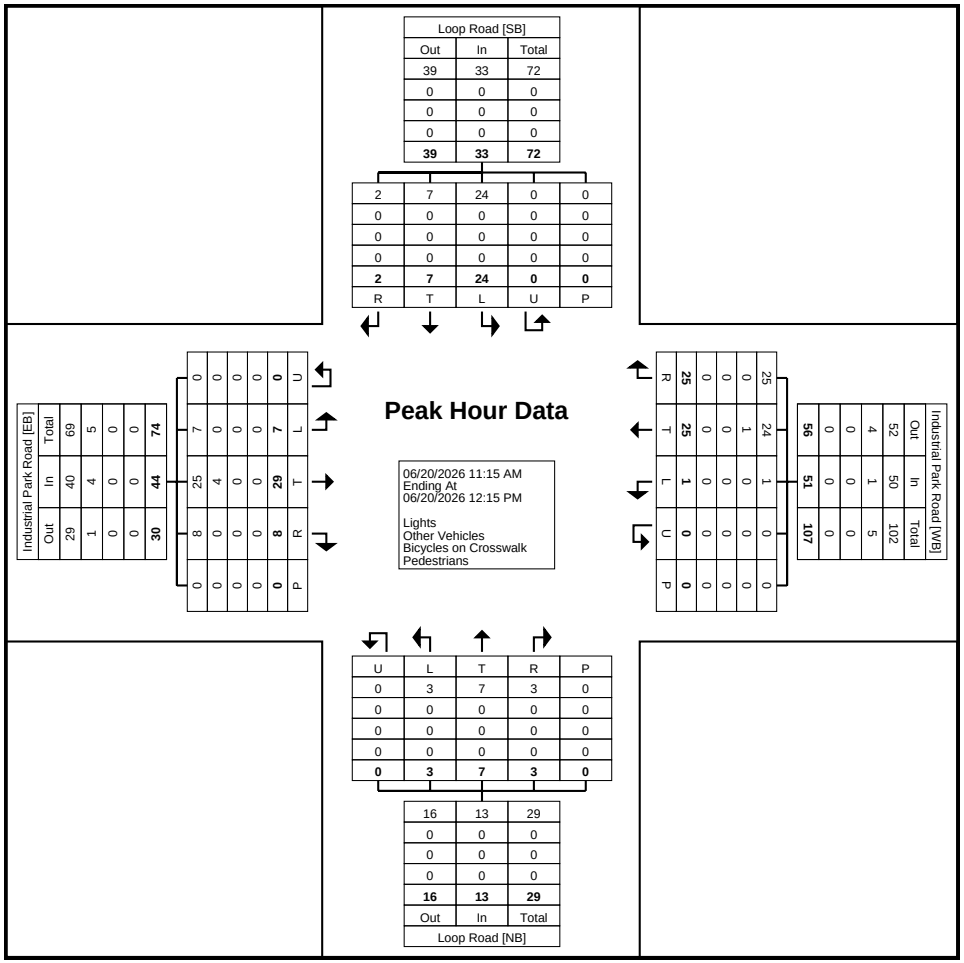
Turning Movement Peak Hour Data (11:15 AM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
11:15 AM	0	2	6	5	0	13	0	0	5	8	0	13	0	1	3	3	0	7	0	5	2	1	0	8	41
11:30 AM	0	1	7	1	0	9	0	1	6	5	0	12	0	0	1	0	0	1	0	3	0	0	0	3	25
11:45 AM	0	2	11	2	0	15	0	0	6	7	0	13	0	1	1	0	0	2	0	5	4	1	0	10	40
12:00 PM	0	2	5	0	0	7	0	0	8	5	0	13	0	1	2	0	0	3	0	11	1	0	0	12	35
Total	0	7	29	8	0	44	0	1	25	25	0	51	0	3	7	3	0	13	0	24	7	2	0	33	141
Approach %	0.0	15.9	65.9	18.2	-	-	0.0	2.0	49.0	49.0	-	-	0.0	23.1	53.8	23.1	-	-	0.0	72.7	21.2	6.1	-	-	-
Total %	0.0	5.0	20.6	5.7	-	31.2	0.0	0.7	17.7	17.7	-	36.2	0.0	2.1	5.0	2.1	-	9.2	0.0	17.0	5.0	1.4	-	23.4	-
PHF	0.000	0.875	0.659	0.400	-	0.733	0.000	0.250	0.781	0.781	-	0.981	0.000	0.750	0.583	0.250	-	0.464	0.000	0.545	0.438	0.500	-	0.688	0.860
Lights	0	7	25	8	-	40	0	1	24	25	-	50	0	3	7	3	-	13	0	24	7	2	-	33	136
% Lights	-	100.0	86.2	100.0	-	90.9	-	100.0	96.0	100.0	-	98.0	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	96.5
Other Vehicles	0	0	4	0	-	4	0	0	1	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	5
% Other Vehicles	-	0.0	13.8	0.0	-	9.1	-	0.0	4.0	0.0	-	2.0	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	3.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:15 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026

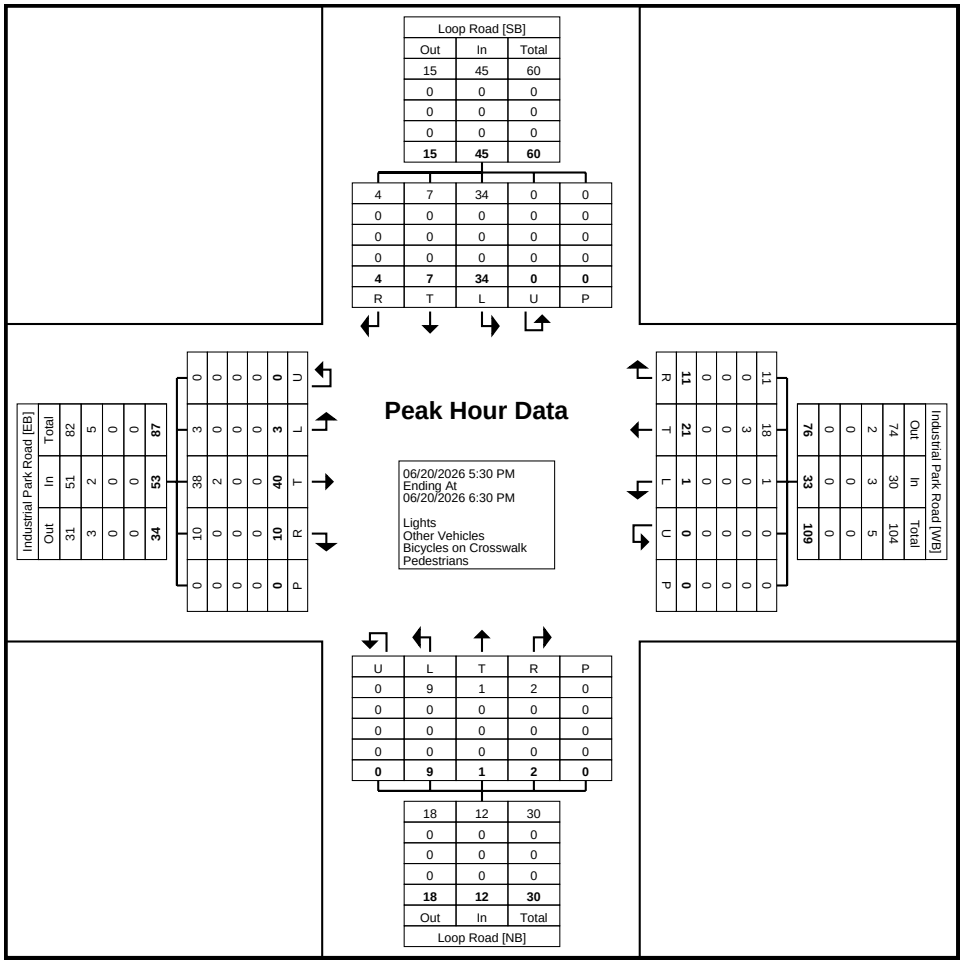
Turning Movement Peak Hour Data (5:30 PM)

Start Time	Industrial Park Road Eastbound						Industrial Park Road Westbound						Loop Road Northbound						Loop Road Southbound						Int. Total
	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Right	Peds	App. Total	
5:30 PM	0	0	7	2	0	9	0	0	2	0	0	2	0	3	1	0	0	4	0	5	2	0	0	7	22
5:45 PM	0	0	8	3	0	11	0	0	4	5	0	9	0	5	0	1	0	6	0	6	2	0	0	8	34
6:00 PM	0	2	13	3	0	18	0	0	8	5	0	13	0	1	0	0	0	1	0	6	2	3	0	11	43
6:15 PM	0	1	12	2	0	15	0	1	7	1	0	9	0	0	0	1	0	1	0	17	1	1	0	19	44
Total	0	3	40	10	0	53	0	1	21	11	0	33	0	9	1	2	0	12	0	34	7	4	0	45	143
Approach %	0.0	5.7	75.5	18.9	-	-	0.0	3.0	63.6	33.3	-	-	0.0	75.0	8.3	16.7	-	-	0.0	75.6	15.6	8.9	-	-	-
Total %	0.0	2.1	28.0	7.0	-	37.1	0.0	0.7	14.7	7.7	-	23.1	0.0	6.3	0.7	1.4	-	8.4	0.0	23.8	4.9	2.8	-	31.5	-
PHF	0.000	0.375	0.769	0.833	-	0.736	0.000	0.250	0.656	0.550	-	0.635	0.000	0.450	0.250	0.500	-	0.500	0.000	0.500	0.875	0.333	-	0.592	0.813
Lights	0	3	38	10	-	51	0	1	18	11	-	30	0	9	1	2	-	12	0	34	7	4	-	45	138
% Lights	-	100.0	95.0	100.0	-	96.2	-	100.0	85.7	100.0	-	90.9	-	100.0	100.0	100.0	-	100.0	-	100.0	100.0	100.0	-	100.0	96.5
Other Vehicles	0	0	2	0	-	2	0	0	3	0	-	3	0	0	0	0	-	0	0	0	0	0	-	0	5
% Other Vehicles	-	0.0	5.0	0.0	-	3.8	-	0.0	14.3	0.0	-	9.1	-	0.0	0.0	0.0	-	0.0	-	0.0	0.0	0.0	-	0.0	3.5
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.571429, -77.606689

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 4. Industrial Park Road & Loop Road
Site Code: 4
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (5:30 PM)

5. Business 22 & Loop Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 4:00AM	3	0	0	**3**	0	1	8	0	**9**	0	0	2	0	**2**	0	**14**
4:15AM	8	0	0	**8**	0	3	14	0	**17**	0	0	1	0	**1**	0	**26**
4:30AM	8	0	0	**8**	0	3	14	0	**17**	0	0	1	0	**1**	0	**26**
4:45AM	17	0	0	**17**	0	2	10	0	**12**	0	0	3	0	**3**	0	**32**
Hourly Total	36	0	0	**36**	0	9	46	0	**55**	0	0	7	0	**7**	0	**98**
5:00AM	7	0	0	**7**	0	7	23	0	**30**	0	1	5	0	**6**	0	**43**
5:15AM	15	0	0	**15**	0	4	28	0	**32**	0	0	3	0	**3**	0	**50**
5:30AM	22	0	0	**22**	0	12	48	0	**60**	0	0	7	0	**7**	0	**89**
5:45AM	18	0	0	**18**	0	12	48	0	**60**	0	1	6	0	**7**	0	**85**
Hourly Total	62	0	0	**62**	0	35	147	0	**182**	0	2	21	0	**23**	0	**267**
6:00AM	23	0	0	**23**	0	17	40	0	**57**	0	0	5	0	**5**	0	**85**
6:15AM	32	1	0	**33**	0	24	48	0	**72**	0	0	7	0	**7**	0	**112**
6:30AM	41	1	0	**42**	0	33	40	0	**73**	0	1	5	0	**6**	0	**121**
6:45AM	63	1	0	**64**	0	12	43	0	**55**	0	1	17	0	**18**	0	**137**
Hourly Total	159	3	0	**162**	0	86	171	0	**257**	0	2	34	0	**36**	0	**455**
7:00AM	60	2	0	**62**	0	10	39	0	**49**	0	2	28	0	**30**	0	**141**
7:15AM	40	2	0	**42**	0	11	47	0	**58**	0	1	23	0	**24**	0	**124**
7:30AM	78	0	0	**78**	0	9	39	0	**48**	0	1	13	0	**14**	0	**140**
7:45AM	59	3	0	**62**	0	4	50	0	**54**	0	2	12	0	**14**	0	**130**
Hourly Total	237	7	0	**244**	0	34	175	0	**209**	0	6	76	0	**82**	0	**535**
8:00AM	61	1	0	**62**	0	6	50	0	**56**	0	1	17	0	**18**	0	**136**
8:15AM	57	0	0	**57**	0	4	63	0	**67**	0	1	15	0	**16**	0	**140**
8:30AM	69	2	0	**71**	0	11	50	0	**61**	0	0	12	0	**12**	0	**144**
8:45AM	69	0	0	**69**	0	3	72	0	**75**	0	2	9	0	**11**	0	**155**
Hourly Total	256	3	0	**259**	0	24	235	0	**259**	0	4	53	0	**57**	0	**575**
9:00AM	76	3	0	**79**	0	9	78	0	**87**	0	1	11	0	**12**	0	**178**
9:15AM	81	0	0	**81**	0	7	70	0	**77**	0	0	11	0	**11**	0	**169**
9:30AM	74	1	0	**75**	0	6	80	0	**86**	0	2	12	0	**14**	1	**175**
9:45AM	81	1	0	**82**	0	3	88	0	**91**	0	1	4	0	**5**	1	**178**
Hourly Total	312	5	0	**317**	0	25	316	0	**341**	0	4	38	0	**42**	2	**700**
10:00AM	62	1	0	**63**	0	11	82	0	**93**	0	0	7	0	**7**	0	**163**
10:15AM	70	1	0	**71**	0	6	82	0	**88**	0	0	5	0	**5**	0	**164**
10:30AM	85	1	0	**86**	0	10	89	0	**99**	0	0	7	0	**7**	0	**192**
10:45AM	103	4	0	**107**	0	5	87	0	**92**	0	2	9	0	**11**	0	**210**
Hourly Total	320	7	0	**327**	0	32	340	0	**372**	0	2	28	0	**30**	0	**729**
11:00AM	107	4	0	**111**	0	11	104	0	**115**	0	1	13	0	**14**	0	**240**
11:15AM	99	1	0	**100**	0	5	121	0	**126**	0	1	8	0	**9**	0	**235**
11:30AM	109	2	0	**111**	0	8	140	0	**148**	0	1	10	0	**11**	0	**270**

Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
11:45AM	118	2	0	**120**	0	13	96	0	**109**	0	0	12	0	**12**	0	**241**
Hourly Total	433	9	0	**442**	0	37	461	0	**498**	0	3	43	0	**46**	0	**986**
12:00PM	139	1	0	**140**	0	10	117	0	**127**	0	1	24	0	**25**	0	**292**
12:15PM	113	2	0	**115**	0	10	136	0	**146**	0	0	21	0	**21**	0	**282**
12:30PM	111	6	0	**117**	0	10	123	0	**133**	0	2	16	0	**18**	0	**268**
12:45PM	84	2	0	**86**	0	18	106	0	**124**	0	2	11	0	**13**	0	**223**
Hourly Total	447	11	0	**458**	0	48	482	0	**530**	0	5	72	0	**77**	0	**1065**
1:00PM	109	2	0	**111**	0	17	115	0	**132**	0	0	7	0	**7**	0	**250**
1:15PM	114	1	0	**115**	0	11	102	0	**113**	0	1	11	1	**13**	0	**241**
1:30PM	109	4	0	**113**	0	8	119	0	**127**	0	0	13	0	**13**	0	**253**
1:45PM	105	3	0	**108**	0	15	82	0	**97**	0	0	15	0	**15**	0	**220**
Hourly Total	437	10	0	**447**	0	51	418	0	**469**	0	1	46	1	**48**	0	**964**
2:00PM	100	3	0	**103**	0	10	120	0	**130**	0	0	16	0	**16**	0	**249**
2:15PM	120	0	0	**120**	0	12	98	0	**110**	0	0	10	0	**10**	0	**240**
2:30PM	162	2	0	**164**	0	13	107	0	**120**	0	1	23	0	**24**	0	**308**
2:45PM	124	3	0	**127**	0	11	115	0	**126**	0	0	12	0	**12**	0	**265**
Hourly Total	506	8	0	**514**	0	46	440	0	**486**	0	1	61	0	**62**	0	**1062**
3:00PM	99	2	0	**101**	0	14	111	0	**125**	0	0	31	0	**31**	0	**257**
3:15PM	106	3	0	**109**	0	11	130	0	**141**	0	0	17	0	**17**	1	**267**
3:30PM	114	0	0	**114**	0	11	110	0	**121**	0	2	19	0	**21**	0	**256**
3:45PM	94	5	0	**99**	0	16	129	0	**145**	0	0	17	0	**17**	1	**261**
Hourly Total	413	10	0	**423**	0	52	480	0	**532**	0	2	84	0	**86**	2	**1041**
4:00PM	127	5	0	**132**	0	16	107	0	**123**	0	1	23	0	**24**	0	**279**
4:15PM	113	1	0	**114**	0	10	134	0	**144**	0	0	13	0	**13**	0	**271**
4:30PM	124	3	0	**127**	0	11	137	0	**148**	0	2	17	0	**19**	2	**294**
4:45PM	127	3	0	**130**	0	8	115	0	**123**	0	2	17	0	**19**	1	**272**
Hourly Total	491	12	0	**503**	0	45	493	0	**538**	0	5	70	0	**75**	3	**1116**
5:00PM	123	3	0	**126**	0	7	137	0	**144**	0	0	18	0	**18**	0	**288**
5:15PM	94	2	0	**96**	0	22	122	0	**144**	0	0	15	0	**15**	0	**255**
5:30PM	115	1	0	**116**	0	15	97	0	**112**	0	1	19	0	**20**	0	**248**
5:45PM	117	0	0	**117**	0	10	119	0	**129**	0	1	16	0	**17**	0	**263**
Hourly Total	449	6	0	**455**	0	54	475	0	**529**	0	2	68	0	**70**	0	**1054**
6:00PM	94	3	0	**97**	0	24	99	0	**123**	0	0	9	0	**9**	0	**229**
6:15PM	93	2	0	**95**	0	26	73	0	**99**	0	1	10	0	**11**	0	**205**
6:30PM	93	1	0	**94**	0	33	94	0	**127**	0	0	7	0	**7**	0	**228**
6:45PM	104	0	0	**104**	0	10	77	0	**87**	0	0	6	0	**6**	0	**197**
Hourly Total	384	6	0	**390**	0	93	343	0	**436**	0	1	32	0	**33**	0	**859**
7:00PM	124	1	0	**125**	0	14	87	0	**101**	0	1	32	0	**33**	0	**259**
7:15PM	87	0	0	**87**	0	10	78	0	**88**	0	0	22	0	**22**	0	**197**
7:30PM	85	0	0	**85**	0	10	81	0	**91**	0	0	12	0	**12**	0	**188**
7:45PM	77	1	0	**78**	0	8	61	0	**69**	0	1	13	0	**14**	0	**161**
Hourly Total	373	2	0	**375**	0	42	307	0	**349**	0	2	79	0	**81**	0	**805**
2026-06-20 4:00AM	6	1	0	**7**	0	1	4	0	**5**	0	0	0	0	**0**	0	**12**
4:15AM	3	0	0	**3**	0	1	6	0	**7**	0	0	3	0	**3**	0	**13**
4:30AM	5	0	0	**5**	0	1	14	0	**15**	0	0	1	0	**1**	0	**21**

Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
4:45AM	4	0	0	**4**	0	3	13	0	**16**	0	0	0	0	**0**	0	**20**
Hourly Total	18	1	0	**19**	0	6	37	0	**43**	0	0	4	0	**4**	0	**66**
5:00AM	7	0	0	**7**	0	2	8	0	**10**	0	0	1	0	**1**	0	**18**
5:15AM	7	0	0	**7**	0	3	9	0	**12**	0	0	1	0	**1**	0	**20**
5:30AM	7	0	0	**7**	0	3	7	0	**10**	0	0	4	0	**4**	0	**21**
5:45AM	8	0	0	**8**	0	3	17	0	**20**	0	0	0	0	**0**	0	**28**
Hourly Total	29	0	0	**29**	0	11	41	0	**52**	0	0	6	0	**6**	0	**87**
6:00AM	13	0	0	**13**	0	11	21	0	**32**	0	0	1	0	**1**	0	**46**
6:15AM	22	0	0	**22**	0	13	29	0	**42**	0	1	2	0	**3**	0	**67**
6:30AM	26	0	0	**26**	0	25	26	0	**51**	0	1	4	0	**5**	0	**82**
6:45AM	29	0	0	**29**	0	11	37	0	**48**	0	0	12	0	**12**	0	**89**
Hourly Total	90	0	0	**90**	0	60	113	0	**173**	0	2	19	0	**21**	0	**284**
7:00AM	42	2	0	**44**	0	0	35	0	**35**	0	3	31	0	**34**	0	**113**
7:15AM	36	1	0	**37**	0	4	38	0	**42**	0	1	24	0	**25**	0	**104**
7:30AM	48	0	0	**48**	0	2	47	0	**49**	0	0	8	0	**8**	0	**105**
7:45AM	56	1	0	**57**	0	9	36	0	**45**	0	2	4	0	**6**	0	**108**
Hourly Total	182	4	0	**186**	0	15	156	0	**171**	0	6	67	0	**73**	0	**430**
8:00AM	51	2	0	**53**	0	4	41	0	**45**	0	1	10	0	**11**	0	**109**
8:15AM	59	3	0	**62**	0	4	64	0	**68**	0	1	5	0	**6**	0	**136**
8:30AM	69	4	0	**73**	0	7	65	0	**72**	0	1	6	0	**7**	0	**152**
8:45AM	85	1	0	**86**	0	6	68	0	**74**	0	1	18	0	**19**	0	**179**
Hourly Total	264	10	0	**274**	0	21	238	0	**259**	0	4	39	0	**43**	0	**576**
9:00AM	85	3	0	**88**	0	11	82	0	**93**	0	1	12	0	**13**	0	**194**
9:15AM	106	2	0	**108**	0	11	111	0	**122**	0	1	7	0	**8**	0	**238**
9:30AM	83	0	0	**83**	0	7	84	0	**91**	0	3	16	0	**19**	0	**193**
9:45AM	84	1	0	**85**	0	5	92	0	**97**	0	1	23	0	**24**	0	**206**
Hourly Total	358	6	0	**364**	0	34	369	0	**403**	0	6	58	0	**64**	0	**831**
10:00AM	97	1	0	**98**	0	10	101	0	**111**	0	2	14	0	**16**	0	**225**
10:15AM	101	5	0	**106**	0	9	122	0	**131**	0	1	16	0	**17**	0	**254**
10:30AM	104	2	0	**106**	0	16	140	0	**156**	0	0	12	0	**12**	0	**274**
10:45AM	120	4	0	**124**	0	15	126	0	**141**	0	1	14	0	**15**	0	**280**
Hourly Total	422	12	0	**434**	0	50	489	0	**539**	0	4	56	0	**60**	0	**1033**
11:00AM	133	1	0	**134**	0	10	123	0	**133**	0	1	11	0	**12**	0	**279**
11:15AM	132	3	0	**135**	0	14	117	0	**131**	0	0	17	0	**17**	0	**283**
11:30AM	116	1	0	**117**	0	16	146	0	**162**	0	1	16	0	**17**	0	**296**
11:45AM	115	1	0	**116**	0	17	126	0	**143**	0	0	19	0	**19**	0	**278**
Hourly Total	496	6	0	**502**	0	57	512	0	**569**	0	2	63	0	**65**	0	**1136**
12:00PM	143	4	0	**147**	0	16	145	0	**161**	0	0	15	0	**15**	0	**323**
12:15PM	111	1	0	**112**	0	14	123	0	**137**	0	1	12	0	**13**	0	**262**
12:30PM	114	4	0	**118**	0	14	132	0	**146**	0	0	12	0	**12**	0	**276**
12:45PM	119	2	0	**121**	0	14	139	0	**153**	0	0	13	0	**13**	0	**287**
Hourly Total	487	11	0	**498**	0	58	539	0	**597**	0	1	52	0	**53**	0	**1148**
1:00PM	121	2	0	**123**	0	13	130	0	**143**	0	1	12	0	**13**	0	**279**
1:15PM	115	2	0	**117**	0	8	125	0	**133**	0	0	8	0	**8**	0	**258**
1:30PM	105	2	0	**107**	0	7	105	0	**112**	0	0	13	0	**13**	0	**232**

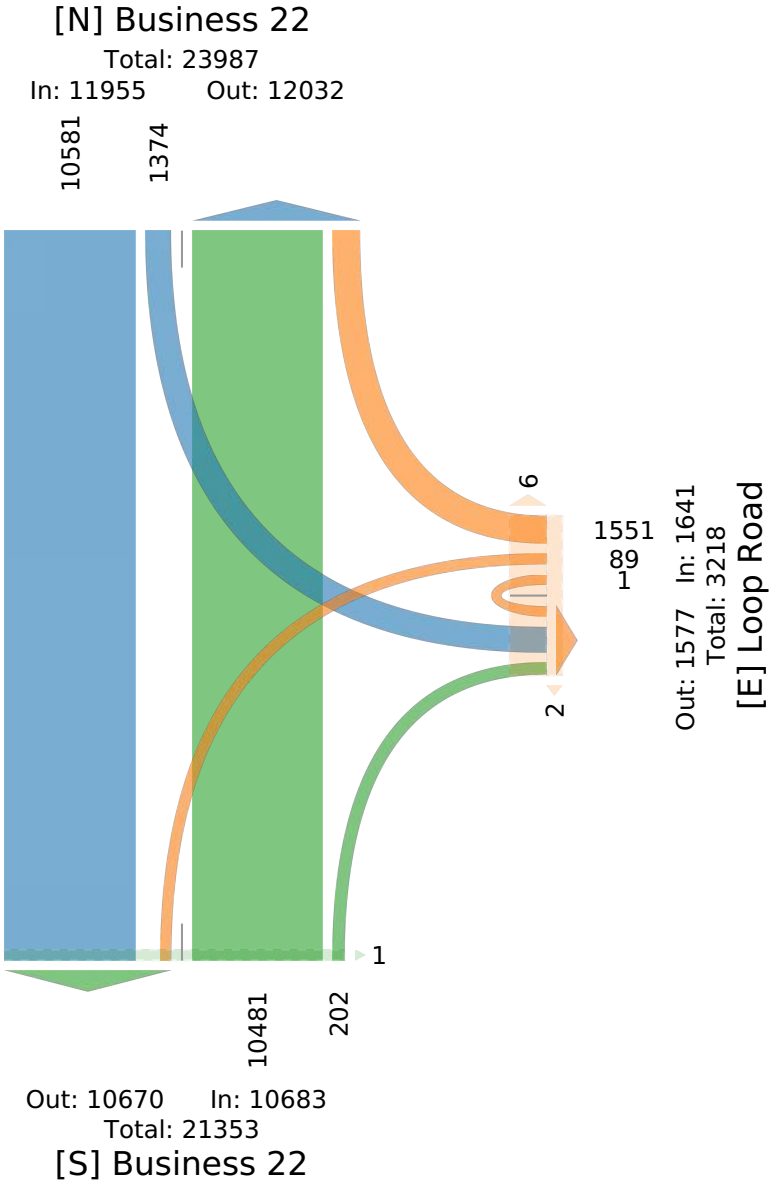
Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
1:45PM	101	4	0	**105**	0	10	133	0	**143**	0	1	20	0	**21**	0	**269**
Hourly Total	442	10	0	**452**	0	38	493	0	**531**	0	2	53	0	**55**	0	**1038**
2:00PM	136	2	0	**138**	0	11	101	0	**112**	0	0	8	0	**8**	0	**258**
2:15PM	126	2	0	**128**	0	11	128	0	**139**	0	1	11	0	**12**	0	**279**
2:30PM	99	5	0	**104**	1	12	107	0	**119**	0	0	11	0	**11**	0	**234**
2:45PM	114	5	0	**119**	0	16	122	0	**138**	0	0	14	0	**14**	0	**271**
Hourly Total	475	14	0	**489**	1	50	458	0	**508**	0	1	44	0	**45**	0	**1042**
3:00PM	110	4	0	**114**	0	11	128	0	**139**	0	0	10	0	**10**	0	**263**
3:15PM	117	1	0	**118**	0	6	100	0	**106**	0	0	11	0	**11**	0	**235**
3:30PM	105	0	0	**105**	0	6	95	0	**101**	0	2	13	0	**15**	0	**221**
3:45PM	109	3	0	**112**	0	16	109	0	**125**	0	0	12	0	**12**	0	**249**
Hourly Total	441	8	0	**449**	0	39	432	0	**471**	0	2	46	0	**48**	0	**968**
4:00PM	99	0	0	**99**	0	16	87	0	**103**	0	1	13	0	**14**	1	**216**
4:15PM	113	1	0	**114**	0	9	93	0	**102**	0	1	16	0	**17**	0	**233**
4:30PM	112	0	0	**112**	0	7	92	0	**99**	0	1	6	0	**7**	0	**218**
4:45PM	79	4	0	**83**	0	12	96	0	**108**	0	0	6	0	**6**	0	**197**
Hourly Total	403	5	0	**408**	0	44	368	0	**412**	0	3	41	0	**44**	1	**864**
5:00PM	102	1	0	**103**	0	13	99	0	**112**	0	1	16	0	**17**	0	**232**
5:15PM	91	2	0	**93**	0	19	96	0	**115**	0	3	17	0	**20**	0	**228**
5:30PM	96	1	0	**97**	0	7	101	0	**108**	0	0	14	0	**14**	0	**219**
5:45PM	89	1	0	**90**	0	18	91	0	**109**	0	0	14	0	**14**	0	**213**
Hourly Total	378	5	0	**383**	0	57	387	0	**444**	0	4	61	0	**65**	0	**892**
6:00PM	97	2	0	**99**	0	15	95	0	**110**	0	0	11	0	**11**	0	**220**
6:15PM	75	2	0	**77**	0	20	81	0	**101**	0	1	5	0	**6**	0	**184**
6:30PM	96	2	0	**98**	0	36	87	0	**123**	0	1	8	0	**9**	0	**230**
6:45PM	72	0	0	**72**	0	17	63	0	**80**	0	2	6	0	**8**	0	**160**
Hourly Total	340	6	0	**346**	0	88	326	0	**414**	0	4	30	0	**34**	0	**794**
7:00PM	101	0	0	**101**	0	14	86	0	**100**	0	1	38	0	**39**	0	**240**
7:15PM	110	4	0	**114**	0	4	82	0	**86**	0	3	33	0	**36**	0	**236**
7:30PM	67	0	0	**67**	0	10	64	0	**74**	0	0	15	0	**15**	0	**156**
7:45PM	63	1	0	**64**	0	5	62	0	**67**	0	2	14	0	**16**	0	**147**
Hourly Total	341	5	0	**346**	0	33	294	0	**327**	0	6	100	0	**106**	0	**779**
Total	10481	202	0	**10683**	1	1374	10581	0	**11955**	0	89	1551	1	**1641**	8	**24279**
% Approach	98.1%	1.9%	0%	**-**	-	11.5%	88.5%	0%	**-**	-	5.4%	94.5%	0.1%	**-**	-	**-**
% Total	43.2%	0.8%	0%	**44.0%**	-	5.7%	43.6%	0%	**49.2%**	-	0.4%	6.4%	0%	**6.8%**	-	**-**
Lights and Motorcycles	10269	197	0	**10466**	-	1359	10389	0	**11748**	-	84	1530	1	**1615**	-	23829
% Lights and Motorcycles	98.0%	97.5%	0%	**98.0%**	-	98.9%	98.2%	0%	**98.3%**	-	94.4%	98.6%	100%	**98.4%**	-	98.1%
Heavy	212	5	0	**217**	-	15	192	0	**207**	-	5	21	0	**26**	-	450
% Heavy	2.0%	2.5%	0%	**2.0%**	-	1.1%	1.8%	0%	**1.7%**	-	5.6%	1.4%	0%	**1.6%**	-	1.9%
Pedestrians	-	-	-	-	1	-	-	-	-	0	-	-	-	-	8	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Thu Jun 18, 2026
Full Length (4 AM-8 PM (+1))
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
AM Peak (Jun 18 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

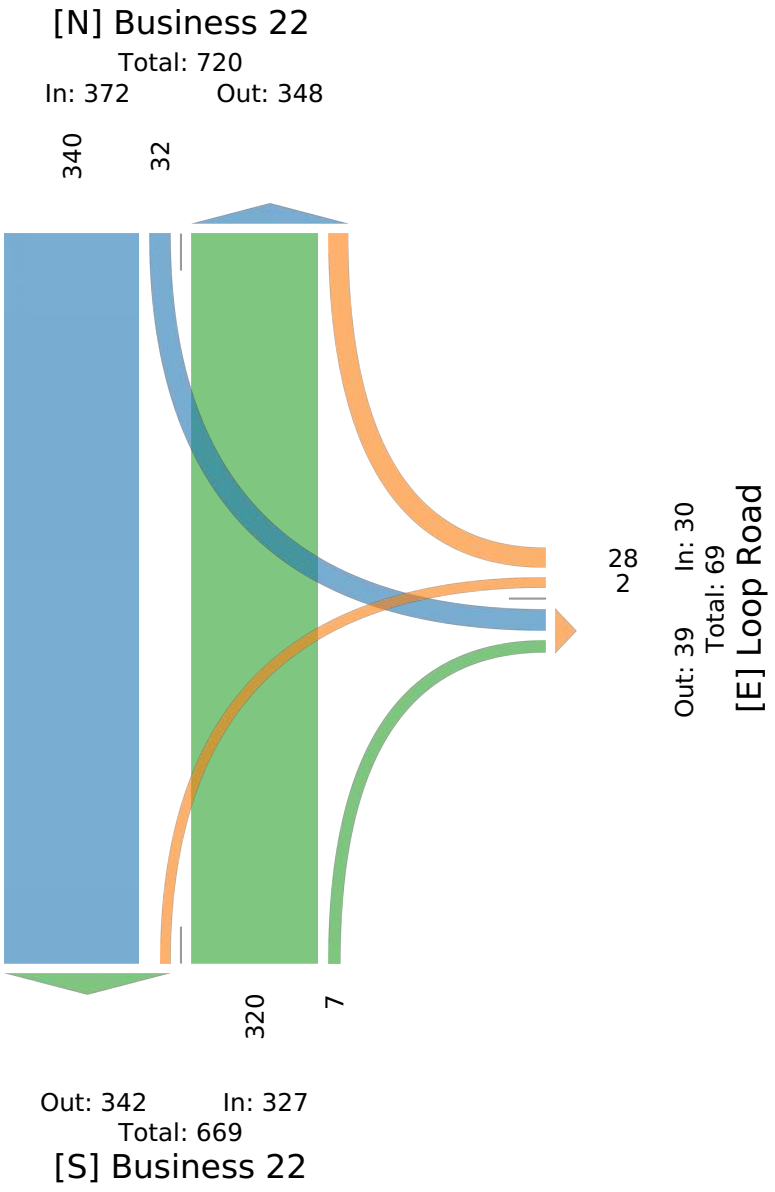
Leg Direction	Business 22 Northbound					Business 22 Southbound					Loop Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 10:00AM	62	1	0	**63**	0	11	82	0	**93**	0	0	7	0	**7**	0	**163**
10:15AM	70	1	0	**71**	0	6	82	0	**88**	0	0	5	0	**5**	0	**164**
10:30AM	85	1	0	**86**	0	10	89	0	**99**	0	0	7	0	**7**	0	**192**
10:45AM	103	4	0	**107**	0	5	87	0	**92**	0	2	9	0	**11**	0	**210**
Total	320	7	0	**327**	0	32	340	0	**372**	0	2	28	0	**30**	0	**729**
% Approach	97.9%	2.1%	0%	**-**	-	8.6%	91.4%	0%	**-**	-	6.7%	93.3%	0%	**-**	-	-
% Total	43.9%	1.0%	0%	**44.9%**	-	4.4%	46.6%	0%	**51.0%**	-	0.3%	3.8%	0%	**4.1%**	-	-
PHF	0.777	0.438	-	**0.764**	-	0.727	0.955	-	**0.939**	-	0.250	0.778	-	**0.682**	-	0.868
Lights and Motorcycles	305	6	0	**311**	-	31	329	0	**360**	-	2	26	0	**28**	-	699
% Lights and Motorcycles	95.3%	85.7%	0%	**95.1%**	-	96.9%	96.8%	0%	**96.8%**	-	100%	92.9%	0%	**93.3%**	-	95.9%
Heavy	15	1	0	**16**	-	1	11	0	**12**	-	0	2	0	**2**	-	30
% Heavy	4.7%	14.3%	0%	**4.9%**	-	3.1%	3.2%	0%	**3.2%**	-	0%	7.1%	0%	**6.7%**	-	4.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Thu Jun 18, 2026
AM Peak (Jun 18 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:30AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

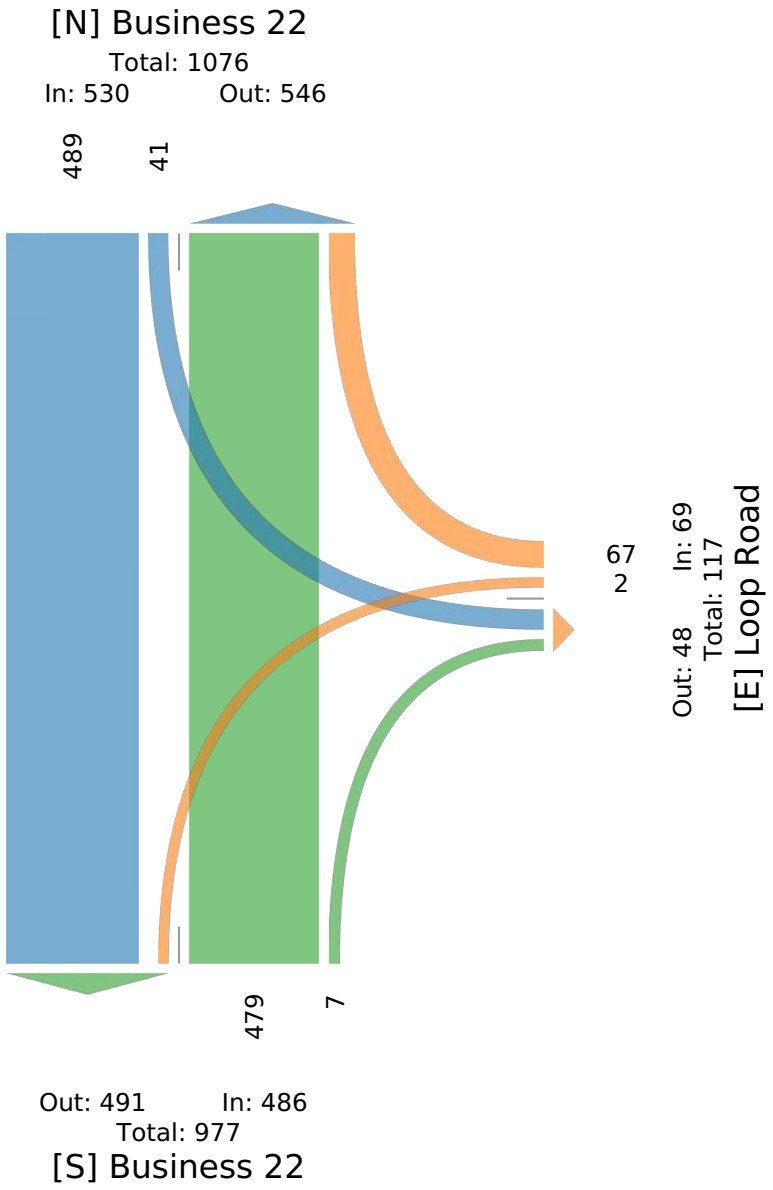
Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 11:30AM	109	2	0	**111**	0	8	140	0	**148**	0	1	10	0	**11**	0	**270**
11:45AM	118	2	0	**120**	0	13	96	0	**109**	0	0	12	0	**12**	0	**241**
12:00PM	139	1	0	**140**	0	10	117	0	**127**	0	1	24	0	**25**	0	**292**
12:15PM	113	2	0	**115**	0	10	136	0	**146**	0	0	21	0	**21**	0	**282**
Total	479	7	0	**486**	0	41	489	0	**530**	0	2	67	0	**69**	0	**1085**
% Approach	98.6%	1.4%	0%	**-**	-	7.7%	92.3%	0%	**-**	-	2.9%	97.1%	0%	**-**	-	-
% Total	44.1%	0.6%	0%	**44.8%**	-	3.8%	45.1%	0%	**48.8%**	-	0.2%	6.2%	0%	**6.4%**	-	-
PHF	0.862	0.875	-	**0.868**	-	0.788	0.873	-	**0.895**	-	0.500	0.698	-	**0.690**	-	0.929
Lights and Motorcycles	462	6	0	**468**	-	38	469	0	**507**	-	2	63	0	**65**	-	1040
% Lights and Motorcycles	96.5%	85.7%	0%	**96.3%**	-	92.7%	95.9%	0%	**95.7%**	-	100%	94.0%	0%	**94.2%**	-	95.9%
Heavy	17	1	0	**18**	-	3	20	0	**23**	-	0	4	0	**4**	-	45
% Heavy	3.5%	14.3%	0%	**3.7%**	-	7.3%	4.1%	0%	**4.3%**	-	0%	6.0%	0%	**5.8%**	-	4.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Thu Jun 18, 2026
Midday Peak (Jun 18 2026 11:30AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Thu Jun 18, 2026
PM Peak (Jun 18 2026 4:15PM - 5:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

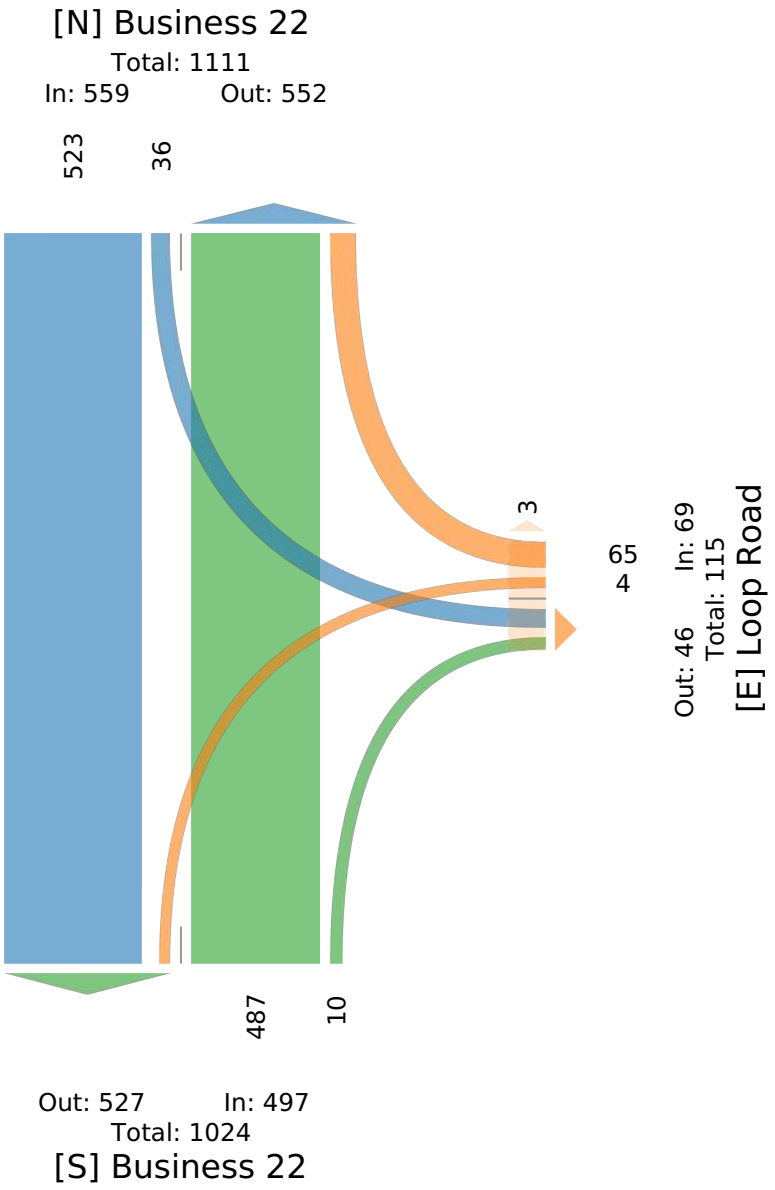
Leg	Business 22					Business 22					Loop Road					
Direction	Northbound					Southbound					Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-18 4:15PM	113	1	0	**114**	0	10	134	0	**144**	0	0	13	0	**13**	0	**271**
4:30PM	124	3	0	**127**	0	11	137	0	**148**	0	2	17	0	**19**	2	**294**
4:45PM	127	3	0	**130**	0	8	115	0	**123**	0	2	17	0	**19**	1	**272**
5:00PM	123	3	0	**126**	0	7	137	0	**144**	0	0	18	0	**18**	0	**288**
Total	487	10	0	**497**	0	36	523	0	**559**	0	4	65	0	**69**	3	**1125**
% Approach	98.0%	2.0%	0%	**-**	-	6.4%	93.6%	0%	**-**	-	5.8%	94.2%	0%	**-**	-	-
% Total	43.3%	0.9%	0%	**44.2%**	-	3.2%	46.5%	0%	**49.7%**	-	0.4%	5.8%	0%	**6.1%**	-	-
PHF	0.959	0.833	-	**0.956**	-	0.818	0.954	-	**0.944**	-	0.500	0.903	-	**0.908**	-	0.957
Lights and Motorcycles	482	10	0	**492**	-	36	516	0	**552**	-	4	61	0	**65**	-	1109
% Lights and Motorcycles	99.0%	100%	0%	**99.0%**	-	100%	98.7%	0%	**98.7%**	-	100%	93.8%	0%	**94.2%**	-	98.6%
Heavy	5	0	0	**5**	-	0	7	0	**7**	-	0	4	0	**4**	-	16
% Heavy	1.0%	0%	0%	**1.0%**	-	0%	1.3%	0%	**1.3%**	-	0%	6.2%	0%	**5.8%**	-	1.4%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	3	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Thu Jun 18, 2026
PM Peak (Jun 18 2026 4:15PM - 5:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

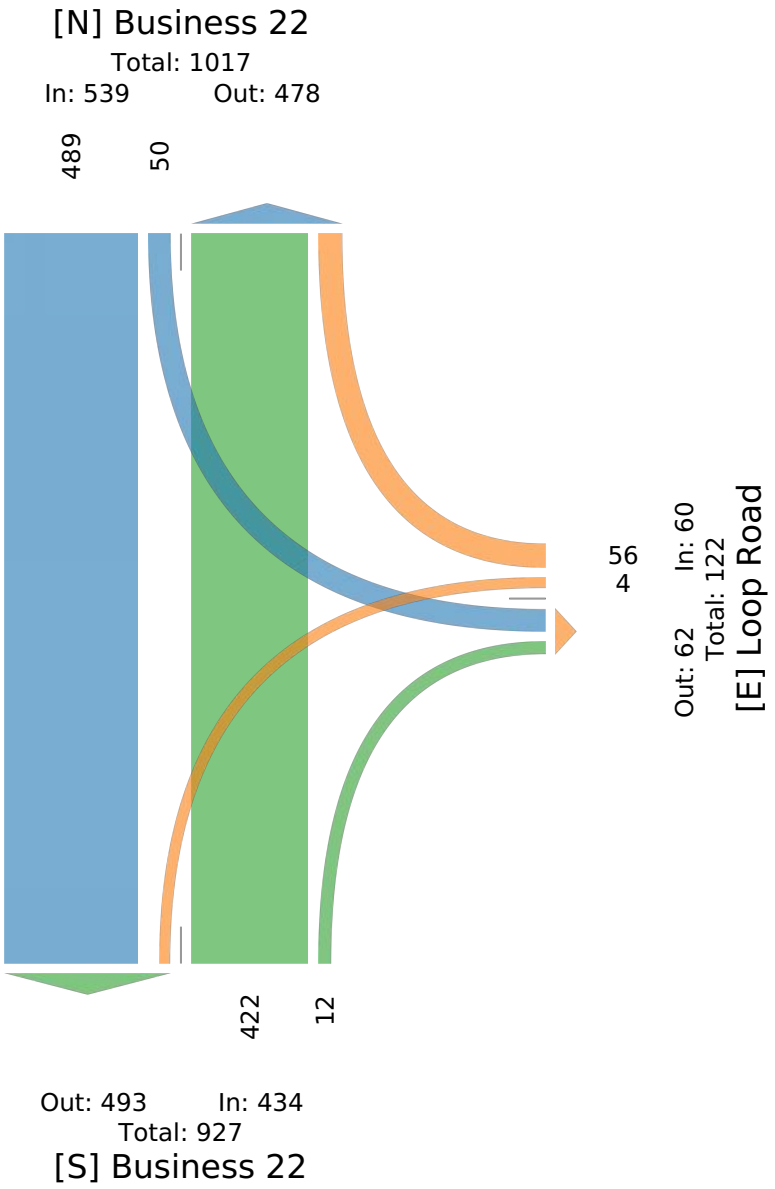
Leg Direction	Business 22 Northbound					Business 22 Southbound					Loop Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 10:00AM	97	1	0	**98**	0	10	101	0	**111**	0	2	14	0	**16**	0	**225**
10:15AM	101	5	0	**106**	0	9	122	0	**131**	0	1	16	0	**17**	0	**254**
10:30AM	104	2	0	**106**	0	16	140	0	**156**	0	0	12	0	**12**	0	**274**
10:45AM	120	4	0	**124**	0	15	126	0	**141**	0	1	14	0	**15**	0	**280**
Total	422	12	0	**434**	0	50	489	0	**539**	0	4	56	0	**60**	0	**1033**
% Approach	97.2%	2.8%	0%	**-**	-	9.3%	90.7%	0%	**-**	-	6.7%	93.3%	0%	**-**	-	-
% Total	40.9%	1.2%	0%	**42.0%**	-	4.8%	47.3%	0%	**52.2%**	-	0.4%	5.4%	0%	**5.8%**	-	-
PHF	0.879	0.600	-	**0.875**	-	0.781	0.873	-	**0.864**	-	0.500	0.875	-	**0.882**	-	0.922
Lights and Motorcycles	414	12	0	**426**	-	50	486	0	**536**	-	4	56	0	**60**	-	1022
% Lights and Motorcycles	98.1%	100%	0%	**98.2%**	-	100%	99.4%	0%	**99.4%**	-	100%	100%	0%	**100%**	-	98.9%
Heavy	8	0	0	**8**	-	0	3	0	**3**	-	0	0	0	**0**	-	11
% Heavy	1.9%	0%	0%	**1.8%**	-	0%	0.6%	0%	**0.6%**	-	0%	0%	0%	**0%**	-	1.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Sat Jun 20, 2026
AM Peak (WKND) (Jun 20 2026 10AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

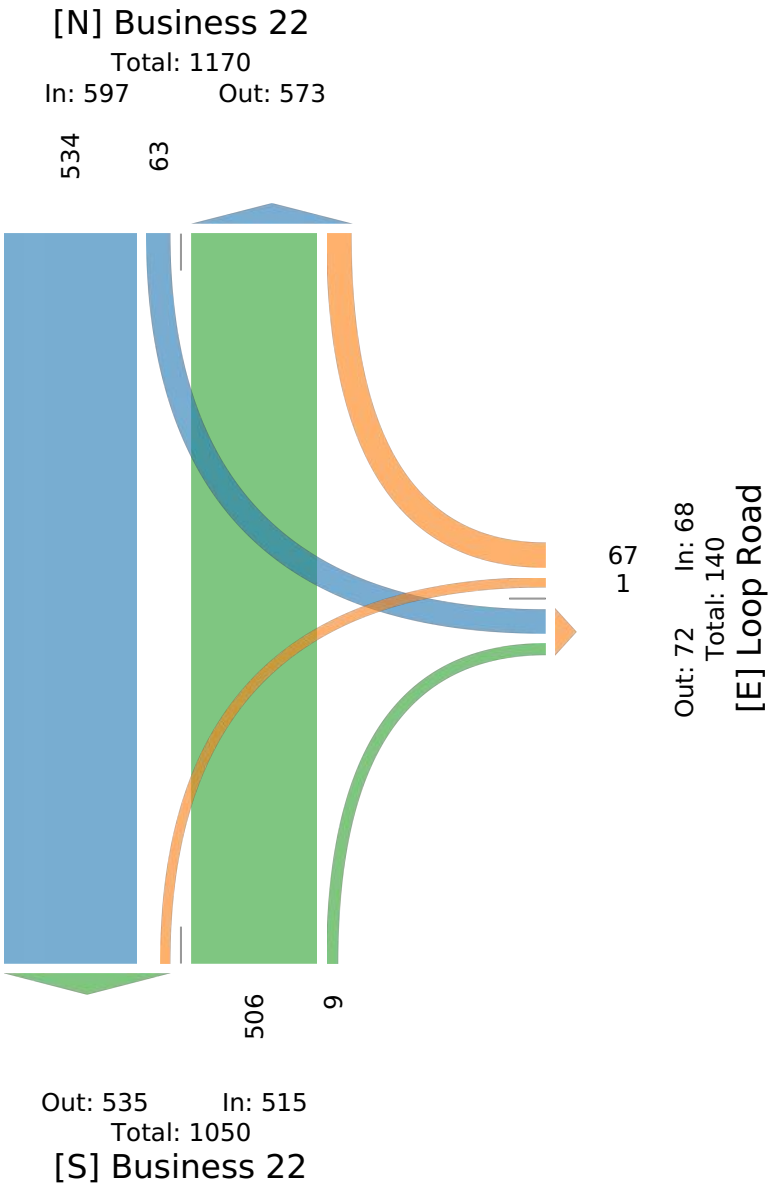
Leg Direction	Business 22 Northbound					Business 22 Southbound					Loop Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 11:15AM	132	3	0	**135**	0	14	117	0	**131**	0	0	17	0	**17**	0	**283**
11:30AM	116	1	0	**117**	0	16	146	0	**162**	0	1	16	0	**17**	0	**296**
11:45AM	115	1	0	**116**	0	17	126	0	**143**	0	0	19	0	**19**	0	**278**
12:00PM	143	4	0	**147**	0	16	145	0	**161**	0	0	15	0	**15**	0	**323**
Total	506	9	0	**515**	0	63	534	0	**597**	0	1	67	0	**68**	0	**1180**
% Approach	98.3%	1.7%	0%	**-**	-	10.6%	89.4%	0%	**-**	-	1.5%	98.5%	0%	**-**	-	-
% Total	42.9%	0.8%	0%	**43.6%**	-	5.3%	45.3%	0%	**50.6%**	-	0.1%	5.7%	0%	**5.8%**	-	-
PHF	0.885	0.563	-	**0.876**	-	0.926	0.914	-	**0.921**	-	0.250	0.882	-	**0.895**	-	0.913
Lights and Motorcycles	503	9	0	**512**	-	63	529	0	**592**	-	1	67	0	**68**	-	1172
% Lights and Motorcycles	99.4%	100%	0%	**99.4%**	-	100%	99.1%	0%	**99.2%**	-	100%	100%	0%	**100%**	-	99.3%
Heavy	3	0	0	**3**	-	0	5	0	**5**	-	0	0	0	**0**	-	8
% Heavy	0.6%	0%	0%	**0.6%**	-	0%	0.9%	0%	**0.8%**	-	0%	0%	0%	**0%**	-	0.7%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Sat Jun 20, 2026
Midday Peak (WKND) (Jun 20 2026 11:15AM - 12:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



5. Business 22 & Loop Road - TMC

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 2:15PM - 3:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

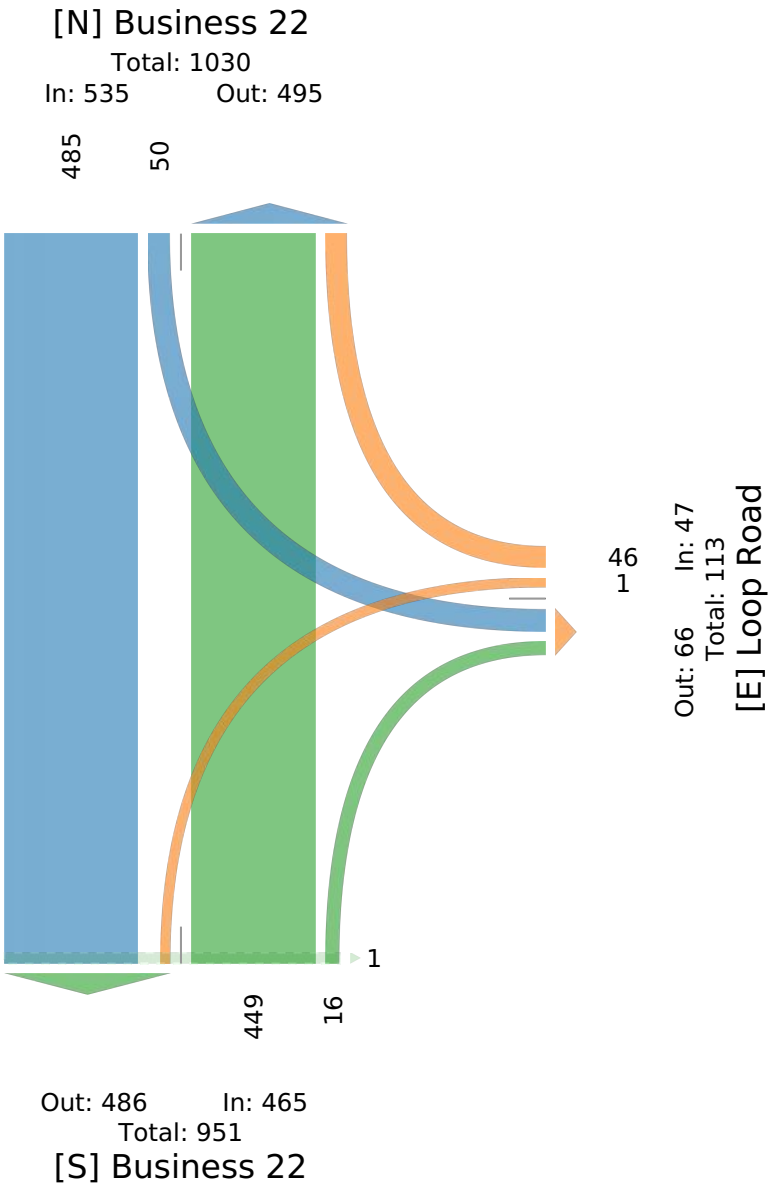
Leg Direction	Business 22 Northbound					Business 22 Southbound					Loop Road Westbound					
Time	T	R	U	**App**	Ped*	L	T	U	**App**	Ped*	L	R	U	**App**	Ped*	**Int**
2026-06-20 2:15PM	126	2	0	**128**	0	11	128	0	**139**	0	1	11	0	**12**	0	**279**
2:30PM	99	5	0	**104**	1	12	107	0	**119**	0	0	11	0	**11**	0	**234**
2:45PM	114	5	0	**119**	0	16	122	0	**138**	0	0	14	0	**14**	0	**271**
3:00PM	110	4	0	**114**	0	11	128	0	**139**	0	0	10	0	**10**	0	**263**
Total	449	16	0	**465**	1	50	485	0	**535**	0	1	46	0	**47**	0	**1047**
% Approach	96.6%	3.4%	0%	**-**	-	9.3%	90.7%	0%	**-**	-	2.1%	97.9%	0%	**-**	-	-
% Total	42.9%	1.5%	0%	**44.4%**	-	4.8%	46.3%	0%	**51.1%**	-	0.1%	4.4%	0%	**4.5%**	-	-
PHF	0.891	0.800	-	**0.908**	-	0.781	0.947	-	**0.962**	-	0.250	0.821	-	**0.839**	-	0.938
Lights and Motorcycles	448	16	0	**464**	-	50	482	0	**532**	-	1	46	0	**47**	-	1043
% Lights and Motorcycles	99.8%	100%	0%	**99.8%**	-	100%	99.4%	0%	**99.4%**	-	100%	100%	0%	**100%**	-	99.6%
Heavy	1	0	0	**1**	-	0	3	0	**3**	-	0	0	0	**0**	-	4
% Heavy	0.2%	0%	0%	**0.2%**	-	0%	0.6%	0%	**0.6%**	-	0%	0%	0%	**0%**	-	0.4%
Pedestrians	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

5. Business 22 & Loop Road - TMC

Sat Jun 20, 2026
PM Peak (WKND) (Jun 20 2026 2:15PM - 3:15 PM)
All Classes (Lights and Motorcycles, Heavy, Pedestrians, Bicycles on Crosswalk)
All Movements
ID: 1414025, Location: 40.58551, -77.607787, Site Code: 5

Provided by: Imperial Traffic & Data Collection
PO Box 4637, Cherry Hill, NJ, 08003, US



Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

Turning Movement Data

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:00 AM	0	0	2	0	2	0	3	0	0	3	0	1	8	0	9	14
4:15 AM	0	0	1	0	1	0	8	0	0	8	0	3	14	0	17	26
4:30 AM	0	0	1	0	1	0	8	0	0	8	0	3	14	0	17	26
4:45 AM	0	0	3	0	3	0	17	0	0	17	0	2	10	0	12	32
Hourly Total	0	0	7	0	7	0	36	0	0	36	0	9	46	0	55	98
5:00 AM	0	1	5	0	6	0	7	0	0	7	0	7	23	0	30	43
5:15 AM	0	0	3	0	3	0	15	0	0	15	0	4	28	0	32	50
5:30 AM	0	0	7	0	7	0	22	0	0	22	0	12	48	0	60	89
5:45 AM	0	1	6	0	7	0	18	0	0	18	0	12	48	0	60	85
Hourly Total	0	2	21	0	23	0	62	0	0	62	0	35	147	0	182	267
6:00 AM	0	0	5	0	5	0	23	0	0	23	0	17	40	0	57	85
6:15 AM	0	0	7	0	7	0	32	1	0	33	0	24	48	0	72	112
6:30 AM	0	1	5	0	6	0	41	1	0	42	0	33	40	0	73	121
6:45 AM	0	1	17	0	18	0	63	1	0	64	0	12	43	0	55	137
Hourly Total	0	2	34	0	36	0	159	3	0	162	0	86	171	0	257	455
7:00 AM	0	2	28	0	30	0	60	2	0	62	0	10	39	0	49	141
7:15 AM	0	1	23	0	24	0	40	2	0	42	0	11	47	0	58	124
7:30 AM	0	1	13	0	14	0	78	0	0	78	0	9	39	0	48	140
7:45 AM	0	2	12	0	14	0	59	3	0	62	0	4	50	0	54	130
Hourly Total	0	6	76	0	82	0	237	7	0	244	0	34	175	0	209	535
8:00 AM	0	1	17	0	18	0	61	1	0	62	0	6	50	0	56	136
8:15 AM	0	1	15	0	16	0	57	0	0	57	0	4	63	0	67	140
8:30 AM	0	0	12	0	12	0	69	2	0	71	0	11	50	0	61	144
8:45 AM	0	2	9	0	11	0	69	0	0	69	0	3	72	0	75	155
Hourly Total	0	4	53	0	57	0	256	3	0	259	0	24	235	0	259	575
9:00 AM	0	1	11	0	12	0	76	3	0	79	0	9	78	0	87	178
9:15 AM	0	0	11	0	11	0	81	0	0	81	0	7	70	0	77	169
9:30 AM	0	2	12	1	14	0	74	1	0	75	0	6	80	0	86	175
9:45 AM	0	1	4	1	5	0	81	1	0	82	0	3	88	0	91	178
Hourly Total	0	4	38	2	42	0	312	5	0	317	0	25	316	0	341	700
10:00 AM	0	0	7	0	7	0	62	1	0	63	0	11	82	0	93	163
10:15 AM	0	0	5	0	5	0	70	1	0	71	0	6	82	0	88	164
10:30 AM	0	0	7	0	7	0	85	1	0	86	0	10	89	0	99	192
10:45 AM	0	2	9	0	11	0	103	4	0	107	0	5	87	0	92	210
Hourly Total	0	2	28	0	30	0	320	7	0	327	0	32	340	0	372	729
11:00 AM	0	1	13	0	14	0	107	4	0	111	0	11	104	0	115	240

11:15 AM	0	1	8	0	9	0	99	1	0	100	0	5	121	0	126	235
11:30 AM	0	1	10	0	11	0	109	2	0	111	0	8	140	0	148	270
11:45 AM	0	0	12	0	12	0	118	2	0	120	0	13	96	0	109	241
Hourly Total	0	3	43	0	46	0	433	9	0	442	0	37	461	0	498	986
12:00 PM	0	1	24	0	25	0	139	1	0	140	0	10	117	0	127	292
12:15 PM	0	0	21	0	21	0	113	2	0	115	0	10	136	0	146	282
12:30 PM	0	2	16	0	18	0	111	6	0	117	0	10	123	0	133	268
12:45 PM	0	2	11	0	13	0	84	2	0	86	0	18	106	0	124	223
Hourly Total	0	5	72	0	77	0	447	11	0	458	0	48	482	0	530	1065
1:00 PM	0	0	7	0	7	0	109	2	0	111	0	17	115	0	132	250
1:15 PM	1	1	11	0	13	0	114	1	0	115	0	11	102	0	113	241
1:30 PM	0	0	13	0	13	0	109	4	0	113	0	8	119	0	127	253
1:45 PM	0	0	15	0	15	0	105	3	0	108	0	15	82	0	97	220
Hourly Total	1	1	46	0	48	0	437	10	0	447	0	51	418	0	469	964
2:00 PM	0	0	16	0	16	0	100	3	0	103	0	10	120	0	130	249
2:15 PM	0	0	10	0	10	0	120	0	0	120	0	12	98	0	110	240
2:30 PM	0	1	23	0	24	0	162	2	0	164	0	13	107	0	120	308
2:45 PM	0	0	12	0	12	0	124	3	0	127	0	11	115	0	126	265
Hourly Total	0	1	61	0	62	0	506	8	0	514	0	46	440	0	486	1062
3:00 PM	0	0	31	0	31	0	99	2	0	101	0	14	111	0	125	257
3:15 PM	0	0	17	1	17	0	106	3	0	109	0	11	130	0	141	267
3:30 PM	0	2	19	0	21	0	114	0	0	114	0	11	110	0	121	256
3:45 PM	0	0	17	1	17	0	94	5	0	99	0	16	129	0	145	261
Hourly Total	0	2	84	2	86	0	413	10	0	423	0	52	480	0	532	1041
4:00 PM	0	1	23	0	24	0	127	5	0	132	0	16	107	0	123	279
4:15 PM	0	0	13	0	13	0	113	1	0	114	0	10	134	0	144	271
4:30 PM	0	2	17	2	19	0	124	3	0	127	0	11	137	0	148	294
4:45 PM	0	2	17	1	19	0	127	3	0	130	0	8	115	0	123	272
Hourly Total	0	5	70	3	75	0	491	12	0	503	0	45	493	0	538	1116
5:00 PM	0	0	18	0	18	0	123	3	0	126	0	7	137	0	144	288
5:15 PM	0	0	15	0	15	0	94	2	0	96	0	22	122	0	144	255
5:30 PM	0	1	19	0	20	0	115	1	0	116	0	15	97	0	112	248
5:45 PM	0	1	16	0	17	0	117	0	0	117	0	10	119	0	129	263
Hourly Total	0	2	68	0	70	0	449	6	0	455	0	54	475	0	529	1054
6:00 PM	0	0	9	0	9	0	94	3	0	97	0	24	99	0	123	229
6:15 PM	0	1	10	0	11	0	93	2	0	95	0	26	73	0	99	205
6:30 PM	0	0	7	0	7	0	93	1	0	94	0	33	94	0	127	228
6:45 PM	0	0	6	0	6	0	104	0	0	104	0	10	77	0	87	197
Hourly Total	0	1	32	0	33	0	384	6	0	390	0	93	343	0	436	859
7:00 PM	0	1	32	0	33	0	124	1	0	125	0	14	87	0	101	259
7:15 PM	0	0	22	0	22	0	87	0	0	87	0	10	78	0	88	197
7:30 PM	0	0	12	0	12	0	85	0	0	85	0	10	81	0	91	188
7:45 PM	0	1	13	0	14	0	77	1	0	78	0	8	61	0	69	161
Hourly Total	0	2	79	0	81	0	373	2	0	375	0	42	307	0	349	805
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4:00 AM	0	0	0	0	0	0	6	1	0	7	0	1	4	0	5	12
4:15 AM	0	0	3	0	3	0	3	0	0	3	0	1	6	0	7	13
4:30 AM	0	0	1	0	1	0	5	0	0	5	0	1	14	0	15	21
4:45 AM	0	0	0	0	0	0	4	0	0	4	0	3	13	0	16	20
Hourly Total	0	0	4	0	4	0	18	1	0	19	0	6	37	0	43	66
5:00 AM	0	0	1	0	1	0	7	0	0	7	0	2	8	0	10	18
5:15 AM	0	0	1	0	1	0	7	0	0	7	0	3	9	0	12	20

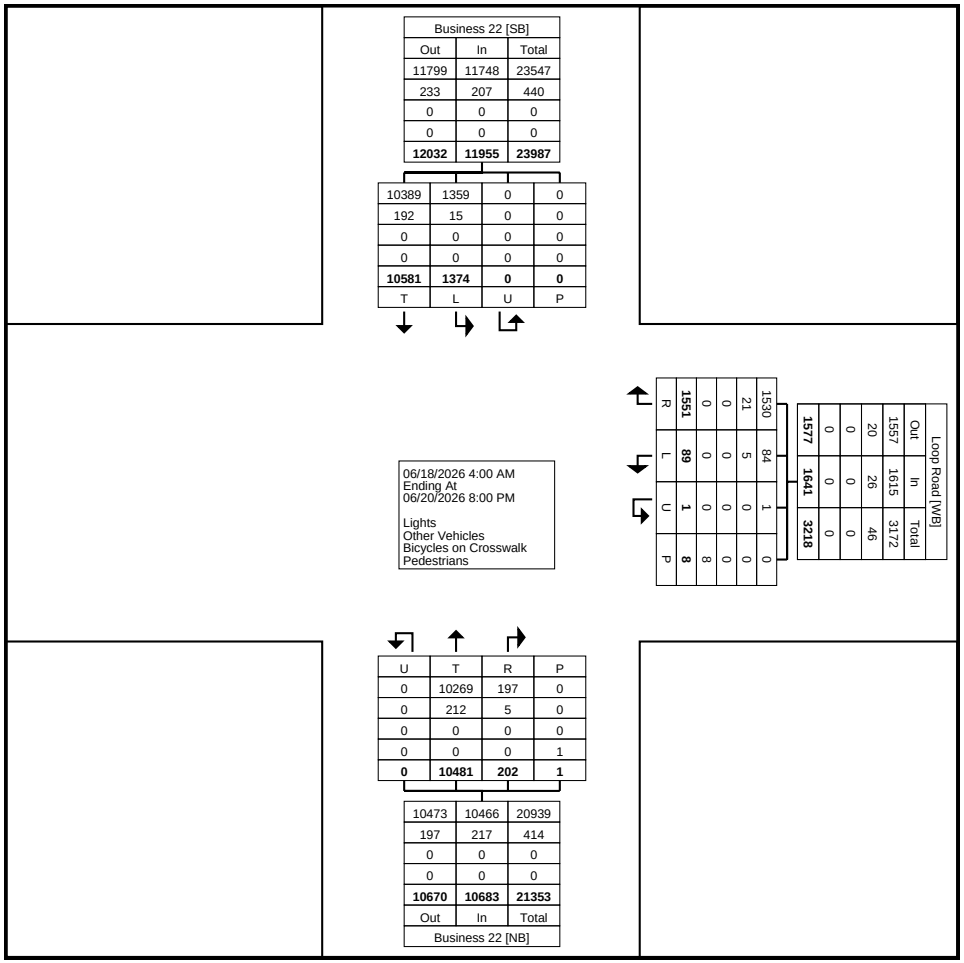
5:30 AM	0	0	4	0	4	0	7	0	0	7	0	3	7	0	10	21
5:45 AM	0	0	0	0	0	0	8	0	0	8	0	3	17	0	20	28
Hourly Total	0	0	6	0	6	0	29	0	0	29	0	11	41	0	52	87
6:00 AM	0	0	1	0	1	0	13	0	0	13	0	11	21	0	32	46
6:15 AM	0	1	2	0	3	0	22	0	0	22	0	13	29	0	42	67
6:30 AM	0	1	4	0	5	0	26	0	0	26	0	25	26	0	51	82
6:45 AM	0	0	12	0	12	0	29	0	0	29	0	11	37	0	48	89
Hourly Total	0	2	19	0	21	0	90	0	0	90	0	60	113	0	173	284
7:00 AM	0	3	31	0	34	0	42	2	0	44	0	0	35	0	35	113
7:15 AM	0	1	24	0	25	0	36	1	0	37	0	4	38	0	42	104
7:30 AM	0	0	8	0	8	0	48	0	0	48	0	2	47	0	49	105
7:45 AM	0	2	4	0	6	0	56	1	0	57	0	9	36	0	45	108
Hourly Total	0	6	67	0	73	0	182	4	0	186	0	15	156	0	171	430
8:00 AM	0	1	10	0	11	0	51	2	0	53	0	4	41	0	45	109
8:15 AM	0	1	5	0	6	0	59	3	0	62	0	4	64	0	68	136
8:30 AM	0	1	6	0	7	0	69	4	0	73	0	7	65	0	72	152
8:45 AM	0	1	18	0	19	0	85	1	0	86	0	6	68	0	74	179
Hourly Total	0	4	39	0	43	0	264	10	0	274	0	21	238	0	259	576
9:00 AM	0	1	12	0	13	0	85	3	0	88	0	11	82	0	93	194
9:15 AM	0	1	7	0	8	0	106	2	0	108	0	11	111	0	122	238
9:30 AM	0	3	16	0	19	0	83	0	0	83	0	7	84	0	91	193
9:45 AM	0	1	23	0	24	0	84	1	0	85	0	5	92	0	97	206
Hourly Total	0	6	58	0	64	0	358	6	0	364	0	34	369	0	403	831
10:00 AM	0	2	14	0	16	0	97	1	0	98	0	10	101	0	111	225
10:15 AM	0	1	16	0	17	0	101	5	0	106	0	9	122	0	131	254
10:30 AM	0	0	12	0	12	0	104	2	0	106	0	16	140	0	156	274
10:45 AM	0	1	14	0	15	0	120	4	0	124	0	15	126	0	141	280
Hourly Total	0	4	56	0	60	0	422	12	0	434	0	50	489	0	539	1033
11:00 AM	0	1	11	0	12	0	133	1	0	134	0	10	123	0	133	279
11:15 AM	0	0	17	0	17	0	132	3	0	135	0	14	117	0	131	283
11:30 AM	0	1	16	0	17	0	116	1	0	117	0	16	146	0	162	296
11:45 AM	0	0	19	0	19	0	115	1	0	116	0	17	126	0	143	278
Hourly Total	0	2	63	0	65	0	496	6	0	502	0	57	512	0	569	1136
12:00 PM	0	0	15	0	15	0	143	4	0	147	0	16	145	0	161	323
12:15 PM	0	1	12	0	13	0	111	1	0	112	0	14	123	0	137	262
12:30 PM	0	0	12	0	12	0	114	4	0	118	0	14	132	0	146	276
12:45 PM	0	0	13	0	13	0	119	2	0	121	0	14	139	0	153	287
Hourly Total	0	1	52	0	53	0	487	11	0	498	0	58	539	0	597	1148
1:00 PM	0	1	12	0	13	0	121	2	0	123	0	13	130	0	143	279
1:15 PM	0	0	8	0	8	0	115	2	0	117	0	8	125	0	133	258
1:30 PM	0	0	13	0	13	0	105	2	0	107	0	7	105	0	112	232
1:45 PM	0	1	20	0	21	0	101	4	0	105	0	10	133	0	143	269
Hourly Total	0	2	53	0	55	0	442	10	0	452	0	38	493	0	531	1038
2:00 PM	0	0	8	0	8	0	136	2	0	138	0	11	101	0	112	258
2:15 PM	0	1	11	0	12	0	126	2	0	128	0	11	128	0	139	279
2:30 PM	0	0	11	0	11	0	99	5	1	104	0	12	107	0	119	234
2:45 PM	0	0	14	0	14	0	114	5	0	119	0	16	122	0	138	271
Hourly Total	0	1	44	0	45	0	475	14	1	489	0	50	458	0	508	1042
3:00 PM	0	0	10	0	10	0	110	4	0	114	0	11	128	0	139	263
3:15 PM	0	0	11	0	11	0	117	1	0	118	0	6	100	0	106	235
3:30 PM	0	2	13	0	15	0	105	0	0	105	0	6	95	0	101	221
3:45 PM	0	0	12	0	12	0	109	3	0	112	0	16	109	0	125	249

Hourly Total	0	2	46	0	48	0	441	8	0	449	0	39	432	0	471	968
4:00 PM	0	1	13	1	14	0	99	0	0	99	0	16	87	0	103	216
4:15 PM	0	1	16	0	17	0	113	1	0	114	0	9	93	0	102	233
4:30 PM	0	1	6	0	7	0	112	0	0	112	0	7	92	0	99	218
4:45 PM	0	0	6	0	6	0	79	4	0	83	0	12	96	0	108	197
Hourly Total	0	3	41	1	44	0	403	5	0	408	0	44	368	0	412	864
5:00 PM	0	1	16	0	17	0	102	1	0	103	0	13	99	0	112	232
5:15 PM	0	3	17	0	20	0	91	2	0	93	0	19	96	0	115	228
5:30 PM	0	0	14	0	14	0	96	1	0	97	0	7	101	0	108	219
5:45 PM	0	0	14	0	14	0	89	1	0	90	0	18	91	0	109	213
Hourly Total	0	4	61	0	65	0	378	5	0	383	0	57	387	0	444	892
6:00 PM	0	0	11	0	11	0	97	2	0	99	0	15	95	0	110	220
6:15 PM	0	1	5	0	6	0	75	2	0	77	0	20	81	0	101	184
6:30 PM	0	1	8	0	9	0	96	2	0	98	0	36	87	0	123	230
6:45 PM	0	2	6	0	8	0	72	0	0	72	0	17	63	0	80	160
Hourly Total	0	4	30	0	34	0	340	6	0	346	0	88	326	0	414	794
7:00 PM	0	1	38	0	39	0	101	0	0	101	0	14	86	0	100	240
7:15 PM	0	3	33	0	36	0	110	4	0	114	0	4	82	0	86	236
7:30 PM	0	0	15	0	15	0	67	0	0	67	0	10	64	0	74	156
7:45 PM	0	2	14	0	16	0	63	1	0	64	0	5	62	0	67	147
Hourly Total	0	6	100	0	106	0	341	5	0	346	0	33	294	0	327	779
Grand Total	1	89	1551	8	1641	0	10481	202	1	10683	0	1374	10581	0	11955	24279
Approach %	0.1	5.4	94.5	-	-	0.0	98.1	1.9	-	-	0.0	11.5	88.5	-	-	-
Total %	0.0	0.4	6.4	-	6.8	0.0	43.2	0.8	-	44.0	0.0	5.7	43.6	-	49.2	-
Lights	1	84	1530	-	1615	0	10269	197	-	10466	0	1359	10389	-	11748	23829
% Lights	100.0	94.4	98.6	-	98.4	-	98.0	97.5	-	98.0	-	98.9	98.2	-	98.3	98.1
Other Vehicles	0	5	21	-	26	0	212	5	-	217	0	15	192	-	207	450
% Other Vehicles	0.0	5.6	1.4	-	1.6	-	2.0	2.5	-	2.0	-	1.1	1.8	-	1.7	1.9
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	8	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026



Turning Movement Data Plot

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

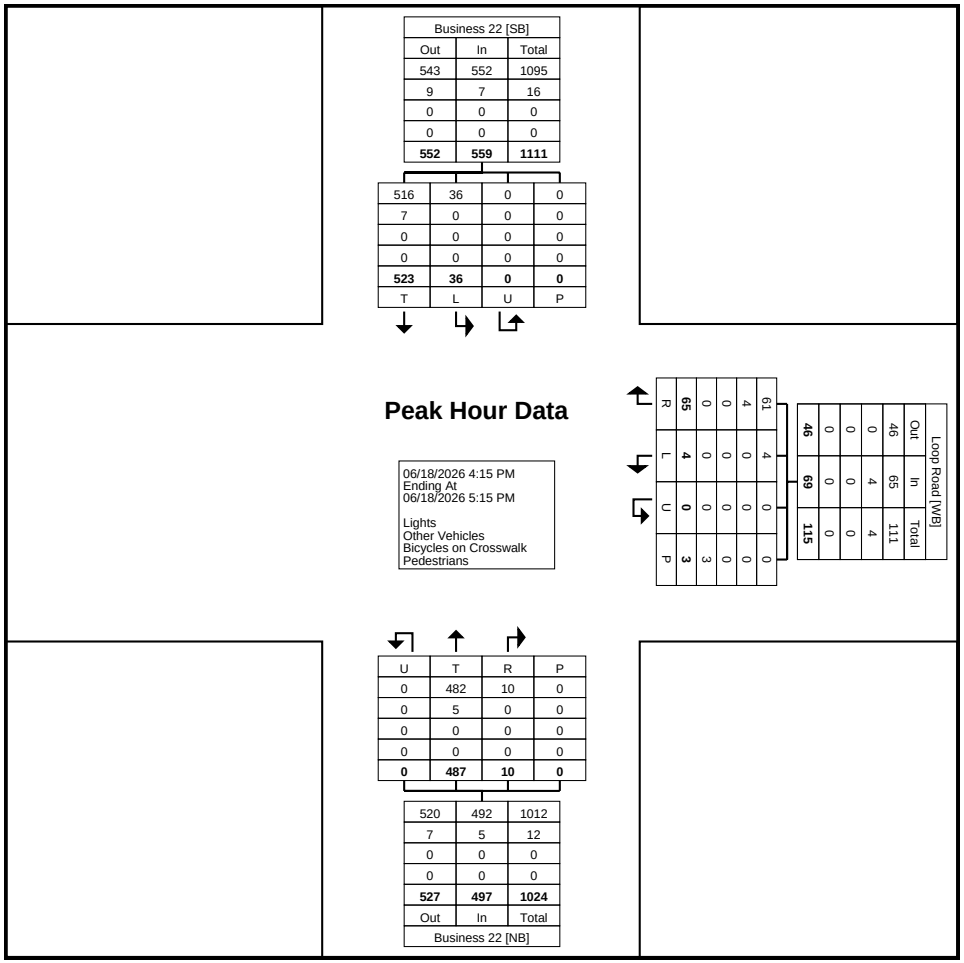
Turning Movement Peak Hour Data (4:15 PM)

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
4:15 PM	0	0	13	0	13	0	113	1	0	114	0	10	134	0	144	271
4:30 PM	0	2	17	2	19	0	124	3	0	127	0	11	137	0	148	294
4:45 PM	0	2	17	1	19	0	127	3	0	130	0	8	115	0	123	272
5:00 PM	0	0	18	0	18	0	123	3	0	126	0	7	137	0	144	288
Total	0	4	65	3	69	0	487	10	0	497	0	36	523	0	559	1125
Approach %	0.0	5.8	94.2	-	-	0.0	98.0	2.0	-	-	0.0	6.4	93.6	-	-	-
Total %	0.0	0.4	5.8	-	6.1	0.0	43.3	0.9	-	44.2	0.0	3.2	46.5	-	49.7	-
PHF	0.000	0.500	0.903	-	0.908	0.000	0.959	0.833	-	0.956	0.000	0.818	0.954	-	0.944	0.957
Lights	0	4	61	-	65	0	482	10	-	492	0	36	516	-	552	1109
% Lights	-	100.0	93.8	-	94.2	-	99.0	100.0	-	99.0	-	100.0	98.7	-	98.7	98.6
Other Vehicles	0	0	4	-	4	0	5	0	-	5	0	0	7	-	7	16
% Other Vehicles	-	0.0	6.2	-	5.8	-	1.0	0.0	-	1.0	-	0.0	1.3	-	1.3	1.4
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (4:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

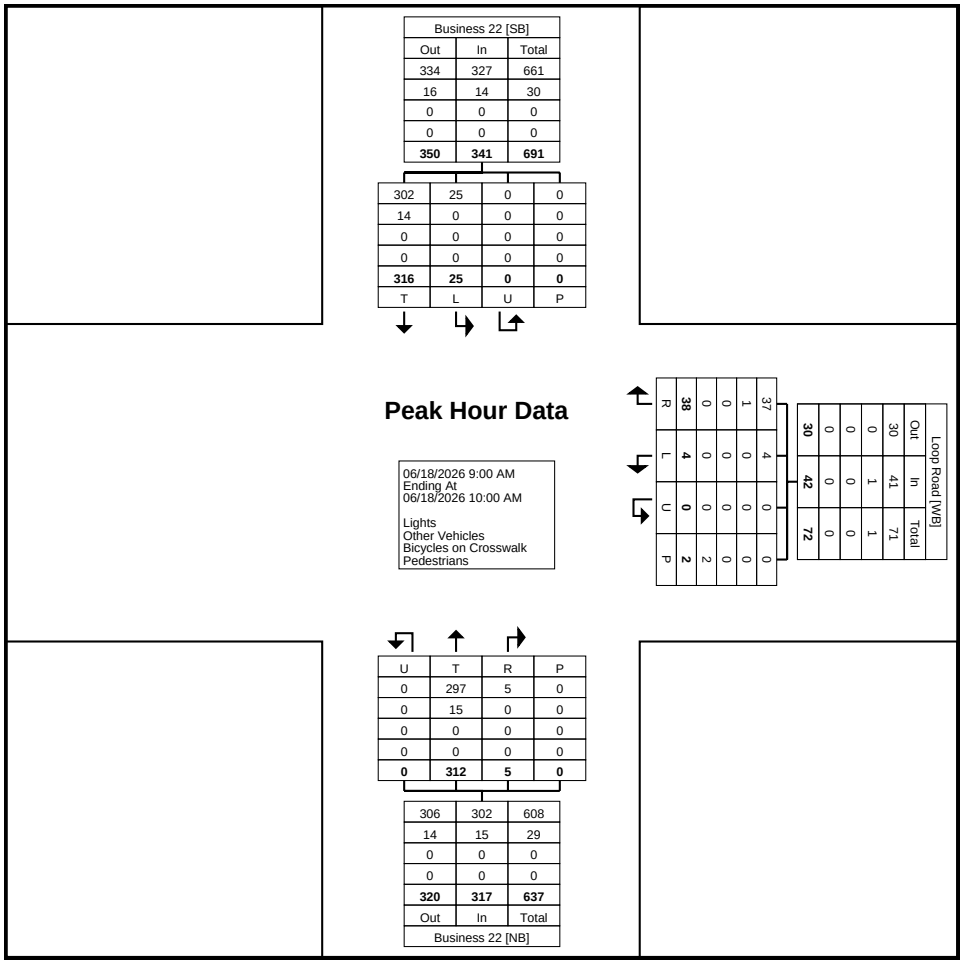
Turning Movement Peak Hour Data (9:00 AM)

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
9:00 AM	0	1	11	0	12	0	76	3	0	79	0	9	78	0	87	178
9:15 AM	0	0	11	0	11	0	81	0	0	81	0	7	70	0	77	169
9:30 AM	0	2	12	1	14	0	74	1	0	75	0	6	80	0	86	175
9:45 AM	0	1	4	1	5	0	81	1	0	82	0	3	88	0	91	178
Total	0	4	38	2	42	0	312	5	0	317	0	25	316	0	341	700
Approach %	0.0	9.5	90.5	-	-	0.0	98.4	1.6	-	-	0.0	7.3	92.7	-	-	-
Total %	0.0	0.6	5.4	-	6.0	0.0	44.6	0.7	-	45.3	0.0	3.6	45.1	-	48.7	-
PHF	0.000	0.500	0.792	-	0.750	0.000	0.963	0.417	-	0.966	0.000	0.694	0.898	-	0.937	0.983
Lights	0	4	37	-	41	0	297	5	-	302	0	25	302	-	327	670
% Lights	-	100.0	97.4	-	97.6	-	95.2	100.0	-	95.3	-	100.0	95.6	-	95.9	95.7
Other Vehicles	0	0	1	-	1	0	15	0	-	15	0	0	14	-	14	30
% Other Vehicles	-	0.0	2.6	-	2.4	-	4.8	0.0	-	4.7	-	0.0	4.4	-	4.1	4.3
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (9:00 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

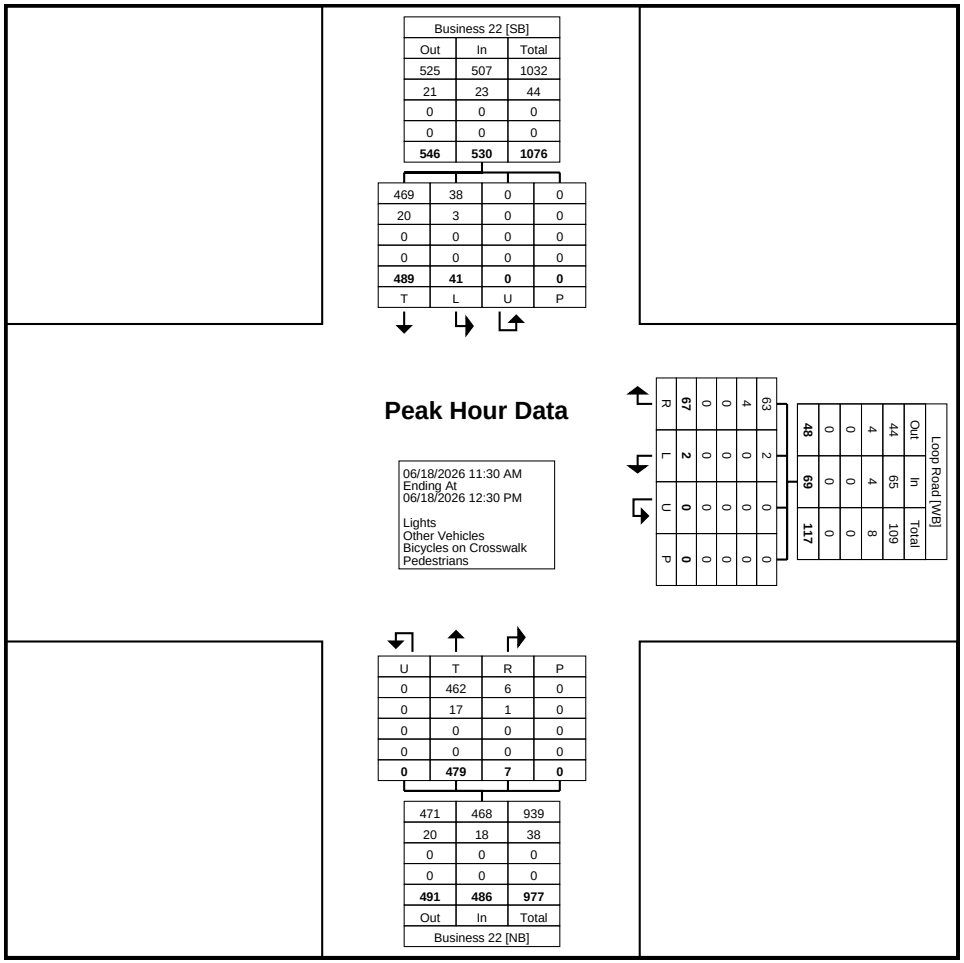
Turning Movement Peak Hour Data (11:30 AM)

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
11:30 AM	0	1	10	0	11	0	109	2	0	111	0	8	140	0	148	270
11:45 AM	0	0	12	0	12	0	118	2	0	120	0	13	96	0	109	241
12:00 PM	0	1	24	0	25	0	139	1	0	140	0	10	117	0	127	292
12:15 PM	0	0	21	0	21	0	113	2	0	115	0	10	136	0	146	282
Total	0	2	67	0	69	0	479	7	0	486	0	41	489	0	530	1085
Approach %	0.0	2.9	97.1	-	-	0.0	98.6	1.4	-	-	0.0	7.7	92.3	-	-	-
Total %	0.0	0.2	6.2	-	6.4	0.0	44.1	0.6	-	44.8	0.0	3.8	45.1	-	48.8	-
PHF	0.000	0.500	0.698	-	0.690	0.000	0.862	0.875	-	0.868	0.000	0.788	0.873	-	0.895	0.929
Lights	0	2	63	-	65	0	462	6	-	468	0	38	469	-	507	1040
% Lights	-	100.0	94.0	-	94.2	-	96.5	85.7	-	96.3	-	92.7	95.9	-	95.7	95.9
Other Vehicles	0	0	4	-	4	0	17	1	-	18	0	3	20	-	23	45
% Other Vehicles	-	0.0	6.0	-	5.8	-	3.5	14.3	-	3.7	-	7.3	4.1	-	4.3	4.1
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (11:30 AM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

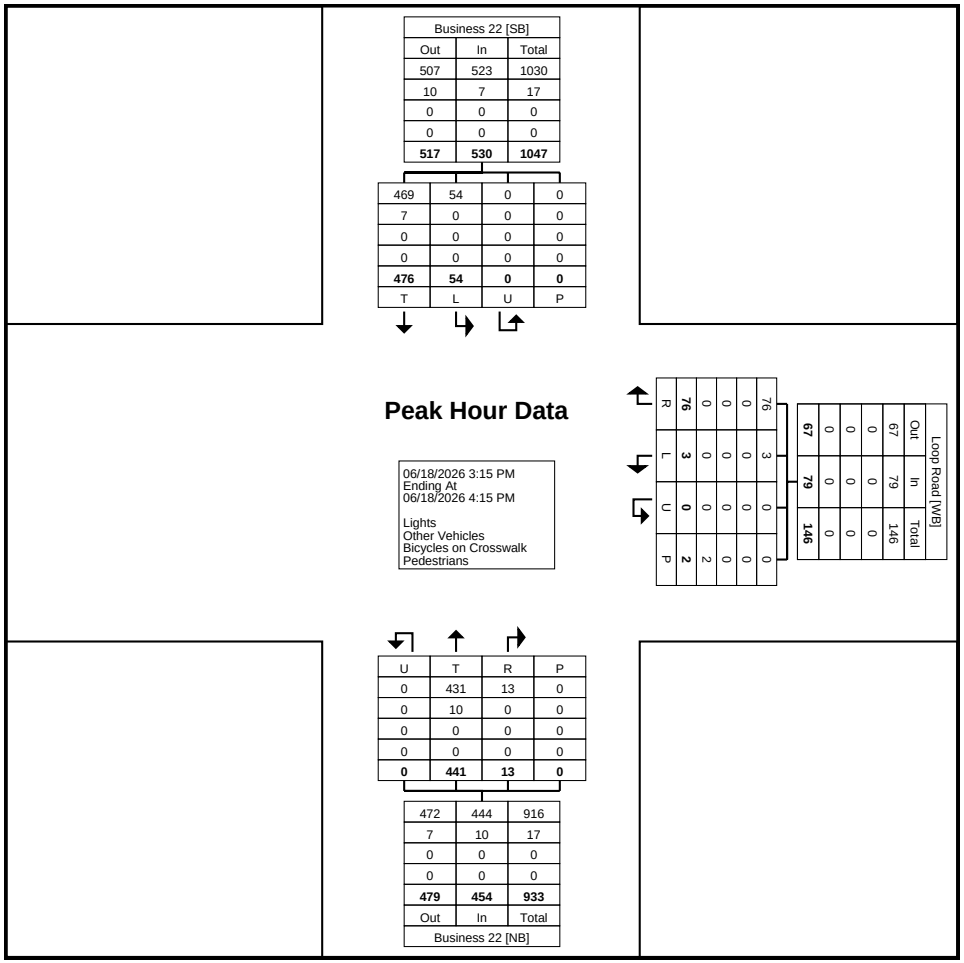
Turning Movement Peak Hour Data (3:15 PM)

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
3:15 PM	0	0	17	1	17	0	106	3	0	109	0	11	130	0	141	267
3:30 PM	0	2	19	0	21	0	114	0	0	114	0	11	110	0	121	256
3:45 PM	0	0	17	1	17	0	94	5	0	99	0	16	129	0	145	261
4:00 PM	0	1	23	0	24	0	127	5	0	132	0	16	107	0	123	279
Total	0	3	76	2	79	0	441	13	0	454	0	54	476	0	530	1063
Approach %	0.0	3.8	96.2	-	-	0.0	97.1	2.9	-	-	0.0	10.2	89.8	-	-	-
Total %	0.0	0.3	7.1	-	7.4	0.0	41.5	1.2	-	42.7	0.0	5.1	44.8	-	49.9	-
PHF	0.000	0.375	0.826	-	0.823	0.000	0.868	0.650	-	0.860	0.000	0.844	0.915	-	0.914	0.953
Lights	0	3	76	-	79	0	431	13	-	444	0	54	469	-	523	1046
% Lights	-	100.0	100.0	-	100.0	-	97.7	100.0	-	97.8	-	100.0	98.5	-	98.7	98.4
Other Vehicles	0	0	0	-	0	0	10	0	-	10	0	0	7	-	7	17
% Other Vehicles	-	0.0	0.0	-	0.0	-	2.3	0.0	-	2.2	-	0.0	1.5	-	1.3	1.6
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	2	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	-

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026



Turning Movement Peak Hour Data Plot (3:15 PM)

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100

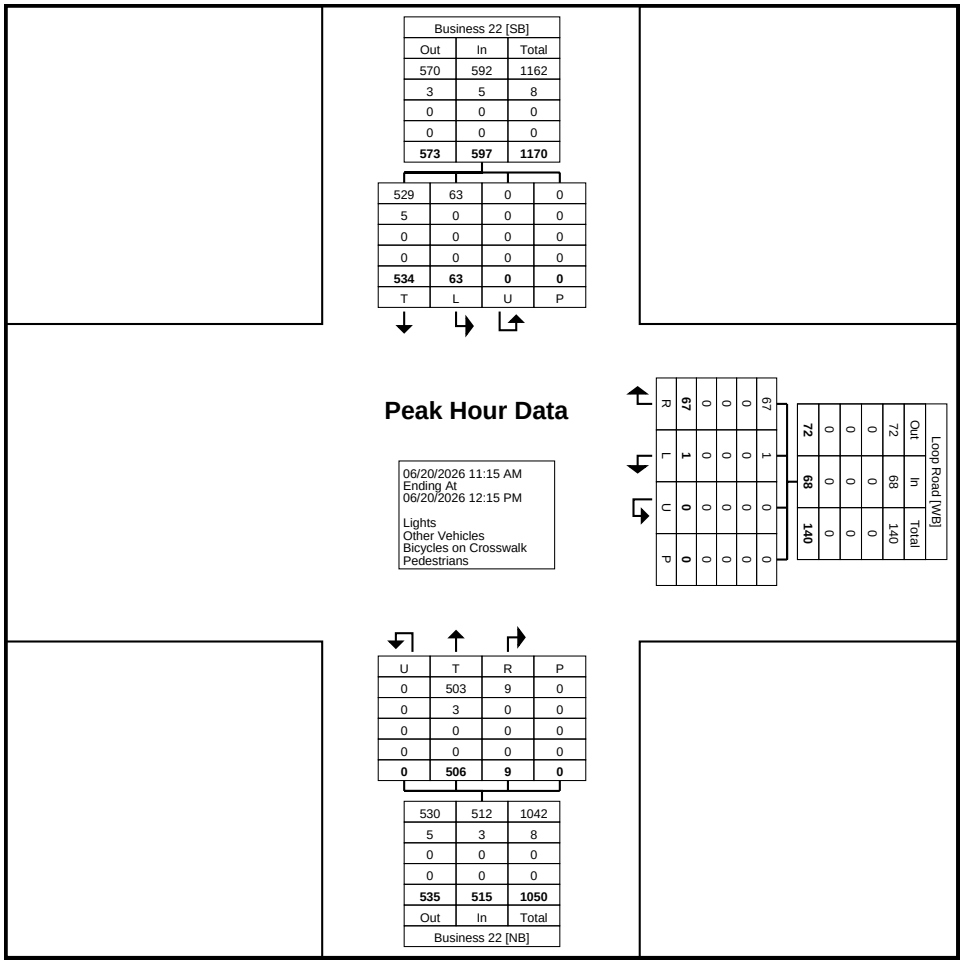
Count Name: 5. Business 22 & Loop Road
Site Code: 5
Start Date: 06/18/2026

Turning Movement Peak Hour Data (11:15 AM)

Start Time	Loop Road Westbound					Business 22 Northbound					Business 22 Southbound					
	U-Turn	Left	Right	Peds	App. Total	U-Turn	Thru	Right	Peds	App. Total	U-Turn	Left	Thru	Peds	App. Total	Int. Total
11:15 AM	0	0	17	0	17	0	132	3	0	135	0	14	117	0	131	283
11:30 AM	0	1	16	0	17	0	116	1	0	117	0	16	146	0	162	296
11:45 AM	0	0	19	0	19	0	115	1	0	116	0	17	126	0	143	278
12:00 PM	0	0	15	0	15	0	143	4	0	147	0	16	145	0	161	323
Total	0	1	67	0	68	0	506	9	0	515	0	63	534	0	597	1180
Approach %	0.0	1.5	98.5	-	-	0.0	98.3	1.7	-	-	0.0	10.6	89.4	-	-	-
Total %	0.0	0.1	5.7	-	5.8	0.0	42.9	0.8	-	43.6	0.0	5.3	45.3	-	50.6	-
PHF	0.000	0.250	0.882	-	0.895	0.000	0.885	0.563	-	0.876	0.000	0.926	0.914	-	0.921	0.913
Lights	0	1	67	-	68	0	503	9	-	512	0	63	529	-	592	1172
% Lights	-	100.0	100.0	-	100.0	-	99.4	100.0	-	99.4	-	100.0	99.1	-	99.2	99.3
Other Vehicles	0	0	0	-	0	0	3	0	-	3	0	0	5	-	5	8
% Other Vehicles	-	0.0	0.0	-	0.0	-	0.6	0.0	-	0.6	-	0.0	0.9	-	0.8	0.7
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Project: Highway 522 & Industrial Park
Municipality: Granville Township, Mifflin County, PA
Setup: KB
Location: 40.58551, -77.607787

Imperial Traffic & Data Collection
www.imperialtdc.com
1804 Haddonfield-Berlin Road
Cherry Hill, New Jersey, United States 08034
609-706-6100



Turning Movement Peak Hour Data Plot (11:15 AM)

Appendix K - Traffic Calculations

K.01 – Volume Development

WEEKDAY

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Hwy 522 S & Industrial Park Rd

Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	8:45 AM	0	0	10	0	**10**	2	0	0	0	**2**	12		0	0	**12**	0	0	0	0	**0**	**24**
8/27/2024	9:00 AM	0	0	9	0	**9**	0	0	0	0	**0**	7		1	0	**8**	0	0	0	0	**0**	**17**
8/27/2024	9:15 AM	0	0	3	0	**3**	1	0	0	0	**1**	17		0	0	**17**	0	0	0	0	**0**	**21**
8/27/2024	9:30 AM	0	0	6	0	**6**	0	0	0	0	**0**	14		0	0	**14**	0	0	0	0	**0**	**20**
Grand Total		0	0	28	0	**28**	3	0	0	0	**3**	50	0	1	0	**51**	0	0	0	0	**0**	**82**
% Approach		0.00%	0.00%	100.00%	0.00%		100.00%	0.00%	0.00%	0.00%		98.04%	0.00%	1.96%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	0.00%	34.15%	0.00%	**34.15%**	3.66%	0.00%	0.00%	0.00%	**3.66%**	60.98%	0.00%	1.22%	0.00%	**62.20%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.000	0.700	0.000	**0.700**	0.375	0.000	0.000	0.000	**0.375**	0.735	0.000	0.250	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	**0.854**
08:45 AM - 09:45 AM																						

Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	8:45 AM	0	0	9	0	**9**	2	0	0	0	**2**	12		0	0	**12**	0	0	0	0	**0**	**23**
8/27/2024	9:00 AM	0	0	8	0	**8**	0	0	0	0	**0**	7		0	0	**7**	0	0	0	0	**0**	**15**
8/27/2024	9:15 AM	0	0	3	0	**3**	0	0	0	0	**0**	16		0	0	**16**	0	0	0	0	**0**	**19**
8/27/2024	9:30 AM	0	0	6	0	**6**	0	0	0	0	**0**	14		0	0	**14**	0	0	0	0	**0**	**20**
Lights		0	0	26	0	**26**	2	0	0	0	**2**	49	0	0	0	**49**	0	0	0	0	**0**	**77**
% Lights		0.00%	0.00%	92.86%	0.00%	**92.86%**	66.67%	0.00%	0.00%	0.00%	**66.67%**	98.00%	0.00%	0.00%	0.00%	**96.08%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	2	0	**2**	1	0	0	0	**1**	1	0	1	0	**2**	0	0	0	0	**0**	**5**
% Heavy		0.00%	0.00%	7.14%	0.00%	**7.14%**	33.33%	0.00%	0.00%	0.00%	**33.33%**	2.00%	0.00%	100.00%	0.00%	**3.92%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Business 22 & Industrial Park Rd

Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	0	31	68	0	**99**	22	16	0	0	**38**	17	0	9	0	**26**	1	0	3	0	**4**	**167**
8/27/2024	6:30 AM	3	27	89	0	**119**	14	17	1	0	**32**	9	0	10	0	**19**	2	0	3	0	**5**	**175**
8/27/2024	6:45 AM	0	39	65	0	**104**	27	16	0	0	**43**	9	0	7	0	**16**	1	0	3	0	**4**	**167**
8/27/2024	7:00 AM	3	36	30	0	**69**	8	31	2	0	**41**	51	0	26	0	**77**	4	0	3	0	**7**	**194**
Grand Total		6	133	252	0	**391**	71	80	3	0	**154**	86	0	52	0	**138**	8	0	12	0	**20**	**703**
% Approach		1.53%	34.02%	64.45%	0.00%		46.10%	51.95%	1.95%	0.00%		62.32%	0.00%	37.68%	0.00%		40.00%	0.00%	60.00%	0.00%		
% Total		0.85%	18.92%	35.85%	0.00%	**55.62%**	10.10%	11.38%	0.43%	0.00%	**21.91%**	12.23%	0.00%	7.40%	0.00%	**19.63%**	1.14%	0.00%	1.71%	0.00%	**2.84%**	
PHF		0.500	0.853	0.708	0.000	**0.821**	0.657	0.645	0.375	0.000	**0.895**	0.422	0.000	0.500	0.000	**0.448**	0.500	0.000	1.000	0.000	**0.714**	**0.906**
06:15 AM - 07:15 AM																						

Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	0	31	66	0	**97**	22	15	0	0	**37**	13	0	8	0	**21**	1	0	3	0	**4**	**159**
8/27/2024	6:30 AM	3	27	86	0	**116**	14	17	1	0	**32**	9	0	9	0	**18**	2	0	3	0	**5**	**171**
8/27/2024	6:45 AM	0	37	62	0	**99**	24	16	0	0	**40**	9	0	7	0	**16**	1	0	3	0	**4**	**159**
8/27/2024	7:00 AM	3	36	20	0	**59**	8	30	1	0	**39**	49	0	24	0	**73**	4	0	2	0	**6**	**177**
Lights		6	131	234	0	**371**	68	78	2	0	**148**	80	0	48	0	**128**	8	0	11	0	**19**	**666**
% Lights		100.00%	98.50%	92.86%	0.00%	**94.88%**	95.77%	97.50%	66.67%	0.00%	**96.10%**	93.02%	0.00%	92.31%	0.00%	**92.75%**	100.00%	0.00%	91.67%	0.00%	**95.00%**	
Heavy		0	2	18	0	**20**	3	2	1	0	**6**	6	0	4	0	**10**	0	0	1	0	**1**	**37**
% Heavy		0.00%	1.50%	7.14%	0.00%	**5.12%**	4.23%	2.50%	33.33%	0.00%	**3.90%**	6.98%	0.00%	7.69%	0.00%	**7.25%**	0.00%	0.00%	8.33%	0.00%	**5.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Industrial Park Rd & Middle Rd

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	13	1	2	0	**16**	0	0	2	0	**2**	0	11	0	0	**11**	2	83	4	0	**89**	**118**
8/27/2024	6:30 AM	3	1	1	0	**5**	0	0	1	0	**1**	0	17	0	0	**17**	1	97	3	0	**101**	**124**
8/27/2024	6:45 AM	0	1	1	0	**2**	1	1	2	0	**4**	0	14	0	0	**14**	2	74	9	0	**85**	**105**
8/27/2024	7:00 AM	3	0	0	0	**3**	0	0	3	0	**3**	3	73	0	0	**76**	1	34	3	0	**38**	**120**
Grand Total		19	3	4	0	**26**	1	1	8	0	**10**	3	115	0	0	**118**	6	288	19	0	**313**	**467**
% Approach		73.08%	11.54%	15.38%	0.00%		10.00%	10.00%	80.00%	0.00%		2.54%	97.46%	0.00%	0.00%		1.92%	92.01%	6.07%	0.00%		
% Total		4.07%	0.64%	0.86%	0.00%	**5.57%**	0.21%	0.21%	1.71%	0.00%	**2.14%**	0.64%	24.63%	0.00%	0.00%	**25.27%**	1.28%	61.67%	4.07%	0.00%	**67.02%**	
PHF		0.365	0.750	0.500	0.000	**0.406**	0.250	0.250	0.667	0.000	**0.625**	0.250	0.394	0.000	0.000	**0.388**	0.750	0.742	0.528	0.000	**0.775**	**0.942**
06:15 AM - 07:15 AM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	12	1	2	0	**15**	0	0	2	0	**2**	0	7	0	0	**7**	2	81	4	0	**87**	**111**
8/27/2024	6:30 AM	3	1	1	0	**5**	0	0	0	0	**0**	0	17	0	0	**17**	1	95	3	0	**99**	**121**
8/27/2024	6:45 AM	0	1	1	0	**2**	1	1	2	0	**4**	0	13	0	0	**13**	2	72	7	0	**81**	**100**
8/27/2024	7:00 AM	3	0	0	0	**3**	0	0	2	0	**2**	3	70	0	0	**73**	0	24	3	0	**27**	**105**
Lights		18	3	4	0	**25**	1	1	6	0	**8**	3	107	0	0	**110**	5	272	17	0	**294**	**437**
% Lights		94.74%	100.00%	100.00%	0.00%	**96.15%**	100.00%	100.00%	75.00%	0.00%	**80.00%**	100.00%	93.04%	0.00%	0.00%	**93.22%**	83.33%	94.44%	89.47%	0.00%	**93.93%**	
Heavy		1	0	0	0	**1**	0	0	2	0	**2**	0	8	0	0	**8**	1	16	2	0	**19**	**30**
% Heavy		5.26%	0.00%	0.00%	0.00%	**3.85%**	0.00%	0.00%	25.00%	0.00%	**20.00%**	0.00%	6.96%	0.00%	0.00%	**6.78%**	16.67%	5.56%	10.53%	0.00%	**6.07%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Industrial Park Rd & Loop Rd

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	1	0	0	0	**1**	19	0	6	0	**25**	0	9	3	0	**12**	0	34	0	0	**34**	**72**
8/27/2024	6:30 AM	1	0	0	0	**1**	28	0	5	0	**33**	0	4	5	0	**9**	0	59	0	0	**59**	**102**
8/27/2024	6:45 AM	3	2	1	0	**6**	10	1	6	0	**17**	0	6	6	0	**12**	1	42	0	0	**43**	**78**
8/27/2024	7:00 AM	2	2	2	0	**6**	10	0	1	0	**11**	2	41	30	0	**73**	4	14	0	0	**18**	**108**
Grand Total		7	4	3	0	**14**	67	1	18	0	**86**	2	60	44	0	**106**	5	149	0	0	**154**	**360**
% Approach		50.00%	28.57%	21.43%	0.00%		77.91%	1.16%	20.93%	0.00%		1.89%	56.60%	41.51%	0.00%		3.25%	96.75%	0.00%	0.00%		
% Total		1.94%	1.11%	0.83%	0.00%	**3.89%**	18.61%	0.28%	5.00%	0.00%	**23.89%**	0.56%	16.67%	12.22%	0.00%	**29.44%**	1.39%	41.39%	0.00%	0.00%	42.78%	
PHF		0.583	0.500	0.375	0.000	**0.583**	0.598	0.250	0.750	0.000	**0.652**	0.250	0.366	0.367	0.000	**0.363**	0.313	0.631	0.000	0.000	**0.653**	**0.833**
06:15 AM - 07:15 AM																						

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	1	0	0	0	**1**	19	0	6	0	**25**	0	6	3	0	**9**	0	33	0	0	**33**	**68**
8/27/2024	6:30 AM	1	0	0	0	**1**	28	0	5	0	**33**	0	4	5	0	**9**	0	57	0	0	**57**	**100**
8/27/2024	6:45 AM	3	2	1	0	**6**	10	1	6	0	**17**	0	5	6	0	**11**	1	41	0	0	**42**	**76**
8/27/2024	7:00 AM	2	2	2	0	**6**	10	0	1	0	**11**	1	40	30	0	**71**	4	9	0	0	**13**	**101**
Lights		7	4	3	0	**14**	67	1	18	0	**86**	1	55	44	0	**100**	5	140	0	0	**145**	**345**
% Lights		100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	50.00%	91.67%	100.00%	0.00%	**94.34%**	100.00%	93.96%	0.00%	0.00%	**94.16%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	1	5	0	0	**6**	0	9	0	0	**9**	**15**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	50.00%	8.33%	0.00%	0.00%	**5.66%**	0.00%	6.04%	0.00%	0.00%	**5.84%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Business 22 & Loop Rd

Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	76	3	0	**79**	9	78	0	0	**87**	1		11	0	**12**	0	0	0	0	**0**	**178**
8/27/2024	9:15 AM	0	81	0	0	**81**	7	70	0	0	**77**	0		11	0	**11**	0	0	0	0	**0**	**169**
8/27/2024	9:30 AM	0	74	1	0	**75**	6	80	0	0	**86**	2		12	0	**14**	0	0	0	0	**0**	**175**
8/27/2024	9:45 AM	0	81	1	0	**82**	3	88	0	0	**91**	1		4	0	**5**	0	0	0	0	**0**	**178**
Grand Total		0	312	5	0	**317**	25	316	0	0	**341**	4	0	38	0	**42**	0	0	0	0	**0**	**700**
% Approach		0.00%	98.42%	1.58%	0.00%		7.33%	92.67%	0.00%	0.00%		9.52%	0.00%	90.48%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	44.57%	0.71%	0.00%	**45.29%**	3.57%	45.14%	0.00%	0.00%	**48.71%**	0.57%	0.00%	5.43%	0.00%	**6.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.963	0.417	0.000	**0.966**	0.694	0.898	0.000	0.000	**0.937**	0.500	0.000	0.792	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	**0.983**
09:00 AM - 10:00 AM																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	74	3	0	**77**	9	76	0	0	**85**	1		11	0	**12**	0	0	0	0	**0**	**174**
8/27/2024	9:15 AM	0	77	0	0	**77**	7	65	0	0	**72**	0		10	0	**10**	0	0	0	0	**0**	**159**
8/27/2024	9:30 AM	0	70	1	0	**71**	6	77	0	0	**83**	2		12	0	**14**	0	0	0	0	**0**	**168**
8/27/2024	9:45 AM	0	76	1	0	**77**	3	84	0	0	**87**	1		4	0	**5**	0	0	0	0	**0**	**169**
Lights		0	297	5	0	**302**	25	302	0	0	**327**	4	0	37	0	**41**	0	0	0	0	**0**	**670**
% Lights		0.00%	95.19%	100.00%	0.00%	**95.27%**	100.00%	95.57%	0.00%	0.00%	**95.89%**	100.00%	0.00%	97.37%	0.00%	**97.62%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	15	0	0	**15**	0	14	0	0	**14**	0	0	1	0	**1**	0	0	0	0	**0**	**30**
% Heavy		0.00%	4.81%	0.00%	0.00%	**4.73%**	0.00%	4.43%	0.00%	0.00%	**4.11%**	0.00%	0.00%	2.63%	0.00%	**2.38%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Loop Rd & Western Site Access

Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	6:45 AM	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	7:00 AM	0	6	0	0	**6**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
8/27/2024	7:15 AM	0	2	0	0	**2**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
8/27/2024	7:30 AM	0	2	0	0	**2**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**3**
Grand Total		0	16	0	0	**16**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**23**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	69.57%	0.00%	0.00%	**69.57%**	0.00%	30.43%	0.00%	0.00%	**30.43%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.667	0.000	0.000	**0.667**	0.000	0.583	0.000	0.000	**0.583**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.719**
06:45 AM - 07:45 AM																						

Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	6:45 AM	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	7:00 AM	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	7:15 AM	0	2	0	0	**2**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
8/27/2024	7:30 AM	0	2	0	0	**2**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**3**
Lights		0	16	0	0	**16**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**22**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	85.71%	0.00%	0.00%	**85.71%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**1**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	14.29%	0.00%	0.00%	**14.29%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Loop Rd & Eastern Site Access

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound				Site Access Southbound				
Direction																		
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
8/27/2024	6:45 AM	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	7:00 AM	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	8
8/27/2024	7:15 AM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8/27/2024	7:30 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Grand Total		0	16	0	0	16	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	23
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	69.57%	0.00%	0.00%	**69.57%**	0.00%	30.43%	0.00%	0.00%	**30.43%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.667	0.000	0.000	**0.667**	0.000	0.583	0.000	0.000	**0.583**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.719**
06:45 AM - 07:45 AM																						

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound				Site Access Southbound				
Direction																		
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
8/27/2024	6:45 AM	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	7:00 AM	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	7:15 AM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8/27/2024	7:30 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Lights		0	16	0	0	16	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	22
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	85.71%	0.00%	0.00%	**85.71%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	14.29%	0.00%	0.00%	**14.29%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

Middle Rd & Western Site Access

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound				0 Southbound				
Direction																		
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
8/27/2024	8:45 AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	9:00 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	9:15 AM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
8/27/2024	9:30 AM	0	13	0	0	13	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	14
Grand Total		0	25	0	0	25	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	36
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	69.44%	0.00%	0.00%	**69.44%**	0.00%	30.56%	0.00%	0.00%	**30.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.481	0.000	0.000	**0.481**	0.000	0.550	0.000	0.000	**0.550**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.643**
08:45 AM - 09:45 AM																						

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound				0 Southbound				
Direction																		
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
8/27/2024	8:45 AM	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	6
8/27/2024	9:00 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	9:15 AM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
8/27/2024	9:30 AM	0	10	0	0	10	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	11
Lights		0	21	0	0	21	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	31
% Lights		0.00%	84.00%	0.00%	0.00%	**84.00%**	0.00%	90.91%	0.00%	0.00%	**90.91%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
% Heavy		0.00%	16.00%	0.00%	0.00%	**16.00%**	0.00%	9.09%	0.00%	0.00%	**9.09%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Middle Rd & Eastern Site Access

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	8:45 AM	0	5	0	0	**5**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	9:00 AM	0	4	0	0	**4**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	9:15 AM	0	3	0	0	**3**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**6**
Grand Total		0	25	0	0	**25**	0	11	0	0	**11**	0	0	0	0	**0**	0	0	0	0	**0**	**36**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	69.44%	0.00%	0.00%	**69.44%**	0.00%	30.56%	0.00%	0.00%	**30.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.481	0.000	0.000	**0.481**	0.000	0.550	0.000	0.000	**0.550**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.643**
08:45 AM - 09:45 AM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	8:45 AM	0	5	0	0	**5**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**6**
8/27/2024	9:00 AM	0	4	0	0	**4**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	9:15 AM	0	2	0	0	**2**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
Lights		0	21	0	0	**21**	0	10	0	0	**10**	0	0	0	0	**0**	0	0	0	0	**0**	**31**
% Lights		0.00%	84.00%	0.00%	0.00%	**84.00%**	0.00%	90.91%	0.00%	0.00%	**90.91%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	4	0	0	**4**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**5**
% Heavy		0.00%	16.00%	0.00%	0.00%	**16.00%**	0.00%	9.09%	0.00%	0.00%	**9.09%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Hwy 522 S & Industrial Park Rd

Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	3:00 PM	0	0	9	0	**9**	1	0	0	0	**1**	19		1	1	**21**	0	0	0	0	**0**	**31**
8/27/2024	3:15 PM	0	0	8	0	**8**	0	0	0	0	**0**	13		0	0	**13**	0	0	0	0	**0**	**21**
8/27/2024	3:30 PM	0	0	10	0	**10**	1	0	0	0	**1**	21		0	0	**21**	0	0	0	0	**0**	**32**
8/27/2024	3:45 PM	0	0	13	0	**13**	0	0	0	0	**0**	20		1	0	**21**	0	0	0	0	**0**	**34**
Grand Total		0	0	40	0	**40**	2	0	0	0	**2**	73	0	2	1	**76**	0	0	0	0	**0**	**118**
% Approach		0.00%	0.00%	100.00%	0.00%		100.00%	0.00%	0.00%	0.00%		96.05%	0.00%	2.63%	1.32%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	0.00%	33.90%	0.00%	**33.90%**	1.69%	0.00%	0.00%	0.00%	**1.69%**	61.86%	0.00%	1.69%	0.85%	**64.41%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.000	0.769	0.000	**0.769**	0.500	0.000	0.000	0.000	**0.500**	0.869	0.000	0.500	0.250	**0.905**	0.000	0.000	0.000	0.000	**0.000**	**0.868**
03:00 PM - 04:00 PM																						
Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	3:00 PM	0	0	9	0	**9**	1	0	0	0	**1**	19		1	1	**21**	0	0	0	0	**0**	**31**
8/27/2024	3:15 PM	0	0	8	0	**8**	0	0	0	0	**0**	12		0	0	**12**	0	0	0	0	**0**	**20**
8/27/2024	3:30 PM	0	0	10	0	**10**	1	0	0	0	**1**	19		0	0	**19**	0	0	0	0	**0**	**30**
8/27/2024	3:45 PM	0	0	13	0	**13**	0	0	0	0	**0**	20		1	0	**21**	0	0	0	0	**0**	**34**
Lights		0	0	40	0	**40**	2	0	0	0	**2**	70	0	2	1	**73**	0	0	0	0	**0**	**115**
% Lights		0.00%	0.00%	100.00%	0.00%	**100.00%**	100.00%	0.00%	0.00%	0.00%	**100.00%**	95.89%	0.00%	100.00%	100.00%	**96.05%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	3	0	0	0	**3**	0	0	0	0	**0**	**3**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	4.11%	0.00%	0.00%	0.00%	**3.95%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Business 22 & Industrial Park Rd

Leg		Business 22					Business 22					Industrial Park Rd					Industrial Park Rd					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	2:15 PM	0	74	20	0	**94**	14	82	7	0	**103**	18	0	16	0	**34**	4	0	3	0	**7**	**238**
8/27/2024	2:30 PM	1	65	18	0	**84**	12	69	6	0	**87**	121	1	97	0	**219**	14	0	14	0	**28**	**418**
8/27/2024	2:45 PM	1	66	16	0	**83**	4	83	20	0	**107**	43	0	26	0	**69**	4	0	7	0	**11**	**270**
8/27/2024	3:00 PM	11	64	22	0	**97**	2	62	11	0	**75**	61	0	18	0	**79**	4	0	6	0	**10**	**261**
Grand Total		13	269	76	0	**358**	32	296	44	0	**372**	243	1	157	0	**401**	26	0	30	0	**56**	**1187**
% Approach		0	1	0	0		0	1	0	0		1	0	0	0		0	0	1	0		
% Total		0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	
PHF		0.295	0.909	0.864	0.000	**0.923**	0.571	0.892	0.550	0.000	**0.869**	0.502	0.250	0.405	0.000	**0.458**	0.464	0.000	0.536	0.000	**0.500**	**0.710**
02:15 PM - 03:15 PM																						

Leg		Business 22					Business 22					Industrial Park Rd					Industrial Park Rd					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	2:15 PM	0	73	18	0	**91**	14	82	7	0	**103**	13	0	13	0	**26**	4	0	3	0	**7**	**227**
8/27/2024	2:30 PM	1	63	14	0	**78**	10	68	6	0	**84**	117	1	97	0	**215**	14	0	14	0	**28**	**405**
8/27/2024	2:45 PM	1	65	14	0	**80**	4	82	20	0	**106**	35	0	26	0	**61**	4	0	7	0	**11**	**258**
8/27/2024	3:00 PM	11	63	17	0	**91**	2	61	11	0	**74**	58	0	18	0	**76**	4	0	6	0	**10**	**251**
Lights		13	264	63	0	**340**	30	293	44	0	**367**	223	1	154	0	**378**	26	0	30	0	**56**	**1141**
% Lights		100.00%	98.14%	82.89%	0.00%	**94.97%**	93.75%	98.99%	100.00%	0.00%	**98.66%**	91.77%	100.00%	98.09%	0.00%	**94.26%**	100.00%	0.00%	100.00%	0.00%	**100.00%**	
Heavy		0	5	13	0	**18**	2	3	0	0	**5**	20	0	3	0	**23**	0	0	0	0	**0**	**46**
% Heavy		0.00%	1.86%	17.11%	0.00%	**5.03%**	6.25%	1.01%	0.00%	0.00%	**1.34%**	8.23%	0.00%	1.91%	0.00%	**5.74%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Industrial Park Rd & Middle Rd

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	2:15 PM	2	0	0	0	**2**	1	1	1	0	**3**	1	31	0	0	**32**	3	27	4	0	**34**	**71**
8/27/2024	2:30 PM	11	4	0	0	**15**	2	2	2	0	**6**	2	216	2	0	**220**	4	22	4	0	**30**	**271**
8/27/2024	2:45 PM	5	3	0	0	**8**	0	1	3	0	**4**	0	60	4	0	**64**	4	12	3	0	**19**	**95**
8/27/2024	3:00 PM	13	5	0	0	**18**	0	2	3	0	**5**	2	63	1	0	**66**	6	13	3	0	**22**	**111**
Grand Total		31	12	0	0	**43**	3	6	9	0	**18**	5	370	7	0	**382**	17	74	14	0	**105**	**548**
% Approach		72.09%	27.91%	0.00%	0.00%		16.67%	33.33%	50.00%	0.00%		1.31%	96.86%	1.83%	0.00%		16.19%	70.48%	13.33%	0.00%		
% Total		5.66%	2.19%	0.00%	0.00%	**7.85%**	0.55%	1.09%	1.64%	0.00%	**3.28%**	0.91%	67.52%	1.28%	0.00%	**69.71%**	3.10%	13.50%	2.55%	0.00%	**19.16%**	
PHF		0.596	0.600	0.000	0.000	**0.597**	0.375	0.750	0.750	0.000	**0.750**	0.625	0.428	0.438	0.000	**0.434**	0.708	0.685	0.875	0.000	**0.772**	**0.506**
02:15 PM - 03:15 PM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	2:15 PM	2	0	0	0	**2**	1	1	1	0	**3**	1	23	0	0	**24**	3	25	4	0	**32**	**61**
8/27/2024	2:30 PM	11	4	0	0	**15**	2	2	2	0	**6**	2	212	2	0	**216**	2	17	3	0	**22**	**259**
8/27/2024	2:45 PM	4	3	0	0	**7**	0	1	3	0	**4**	0	54	4	0	**58**	3	12	3	0	**18**	**87**
8/27/2024	3:00 PM	13	5	0	0	**18**	0	2	2	0	**4**	2	62	1	0	**65**	6	9	3	0	**18**	**105**
Lights		30	12	0	0	**42**	3	6	8	0	**17**	5	351	7	0	**363**	14	63	13	0	**90**	**512**
% Lights		96.77%	100.00%	0.00%	0.00%	**97.67%**	100.00%	100.00%	88.89%	0.00%	**94.44%**	100.00%	94.86%	100.00%	0.00%	**95.03%**	82.35%	85.14%	92.86%	0.00%	**85.71%**	
Heavy		1	0	0	0	**1**	0	0	1	0	**1**	0	19	0	0	**19**	3	11	1	0	**15**	**36**
% Heavy		3.23%	0.00%	0.00%	0.00%	**2.33%**	0.00%	0.00%	11.11%	0.00%	**5.56%**	0.00%	5.14%	0.00%	0.00%	**4.97%**	17.65%	14.86%	7.14%	0.00%	**14.29%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Industrial Park Rd & Loop Rd

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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**
8/27/2024	3:00 PM	2	3	0	0	**5**	5	4	0	0	**9**	0	33	16	0	**49**	5	8	2	0	**15**	**78**
8/27/2024	3:15 PM	1	2	1	0	**4**	3	1	0	0	**4**	0	13	7	0	**20**	1	5	4	0	**10**	**38**
8/27/2024	3:30 PM	4	0	0	0	**4**	3	1	0	0	**4**	0	24	7	0	**31**	1	6	0	0	**7**	**46**
8/27/2024	3:45 PM	0	0	0	0	**0**	5	5	0	0	**10**	0	19	11	0	**30**	2	5	3	0	**10**	**50**
Grand Total		7	5	1	0	**13**	16	11	0	0	**27**	0	89	41	0	**130**	9	24	9	0	**42**	**212**
% Approach		53.85%	38.46%	7.69%	0.00%		59.26%	40.74%	0.00%	0.00%		0.00%	68.46%	31.54%	0.00%		21.43%	57.14%	21.43%	0.00%		
% Total		3.30%	2.36%	0.47%	0.00%	**6.13%**	7.55%	5.19%	0.00%	0.00%	**12.74%**	0.00%	41.98%	19.34%	0.00%	**61.32%**	4.25%	11.32%	4.25%	0.00%	19.81%	
PHF		0.438	0.417	0.250	0.000	**0.650**	0.800	0.550	0.000	0.000	**0.675**	0.000	0.674	0.641	0.000	**0.663**	0.450	0.750	0.563	0.000	**0.700**	**0.679**
03:00 PM - 04:00 PM																						

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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**
8/27/2024	3:00 PM	2	3	0	0	**5**	5	4	0	0	**9**	0	32	16	0	**48**	5	5	2	0	**12**	**74**
8/27/2024	3:15 PM	1	2	1	0	**4**	3	1	0	0	**4**	0	12	7	0	**19**	1	4	4	0	**9**	**36**
8/27/2024	3:30 PM	4	0	0	0	**4**	3	1	0	0	**4**	0	21	7	0	**28**	1	3	0	0	**4**	**40**
8/27/2024	3:45 PM	0	0	0	0	**0**	5	5	0	0	**10**	0	15	11	0	**26**	2	3	3	0	**8**	**44**
Lights		7	5	1	0	**13**	16	11	0	0	**27**	0	80	41	0	**121**	9	15	9	0	**33**	**194**
% Lights		100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	89.89%	100.00%	0.00%	**93.08%**	100.00%	62.50%	100.00%	0.00%	**78.57%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	9	0	0	**9**	0	9	0	0	**9**	**18**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	10.11%	0.00%	0.00%	**6.92%**	0.00%	37.50%	0.00%	0.00%	**21.43%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Business 22 & Loop Rd																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	4:15 PM	0	113	1	0	**114**	10	134	0	0	**144**	0		13	0	**13**	0	0	0	0	**0**	**271**
8/27/2024	4:30 PM	0	124	3	0	**127**	11	137	0	0	**148**	2		17	0	**19**	0	0	0	0	**0**	**294**
8/27/2024	4:45 PM	0	127	3	0	**130**	8	115	0	0	**123**	2		17	0	**19**	0	0	0	0	**0**	**272**
8/27/2024	5:00 PM	0	123	3	0	**126**	7	137	0	0	**144**	0		18	0	**18**	0	0	0	0	**0**	**288**
Grand Total		0	487	10	0	**497**	36	523	0	0	**559**	4	0	65	0	**69**	0	0	0	0	**0**	**1125**
% Approach		0.00%	97.99%	2.01%	0.00%		6.44%	93.56%	0.00%	0.00%		5.80%	0.00%	94.20%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	43.29%	0.89%	0.00%	**44.18%**	3.20%	46.49%	0.00%	0.00%	**49.69%**	0.36%	0.00%	5.78%	0.00%	**6.13%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.959	0.833	0.000	**0.956**	0.818	0.954	0.000	0.000	**0.944**	0.500	0.000	0.903	0.000	**0.908**	0.000	0.000	0.000	0.000	**0.000**	**0.957**
04:15 PM - 05:15 PM																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	4:15 PM	0	111	1	0	**112**	10	134	0	0	**144**	0		9	0	**9**	0	0	0	0	**0**	**265**
8/27/2024	4:30 PM	0	123	3	0	**126**	11	136	0	0	**147**	2		17	0	**19**	0	0	0	0	**0**	**292**
8/27/2024	4:45 PM	0	126	3	0	**129**	8	113	0	0	**121**	2		17	0	**19**	0	0	0	0	**0**	**269**
8/27/2024	5:00 PM	0	122	3	0	**125**	7	133	0	0	**140**	0		18	0	**18**	0	0	0	0	**0**	**283**
Lights		0	482	10	0	**492**	36	516	0	0	**552**	4	0	61	0	**65**	0	0	0	0	**0**	**1109**
% Lights		0.00%	98.97%	100.00%	0.00%	**98.99%**	100.00%	98.66%	0.00%	0.00%	**98.75%**	100.00%	0.00%	93.85%	0.00%	**94.20%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	5	0	0	**5**	0	7	0	0	**7**	0	0	4	0	**4**	0	0	0	0	**0**	**16**
% Heavy		0.00%	1.03%	0.00%	0.00%	**1.01%**	0.00%	1.34%	0.00%	0.00%	**1.25%**	0.00%	0.00%	6.15%	0.00%	**5.80%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Loop Rd & Western Site Access																						
Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	4:00 PM	0	4	0	0	**4**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	4:15 PM	0	6	0	0	**6**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	4:30 PM	0	7	0	0	**7**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
8/27/2024	4:45 PM	0	5	0	0	**5**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
Grand Total		0	22	0	0	**22**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**44**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.786	0.000	0.000	**0.786**	0.000	0.786	0.000	0.000	**0.786**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.917**
04:00 PM - 05:00 PM																						
Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	4:00 PM	0	4	0	0	**4**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	4:15 PM	0	6	0	0	**6**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	4:30 PM	0	7	0	0	**7**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
8/27/2024	4:45 PM	0	5	0	0	**5**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
Lights		0	22	0	0	**22**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**44**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Loop Rd & Eastern Site Access

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound				Site Access Southbound				
Direction																		
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	4:00 PM	0	4	0	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	4:15 PM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	4:30 PM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
Grand Total		0	22	0	0	22	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	44
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.786	0.000	0.000	**0.786**	0.000	0.786	0.000	0.000	**0.786**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.917**
04:00 PM - 05:00 PM																						

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound				Site Access Southbound				
Direction																		
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	4:00 PM	0	4	0	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	4:15 PM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	4:30 PM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
Lights		0	22	0	0	22	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	44
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

Middle Rd & Western Site Access

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound				0 Southbound				
Direction																		
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	2:30 PM	0	10	0	0	10	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	16
8/27/2024	2:45 PM	0	11	0	0	11	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	15
8/27/2024	3:00 PM	0	12	0	0	12	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	17
Grand Total		0	37	0	0	37	0	23	0	0	23	0	0	0	0	0	0	0	0	0	0	60
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	61.67%	0.00%	0.00%	**61.67%**	0.00%	38.33%	0.00%	0.00%	**38.33%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.771	0.000	0.000	**0.771**	0.000	0.719	0.000	0.000	**0.719**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.882**
02:30 PM - 03:30 PM																						

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound				0 Southbound				
Direction																		
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	2:30 PM	0	8	0	0	8	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	14
8/27/2024	2:45 PM	0	10	0	0	10	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	14
8/27/2024	3:00 PM	0	12	0	0	12	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	16
Lights		0	34	0	0	34	0	22	0	0	22	0	0	0	0	0	0	0	0	0	0	56
% Lights		0.00%	91.89%	0.00%	0.00%	**91.89%**	0.00%	95.65%	0.00%	0.00%	**95.65%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
% Heavy		0.00%	8.11%	0.00%	0.00%	**8.11%**	0.00%	4.35%	0.00%	0.00%	**4.35%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Middle Rd & Eastern Site Access

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	2:30 PM	0	10	0	0	**10**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
8/27/2024	2:45 PM	0	11	0	0	**11**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**15**
8/27/2024	3:00 PM	0	12	0	0	**12**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**17**
Grand Total		0	37	0	0	**37**	0	23	0	0	**23**	0	0	0	0	**0**	0	0	0	0	**0**	**60**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	61.67%	0.00%	0.00%	**61.67%**	0.00%	38.33%	0.00%	0.00%	**38.33%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.771	0.000	0.000	**0.771**	0.000	0.719	0.000	0.000	**0.719**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.882**
02:30 PM - 03:30 PM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	2:30 PM	0	8	0	0	**8**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**14**
8/27/2024	2:45 PM	0	10	0	0	**10**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**14**
8/27/2024	3:00 PM	0	12	0	0	**12**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**16**
Lights		0	34	0	0	**34**	0	22	0	0	**22**	0	0	0	0	**0**	0	0	0	0	**0**	**56**
% Lights		0.00%	91.89%	0.00%	0.00%	**91.89%**	0.00%	95.65%	0.00%	0.00%	**95.65%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	3	0	0	**3**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**4**
% Heavy		0.00%	8.11%	0.00%	0.00%	**8.11%**	0.00%	4.35%	0.00%	0.00%	**4.35%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	Hwy 522 S & Industrial Park Rd	EB U			3%	35	0.85	0.0%	0	0	0			0	0			0.85	0.0%
		EB L						0.0%	0	0	0			0	0				0.0%
		EB T	16'					0.0%	0	0	0			0	0				0.0%
		EB R	16'	125'				7.0%	28	29	30			29	30				7.0%
		WB U			2%	25		0.0%	0	0	0			0	0				0.0%
		WB L	13'					33.0%	3	3	3			3	3				33.0%
		WB T	13'					0.0%	0	0	0			0	0				0.0%
		WB R						0.0%	0	0	0			0	0				0.0%
		NB U			-1%	25		0.0%	0	0	0			0	0				0.0%
		NB L	14'					2.0%	50	51	53			51	53				2.0%
		NB T						0.0%	0	0	0			0	0				0.0%
		NB R	14'					100.0%	1	1	1			1	1				100.0%
		SB U						0.0%	0	0	0			0	0				0.0%
		SB L						0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R						0.0%	0	0	0			0	0				0.0%
2	Business 22 & Industrial Park Rd	EB U			-2%	30	0.91	0.0%	0	0	0			0	0			0.91	0.0%
		EB L	13'	365'				0.0%	6	6	6			6	6				0.0%
		EB T	12'					2.0%	133	137	140			137	140				2.0%
		EB R	15'	250'				7.0%	252	259	266	96		355	362				6.0%
		WB U			2%	30		0.0%	0	0	0			0	0				0.0%
		WB L	13'	160'				4.0%	71	73	75	6		79	81				4.0%
		WB T	12'	160'				3.0%	80	82	84			82	84				3.0%
		WB R	12'					33.0%	3	3	3			3	3				33.0%
		NB U			3%	25		0.0%	0	0	0			0	0				0.0%
		NB L	12'	150'				7.0%	86	89	91	33		122	124				6.0%
		NB T	12'					0.0%	0	0	0			0	0				0.0%
		NB R	12'	150'				8.0%	52	54	55	2		56	57				8.0%
		SB U			2%	25		0.0%	0	0	0			0	0				0.0%
		SB L	16'					0.0%	8	8	8			8	8				0.0%
		SB T	16'					0.0%	0	0	0			0	0				0.0%
		SB R						8.0%	12	12	13			12	13				8.0%

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Industrial Park Rd & Middle Rd	EB U			0%	35	0.94	0.0%	0	0	0			0	0			0.94	0.0%
		EB L	12'					5.0%	19	20	20			20	20				5.0%
		EB T	12'					0.0%	3	3	3			3	3				0.0%
		EB R	12'					0.0%	4	4	4			4	4				0.0%
		WB U			1%	35		0.0%	0	0	0			0	0				0.0%
		WB L	11'					0.0%	1	1	1			1	1				0.0%
		WB T	11'					0.0%	1	1	1			1	1				0.0%
		WB R	11'					25.0%	8	8	8	7		15	15				14.0%
		NB U			1%	35		0.0%	0	0	0			0	0				0.0%
		NB L	15'					0.0%	3	3	3			3	3				0.0%
		NB T	15'					7.0%	115	118	121	28		146	149				6.0%
		NB R	15'					0.0%	0	0	0			0	0				0.0%
		SB U			-3%	35		0.0%	0	0	0			0	0				0.0%
		SB L	13'					17.0%	6	6	6	21		27	27				5.0%
		SB T	13'					6.0%	288	296	304	81		377	385				5.0%
		SB R	13'					11.0%	19	20	20			20	20				11.0%
4	Industrial Park Rd & Loop Rd	EB U			1%	35	0.83	0.0%	0	0	0			0	0			0.83	0.0%
		EB L	12'					0.0%	7	7	7	28		35	35				2.0%
		EB T	12'					0.0%	4	4	4			4	4				0.0%
		EB R	12'					0.0%	3	3	3			3	3				0.0%
		WB U			-2%	35		0.0%	0	0	0			0	0				0.0%
		WB L	10'					0.0%	67	69	71			69	71				0.0%
		WB T	10'					0.0%	1	1	1	1		2	2				2.0%
		WB R	10'					0.0%	18	19	19			19	19				0.0%
		NB U			-2%	35		0.0%	0	0	0			0	0				0.0%
		NB L	12'					50.0%	2	2	2			2	2				50.0%
		NB T	12'					8.0%	60	62	63			62	63				8.0%
		NB R	12'					0.0%	44	45	46			45	46				0.0%
		SB U			0%	35		0.0%	0	0	0			0	0				0.0%
		SB L	13'					0.0%	5	5	5			5	5				0.0%
		SB T	13'					6.0%	149	153	157			153	157				6.0%
		SB R	13'					0.0%	0	0	0	81		81	81				2.0%

LIVIC civil

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	Business 22 & Loop Rd	EB U			1%	45	0.98	0.0%	0	0	0			0	0			0.98	0.0%
		EB L	12'					0.0%	0	0	0			0	0				0.0%
		EB T	12'					5.0%	312	321	329	2		323	331				5.0%
		EB R	12'					0.0%	5	5	5			5	5				0.0%
		WB U			-3%	45		0.0%	0	0	0			0	0				0.0%
		WB L	12'					0.0%	25	26	26			26	26				0.0%
		WB T	12'					4.0%	316	325	333	6		331	339				4.0%
		WB R	12'					0.0%	0	0	0			0	0				0.0%
		NB U			3%	35		0.0%	0	0	0			0	0				0.0%
		NB L	15'					0.0%	4	4	4			4	4				0.0%
		NB T	15'					0.0%	0	0	0			0	0				0.0%
		NB R	15'					3.0%	38	39	40			39	40				3.0%
		SB U						0.0%	0	0	0			0	0				0.0%
		SB L						0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R						0.0%	0	0	0			0	0				0.0%
6	Loop Rd & Western Site Access	EB U			-3%	25	0.72	0.0%	0	0	0			0	0			0.72	0.0%
		EB L	10'					0.0%	0	0	0			0	0				0.0%
		EB T	10'					0.0%	16	16	17			16	17				0.0%
		EB R	10'					0.0%	0	0	0			0	0				0.0%
		WB U			2%	25		0.0%	0	0	0			0	0				0.0%
		WB L	10'					0.0%	0	0	0			0	0				0.0%
		WB T	10'					14.0%	7	7	7			7	7				14.0%
		WB R	10'					0.0%	0	0	0			0	0				0.0%
		NB U						0.0%	0	0	0			0	0				0.0%
		NB L						0.0%	0	0	0			0	0				0.0%
		NB T						0.0%	0	0	0			0	0				0.0%
		NB R						0.0%	0	0	0			0	0				0.0%
		SB U			2%	15		0.0%	0	0	0			0	0				0.0%
		SB L	12'					0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R	12'					0.0%	0	0	0			0	0				0.0%

JOB	Granville Data Center
SHEET	
CALC BY	JBS DATE ######
CHKD BY	HRZ DATE ######
SUBJECT	PM Volume Calculations

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	Hwy 522 S & Industrial Park Rd	EB U	'	'	3.0%	35	0.87	0.0%	0	0	0			0	0	'	'	0.87	0.0%
		EB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	16'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB R	16'	125'				0.0%	40	41	42			41	42	'	'		0.0%
		WB U	'	'	1.5%	25		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	13'	'				0.0%	2	2	2			2	2	'	'		0.0%
		WB T	13'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	-1.0%	25		0.0%	1	1	1			1	1	'	'		0.0%
		NB L	14'	'				4.0%	73	75	77			75	77	'	'		4.0%
		NB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	14'	'				0.0%	2	2	2			2	2	'	'		0.0%
		SB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
2	Business 22 & Industrial Park Rd	EB U	'	'	-2.0%	30	0.71	0.0%	0	0	0			0	0	'	'	0.71	0.0%
		EB L	13'	365'				0.0%	13	13	14			13	14	'	'		0.0%
		EB T	12'	'				2.0%	269	277	284			277	284	'	'		2.0%
		EB R	15'	250'				17.0%	76	78	80	40		118	120	'	'		12.0%
		WB U	'	'	2.0%	30		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	13'	160'				6.0%	32	33	34	3		36	37	'	'		6.0%
		WB T	12'	160'				1.0%	296	305	312			305	312	'	'		1.0%
		WB R	12'	'				0.0%	44	45	46			45	46	'	'		0.0%
		NB U	'	'	3.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	12'	150'				8.0%	243	250	256	74		324	330	'	'		7.0%
		NB T	12'	'				0.0%	1	1	1			1	1	'	'		0.0%
		NB R	12'	150'				2.0%	157	162	165	5		167	170	'	'		2.0%
		SB U	'	'	2.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	16'	'				0.0%	26	27	27			27	27	'	'		0.0%
		SB T	16'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	30	31	32			31	32	'	'		0.0%

JOB	Granville Data Center
SHEET	
CALC BY	JBS DATE ######
CHKD BY	HRZ DATE ######
SUBJECT	PM Volume Calculations

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Industrial Park Rd & Middle Rd	EB U	'	'	0.0%	35	0.51	0.0%	0	0	0			0	0	'	'	0.51	0.0%
		EB L	12'	'				3.0%	31	32	33			32	33	'	'		3.0%
		EB T	12'	'				0.0%	12	12	13			12	13	'	'		0.0%
		EB R	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB U	'	'	1.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	11'	'				0.0%	3	3	3			3	3	'	'		0.0%
		WB T	11'	'				0.0%	6	6	6			6	6	'	'		0.0%
		WB R	11'	'				11.0%	9	9	9	16		25	25	'	'		5.0%
		NB U	'	'	1.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	15'	'				0.0%	5	5	5			5	5	'	'		0.0%
		NB T	15'	'				5.0%	370	381	390	63		444	453	'	'		5.0%
		NB R	15'	'				0.0%	7	7	7			7	7	'	'		0.0%
		SB U	'	'	-3.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	13'	'				18.0%	17	17	18	9		26	27	'	'		12.0%
		SB T	13'	'				15.0%	74	76	78	34		110	112	'	'		11.0%
		SB R	13'	'				7.0%	14	14	15			14	15	'	'		7.0%
4	Industrial Park Rd & Loop Rd	EB U	'	'	1.0%	35	0.68	0.0%	0	0	0			0	0	'	'	0.68	0.0%
		EB L	12'	'				0.0%	7	7	7	63		70	70	'			2.0%
		EB T	12'	'				0.0%	5	5	5	1		6	6	'	'		2.0%
		EB R	12'	'				0.0%	1	1	1			1	1	'	'		0.0%
		WB U	'	'	-2.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	10'	'				0.0%	16	16	17			16	17	'			0.0%
		WB T	10'	'				0.0%	11	11	12			11	12	'	'		0.0%
		WB R	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	-2.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB T	12'	'				10.0%	89	92	94			92	94	'	'		10.0%
		NB R	12'	'				0.0%	41	42	43			42	43	'	'		0.0%
		SB U	'	'	0.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	13'	'				0.0%	9	9	9			9	9	'	'		0.0%
		SB T	13'	'				38.0%	24	25	25			25	25	'	'		38.0%
		SB R	13'	'				0.0%	9	9	9	34		43	43	'	'		2.0%

JOB	Granville Data Center		
SHEET			
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	PM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	Business 22 & Loop Rd	EB U	'	'	1.0%	45	0.96	0.0%	0	0	0			0	0	'	'	0.96	0.0%
		EB L	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	12'	'				1.0%	487	501	513	5		506	518	'	'		2.0%
		EB R	12'	'				0.0%	10	10	11			10	11	'	'		0.0%
		WB U	'	'	-2.5%	45		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	12'	'				0.0%	36	37	38			37	38	'	'		0.0%
		WB T	12'	'				1.0%	523	538	551	3		541	554	'	'		2.0%
		WB R	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	2.5%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	15'	'				0.0%	4	4	4			4	4	'	'		0.0%
		NB T	15'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	15'	'				6.0%	65	67	69			67	69	'	'		6.0%
		SB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
6	Loop Rd & Western Site Access	EB U	'	'	-2.5%	25	0.92	0.0%	0	0	0			0	0	'	'	0.92	0.0%
		EB L	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	10'	'				0.0%	22	23	23			23	23	'	'		0.0%
		EB R	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB U	'	'	2.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB T	10'	'				0.0%	22	23	23			23	23	'	'		0.0%
		WB R	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB U	'	'	2.0%	15		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	12'	'				0.0%	0	0	0			0	0	'	'		0.0%

WEEKEND

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Hwy 522 S & Industrial Park Rd

Leg		Hwy 522 S					Hwy 522 S					Industrial Park Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	0	7	0	**7**	0	0	0	0	**0**	11		0	0	**11**	0	0	0	0	**0**	**18**
8/27/2024	9:15 AM	0	0	13	0	**13**	0	0	0	0	**0**	8		0	0	**8**	0	0	0	0	**0**	**21**
8/27/2024	9:30 AM	0	0	9	0	**9**	0	0	0	0	**0**	3		0	0	**3**	0	0	0	0	**0**	**12**
8/27/2024	9:45 AM	0	0	8	0	**8**	1	0	0	0	**1**	13		1	0	**14**	0	0	0	0	**0**	**23**
Grand Total		0	0	37	0	**37**	1	0	0	0	**1**	35	0	1	0	**36**	0	0	0	0	**0**	**74**
% Approach		0.00%	0.00%	100.00%	0.00%		100.00%	0.00%	0.00%	0.00%		97.22%	0.00%	2.78%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	0.00%	50.00%	0.00%	**50.00%**	1.35%	0.00%	0.00%	0.00%	**1.35%**	47.30%	0.00%	1.35%	0.00%	**48.65%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.000	0.712	0.000	**0.712**	0.250	0.000	0.000	0.000	**0.250**	0.673	0.000	0.250	0.000	**0.643**	0.000	0.000	0.000	0.000	**0.000**	**0.804**
09:00 AM - 10:00 AM																						
Leg		Hwy 522 S					Hwy 522 S					Industrial Park Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	0	7	0	**7**	0	0	0	0	**0**	10		0	0	**10**	0	0	0	0	**0**	**17**
8/27/2024	9:15 AM	0	0	12	0	**12**	0	0	0	0	**0**	8		0	0	**8**	0	0	0	0	**0**	**20**
8/27/2024	9:30 AM	0	0	9	0	**9**	0	0	0	0	**0**	3		0	0	**3**	0	0	0	0	**0**	**12**
8/27/2024	9:45 AM	0	0	7	0	**7**	1	0	0	0	**1**	12		1	0	**13**	0	0	0	0	**0**	**21**
Lights		0	0	35	0	**35**	1	0	0	0	**1**	33	0	1	0	**34**	0	0	0	0	**0**	**70**
% Lights		0.00%	0.00%	94.59%	0.00%	**94.59%**	100.00%	0.00%	0.00%	0.00%	**100.00%**	94.29%	0.00%	100.00%	0.00%	**94.44%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	2	0	**2**	0	0	0	0	**0**	2	0	0	0	**2**	0	0	0	0	**0**	**4**
% Heavy		0.00%	0.00%	5.41%	0.00%	**5.41%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	5.71%	0.00%	0.00%	0.00%	**5.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Business 22 & Industrial Park Rd

Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	9:00 AM	5	47	12	0	**64**	7	46	6	0	**59**	12	0	16	0	**28**	4	0	3	0	**7**	**158**
8/27/2024	9:15 AM	2	43	4	0	**49**	8	56	6	1	**71**	8	0	11	0	**19**	8	0	5	0	**13**	**152**
8/27/2024	9:30 AM	1	47	13	0	**61**	8	51	2	0	**61**	7	0	9	0	**16**	6	0	3	0	**9**	**147**
8/27/2024	9:45 AM	6	54	10	0	**70**	5	50	9	0	**64**	7	0	9	0	**16**	6	0	3	0	**9**	**159**
Grand Total		14	191	39	0	**244**	28	203	23	1	**255**	34	0	45	0	**79**	24	0	14	0	**38**	**616**
% Approach		5.74%	78.28%	15.98%	0.00%		10.98%	79.61%	9.02%	0.39%		43.04%	0.00%	56.96%	0.00%		63.16%	0.00%	36.84%	0.00%		
% Total		2.27%	31.01%	6.33%	0.00%	**39.61%**	4.55%	32.95%	3.73%	0.16%	**41.40%**	5.52%	0.00%	7.31%	0.00%	**12.82%**	3.90%	0.00%	2.27%	0.00%	**6.17%**	
PHF		0.583	0.884	0.750	0.000	**0.871**	0.875	0.906	0.639	0.250	**0.898**	0.708	0.000	0.703	0.000	**0.705**	0.750	0.000	0.700	0.000	**0.731**	**0.969**
09:00 AM - 10:00 AM																						
Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	9:00 AM	5	47	12	0	**64**	7	46	6	0	**59**	10	0	13	0	**23**	4	0	3	0	**7**	**153**
8/27/2024	9:15 AM	2	43	4	0	**49**	7	56	6	1	**70**	6	0	11	0	**17**	8	0	4	0	**12**	**148**
8/27/2024	9:30 AM	1	47	13	0	**61**	7	50	2	0	**59**	5	0	9	0	**14**	6	0	3	0	**9**	**143**
8/27/2024	9:45 AM	6	54	10	0	**70**	4	50	9	0	**63**	5	0	8	0	**13**	5	0	3	0	**8**	**154**
Lights		14	191	39	0	**244**	25	202	23	1	**251**	26	0	41	0	**67**	23	0	13	0	**36**	**598**
% Lights		100.00%	100.00%	100.00%	0.00%	**100.00%**	89.29%	99.51%	100.00%	100.00%	**98.43%**	76.47%	0.00%	91.11%	0.00%	**84.81%**	95.83%	0.00%	92.86%	0.00%	**94.74%**	
Heavy		0	0	0	0	**0**	3	1	0	0	**4**	8	0	4	0	**12**	1	0	1	0	**2**	**18**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	10.71%	0.49%	0.00%	0.00%	**1.57%**	23.53%	0.00%	8.89%	0.00%	**15.19%**	4.17%	0.00%	7.14%	0.00%	**5.26%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Industrial Park Rd & Middle Rd

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	1	0	1	0	**2**	0	1	1	0	**2**	0	7	0	0	**7**	2	31	2	0	**35**	**46**
8/27/2024	6:30 AM	2	1	3	0	**6**	1	1	0	0	**2**	0	5	0	0	**5**	0	48	0	0	**48**	**61**
8/27/2024	6:45 AM	2	0	3	0	**5**	1	0	0	0	**1**	1	7	0	0	**8**	2	25	0	0	**27**	**41**
8/27/2024	7:00 AM	0	2	0	0	**2**	0	0	2	0	**2**	1	57	1	0	**59**	0	9	4	0	**13**	**76**
Grand Total		5	3	7	0	**15**	2	2	3	0	**7**	2	76	1	0	**79**	4	113	6	0	**123**	**224**
% Approach		33.33%	20.00%	46.67%	0.00%		28.57%	28.57%	42.86%	0.00%		2.53%	96.20%	1.27%	0.00%		3.25%	91.87%	4.88%	0.00%		
% Total		2.23%	1.34%	3.13%	0.00%	**6.70%**	0.89%	0.89%	1.34%	0.00%	**3.13%**	0.89%	33.93%	0.45%	0.00%	**35.27%**	1.79%	50.45%	2.68%	0.00%	**54.91%**	
PHF		0.625	0.375	0.583	0.000	**0.625**	0.500	0.500	0.375	0.000	**0.875**	0.500	0.333	0.250	0.000	**0.335**	0.500	0.589	0.375	0.000	**0.641**	**0.737**
06:15 AM - 07:15 AM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	6:15 AM	1	0	1	0	**2**	0	1	1	0	**2**	0	6	0	0	**6**	2	29	2	0	**33**	**43**
8/27/2024	6:30 AM	2	1	3	0	**6**	1	1	0	0	**2**	0	2	0	0	**2**	0	47	0	0	**47**	**57**
8/27/2024	6:45 AM	2	0	3	0	**5**	1	0	0	0	**1**	1	6	0	0	**7**	0	24	0	0	**24**	**37**
8/27/2024	7:00 AM	0	2	0	0	**2**	0	0	2	0	**2**	1	57	1	0	**59**	0	8	4	0	**12**	**75**
Lights		5	3	7	0	**15**	2	2	3	0	**7**	2	71	1	0	**74**	2	108	6	0	**116**	**212**
% Lights		100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	93.42%	100.00%	0.00%	**93.67%**	50.00%	95.58%	100.00%	0.00%	**94.31%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	5	0	0	**5**	2	5	0	0	**7**	**12**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	6.58%	0.00%	0.00%	**6.33%**	50.00%	4.42%	0.00%	0.00%	**5.69%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Industrial Park Rd & Loop Rd

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:30 AM	1	1	0	0	**2**	20	0	6	0	**26**	0	3	2	0	**5**	0	33	1	0	**34**	**67**
8/27/2024	6:45 AM	0	3	0	0	**3**	8	0	3	0	**11**	0	3	3	0	**6**	1	12	0	0	**13**	**33**
8/27/2024	7:00 AM	1	2	0	0	**3**	0	0	0	0	**0**	0	29	34	0	**63**	2	2	0	0	**4**	**70**
8/27/2024	7:15 AM	0	0	0	0	**0**	1	1	0	0	**2**	2	23	17	0	**42**	1	4	0	0	**5**	**49**
Grand Total		2	6	0	0	**8**	29	1	9	0	**39**	2	58	56	0	**116**	4	51	1	0	**56**	**219**
% Approach		25.00%	75.00%	0.00%	0.00%		74.36%	2.56%	23.08%	0.00%		1.72%	50.00%	48.28%	0.00%		7.14%	91.07%	1.79%	0.00%		
% Total		0.91%	2.74%	0.00%	0.00%	**3.65%**	13.24%	0.46%	4.11%	0.00%	**17.81%**	0.91%	26.48%	25.57%	0.00%	**52.97%**	1.83%	23.29%	0.46%	0.00%	25.57%	
PHF		0.500	0.500	0.000	0.000	**0.667**	0.363	0.250	0.375	0.000	**0.375**	0.250	0.500	0.412	0.000	**0.460**	0.500	0.386	0.250	0.000	**0.412**	**0.782**
06:30 AM - 07:30 AM																						
Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	6:30 AM	1	1	0	0	**2**	20	0	6	0	**26**	0	1	2	0	**3**	0	33	1	0	**34**	**65**
8/27/2024	6:45 AM	0	3	0	0	**3**	8	0	3	0	**11**	0	2	3	0	**5**	1	11	0	0	**12**	**31**
8/27/2024	7:00 AM	1	2	0	0	**3**	0	0	0	0	**0**	0	29	34	0	**63**	2	1	0	0	**3**	**69**
8/27/2024	7:15 AM	0	0	0	0	**0**	1	1	0	0	**2**	2	23	17	0	**42**	1	2	0	0	**3**	**47**
Lights		2	6	0	0	**8**	29	1	9	0	**39**	2	55	56	0	**113**	4	47	1	0	**52**	**212**
% Lights		100.00%	100.00%	0.00%	0.00%	**100.00%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	94.83%	100.00%	0.00%	**97.41%**	100.00%	92.16%	100.00%	0.00%	**92.86%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	3	0	0	**3**	0	4	0	0	**4**	**7**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	5.17%	0.00%	0.00%	**2.59%**	0.00%	7.84%	0.00%	0.00%	**7.14%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Business 22 & Loop Rd

Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	85	3	0	**88**	11	82	0	0	**93**	1		12	0	**13**	0	0	0	0	**0**	**194**
8/27/2024	9:15 AM	0	106	2	0	**108**	11	111	0	0	**122**	1		7	0	**8**	0	0	0	0	**0**	**238**
8/27/2024	9:30 AM	0	83	0	0	**83**	7	84	0	0	**91**	3		16	0	**19**	0	0	0	0	**0**	**193**
8/27/2024	9:45 AM	0	84	1	0	**85**	5	92	0	0	**97**	1		23	0	**24**	0	0	0	0	**0**	**206**
Grand Total		0	358	6	0	**364**	34	369	0	0	**403**	6	0	58	0	**64**	0	0	0	0	**0**	**831**
% Approach		0.00%	98.35%	1.65%	0.00%		8.44%	91.56%	0.00%	0.00%		9.38%	0.00%	90.63%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	43.08%	0.72%	0.00%	**43.80%**	4.09%	44.40%	0.00%	0.00%	**48.50%**	0.72%	0.00%	6.98%	0.00%	**7.70%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.844	0.500	0.000	**0.843**	0.773	0.831	0.000	0.000	**0.826**	0.500	0.000	0.630	0.000	**0.667**	0.000	0.000	0.000	0.000	**0.000**	**0.873**
09:00 AM - 10:00 AM																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	9:00 AM	0	82	3	0	**85**	10	82	0	0	**92**	1		12	0	**13**	0	0	0	0	**0**	**190**
8/27/2024	9:15 AM	0	103	2	0	**105**	11	109	0	0	**120**	1		7	0	**8**	0	0	0	0	**0**	**233**
8/27/2024	9:30 AM	0	82	0	0	**82**	7	83	0	0	**90**	3		16	0	**19**	0	0	0	0	**0**	**191**
8/27/2024	9:45 AM	0	82	1	0	**83**	5	91	0	0	**96**	1		23	0	**24**	0	0	0	0	**0**	**203**
Lights		0	349	6	0	**355**	33	365	0	0	**398**	6	0	58	0	**64**	0	0	0	0	**0**	**817**
% Lights		0.00%	97.49%	100.00%	0.00%	**97.53%**	97.06%	98.92%	0.00%	0.00%	**98.76%**	100.00%	0.00%	100.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	9	0	0	**9**	1	4	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**14**
% Heavy		0.00%	2.51%	0.00%	0.00%	**2.47%**	2.94%	1.08%	0.00%	0.00%	**1.24%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Loop Rd & Western Site Access

Leg		Loop Rd Eastbound					Loop Rd Westbound					0 Northbound					Site Access Southbound					
Direction																						
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
8/27/2024	9:00 AM	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	9:15 AM	0	5	0	0	**5**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
8/27/2024	9:30 AM	0	5	0	0	**5**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	9:45 AM	0	3	0	0	**3**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
Grand Total		0	19	0	0	**19**	0	12	0	0	**12**	0	0	0	0	**0**	0	0	0	0	**0**	**31**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	61.29%	0.00%	0.00%	**61.29%**	0.00%	38.71%	0.00%	0.00%	**38.71%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.792	0.000	0.000	**0.792**	0.000	0.750	0.000	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.861**
09:00 AM - 10:00 AM																						
Leg		Loop Rd Eastbound					Loop Rd Westbound					0 Northbound					Site Access Southbound					
Direction																						
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
8/27/2024	9:00 AM	0	6	0	0	**6**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	9:15 AM	0	5	0	0	**5**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
8/27/2024	9:30 AM	0	5	0	0	**5**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	9:45 AM	0	3	0	0	**3**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
Lights		0	19	0	0	**19**	0	12	0	0	**12**	0	0	0	0	**0**	0	0	0	0	**0**	**31**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Loop Rd & Eastern Site Access

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound					Site Access Southbound					
Direction																				
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
8/27/2024	9:00 AM	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	9:15 AM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
8/27/2024	9:30 AM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	9:45 AM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
Grand Total		0	19	0	0	19	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	31
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	61.29%	0.00%	0.00%	**61.29%**	0.00%	38.71%	0.00%	0.00%	**38.71%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.792	0.000	0.000	**0.792**	0.000	0.750	0.000	0.000	**0.750**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.861**
09:00 AM - 10:00 AM																						

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound					Site Access Southbound					
Direction																				
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
8/27/2024	9:00 AM	0	6	0	0	6	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	9:15 AM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
8/27/2024	9:30 AM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	9:45 AM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
Lights		0	19	0	0	19	0	12	0	0	12	0	0	0	0	0	0	0	0	0	0	31
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

Middle Rd & Western Site Access

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	9:00 AM	0	7	0	0	7	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	9:15 AM	0	1	0	0	1	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	9:30 AM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	10
Grand Total		0	21	0	0	21	0	20	0	0	20	0	0	0	0	0	0	0	0	0	0	41
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	51.22%	0.00%	0.00%	**51.22%**	0.00%	48.78%	0.00%	0.00%	**48.78%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.750	0.000	0.000	**0.750**	0.000	0.556	0.000	0.000	**0.556**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.932**
09:00 AM - 10:00 AM																						

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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
8/27/2024	FALSE	0				0	0				0	0				0	0				0	0
8/27/2024	9:00 AM	0	7	0	0	7	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	10
8/27/2024	9:15 AM	0	1	0	0	1	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	8
8/27/2024	9:30 AM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	10
Lights		0	21	0	0	21	0	17	0	0	17	0	0	0	0	0	0	0	0	0	0	38
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	85.00%	0.00%	0.00%	**85.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	15.00%	0.00%	0.00%	**15.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - AM		

Middle Rd & Eastern Site Access

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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**
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	9:00 AM	0	7	0	0	**7**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	9:15 AM	0	1	0	0	**1**	0	9	0	0	**9**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	9:30 AM	0	6	0	0	**6**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
Grand Total		0	21	0	0	**21**	0	20	0	0	**20**	0	0	0	0	**0**	0	0	0	0	**0**	**41**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	51.22%	0.00%	0.00%	**51.22%**	0.00%	48.78%	0.00%	0.00%	**48.78%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.750	0.000	0.000	**0.750**	0.000	0.556	0.000	0.000	**0.556**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.932**
09:00 AM - 10:00 AM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Site Access Northbound					0 Southbound					
Direction																						
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**
8/27/2024	FALSE	0				**0**	0				**0**	0				**0**	0				**0**	**0**
8/27/2024	9:00 AM	0	7	0	0	**7**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
8/27/2024	9:15 AM	0	1	0	0	**1**	0	7	0	0	**7**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
8/27/2024	9:30 AM	0	6	0	0	**6**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**10**
Lights		0	21	0	0	**21**	0	17	0	0	**17**	0	0	0	0	**0**	0	0	0	0	**0**	**38**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	85.00%	0.00%	0.00%	**85.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**3**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	15.00%	0.00%	0.00%	**15.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Hwy 522 S & Industrial Park Rd

Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	4:15 PM	0	0	13	0	**13**	0	0	0	0	**0**	11		0	0	**11**	0	0	0	0	**0**	**24**
8/27/2024	4:30 PM	0	0	16	0	**16**	0	0	0	0	**0**	13		0	0	**13**	0	0	0	0	**0**	**29**
8/27/2024	4:45 PM	0	0	11	0	**11**	0	0	0	0	**0**	17		0	0	**17**	0	0	0	0	**0**	**28**
8/27/2024	5:00 PM	0	0	10	0	**10**	0	0	0	0	**0**	13		0	0	**13**	0	0	0	0	**0**	**23**
Grand Total		0	0	50	0	**50**	0	0	0	0	**0**	54	0	0	0	**54**	0	0	0	0	**0**	**104**
% Approach		0.00%	0.00%	100.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		100.00%	0.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	0.00%	48.08%	0.00%	**48.08%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	51.92%	0.00%	0.00%	0.00%	**51.92%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.000	0.781	0.000	**0.781**	0.000	0.000	0.000	0.000	**0.000**	0.794	0.000	0.000	0.000	**0.794**	0.000	0.000	0.000	0.000	**0.000**	**0.897**
04:15 PM - 05:15 PM																						

Leg		Hwy 522 S Eastbound					Hwy 522 S Westbound					Industrial Park Rd Northbound					0 Southbound					
Direction																						
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
8/27/2024	4:15 PM	0	0	12	0	**12**	0	0	0	0	**0**	11		0	0	**11**	0	0	0	0	**0**	**23**
8/27/2024	4:30 PM	0	0	16	0	**16**	0	0	0	0	**0**	13		0	0	**13**	0	0	0	0	**0**	**29**
8/27/2024	4:45 PM	0	0	11	0	**11**	0	0	0	0	**0**	17		0	0	**17**	0	0	0	0	**0**	**28**
8/27/2024	5:00 PM	0	0	10	0	**10**	0	0	0	0	**0**	13		0	0	**13**	0	0	0	0	**0**	**23**
Lights		0	0	49	0	**49**	0	0	0	0	**0**	54	0	0	0	**54**	0	0	0	0	**0**	**103**
% Lights		0.00%	0.00%	98.00%	0.00%	**98.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	100.00%	0.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	1	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**1**
% Heavy		0.00%	0.00%	2.00%	0.00%	**2.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Business 22 & Industrial Park Rd

Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	2:45 PM	5	62	13	0	**80**	8	64	3	0	**75**	7	0	4	0	**11**	1	0	4	0	**5**	**171**
8/27/2024	3:00 PM	6	49	12	0	**67**	9	89	2	0	**100**	8	0	8	0	**16**	5	0	8	0	**13**	**196**
8/27/2024	3:15 PM	4	58	17	0	**79**	9	73	6	0	**88**	11	1	10	0	**22**	9	0	11	0	**20**	**209**
8/27/2024	3:30 PM	1	48	17	0	**66**	2	61	6	0	**69**	12	0	5	0	**17**	5	0	2	0	**7**	**159**
Grand Total		16	217	59	0	**292**	28	287	17	0	**332**	38	1	27	0	**66**	20	0	25	0	**45**	**735**
% Approach		0	1	0	0		0	1	0	0		1	0	0	0		0	0	1	0		
% Total		0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	
PHF		0.667	0.875	0.868	0.000	**0.913**	0.778	0.806	0.708	0.000	**0.830**	0.792	0.250	0.675	0.000	**0.750**	0.556	0.000	0.568	0.000	**0.563**	**0.879**
02:45 PM - 03:45 PM																						
Leg		Business 22 Eastbound					Business 22 Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	2:45 PM	5	62	13	0	**80**	7	64	3	0	**74**	7	0	3	0	**10**	1	0	4	0	**5**	**169**
8/27/2024	3:00 PM	5	49	11	0	**65**	8	89	2	0	**99**	6	0	8	0	**14**	5	0	8	0	**13**	**191**
8/27/2024	3:15 PM	4	58	16	0	**78**	8	73	6	0	**87**	9	1	9	0	**19**	9	0	11	0	**20**	**204**
8/27/2024	3:30 PM	1	47	17	0	**65**	2	61	6	0	**69**	12	0	5	0	**17**	5	0	2	0	**7**	**158**
Lights		15	216	57	0	**288**	25	287	17	0	**329**	34	1	25	0	**60**	20	0	25	0	**45**	**722**
% Lights		93.75%	99.54%	96.61%	0.00%	**98.63%**	89.29%	100.00%	100.00%	0.00%	**99.10%**	89.47%	100.00%	92.59%	0.00%	**90.91%**	100.00%	0.00%	100.00%	0.00%	**100.00%**	
Heavy		1	1	2	0	**4**	3	0	0	0	**3**	4	0	2	0	**6**	0	0	0	0	**0**	**13**
% Heavy		6.25%	0.46%	3.39%	0.00%	**1.37%**	10.71%	0.00%	0.00%	0.00%	**0.90%**	10.53%	0.00%	7.41%	0.00%	**9.09%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Industrial Park Rd & Middle Rd

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	3:15 PM	4	1	0	0	**5**	3	3	5	0	**11**	0	11	0	0	**11**	1	20	5	0	**26**	**53**
8/27/2024	3:30 PM	7	4	0	0	**11**	0	2	1	0	**3**	0	10	1	0	**11**	3	7	9	0	**19**	**44**
8/27/2024	3:45 PM	5	3	0	0	**8**	0	2	1	0	**3**	0	6	1	0	**7**	1	9	5	0	**15**	**33**
8/27/2024	4:00 PM	7	1	1	0	**9**	1	5	2	0	**8**	1	11	0	0	**12**	2	12	3	0	**17**	**46**
Grand Total		23	9	1	0	**33**	4	12	9	0	**25**	1	38	2	0	**41**	7	48	22	0	**77**	**176**
% Approach		69.70%	27.27%	3.03%	0.00%		16.00%	48.00%	36.00%	0.00%		2.44%	92.68%	4.88%	0.00%		9.09%	62.34%	28.57%	0.00%		
% Total		13.07%	5.11%	0.57%	0.00%	**18.75%**	2.27%	6.82%	5.11%	0.00%	**14.20%**	0.57%	21.59%	1.14%	0.00%	**23.30%**	3.98%	27.27%	12.50%	0.00%	**43.75%**	
PHF		0.821	0.563	0.250	0.000	**0.750**	0.333	0.600	0.450	0.000	**0.568**	0.250	0.864	0.500	0.000	**0.854**	0.583	0.600	0.611	0.000	**0.740**	**0.830**
03:15 PM - 04:15 PM																						

Leg		Middle Rd Eastbound					Middle Rd Westbound					Industrial Park Rd Northbound					Industrial Rd Southbound					
Direction																						
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
8/27/2024	3:15 PM	4	1	0	0	**5**	3	3	5	0	**11**	0	8	0	0	**8**	1	18	5	0	**24**	**48**
8/27/2024	3:30 PM	7	4	0	0	**11**	0	2	1	0	**3**	0	10	1	0	**11**	3	7	9	0	**19**	**44**
8/27/2024	3:45 PM	5	2	0	0	**7**	0	2	1	0	**3**	0	4	1	0	**5**	1	8	4	0	**13**	**28**
8/27/2024	4:00 PM	7	1	1	0	**9**	1	5	2	0	**8**	1	11	0	0	**12**	2	11	3	0	**16**	**45**
Lights		23	8	1	0	**32**	4	12	9	0	**25**	1	33	2	0	**36**	7	44	21	0	**72**	**165**
% Lights		100.00%	88.89%	100.00%	0.00%	**96.97%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	86.84%	100.00%	0.00%	**87.80%**	100.00%	91.67%	95.45%	0.00%	**93.51%**	
Heavy		0	1	0	0	**1**	0	0	0	0	**0**	0	5	0	0	**5**	0	4	1	0	**5**	**11**
% Heavy		0.00%	11.11%	0.00%	0.00%	**3.03%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	13.16%	0.00%	0.00%	**12.20%**	0.00%	8.33%	4.55%	0.00%	**6.49%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Industrial Park Rd & Loop Rd

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	3:15 PM	2	2	0	0	**4**	4	1	1	0	**6**	0	5	1	0	**6**	0	16	7	0	**23**	**39**
8/27/2024	3:30 PM	3	2	0	0	**5**	2	0	1	0	**3**	1	6	5	0	**12**	1	6	1	0	**8**	**28**
8/27/2024	3:45 PM	1	3	1	0	**5**	2	1	4	0	**7**	0	4	1	0	**5**	1	1	5	0	**7**	**24**
8/27/2024	4:00 PM	3	1	1	0	**5**	3	2	2	0	**7**	0	7	6	0	**13**	2	11	1	0	**14**	**39**
Grand Total		9	8	2	0	**19**	11	4	8	0	**23**	1	22	13	0	**36**	4	34	14	0	**52**	**130**
% Approach		47.37%	42.11%	10.53%	0.00%		47.83%	17.39%	34.78%	0.00%		2.78%	61.11%	36.11%	0.00%		7.69%	65.38%	26.92%	0.00%		
% Total		6.92%	6.15%	1.54%	0.00%	**14.62%**	8.46%	3.08%	6.15%	0.00%	**17.69%**	0.77%	16.92%	10.00%	0.00%	**27.69%**	3.08%	26.15%	10.77%	0.00%	40.00%	
PHF		0.750	0.667	0.500	0.000	**0.950**	0.688	0.500	0.500	0.000	**0.821**	0.250	0.786	0.542	0.000	**0.692**	0.500	0.531	0.500	0.000	**0.565**	**0.833**
03:15 PM - 04:15 PM																						

Leg		Loop Rd Eastbound					Loop Rd Westbound					Industrial Park Rd Northbound					Industrial Park Rd Southbound					
Direction																						
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
8/27/2024	3:15 PM	2	2	0	0	**4**	4	1	1	0	**6**	0	2	1	0	**3**	0	14	7	0	**21**	**34**
8/27/2024	3:30 PM	3	2	0	0	**5**	2	0	1	0	**3**	1	6	5	0	**12**	1	6	1	0	**8**	**28**
8/27/2024	3:45 PM	1	3	1	0	**5**	2	1	4	0	**7**	0	2	1	0	**3**	1	1	5	0	**7**	**22**
8/27/2024	4:00 PM	3	1	1	0	**5**	3	2	2	0	**7**	0	6	6	0	**12**	2	10	1	0	**13**	**37**
Lights		9	8	2	0	**19**	11	4	8	0	**23**	1	16	13	0	**30**	4	31	14	0	**49**	**121**
% Lights		100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	100.00%	100.00%	0.00%	**100.00%**	100.00%	72.73%	100.00%	0.00%	**83.33%**	100.00%	91.18%	100.00%	0.00%	**94.23%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	6	0	0	**6**	0	3	0	0	**3**	**9**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	27.27%	0.00%	0.00%	**16.67%**	0.00%	8.82%	0.00%	0.00%	**5.77%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Business 22 & Loop Rd																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	2:15 PM	0	126	2	0	**128**	11	128	0	0	**139**	1		11	0	**12**	0	0	0	0	**0**	**279**
8/27/2024	2:30 PM	0	99	5	0	**104**	12	107	0	0	**119**	0		11	0	**11**	0	0	0	0	**0**	**234**
8/27/2024	2:45 PM	0	114	5	0	**119**	16	122	0	0	**138**	0		14	0	**14**	0	0	0	0	**0**	**271**
8/27/2024	3:00 PM	0	110	4	0	**114**	11	128	0	0	**139**	0		10	0	**10**	0	0	0	0	**0**	**263**
Grand Total		0	449	16	0	**465**	50	485	0	0	**535**	1	0	46	0	**47**	0	0	0	0	**0**	**1047**
% Approach		0.00%	96.56%	3.44%	0.00%		9.35%	90.65%	0.00%	0.00%		2.13%	0.00%	97.87%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	42.88%	1.53%	0.00%	**44.41%**	4.78%	46.32%	0.00%	0.00%	**51.10%**	0.10%	0.00%	4.39%	0.00%	**4.49%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.891	0.800	0.000	**0.908**	0.781	0.947	0.000	0.000	**0.962**	0.250	0.000	0.821	0.000	**0.839**	0.000	0.000	0.000	0.000	**0.000**	**0.938**
02:15 PM - 03:15 PM																						
Leg		Business 22					Business 22					Loop Rd					0					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	2:15 PM	0	126	2	0	**128**	11	128	0	0	**139**	1		11	0	**12**	0	0	0	0	**0**	**279**
8/27/2024	2:30 PM	0	99	5	0	**104**	12	105	0	0	**117**	0		11	0	**11**	0	0	0	0	**0**	**232**
8/27/2024	2:45 PM	0	113	5	0	**118**	16	122	0	0	**138**	0		14	0	**14**	0	0	0	0	**0**	**270**
8/27/2024	3:00 PM	0	110	4	0	**114**	11	127	0	0	**138**	0		10	0	**10**	0	0	0	0	**0**	**262**
Lights		0	448	16	0	**464**	50	482	0	0	**532**	1	0	46	0	**47**	0	0	0	0	**0**	**1043**
% Lights		0.00%	99.78%	100.00%	0.00%	**99.78%**	100.00%	99.38%	0.00%	0.00%	**99.44%**	100.00%	0.00%	100.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	1	0	0	**1**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**4**
% Heavy		0.00%	0.22%	0.00%	0.00%	**0.22%**	0.00%	0.62%	0.00%	0.00%	**0.56%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Loop Rd & Western Site Access																						
Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	3:15 PM	0	4	0	0	**4**	0	8	0	0	**8**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
8/27/2024	3:30 PM	0	5	0	0	**5**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	3:45 PM	0	5	0	0	**5**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
8/27/2024	4:00 PM	0	5	0	0	**5**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
Grand Total		0	19	0	0	**19**	0	19	0	0	**19**	0	0	0	0	**0**	0	0	0	0	**0**	**38**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.950	0.000	0.000	**0.950**	0.000	0.594	0.000	0.000	**0.594**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.792**
03:15 PM - 04:15 PM																						
Leg		Loop Rd					Loop Rd					0					Site Access					
Direction		Eastbound					Westbound					Northbound					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
8/27/2024	3:15 PM	0	4	0	0	**4**	0	8	0	0	**8**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
8/27/2024	3:30 PM	0	5	0	0	**5**	0	2	0	0	**2**	0	0	0	0	**0**	0	0	0	0	**0**	**7**
8/27/2024	3:45 PM	0	5	0	0	**5**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
8/27/2024	4:00 PM	0	5	0	0	**5**	0	3	0	0	**3**	0	0	0	0	**0**	0	0	0	0	**0**	**8**
Lights		0	19	0	0	**19**	0	19	0	0	**19**	0	0	0	0	**0**	0	0	0	0	**0**	**38**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	0	0	0	0	**0**	**0**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Loop Rd & Eastern Site Access

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound					Site Access Southbound					
Direction																				
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
8/27/2024	3:15 PM	0	4	0	0	4	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	12
8/27/2024	3:30 PM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	3:45 PM	0	5	0	0	5	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	11
8/27/2024	4:00 PM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
Grand Total		0	19	0	0	19	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	38
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	50.00%	0.00%	0.00%	**50.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.950	0.000	0.000	**0.950**	0.000	0.594	0.000	0.000	**0.594**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.792**
03:15 PM - 04:15 PM																						

Leg		Loop Rd Eastbound				Loop Rd Westbound				0 Northbound					Site Access Southbound					
Direction																				
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
8/27/2024	3:15 PM	0	4	0	0	4	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	12
8/27/2024	3:30 PM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
8/27/2024	3:45 PM	0	5	0	0	5	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	11
8/27/2024	4:00 PM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
Lights		0	19	0	0	19	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	38
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

Middle Rd & Western Site Access

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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
8/27/2024	2:00 PM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	2:15 PM	0	6	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	12
8/27/2024	2:30 PM	0	9	0	0	9	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	19
8/27/2024	2:45 PM	0	3	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	9
Grand Total		0	23	0	0	23	0	26	0	0	26	0	0	0	0	0	0	0	0	0	0	49
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	46.94%	0.00%	0.00%	**46.94%**	0.00%	53.06%	0.00%	0.00%	**53.06%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.639	0.000	0.000	**0.639**	0.000	0.650	0.000	0.000	**0.650**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.645**
02:00 PM - 03:00 PM																						

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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
8/27/2024	2:00 PM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
8/27/2024	2:15 PM	0	6	0	0	6	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	11
8/27/2024	2:30 PM	0	9	0	0	9	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	19
8/27/2024	2:45 PM	0	3	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	9
Lights		0	23	0	0	23	0	25	0	0	25	0	0	0	0	0	0	0	0	0	0	48
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	96.15%	0.00%	0.00%	**96.15%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	3.85%	0.00%	0.00%	**3.85%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY	HRZ	DATE	7/2/2026
SUBJECT	Heavy Vehicle - PM		

Middle Rd & Eastern Site Access

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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**
8/27/2024	2:00 PM	0	5	0	0	**5**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	2:15 PM	0	6	0	0	**6**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**12**
8/27/2024	2:30 PM	0	9	0	0	**9**	0	10	0	0	**10**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
8/27/2024	2:45 PM	0	3	0	0	**3**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
Grand Total		0	23	0	0	**23**	0	26	0	0	**26**	0	0	0	0	**0**	0	0	0	0	**0**	**49**
% Approach		0.00%	100.00%	0.00%	0.00%		0.00%	100.00%	0.00%	0.00%		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		
% Total		0.00%	46.94%	0.00%	0.00%	**46.94%**	0.00%	53.06%	0.00%	0.00%	**53.06%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
PHF		0.000	0.639	0.000	0.000	**0.639**	0.000	0.650	0.000	0.000	**0.650**	0.000	0.000	0.000	0.000	**0.000**	0.000	0.000	0.000	0.000	**0.000**	**0.645**
02:00 PM - 03:00 PM																						

Leg		Middle Rd Eastbound				Middle Rd Westbound				Site Access Northbound					0 Southbound					
Direction																				
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**
8/27/2024	2:00 PM	0	5	0	0	**5**	0	4	0	0	**4**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
8/27/2024	2:15 PM	0	6	0	0	**6**	0	5	0	0	**5**	0	0	0	0	**0**	0	0	0	0	**0**	**11**
8/27/2024	2:30 PM	0	9	0	0	**9**	0	10	0	0	**10**	0	0	0	0	**0**	0	0	0	0	**0**	**19**
8/27/2024	2:45 PM	0	3	0	0	**3**	0	6	0	0	**6**	0	0	0	0	**0**	0	0	0	0	**0**	**9**
Lights		0	23	0	0	**23**	0	25	0	0	**25**	0	0	0	0	**0**	0	0	0	0	**0**	**48**
% Lights		0.00%	100.00%	0.00%	0.00%	**100.00%**	0.00%	96.15%	0.00%	0.00%	**96.15%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	
Heavy		0	0	0	0	**0**	0	1	0	0	**1**	0	0	0	0	**0**	0	0	0	0	**0**	**1**
% Heavy		0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	3.85%	0.00%	0.00%	**3.85%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	0.00%	0.00%	0.00%	0.00%	**0.00%**	

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	Hwy 522 S & Industrial Park Rd	EB U			3%	35	0.80	0.0%	0	0	0			0	0			0.80	0.0%
		EB L						0.0%	0	0	0			0	0				0.0%
		EB T	16'					0.0%	0	0	0			0	0				0.0%
		EB R	16'	125'				5.0%	37	38	39			38	39				5.0%
		WB U			2%	25		0.0%	0	0	0			0	0				0.0%
		WB L	13'					0.0%	1	1	1			1	1				0.0%
		WB T	13'					0.0%	0	0	0			0	0				0.0%
		WB R						0.0%	0	0	0			0	0				0.0%
		NB U			-1%	25		0.0%	0	0	0			0	0				0.0%
		NB L	14'					6.0%	35	36	37			36	37				6.0%
		NB T						0.0%	0	0	0			0	0				0.0%
		NB R	14'					0.0%	1	1	1			1	1				0.0%
		SB U						0.0%	0	0	0			0	0				0.0%
		SB L						0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R						0.0%	0	0	0			0	0				0.0%
2	Business 22 & Industrial Park Rd	EB U			-2%	30	0.97	0.0%	0	0	0			0	0			0.97	0.0%
		EB L	13'	365'				0.0%	14	14	15			14	15				0.0%
		EB T	12'					0.0%	191	197	201			197	201				0.0%
		EB R	15'	250'				0.0%	39	40	41	96		136	137				2.0%
		WB U			2%	30		0.0%	1	1	1			1	1				0.0%
		WB L	13'	160'				11.0%	28	29	30	6		35	36				9.0%
		WB T	12'	160'				0.0%	203	209	214			209	214				0.0%
		WB R	12'					0.0%	23	24	24			24	24				0.0%
		NB U			3%	25		0.0%	0	0	0			0	0				0.0%
		NB L	12'	150'				24.0%	34	35	36	33		68	69				13.0%
		NB T	12'					0.0%	0	0	0			0	0				0.0%
		NB R	12'	150'				9.0%	45	46	47	2		48	49				9.0%
		SB U			2%	25		0.0%	0	0	0			0	0				0.0%
		SB L	16'					4.0%	24	25	25			25	25				4.0%
		SB T	16'					0.0%	0	0	0			0	0				0.0%
		SB R						7.0%	14	14	15			14	15				7.0%

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Industrial Park Rd & Middle Rd	EB U			0%	35	0.74	0.0%	0	0	0			0	0			0.74	0.0%
		EB L	12'					0.0%	5	5	5			5	5				0.0%
		EB T	12'					0.0%	3	3	3			3	3				0.0%
		EB R	12'					0.0%	7	7	7			7	7				0.0%
		WB U			1%	35		0.0%	0	0	0			0	0				0.0%
		WB L	11'					0.0%	2	2	2			2	2				0.0%
		WB T	11'					0.0%	2	2	2			2	2				0.0%
		WB R	11'					0.0%	3	3	3	7		10	10				2.0%
		NB U			1%	35		0.0%	0	0	0			0	0				0.0%
		NB L	15'					0.0%	2	2	2			2	2				0.0%
		NB T	15'					7.0%	76	78	80	28		106	108				6.0%
		NB R	15'					0.0%	1	1	1			1	1				0.0%
		SB U			-3%	35		0.0%	0	0	0			0	0				0.0%
		SB L	13'					50.0%	4	4	4	21		25	25				10.0%
		SB T	13'					4.0%	113	116	119	81		197	200				3.0%
		SB R	13'					0.0%	6	6	6			6	6				0.0%
4	Industrial Park Rd & Loop Rd	EB U			1%	35	0.78	0.0%	0	0	0			0	0			0.78	0.0%
		EB L	12'					0.0%	2	2	2	28		30	30				2.0%
		EB T	12'					0.0%	6	6	6			6	6				0.0%
		EB R	12'					0.0%	0	0	0			0	0				0.0%
		WB U			-2%	35		0.0%	0	0	0			0	0				0.0%
		WB L	10'					0.0%	29	30	31			30	31				0.0%
		WB T	10'					0.0%	1	1	1	1		2	2				2.0%
		WB R	10'					0.0%	9	9	9			9	9				0.0%
		NB U			-2%	35		0.0%	0	0	0			0	0				0.0%
		NB L	12'					0.0%	2	2	2			2	2				0.0%
		NB T	12'					5.0%	58	60	61			60	61				5.0%
		NB R	12'					0.0%	56	58	59			58	59				0.0%
		SB U			0%	35		0.0%	0	0	0			0	0				0.0%
		SB L	13'					0.0%	4	4	4			4	4				0.0%
		SB T	13'					8.0%	51	52	54			52	54				8.0%
		SB R	13'					0.0%	1	1	1	81		82	82				2.0%

JOB	Granville Data Center		
CALC BY	JBS	DATE	######
CHKD BY	HRZ	DATE	######
SUBJECT	AM Volume Calculations		

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	Business 22 & Loop Rd	EB U			1%	45	0.87	0.0%	0	0	0			0	0			0.87	0.0%
		EB L	12'					0.0%	0	0	0			0	0				0.0%
		EB T	12'					3.0%	358	368	377	2		370	379				3.0%
		EB R	12'					0.0%	6	6	6			6	6				0.0%
		WB U			-3%	45		0.0%	0	0	0			0	0				0.0%
		WB L	12'					3.0%	34	35	36			35	36				3.0%
		WB T	12'					1.0%	369	380	389	6		386	395				2.0%
		WB R	12'					0.0%	0	0	0			0	0				0.0%
		NB U			3%	35		0.0%	0	0	0			0	0				0.0%
		NB L	15'					0.0%	6	6	6			6	6				0.0%
		NB T	15'					0.0%	0	0	0			0	0				0.0%
		NB R	15'					0.0%	58	60	61			60	61				0.0%
		SB U						0.0%	0	0	0			0	0				0.0%
		SB L						0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R						0.0%	0	0	0			0	0				0.0%
6	Loop Rd & Western Site Access	EB U			-3%	25	0.86	0.0%	0	0	0			0	0			0.86	0.0%
		EB L	10'					0.0%	0	0	0			0	0				0.0%
		EB T	10'					0.0%	19	20	20			20	20				0.0%
		EB R	10'					0.0%	0	0	0			0	0				0.0%
		WB U			2%	25		0.0%	0	0	0			0	0				0.0%
		WB L	10'					0.0%	0	0	0			0	0				0.0%
		WB T	10'					0.0%	12	12	13			12	13				0.0%
		WB R	10'					0.0%	0	0	0			0	0				0.0%
		NB U						0.0%	0	0	0			0	0				0.0%
		NB L						0.0%	0	0	0			0	0				0.0%
		NB T						0.0%	0	0	0			0	0				0.0%
		NB R						0.0%	0	0	0			0	0				0.0%
		SB U			2%	15		0.0%	0	0	0			0	0				0.0%
		SB L	12'					0.0%	0	0	0			0	0				0.0%
		SB T						0.0%	0	0	0			0	0				0.0%
		SB R	12'					0.0%	0	0	0			0	0				0.0%

JOB	Granville Data Center
SHEET	
CALC BY	JBS DATE ######
CHKD BY	HRZ DATE ######
SUBJECT	PM Volume Calculations

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
1	Hwy 522 S & Industrial Park Rd	EB U	'	'	3.0%	35	0.90	0.0%	0	0	0			0	0	'	'	0.90	0.0%
		EB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	16'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB R	16'	125'				2.0%	50	51	53			51	53	'	'		2.0%
		WB U	'	'	1.5%	25		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	13'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB T	13'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	-1.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	14'	'				0.0%	54	56	57			56	57	'	'		0.0%
		NB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	14'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
2	Business 22 & Industrial Park Rd	EB U	'	'	-2.0%	30	0.88	0.0%	0	0	0			0	0	'	'	0.88	0.0%
		EB L	13'	365'				6.0%	16	16	17			16	17	'	'		6.0%
		EB T	12'	'				0.0%	217	223	229			223	229	'	'		0.0%
		EB R	15'	250'				3.0%	59	61	62	40		101	102	'	'		3.0%
		WB U	'	'	2.0%	30		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	13'	160'				11.0%	28	29	30	3		32	33	'	'		10.0%
		WB T	12'	160'				0.0%	287	295	303			295	303	'	'		0.0%
		WB R	12'	'				0.0%	17	17	18			17	18	'	'		0.0%
		NB U	'	'	3.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	12'	150'				11.0%	38	39	40	74		113	114	'	'		5.0%
		NB T	12'	'				0.0%	1	1	1			1	1	'	'		0.0%
		NB R	12'	150'				7.0%	27	28	28	5		33	33	'	'		6.0%
		SB U	'	'	2.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	16'	'				0.0%	20	21	21			21	21	'	'		0.0%
		SB T	16'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	25	26	26			26	26	'	'		0.0%

JOB	Granville Data Center
SHEET	
CALC BY	JBS DATE ######
CHKD BY	HRZ DATE ######
SUBJECT	PM Volume Calculations

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
3	Industrial Park Rd & Middle Rd	EB U	'	'	0.0%	35	0.83	0.0%	0	0	0			0	0	'	'	0.83	0.0%
		EB L	12'	'				0.0%	23	24	24			24	24	'	'		0.0%
		EB T	12'	'				11.0%	9	9	9			9	9	'	'		11.0%
		EB R	12'	'				0.0%	1	1	1			1	1	'	'		0.0%
		WB U	'	'	1.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	11'	'				0.0%	4	4	4			4	4	'	'		0.0%
		WB T	11'	'				0.0%	12	12	13			12	13	'	'		0.0%
		WB R	11'	'				0.0%	9	9	9	16		25	25	'	'		2.0%
		NB U	'	'	1.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	15'	'				0.0%	1	1	1			1	1	'	'		0.0%
		NB T	15'	'				13.0%	38	39	40	63		102	103	'	'		6.0%
		NB R	15'	'				0.0%	2	2	2			2	2	'	'		0.0%
		SB U	'	'	-3.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	13'	'				0.0%	7	7	7	9		16	16	'	'		2.0%
		SB T	13'	'				8.0%	48	49	51	34		83	85	'	'		6.0%
		SB R	13'	'				5.0%	22	23	23			23	23	'	'		5.0%
4	Industrial Park Rd & Loop Rd	EB U	'	'	1.0%	35	0.83	0.0%	0	0	0			0	0	'	'	0.83	0.0%
		EB L	12'	'				0.0%	9	9	9	63		72	72	'			2.0%
		EB T	12'	'				0.0%	8	8	8	1		9	9	'	'		2.0%
		EB R	12'	'				0.0%	2	2	2			2	2	'	'		0.0%
		WB U	'	'	-2.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	10'	'				0.0%	11	11	12			11	12	'			0.0%
		WB T	10'	'				0.0%	4	4	4			4	4	'	'		0.0%
		WB R	10'	'				0.0%	8	8	8			8	8	'	'		0.0%
		NB U	'	'	-2.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	12'	'				0.0%	1	1	1			1	1	'	'		0.0%
		NB T	12'	'				27.0%	22	23	23			23	23	'	'		27.0%
		NB R	12'	'				0.0%	13	13	14			13	14	'	'		0.0%
		SB U	'	'	0.0%	35		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	13'	'				0.0%	4	4	4			4	4	'	'		0.0%
		SB T	13'	'				9.0%	34	35	36			35	36	'	'		9.0%
		SB R	13'	'				0.0%	14	14	15	34		48	49	'	'		2.0%

JOB	Granville Data Center
SHEET	
CALC BY	JBS DATE ######
CHKD BY	HRZ DATE ######
SUBJECT	PM Volume Calculations

			Existing Lane Settings						*Volume Development*							*Proposed Lane Settings*			
Intersection ID	**Intersection Name**	**Movement**	**Lane Width**	**Storage Length**	**Grade (%)**	**Speed (MPH)**	**PHF**	**HV (%)**	**2026 Existing Year**	**2032 Opening Year (No Build)**	**2037 Design Year (No Build)**	**Total Trip Distribution**	**Total Pass-by**	**2032 Opening Year (Build)**	**2037 Design Year (Build)**	**Lane Width**	**Storage Length**	**PHF**	**HV (%)**
5	Business 22 & Loop Rd	EB U	'	'	1.0%	45	0.94	0.0%	0	0	0			0	0	'	'	0.94	0.0%
		EB L	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	12'	'				0.0%	449	462	473	5		467	478	'	'		2.0%
		EB R	12'	'				0.0%	16	16	17			16	17	'	'		0.0%
		WB U	'	'	-2.5%	45		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	12'	'				0.0%	50	51	53			51	53	'	'		0.0%
		WB T	12'	'				1.0%	485	499	511	3		502	514	'	'		2.0%
		WB R	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	2.5%	35		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	15'	'				0.0%	1	1	1			1	1	'	'		0.0%
		NB T	15'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	15'	'				0.0%	46	47	48			47	48	'	'		0.0%
		SB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
6	Loop Rd & Western Site Access	EB U	'	'	-2.5%	25	0.79	0.0%	0	0	0			0	0	'	'	0.79	0.0%
		EB L	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		EB T	10'	'				0.0%	19	20	20			20	20	'	'		0.0%
		EB R	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB U	'	'	2.0%	25		0.0%	0	0	0			0	0	'	'		0.0%
		WB L	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		WB T	10'	'				0.0%	19	20	20			20	20	'	'		0.0%
		WB R	10'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB U	'	'	0.0%	0		0.0%	0	0	0			0	0	'	'		0.0%
		NB L	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		NB R	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB U	'	'	2.0%	15		0.0%	0	0	0			0	0	'	'		0.0%
		SB L	12'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB T	'	'				0.0%	0	0	0			0	0	'	'		0.0%
		SB R	12'	'				0.0%	0	0	0			0	0	'	'		0.0%

K.02 – ITE Trip Generation Data

Trip Generation

Land Use	Independent Variable	Size	Time Period	Method	Vehicle Trips			Vehicle To Person Trips	
					Entry	Exit	Total		
160 - Data Center	1000 Sq. Ft. GFA	1531.44	Weekday	Average (0.73)	**559**	**559**	**1118**		
160(1) - Data Center	1000 Sq. Ft. GFA	1531.44	Weekday, AM Peak Hour of Gen	Average (0.09)	**103**	**34**	**137**		
160(2) - Data Center	1000 Sq. Ft. GFA	1531.44	Weekday, PM Peak Hour of Gen	Average (0.08)	**43**	**80**	**123**		

+ Click this row to add a new Land Use

K.03 – Lost Time Adjust Calculations

JOB	Granville Traffic Study		
SHEET		OF	
CALC BY	JBS	DATE	6/24/2026
CHKD BY	HRZ	DATE	6/26/2026
SUBJECT	Lost Time Adjustment		

t_{LA} = L_1 - e, where:
t_{LA} = Start-Up Lost Time Adjustment
L_1 = Start-Up Lost Time from PennDOT Publication 46, Exhibit 10-10
e = Extension of Effective Green Time from PennDOT Publication 46 Exhibit 10-10

Area Type = **Suburban**

INTID	Intersection	Approach	Lane	Y		AR		Y+AR	L_1 (secs)	e (secs)	t_{LA} (secs)
2	Business 22 & Industrial Park Rd	Eastbound	Left	3.6	+	2.9	=	**6.5**	2.5	3.5	-1
			Thru	3.6	+	2.9	=	**6.5**	2.5	3.5	-1
		Westbound	Left	3.6	+	2.9	=	**6.5**	2.5	3.5	-1
			Thru/Right	3.6	+	2.9	=	**6.5**	2.5	3.5	-1
		Northbound	Left	3.0	+	2.6	=	**5.6**	2.5	3.5	-1
			Thru	3.0	+	2.6	=	**5.6**	2.5	3.5	-1
		Southbound	Left/Thru/Right	3.0	+	3.0	=	**6.0**	2.5	3.5	-1
				3.0	+	3.0	=	**6.0**	2.5	3.5	-1

K.04 – Base Critical & Follow-Up Headway Calculations

WEEKDAY

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Hwy 522 S & Industrial Park Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.07	0.1	3	0	**6.6**	3.1	0.9	**3.2**
Westbound	LT from Minor	2	7.1	1	0.33	0.2	2	0.7	**7.0**	3.0	0.9	**3.3**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.02	0.0	-1	0	**4.3**	3.0	0.9	**3.0**

PM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.04	0.0	-1	0	**4.3**	3.0	0.9	**3.0**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Hwy 522 S & Industrial Park Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.07	0.1	3	0	**6.6**	3.1	0.9	**3.2**
Westbound	LT from Minor	2	7.1	1	0.33	0.2	2	0.7	**7.0**	3.0	0.9	**3.3**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.02	0.0	-1	0	**4.3**	3.0	0.9	**3.0**

PM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.04	0.0	-1	0	**4.3**	3.0	0.9	**3.0**
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Industrial Park Rd & Middle Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Minor	2	7.1	1	0.05	0.2	0	0.0	**7.2**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.14	0.1	1	0.0	**6.4**	3.1	0.9	**3.2**
Northbound	LT from Major	2	4.3	1	0.00	0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.05	0	-3	0.0	**4.4**	3.0	0.9	**3.0**

PM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Minor	2	7.1	1	0.03	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.05	0.1	1	0.0	**6.4**	3.1	0.9	**3.1**
Northbound	LT from Major	2	4.3	1	0.00	0.0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.12	0.0	-3	0.0	**4.4**	3.0	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Industrial Park Rd & Middle Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	7.1	1	0.05	0.2	0	0.0	**7.2**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.25	0.1	1	0.0	**6.6**	3.1	0.9	**3.3**
Northbound	LT from Major	2	4.3	1	0.00	0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.17	0	-3	0.0	**4.5**	3.0	0.9	**3.2**

PM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	7.1	1	0.03	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.11	0.1	1	0.0	**6.4**	3.1	0.9	**3.2**
Northbound	LT from Major	2	4.3	1	0.00	0.0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.18	0.0	-3	0.0	**4.5**	3.0	0.9	**3.2**

$T_{c,x} = T_{c,base} + t_{c,HV}P_{HV} + T_{c,G}G - t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base} + t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.03	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.06	0.1	3	0	**6.5**	3.1	0.9	**3.2**
		0										
		0										
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.03	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.06	0.1	3	0	**6.5**	3.1	0.9	**3.2**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Loop Rd & Western Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Loop Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**

PM

Loop Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**
		0										
		0										
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Loop Rd & Eastern Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Loop Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**

PM

Loop Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**
		0										
		0										
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Middle Rd & Western Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Middle Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	1	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.02	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

PM

Middle Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	1	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.02	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Middle Rd & Eastern Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Middle Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-4	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

PM

Middle Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-4	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

WEEKEND

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Hwy 522 S & Industrial Park Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.05	0.1	3	0	**6.6**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.06	0.0	-1	0	**4.4**	3.0	0.9	**3.1**

PM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.02	0.1	3	0	**6.5**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.00	0.0	-1	0	**4.3**	3.0	0.9	**3.0**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Hwy 522 S & Industrial Park Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.05	0.1	3	0	**6.6**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.06	0	-1	0	**4.4**	3.0	0.9	**3.1**

PM

Hwy 522 S & Industrial Park Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	3	0.7	**6.4**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.02	0.1	3	0	**6.5**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.7**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	2	0.7	**6.1**	4.0	0.9	**4.0**
Northbound	LT from Major	2	4.3	1	0.00	0.0	-1	0	**4.3**	3.0	0.9	**3.0**
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Industrial Park Rd & Middle Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Minor	2	7.1	1	0.00	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.02	0.1	1	0.0	**6.3**	3.1	0.9	**3.1**
Northbound	LT from Major	2	4.3	1	0.00	0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.10	0	-3	0.0	**4.4**	3.0	0.9	**3.1**

PM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Minor	2	7.1	1	0.00	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.11	0.2	0	0.0	**6.6**	4.0	0.9	**4.1**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.02	0.1	1	0.0	**6.3**	3.1	0.9	**3.1**
Northbound	LT from Major	2	4.3	1	0.00	0.0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.02	0.0	-3	0.0	**4.3**	3.0	0.9	**3.0**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Industrial Park Rd & Middle Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	7.1	1	0.00	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.00	0.2	0	0.0	**6.5**	4.0	0.9	**4.0**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.00	0.1	1	0.0	**6.3**	3.1	0.9	**3.1**
Northbound	LT from Major	2	4.3	1	0.00	0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.50	0	-3	0.0	**4.8**	3.0	0.9	**3.5**

PM

Industrial Park Rd & Middle Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 4 Way Intersection												
Major Direction: North-South												
Approach	**Movement**											
Eastbound	LT from Minor	2	7.1	1	0.00	0.2	0	0.0	**7.1**	3.0	0.9	**3.0**
Eastbound	Thru on Minor	2	6.5	1	0.11	0.2	0	0.0	**6.6**	4.0	0.9	**4.1**
Eastbound	RT from Minor	2	6.2	1	0.00	0.1	0	0.0	**6.2**	3.1	0.9	**3.1**
Westbound	LT from Minor	2	7.1	1	0.00	0.2	1	0.0	**7.3**	3.0	0.9	**3.0**
Westbound	Thru on Minor	2	6.5	1	0.00	0.2	1	0.0	**6.7**	4.0	0.9	**4.0**
Westbound	RT from Minor	2	6.2	1	0.00	0.1	1	0.0	**6.3**	3.1	0.9	**3.1**
Northbound	LT from Major	2	4.3	1	0.00	0.0	1	0.0	**4.3**	3.0	0.9	**3.0**
Southbound	LT from Major	2	4.3	1	0.00	0.0	-3	0.0	**4.3**	3.0	0.9	**3.0**

$T_{c,x} = T_{c,base} + t_{c,HV}P_{HV} + T_{c,G}G - t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base} + t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☑ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**
		0										
		0										
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Loop Rd & Western Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☑ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Loop Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**

PM

Loop Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	-3	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.00	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Loop Rd & Eastern Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☑ SAT Midday
Area Type: Rural

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Loop Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	0	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**

PM

Loop Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Eastbound	LT from Major	2	4.9	1	0.00	0.0	0	0	**4.9**	3.5	0.9	**3.5**
Southbound	LT from Minor	2	8.1	1	0.02	0.2	2	0.7	**7.8**	3.0	0.9	**3.0**
Southbound	RT from Minor	2	6.4	1	0.00	0.1	2	0	**6.6**	3.4	0.9	**3.4**
		0										
		0										
		0										
		0										
		0										

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Middle Rd & Western Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Middle Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	1	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.02	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

PM

Middle Rd & Western Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	1	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.02	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Middle Rd & Eastern Site Access
Analysis Year: 2037 Proposed Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Middle Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-4	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

PM

Middle Rd & Eastern Site Access		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway	Adjustment for Heavy Vehicles	Percent Heavy Vehicles (Decimal)	Grade Adjustment	Percent Grade (Integer)	Adjustment for Intersection Geometry	**Critical Headway for Movement**	PennDOT Base Follow-up Headway	Adjust for Heavy Vehicles	**Follow-up Headway for Movement**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**		($t_{c,base}$)	($t_{c,HV}$)	(P_{HV})	($t_{c,G}$)	(G)	($t_{3,LT}$)	**($t_{c,x}$)**	($t_{f,base}$)	($t_{f,HV}$)	**($t_{f,x}$)**
Westbound	LT from Major	2	4.3	1	0.00	0.0	-4	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	2	0.7	**6.8**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	2	0	**6.4**	3.1	0.9	**3.1**

$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

JOB	Granville Data Center		
SHEET		OF	
CALC BY	JBS	DATE	6/22/2026
CHKD BY		DATE	
SUBJECT	Base Critical & Follow-Up Headway		

Intersection: Business 22 & Loop Rd
Analysis Year: 2026 Existing Conditions
Analysis Condition: ☑ Weekday AM ☐ Weekday MID ☑ Weekday PM ☐ SAT Midday
Area Type: Suburban

HCM 7th Edition Equation 20-16 ($t_{c,x} = t_{c,base} + t_{c,HV}P_{HV} + t_{c,g}G - t_{3,LT}$)
HCM 7th Edition Equation 20-17 ($t_{f,x} = t_{f,base} + t_{f,HV}P_{HV}$)

AM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.03	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

PM

Business 22 & Loop Rd		Major Street Lanes (2 or 4)	PennDOT Base Critical Headway ($t_{c,base}$)	Adjustment for Heavy Vehicles ($t_{c,HV}$)	Percent Heavy Vehicles (Decimal) (P_{HV})	Grade Adjustment ($t_{c,G}$)	Percent Grade (Integer) (G)	Adjustment for Intersection Geometry ($t_{3,LT}$)	**Critical Headway for Movement ($t_{c,x}$)**	PennDOT Base Follow-up Headway ($t_{f,base}$)	Adjust for Heavy Vehicles ($t_{f,HV}$)	**Follow-up Headway for Movement ($t_{f,x}$)**
Intersection Type: 3 Way Intersection												
Major Direction: East-West												
Approach	**Movement**											
Westbound	LT from Major	2	4.3	1	0.00	0.0	-3	0	**4.3**	3.0	0.9	**3.0**
Northbound	LT from Minor	2	7.1	1	0.00	0.2	3	0.7	**6.9**	3.0	0.9	**3.0**
Northbound	RT from Minor	2	6.2	1	0.00	0.1	3	0	**6.5**	3.1	0.9	**3.1**

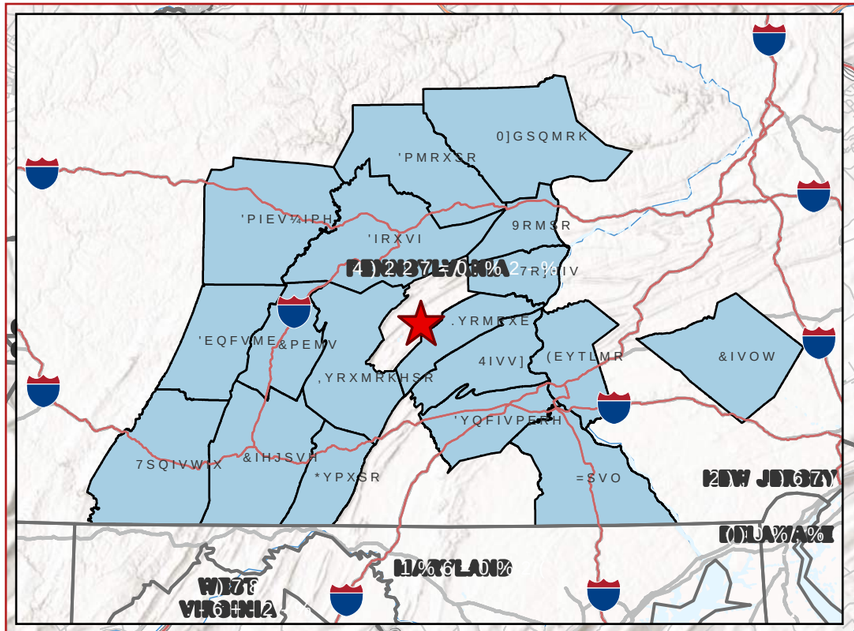
$T_{c,x} = T_{c,base}+t_{c,HV}P_{HV}+T_{c,G}G-t_{3,LT}$ from HCM Equation 20-16, where,
$T_{c,x}$ = Critical Movement for movement x
$T_{c,base}$ = Base Critical Headway from Exhibit 20-17
$T_{c,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1694
P_{HV} = Proportion Heavy Vehicles from HCM Page 1694
$T_{c,G}$ = Adjustment Factor for Grade from HCM Page 1694
G = Percent Grade Expressed as an Integer from HCM Page 1694
$T_{3,LT}$ = Adjustment Factor for Intersection Geometry from HCM Page 1694

$T_{f,x} = T_{f,base}+t_{f,HV}P_{HV}$ from HCM Equation 20-17, where,
$T_{f,x}$ = Follow-Up Headway for Movement x
$T_{f,base}$ = Base Follow-Up Headway from Exhibit 20-18
$T_{f,HV}$ = Adjustment Factor for Heavy Vehicles from HCM Page 1696
P_{HV} = Proportion Heavy Vehicles from HCM Page 1696

K.05 – Signal Warrant Analysis

SIGNAL WARRANT ANALYSIS WAS NOT PERFORMED
DUE TO ALL UNSIGNALIZED INTERSECTIONS
OPERATING AT ACCEPTABLE LEVELS OF SERVICE

K.06 – Journey to Work Model



Cortez County

Union County

Snyder County

Juniata County

+VERZMPPI

8EVKIX -RXIVWIGXMSRW

.SYVRI] XS ;SVO

6IWMHIRG] XS ;SVOTPEGI

97 -RHYWXVMEP 4EVO 6SEH

97)EWXFSYRH

97 &97 -RHYWXVMEP 4EVO 6

97 &97)EWXFSYRH

97 &97 ;IWXFSYRH

-RHYWXVMEP 4EVO 6SEH 1MHH

1MHHPI 6SEH)EWXFSYRH

1MHHPI 6SEH ;IWXFSYRH

-RHYWXVMEP 4EVO 6SEH 0SGYW

0SGYWX 6SEH 2SVXLFSYRH

0SST 6SEH ;IWXFSYRH

0SST 6SEH

0SST 6SEH)EWXFSYRH

97 &97 0SST 6SEH

97 &97 ;IWXFSYRH

1MPIW

IVIC civil

(9/) 786))8

79-8)

2368,91&)60%2(4%

4,32)

[[[PMZMGGMZMP GSQ

+6%2:-00)

.3962)= 83 ;36/

=IEV %'7 'SQQYXMRK *PS[97 'IRWYW &YVIEY %QIVMGER 'SQQYRMX] 7YVZI]

8,967(%= .92)

APPROACH	INTERSECTION	FREQUENCY	SUM OF WORKERS	DISTRIBUTION
US-522 Eastbound	US 522 & Industrial Park Road	3	4	0
US-22 BUS Eastbound	US-22 BUS & Industrial Park Road	405	3326	0.93
US-22 BUS Westbound	US-22 BUS & Industrial Park Road	1	3	0
Middle Road Eastbound	Industrial Park Road & Middle Road	5	5	0
Middle Road Westbound	Industrial Park Road & Middle Road	1	1	0
Locust Road Northbound	Industrial Park Road/Locust Road & Loop Road	5	6	0
Loop Road Westbound	Industrial Park Road/Locust Road & Loop Road	6	7	0.01
Loop Road Eastbound	Loop Road	2	3	0
US-22 BUS Westbound	US-22 BUS & Loop Road	194	218	0.06
		Total	3573	1.00

Appendix L - Study Area Photographs

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Industrial Park Rd & Hwy 522 S - Aerial View

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Hwy 522 S – Looking East to Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Hwy 522 S – Looking West away from Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Hwy 522 S – Looking West to Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Hwy 522 S – Looking East away from Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Industrial Park Rd – Looking North to Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 1: Industrial Park Rd & Hwy 522 S

Hwy 522 S – Looking South away from Industrial Park Rd & Hwy 522 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Industrial Park Rd & US 22 S - Aerial View

INTERSECTION 2: Industrial Park Rd & US 22 S

US 522 S – Looking East to Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Locust Rd – Looking West away from Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

US 522 S – Looking West to Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

US 522 S – Looking East away from Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Industrial Park Rd – Looking North to Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Industrial Park Rd – Looking South away from Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Industrial Park Rd – Looking South to Industrial Park Rd & US 22 S Intersection

INTERSECTION 2: Industrial Park Rd & US 22 S

Industrial Park Rd – Looking North away from Industrial Park Rd & US 22 S Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Industrial Park Rd & Middle Rd – Aerial View

INTERSECTION 3: Industrial Park Rd & Middle Rd

Middle Rd – Looking East to Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Middle Rd – Looking West away from Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Middle Rd – Looking West to Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Middle Rd – Looking East away from Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Industrial Park Rd – Looking North to Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Industrial Park Rd – Looking South away from Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Industrial Park Rd – Looking South to Industrial Park Rd & Middle Rd Intersection

INTERSECTION 3: Industrial Park Rd & Middle Rd

Industrial Park Rd – Looking North to Industrial Park Rd & Middle Rd Intersection)

INTERSECTION 4: Industrial Park Rd & Loop Rd

Industrial Park Rd & Loop Rd – Aerial View

INTERSECTION 4: Industrial Park Rd & Loop Rd

Loop Rd – Looking East to Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Loop Rd – Looking West away from Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Loop Rd – Looking West to Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Loop Rd – Looking East away from Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Industrial Park Rd – Looking North to Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Industrial Park Rd – Looking South away from Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Industrial Park Rd – Looking South to Industrial Park Rd & Loop Rd Intersection

INTERSECTION 4: Industrial Park Rd & Loop Rd

Industrial Park Rd – Looking North away from Industrial Park Rd & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

US 522 S & Loop Rd – Aerial View

INTERSECTION 5: US 522 S & Loop Rd

US 522 S – Looking East to US 522 S & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

US 522 S – Looking West away from US 522 S & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

US 522 S – Looking West to US 522 S & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

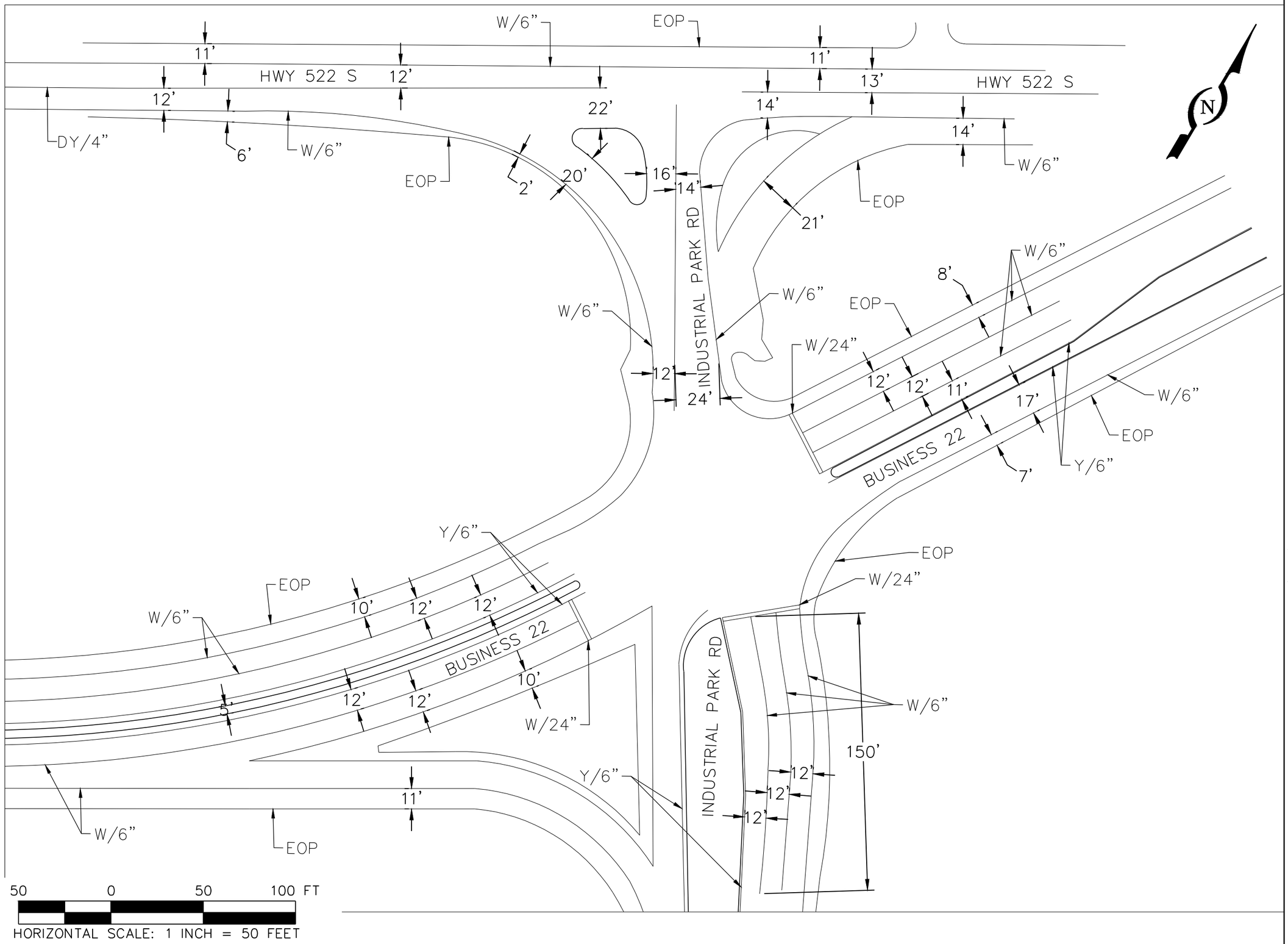
US 522 S – Looking East away from US 522 S & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

Loop Rd – Looking North to US 522 S & Loop Rd Intersection

INTERSECTION 5: US 522 S & Loop Rd

Loop Rd – Looking South away from US 522 S & Loop Rd Intersection



REV | DATE | COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

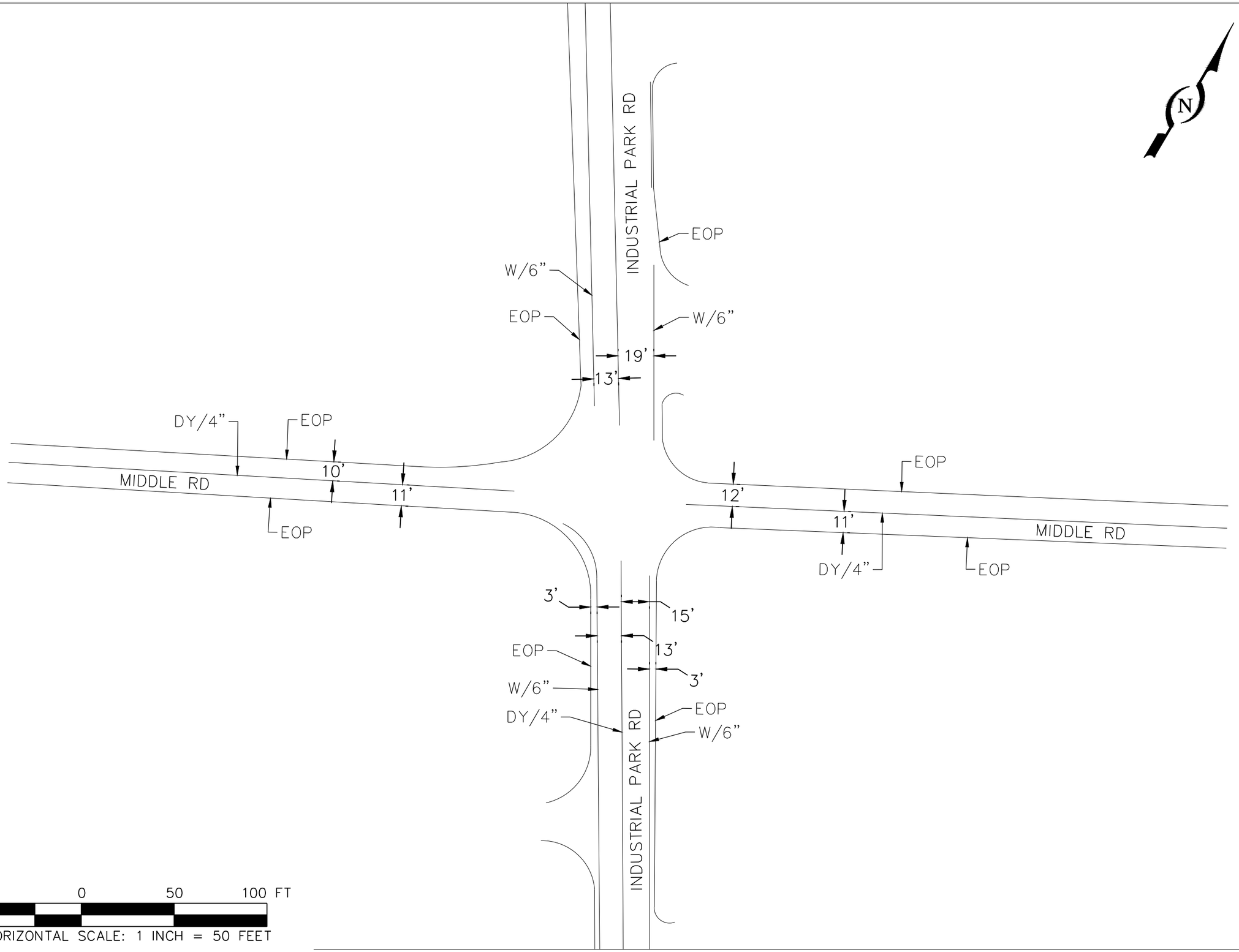
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

BUSINESS 22 & INDUSTRIAL PARK RD & HWY 522

SHEET NO.

1 OF 4



REV | DATE | COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

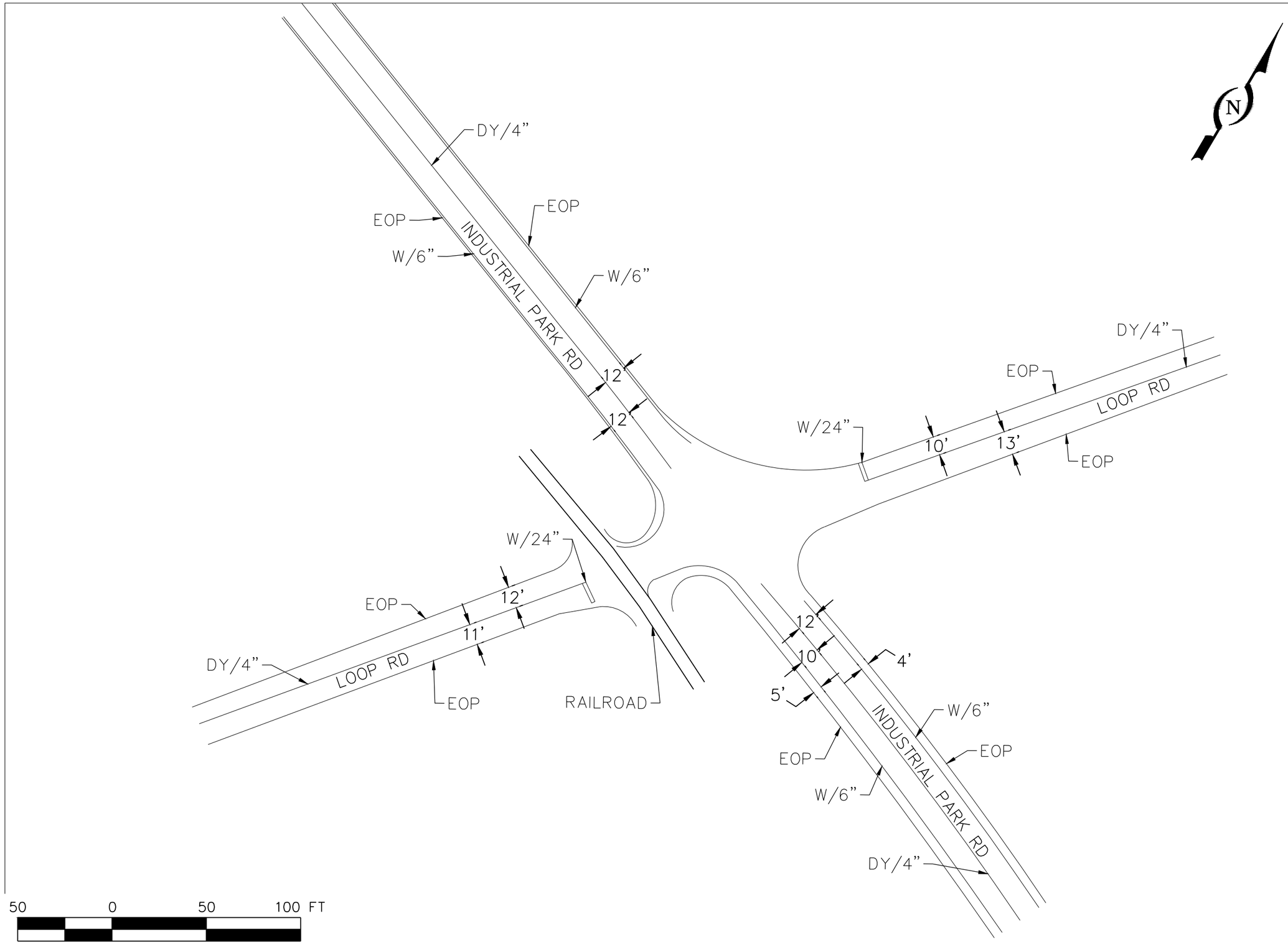
GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

INDUSTRIAL PARK RD & MIDDLE RD

SHEET NO.



50 0 50 100 FT

HORIZONTAL SCALE: 1 INCH = 50 FEET

REV	DATE	COMMENTS

LIVIC civil
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com

ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY: JBS	CHECKED BY: HRZ

PROJECT

GRANVILLE DC

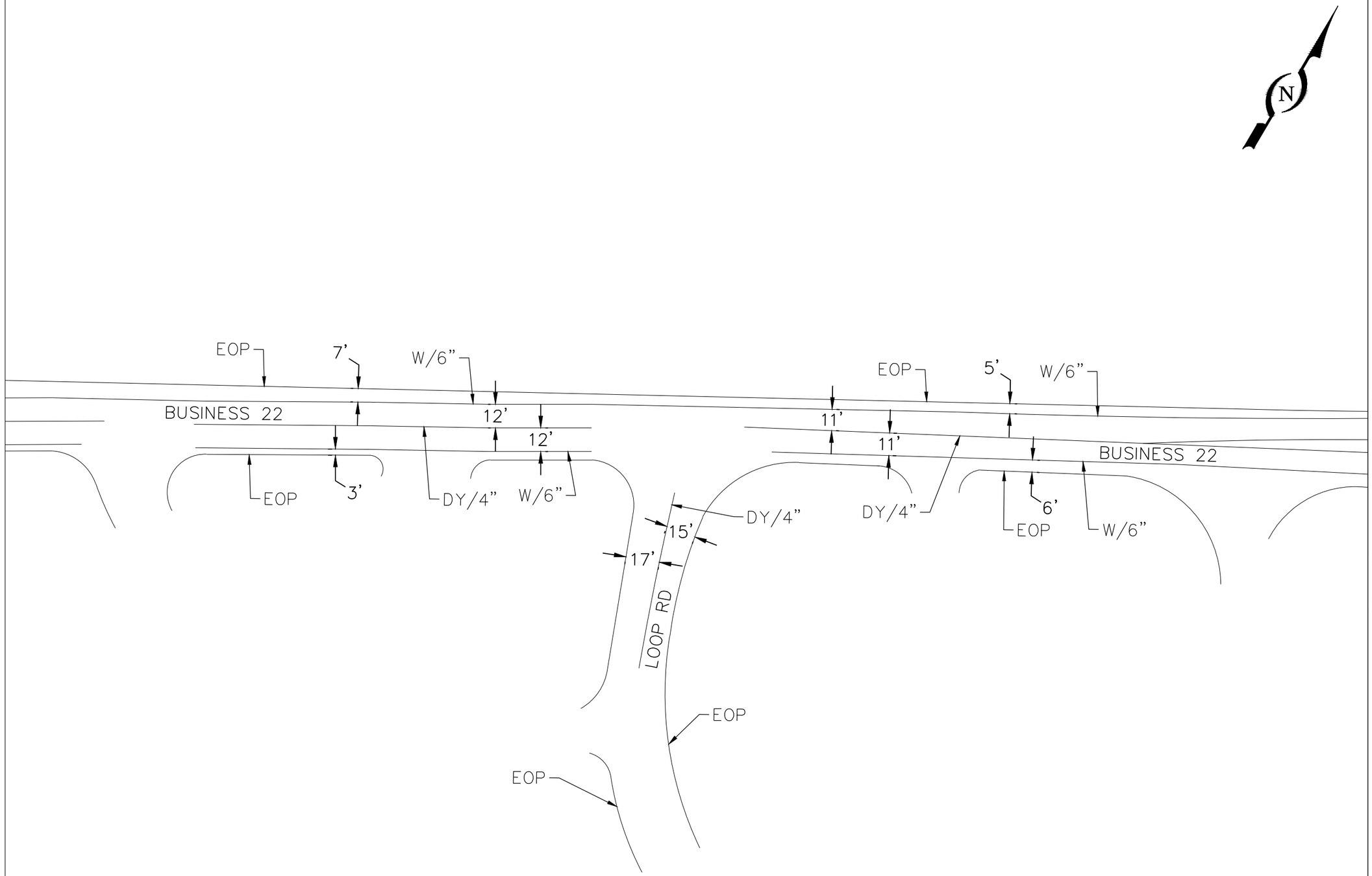
GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

INDUSTRIAL PARK RD & LOOP RD

SHEET NO.

3 OF 4



REV	DATE	COMMENTS

LIVIC CIVIL
29 E. MAIN STREET
BLOOMSBURG, PA 17815
PHONE: 888.987.1993
www.liviccivil.com
ALL CONTENTS OF THIS PLAN ARE PROPRIETARY AND SHALL NOT BE REPRODUCED OR UTILIZED FOR ANY PURPOSE WITHOUT PRIOR WRITTEN AUTHORIZATION FROM LIVIC CIVIL, LLC. ONLY APPROVED, SEALED PLANS SHALL BE IMPLEMENTED FOR CONSTRUCTION PURPOSES.
© 2018 LIVIC CIVIL, LLC

PROJECT No:	1258-57
DATE:	6/29/2026
SCALE:	NOT TO SCALE
DRAWN BY:	JBS
CHECKED BY:	HRZ

PROJECT

GRANVILLE DC

GRANVILLE TOWNSHIP
MIFFLIN COUNTY
PENNSYLVANIA

SHEET TITLE

BUSINESS 22 & LOOP RD

SHEET NO.

4 OF 4

Appendix M - Sight Distance

LOOP ROAD & WESTERN DRIVEWAY

M-950S
(03-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

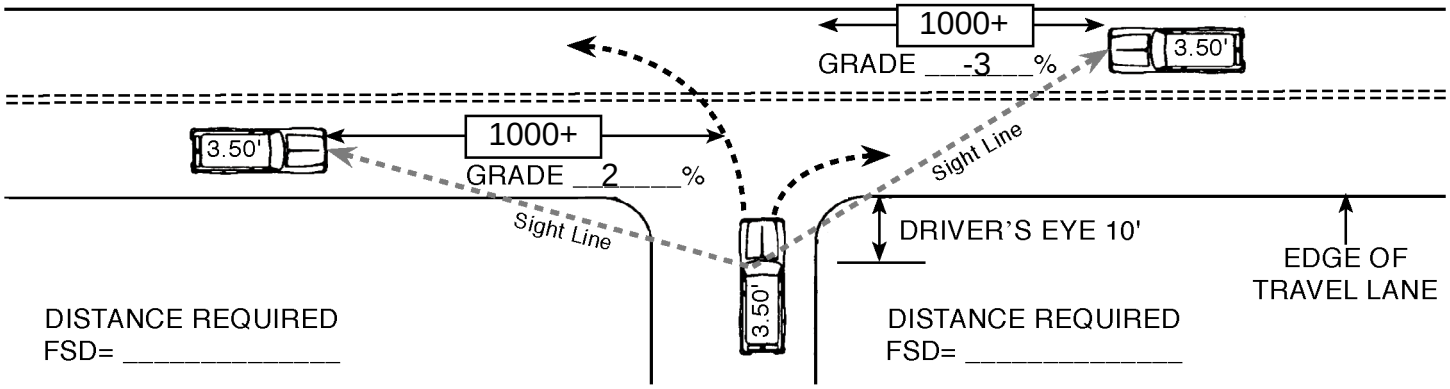
APPLICANT_____ APPLICATION NO._____

S.R._____SEG._____OFFSET_____ LEGAL SPEED LIMIT 25

MEASURED BY_____ DATE _____

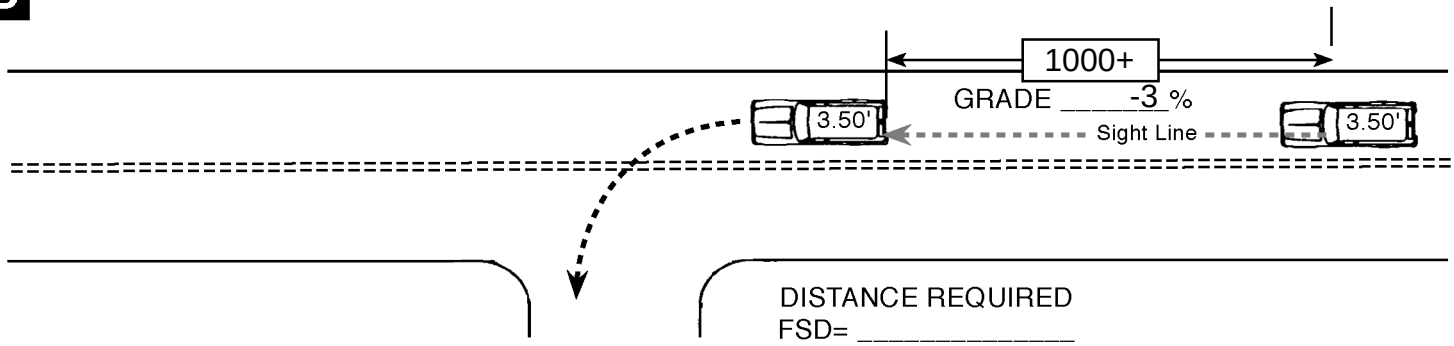
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A



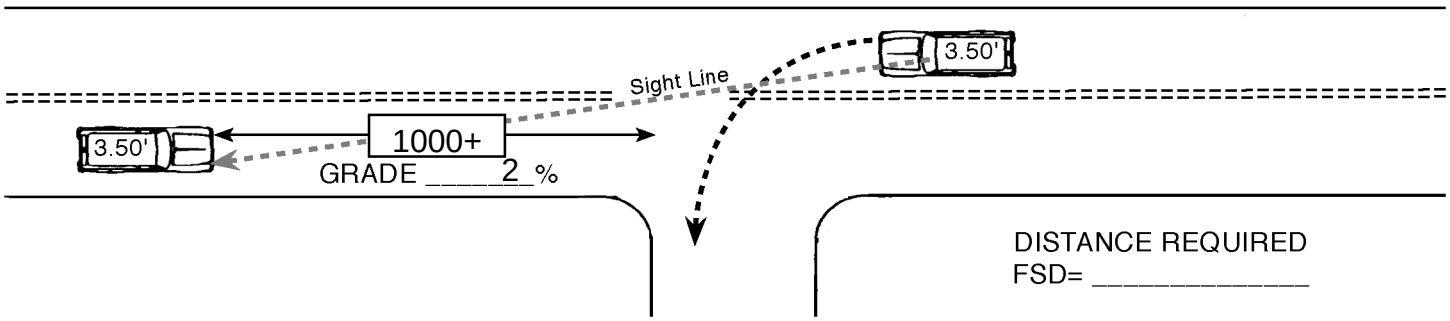
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

B



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

FORMULA SIGHT DISTANCE TABLE

Speed (V) (Miles Per Hour)	Average Grade (G) (Percent)										
	Use plus grades when approaching vehicle is travelling upgrade.										
	0.0	+1.0	+2.0	+3.0	+4.0	+5.0	+6.0	+7.0	+8.0	+9.0	+10.0
25	147	145	144	143	142	140	139	138	137	136	135
30	196	194	191	189	187	185	183	182	180	178	177
35	249	245	242	239	236	233	231	228	226	224	221
40	314	309	304	299	295	291	287	284	280	277	274
45	383	376	370	364	358	353	348	343	339	334	330
50	462	453	444	436	429	422	415	409	403	397	392
55	538	527	517	508	499	490	482	475	468	461	454
	Use negative grades when approaching vehicle is travelling downgrade.										
	0.0	-1.0	-2.0	-3.0	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0
25	147	148	150	151	153	155	157	159	161	164	166
30	196	199	201	204	207	210	214	217	221	226	230
35	249	252	256	260	265	269	275	280	286	292	299
40	314	319	325	331	338	345	352	360	369	379	389
45	383	390	398	406	415	425	435	447	459	472	487
50	462	471	481	492	504	517	531	546	563	581	600
55	538	550	562	576	590	606	622	641	661	682	706

M-950S
(03-04)
PENNDOT

LOOP ROAD & EASTERN DRIVEWAY

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

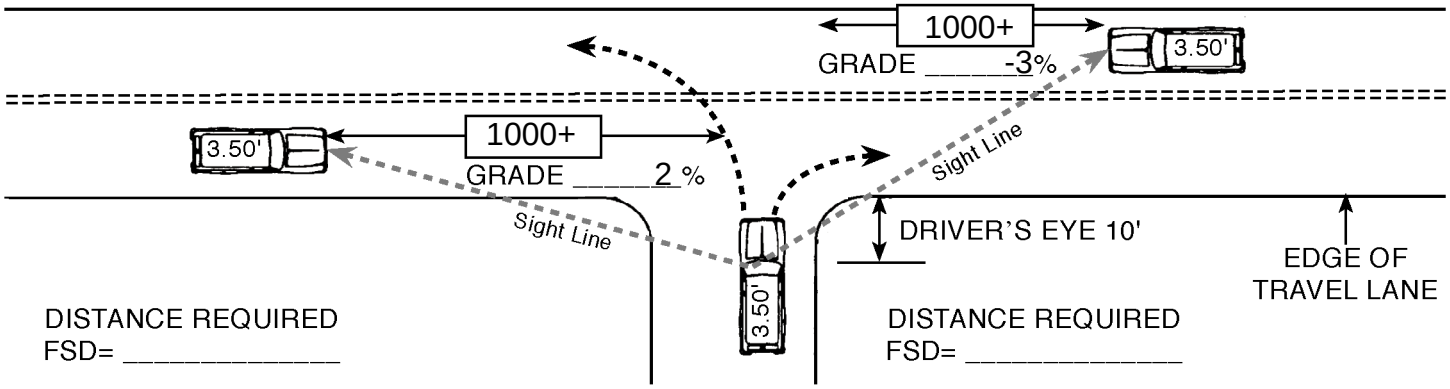
APPLICANT_____ APPLICATION NO._____

S.R._____SEG._____OFFSET_____ LEGAL SPEED LIMIT 25

MEASURED BY_____ DATE _____

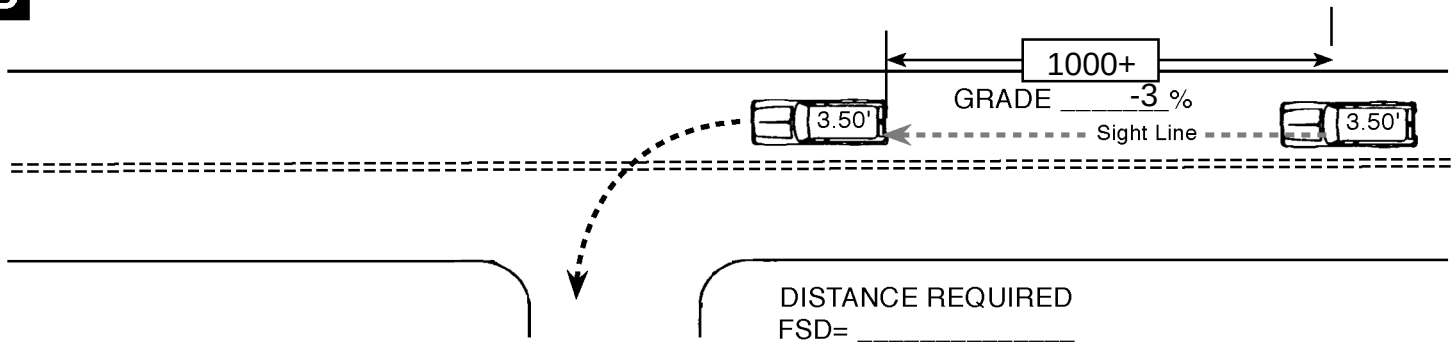
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A



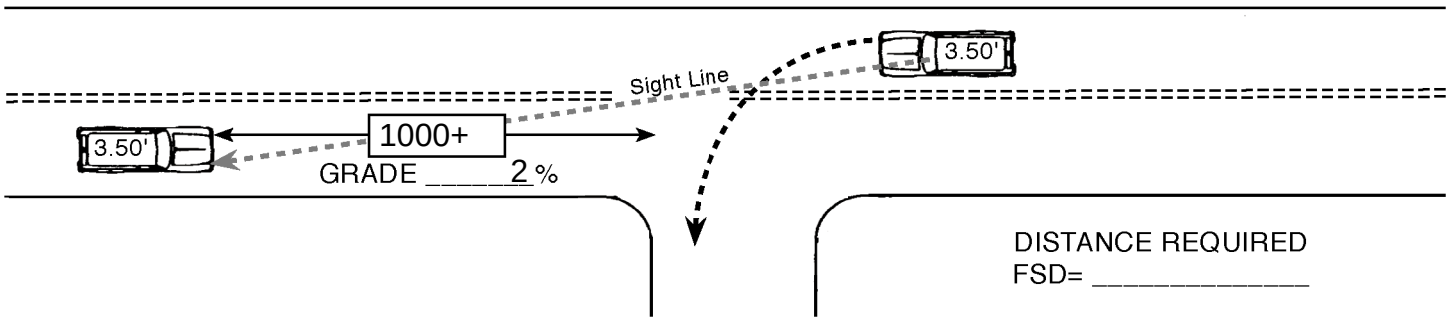
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

B



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

FORMULA SIGHT DISTANCE TABLE

Speed (V) (Miles Per Hour)	Average Grade (G) (Percent)										
	Use plus grades when approaching vehicle is travelling upgrade.										
	0.0	+1.0	+2.0	+3.0	+4.0	+5.0	+6.0	+7.0	+8.0	+9.0	+10.0
25	147	145	144	143	142	140	139	138	137	136	135
30	196	194	191	189	187	185	183	182	180	178	177
35	249	245	242	239	236	233	231	228	226	224	221
40	314	309	304	299	295	291	287	284	280	277	274
45	383	376	370	364	358	353	348	343	339	334	330
50	462	453	444	436	429	422	415	409	403	397	392
55	538	527	517	508	499	490	482	475	468	461	454
	Use negative grades when approaching vehicle is travelling downgrade.										
	0.0	-1.0	-2.0	-3.0	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0
25	147	148	150	151	153	155	157	159	161	164	166
30	196	199	201	204	207	210	214	217	221	226	230
35	249	252	256	260	265	269	275	280	286	292	299
40	314	319	325	331	338	345	352	360	369	379	389
45	383	390	398	406	415	425	435	447	459	472	487
50	462	471	481	492	504	517	531	546	563	581	600
55	538	550	562	576	590	606	622	641	661	682	706

MIDDLE ROAD & WESTERN DRIVEWAY

M-950S
(03-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

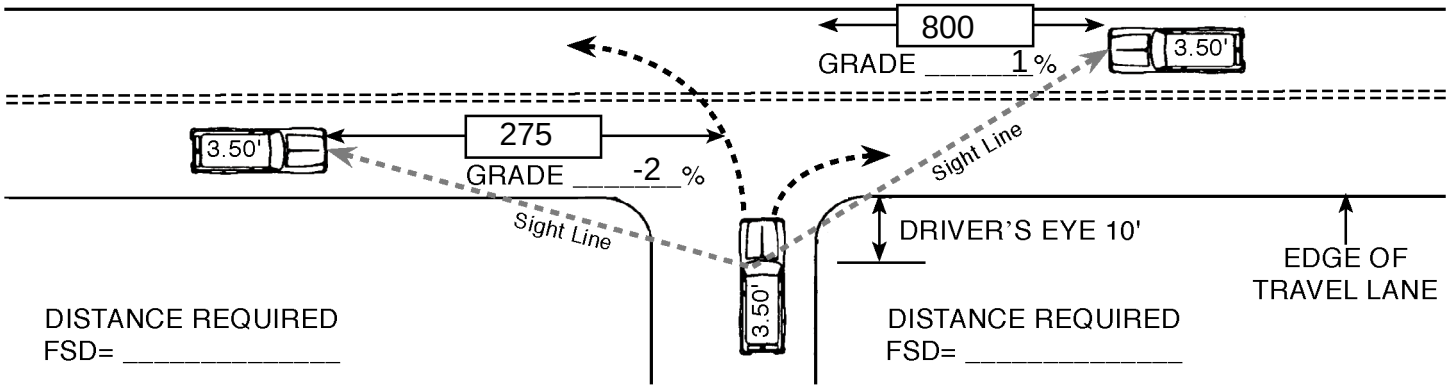
APPLICANT_____ APPLICATION NO._____

S.R._____SEG._____OFFSET_____ LEGAL SPEED LIMIT 35

MEASURED BY_____ DATE _____

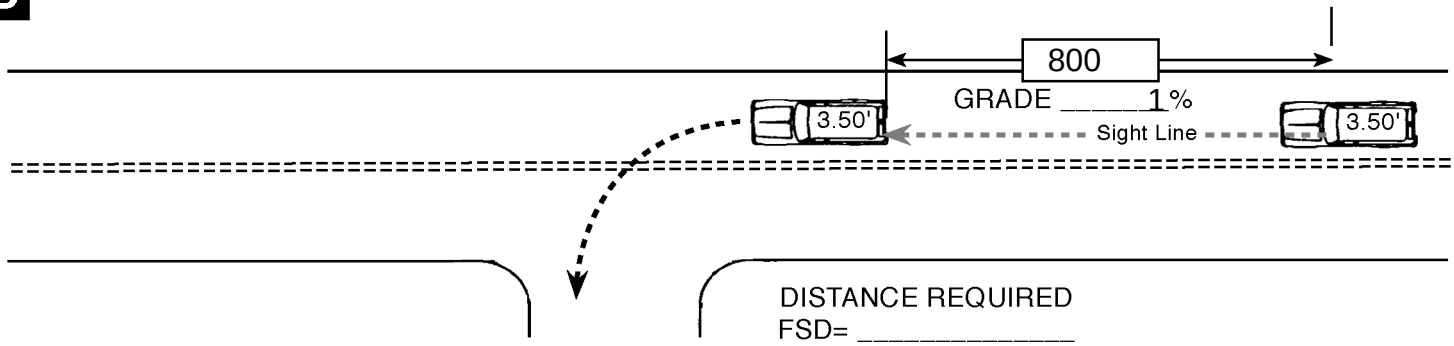
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A



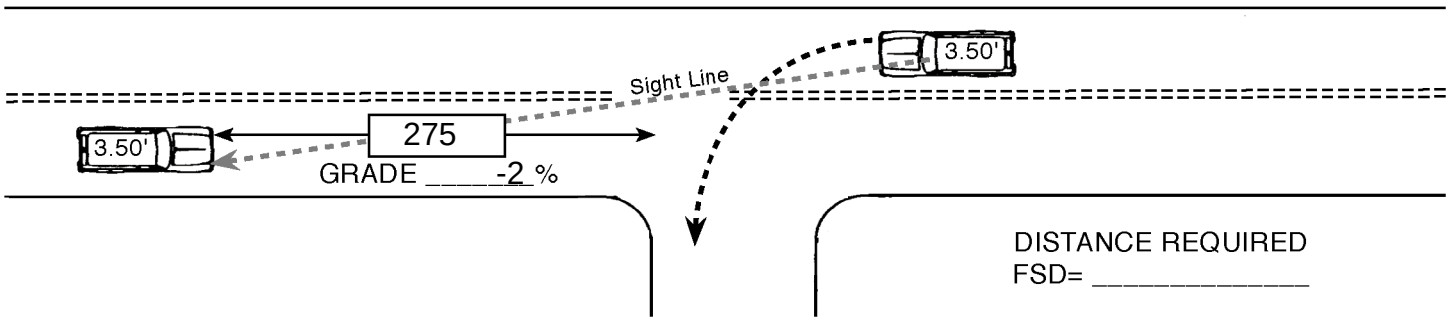
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

B



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

FORMULA SIGHT DISTANCE TABLE

Speed (V) (Miles Per Hour)	Average Grade (G) (Percent)										
	Use plus grades when approaching vehicle is travelling upgrade.										
	0.0	+1.0	+2.0	+3.0	+4.0	+5.0	+6.0	+7.0	+8.0	+9.0	+10.0
25	147	145	144	143	142	140	139	138	137	136	135
30	196	194	191	189	187	185	183	182	180	178	177
35	249	245	242	239	236	233	231	228	226	224	221
40	314	309	304	299	295	291	287	284	280	277	274
45	383	376	370	364	358	353	348	343	339	334	330
50	462	453	444	436	429	422	415	409	403	397	392
55	538	527	517	508	499	490	482	475	468	461	454
	Use negative grades when approaching vehicle is travelling downgrade.										
	0.0	-1.0	-2.0	-3.0	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0
25	147	148	150	151	153	155	157	159	161	164	166
30	196	199	201	204	207	210	214	217	221	226	230
35	249	252	256	260	265	269	275	280	286	292	299
40	314	319	325	331	338	345	352	360	369	379	389
45	383	390	398	406	415	425	435	447	459	472	487
50	462	471	481	492	504	517	531	546	563	581	600
55	538	550	562	576	590	606	622	641	661	682	706

M-950S
(03-04)
PENNDOT

MIDDLE ROAD & EASTERN DRIVEWAY

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

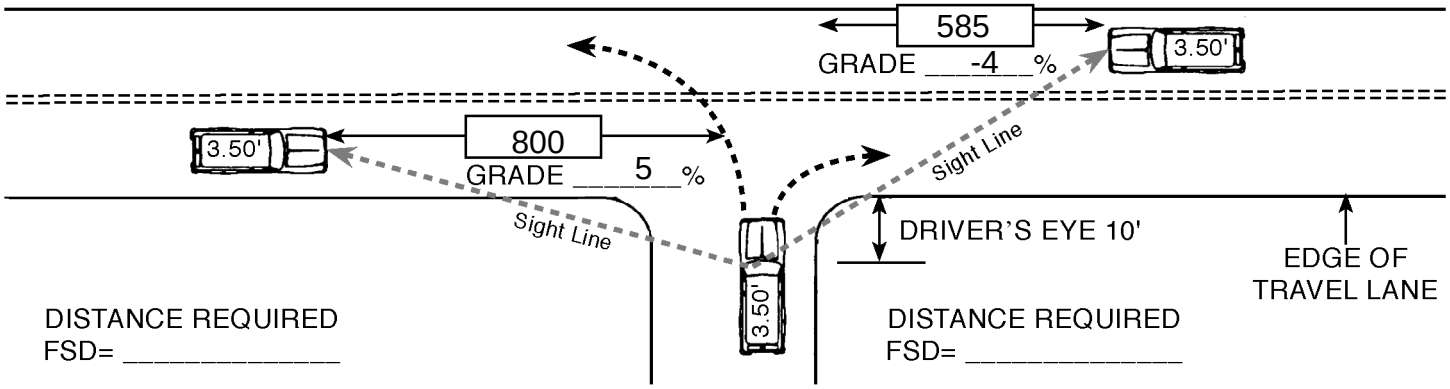
APPLICANT_____ APPLICATION NO._____

S.R._____SEG._____OFFSET_____ LEGAL SPEED LIMIT 35

MEASURED BY_____ DATE _____

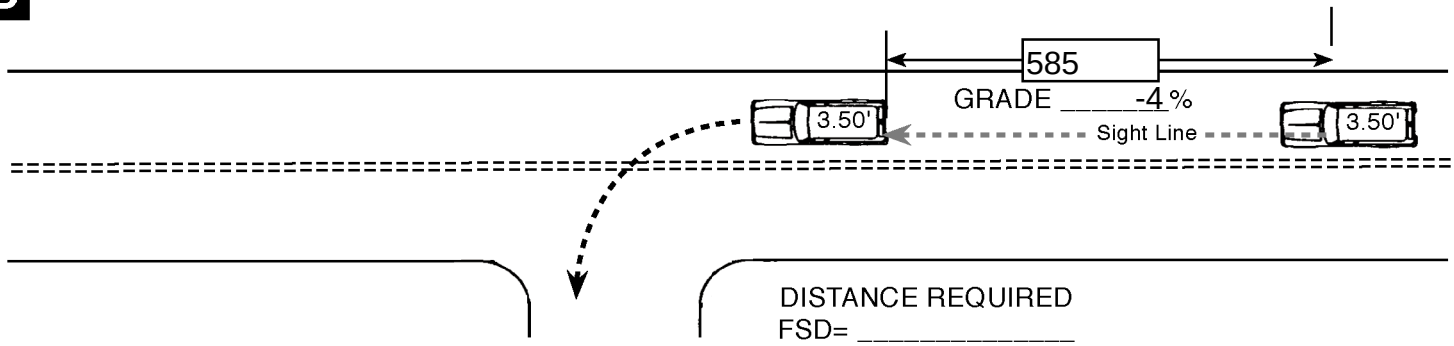
FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

A



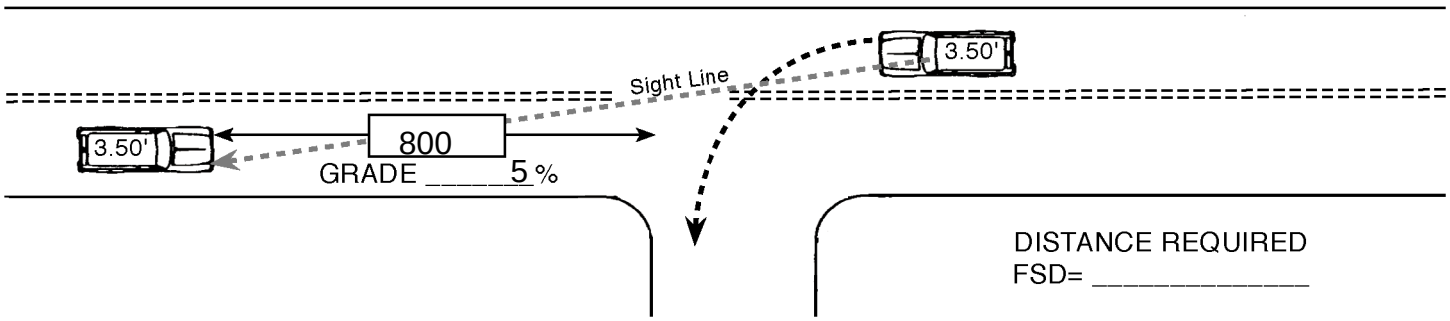
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

B



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

FORMULA SIGHT DISTANCE TABLE

Speed (V) (Miles Per Hour)	Average Grade (G) (Percent)										
	Use plus grades when approaching vehicle is travelling upgrade.										
	0.0	+1.0	+2.0	+3.0	+4.0	+5.0	+6.0	+7.0	+8.0	+9.0	+10.0
25	147	145	144	143	142	140	139	138	137	136	135
30	196	194	191	189	187	185	183	182	180	178	177
35	249	245	242	239	236	233	231	228	226	224	221
40	314	309	304	299	295	291	287	284	280	277	274
45	383	376	370	364	358	353	348	343	339	334	330
50	462	453	444	436	429	422	415	409	403	397	392
55	538	527	517	508	499	490	482	475	468	461	454
	Use negative grades when approaching vehicle is travelling downgrade.										
	0.0	-1.0	-2.0	-3.0	-4.0	-5.0	-6.0	-7.0	-8.0	-9.0	-10.0
25	147	148	150	151	153	155	157	159	161	164	166
30	196	199	201	204	207	210	214	217	221	226	230
35	249	252	256	260	265	269	275	280	286	292	299
40	314	319	325	331	338	345	352	360	369	379	389
45	383	390	398	406	415	425	435	447	459	472	487
50	462	471	481	492	504	517	531	546	563	581	600
55	538	550	562	576	590	606	622	641	661	682	706

Appendix N - Synchro Capacity Analysis and Queue Reports

N.01 – Existing Condition: Synchro Reports

WEEKDAY

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	28	3	0	50	1
Future Volume (vph)	0	28	3	0	50	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.998	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1715	0	0	1388	1869	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1715	0	0	1388	1869	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	7%	33%	0%	2%	100%
Adj. Flow (vph)	0	33	4	0	59	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	0	4	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

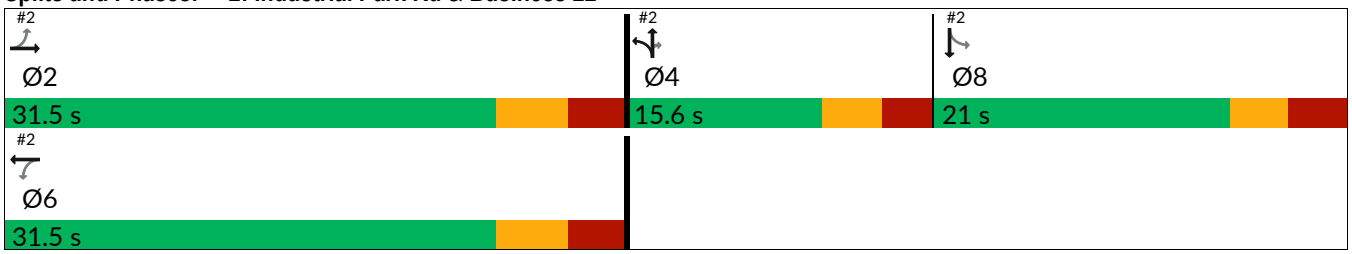
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	133	252	71	80	3	86	0	52	8	0	12
Future Volume (vph)	6	133	252	71	80	3	86	0	52	8	0	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.902			0.995				0.850		0.920	
Flt Protected	0.950			0.950			0.950	0.950			0.980	
Satd. Flow (prot)	1785	1558	0	1682	3240	0	1495	1495	1395	0	1739	0
Flt Permitted	0.695			0.478			0.950	0.950				
Satd. Flow (perm)	1306	1558	0	846	3240	0	1495	1495	1395	0	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		162			3				152		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1150			1064			837			237	
Travel Time (s)		26.1			24.2			22.8			6.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	7%	4%	3%	33%	7%	0%	8%	0%	0%	8%
Adj. Flow (vph)	7	146	277	78	88	3	95	0	57	9	0	13
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	7	423	0	78	91	0	47	48	57	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.1	26.1		26.1	26.1		8.4	8.4	8.4		7.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.20	0.20	0.20		0.17	
v/c Ratio	0.01	0.41		0.15	0.05		0.16	0.16	0.14		0.05	
Control Delay (s/veh)	7.2	6.3		8.1	6.4		17.6	17.6	0.8		0.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	7.2	6.3		8.1	6.4		17.6	17.6	0.8		0.3	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		6.4			7.2			11.3			0.3	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	26		7	4		8	7	0		0	
Queue Length 95th (ft)	7	131		42	20		43	41	0		0	
Internal Link Dist (ft)		1070			984			757			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	903	1128		585	2243		407	407	490		791	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.38		0.13	0.04		0.12	0.12	0.12		0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 42.3	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.41	
Intersection Signal Delay (s/veh): 7.3	Intersection LOS: A
Intersection Capacity Utilization 53.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	7	423	78	91	47	48	57	22
v/c Ratio	0.01	0.41	0.15	0.05	0.16	0.16	0.14	0.05
Control Delay (s/veh)	7.2	6.3	8.1	6.4	17.6	17.6	0.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	6.3	8.1	6.4	17.6	17.6	0.8	0.3
Queue Length 50th (ft)	1	26	7	4	8	7	0	0
Queue Length 95th (ft)	7	131	42	20	43	41	0	0
Internal Link Dist (ft)		1070		984		757		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	903	1128	585	2243	407	407	490	791
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.38	0.13	0.04	0.12	0.12	0.12	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	133	252	71	80	3	86	0	52	8	0	12
Future Volume (veh/h)	6	133	252	71	80	3	86	0	52	8	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1846	1790	1736	1314	1652	1750	1637	1778	1849	1665
Adj Flow Rate, veh/h	7	146	0	78	88	3	95	0	57	9	0	13
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	7	4	3	33	7	0	8	0	0	8
Cap, veh/h	687	652		585	1149	39	358	0	158	33	0	47
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.11	0.00	0.11	0.02	0.00	0.02
Sat Flow, veh/h	1361	1846	0	1189	3254	110	3146	0	1388	671	0	970
Grp Volume(v), veh/h	7	146	0	78	44	47	95	0	57	22	0	0
Grp Sat Flow(s),veh/h/ln	1361	1846	0	1189	1649	1716	1573	0	1388	1641	0	0
Q Serve(g_s), s	0.1	1.7	0.0	1.5	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.7	0.0	3.3	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	1.00		1.00	0.41		0.59
Lane Grp Cap(c), veh/h	687	652		585	582	606	358	0	158	80	0	0
V/C Ratio(X)	0.01	0.22		0.13	0.08	0.08	0.27	0.00	0.36	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1342	1540		1157	1376	1431	1110	0	490	842	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.9	7.1	0.0	8.2	6.7	6.7	12.6	0.0	12.8	14.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.4	0.2	0.2	0.4	0.0	1.4	1.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.3	0.2	0.2	0.3	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.0	7.8	0.0	8.7	6.9	7.0	13.0	0.0	14.1	16.6	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		153			169			152			22	
Approach Delay, s/veh		7.8			7.7			13.4			16.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.1		16.5		6.5				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		3.7		3.2		5.3		2.4				
Green Ext Time (p_c), s		2.0		0.3		1.9		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.9									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	3	4	1	1	8	3	115	0	6	288	19
Future Volume (vph)	19	3	4	1	1	8	3	115	0	6	288	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.890						0.992	
Flt Protected		0.964			0.995			0.999			0.999	
Satd. Flow (prot)	0	1731	0	0	1344	0	0	1945	0	0	1854	0
Flt Permitted		0.964			0.995			0.999			0.999	
Satd. Flow (perm)	0	1731	0	0	1344	0	0	1945	0	0	1854	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			837	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	0%	0%	25%	0%	7%	0%	17%	6%	11%
Adj. Flow (vph)	20	3	4	1	1	9	3	122	0	6	306	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	11	0	0	125	0	0	332	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	32.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	19	3	4	1	1	8	3	115	0	6	288	19
Future Vol, veh/h	19	3	4	1	1	8	3	115	0	6	288	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	0	0	25	0	7	0	17	6	11
Mvmt Flow	20	3	4	1	1	9	3	122	0	6	306	20

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	459	458	316	449	468	122	327	0	0	122	0	0
Stage 1	329	329	-	129	129	-	-	-	-	-	-	-
Stage 2	129	129	-	321	339	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.3	6.7	6.55	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	581	502	769	578	483	923	928	-	-	1019	-	-
Stage 1	782	650	-	1010	788	-	-	-	-	-	-	-
Stage 2	1015	793	-	780	631	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	568	497	769	565	478	923	928	-	-	1019	-	-
Mov Cap-2 Maneuver	568	497	-	565	478	-	-	-	-	-	-	-
Stage 1	776	645	-	1007	785	-	-	-	-	-	-	-
Stage 2	1001	791	-	766	626	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.5	9.57	0.23	0.16
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	46	-	-	582	798	34	-	-
HCM Lane V/C Ratio	0.003	-	-	0.048	0.013	0.006	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	11.5	9.6	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	3	67	1	18	2	60	44	5	149	0
Future Volume (vph)	7	4	3	67	1	18	2	60	44	5	149	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.971			0.944				
Flt Protected		0.977			0.963			0.999			0.998	
Satd. Flow (prot)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Flt Permitted		0.977			0.963			0.999			0.998	
Satd. Flow (perm)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	50%	8%	0%	0%	6%	0%
Adj. Flow (vph)	8	5	4	81	1	22	2	72	53	6	180	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	104	0	0	127	0	0	186	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	3	67	1	18	2	60	44	5	149	0
Future Vol, veh/h	7	4	3	67	1	18	2	60	44	5	149	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	50	8	0	0	6	0
Mvmt Flow	8	5	4	81	1	22	2	72	53	6	180	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.4	9.1	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	50%	78%	3%
Vol Thru, %	57%	29%	1%	97%
Vol Right, %	42%	21%	21%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	106	14	86	154
LT Vol	2	7	67	5
Through Vol	60	4	1	149
RT Vol	44	3	18	0
Lane Flow Rate	128	17	104	186
Geometry Grp	1	1	1	1
Degree of Util (X)	0.177	0.022	0.135	0.224
Departure Headway (Hd)	4.995	4.742	4.689	4.354
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	719	755	766	826
Service Time	3.016	2.771	2.712	2.372
HCM Lane V/C Ratio	0.178	0.023	0.136	0.225
HCM Control Delay, s/veh	9.1	7.9	8.4	8.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.1	0.5	0.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	312	5	25	316	4	38
Future Volume (vph)	312	5	25	316	4	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.878	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1798	0	0	1852	1751	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1798	0	0	1852	1751	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	5%	0%	0%	4%	0%	3%
Adj. Flow (vph)	318	5	26	322	4	39
Shared Lane Traffic (%)						
Lane Group Flow (vph)	323	0	0	348	43	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	312	5	25	316	4	38
Future Vol, veh/h	312	5	25	316	4	38
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, %	1	-	-	-3	3	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	5	0	0	4	0	3
Mvmt Flow	318	5	26	322	4	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	323	0	694	321
Stage 1	-	-	-	-	321	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	930	-	418	745
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	749	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	930	-	404	745
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	774	-
Stage 2	-	-	-	-	749	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.66	10.57
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	689	-	-	132	-
HCM Lane V/C Ratio	0.062	-	-	0.027	-
HCM Ctrl Dly (s/v)	10.6	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	40	2	0	73	2
Future Volume (vph)	0	40	2	0	73	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1835	0	0	1847	1862	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1835	0	0	1847	1862	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	46	2	0	84	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	2	86	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.2%	ICU Level of Service	A
Analysis Period (min)	15		

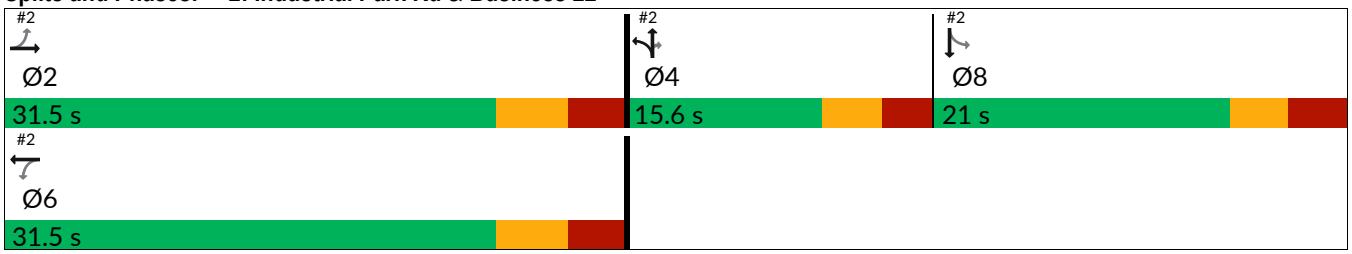
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	269	76	32	296	44	243	1	157	26	0	30
Future Volume (vph)	13	269	76	32	296	44	243	1	157	26	0	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967			0.981				0.850		0.928	
Flt Protected	0.950			0.950			0.950	0.953			0.977	
Satd. Flow (prot)	1785	1669	0	1650	3293	0	1482	1487	1477	0	1831	0
Flt Permitted	0.478			0.367			0.950	0.953			0.762	
Satd. Flow (perm)	898	1669	0	638	3293	0	1482	1487	1477	0	1428	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			28				221		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1147			1064			839			237	
Travel Time (s)		26.1			24.2			22.9			6.5	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	2%	17%	6%	1%	0%	8%	0%	2%	0%	0%	0%
Adj. Flow (vph)	18	379	107	45	417	62	342	1	221	37	0	42
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	18	486	0	45	479	0	171	172	221	0	79	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	22.0	22.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	22.8	22.8		22.8	22.8		10.8	10.8	10.8		7.2	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.21	0.21	0.21		0.14	
v/c Ratio	0.04	0.63		0.16	0.32		0.54	0.54	0.45		0.24	
Control Delay (s/veh)	10.0	15.8		11.6	9.9		29.1	29.1	7.3		3.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	10.0	15.8		11.6	9.9		29.1	29.1	7.3		3.0	
LOS	A	B		B	A		C	C	A		A	
Approach Delay (s/veh)		15.6			10.0			20.5			3.0	
Approach LOS		B			B			C			A	
Queue Length 50th (ft)	3	122		9	51		63	58	0		0	
Queue Length 95th (ft)	10	148		22	61		94	89	22		0	
Internal Link Dist (ft)		1067			984			759			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	488	919		347	1804		341	342	509		575	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.04	0.53		0.13	0.27		0.50	0.50	0.43		0.14	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 50.4	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.63	
Intersection Signal Delay (s/veh): 14.9	Intersection LOS: B
Intersection Capacity Utilization 49.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	486	45	479	171	172	221	79
v/c Ratio	0.04	0.63	0.16	0.32	0.54	0.54	0.45	0.24
Control Delay (s/veh)	10.0	15.8	11.6	9.9	29.1	29.1	7.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.0	15.8	11.6	9.9	29.1	29.1	7.3	3.0
Queue Length 50th (ft)	3	122	9	51	63	58	0	0
Queue Length 95th (ft)	10	148	22	61	94	89	22	0
Internal Link Dist (ft)		1067		984		759		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	488	919	347	1804	341	342	509	575
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.53	0.13	0.27	0.50	0.50	0.43	0.14

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	269	76	32	296	44	243	1	157	26	0	30
Future Volume (veh/h)	13	269	76	32	296	44	243	1	157	26	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1698	1761	1764	1778	1637	1750	1722	1778	1849	1778
Adj Flow Rate, veh/h	18	379	0	45	417	62	343	0	221	37	0	42
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	0	2	17	6	1	0	8	0	2	0	0	0
Cap, veh/h	423	713		368	1131	167	664	0	311	62	0	71
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.36	0.21	0.00	0.21	0.06	0.00	0.06
Sat Flow, veh/h	954	1846	0	945	2929	433	3119	0	1459	774	0	878
Grp Volume(v), veh/h	18	379	0	45	237	242	343	0	221	79	0	0
Grp Sat Flow(s),veh/h/ln	954	1846	0	945	1675	1686	1559	0	1459	1652	0	0
Q Serve(g_s), s	0.6	7.5	0.0	1.8	4.8	4.9	4.6	0.0	6.6	2.2	0.0	0.0
Cycle Q Clear(g_c), s	5.5	7.5	0.0	9.3	4.8	4.9	4.6	0.0	6.6	2.2	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.26	1.00		1.00	0.47		0.53
Lane Grp Cap(c), veh/h	423	713		368	647	651	664	0	311	133	0	0
V/C Ratio(X)	0.04	0.53		0.12	0.37	0.37	0.52	0.00	0.71	0.59	0.00	0.00
Avail Cap(c_a), veh/h	581	1018		524	924	930	728	0	340	561	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.4	11.2	0.0	14.8	10.3	10.5	16.4	0.0	17.2	21.4	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.6	0.0	0.6	1.5	1.5	0.6	0.0	6.1	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.0	0.0	0.4	1.7	1.7	1.5	0.0	2.5	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.5	13.8	0.0	15.4	11.8	12.0	17.0	0.0	23.3	25.6	0.0	0.0
LnGrp LOS	B	B		B	B	B	B		C	C		
Approach Vol, veh/h		397			524			564			79	
Approach Delay, s/veh		13.8			12.2			19.5			25.6	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	23.7	14.6	23.7	8.8
Change Period (Y+Rc), s	6.5	5.6	6.5	6.0
Max Green Setting (Gmax), s	25.0	10.0	25.0	15.0
Max Q Clear Time (g_c+I1), s	9.5	8.6	11.3	4.2
Green Ext Time (p_c), s	5.1	0.4	5.9	0.2

Intersection Summary	
HCM 7th Control Delay, s/veh	15.9
HCM 7th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	12	0	3	6	9	5	370	7	17	74	14
Future Volume (vph)	31	12	0	3	6	9	5	370	7	17	74	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.932			0.997			0.982	
Flt Protected		0.965			0.992			0.999			0.992	
Satd. Flow (prot)	0	1795	0	0	1602	0	0	1976	0	0	1696	0
Flt Permitted		0.965			0.992			0.999			0.992	
Satd. Flow (perm)	0	1795	0	0	1602	0	0	1976	0	0	1696	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			839	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	3%	0%	0%	0%	0%	11%	0%	5%	0%	18%	15%	7%
Adj. Flow (vph)	61	24	0	6	12	18	10	725	14	33	145	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	36	0	0	749	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	34.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	12	0	3	6	9	5	370	7	17	74	14
Future Vol, veh/h	31	12	0	3	6	9	5	370	7	17	74	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	3	0	0	0	0	11	0	5	0	18	15	7
Mvmt Flow	61	24	0	6	12	18	10	725	14	33	145	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	976	984	159	975	991	732	173	0	0	739	0	0
Stage 1	225	225	-	752	752	-	-	-	-	-	-	-
Stage 2	751	759	-	224	239	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.3	6.7	6.41	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	254	250	945	243	235	415	1048	-	-	609	-	-
Stage 1	897	721	-	433	404	-	-	-	-	-	-	-
Stage 2	449	418	-	889	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	213	231	945	203	217	415	1048	-	-	609	-	-
Mov Cap-2 Maneuver	213	231	-	203	217	-	-	-	-	-	-	-
Stage 1	842	677	-	426	397	-	-	-	-	-	-	-
Stage 2	411	411	-	806	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	31.58	19.65	0.11	1.82
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	23	-	-	218	281	282	-	-
HCM Lane V/C Ratio	0.009	-	-	0.387	0.126	0.055	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	31.6	19.7	11.3	0	-
HCM Lane LOS	A	A	-	D	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	1.7	0.4	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	1	16	11	0	0	89	41	9	24	9
Future Volume (vph)	7	5	1	16	11	0	0	89	41	9	24	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992						0.958			0.971	
Flt Protected		0.973			0.971						0.989	
Satd. Flow (prot)	0	1825	0	0	1739	0	0	1720	0	0	1548	0
Flt Permitted		0.973			0.971						0.989	
Satd. Flow (perm)	0	1825	0	0	1739	0	0	1720	0	0	1548	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	38%	0%
Adj. Flow (vph)	10	7	1	24	16	0	0	131	60	13	35	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	40	0	0	191	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	1	16	11	0	0	89	41	9	24	9
Future Vol, veh/h	7	5	1	16	11	0	0	89	41	9	24	9
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	38	0
Mvmt Flow	10	7	1	24	16	0	0	131	60	13	35	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	7.8	8.2	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	59%	21%
Vol Thru, %	68%	38%	41%	57%
Vol Right, %	32%	8%	0%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	13	27	42
LT Vol	0	7	16	9
Through Vol	89	5	11	24
RT Vol	41	1	0	9
Lane Flow Rate	191	19	40	62
Geometry Grp	1	1	1	1
Degree of Util (X)	0.214	0.024	0.051	0.07
Departure Headway (Hd)	4.029	4.556	4.589	4.061
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	883	790	785	869
Service Time	2.088	2.558	2.589	2.146
HCM Lane V/C Ratio	0.216	0.024	0.051	0.071
HCM Control Delay, s/veh	8.2	7.7	7.8	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.1	0.2	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	487	10	36	523	4	65
Future Volume (vph)	487	10	36	523	4	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.872	
Flt Protected				0.997	0.997	
Satd. Flow (prot)	1867	0	0	1905	1694	0
Flt Permitted				0.997	0.997	
Satd. Flow (perm)	1867	0	0	1905	1694	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	0%	1%	0%	6%
Adj. Flow (vph)	507	10	38	545	4	68
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	0	0	583	72	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.0%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	487	10	36	523	4	65
Future Vol, veh/h	487	10	36	523	4	65
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, %	1	-	-	-3	3	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	6
Mvmt Flow	507	10	38	545	4	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	518	0	1132	513
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.2
Pot Cap-1 Maneuver	-	-	796	-	212	555
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	547	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	796	-	197	555
Mov Cap-2 Maneuver	-	-	-	-	197	-
Stage 1	-	-	-	-	585	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.63	13.36
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	502	-	-	116	-
HCM Lane V/C Ratio	0.143	-	-	0.047	-
HCM Ctrl Dly (s/v)	13.4	-	-	9.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

WEEKEND

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	37	1	0	35	1
Future Volume (vph)	0	37	1	0	35	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1747	0	0	1847	1828	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1747	0	0	1847	1828	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%
Adj. Flow (vph)	0	46	1	0	44	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	0	0	1	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

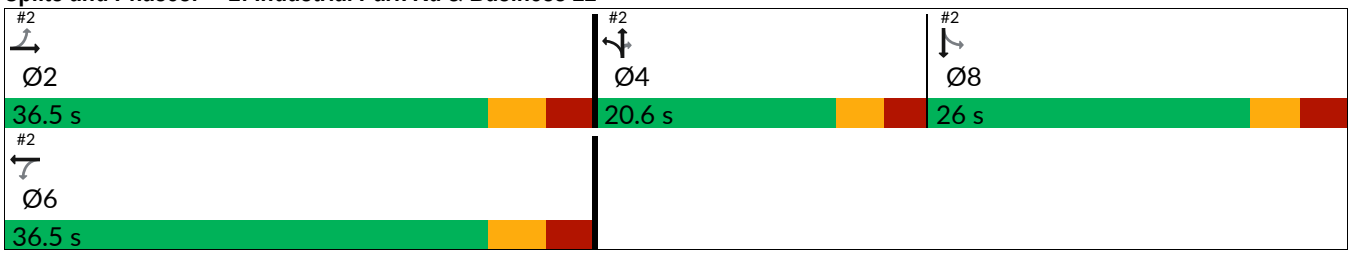
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	191	39	28	203	23	34	0	45	24	0	14
Future Volume (vph)	14	191	39	28	203	23	34	0	45	24	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.975			0.985				0.850		0.952	
Flt Protected	0.950			0.950			0.950	0.950			0.969	
Satd. Flow (prot)	1785	1773	0	1576	3335	0	1290	1290	1383	0	1773	0
Flt Permitted	0.607			0.611			0.950	0.950				
Satd. Flow (perm)	1140	1773	0	1014	3335	0	1290	1290	1383	0	1830	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			17				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	24%	0%	9%	4%	0%	7%
Adj. Flow (vph)	14	197	40	29	209	24	35	0	46	25	0	14
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	14	237	0	29	233	0	17	18	46	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.3	26.3		26.3	26.3		7.7	7.7	7.7		7.0	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.19	0.19	0.19		0.18	
v/c Ratio	0.02	0.20		0.04	0.11		0.07	0.07	0.13		0.09	
Control Delay (s/veh)	8.9	8.1		9.0	7.0		17.5	17.5	0.7		0.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.9	8.1		9.0	7.0		17.5	17.5	0.7		0.4	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		8.1			7.2			8.0			0.4	
Approach LOS		A			A			A			A	
Queue Length 50th (ft)	1	20		3	9		3	3	0		0	
Queue Length 95th (ft)	11	86		19	38		22	18	0		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	924	1441		822	2709		540	540	651		1059	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.16		0.04	0.09		0.03	0.03	0.07		0.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 39.8	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.20	
Intersection Signal Delay (s/veh): 7.2	Intersection LOS: A
Intersection Capacity Utilization 42.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	14	237	29	233	17	18	46	39
v/c Ratio	0.02	0.20	0.04	0.11	0.07	0.07	0.13	0.09
Control Delay (s/veh)	8.9	8.1	9.0	7.0	17.5	17.5	0.7	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	8.1	9.0	7.0	17.5	17.5	0.7	0.4
Queue Length 50th (ft)	1	20	3	9	3	3	0	0
Queue Length 95th (ft)	11	86	19	38	22	18	0	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	924	1441	822	2709	540	540	651	1059
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.16	0.04	0.09	0.03	0.03	0.07	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	191	39	28	203	23	34	0	45	24	0	14
Future Volume (veh/h)	14	191	39	28	203	23	34	0	45	24	0	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1875	1950	1688	1778	1778	1413	1750	1623	1722	1849	1679
Adj Flow Rate, veh/h	14	197	0	29	209	24	35	0	46	25	0	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	11	0	0	24	0	9	4	0	7
Cap, veh/h	610	676		541	1102	125	226	0	116	65	0	37
Arrive On Green	0.36	0.36	0.00	0.36	0.36	0.33	0.08	0.00	0.08	0.03	0.00	0.03
Sat Flow, veh/h	1196	1875	0	1070	3057	347	2691	0	1376	1081	0	605
Grp Volume(v), veh/h	14	197	0	29	114	119	35	0	46	39	0	0
Grp Sat Flow(s),veh/h/ln	1196	1875	0	1070	1689	1715	1346	0	1376	1686	0	0
Q Serve(g_s), s	0.2	2.3	0.0	0.6	1.4	1.5	0.4	0.0	1.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.7	2.3	0.0	2.9	1.4	1.5	0.4	0.0	1.0	0.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.20	1.00		1.00	0.64		0.36
Lane Grp Cap(c), veh/h	610	676		541	609	618	226	0	116	102	0	0
V/C Ratio(X)	0.02	0.29		0.05	0.19	0.19	0.15	0.00	0.40	0.38	0.00	0.00
Avail Cap(c_a), veh/h	1394	1905		1243	1716	1743	1411	0	722	1160	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	7.0	0.0	8.0	6.7	6.8	13.0	0.0	13.2	14.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.0	0.0	0.2	0.6	0.6	0.3	0.0	2.2	2.3	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.0	0.1	0.4	0.4	0.1	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.4	8.0	0.0	8.2	7.3	7.4	13.3	0.0	15.4	16.6	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		211			262			81			39	
Approach Delay, s/veh		7.9			7.5			14.5			16.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		7.2		16.5		6.8				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		4.3		3.0		4.9		2.7				
Green Ext Time (p_c), s		3.2		0.2		3.9		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.2									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	7	2	2	3	2	76	1	4	113	6
Future Volume (vph)	5	3	7	2	2	3	2	76	1	4	113	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.946			0.999			0.993	
Flt Protected		0.983			0.985			0.999			0.998	
Satd. Flow (prot)	0	1754	0	0	1703	0	0	1944	0	0	1877	0
Flt Permitted		0.983			0.985			0.999			0.998	
Satd. Flow (perm)	0	1754	0	0	1703	0	0	1944	0	0	1877	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	50%	4%	0%
Adj. Flow (vph)	7	4	9	3	3	4	3	103	1	5	153	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	10	0	0	107	0	0	166	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	7	2	2	3	2	76	1	4	113	6
Future Vol, veh/h	5	3	7	2	2	3	2	76	1	4	113	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	7	0	50	4	0
Mvmt Flow	7	4	9	3	3	4	3	103	1	5	153	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	277	277	157	274	280	103	161	0	0	104	0	0
Stage 1	168	168	-	109	109	-	-	-	-	-	-	-
Stage 2	109	109	-	166	172	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.3	6.7	6.3	4.3	-	-	4.8	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3.5	-	-
Pot Cap-1 Maneuver	778	634	948	770	622	1013	1058	-	-	941	-	-
Stage 1	968	764	-	1038	804	-	-	-	-	-	-	-
Stage 2	1043	809	-	962	753	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	765	628	948	750	616	1013	1058	-	-	941	-	-
Mov Cap-2 Maneuver	765	628	-	750	616	-	-	-	-	-	-	-
Stage 1	962	759	-	1035	802	-	-	-	-	-	-	-
Stage 2	1033	806	-	941	749	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.6	9.62	0.21	0.29
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	45	-	-	802	789	58	-	-
HCM Lane V/C Ratio	0.003	-	-	0.025	0.012	0.006	-	-
HCM Ctrl Dly (s/v)	8.4	0	-	9.6	9.6	8.8	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	0	29	1	9	2	58	56	4	51	1
Future Volume (vph)	2	6	0	29	1	9	2	58	56	4	51	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.968			0.935			0.998	
Flt Protected		0.987			0.964			0.999			0.996	
Satd. Flow (prot)	0	1866	0	0	1671	0	0	1749	0	0	1818	0
Flt Permitted		0.987			0.964			0.999			0.996	
Satd. Flow (perm)	0	1866	0	0	1671	0	0	1749	0	0	1818	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	8%	0%
Adj. Flow (vph)	3	8	0	37	1	12	3	74	72	5	65	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	50	0	0	149	0	0	71	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	6	0	29	1	9	2	58	56	4	51	1
Future Vol, veh/h	2	6	0	29	1	9	2	58	56	4	51	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	8	0
Mvmt Flow	3	8	0	37	1	12	3	74	72	5	65	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.5	7.7	7.5	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	74%	7%
Vol Thru, %	50%	75%	3%	91%
Vol Right, %	48%	0%	23%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	8	39	56
LT Vol	2	2	29	4
Through Vol	58	6	1	51
RT Vol	56	0	9	1
Lane Flow Rate	149	10	50	72
Geometry Grp	1	1	1	1
Degree of Util (X)	0.156	0.012	0.06	0.082
Departure Headway (Hd)	3.772	4.369	4.297	4.12
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	943	806	823	862
Service Time	1.825	2.465	2.379	2.179
HCM Lane V/C Ratio	0.158	0.012	0.061	0.084
HCM Control Delay, s/veh	7.5	7.5	7.7	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0	0.2	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	358	6	34	369	6	58
Future Volume (vph)	358	6	34	369	6	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.878	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1833	0	0	1899	1798	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1833	0	0	1899	1798	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	3%	1%	0%	0%
Adj. Flow (vph)	411	7	39	424	7	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	418	0	0	463	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	358	6	34	369	6	58
Future Vol, veh/h	358	6	34	369	6	58
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, %	1	-	-	-3	3	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	3	1	0	0
Mvmt Flow	411	7	39	424	7	67

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	418	0	917	415
Stage 1	-	-	-	-	415	-
Stage 2	-	-	-	-	502	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	862	-	296	653
Stage 1	-	-	-	-	711	-
Stage 2	-	-	-	-	636	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	862	-	278	653
Mov Cap-2 Maneuver	-	-	-	-	278	-
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	636	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.79	12.11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	580	-	-	152	-
HCM Lane V/C Ratio	0.127	-	-	0.045	-
HCM Ctrl Dly (s/v)	12.1	-	-	9.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	50	0	0	54	0
Future Volume (vph)	0	50	0	0	54	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	1799	0	0	1944	1935	0
Flt Permitted					0.950	
Satd. Flow (perm)	1799	0	0	1944	1935	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	56	0	0	60	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	0	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

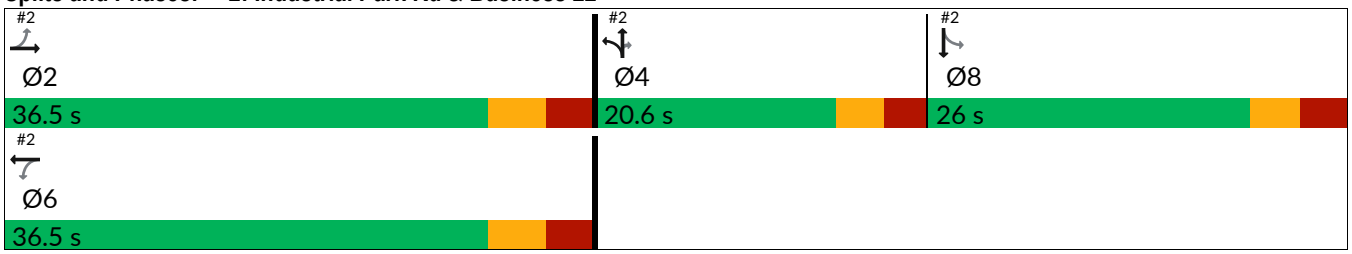
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	217	59	28	287	17	38	1	27	20	0	25
Future Volume (vph)	16	217	59	28	287	17	38	1	27	20	0	25
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.968			0.992				0.850		0.926	
Flt Protected	0.950			0.950			0.950	0.954			0.978	
Satd. Flow (prot)	1684	1749	0	1576	3359	0	1442	1454	1408	0	1829	0
Flt Permitted	0.545			0.570			0.950	0.954				
Satd. Flow (perm)	966	1749	0	946	3359	0	1442	1454	1408	0	1870	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1141			1064			838			237	
Travel Time (s)		25.9			24.2			22.9			6.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	0%	3%	11%	0%	0%	11%	0%	7%	0%	0%	0%
Adj. Flow (vph)	18	247	67	32	326	19	43	1	31	23	0	28
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	18	314	0	32	345	0	22	22	31	0	51	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	29.0	29.0		29.0	29.0		7.8	7.8	7.8		7.1	
Actuated g/C Ratio	0.69	0.69		0.69	0.69		0.18	0.18	0.18		0.17	
v/c Ratio	0.03	0.26		0.05	0.15		0.08	0.08	0.09		0.12	
Control Delay (s/veh)	8.3	7.8		8.3	6.6		19.6	19.6	0.5		1.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.3	7.8		8.3	6.6		19.6	19.6	0.5		1.0	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		7.8			6.8			11.7			1.0	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	2	28		3	15		5	4	0		0	
Queue Length 95th (ft)	13	109		19	54		25	23	0		2	
Internal Link Dist (ft)		1061			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	750	1364		735	2613		578	583	639		1041	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.23		0.04	0.13		0.04	0.04	0.05		0.05	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 42.2	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.26	
Intersection Signal Delay (s/veh): 7.3	Intersection LOS: A
Intersection Capacity Utilization 42.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	314	32	345	22	22	31	51
v/c Ratio	0.03	0.26	0.05	0.15	0.08	0.08	0.09	0.12
Control Delay (s/veh)	8.3	7.8	8.3	6.6	19.6	19.6	0.5	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.3	7.8	8.3	6.6	19.6	19.6	0.5	1.0
Queue Length 50th (ft)	2	28	3	15	5	4	0	0
Queue Length 95th (ft)	13	109	19	54	25	23	0	2
Internal Link Dist (ft)		1061		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	750	1364	735	2613	578	583	639	1041
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.23	0.04	0.13	0.04	0.04	0.05	0.05

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	217	59	28	287	17	38	1	27	20	0	25
Future Volume (veh/h)	16	217	59	28	287	17	38	1	27	20	0	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1861	1875	1905	1688	1778	1778	1595	1750	1652	1778	1849	1778
Adj Flow Rate, veh/h	18	247	0	32	326	19	44	0	31	23	0	28
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	3	11	0	0	11	0	7	0	0	0
Cap, veh/h	553	729		526	1261	73	233	0	107	49	0	60
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.36	0.08	0.00	0.08	0.04	0.00	0.04
Sat Flow, veh/h	1030	1875	0	1022	3244	188	3039	0	1400	744	0	905
Grp Volume(v), veh/h	18	247	0	32	169	176	44	0	31	51	0	0
Grp Sat Flow(s),veh/h/ln	1030	1875	0	1022	1689	1744	1519	0	1400	1649	0	0
Q Serve(g_s), s	0.4	3.0	0.0	0.7	2.2	2.2	0.4	0.0	0.7	1.0	0.0	0.0
Cycle Q Clear(g_c), s	2.6	3.0	0.0	3.7	2.2	2.2	0.4	0.0	0.7	1.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.45		0.55
Lane Grp Cap(c), veh/h	553	729		526	657	678	233	0	107	109	0	0
V/C Ratio(X)	0.03	0.34		0.06	0.26	0.26	0.19	0.00	0.29	0.47	0.00	0.00
Avail Cap(c_a), veh/h	1144	1803		1112	1624	1677	1509	0	695	1074	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	6.9	0.0	8.2	6.7	6.7	13.9	0.0	14.1	15.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.2	0.9	0.9	0.4	0.0	1.5	3.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0	0.0	0.1	0.6	0.7	0.1	0.0	0.2	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	8.1	0.0	8.5	7.6	7.6	14.3	0.0	15.5	18.1	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		265			377			75			51	
Approach Delay, s/veh		8.1			7.7			14.8			18.1	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.0		7.1		18.0		7.1				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		5.0		2.7		5.7		3.0				
Green Ext Time (p_c), s		4.2		0.2		5.8		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.2									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	23	9	1	4	12	9	1	38	2	7	48	22
Future Volume (vph)	23	9	1	4	12	9	1	38	2	7	48	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.950			0.994			0.961	
Flt Protected		0.966			0.992			0.999			0.996	
Satd. Flow (prot)	0	1776	0	0	1722	0	0	1840	0	0	1792	0
Flt Permitted		0.966			0.992			0.999			0.996	
Satd. Flow (perm)	0	1776	0	0	1722	0	0	1840	0	0	1792	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	13%	0%	0%	8%	5%
Adj. Flow (vph)	28	11	1	5	14	11	1	46	2	8	58	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	40	0	0	30	0	0	49	0	0	93	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

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	23	9	1	4	12	9	1	38	2	7	48	22
Future Vol, veh/h	23	9	1	4	12	9	1	38	2	7	48	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	11	0	0	0	0	0	13	0	0	8	5
Mvmt Flow	28	11	1	5	14	11	1	46	2	8	58	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	143	139	71	130	151	47	84	0	0	48	0	0
Stage 1	88	88	-	49	49	-	-	-	-	-	-	-
Stage 2	55	51	-	80	101	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.61	6.2	7.3	6.7	6.3	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.099	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	960	736	1059	974	738	1091	1124	-	-	1156	-	-
Stage 1	1072	805	-	1123	855	-	-	-	-	-	-	-
Stage 2	1118	835	-	1078	811	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	923	730	1059	950	732	1091	1124	-	-	1156	-	-
Mov Cap-2 Maneuver	923	730	-	950	732	-	-	-	-	-	-	-
Stage 1	1064	799	-	1122	854	-	-	-	-	-	-	-
Stage 2	1087	834	-	1054	804	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.37	9.3	0.2	0.74
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	43	-	-	864	867	154	-	-
HCM Lane V/C Ratio	0.001	-	-	0.046	0.035	0.007	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	9.4	9.3	8.1	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	2	11	4	8	1	22	13	4	34	14
Future Volume (vph)	9	8	2	11	4	8	1	22	13	4	34	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.952			0.951			0.964	
Flt Protected		0.977			0.977			0.999			0.996	
Satd. Flow (prot)	0	1825	0	0	1666	0	0	1564	0	0	1781	0
Flt Permitted		0.977			0.977			0.999			0.996	
Satd. Flow (perm)	0	1825	0	0	1666	0	0	1564	0	0	1781	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	27%	0%	0%	9%	0%
Adj. Flow (vph)	11	10	2	13	5	10	1	27	16	5	41	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	28	0	0	44	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	8	2	11	4	8	1	22	13	4	34	14
Future Vol, veh/h	9	8	2	11	4	8	1	22	13	4	34	14
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	0	27	0	0	9	0
Mvmt Flow	11	10	2	13	5	10	1	27	16	5	41	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.3	7.2	7	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	47%	48%	8%
Vol Thru, %	61%	42%	17%	65%
Vol Right, %	36%	11%	35%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	19	23	52
LT Vol	1	9	11	4
Through Vol	22	8	4	34
RT Vol	13	2	8	14
Lane Flow Rate	43	23	28	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.046	0.026	0.031	0.067
Departure Headway (Hd)	3.824	4.138	3.989	3.875
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	934	862	894	923
Service Time	1.857	2.178	2.029	1.904
HCM Lane V/C Ratio	0.046	0.027	0.031	0.068
HCM Control Delay, s/veh	7	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	449	16	50	485	1	46
Future Volume (vph)	449	16	50	485	1	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.868	
Flt Protected				0.995	0.999	
Satd. Flow (prot)	1881	0	0	1902	1785	0
Flt Permitted				0.995	0.999	
Satd. Flow (perm)	1881	0	0	1902	1785	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	478	17	53	516	1	49
Shared Lane Traffic (%)						
Lane Group Flow (vph)	495	0	0	569	50	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	449	16	50	485	1	46
Future Vol, veh/h	449	16	50	485	1	46
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, %	1	-	-	-3	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	478	17	53	516	1	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	1109	486
Stage 1	-	-	-	-	486	-
Stage 2	-	-	-	-	622	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	811	-	220	591
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	545	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	811	-	199	591
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	589	-
Stage 2	-	-	-	-	545	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.91	11.96
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	567	-	-	168	-
HCM Lane V/C Ratio	0.088	-	-	0.066	-
HCM Ctrl Dly (s/v)	12	-	-	9.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

N.02 – 2032 No Build Condition: Synchro Reports

WEEKDAY

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	29	3	0	51	1
Future Volume (vph)	0	29	3	0	51	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.998	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1715	0	0	1388	1870	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1715	0	0	1388	1870	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	7%	33%	0%	2%	100%
Adj. Flow (vph)	0	34	4	0	60	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	0	4	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

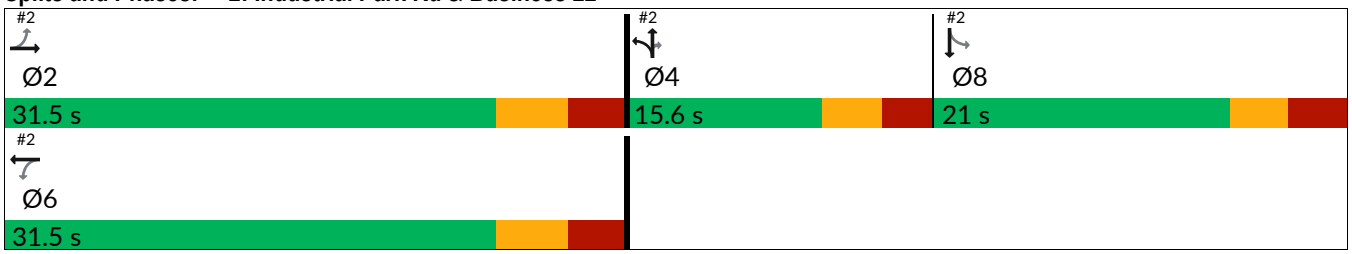
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	137	259	73	82	3	89	0	54	8	0	12
Future Volume (vph)	6	137	259	73	82	3	89	0	54	8	0	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.902			0.995				0.850		0.920	
Flt Protected	0.950			0.950			0.950	0.950			0.980	
Satd. Flow (prot)	1785	1558	0	1682	3240	0	1495	1495	1395	0	1739	0
Flt Permitted	0.694			0.466			0.950	0.950				
Satd. Flow (perm)	1304	1558	0	825	3240	0	1495	1495	1395	0	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		161			3				152		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1150			1064			837			237	
Travel Time (s)		26.1			24.2			22.8			6.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	7%	4%	3%	33%	7%	0%	8%	0%	0%	8%
Adj. Flow (vph)	7	151	285	80	90	3	98	0	59	9	0	13
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	7	436	0	80	93	0	49	49	59	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.4	26.4		26.4	26.4		8.5	8.5	8.5		7.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.20	0.20	0.20		0.16	
v/c Ratio	0.01	0.42		0.16	0.05		0.16	0.16	0.15		0.05	
Control Delay (s/veh)	7.2	6.5		8.2	6.4		17.8	17.8	0.8		0.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	7.2	6.5		8.2	6.4		17.8	17.8	0.8		0.3	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		6.6			7.2			11.4			0.3	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	28		8	4		8	8	0		0	
Queue Length 95th (ft)	7	139		43	20		44	42	0		0	
Internal Link Dist (ft)		1070			984			757			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	898	1123		568	2232		404	404	488		786	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.39		0.14	0.04		0.12	0.12	0.12		0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 42.6	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.42	
Intersection Signal Delay (s/veh): 7.5	Intersection LOS: A
Intersection Capacity Utilization 54.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	7	436	80	93	49	49	59	22
v/c Ratio	0.01	0.42	0.16	0.05	0.16	0.16	0.15	0.05
Control Delay (s/veh)	7.2	6.5	8.2	6.4	17.8	17.8	0.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	6.5	8.2	6.4	17.8	17.8	0.8	0.3
Queue Length 50th (ft)	1	28	8	4	8	8	0	0
Queue Length 95th (ft)	7	139	43	20	44	42	0	0
Internal Link Dist (ft)		1070		984		757		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	898	1123	568	2232	404	404	488	786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.39	0.14	0.04	0.12	0.12	0.12	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	137	259	73	82	3	89	0	54	8	0	12
Future Volume (veh/h)	6	137	259	73	82	3	89	0	54	8	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1846	1790	1736	1314	1652	1750	1637	1778	1849	1665
Adj Flow Rate, veh/h	7	151	0	80	90	3	98	0	59	9	0	13
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	7	4	3	33	7	0	8	0	0	8
Cap, veh/h	683	650		579	1146	38	365	0	161	33	0	47
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.12	0.00	0.12	0.02	0.00	0.02
Sat Flow, veh/h	1358	1846	0	1183	3257	108	3146	0	1388	671	0	970
Grp Volume(v), veh/h	7	151	0	80	45	48	98	0	59	22	0	0
Grp Sat Flow(s),veh/h/ln	1358	1846	0	1183	1649	1716	1573	0	1388	1641	0	0
Q Serve(g_s), s	0.1	1.8	0.0	1.6	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.8	0.0	3.4	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	1.00		1.00	0.41		0.59
Lane Grp Cap(c), veh/h	683	650		579	580	604	365	0	161	80	0	0
V/C Ratio(X)	0.01	0.23		0.14	0.08	0.08	0.27	0.00	0.37	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1335	1536		1147	1372	1428	1107	0	488	840	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.0	7.1	0.0	8.3	6.7	6.8	12.6	0.0	12.7	14.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.5	0.2	0.2	0.4	0.0	1.4	1.8	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.4	0.2	0.2	0.3	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.0	7.9	0.0	8.8	7.0	7.0	13.0	0.0	14.1	16.7	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		158			173			157			22	
Approach Delay, s/veh		7.9			7.8			13.4			16.7	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.2		16.5		6.5				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		3.8		3.2		5.4		2.4				
Green Ext Time (p_c), s		2.1		0.3		2.0		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.0									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	3	4	1	1	8	3	118	0	6	296	20
Future Volume (vph)	20	3	4	1	1	8	3	118	0	6	296	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.890						0.992	
Flt Protected		0.964			0.995			0.999			0.999	
Satd. Flow (prot)	0	1732	0	0	1344	0	0	1945	0	0	1854	0
Flt Permitted		0.964			0.995			0.999			0.999	
Satd. Flow (perm)	0	1732	0	0	1344	0	0	1945	0	0	1854	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			837	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	0%	0%	25%	0%	7%	0%	17%	6%	11%
Adj. Flow (vph)	21	3	4	1	1	9	3	126	0	6	315	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	11	0	0	129	0	0	342	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	3	4	1	1	8	3	118	0	6	296	20
Future Vol, veh/h	20	3	4	1	1	8	3	118	0	6	296	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	0	0	25	0	7	0	17	6	11
Mvmt Flow	21	3	4	1	1	9	3	126	0	6	315	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	471	470	326	461	481	126	336	0	0	126	0	0
Stage 1	338	338	-	132	132	-	-	-	-	-	-	-
Stage 2	132	132	-	329	349	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.3	6.7	6.55	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	570	494	760	567	475	919	921	-	-	1016	-	-
Stage 1	773	644	-	1006	785	-	-	-	-	-	-	-
Stage 2	1011	791	-	771	625	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	557	489	760	554	469	919	921	-	-	1016	-	-
Mov Cap-2 Maneuver	557	489	-	554	469	-	-	-	-	-	-	-
Stage 1	767	639	-	1002	782	-	-	-	-	-	-	-
Stage 2	996	788	-	757	620	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.65	9.61	0.22	0.16
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	45	-	-	570	791	33	-	-
HCM Lane V/C Ratio	0.003	-	-	0.05	0.013	0.006	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	11.6	9.6	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	3	69	1	19	2	62	45	5	153	0
Future Volume (vph)	7	4	3	69	1	19	2	62	45	5	153	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.971			0.944				
Flt Protected		0.977			0.963			0.999			0.998	
Satd. Flow (prot)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Flt Permitted		0.977			0.963			0.999			0.998	
Satd. Flow (perm)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	50%	8%	0%	0%	6%	0%
Adj. Flow (vph)	8	5	4	83	1	23	2	75	54	6	184	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	107	0	0	131	0	0	190	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	3	69	1	19	2	62	45	5	153	0
Future Vol, veh/h	7	4	3	69	1	19	2	62	45	5	153	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	50	8	0	0	6	0
Mvmt Flow	8	5	4	83	1	23	2	75	54	6	184	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.5	9.2	8.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	50%	78%	3%
Vol Thru, %	57%	29%	1%	97%
Vol Right, %	41%	21%	21%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	14	89	158
LT Vol	2	7	69	5
Through Vol	62	4	1	153
RT Vol	45	3	19	0
Lane Flow Rate	131	17	107	190
Geometry Grp	1	1	1	1
Degree of Util (X)	0.183	0.022	0.14	0.231
Departure Headway (Hd)	5.012	4.77	4.708	4.369
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	717	750	762	822
Service Time	3.034	2.801	2.733	2.388
HCM Lane V/C Ratio	0.183	0.023	0.14	0.231
HCM Control Delay, s/veh	9.2	7.9	8.5	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.5	0.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	321	5	26	325	4	39
Future Volume (vph)	321	5	26	325	4	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1798	0	0	1852	1749	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1798	0	0	1852	1749	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	5%	0%	0%	4%	0%	3%
Adj. Flow (vph)	328	5	27	332	4	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	333	0	0	359	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	321	5	26	325	4	39
Future Vol, veh/h	321	5	26	325	4	39
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, %	1	-	-	-3	3	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	5	0	0	4	0	3
Mvmt Flow	328	5	27	332	4	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	333	0	715	330
Stage 1	-	-	-	-	330	-
Stage 2	-	-	-	-	385	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	923	-	405	735
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	923	-	390	735
Mov Cap-2 Maneuver	-	-	-	-	390	-
Stage 1	-	-	-	-	764	-
Stage 2	-	-	-	-	739	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.67	10.66
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	679	-	-	133	-
HCM Lane V/C Ratio	0.065	-	-	0.029	-
HCM Ctrl Dly (s/v)	10.7	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	41	2	0	75	2
Future Volume (vph)	0	41	2	0	75	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1835	0	0	1847	1862	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1835	0	0	1847	1862	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	47	2	0	86	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	0	2	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

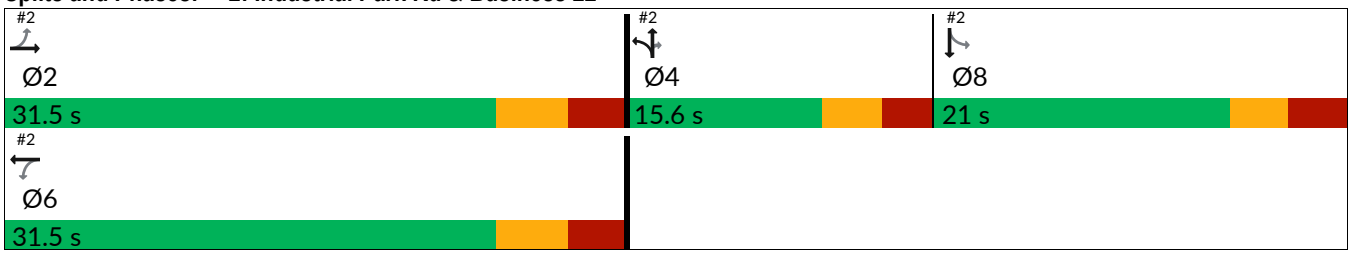
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	277	78	33	305	45	250	1	162	27	0	31
Future Volume (vph)	13	277	78	33	305	45	250	1	162	27	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967			0.981				0.850		0.928	
Flt Protected	0.950			0.950			0.950	0.953			0.977	
Satd. Flow (prot)	1785	1670	0	1650	3293	0	1482	1487	1477	0	1831	0
Flt Permitted	0.472			0.349			0.950	0.953			0.762	
Satd. Flow (perm)	887	1670	0	606	3293	0	1482	1487	1477	0	1428	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			27				228		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1147			1064			839			237	
Travel Time (s)		26.1			24.2			22.9			6.5	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	2%	17%	6%	1%	0%	8%	0%	2%	0%	0%	0%
Adj. Flow (vph)	18	390	110	46	430	63	352	1	228	38	0	44
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	18	500	0	46	493	0	176	177	228	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	22.0	22.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	23.7	23.7		23.7	23.7		10.8	10.8	10.8		7.1	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.20	0.20	0.20		0.13	
v/c Ratio	0.05	0.67		0.17	0.34		0.59	0.59	0.48		0.26	
Control Delay (s/veh)	10.1	17.5		12.2	10.7		32.5	32.6	7.6		3.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	10.1	17.5		12.2	10.7		32.5	32.6	7.6		3.4	
LOS	B	B		B	B		C	C	A		A	
Approach Delay (s/veh)		17.3			10.8			22.8			3.4	
Approach LOS		B			B			C			A	
Queue Length 50th (ft)	3	127		10	53		65	61	0		0	
Queue Length 95th (ft)	10	155		22	63		97	91	22		0	
Internal Link Dist (ft)		1067			984			759			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	447	854		305	1675		316	317	494		544	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.04	0.59		0.15	0.29		0.56	0.56	0.46		0.15	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 53.8	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.67	
Intersection Signal Delay (s/veh): 16.5	Intersection LOS: B
Intersection Capacity Utilization 51.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	500	46	493	176	177	228	82
v/c Ratio	0.05	0.67	0.17	0.34	0.59	0.59	0.48	0.26
Control Delay (s/veh)	10.1	17.5	12.2	10.7	32.5	32.6	7.6	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.1	17.5	12.2	10.7	32.5	32.6	7.6	3.4
Queue Length 50th (ft)	3	127	10	53	65	61	0	0
Queue Length 95th (ft)	10	155	22	63	97	91	22	0
Internal Link Dist (ft)		1067		984		759		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	447	854	305	1675	316	317	494	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.59	0.15	0.29	0.56	0.56	0.46	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	277	78	33	305	45	250	1	162	27	0	31
Future Volume (veh/h)	13	277	78	33	305	45	250	1	162	27	0	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1698	1761	1764	1778	1637	1750	1722	1778	1849	1778
Adj Flow Rate, veh/h	18	390	0	46	430	63	353	0	228	38	0	44
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	0	2	17	6	1	0	8	0	2	0	0	0
Cap, veh/h	416	718		360	1141	166	669	0	313	63	0	73
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.37	0.21	0.00	0.21	0.06	0.00	0.06
Sat Flow, veh/h	942	1846	0	936	2935	427	3119	0	1459	765	0	886
Grp Volume(v), veh/h	18	390	0	46	244	249	353	0	228	82	0	0
Grp Sat Flow(s),veh/h/ln	942	1846	0	936	1675	1687	1559	0	1459	1651	0	0
Q Serve(g_s), s	0.7	7.9	0.0	1.9	5.0	5.1	4.8	0.0	7.0	2.3	0.0	0.0
Cycle Q Clear(g_c), s	5.8	7.9	0.0	9.8	5.0	5.1	4.8	0.0	7.0	2.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.25	1.00		1.00	0.46		0.54
Lane Grp Cap(c), veh/h	416	718		360	652	656	669	0	313	137	0	0
V/C Ratio(X)	0.04	0.54		0.13	0.37	0.38	0.53	0.00	0.73	0.60	0.00	0.00
Avail Cap(c_a), veh/h	559	998		502	905	911	713	0	334	549	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.6	11.4	0.0	15.2	10.5	10.6	16.7	0.0	17.6	21.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.7	0.0	0.7	1.5	1.6	0.6	0.0	7.4	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.2	0.0	0.4	1.8	1.8	1.6	0.0	2.8	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.8	14.1	0.0	15.9	12.1	12.2	17.4	0.0	24.9	25.9	0.0	0.0
LnGrp LOS	B	B		B	B	B	B		C	C		
Approach Vol, veh/h		408			539			581			82	
Approach Delay, s/veh		14.1			12.4			20.4			25.9	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.2		14.9		24.2		9.0				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		9.9		9.0		11.8		4.3				
Green Ext Time (p_c), s		5.2		0.3		5.9		0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.4									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	12	0	3	6	9	5	381	7	17	76	14
Future Volume (vph)	32	12	0	3	6	9	5	381	7	17	76	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.932			0.998			0.983	
Flt Protected		0.965			0.992			0.999			0.992	
Satd. Flow (prot)	0	1795	0	0	1602	0	0	1978	0	0	1698	0
Flt Permitted		0.965			0.992			0.999			0.992	
Satd. Flow (perm)	0	1795	0	0	1602	0	0	1978	0	0	1698	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			839	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	3%	0%	0%	0%	0%	11%	0%	5%	0%	18%	15%	7%
Adj. Flow (vph)	63	24	0	6	12	18	10	747	14	33	149	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	36	0	0	771	0	0	209	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

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	32	12	0	3	6	9	5	381	7	17	76	14
Future Vol, veh/h	32	12	0	3	6	9	5	381	7	17	76	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	3	0	0	0	0	11	0	5	0	18	15	7
Mvmt Flow	63	24	0	6	12	18	10	747	14	33	149	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1002	1010	163	1001	1017	754	176	0	0	761	0	0
Stage 1	229	229	-	774	774	-	-	-	-	-	-	-
Stage 2	773	780	-	227	243	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.3	6.7	6.41	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	243	242	940	232	226	403	1045	-	-	598	-	-
Stage 1	892	718	-	421	394	-	-	-	-	-	-	-
Stage 2	437	409	-	885	699	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	203	223	940	193	209	403	1045	-	-	598	-	-
Mov Cap-2 Maneuver	203	223	-	193	209	-	-	-	-	-	-	-
Stage 1	837	674	-	414	388	-	-	-	-	-	-	-
Stage 2	398	402	-	801	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	33.94	20.3	0.11	1.81
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	23	-	-	208	270	277	-	-
HCM Lane V/C Ratio	0.009	-	-	0.414	0.13	0.056	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	33.9	20.3	11.4	0	-
HCM Lane LOS	A	A	-	D	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	1.9	0.4	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	1	16	11	0	0	92	42	9	25	9
Future Volume (vph)	7	5	1	16	11	0	0	92	42	9	25	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992						0.958			0.972	
Flt Protected		0.973			0.971						0.990	
Satd. Flow (prot)	0	1825	0	0	1739	0	0	1720	0	0	1545	0
Flt Permitted		0.973			0.971						0.990	
Satd. Flow (perm)	0	1825	0	0	1739	0	0	1720	0	0	1545	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	38%	0%
Adj. Flow (vph)	10	7	1	24	16	0	0	135	62	13	37	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	40	0	0	197	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	1	16	11	0	0	92	42	9	25	9
Future Vol, veh/h	7	5	1	16	11	0	0	92	42	9	25	9
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	38	0
Mvmt Flow	10	7	1	24	16	0	0	135	62	13	37	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	7.9	8.2	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	59%	21%
Vol Thru, %	69%	38%	41%	58%
Vol Right, %	31%	8%	0%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	134	13	27	43
LT Vol	0	7	16	9
Through Vol	92	5	11	25
RT Vol	42	1	0	9
Lane Flow Rate	197	19	40	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.221	0.024	0.051	0.071
Departure Headway (Hd)	4.031	4.571	4.604	4.067
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	883	787	783	868
Service Time	2.09	2.573	2.604	2.154
HCM Lane V/C Ratio	0.223	0.024	0.051	0.073
HCM Control Delay, s/veh	8.2	7.7	7.9	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.8	0.1	0.2	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	501	10	37	538	4	67
Future Volume (vph)	501	10	37	538	4	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.872	
Flt Protected				0.997	0.997	
Satd. Flow (prot)	1867	0	0	1905	1694	0
Flt Permitted				0.997	0.997	
Satd. Flow (perm)	1867	0	0	1905	1694	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	0%	1%	0%	6%
Adj. Flow (vph)	522	10	39	560	4	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	532	0	0	599	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	501	10	37	538	4	67
Future Vol, veh/h	501	10	37	538	4	67
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, %	1	-	-	-3	3	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	6
Mvmt Flow	522	10	39	560	4	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	532	0	1165	527
Stage 1	-	-	-	-	527	-
Stage 2	-	-	-	-	638	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.2
Pot Cap-1 Maneuver	-	-	787	-	201	544
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	787	-	187	544
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	535	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.63	13.62
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	491	-	-	116	-
HCM Lane V/C Ratio	0.151	-	-	0.049	-
HCM Ctrl Dly (s/v)	13.6	-	-	9.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

WEEKEND

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	38	1	0	36	1
Future Volume (vph)	0	38	1	0	36	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1747	0	0	1847	1828	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1747	0	0	1847	1828	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%
Adj. Flow (vph)	0	48	1	0	45	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	1	46	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

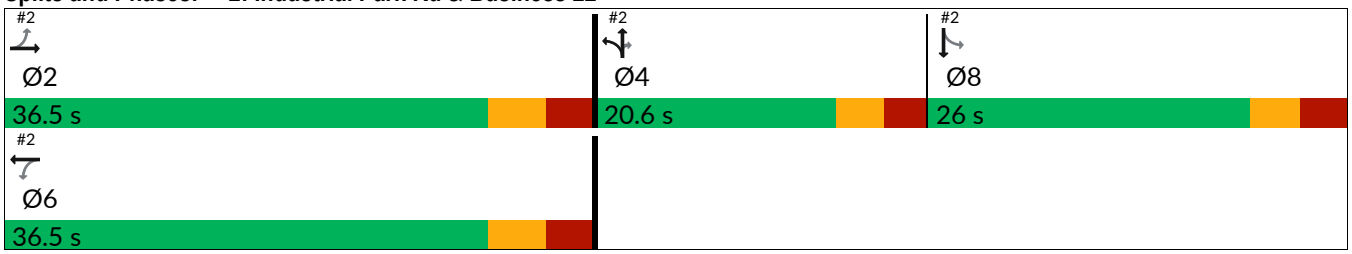
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	197	40	29	209	24	35	0	46	25	0	14
Future Volume (vph)	14	197	40	29	209	24	35	0	46	25	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.975			0.984				0.850		0.953	
Flt Protected	0.950			0.950			0.950	0.950			0.969	
Satd. Flow (prot)	1785	1773	0	1576	3332	0	1290	1290	1383	0	1775	0
Flt Permitted	0.603			0.607			0.950	0.950				
Satd. Flow (perm)	1133	1773	0	1007	3332	0	1290	1290	1383	0	1832	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			17				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	24%	0%	9%	4%	0%	7%
Adj. Flow (vph)	14	203	41	30	215	25	36	0	47	26	0	14
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	14	244	0	30	240	0	18	18	47	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.3	26.3		26.3	26.3		7.6	7.6	7.6		7.0	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.19	0.19	0.19		0.18	
v/c Ratio	0.02	0.21		0.05	0.11		0.07	0.07	0.13		0.10	
Control Delay (s/veh)	8.9	8.1		8.9	6.9		17.6	17.6	0.7		0.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.9	8.1		8.9	6.9		17.6	17.6	0.7		0.5	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		8.1			7.1			8.0			0.5	
Approach LOS		A			A			A			A	
Queue Length 50th (ft)	1	21		3	10		4	3	0		0	
Queue Length 95th (ft)	11	89		20	40		23	18	1		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	919	1440		816	2706		540	540	651		1060	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.17		0.04	0.09		0.03	0.03	0.07		0.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 39.8	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.21	
Intersection Signal Delay (s/veh): 7.2	Intersection LOS: A
Intersection Capacity Utilization 43.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	14	244	30	240	18	18	47	40
v/c Ratio	0.02	0.21	0.05	0.11	0.07	0.07	0.13	0.10
Control Delay (s/veh)	8.9	8.1	8.9	6.9	17.6	17.6	0.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	8.1	8.9	6.9	17.6	17.6	0.7	0.5
Queue Length 50th (ft)	1	21	3	10	4	3	0	0
Queue Length 95th (ft)	11	89	20	40	23	18	1	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	919	1440	816	2706	540	540	651	1060
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.17	0.04	0.09	0.03	0.03	0.07	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	197	40	29	209	24	35	0	46	25	0	14
Future Volume (veh/h)	14	197	40	29	209	24	35	0	46	25	0	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1875	1950	1688	1778	1778	1413	1750	1623	1722	1849	1679
Adj Flow Rate, veh/h	14	203	0	30	215	25	36	0	47	26	0	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	11	0	0	24	0	9	4	0	7
Cap, veh/h	604	674		536	1098	126	230	0	117	67	0	36
Arrive On Green	0.36	0.36	0.00	0.36	0.36	0.33	0.09	0.00	0.09	0.03	0.00	0.03
Sat Flow, veh/h	1188	1875	0	1064	3052	351	2691	0	1376	1097	0	591
Grp Volume(v), veh/h	14	203	0	30	118	122	36	0	47	40	0	0
Grp Sat Flow(s),veh/h/ln	1188	1875	0	1064	1689	1715	1346	0	1376	1688	0	0
Q Serve(g_s), s	0.3	2.4	0.0	0.6	1.5	1.5	0.4	0.0	1.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	2.4	0.0	3.0	1.5	1.5	0.4	0.0	1.0	0.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.20	1.00		1.00	0.65		0.35
Lane Grp Cap(c), veh/h	604	674		536	608	617	230	0	117	103	0	0
V/C Ratio(X)	0.02	0.30		0.06	0.19	0.20	0.16	0.00	0.40	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1382	1901		1232	1712	1738	1408	0	720	1159	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	7.0	0.0	8.1	6.7	6.8	13.0	0.0	13.2	14.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.2	0.7	0.7	0.3	0.0	2.2	2.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.1	0.4	0.5	0.1	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.4	8.1	0.0	8.3	7.4	7.5	13.3	0.0	15.4	16.7	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		217			270			83			40	
Approach Delay, s/veh		8.1			7.5			14.5			16.7	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		7.2		16.5		6.9				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		4.4		3.0		5.0		2.7				
Green Ext Time (p_c), s		3.3		0.2		4.0		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.3									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	7	2	2	3	2	78	1	4	116	6
Future Volume (vph)	5	3	7	2	2	3	2	78	1	4	116	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.946			0.999			0.994	
Flt Protected		0.983			0.985			0.999			0.999	
Satd. Flow (prot)	0	1754	0	0	1703	0	0	1944	0	0	1882	0
Flt Permitted		0.983			0.985			0.999			0.999	
Satd. Flow (perm)	0	1754	0	0	1703	0	0	1944	0	0	1882	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	50%	4%	0%
Adj. Flow (vph)	7	4	9	3	3	4	3	105	1	5	157	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	10	0	0	109	0	0	170	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	7	2	2	3	2	78	1	4	116	6
Future Vol, veh/h	5	3	7	2	2	3	2	78	1	4	116	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	7	0	50	4	0
Mvmt Flow	7	4	9	3	3	4	3	105	1	5	157	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	284	284	161	281	287	106	165	0	0	107	0	0
Stage 1	172	172	-	111	111	-	-	-	-	-	-	-
Stage 2	112	112	-	170	176	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.3	6.7	6.3	4.3	-	-	4.8	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3.5	-	-
Pot Cap-1 Maneuver	770	629	943	761	616	1009	1055	-	-	939	-	-
Stage 1	963	761	-	1034	802	-	-	-	-	-	-	-
Stage 2	1039	806	-	956	750	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	757	623	943	742	610	1009	1055	-	-	939	-	-
Mov Cap-2 Maneuver	757	623	-	742	610	-	-	-	-	-	-	-
Stage 1	957	756	-	1031	800	-	-	-	-	-	-	-
Stage 2	1029	804	-	936	745	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.64	9.66	0.21	0.28
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	44	-	-	796	783	57	-	-
HCM Lane V/C Ratio	0.003	-	-	0.025	0.012	0.006	-	-
HCM Ctrl Dly (s/v)	8.4	0	-	9.6	9.7	8.9	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	0	30	1	9	2	60	58	4	52	1
Future Volume (vph)	2	6	0	30	1	9	2	60	58	4	52	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.968			0.935			0.998	
Flt Protected		0.987			0.964			0.999			0.997	
Satd. Flow (prot)	0	1866	0	0	1671	0	0	1749	0	0	1820	0
Flt Permitted		0.987			0.964			0.999			0.997	
Satd. Flow (perm)	0	1866	0	0	1671	0	0	1749	0	0	1820	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	8%	0%
Adj. Flow (vph)	3	8	0	38	1	12	3	77	74	5	67	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	51	0	0	154	0	0	73	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 19.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	6	0	30	1	9	2	60	58	4	52	1
Future Vol, veh/h	2	6	0	30	1	9	2	60	58	4	52	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	8	0
Mvmt Flow	3	8	0	38	1	12	3	77	74	5	67	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.5	7.7	7.6	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	75%	7%
Vol Thru, %	50%	75%	3%	91%
Vol Right, %	48%	0%	23%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	8	40	57
LT Vol	2	2	30	4
Through Vol	60	6	1	52
RT Vol	58	0	9	1
Lane Flow Rate	154	10	51	73
Geometry Grp	1	1	1	1
Degree of Util (X)	0.161	0.012	0.061	0.084
Departure Headway (Hd)	3.776	4.383	4.313	4.128
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	943	804	819	862
Service Time	1.828	2.479	2.397	2.185
HCM Lane V/C Ratio	0.163	0.012	0.062	0.085
HCM Control Delay, s/veh	7.6	7.5	7.7	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0	0.2	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	368	6	35	380	6	60
Future Volume (vph)	368	6	35	380	6	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1833	0	0	1899	1796	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1833	0	0	1899	1796	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	3%	1%	0%	0%
Adj. Flow (vph)	423	7	40	437	7	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	430	0	0	477	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	368	6	35	380	6	60
Future Vol, veh/h	368	6	35	380	6	60
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, %	1	-	-	-3	3	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	3	1	0	0
Mvmt Flow	423	7	40	437	7	69

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	430	0	944	426
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	517	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	854	-	284	642
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	854	-	266	642
Mov Cap-2 Maneuver	-	-	-	-	266	-
Stage 1	-	-	-	-	657	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.79	12.29
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	569	-	-	152	-
HCM Lane V/C Ratio	0.133	-	-	0.047	-
HCM Ctrl Dly (s/v)	12.3	-	-	9.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	51	0	0	56	0
Future Volume (vph)	0	51	0	0	56	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	1799	0	0	1944	1935	0
Flt Permitted					0.950	
Satd. Flow (perm)	1799	0	0	1944	1935	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	57	0	0	62	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	0	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

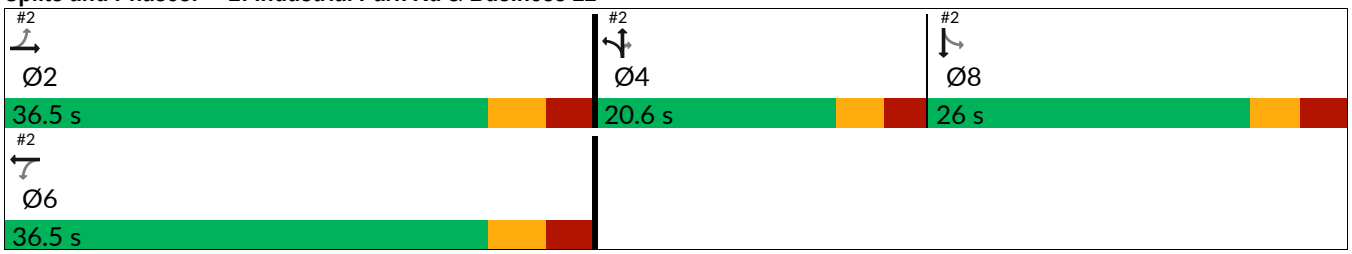
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	223	61	29	295	17	39	1	28	21	0	26
Future Volume (vph)	16	223	61	29	295	17	39	1	28	21	0	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.968			0.992				0.850		0.925	
Flt Protected	0.950			0.950			0.950	0.954			0.978	
Satd. Flow (prot)	1684	1749	0	1576	3359	0	1442	1454	1408	0	1827	0
Flt Permitted	0.540			0.566			0.950	0.954			0.845	
Satd. Flow (perm)	957	1749	0	939	3359	0	1442	1454	1408	0	1579	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1141			1064			838			237	
Travel Time (s)		25.9			24.2			22.9			6.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	0%	3%	11%	0%	0%	11%	0%	7%	0%	0%	0%
Adj. Flow (vph)	18	253	69	33	335	19	44	1	32	24	0	30
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	18	322	0	33	354	0	22	23	32	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	28.4	28.4		28.4	28.4		7.9	7.9	7.9		7.1	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.18	0.18	0.18		0.16	
v/c Ratio	0.03	0.28		0.05	0.16		0.08	0.09	0.09		0.15	
Control Delay (s/veh)	9.1	9.1		9.3	7.8		20.3	20.4	0.5		1.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	9.1	9.1		9.3	7.8		20.3	20.4	0.5		1.7	
LOS	A	A		A	A		C	C	A		A	
Approach Delay (s/veh)		9.1			7.9			12.1			1.7	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	3	59		6	32		6	6	0		0	
Queue Length 95th (ft)	13	112		20	56		26	24	0		4	
Internal Link Dist (ft)		1061			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	719	1320		706	2529		560	564	623		863	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.03	0.24		0.05	0.14		0.04	0.04	0.05		0.06	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 43.7	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.28	
Intersection Signal Delay (s/veh): 8.4	Intersection LOS: A
Intersection Capacity Utilization 43.8%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	322	33	354	22	23	32	54
v/c Ratio	0.03	0.28	0.05	0.16	0.08	0.09	0.09	0.15
Control Delay (s/veh)	9.1	9.1	9.3	7.8	20.3	20.4	0.5	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.1	9.1	9.3	7.8	20.3	20.4	0.5	1.7
Queue Length 50th (ft)	3	59	6	32	6	6	0	0
Queue Length 95th (ft)	13	112	20	56	26	24	0	4
Internal Link Dist (ft)		1061		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	719	1320	706	2529	560	564	623	863
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.24	0.05	0.14	0.04	0.04	0.05	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	223	61	29	295	17	39	1	28	21	0	26
Future Volume (veh/h)	16	223	61	29	295	17	39	1	28	21	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1861	1875	1905	1688	1778	1778	1595	1750	1652	1778	1849	1778
Adj Flow Rate, veh/h	18	253	0	33	335	19	45	0	32	24	0	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	3	11	0	0	11	0	7	0	0	0
Cap, veh/h	550	736		523	1276	72	233	0	107	50	0	62
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.36	0.08	0.00	0.08	0.04	0.00	0.04
Sat Flow, veh/h	1022	1875	0	1017	3250	184	3039	0	1400	732	0	915
Grp Volume(v), veh/h	18	253	0	33	173	181	45	0	32	54	0	0
Grp Sat Flow(s),veh/h/ln	1022	1875	0	1017	1689	1745	1519	0	1400	1647	0	0
Q Serve(g_s), s	0.4	3.1	0.0	0.8	2.3	2.3	0.5	0.0	0.7	1.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	3.1	0.0	3.9	2.3	2.3	0.5	0.0	0.7	1.0	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.44		0.56
Lane Grp Cap(c), veh/h	550	736		523	663	685	233	0	107	112	0	0
V/C Ratio(X)	0.03	0.34		0.06	0.26	0.26	0.19	0.00	0.30	0.48	0.00	0.00
Avail Cap(c_a), veh/h	1118	1779		1089	1603	1656	1489	0	686	1059	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	7.0	0.0	8.3	6.7	6.8	14.1	0.0	14.2	15.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.2	0.9	0.9	0.4	0.0	1.5	3.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0	0.0	0.2	0.7	0.7	0.1	0.0	0.2	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	8.2	0.0	8.5	7.6	7.6	14.5	0.0	15.8	18.3	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		271			387			77			54	
Approach Delay, s/veh		8.1			7.7			15.0			18.3	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.3		7.1		18.3		7.2				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		5.1		2.7		5.9		3.0				
Green Ext Time (p_c), s		4.3		0.2		6.0		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.3									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	9	1	4	12	9	1	39	2	7	49	23
Future Volume (vph)	24	9	1	4	12	9	1	39	2	7	49	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.950			0.995			0.960	
Flt Protected		0.966			0.992			0.999			0.996	
Satd. Flow (prot)	0	1777	0	0	1722	0	0	1842	0	0	1790	0
Flt Permitted		0.966			0.992			0.999			0.996	
Satd. Flow (perm)	0	1777	0	0	1722	0	0	1842	0	0	1790	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	13%	0%	0%	8%	5%
Adj. Flow (vph)	29	11	1	5	14	11	1	47	2	8	59	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	30	0	0	50	0	0	95	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.4%		ICU Level of Service A	
Analysis Period (min) 15			

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	24	9	1	4	12	9	1	39	2	7	49	23
Future Vol, veh/h	24	9	1	4	12	9	1	39	2	7	49	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	11	0	0	0	0	0	13	0	0	8	5
Mvmt Flow	29	11	1	5	14	11	1	47	2	8	59	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	146	142	73	132	154	48	87	0	0	49	0	0
Stage 1	90	90	-	51	51	-	-	-	-	-	-	-
Stage 2	57	52	-	81	104	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.61	6.2	7.3	6.7	6.3	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.099	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	955	733	1057	970	735	1090	1121	-	-	1155	-	-
Stage 1	1070	803	-	1122	854	-	-	-	-	-	-	-
Stage 2	1116	834	-	1076	809	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	919	727	1057	946	729	1090	1121	-	-	1155	-	-
Mov Cap-2 Maneuver	919	727	-	946	729	-	-	-	-	-	-	-
Stage 1	1061	797	-	1120	853	-	-	-	-	-	-	-
Stage 2	1085	833	-	1052	802	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.39	9.32	0.2	0.72
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	42	-	-	862	863	150	-	-
HCM Lane V/C Ratio	0.001	-	-	0.048	0.035	0.007	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	9.4	9.3	8.1	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	2	11	4	8	1	23	13	4	35	14
Future Volume (vph)	9	8	2	11	4	8	1	23	13	4	35	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.952			0.952			0.964	
Flt Protected		0.977			0.977			0.999			0.996	
Satd. Flow (prot)	0	1825	0	0	1666	0	0	1563	0	0	1780	0
Flt Permitted		0.977			0.977			0.999			0.996	
Satd. Flow (perm)	0	1825	0	0	1666	0	0	1563	0	0	1780	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	27%	0%	0%	9%	0%
Adj. Flow (vph)	11	10	2	13	5	10	1	28	16	5	42	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	28	0	0	45	0	0	64	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	8	2	11	4	8	1	23	13	4	35	14
Future Vol, veh/h	9	8	2	11	4	8	1	23	13	4	35	14
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	0	27	0	0	9	0
Mvmt Flow	11	10	2	13	5	10	1	28	16	5	42	17
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.3	7.2	7.1	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	47%	48%	8%
Vol Thru, %	62%	42%	17%	66%
Vol Right, %	35%	11%	35%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	19	23	53
LT Vol	1	9	11	4
Through Vol	23	8	4	35
RT Vol	13	2	8	14
Lane Flow Rate	45	23	28	64
Geometry Grp	1	1	1	1
Degree of Util (X)	0.047	0.026	0.031	0.069
Departure Headway (Hd)	3.831	4.142	3.993	3.878
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	932	861	893	922
Service Time	1.865	2.184	2.035	1.908
HCM Lane V/C Ratio	0.048	0.027	0.031	0.069
HCM Control Delay, s/veh	7.1	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	462	16	51	499	1	47
Future Volume (vph)	462	16	51	499	1	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.868	
Flt Protected				0.995	0.999	
Satd. Flow (prot)	1881	0	0	1902	1785	0
Flt Permitted				0.995	0.999	
Satd. Flow (perm)	1881	0	0	1902	1785	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	491	17	54	531	1	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	508	0	0	585	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	462	16	51	499	1	47
Future Vol, veh/h	462	16	51	499	1	47
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, %	1	-	-	-3	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	491	17	54	531	1	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	509	0	1139	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	802	-	209	579
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	533	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	802	-	189	579
Mov Cap-2 Maneuver	-	-	-	-	189	-
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.91	12.13
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	556	-	-	167	-
HCM Lane V/C Ratio	0.092	-	-	0.068	-
HCM Ctrl Dly (s/v)	12.1	-	-	9.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

N.03 – 2032 Build Condition: Synchro Reports

WEEKDAY

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	29	3	0	51	1
Future Volume (vph)	0	29	3	0	51	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.998	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1715	0	0	1388	1870	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1715	0	0	1388	1870	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	7%	33%	0%	2%	100%
Adj. Flow (vph)	0	34	4	0	60	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	34	0	0	4	61	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

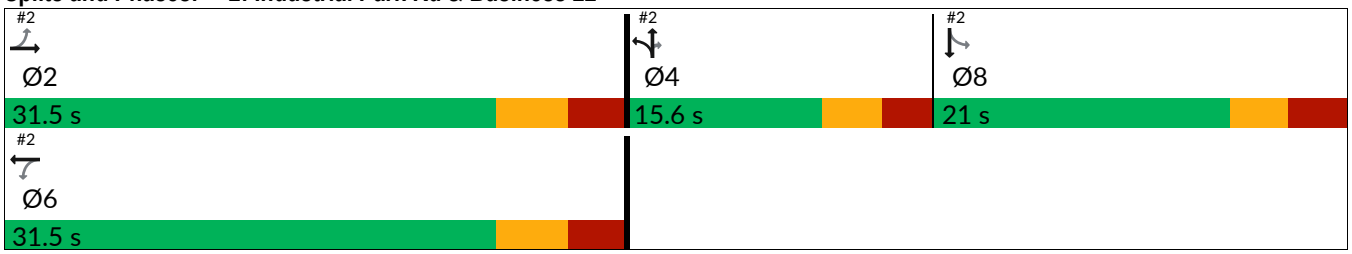
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	137	355	79	82	3	122	0	56	8	0	12
Future Volume (vph)	6	137	355	79	82	3	122	0	56	8	0	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.892			0.995				0.850		0.920	
Flt Protected	0.950			0.950			0.950	0.950			0.980	
Satd. Flow (prot)	1785	1546	0	1682	3240	0	1510	1510	1395	0	1739	0
Flt Permitted	0.694			0.376			0.950	0.950				
Satd. Flow (perm)	1304	1546	0	666	3240	0	1510	1510	1395	0	1774	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		221			3				152		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	6%	4%	3%	33%	6%	0%	8%	0%	0%	8%
Adj. Flow (vph)	7	151	390	87	90	3	134	0	62	9	0	13
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	7	541	0	87	93	0	67	67	62	0	22	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.5	27.5		27.5	27.5		8.7	8.7	8.7		7.0	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20	0.20		0.16	
v/c Ratio	0.01	0.52		0.21	0.05		0.22	0.22	0.16		0.05	
Control Delay (s/veh)	7.2	7.1		9.2	6.4		19.2	19.2	0.8		0.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	7.2	7.1		9.2	6.4		19.2	19.2	0.8		0.3	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		7.1			7.7			13.4			0.3	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	36		9	4		13	13	0		0	
Queue Length 95th (ft)	7	180		50	20		55	52	0		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	854	1089		436	2124		392	392	475		761	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.50		0.20	0.04		0.17	0.17	0.13		0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 43.9	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.52	
Intersection Signal Delay (s/veh): 8.4	Intersection LOS: A
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	7	541	87	93	67	67	62	22
v/c Ratio	0.01	0.52	0.21	0.05	0.22	0.22	0.16	0.05
Control Delay (s/veh)	7.2	7.1	9.2	6.4	19.2	19.2	0.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	7.1	9.2	6.4	19.2	19.2	0.8	0.3
Queue Length 50th (ft)	1	36	9	4	13	13	0	0
Queue Length 95th (ft)	7	180	50	20	55	52	0	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	854	1089	436	2124	392	392	475	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.50	0.20	0.04	0.17	0.17	0.13	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	137	355	79	82	3	122	0	56	8	0	12
Future Volume (veh/h)	6	137	355	79	82	3	122	0	56	8	0	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1861	1790	1736	1314	1666	1750	1637	1778	1849	1665
Adj Flow Rate, veh/h	7	151	0	87	90	3	134	0	62	9	0	13
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	6	4	3	33	6	0	8	0	0	8
Cap, veh/h	674	641		570	1131	38	405	0	177	32	0	47
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.13	0.00	0.13	0.02	0.00	0.02
Sat Flow, veh/h	1358	1846	0	1183	3257	108	3172	0	1388	671	0	970
Grp Volume(v), veh/h	7	151	0	87	45	48	134	0	62	22	0	0
Grp Sat Flow(s),veh/h/ln	1358	1846	0	1183	1649	1716	1586	0	1388	1641	0	0
Q Serve(g_s), s	0.1	1.8	0.0	1.8	0.6	0.6	1.2	0.0	1.3	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.8	0.0	3.6	0.6	0.6	1.2	0.0	1.3	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	1.00		1.00	0.41		0.59
Lane Grp Cap(c), veh/h	674	641		570	573	596	405	0	177	79	0	0
V/C Ratio(X)	0.01	0.24		0.15	0.08	0.08	0.33	0.00	0.35	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1317	1515		1130	1353	1409	1102	0	482	829	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	7.3	0.0	8.6	6.9	7.0	12.6	0.0	12.6	15.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.5	0.3	0.2	0.5	0.0	1.2	1.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.4	0.2	0.2	0.4	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.2	8.2	0.0	9.2	7.2	7.2	13.1	0.0	13.8	16.9	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		158			180			196			22	
Approach Delay, s/veh		8.1			8.1			13.3			16.9	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.6		16.5		6.5				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		3.8		3.3		5.6		2.4				
Green Ext Time (p_c), s		2.1		0.4		2.1		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.3									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	3	4	1	1	15	3	146	0	27	377	20
Future Volume (vph)	20	3	4	1	1	15	3	146	0	27	377	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.880						0.994	
Flt Protected		0.964			0.997			0.999			0.997	
Satd. Flow (prot)	0	1732	0	0	1426	0	0	1962	0	0	1876	0
Flt Permitted		0.964			0.997			0.999			0.997	
Satd. Flow (perm)	0	1732	0	0	1426	0	0	1962	0	0	1876	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	0%	0%	14%	0%	6%	0%	5%	5%	11%
Adj. Flow (vph)	21	3	4	1	1	16	3	155	0	29	401	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	18	0	0	158	0	0	451	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	3	4	1	1	15	3	146	0	27	377	20
Future Vol, veh/h	20	3	4	1	1	15	3	146	0	27	377	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	0	0	14	0	6	0	5	5	11
Mvmt Flow	21	3	4	1	1	16	3	155	0	29	401	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	631	631	412	622	641	155	422	0	0	155	0	0
Stage 1	469	469	-	162	162	-	-	-	-	-	-	-
Stage 2	162	162	-	460	480	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.3	6.7	6.44	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	440	401	679	436	381	912	860	-	-	1058	-	-
Stage 1	650	564	-	967	761	-	-	-	-	-	-	-
Stage 2	972	768	-	646	543	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	414	385	679	413	366	912	860	-	-	1058	-	-
Mov Cap-2 Maneuver	414	385	-	413	366	-	-	-	-	-	-	-
Stage 1	627	544	-	963	758	-	-	-	-	-	-	-
Stage 2	950	765	-	615	524	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	13.84	9.68	0.19	0.54
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	36	-	-	436	787	113	-	-
HCM Lane V/C Ratio	0.004	-	-	0.066	0.023	0.027	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	13.8	9.7	8.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	4	3	69	2	19	2	62	45	5	153	81
Future Volume (vph)	35	4	3	69	2	19	2	62	45	5	153	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.971			0.944			0.954	
Flt Protected		0.960			0.963			0.999			0.999	
Satd. Flow (prot)	0	1766	0	0	1674	0	0	1718	0	0	1790	0
Flt Permitted		0.960			0.963			0.999			0.999	
Satd. Flow (perm)	0	1766	0	0	1674	0	0	1718	0	0	1790	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	0%	0%	0%	2%	0%	50%	8%	0%	0%	6%	2%
Adj. Flow (vph)	42	5	4	83	2	23	2	75	54	6	184	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	108	0	0	131	0	0	288	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	27.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	4	3	69	2	19	2	62	45	5	153	81
Future Vol, veh/h	35	4	3	69	2	19	2	62	45	5	153	81
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	0	0	0	2	0	50	8	0	0	6	2
Mvmt Flow	42	5	4	83	2	23	2	75	54	6	184	98
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.6	8.9	9.5	9.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	83%	77%	2%
Vol Thru, %	57%	10%	2%	64%
Vol Right, %	41%	7%	21%	34%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	42	90	239
LT Vol	2	35	69	5
Through Vol	62	4	2	153
RT Vol	45	3	19	81
Lane Flow Rate	131	51	108	288
Geometry Grp	1	1	1	1
Degree of Util (X)	0.19	0.073	0.149	0.342
Departure Headway (Hd)	5.217	5.173	4.959	4.273
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	687	690	721	841
Service Time	3.259	3.225	3.007	2.306
HCM Lane V/C Ratio	0.191	0.074	0.15	0.342
HCM Control Delay, s/veh	9.5	8.6	8.9	9.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.2	0.5	1.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	323	5	26	331	4	39
Future Volume (vph)	323	5	26	331	4	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1798	0	0	1852	1749	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1798	0	0	1852	1749	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	5%	0%	0%	4%	0%	3%
Adj. Flow (vph)	330	5	27	338	4	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	0	0	365	44	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	323	5	26	331	4	39
Future Vol, veh/h	323	5	26	331	4	39
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, %	1	-	-	-3	3	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	5	0	0	4	0	3
Mvmt Flow	330	5	27	338	4	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	335	0	723	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	391	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	922	-	400	733
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	733	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	922	-	385	733
Mov Cap-2 Maneuver	-	-	-	-	385	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.66	10.69
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	676	-	-	131	-
HCM Lane V/C Ratio	0.065	-	-	0.029	-
HCM Ctrl Dly (s/v)	10.7	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	7	0	0	0
Future Volume (vph)	0	16	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1540	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1540	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	0%	0%	14%	0%	0%	0%
Adj. Flow (vph)	0	22	10	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	10	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	7	0	0	0
Future Vol, veh/h	0	16	7	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	14	0	0	0
Mvmt Flow	0	22	10	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	10	0	-	0	32	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1020	-	-	-	1135	1045
Stage 1	-	-	-	-	1186	-
Stage 2	-	-	-	-	1169	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1020	-	-	-	1135	1045
Mov Cap-2 Maneuver	-	-	-	-	1135	-
Stage 1	-	-	-	-	1186	-
Stage 2	-	-	-	-	1169	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1020	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	16	7	82	28	0
Future Volume (vph)	0	16	7	82	28	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1494	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1494	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	0%	0%	14%	2%	2%	0%
Adj. Flow (vph)	0	22	10	114	39	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	22	124	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 15.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	7	82	28	0
Future Vol, veh/h	0	16	7	82	28	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	14	2	2	0
Mvmt Flow	0	22	10	114	39	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	124	0	-	0	89	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	923	-	-	-	1027	967
Stage 1	-	-	-	-	1108	-
Stage 2	-	-	-	-	1168	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	923	-	-	-	1027	967
Mov Cap-2 Maneuver	-	-	-	-	1027	-
Stage 1	-	-	-	-	1108	-
Stage 2	-	-	-	-	1168	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.64
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	923	-	-	-	1027
HCM Lane V/C Ratio	-	-	-	-	0.038
HCM Ctrl Dly (s/v)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	26	21	0	11	7	0
Future Volume (vph)	26	21	0	11	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940					
Flt Protected					0.950	
Satd. Flow (prot)	1589	0	0	1677	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1589	0	0	1677	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	16%	2%	0%	9%	2%	0%
Adj. Flow (vph)	41	33	0	17	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	0	17	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	21	0	11	7	0
Future Vol, veh/h	26	21	0	11	7	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	16	2	0	9	2	0
Mvmt Flow	41	33	0	17	11	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	74	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1133	-	1076	1075
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	1175	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1133	-	1076	1075
Mov Cap-2 Maneuver	-	-	-	-	1076	-
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	1175	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.38
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1076	-	-	1133	-
HCM Lane V/C Ratio	0.01	-	-	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	26	0	0	11	0	0
Future Volume (vph)	26	0	0	11	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1544	0	0	1719	1881	0
Flt Permitted						
Satd. Flow (perm)	1544	0	0	1719	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	16%	0%	0%	9%	0%	0%
Adj. Flow (vph)	41	0	0	17	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	17	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	0	0	11	0	0
Future Vol, veh/h	26	0	0	11	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	16	0	0	9	0	0
Mvmt Flow	41	0	0	17	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	41	0	58	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1163	-	1102	1099
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	1176	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1163	-	1102	1099
Mov Cap-2 Maneuver	-	-	-	-	1102	-
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	1176	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1163	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	41	2	0	75	2
Future Volume (vph)	0	41	2	0	75	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1835	0	0	1847	1862	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1835	0	0	1847	1862	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	47	2	0	86	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	0	2	88	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	277	118	36	305	45	324	1	167	27	0	31
Future Volume (vph)	13	277	118	36	305	45	324	1	167	27	0	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.955			0.981				0.850		0.928	
Flt Protected	0.950			0.950			0.950	0.953			0.977	
Satd. Flow (prot)	1785	1654	0	1650	3293	0	1495	1501	1477	0	1831	0
Flt Permitted	0.472			0.294			0.950	0.953			0.737	
Satd. Flow (perm)	887	1654	0	511	3293	0	1495	1501	1477	0	1381	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			27				235		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	2%	12%	6%	1%	0%	7%	0%	2%	0%	0%	0%
Adj. Flow (vph)	18	390	166	51	430	63	456	1	235	38	0	44
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	18	556	0	51	493	0	228	229	235	0	82	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

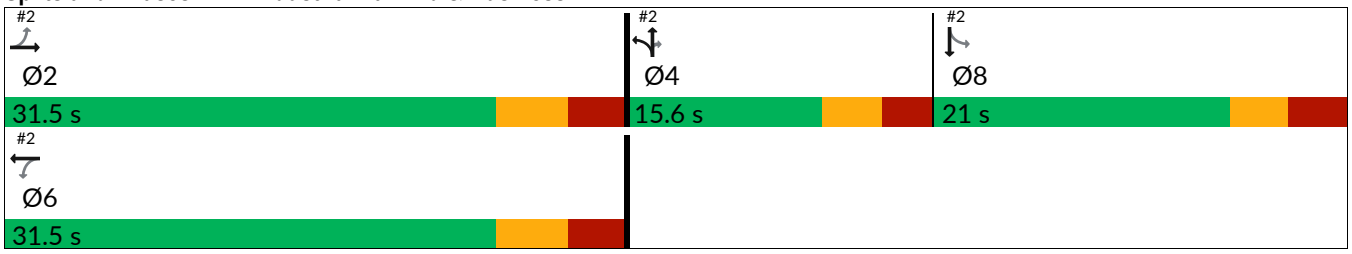
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	22.0	22.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	24.6	24.6		24.6	24.6		11.3	11.3	11.3		7.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.21	0.21	0.21		0.13	
v/c Ratio	0.05	0.73		0.22	0.33		0.75	0.75	0.48		0.27	
Control Delay (s/veh)	10.0	20.1		13.6	10.7		41.9	41.8	7.5		3.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	10.0	20.1		13.6	10.7		41.9	41.8	7.5		3.6	
LOS	A	C		B	B		D	D	A		A	
Approach Delay (s/veh)		19.8			11.0			30.2			3.6	
Approach LOS		B			B			C			A	
Queue Length 50th (ft)	3	146		11	53		87	83	0		0	
Queue Length 95th (ft)	10	174		25	63		#137	#131	22		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	429	819		247	1608		306	307	489		514	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.04	0.68		0.21	0.31		0.75	0.75	0.48		0.16	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 55.1	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.75	
Intersection Signal Delay (s/veh): 20.4	Intersection LOS: C
Intersection Capacity Utilization 56.2%	ICU Level of Service B
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	556	51	493	228	229	235	82
v/c Ratio	0.05	0.73	0.22	0.33	0.75	0.75	0.48	0.27
Control Delay (s/veh)	10.0	20.1	13.6	10.7	41.9	41.8	7.5	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.0	20.1	13.6	10.7	41.9	41.8	7.5	3.6
Queue Length 50th (ft)	3	146	11	53	87	83	0	0
Queue Length 95th (ft)	10	174	25	63	#137	#131	22	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	429	819	247	1608	306	307	489	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.68	0.21	0.31	0.75	0.75	0.48	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	277	118	36	305	45	324	1	167	27	0	31
Future Volume (veh/h)	13	277	118	36	305	45	324	1	167	27	0	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1772	1761	1764	1778	1652	1750	1722	1778	1849	1778
Adj Flow Rate, veh/h	18	390	0	51	430	63	457	0	235	38	0	44
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	0	2	12	6	1	0	7	0	2	0	0	0
Cap, veh/h	415	720		360	1144	167	684	0	317	63	0	73
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.37	0.22	0.00	0.22	0.06	0.00	0.06
Sat Flow, veh/h	942	1846	0	936	2935	427	3146	0	1459	765	0	886
Grp Volume(v), veh/h	18	390	0	51	244	249	457	0	235	82	0	0
Grp Sat Flow(s),veh/h/ln	942	1846	0	936	1675	1687	1573	0	1459	1651	0	0
Q Serve(g_s), s	0.7	8.0	0.0	2.2	5.1	5.2	6.5	0.0	7.3	2.4	0.0	0.0
Cycle Q Clear(g_c), s	5.8	8.0	0.0	10.1	5.1	5.2	6.5	0.0	7.3	2.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.25	1.00		1.00	0.46		0.54
Lane Grp Cap(c), veh/h	415	720		360	653	658	684	0	317	136	0	0
V/C Ratio(X)	0.04	0.54		0.14	0.37	0.38	0.67	0.00	0.74	0.60	0.00	0.00
Avail Cap(c_a), veh/h	551	986		495	895	901	711	0	330	543	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	11.5	0.0	15.4	10.6	10.7	17.4	0.0	17.8	22.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.7	0.0	0.8	1.5	1.5	2.3	0.0	8.3	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.2	0.0	0.5	1.8	1.9	2.3	0.0	3.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	12.9	14.2	0.0	16.2	12.1	12.3	19.7	0.0	26.1	26.2	0.0	0.0
LnGrp LOS	B	B		B	B	B	B		C	C		
Approach Vol, veh/h		408			544			692			82	
Approach Delay, s/veh		14.2			12.6			21.9			26.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.5		15.2		24.5		9.0				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		10.0		9.3		12.1		4.4				
Green Ext Time (p_c), s		5.2		0.3		5.9		0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.3									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	12	0	3	6	25	5	444	7	26	110	14
Future Volume (vph)	32	12	0	3	6	25	5	444	7	26	110	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.901			0.998			0.988	
Flt Protected		0.965			0.996			0.999			0.991	
Satd. Flow (prot)	0	1795	0	0	1582	0	0	1996	0	0	1773	0
Flt Permitted		0.965			0.996			0.999			0.991	
Satd. Flow (perm)	0	1795	0	0	1582	0	0	1996	0	0	1773	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	3%	0%	0%	0%	0%	5%	0%	4%	0%	12%	10%	7%
Adj. Flow (vph)	63	24	0	6	12	49	10	871	14	51	216	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	0	0	67	0	0	895	0	0	294	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	12	0	3	6	25	5	444	7	26	110	14
Future Vol, veh/h	32	12	0	3	6	25	5	444	7	26	110	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	3	0	0	0	0	5	0	4	0	12	10	7
Mvmt Flow	63	24	0	6	12	49	10	871	14	51	216	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1227	1235	229	1226	1242	877	243	0	0	884	0	0
Stage 1	331	331	-	897	897	-	-	-	-	-	-	-
Stage 2	896	904	-	329	345	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.3	6.7	6.35	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	169	178	862	159	164	345	992	-	-	538	-	-
Stage 1	781	648	-	355	344	-	-	-	-	-	-	-
Stage 2	370	358	-	771	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	117	155	862	120	144	345	992	-	-	538	-	-
Mov Cap-2 Maneuver	117	155	-	120	144	-	-	-	-	-	-	-
Stage 1	695	577	-	348	337	-	-	-	-	-	-	-
Stage 2	301	352	-	658	558	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	80.97	25.2	0.1	2.15
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	20	-	-	125	244	305	-	-
HCM Lane V/C Ratio	0.01	-	-	0.688	0.273	0.095	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	81	25.2	12.4	0	-
HCM Lane LOS	A	A	-	F	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	3.7	1.1	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	6	1	16	11	0	0	92	42	9	25	43
Future Volume (vph)	70	6	1	16	11	0	0	92	42	9	25	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.958			0.925	
Flt Protected		0.956			0.971						0.994	
Satd. Flow (prot)	0	1770	0	0	1739	0	0	1720	0	0	1590	0
Flt Permitted		0.956			0.971						0.994	
Satd. Flow (perm)	0	1770	0	0	1739	0	0	1720	0	0	1590	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	10%	0%	0%	38%	2%
Adj. Flow (vph)	103	9	1	24	16	0	0	135	62	13	37	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	40	0	0	197	0	0	113	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	1	16	11	0	0	92	42	9	25	43
Future Vol, veh/h	70	6	1	16	11	0	0	92	42	9	25	43
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	2	2	0	0	0	0	0	10	0	0	38	2
Mvmt Flow	103	9	1	24	16	0	0	135	62	13	37	63
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	8.2	8.8	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	91%	59%	12%
Vol Thru, %	69%	8%	41%	32%
Vol Right, %	31%	1%	0%	56%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	134	77	27	77
LT Vol	0	70	16	9
Through Vol	92	6	11	25
RT Vol	42	1	0	43
Lane Flow Rate	197	113	40	113
Geometry Grp	1	1	1	1
Degree of Util (X)	0.24	0.152	0.053	0.132
Departure Headway (Hd)	4.381	4.843	4.85	4.184
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	822	741	738	857
Service Time	2.401	2.871	2.883	2.206
HCM Lane V/C Ratio	0.24	0.152	0.054	0.132
HCM Control Delay, s/veh	8.8	8.7	8.2	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.5	0.2	0.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	506	10	37	541	4	67
Future Volume (vph)	506	10	37	541	4	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.872	
Flt Protected				0.997	0.997	
Satd. Flow (prot)	1849	0	0	1887	1694	0
Flt Permitted				0.997	0.997	
Satd. Flow (perm)	1849	0	0	1887	1694	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	2%	0%	6%
Adj. Flow (vph)	527	10	39	564	4	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	537	0	0	603	74	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	506	10	37	541	4	67
Future Vol, veh/h	506	10	37	541	4	67
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, %	1	-	-	-3	3	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	2	0	6
Mvmt Flow	527	10	39	564	4	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	538	0	1173	532
Stage 1	-	-	-	-	532	-
Stage 2	-	-	-	-	641	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.2
Pot Cap-1 Maneuver	-	-	783	-	199	540
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	783	-	184	540
Mov Cap-2 Maneuver	-	-	-	-	184	-
Stage 1	-	-	-	-	568	-
Stage 2	-	-	-	-	532	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.63	13.71
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	487	-	-	115	-
HCM Lane V/C Ratio	0.152	-	-	0.049	-
HCM Ctrl Dly (s/v)	13.7	-	-	9.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	23	23	0	0	0
Future Volume (vph)	0	23	23	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	25	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	25	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	23	0	0	0
Future Vol, veh/h	0	23	23	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	25	25	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	25	0	-	0	50	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1006	-	-	-	1099	1023
Stage 1	-	-	-	-	1165	-
Stage 2	-	-	-	-	1165	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1006	-	-	-	1099	1023
Mov Cap-2 Maneuver	-	-	-	-	1099	-
Stage 1	-	-	-	-	1165	-
Stage 2	-	-	-	-	1165	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1006	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	23	23	34	64	0
Future Volume (vph)	0	23	23	34	64	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.919			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1594	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1594	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	25	25	37	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	62	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	23	34	64	0
Future Vol, veh/h	0	23	23	34	64	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	25	25	37	70	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	62	0	-	0	68	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	974	-	-	-	1064	998
Stage 1	-	-	-	-	1139	-
Stage 2	-	-	-	-	1165	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	974	-	-	-	1064	998
Mov Cap-2 Maneuver	-	-	-	-	1064	-
Stage 1	-	-	-	-	1139	-
Stage 2	-	-	-	-	1165	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.62
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	974	-	-	-	1064
HCM Lane V/C Ratio	-	-	-	-	0.065
HCM Ctrl Dly (s/v)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	38	9	0	24	16	0
Future Volume (vph)	38	9	0	24	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.975					
Flt Protected					0.950	
Satd. Flow (prot)	1692	0	0	1757	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1692	0	0	1757	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	2%	0%	4%	2%	0%
Adj. Flow (vph)	43	10	0	27	18	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	27	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	9	0	24	16	0
Future Vol, veh/h	38	9	0	24	16	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	8	2	0	4	2	0
Mvmt Flow	43	10	0	27	18	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	53	0	76	48
Stage 1	-	-	-	-	48	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1151	-	1073	1088
Stage 1	-	-	-	-	1132	-
Stage 2	-	-	-	-	1161	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1151	-	1073	1088
Mov Cap-2 Maneuver	-	-	-	-	1073	-
Stage 1	-	-	-	-	1132	-
Stage 2	-	-	-	-	1161	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.41
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1073	-	-	1151	-
HCM Lane V/C Ratio	0.017	-	-	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	38	0	0	24	0	0
Future Volume (vph)	38	0	0	24	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1658	0	0	1801	1881	0
Flt Permitted						
Satd. Flow (perm)	1658	0	0	1801	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	0%	0%	4%	0%	0%
Adj. Flow (vph)	43	0	0	27	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	0	0	27	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	38	0	0	24	0	0
Future Vol, veh/h	38	0	0	24	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	8	0	0	4	0	0
Mvmt Flow	43	0	0	27	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	43	0	70	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1160	-	1082	1096
Stage 1	-	-	-	-	1140	-
Stage 2	-	-	-	-	1162	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1160	-	1082	1096
Mov Cap-2 Maneuver	-	-	-	-	1082	-
Stage 1	-	-	-	-	1140	-
Stage 2	-	-	-	-	1162	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1160	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

WEEKEND

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	38	1	0	36	1
Future Volume (vph)	0	38	1	0	36	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1747	0	0	1847	1828	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1747	0	0	1847	1828	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%
Adj. Flow (vph)	0	48	1	0	45	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	1	46	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

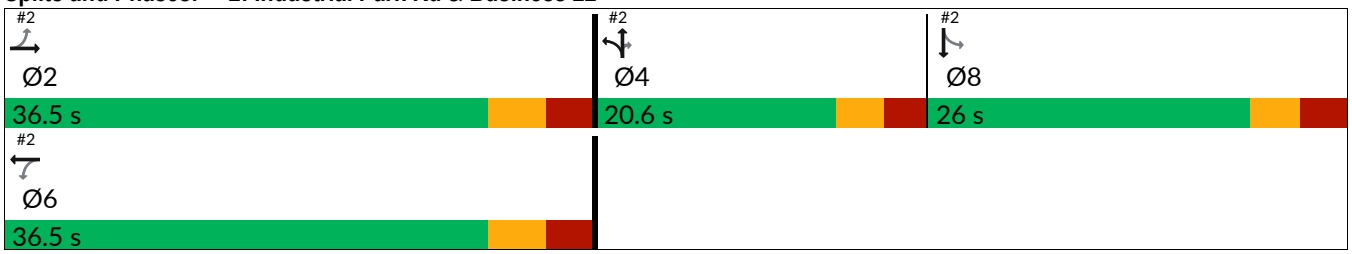
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	197	136	35	209	24	68	0	48	25	0	14
Future Volume (vph)	14	197	136	35	209	24	68	0	48	25	0	14
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.939			0.984				0.850		0.953	
Flt Protected	0.950			0.950			0.950	0.950			0.969	
Satd. Flow (prot)	1785	1693	0	1605	3332	0	1416	1416	1383	0	1775	0
Flt Permitted	0.603			0.548			0.950	0.950				
Satd. Flow (perm)	1133	1693	0	926	3332	0	1416	1416	1383	0	1832	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48			17				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	9%	0%	0%	13%	0%	9%	4%	0%	7%
Adj. Flow (vph)	14	203	140	36	215	25	70	0	49	26	0	14
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	14	343	0	36	240	0	35	35	49	0	40	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.3	27.3		27.3	27.3		8.4	8.4	8.4		7.1	
Actuated g/C Ratio	0.60	0.60		0.60	0.60		0.19	0.19	0.19		0.16	
v/c Ratio	0.02	0.33		0.06	0.12		0.13	0.13	0.14		0.10	
Control Delay (s/veh)	8.4	8.4		8.7	7.1		20.0	20.0	0.8		0.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.4	8.4		8.7	7.1		20.0	20.0	0.8		0.5	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		8.4			7.3			12.1			0.5	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	30		3	10		6	6	0		0	
Queue Length 95th (ft)	11	121		22	40		37	33	0		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	819	1237		669	2413		528	528	594		958	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.28		0.05	0.10		0.07	0.07	0.08		0.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 45.3	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.33	
Intersection Signal Delay (s/veh): 8.1	Intersection LOS: A
Intersection Capacity Utilization 48.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	14	343	36	240	35	35	49	40
v/c Ratio	0.02	0.33	0.06	0.12	0.13	0.13	0.14	0.10
Control Delay (s/veh)	8.4	8.4	8.7	7.1	20.0	20.0	0.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.4	8.4	8.7	7.1	20.0	20.0	0.8	0.5
Queue Length 50th (ft)	1	30	3	10	6	6	0	0
Queue Length 95th (ft)	11	121	22	40	37	33	0	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	819	1237	669	2413	528	528	594	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.28	0.05	0.10	0.07	0.07	0.08	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	197	136	35	209	24	68	0	48	25	0	14
Future Volume (veh/h)	14	197	136	35	209	24	68	0	48	25	0	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1875	1920	1717	1778	1778	1567	1750	1623	1722	1849	1679
Adj Flow Rate, veh/h	14	203	0	36	215	25	70	0	49	26	0	14
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	9	0	0	13	0	9	4	0	7
Cap, veh/h	592	662		529	1079	124	302	0	139	66	0	36
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.10	0.00	0.10	0.03	0.00	0.03
Sat Flow, veh/h	1188	1875	0	1083	3052	351	2985	0	1376	1097	0	591
Grp Volume(v), veh/h	14	203	0	36	118	122	70	0	49	40	0	0
Grp Sat Flow(s),veh/h/ln	1188	1875	0	1083	1689	1715	1493	0	1376	1688	0	0
Q Serve(g_s), s	0.3	2.4	0.0	0.8	1.5	1.6	0.7	0.0	1.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	2.4	0.0	3.2	1.5	1.6	0.7	0.0	1.0	0.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.20	1.00		1.00	0.65		0.35
Lane Grp Cap(c), veh/h	592	662		529	597	606	302	0	139	102	0	0
V/C Ratio(X)	0.02	0.31		0.07	0.20	0.20	0.23	0.00	0.35	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1355	1867		1225	1682	1707	1534	0	707	1139	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	7.3	0.0	8.5	7.0	7.1	12.9	0.0	13.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.2	0.7	0.7	0.4	0.0	1.5	2.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.2	0.5	0.5	0.2	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.7	8.4	0.0	8.7	7.7	7.8	13.3	0.0	14.5	17.0	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		217			276			119			40	
Approach Delay, s/veh		8.4			7.9			13.8			17.0	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		7.8		16.5		6.9				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		4.4		3.0		5.2		2.7				
Green Ext Time (p_c), s		3.3		0.3		4.1		0.1				

Intersection Summary		
HCM 7th Control Delay, s/veh	9.7	
HCM 7th LOS	A	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	7	2	2	10	2	106	1	25	197	6
Future Volume (vph)	5	3	7	2	2	10	2	106	1	25	197	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.905			0.999			0.996	
Flt Protected		0.983			0.993			0.999			0.995	
Satd. Flow (prot)	0	1754	0	0	1620	0	0	1961	0	0	1905	0
Flt Permitted		0.983			0.993			0.999			0.995	
Satd. Flow (perm)	0	1754	0	0	1620	0	0	1961	0	0	1905	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	6%	0%	10%	3%	0%
Adj. Flow (vph)	7	4	9	3	3	14	3	143	1	34	266	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	20	0	0	147	0	0	308	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	7	2	2	10	2	106	1	25	197	6
Future Vol, veh/h	5	3	7	2	2	10	2	106	1	25	197	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	2	0	6	0	10	3	0
Mvmt Flow	7	4	9	3	3	14	3	143	1	34	266	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	488	488	270	485	491	144	274	0	0	145	0	0
Stage 1	338	338	-	149	149	-	-	-	-	-	-	-
Stage 2	150	150	-	336	342	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.3	6.7	6.32	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	558	483	817	545	468	959	967	-	-	1035	-	-
Stage 1	777	644	-	983	771	-	-	-	-	-	-	-
Stage 2	990	777	-	764	630	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	524	463	817	512	449	959	967	-	-	1035	-	-
Mov Cap-2 Maneuver	524	463	-	512	449	-	-	-	-	-	-	-
Stage 1	747	619	-	980	769	-	-	-	-	-	-	-
Stage 2	970	775	-	722	605	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.1	9.96	0.16	0.94
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	33	-	-	610	745	196	-	-
HCM Lane V/C Ratio	0.003	-	-	0.033	0.025	0.033	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	11.1	10	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	6	0	30	2	9	2	60	58	4	52	82
Future Volume (vph)	30	6	0	30	2	9	2	60	58	4	52	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.969			0.935			0.920	
Flt Protected		0.960			0.965			0.999			0.999	
Satd. Flow (prot)	0	1785	0	0	1673	0	0	1749	0	0	1731	0
Flt Permitted		0.960			0.965			0.999			0.999	
Satd. Flow (perm)	0	1785	0	0	1673	0	0	1749	0	0	1731	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	2%	0%	0%	0%	2%	0%	0%	5%	0%	0%	8%	2%
Adj. Flow (vph)	38	8	0	38	3	12	3	77	74	5	67	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	53	0	0	154	0	0	177	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	6	0	30	2	9	2	60	58	4	52	82
Future Vol, veh/h	30	6	0	30	2	9	2	60	58	4	52	82
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	0	0	0	2	0	0	5	0	0	8	2
Mvmt Flow	38	8	0	38	3	12	3	77	74	5	67	105
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8	7.9	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	83%	73%	3%
Vol Thru, %	50%	17%	5%	38%
Vol Right, %	48%	0%	22%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	36	41	138
LT Vol	2	30	30	4
Through Vol	60	6	2	52
RT Vol	58	0	9	82
Lane Flow Rate	154	46	53	177
Geometry Grp	1	1	1	1
Degree of Util (X)	0.172	0.062	0.068	0.194
Departure Headway (Hd)	4.025	4.847	4.654	3.942
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	894	740	771	913
Service Time	2.037	2.866	2.673	1.953
HCM Lane V/C Ratio	0.172	0.062	0.069	0.194
HCM Control Delay, s/veh	7.9	8.2	8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.2	0.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	370	6	35	386	6	60
Future Volume (vph)	370	6	35	386	6	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1833	0	0	1882	1796	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1833	0	0	1882	1796	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%
Adj. Flow (vph)	425	7	40	444	7	69
Shared Lane Traffic (%)						
Lane Group Flow (vph)	432	0	0	484	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.1%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	370	6	35	386	6	60
Future Vol, veh/h	370	6	35	386	6	60
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, %	1	-	-	-3	3	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	3	2	0	0
Mvmt Flow	425	7	40	444	7	69

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	432	0	953	429
Stage 1	-	-	-	-	429	-
Stage 2	-	-	-	-	524	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	853	-	280	640
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	853	-	262	640
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	618	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.78	12.34
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	566	-	-	150	-
HCM Lane V/C Ratio	0.134	-	-	0.047	-
HCM Ctrl Dly (s/v)	12.3	-	-	9.4	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	12	0	0	0
Future Volume (vph)	0	20	12	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	23	14	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	14	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	12	0	0	0
Future Vol, veh/h	0	20	12	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	23	14	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	14	0	-	0	37	14
Stage 1	-	-	-	-	14	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1016	-	-	-	1124	1039
Stage 1	-	-	-	-	1180	-
Stage 2	-	-	-	-	1167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1016	-	-	-	1124	1039
Mov Cap-2 Maneuver	-	-	-	-	1124	-
Stage 1	-	-	-	-	1180	-
Stage 2	-	-	-	-	1167	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1016	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	12	82	28	0
Future Volume (vph)	0	20	12	82	28	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.882			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1522	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1522	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	23	14	95	33	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	109	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	12	82	28	0
Future Vol, veh/h	0	20	12	82	28	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	23	14	95	33	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	85	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	934	-	-	-	1034	973
Stage 1	-	-	-	-	1114	-
Stage 2	-	-	-	-	1167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	934	-	-	-	1034	973
Mov Cap-2 Maneuver	-	-	-	-	1034	-
Stage 1	-	-	-	-	1114	-
Stage 2	-	-	-	-	1167	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.59
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	934	-	-	-	1034
HCM Lane V/C Ratio	-	-	-	-	0.031
HCM Ctrl Dly (s/v)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	22	21	0	21	7	0
Future Volume (vph)	22	21	0	21	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.934					
Flt Protected					0.950	
Satd. Flow (prot)	1716	0	0	1589	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1716	0	0	1589	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	0%	15%	2%	0%
Adj. Flow (vph)	24	23	0	23	8	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	0	23	8	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	21	0	21	7	0
Future Vol, veh/h	22	21	0	21	7	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	15	2	0
Mvmt Flow	24	23	0	23	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	58	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.3	-	6.82	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1158	-	1102	1108
Stage 1	-	-	-	-	1151	-
Stage 2	-	-	-	-	1168	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1158	-	1102	1108
Mov Cap-2 Maneuver	-	-	-	-	1102	-
Stage 1	-	-	-	-	1151	-
Stage 2	-	-	-	-	1168	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.29
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1102	-	-	1158	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Ctrl Dly (s/v)	8.3	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	22	0	0	21	0	0
Future Volume (vph)	22	0	0	21	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1791	0	0	1629	1881	0
Flt Permitted						
Satd. Flow (perm)	1791	0	0	1629	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	15%	0%	0%
Adj. Flow (vph)	24	0	0	23	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	23	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	0	0	21	0	0
Future Vol, veh/h	22	0	0	21	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	15	0	0
Mvmt Flow	24	0	0	23	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	46	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1178	-	1121	1125
Stage 1	-	-	-	-	1167	-
Stage 2	-	-	-	-	1168	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1178	-	1121	1125
Mov Cap-2 Maneuver	-	-	-	-	1121	-
Stage 1	-	-	-	-	1167	-
Stage 2	-	-	-	-	1168	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1178	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	51	0	0	56	0
Future Volume (vph)	0	51	0	0	56	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	1799	0	0	1944	1935	0
Flt Permitted					0.950	
Satd. Flow (perm)	1799	0	0	1944	1935	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	57	0	0	62	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	57	0	0	0	62	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

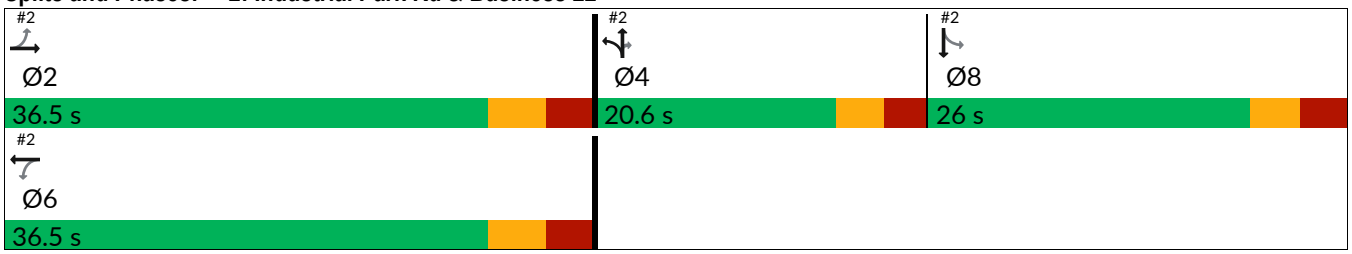
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	223	101	32	295	17	113	1	33	21	0	26
Future Volume (vph)	16	223	101	32	295	17	113	1	33	21	0	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.953			0.992				0.850		0.925	
Flt Protected	0.950			0.950			0.950	0.953			0.978	
Satd. Flow (prot)	1684	1716	0	1590	3359	0	1524	1530	1422	0	1827	0
Flt Permitted	0.540			0.515			0.950	0.953			0.824	
Satd. Flow (perm)	957	1716	0	862	3359	0	1524	1530	1422	0	1539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			8				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	0%	3%	10%	0%	0%	5%	0%	6%	0%	0%	0%
Adj. Flow (vph)	18	253	115	36	335	19	128	1	38	24	0	30
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	18	368	0	36	354	0	64	65	38	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.6	27.6		27.6	27.6		9.2	9.2	9.2		7.2	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.19	0.19	0.19		0.15	
v/c Ratio	0.03	0.37		0.07	0.18		0.22	0.22	0.10		0.16	
Control Delay (s/veh)	9.5	10.5		9.9	8.8		22.5	22.5	0.5		1.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	9.5	10.5		9.9	8.8		22.5	22.5	0.5		1.5	
LOS	A	B		A	A		C	C	A		A	
Approach Delay (s/veh)		10.4			8.9			17.5			1.5	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)	3	72		7	34		18	17	0		0	
Queue Length 95th (ft)	13	138		23	60		55	54	0		3	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	655	1185		590	2304		539	541	583		778	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.03	0.31		0.06	0.15		0.12	0.12	0.07		0.07	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 48.4	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.37	
Intersection Signal Delay (s/veh): 10.5	Intersection LOS: B
Intersection Capacity Utilization 46.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	18	368	36	354	64	65	38	54
v/c Ratio	0.03	0.37	0.07	0.18	0.22	0.22	0.10	0.16
Control Delay (s/veh)	9.5	10.5	9.9	8.8	22.5	22.5	0.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.5	10.5	9.9	8.8	22.5	22.5	0.5	1.5
Queue Length 50th (ft)	3	72	7	34	18	17	0	0
Queue Length 95th (ft)	13	138	23	60	55	54	0	3
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	655	1185	590	2304	539	541	583	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.31	0.06	0.15	0.12	0.12	0.07	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	223	101	32	295	17	113	1	33	21	0	26
Future Volume (veh/h)	16	223	101	32	295	17	113	1	33	21	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1861	1875	1905	1703	1778	1778	1680	1750	1666	1778	1849	1778
Adj Flow Rate, veh/h	18	253	0	36	335	19	129	0	38	24	0	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	3	10	0	0	5	0	6	0	0	0
Cap, veh/h	524	715		500	1239	70	371	0	164	49	0	61
Arrive On Green	0.38	0.38	0.00	0.38	0.38	0.35	0.12	0.00	0.12	0.04	0.00	0.04
Sat Flow, veh/h	1022	1875	0	1026	3250	184	3199	0	1411	732	0	915
Grp Volume(v), veh/h	18	253	0	36	173	181	129	0	38	54	0	0
Grp Sat Flow(s),veh/h/ln	1022	1875	0	1026	1689	1745	1600	0	1411	1647	0	0
Q Serve(g_s), s	0.4	3.3	0.0	0.9	2.5	2.5	1.3	0.0	0.8	1.1	0.0	0.0
Cycle Q Clear(g_c), s	2.9	3.3	0.0	4.2	2.5	2.5	1.3	0.0	0.8	1.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.44		0.56
Lane Grp Cap(c), veh/h	524	715		500	644	665	371	0	164	110	0	0
V/C Ratio(X)	0.03	0.35		0.07	0.27	0.27	0.35	0.00	0.23	0.49	0.00	0.00
Avail Cap(c_a), veh/h	1050	1678		1027	1512	1562	1478	0	652	999	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.4	7.7	0.0	9.2	7.4	7.4	14.1	0.0	13.9	16.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.3	0.0	0.3	1.0	0.9	0.6	0.0	0.7	3.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.0	0.2	0.8	0.8	0.4	0.0	0.3	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.5	8.9	0.0	9.4	8.3	8.4	14.7	0.0	14.6	19.5	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		271			390			167			54	
Approach Delay, s/veh		8.9			8.5			14.6			19.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.7		8.6		18.7		7.3				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		5.3		3.3		6.2		3.1				
Green Ext Time (p_c), s		4.3		0.5		6.0		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.4									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	9	1	4	12	25	1	102	2	16	83	23
Future Volume (vph)	24	9	1	4	12	25	1	102	2	16	83	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.917			0.998			0.974	
Flt Protected		0.966			0.995						0.994	
Satd. Flow (prot)	0	1777	0	0	1647	0	0	1961	0	0	1832	0
Flt Permitted		0.966			0.995						0.994	
Satd. Flow (perm)	0	1777	0	0	1647	0	0	1961	0	0	1832	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	11%	0%	0%	0%	2%	0%	6%	0%	2%	6%	5%
Adj. Flow (vph)	29	11	1	5	14	30	1	123	2	19	100	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	49	0	0	126	0	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	9	1	4	12	25	1	102	2	16	83	23
Future Vol, veh/h	24	9	1	4	12	25	1	102	2	16	83	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	11	0	0	0	2	0	6	0	2	6	5
Mvmt Flow	29	11	1	5	14	30	1	123	2	19	100	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	285	280	114	270	293	124	128	0	0	125	0	0
Stage 1	152	152	-	127	127	-	-	-	-	-	-	-
Stage 2	133	128	-	144	166	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.61	6.2	7.3	6.7	6.32	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.099	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	769	613	1002	774	611	985	1086	-	-	1088	-	-
Stage 1	987	754	-	1013	790	-	-	-	-	-	-	-
Stage 2	1013	773	-	990	758	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	713	601	1002	744	599	985	1086	-	-	1088	-	-
Mov Cap-2 Maneuver	713	601	-	744	599	-	-	-	-	-	-	-
Stage 1	968	740	-	1012	789	-	-	-	-	-	-	-
Stage 2	962	772	-	955	743	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.59	9.75	0.08	1.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	17	-	-	685	807	226	-	-
HCM Lane V/C Ratio	0.001	-	-	0.06	0.061	0.018	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	10.6	9.8	8.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	9	2	11	4	8	1	23	13	4	35	48
Future Volume (vph)	72	9	2	11	4	8	1	23	13	4	35	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.952			0.952			0.925	
Flt Protected		0.958			0.977			0.999			0.998	
Satd. Flow (prot)	0	1771	0	0	1666	0	0	1563	0	0	1731	0
Flt Permitted		0.958			0.977			0.999			0.998	
Satd. Flow (perm)	0	1771	0	0	1666	0	0	1563	0	0	1731	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	27%	0%	0%	9%	2%
Adj. Flow (vph)	87	11	2	13	5	10	1	28	16	5	42	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	28	0	0	45	0	0	105	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	9	2	11	4	8	1	23	13	4	35	48
Future Vol, veh/h	72	9	2	11	4	8	1	23	13	4	35	48
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	0	0	0	0	0	27	0	0	9	2
Mvmt Flow	87	11	2	13	5	10	1	28	16	5	42	58
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	7.4	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	87%	48%	5%
Vol Thru, %	62%	11%	17%	40%
Vol Right, %	35%	2%	35%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	37	83	23	87
LT Vol	1	72	11	4
Through Vol	23	9	4	35
RT Vol	13	2	8	48
Lane Flow Rate	45	100	28	105
Geometry Grp	1	1	1	1
Degree of Util (X)	0.05	0.122	0.032	0.112
Departure Headway (Hd)	3.998	4.374	4.124	3.835
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	880	813	855	919
Service Time	2.094	2.436	2.211	1.921
HCM Lane V/C Ratio	0.051	0.123	0.033	0.114
HCM Control Delay, s/veh	7.3	8.1	7.4	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.1	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	467	16	51	502	1	47
Future Volume (vph)	467	16	51	502	1	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.868	
Flt Protected				0.995	0.999	
Satd. Flow (prot)	1847	0	0	1885	1785	0
Flt Permitted				0.995	0.999	
Satd. Flow (perm)	1847	0	0	1885	1785	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	497	17	54	534	1	50
Shared Lane Traffic (%)						
Lane Group Flow (vph)	514	0	0	588	51	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	467	16	51	502	1	47
Future Vol, veh/h	467	16	51	502	1	47
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, %	1	-	-	-3	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	497	17	54	534	1	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	514	0	1148	505
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	643	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	799	-	207	575
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	531	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	799	-	187	575
Mov Cap-2 Maneuver	-	-	-	-	187	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	531	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.91	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	551	-	-	166	-
HCM Lane V/C Ratio	0.093	-	-	0.068	-
HCM Ctrl Dly (s/v)	12.2	-	-	9.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	20	0	0	0
Future Volume (vph)	0	20	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	25	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	25	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	20	0	0	0
Future Vol, veh/h	0	20	20	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	25	25	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	25	0	-	0	51	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1006	-	-	-	1098	1023
Stage 1	-	-	-	-	1164	-
Stage 2	-	-	-	-	1164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1006	-	-	-	1098	1023
Mov Cap-2 Maneuver	-	-	-	-	1098	-
Stage 1	-	-	-	-	1164	-
Stage 2	-	-	-	-	1164	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1006	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	20	34	64	0
Future Volume (vph)	0	20	20	34	64	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.915			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1586	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1586	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	25	25	43	81	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	68	0	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	20	34	64	0
Future Vol, veh/h	0	20	20	34	64	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	25	25	43	81	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	72	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	969	-	-	-	1057	993
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	969	-	-	-	1057	993
Mov Cap-2 Maneuver	-	-	-	-	1057	-
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1164	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.69
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	1057
HCM Lane V/C Ratio	-	-	-	-	0.077
HCM Ctrl Dly (s/v)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	9	0	27	16	0
Future Volume (vph)	24	9	0	27	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964					
Flt Protected					0.950	
Satd. Flow (prot)	1779	0	0	1757	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1779	0	0	1757	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	0%	2%	0%	4%	2%	0%
Adj. Flow (vph)	38	14	0	42	25	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	0	42	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	9	0	27	16	0
Future Vol, veh/h	24	9	0	27	16	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	0	2	0	4	2	0
Mvmt Flow	38	14	0	42	25	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	87	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1153	-	1056	1094
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	1141	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1153	-	1056	1094
Mov Cap-2 Maneuver	-	-	-	-	1056	-
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	1141	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.49
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1056	-	-	1153	-
HCM Lane V/C Ratio	0.024	-	-	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	0	0	27	0	0
Future Volume (vph)	24	0	0	27	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1791	0	0	1801	1881	0
Flt Permitted						
Satd. Flow (perm)	1791	0	0	1801	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	38	0	0	42	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	42	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	0	0	27	0	0
Future Vol, veh/h	24	0	0	27	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	38	0	0	42	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	80	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1165	-	1067	1104
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	1141	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1165	-	1067	1104
Mov Cap-2 Maneuver	-	-	-	-	1067	-
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	1141	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1165	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

N.04 – 2037 No Build Condition: Synchro Reports

WEEKDAY

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	30	3	0	53	1
Future Volume (vph)	0	30	3	0	53	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.998	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1715	0	0	1388	1871	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1715	0	0	1388	1871	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	7%	33%	0%	2%	100%
Adj. Flow (vph)	0	35	4	0	62	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	4	63	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

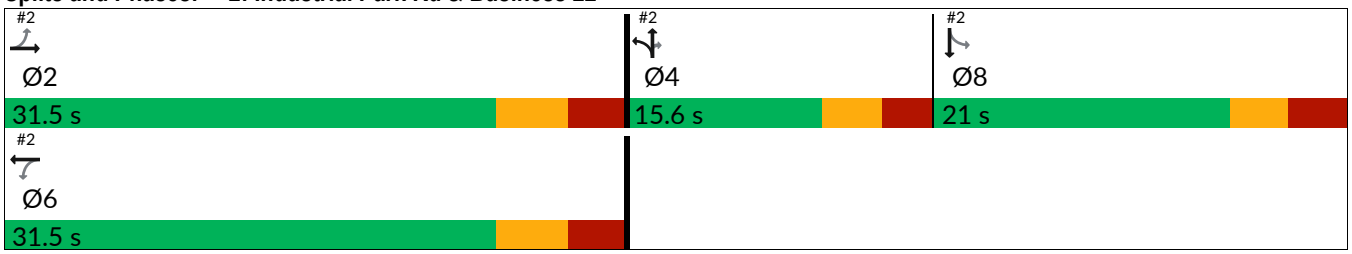
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	140	266	75	84	3	91	0	55	8	0	13
Future Volume (vph)	6	140	266	75	84	3	91	0	55	8	0	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.902			0.995				0.850		0.918	
Flt Protected	0.950			0.950			0.950	0.950			0.981	
Satd. Flow (prot)	1785	1558	0	1682	3241	0	1495	1495	1395	0	1734	0
Flt Permitted	0.692			0.458			0.950	0.950				
Satd. Flow (perm)	1300	1558	0	811	3241	0	1495	1495	1395	0	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		162			3				152		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1150			1064			837			237	
Travel Time (s)		26.1			24.2			22.8			6.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	7%	4%	3%	33%	7%	0%	8%	0%	0%	8%
Adj. Flow (vph)	7	154	292	82	92	3	100	0	60	9	0	14
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	7	446	0	82	95	0	50	50	60	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.6	26.6		26.6	26.6		8.5	8.5	8.5		7.0	
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.20	0.20	0.20		0.16	
v/c Ratio	0.01	0.43		0.16	0.05		0.17	0.17	0.15		0.06	
Control Delay (s/veh)	7.2	6.7		8.3	6.4		17.9	17.9	0.8		0.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	7.2	6.7		8.3	6.4		17.9	17.9	0.8		0.2	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		6.7			7.3			11.5			0.2	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	30		8	4		9	8	0		0	
Queue Length 95th (ft)	7	145		44	21		45	42	0		0	
Internal Link Dist (ft)		1070			984			757			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	885	1113		552	2209		401	401	485		779	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.40		0.15	0.04		0.12	0.12	0.12		0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 42.8	
Natural Cycle: 45	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.43	
Intersection Signal Delay (s/veh): 7.6	Intersection LOS: A
Intersection Capacity Utilization 54.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	7	446	82	95	50	50	60	23
v/c Ratio	0.01	0.43	0.16	0.05	0.17	0.17	0.15	0.06
Control Delay (s/veh)	7.2	6.7	8.3	6.4	17.9	17.9	0.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	6.7	8.3	6.4	17.9	17.9	0.8	0.2
Queue Length 50th (ft)	1	30	8	4	9	8	0	0
Queue Length 95th (ft)	7	145	44	21	45	42	0	0
Internal Link Dist (ft)		1070		984		757		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	885	1113	552	2209	401	401	485	779
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.40	0.15	0.04	0.12	0.12	0.12	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	140	266	75	84	3	91	0	55	8	0	13
Future Volume (veh/h)	6	140	266	75	84	3	91	0	55	8	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1846	1790	1736	1314	1652	1750	1637	1778	1849	1665
Adj Flow Rate, veh/h	7	154	0	82	92	3	100	0	60	9	0	14
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	7	4	3	33	7	0	8	0	0	8
Cap, veh/h	680	648		575	1145	37	369	0	163	32	0	49
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.12	0.00	0.12	0.02	0.00	0.02
Sat Flow, veh/h	1356	1846	0	1180	3259	106	3146	0	1388	641	0	997
Grp Volume(v), veh/h	7	154	0	82	46	49	100	0	60	23	0	0
Grp Sat Flow(s),veh/h/ln	1356	1846	0	1180	1649	1717	1573	0	1388	1637	0	0
Q Serve(g_s), s	0.1	1.8	0.0	1.7	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.8	0.0	3.5	0.6	0.6	0.9	0.0	1.2	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	1.00		1.00	0.39		0.61
Lane Grp Cap(c), veh/h	680	648		575	579	603	369	0	163	81	0	0
V/C Ratio(X)	0.01	0.24		0.14	0.08	0.08	0.27	0.00	0.37	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1330	1532		1140	1369	1425	1105	0	487	836	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.0	7.2	0.0	8.4	6.8	6.8	12.6	0.0	12.8	14.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.5	0.3	0.2	0.4	0.0	1.4	1.9	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.4	0.2	0.2	0.3	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.0	8.0	0.0	8.9	7.0	7.1	13.0	0.0	14.1	16.8	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		161			177			160			23	
Approach Delay, s/veh		8.0			7.9			13.4			16.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.3		16.5		6.5				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		3.8		3.2		5.5		2.4				
Green Ext Time (p_c), s		2.1		0.3		2.0		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.0									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	3	4	1	1	8	3	121	0	6	304	20
Future Volume (vph)	20	3	4	1	1	8	3	121	0	6	304	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.890						0.992	
Flt Protected		0.964			0.995			0.999			0.999	
Satd. Flow (prot)	0	1732	0	0	1344	0	0	1944	0	0	1855	0
Flt Permitted		0.964			0.995			0.999			0.999	
Satd. Flow (perm)	0	1732	0	0	1344	0	0	1944	0	0	1855	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			837	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	0%	0%	25%	0%	7%	0%	17%	6%	11%
Adj. Flow (vph)	21	3	4	1	1	9	3	129	0	6	323	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	11	0	0	132	0	0	350	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	33.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	3	4	1	1	8	3	121	0	6	304	20
Future Vol, veh/h	20	3	4	1	1	8	3	121	0	6	304	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	0	0	25	0	7	0	17	6	11
Mvmt Flow	21	3	4	1	1	9	3	129	0	6	323	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	482	482	334	473	493	129	345	0	0	129	0	0
Stage 1	347	347	-	135	135	-	-	-	-	-	-	-
Stage 2	136	135	-	338	357	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.3	6.7	6.55	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.3	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	559	487	752	557	467	915	915	-	-	1014	-	-
Stage 1	764	638	-	1002	783	-	-	-	-	-	-	-
Stage 2	1007	788	-	762	619	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	546	481	752	543	462	915	915	-	-	1014	-	-
Mov Cap-2 Maneuver	546	481	-	543	462	-	-	-	-	-	-	-
Stage 1	758	633	-	998	780	-	-	-	-	-	-	-
Stage 2	992	786	-	748	614	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.77	9.65	0.22	0.16
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	44	-	-	560	784	32	-	-
HCM Lane V/C Ratio	0.003	-	-	0.051	0.014	0.006	-	-
HCM Ctrl Dly (s/v)	8.9	0	-	11.8	9.7	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	4	3	71	1	19	2	63	46	5	157	0
Future Volume (vph)	7	4	3	71	1	19	2	63	46	5	157	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.972			0.944				
Flt Protected		0.977			0.962			0.999			0.998	
Satd. Flow (prot)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Flt Permitted		0.977			0.962			0.999			0.998	
Satd. Flow (perm)	0	1788	0	0	1675	0	0	1718	0	0	1852	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	50%	8%	0%	0%	6%	0%
Adj. Flow (vph)	8	5	4	86	1	23	2	76	55	6	189	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	110	0	0	133	0	0	195	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	4	3	71	1	19	2	63	46	5	157	0
Future Vol, veh/h	7	4	3	71	1	19	2	63	46	5	157	0
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	50	8	0	0	6	0
Mvmt Flow	8	5	4	86	1	23	2	76	55	6	189	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.9	8.6	9.2	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	50%	78%	3%
Vol Thru, %	57%	29%	1%	97%
Vol Right, %	41%	21%	21%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	14	91	162
LT Vol	2	7	71	5
Through Vol	63	4	1	157
RT Vol	46	3	19	0
Lane Flow Rate	134	17	110	195
Geometry Grp	1	1	1	1
Degree of Util (X)	0.187	0.022	0.144	0.237
Departure Headway (Hd)	5.023	4.79	4.728	4.378
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	715	747	759	822
Service Time	3.046	2.824	2.755	2.399
HCM Lane V/C Ratio	0.187	0.023	0.145	0.237
HCM Control Delay, s/veh	9.2	7.9	8.6	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.1	0.5	0.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	329	5	26	333	4	40
Future Volume (vph)	329	5	26	333	4	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.996	
Satd. Flow (prot)	1798	0	0	1852	1750	0
Flt Permitted				0.996	0.996	
Satd. Flow (perm)	1798	0	0	1852	1750	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	5%	0%	0%	4%	0%	3%
Adj. Flow (vph)	336	5	27	340	4	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	341	0	0	367	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	329	5	26	333	4	40
Future Vol, veh/h	329	5	26	333	4	40
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, %	1	-	-	-3	3	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	5	0	0	4	0	3
Mvmt Flow	336	5	27	340	4	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	341	0	731	338
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	393	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	917	-	395	727
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	731	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	917	-	381	727
Mov Cap-2 Maneuver	-	-	-	-	381	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	731	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.65	10.75
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	671	-	-	130	-
HCM Lane V/C Ratio	0.067	-	-	0.029	-
HCM Ctrl Dly (s/v)	10.7	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	42	2	0	77	2
Future Volume (vph)	0	42	2	0	77	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1835	0	0	1847	1862	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1835	0	0	1847	1862	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	48	2	0	89	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	2	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		

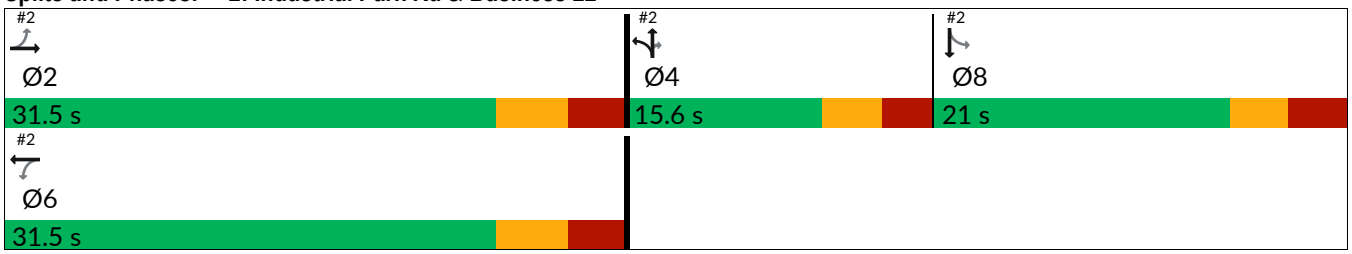
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	284	80	34	312	46	256	1	165	27	0	32
Future Volume (vph)	14	284	80	34	312	46	256	1	165	27	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.967			0.981				0.850		0.927	
Flt Protected	0.950			0.950			0.950	0.953			0.978	
Satd. Flow (prot)	1785	1669	0	1650	3293	0	1482	1487	1477	0	1831	0
Flt Permitted	0.467			0.336			0.950	0.953			0.762	
Satd. Flow (perm)	877	1669	0	584	3293	0	1482	1487	1477	0	1427	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24			28				232		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1147			1064			839			237	
Travel Time (s)		26.1			24.2			22.9			6.5	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	2%	17%	6%	1%	0%	8%	0%	2%	0%	0%	0%
Adj. Flow (vph)	20	400	113	48	439	65	361	1	232	38	0	45
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	20	513	0	48	504	0	180	182	232	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	22.0	22.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	23.9	23.9		23.9	23.9		10.9	10.9	10.9		7.1	
Actuated g/C Ratio	0.44	0.44		0.44	0.44		0.20	0.20	0.20		0.13	
v/c Ratio	0.05	0.68		0.19	0.34		0.61	0.61	0.48		0.26	
Control Delay (s/veh)	10.1	18.0		12.6	10.8		33.3	33.5	7.6		3.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	10.1	18.0		12.6	10.8		33.3	33.5	7.6		3.6	
LOS	B	B		B	B		C	C	A		A	
Approach Delay (s/veh)		17.7			10.9			23.3			3.6	
Approach LOS		B			B			C			A	
Queue Length 50th (ft)	4	132		10	54		66	63	0		0	
Queue Length 95th (ft)	11	160		23	65		98	94	22		0	
Internal Link Dist (ft)		1067			984			759			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	438	847		292	1662		314	314	495		540	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.05	0.61		0.16	0.30		0.57	0.58	0.47		0.15	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 54.1	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.68	
Intersection Signal Delay (s/veh): 16.8	Intersection LOS: B
Intersection Capacity Utilization 52.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	20	513	48	504	180	182	232	83
v/c Ratio	0.05	0.68	0.19	0.34	0.61	0.61	0.48	0.26
Control Delay (s/veh)	10.1	18.0	12.6	10.8	33.3	33.5	7.6	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.1	18.0	12.6	10.8	33.3	33.5	7.6	3.6
Queue Length 50th (ft)	4	132	10	54	66	63	0	0
Queue Length 95th (ft)	11	160	23	65	98	94	22	0
Internal Link Dist (ft)		1067		984		759		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	438	847	292	1662	314	314	495	540
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.61	0.16	0.30	0.57	0.58	0.47	0.15

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	284	80	34	312	46	256	1	165	27	0	32
Future Volume (veh/h)	14	284	80	34	312	46	256	1	165	27	0	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1698	1761	1764	1778	1637	1750	1722	1778	1849	1778
Adj Flow Rate, veh/h	20	400	0	48	439	65	362	0	232	38	0	45
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	0	2	17	6	1	0	8	0	2	0	0	0
Cap, veh/h	412	725		356	1150	169	670	0	314	63	0	75
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.37	0.21	0.00	0.21	0.06	0.00	0.06
Sat Flow, veh/h	933	1846	0	927	2930	431	3119	0	1459	755	0	895
Grp Volume(v), veh/h	20	400	0	48	250	254	362	0	232	83	0	0
Grp Sat Flow(s),veh/h/ln	933	1846	0	927	1675	1686	1559	0	1459	1650	0	0
Q Serve(g_s), s	0.8	8.2	0.0	2.1	5.2	5.3	5.0	0.0	7.2	2.4	0.0	0.0
Cycle Q Clear(g_c), s	6.1	8.2	0.0	10.3	5.2	5.3	5.0	0.0	7.2	2.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.26	1.00		1.00	0.46		0.54
Lane Grp Cap(c), veh/h	412	725		356	658	662	670	0	314	138	0	0
V/C Ratio(X)	0.05	0.55		0.14	0.38	0.38	0.54	0.00	0.74	0.60	0.00	0.00
Avail Cap(c_a), veh/h	543	983		485	892	898	702	0	329	541	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	11.5	0.0	15.5	10.6	10.7	17.0	0.0	17.9	22.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.8	0.0	0.7	1.6	1.6	0.8	0.0	8.2	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.3	0.0	0.5	1.9	1.9	1.7	0.0	2.9	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.0	14.3	0.0	16.2	12.2	12.3	17.8	0.0	26.1	26.3	0.0	0.0
LnGrp LOS	B	B		B	B	B	B		C	C		
Approach Vol, veh/h		420			552			594			83	
Approach Delay, s/veh		14.3			12.6			21.0			26.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.7		15.1		24.7		9.1				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		10.2		9.2		12.3		4.4				
Green Ext Time (p_c), s		5.3		0.2		5.9		0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			16.7									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	13	0	3	6	9	5	390	7	18	78	15
Future Volume (vph)	33	13	0	3	6	9	5	390	7	18	78	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.932			0.998			0.982	
Flt Protected		0.965			0.992			0.999			0.992	
Satd. Flow (prot)	0	1795	0	0	1602	0	0	1977	0	0	1697	0
Flt Permitted		0.965			0.992			0.999			0.992	
Satd. Flow (perm)	0	1795	0	0	1602	0	0	1977	0	0	1697	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			839	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	3%	0%	0%	0%	0%	11%	0%	5%	0%	18%	15%	7%
Adj. Flow (vph)	65	25	0	6	12	18	10	765	14	35	153	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	36	0	0	789	0	0	217	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	13	0	3	6	9	5	390	7	18	78	15
Future Vol, veh/h	33	13	0	3	6	9	5	390	7	18	78	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	3	0	0	0	0	11	0	5	0	18	15	7
Mvmt Flow	65	25	0	6	12	18	10	765	14	35	153	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1028	1036	168	1027	1044	772	182	0	0	778	0	0
Stage 1	238	238	-	791	791	-	-	-	-	-	-	-
Stage 2	790	798	-	236	253	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.3	6.7	6.41	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	233	233	934	222	218	394	1040	-	-	589	-	-
Stage 1	882	712	-	410	387	-	-	-	-	-	-	-
Stage 2	427	401	-	874	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	193	214	934	182	200	394	1040	-	-	589	-	-
Mov Cap-2 Maneuver	193	214	-	182	200	-	-	-	-	-	-	-
Stage 1	823	664	-	404	380	-	-	-	-	-	-	-
Stage 2	388	394	-	784	645	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	37.37	21.06	0.11	1.86
HCM LOS	E	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	22	-	-	199	259	283	-	-
HCM Lane V/C Ratio	0.009	-	-	0.454	0.136	0.06	-	-
HCM Ctrl Dly (s/v)	8.5	0	-	37.4	21.1	11.5	0	-
HCM Lane LOS	A	A	-	E	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	2.2	0.5	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	5	1	17	12	0	0	94	43	9	25	9
Future Volume (vph)	7	5	1	17	12	0	0	94	43	9	25	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992						0.958			0.972	
Flt Protected		0.973			0.972						0.990	
Satd. Flow (prot)	0	1825	0	0	1741	0	0	1720	0	0	1545	0
Flt Permitted		0.973			0.972						0.990	
Satd. Flow (perm)	0	1825	0	0	1741	0	0	1720	0	0	1545	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	38%	0%
Adj. Flow (vph)	10	7	1	25	18	0	0	138	63	13	37	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	0	43	0	0	201	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	5	1	17	12	0	0	94	43	9	25	9
Future Vol, veh/h	7	5	1	17	12	0	0	94	43	9	25	9
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	0	0	0	0	0	0	0	10	0	0	38	0
Mvmt Flow	10	7	1	25	18	0	0	138	63	13	37	13
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.7	7.9	8.3	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	54%	59%	21%
Vol Thru, %	69%	38%	41%	58%
Vol Right, %	31%	8%	0%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	13	29	43
LT Vol	0	7	17	9
Through Vol	94	5	12	25
RT Vol	43	1	0	9
Lane Flow Rate	201	19	43	63
Geometry Grp	1	1	1	1
Degree of Util (X)	0.226	0.024	0.055	0.072
Departure Headway (Hd)	4.037	4.587	4.614	4.077
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	882	785	781	865
Service Time	2.098	2.589	2.614	2.166
HCM Lane V/C Ratio	0.228	0.024	0.055	0.073
HCM Control Delay, s/veh	8.3	7.7	7.9	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.1	0.2	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	513	11	38	551	4	69
Future Volume (vph)	513	11	38	551	4	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.872	
Flt Protected				0.997	0.997	
Satd. Flow (prot)	1867	0	0	1905	1693	0
Flt Permitted				0.997	0.997	
Satd. Flow (perm)	1867	0	0	1905	1693	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	1%	0%	0%	1%	0%	6%
Adj. Flow (vph)	534	11	40	574	4	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	545	0	0	614	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	513	11	38	551	4	69
Future Vol, veh/h	513	11	38	551	4	69
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, %	1	-	-	-3	3	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	0	0	1	0	6
Mvmt Flow	534	11	40	574	4	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	546	0	1193	540
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	653	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.2
Pot Cap-1 Maneuver	-	-	778	-	192	534
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	778	-	178	534
Mov Cap-2 Maneuver	-	-	-	-	178	-
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	524	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.64	13.88
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	481	-	-	116	-
HCM Lane V/C Ratio	0.158	-	-	0.051	-
HCM Ctrl Dly (s/v)	13.9	-	-	9.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

WEEKEND

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	39	1	0	37	1
Future Volume (vph)	0	39	1	0	37	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1747	0	0	1847	1828	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1747	0	0	1847	1828	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%
Adj. Flow (vph)	0	49	1	0	46	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	1	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

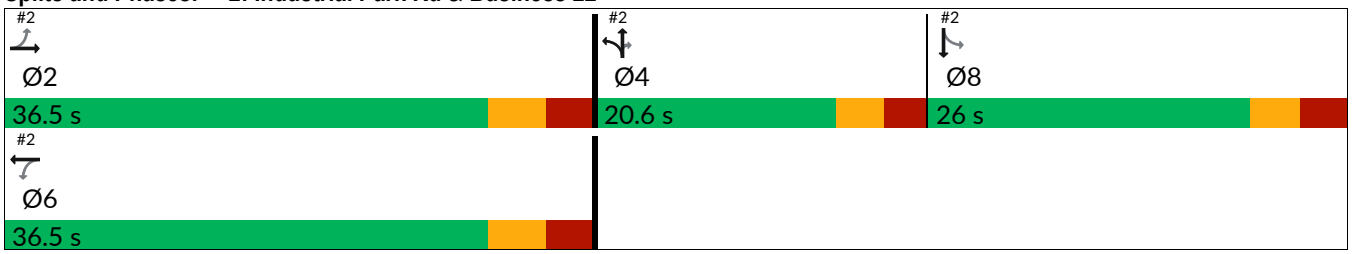
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	201	41	30	214	24	36	0	47	25	0	15
Future Volume (vph)	15	201	41	30	214	24	36	0	47	25	0	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.975			0.985				0.850		0.951	
Flt Protected	0.950			0.950			0.950	0.950			0.969	
Satd. Flow (prot)	1785	1773	0	1576	3335	0	1290	1290	1383	0	1771	0
Flt Permitted	0.599			0.605			0.950	0.950				
Satd. Flow (perm)	1125	1773	0	1004	3335	0	1290	1290	1383	0	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			17				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	11%	0%	0%	24%	0%	9%	4%	0%	7%
Adj. Flow (vph)	15	207	42	31	221	25	37	0	48	26	0	15
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	15	249	0	31	246	0	18	19	48	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	26.3	26.3		26.3	26.3		7.7	7.7	7.7		7.0	
Actuated g/C Ratio	0.66	0.66		0.66	0.66		0.19	0.19	0.19		0.18	
v/c Ratio	0.02	0.21		0.05	0.11		0.07	0.08	0.13		0.10	
Control Delay (s/veh)	8.9	8.1		8.9	6.9		17.6	17.7	0.7		0.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.9	8.1		8.9	6.9		17.6	17.7	0.7		0.5	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		8.1			7.1			8.1			0.5	
Approach LOS		A			A			A			A	
Queue Length 50th (ft)	1	22		3	10		4	3	0		0	
Queue Length 95th (ft)	11	91		20	41		23	20	1		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	913	1442		815	2710		540	540	652		1058	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.17		0.04	0.09		0.03	0.04	0.07		0.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 39.8	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.21	
Intersection Signal Delay (s/veh): 7.3	Intersection LOS: A
Intersection Capacity Utilization 44.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	15	249	31	246	18	19	48	41
v/c Ratio	0.02	0.21	0.05	0.11	0.07	0.08	0.13	0.10
Control Delay (s/veh)	8.9	8.1	8.9	6.9	17.6	17.7	0.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.9	8.1	8.9	6.9	17.6	17.7	0.7	0.5
Queue Length 50th (ft)	1	22	3	10	4	3	0	0
Queue Length 95th (ft)	11	91	20	41	23	20	1	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	913	1442	815	2710	540	540	652	1058
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.17	0.04	0.09	0.03	0.04	0.07	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	201	41	30	214	24	36	0	47	25	0	15
Future Volume (veh/h)	15	201	41	30	214	24	36	0	47	25	0	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1875	1950	1688	1778	1778	1413	1750	1623	1722	1849	1679
Adj Flow Rate, veh/h	15	207	0	31	221	25	37	0	48	26	0	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	0	11	0	0	24	0	9	4	0	7
Cap, veh/h	599	673		531	1099	123	233	0	119	66	0	38
Arrive On Green	0.36	0.36	0.00	0.36	0.36	0.33	0.09	0.00	0.09	0.03	0.00	0.03
Sat Flow, veh/h	1182	1875	0	1060	3062	343	2691	0	1376	1068	0	616
Grp Volume(v), veh/h	15	207	0	31	121	125	37	0	48	41	0	0
Grp Sat Flow(s),veh/h/ln	1182	1875	0	1060	1689	1716	1346	0	1376	1684	0	0
Q Serve(g_s), s	0.3	2.4	0.0	0.7	1.5	1.6	0.4	0.0	1.0	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.8	2.4	0.0	3.1	1.5	1.6	0.4	0.0	1.0	0.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.20	1.00		1.00	0.63		0.37
Lane Grp Cap(c), veh/h	599	673		531	606	616	233	0	119	104	0	0
V/C Ratio(X)	0.03	0.31		0.06	0.20	0.20	0.16	0.00	0.40	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1371	1897		1224	1709	1736	1405	0	719	1155	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	7.1	0.0	8.2	6.8	6.9	13.0	0.0	13.2	14.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.1	0.0	0.2	0.7	0.7	0.3	0.0	2.2	2.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.1	0.5	0.5	0.1	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.5	8.2	0.0	8.4	7.5	7.6	13.3	0.0	15.4	16.8	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		222			277			85			41	
Approach Delay, s/veh		8.1			7.6			14.5			16.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		7.3		16.5		6.9				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		4.4		3.0		5.1		2.7				
Green Ext Time (p_c), s		3.4		0.2		4.2		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.3									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	7	2	2	3	2	80	1	4	119	6
Future Volume (vph)	5	3	7	2	2	3	2	80	1	4	119	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.946			0.999			0.994	
Flt Protected		0.983			0.985			0.999			0.999	
Satd. Flow (prot)	0	1754	0	0	1703	0	0	1944	0	0	1882	0
Flt Permitted		0.983			0.985			0.999			0.999	
Satd. Flow (perm)	0	1754	0	0	1703	0	0	1944	0	0	1882	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	7%	0%	50%	4%	0%
Adj. Flow (vph)	7	4	9	3	3	4	3	108	1	5	161	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	10	0	0	112	0	0	174	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	7	2	2	3	2	80	1	4	119	6
Future Vol, veh/h	5	3	7	2	2	3	2	80	1	4	119	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	0	0	7	0	50	4	0
Mvmt Flow	7	4	9	3	3	4	3	108	1	5	161	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	291	291	165	288	294	109	169	0	0	109	0	0
Stage 1	176	176	-	114	114	-	-	-	-	-	-	-
Stage 2	115	115	-	174	180	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.3	6.7	6.3	4.3	-	-	4.8	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3.5	-	-
Pot Cap-1 Maneuver	762	623	938	753	610	1006	1051	-	-	937	-	-
Stage 1	958	757	-	1030	800	-	-	-	-	-	-	-
Stage 2	1036	804	-	951	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	749	618	938	734	605	1006	1051	-	-	937	-	-
Mov Cap-2 Maneuver	749	618	-	734	605	-	-	-	-	-	-	-
Stage 1	952	753	-	1027	798	-	-	-	-	-	-	-
Stage 2	1025	802	-	931	742	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.68	9.69	0.2	0.27
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	43	-	-	789	776	55	-	-
HCM Lane V/C Ratio	0.003	-	-	0.026	0.012	0.006	-	-
HCM Ctrl Dly (s/v)	8.4	0	-	9.7	9.7	8.9	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	6	0	31	1	9	2	61	59	4	54	1
Future Volume (vph)	2	6	0	31	1	9	2	61	59	4	54	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.969			0.935			0.998	
Flt Protected		0.987			0.964			0.999			0.997	
Satd. Flow (prot)	0	1866	0	0	1673	0	0	1749	0	0	1820	0
Flt Permitted		0.987			0.964			0.999			0.997	
Satd. Flow (perm)	0	1866	0	0	1673	0	0	1749	0	0	1820	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	8%	0%
Adj. Flow (vph)	3	8	0	40	1	12	3	78	76	5	69	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	0	0	53	0	0	157	0	0	75	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	19.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	6	0	31	1	9	2	61	59	4	54	1
Future Vol, veh/h	2	6	0	31	1	9	2	61	59	4	54	1
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	0	0	0	0	0	0	0	5	0	0	8	0
Mvmt Flow	3	8	0	40	1	12	3	78	76	5	69	1
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.6	7.7	7.6	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	25%	76%	7%
Vol Thru, %	50%	75%	2%	92%
Vol Right, %	48%	0%	22%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	8	41	59
LT Vol	2	2	31	4
Through Vol	61	6	1	54
RT Vol	59	0	9	1
Lane Flow Rate	156	10	53	76
Geometry Grp	1	1	1	1
Degree of Util (X)	0.164	0.013	0.063	0.087
Departure Headway (Hd)	3.78	4.493	4.325	4.132
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	942	801	816	859
Service Time	1.836	2.493	2.414	2.194
HCM Lane V/C Ratio	0.166	0.012	0.065	0.088
HCM Control Delay, s/veh	7.6	7.6	7.7	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0	0.2	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	377	6	36	389	6	61
Future Volume (vph)	377	6	36	389	6	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1833	0	0	1899	1796	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1833	0	0	1899	1796	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	3%	1%	0%	0%
Adj. Flow (vph)	433	7	41	447	7	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	440	0	0	488	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 56.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	377	6	36	389	6	61
Future Vol, veh/h	377	6	36	389	6	61
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, %	1	-	-	-3	3	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	3	1	0	0
Mvmt Flow	433	7	41	447	7	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	440	0	967	437
Stage 1	-	-	-	-	437	-
Stage 2	-	-	-	-	530	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	847	-	274	633
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	847	-	256	633
Mov Cap-2 Maneuver	-	-	-	-	256	-
Stage 1	-	-	-	-	646	-
Stage 2	-	-	-	-	614	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.8	12.46
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	559	-	-	152	-
HCM Lane V/C Ratio	0.138	-	-	0.049	-
HCM Ctrl Dly (s/v)	12.5	-	-	9.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	53	0	0	57	0
Future Volume (vph)	0	53	0	0	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	1799	0	0	1944	1935	0
Flt Permitted					0.950	
Satd. Flow (perm)	1799	0	0	1944	1935	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	59	0	0	63	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

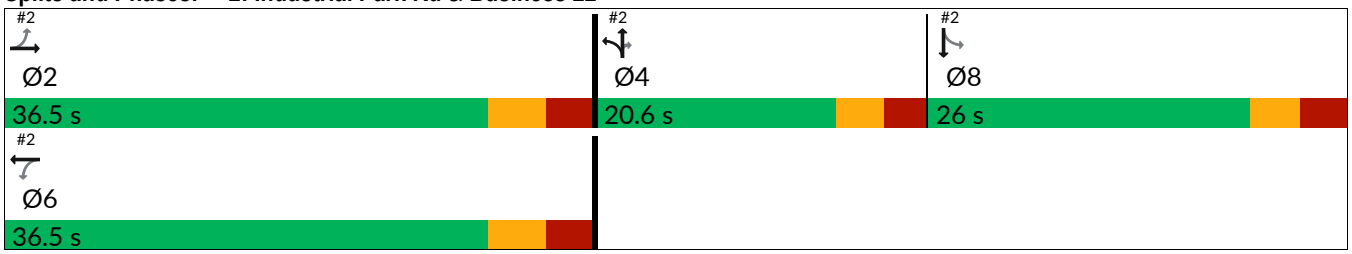
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	229	62	30	303	18	40	1	28	21	0	26
Future Volume (vph)	17	229	62	30	303	18	40	1	28	21	0	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.968			0.992				0.850		0.925	
Flt Protected	0.950			0.950			0.950	0.954			0.978	
Satd. Flow (prot)	1684	1749	0	1576	3359	0	1442	1454	1408	0	1827	0
Flt Permitted	0.535			0.561			0.950	0.954			0.845	
Satd. Flow (perm)	948	1749	0	931	3359	0	1442	1454	1408	0	1579	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			8				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1141			1064			838			237	
Travel Time (s)		25.9			24.2			22.9			6.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	0%	3%	11%	0%	0%	11%	0%	7%	0%	0%	0%
Adj. Flow (vph)	19	260	70	34	344	20	45	1	32	24	0	30
Shared Lane Traffic (%)							49%					
Lane Group Flow (vph)	19	330	0	34	364	0	23	23	32	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	28.6	28.6		28.6	28.6		7.9	7.9	7.9		7.1	
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.18	0.18	0.18		0.16	
v/c Ratio	0.03	0.29		0.06	0.17		0.09	0.09	0.09		0.15	
Control Delay (s/veh)	9.1	9.1		9.2	7.8		20.6	20.5	0.5		1.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	9.1	9.1		9.2	7.8		20.6	20.5	0.5		1.6	
LOS	A	A		A	A		C	C	A		A	
Approach Delay (s/veh)		9.1			7.9			12.3			1.6	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	3	61		6	33		6	6	0		0	
Queue Length 95th (ft)	13	115		21	57		27	24	0		4	
Internal Link Dist (ft)		1061			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	711	1316		698	2522		558	563	621		861	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.03	0.25		0.05	0.14		0.04	0.04	0.05		0.06	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 43.9	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.29	
Intersection Signal Delay (s/veh): 8.4	Intersection LOS: A
Intersection Capacity Utilization 44.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	19	330	34	364	23	23	32	54
v/c Ratio	0.03	0.29	0.06	0.17	0.09	0.09	0.09	0.15
Control Delay (s/veh)	9.1	9.1	9.2	7.8	20.6	20.5	0.5	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.1	9.1	9.2	7.8	20.6	20.5	0.5	1.6
Queue Length 50th (ft)	3	61	6	33	6	6	0	0
Queue Length 95th (ft)	13	115	21	57	27	24	0	4
Internal Link Dist (ft)		1061		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	711	1316	698	2522	558	563	621	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.25	0.05	0.14	0.04	0.04	0.05	0.06

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	229	62	30	303	18	40	1	28	21	0	26
Future Volume (veh/h)	17	229	62	30	303	18	40	1	28	21	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1861	1875	1905	1688	1778	1778	1595	1750	1652	1778	1849	1778
Adj Flow Rate, veh/h	19	260	0	34	344	20	46	0	32	24	0	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	3	11	0	0	11	0	7	0	0	0
Cap, veh/h	548	746		522	1291	75	233	0	107	50	0	62
Arrive On Green	0.40	0.40	0.00	0.40	0.40	0.37	0.08	0.00	0.08	0.04	0.00	0.04
Sat Flow, veh/h	1013	1875	0	1010	3245	188	3039	0	1400	732	0	915
Grp Volume(v), veh/h	19	260	0	34	178	186	46	0	32	54	0	0
Grp Sat Flow(s),veh/h/ln	1013	1875	0	1010	1689	1744	1519	0	1400	1647	0	0
Q Serve(g_s), s	0.4	3.2	0.0	0.8	2.3	2.4	0.5	0.0	0.7	1.1	0.0	0.0
Cycle Q Clear(g_c), s	2.8	3.2	0.0	4.0	2.3	2.4	0.5	0.0	0.7	1.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.44		0.56
Lane Grp Cap(c), veh/h	548	746		522	672	694	233	0	107	112	0	0
V/C Ratio(X)	0.03	0.35		0.07	0.27	0.27	0.20	0.00	0.30	0.48	0.00	0.00
Avail Cap(c_a), veh/h	1096	1760		1069	1586	1638	1473	0	678	1048	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.6	6.9	0.0	8.3	6.7	6.7	14.3	0.0	14.4	15.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.2	0.9	0.9	0.4	0.0	1.5	3.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0	0.0	0.2	0.7	0.7	0.1	0.0	0.2	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	8.1	0.0	8.6	7.6	7.6	14.7	0.0	15.9	18.5	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		279			398			78			54	
Approach Delay, s/veh		8.1			7.7			15.2			18.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.6		7.1		18.6		7.2				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		5.2		2.7		6.0		3.1				
Green Ext Time (p_c), s		4.4		0.2		6.1		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.3									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	9	1	4	13	9	1	40	2	7	51	23
Future Volume (vph)	24	9	1	4	13	9	1	40	2	7	51	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.954			0.995			0.961	
Flt Protected		0.966			0.992			0.999			0.996	
Satd. Flow (prot)	0	1777	0	0	1729	0	0	1842	0	0	1791	0
Flt Permitted		0.966			0.992			0.999			0.996	
Satd. Flow (perm)	0	1777	0	0	1729	0	0	1842	0	0	1791	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1700			4220			838	
Travel Time (s)		23.5			33.1			82.2			16.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	11%	0%	0%	0%	0%	0%	13%	0%	0%	8%	5%
Adj. Flow (vph)	29	11	1	5	16	11	1	48	2	8	61	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	32	0	0	51	0	0	97	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.7%		ICU Level of Service A	
Analysis Period (min) 15			

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	24	9	1	4	13	9	1	40	2	7	51	23
Future Vol, veh/h	24	9	1	4	13	9	1	40	2	7	51	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	11	0	0	0	0	0	13	0	0	8	5
Mvmt Flow	29	11	1	5	16	11	1	48	2	8	61	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	151	145	75	136	158	49	89	0	0	51	0	0
Stage 1	92	92	-	52	52	-	-	-	-	-	-	-
Stage 2	58	53	-	84	106	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.61	6.2	7.3	6.7	6.3	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.099	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	949	730	1053	964	731	1088	1119	-	-	1154	-	-
Stage 1	1066	801	-	1120	853	-	-	-	-	-	-	-
Stage 2	1114	833	-	1073	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	911	723	1053	940	725	1088	1119	-	-	1154	-	-
Mov Cap-2 Maneuver	911	723	-	940	725	-	-	-	-	-	-	-
Stage 1	1058	795	-	1119	852	-	-	-	-	-	-	-
Stage 2	1081	832	-	1049	800	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.42	9.38	0.19	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	41	-	-	856	854	146	-	-
HCM Lane V/C Ratio	0.001	-	-	0.048	0.037	0.007	-	-
HCM Ctrl Dly (s/v)	8.2	0	-	9.4	9.4	8.1	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	9	8	2	12	4	8	1	23	14	4	36	15
Future Volume (vph)	9	8	2	12	4	8	1	23	14	4	36	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.988			0.953			0.950			0.963	
Flt Protected		0.977			0.976			0.999			0.996	
Satd. Flow (prot)	0	1825	0	0	1666	0	0	1564	0	0	1779	0
Flt Permitted		0.977			0.976			0.999			0.996	
Satd. Flow (perm)	0	1825	0	0	1666	0	0	1564	0	0	1779	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		2385			686			929			4220	
Travel Time (s)		46.5			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	27%	0%	0%	9%	0%
Adj. Flow (vph)	11	10	2	14	5	10	1	28	17	5	43	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	29	0	0	46	0	0	66	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.8%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	8	2	12	4	8	1	23	14	4	36	15
Future Vol, veh/h	9	8	2	12	4	8	1	23	14	4	36	15
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	0	0	0	0	0	0	0	27	0	0	9	0
Mvmt Flow	11	10	2	14	5	10	1	28	17	5	43	18
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	7.3	7.2	7.1	7.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	47%	50%	7%
Vol Thru, %	61%	42%	17%	65%
Vol Right, %	37%	11%	33%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	19	24	55
LT Vol	1	9	12	4
Through Vol	23	8	4	36
RT Vol	14	2	8	15
Lane Flow Rate	46	23	29	66
Geometry Grp	1	1	1	1
Degree of Util (X)	0.049	0.026	0.032	0.071
Departure Headway (Hd)	3.824	4.149	4.012	3.876
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	934	859	888	922
Service Time	1.858	2.193	2.056	1.906
HCM Lane V/C Ratio	0.049	0.027	0.033	0.072
HCM Control Delay, s/veh	7.1	7.3	7.2	7.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.1	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	473	17	53	511	1	48
Future Volume (vph)	473	17	53	511	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.868	
Flt Protected				0.995	0.999	
Satd. Flow (prot)	1881	0	0	1902	1785	0
Flt Permitted				0.995	0.999	
Satd. Flow (perm)	1881	0	0	1902	1785	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	503	18	56	544	1	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	521	0	0	600	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	473	17	53	511	1	48
Future Vol, veh/h	473	17	53	511	1	48
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, %	1	-	-	-3	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	503	18	56	544	1	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	521	0	1169	512
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	656	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	794	-	200	570
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	794	-	180	570
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	564	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.93	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	545	-	-	169	-
HCM Lane V/C Ratio	0.096	-	-	0.071	-
HCM Ctrl Dly (s/v)	12.3	-	-	9.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

N.05 – 2037 Build Condition: Synchro Reports

WEEKDAY

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	30	3	0	53	1
Future Volume (vph)	0	30	3	0	53	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.998	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1715	0	0	1388	1871	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1715	0	0	1388	1871	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	7%	33%	0%	2%	100%
Adj. Flow (vph)	0	35	4	0	62	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	35	0	0	4	63	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

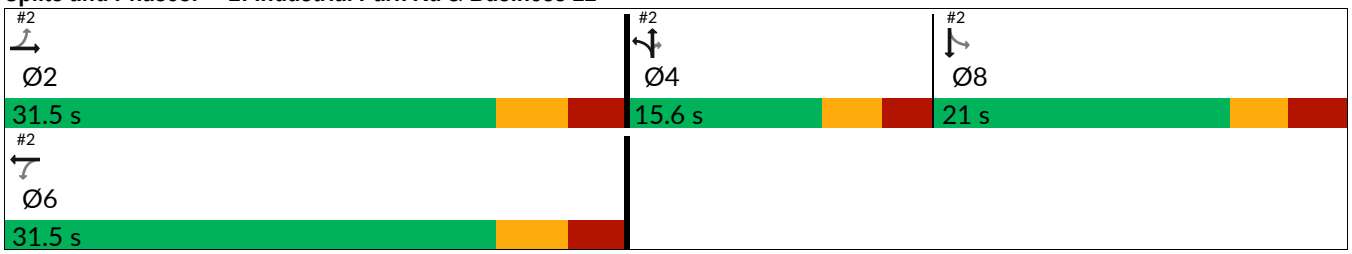
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	140	362	81	84	3	124	0	57	8	0	13
Future Volume (vph)	6	140	362	81	84	3	124	0	57	8	0	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.892			0.995				0.850		0.918	
Flt Protected	0.950			0.950			0.950	0.950			0.981	
Satd. Flow (prot)	1785	1546	0	1682	3241	0	1510	1510	1395	0	1734	0
Flt Permitted	0.692			0.367			0.950	0.950				
Satd. Flow (perm)	1300	1546	0	650	3241	0	1510	1510	1395	0	1768	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		221			3				152		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	0%	2%	6%	4%	3%	33%	6%	0%	8%	0%	0%	8%
Adj. Flow (vph)	7	154	398	89	92	3	136	0	63	9	0	14
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	7	552	0	89	95	0	68	68	63	0	23	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.6	27.6		27.6	27.6		8.7	8.7	8.7		6.9	
Actuated g/C Ratio	0.63	0.63		0.63	0.63		0.20	0.20	0.20		0.16	
v/c Ratio	0.01	0.53		0.22	0.05		0.23	0.23	0.16		0.06	
Control Delay (s/veh)	7.2	7.3		9.4	6.4		19.3	19.3	0.9		0.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	7.2	7.3		9.4	6.4		19.3	19.3	0.9		0.3	
LOS	A	A		A	A		B	B	A		A	
Approach Delay (s/veh)		7.3			7.8			13.5			0.3	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	37		9	4		14	13	0		0	
Queue Length 95th (ft)	7	188		51	21		55	53	0		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	850	1088		425	2121		391	391	474		757	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.01	0.51		0.21	0.04		0.17	0.17	0.13		0.03	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 44	
Natural Cycle: 50	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.53	
Intersection Signal Delay (s/veh): 8.5	Intersection LOS: A
Intersection Capacity Utilization 60.9%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	7	552	89	95	68	68	63	23
v/c Ratio	0.01	0.53	0.22	0.05	0.23	0.23	0.16	0.06
Control Delay (s/veh)	7.2	7.3	9.4	6.4	19.3	19.3	0.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	7.2	7.3	9.4	6.4	19.3	19.3	0.9	0.3
Queue Length 50th (ft)	1	37	9	4	14	13	0	0
Queue Length 95th (ft)	7	188	51	21	55	53	0	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	850	1088	425	2121	391	391	474	757
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.51	0.21	0.04	0.17	0.17	0.13	0.03

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	140	362	81	84	3	124	0	57	8	0	13
Future Volume (veh/h)	6	140	362	81	84	3	124	0	57	8	0	13
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1861	1790	1736	1314	1666	1750	1637	1778	1849	1665
Adj Flow Rate, veh/h	7	154	0	89	92	3	136	0	63	9	0	14
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	2	6	4	3	33	6	0	8	0	0	8
Cap, veh/h	671	640		566	1130	37	409	0	179	31	0	49
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.13	0.00	0.13	0.02	0.00	0.02
Sat Flow, veh/h	1356	1846	0	1180	3259	106	3172	0	1388	641	0	997
Grp Volume(v), veh/h	7	154	0	89	46	49	136	0	63	23	0	0
Grp Sat Flow(s),veh/h/ln	1356	1846	0	1180	1649	1717	1586	0	1388	1637	0	0
Q Serve(g_s), s	0.1	1.9	0.0	1.8	0.6	0.6	1.2	0.0	1.3	0.4	0.0	0.0
Cycle Q Clear(g_c), s	0.7	1.9	0.0	3.7	0.6	0.6	1.2	0.0	1.3	0.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.06	1.00		1.00	0.39		0.61
Lane Grp Cap(c), veh/h	671	640		566	571	595	409	0	179	80	0	0
V/C Ratio(X)	0.01	0.24		0.16	0.08	0.08	0.33	0.00	0.35	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1312	1512		1123	1351	1406	1099	0	481	825	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	7.4	0.0	8.7	7.0	7.0	12.6	0.0	12.6	15.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.6	0.3	0.3	0.5	0.0	1.2	2.0	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.6	0.0	0.4	0.2	0.2	0.4	0.0	0.4	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.2	8.2	0.0	9.3	7.2	7.2	13.1	0.0	13.8	17.0	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		161			184			199			23	
Approach Delay, s/veh		8.2			8.2			13.3			17.0	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		8.7		16.5		6.6				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		3.9		3.3		5.7		2.4				
Green Ext Time (p_c), s		2.1		0.4		2.1		0.0				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.3									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	3	4	1	1	15	3	149	0	27	385	20
Future Volume (vph)	20	3	4	1	1	15	3	149	0	27	385	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.981			0.880						0.994	
Flt Protected		0.964			0.997			0.999			0.997	
Satd. Flow (prot)	0	1732	0	0	1426	0	0	1962	0	0	1876	0
Flt Permitted		0.964			0.997			0.999			0.997	
Satd. Flow (perm)	0	1732	0	0	1426	0	0	1962	0	0	1876	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	5%	0%	0%	0%	0%	14%	0%	6%	0%	5%	5%	11%
Adj. Flow (vph)	21	3	4	1	1	16	3	159	0	29	410	21
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	28	0	0	18	0	0	162	0	0	460	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	20	3	4	1	1	15	3	149	0	27	385	20
Future Vol, veh/h	20	3	4	1	1	15	3	149	0	27	385	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	0	0	0	0	14	0	6	0	5	5	11
Mvmt Flow	21	3	4	1	1	16	3	159	0	29	410	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	643	643	420	634	653	159	431	0	0	159	0	0
Stage 1	478	478	-	165	165	-	-	-	-	-	-	-
Stage 2	165	165	-	469	488	-	-	-	-	-	-	-
Critical Hdwy	7.15	6.5	6.2	7.3	6.7	6.44	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.15	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3	-	-
Pot Cap-1 Maneuver	432	395	671	427	375	908	854	-	-	1055	-	-
Stage 1	643	559	-	962	759	-	-	-	-	-	-	-
Stage 2	968	766	-	638	538	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	407	379	671	405	360	908	854	-	-	1055	-	-
Mov Cap-2 Maneuver	407	379	-	405	360	-	-	-	-	-	-	-
Stage 1	620	539	-	958	756	-	-	-	-	-	-	-
Stage 2	946	762	-	608	519	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.01	9.72	0.18	0.53
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	36	-	-	428	781	111	-	-
HCM Lane V/C Ratio	0.004	-	-	0.067	0.023	0.027	-	-
HCM Ctrl Dly (s/v)	9.2	0	-	14	9.7	8.5	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	4	3	71	2	19	2	63	46	5	157	81
Future Volume (vph)	35	4	3	71	2	19	2	63	46	5	157	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.989			0.972			0.944			0.955	
Flt Protected		0.960			0.963			0.999			0.999	
Satd. Flow (prot)	0	1766	0	0	1676	0	0	1718	0	0	1792	0
Flt Permitted		0.960			0.963			0.999			0.999	
Satd. Flow (perm)	0	1766	0	0	1676	0	0	1718	0	0	1792	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	0%	0%	0%	2%	0%	50%	8%	0%	0%	6%	2%
Adj. Flow (vph)	42	5	4	86	2	23	2	76	55	6	189	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	111	0	0	133	0	0	293	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	28.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	4	3	71	2	19	2	63	46	5	157	81
Future Vol, veh/h	35	4	3	71	2	19	2	63	46	5	157	81
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	0	0	0	2	0	50	8	0	0	6	2
Mvmt Flow	42	5	4	86	2	23	2	76	55	6	189	98
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.7	8.9	9.5	9.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	83%	77%	2%
Vol Thru, %	57%	10%	2%	65%
Vol Right, %	41%	7%	21%	33%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	111	42	92	243
LT Vol	2	35	71	5
Through Vol	63	4	2	157
RT Vol	46	3	19	81
Lane Flow Rate	134	51	111	293
Geometry Grp	1	1	1	1
Degree of Util (X)	0.194	0.073	0.153	0.349
Departure Headway (Hd)	5.233	5.198	4.984	4.29
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	685	686	717	837
Service Time	3.273	3.251	3.031	2.321
HCM Lane V/C Ratio	0.196	0.074	0.155	0.35
HCM Control Delay, s/veh	9.5	8.7	8.9	9.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.2	0.5	1.6

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	331	5	26	339	4	40
Future Volume (vph)	331	5	26	339	4	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.996	
Satd. Flow (prot)	1798	0	0	1852	1750	0
Flt Permitted				0.996	0.996	
Satd. Flow (perm)	1798	0	0	1852	1750	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	5%	0%	0%	4%	0%	3%
Adj. Flow (vph)	338	5	27	346	4	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	343	0	0	373	45	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	331	5	26	339	4	40
Future Vol, veh/h	331	5	26	339	4	40
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, %	1	-	-	-3	3	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	5	0	0	4	0	3
Mvmt Flow	338	5	27	346	4	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	343	0	739	340
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	399	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	916	-	390	725
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	725	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	916	-	376	725
Mov Cap-2 Maneuver	-	-	-	-	376	-
Stage 1	-	-	-	-	754	-
Stage 2	-	-	-	-	725	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.64	10.77
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	668	-	-	128	-
HCM Lane V/C Ratio	0.067	-	-	0.029	-
HCM Ctrl Dly (s/v)	10.8	-	-	9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	17	7	0	0	0
Future Volume (vph)	0	17	7	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1540	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1540	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	0%	0%	14%	0%	0%	0%
Adj. Flow (vph)	0	24	10	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	10	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	7	0	0	0
Future Vol, veh/h	0	17	7	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	14	0	0	0
Mvmt Flow	0	24	10	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	10	0	-	0	33	10
Stage 1	-	-	-	-	10	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1020	-	-	-	1132	1045
Stage 1	-	-	-	-	1186	-
Stage 2	-	-	-	-	1167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1020	-	-	-	1132	1045
Mov Cap-2 Maneuver	-	-	-	-	1132	-
Stage 1	-	-	-	-	1186	-
Stage 2	-	-	-	-	1167	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1020	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	17	7	82	28	0
Future Volume (vph)	0	17	7	82	28	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.876			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1494	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1494	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles (%)	0%	0%	14%	2%	2%	0%
Adj. Flow (vph)	0	24	10	114	39	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	24	124	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	17	7	82	28	0
Future Vol, veh/h	0	17	7	82	28	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	0	0	14	2	2	0
Mvmt Flow	0	24	10	114	39	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	124	0	-	0	90	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	24	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	923	-	-	-	1024	967
Stage 1	-	-	-	-	1108	-
Stage 2	-	-	-	-	1166	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	923	-	-	-	1024	967
Mov Cap-2 Maneuver	-	-	-	-	1024	-
Stage 1	-	-	-	-	1108	-
Stage 2	-	-	-	-	1166	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.65
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	923	-	-	-	1024
HCM Lane V/C Ratio	-	-	-	-	0.038
HCM Ctrl Dly (s/v)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	26	21	0	12	7	0
Future Volume (vph)	26	21	0	12	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940					
Flt Protected					0.950	
Satd. Flow (prot)	1589	0	0	1677	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1589	0	0	1677	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	16%	2%	0%	9%	2%	0%
Adj. Flow (vph)	41	33	0	19	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	74	0	0	19	11	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	21	0	12	7	0
Future Vol, veh/h	26	21	0	12	7	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	16	2	0	9	2	0
Mvmt Flow	41	33	0	19	11	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	73	0	76	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	19	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1133	-	1073	1075
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	1173	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1133	-	1073	1075
Mov Cap-2 Maneuver	-	-	-	-	1073	-
Stage 1	-	-	-	-	1121	-
Stage 2	-	-	-	-	1173	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.39
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1073	-	-	1133	-
HCM Lane V/C Ratio	0.01	-	-	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	26	0	0	12	0	0
Future Volume (vph)	26	0	0	12	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1544	0	0	1719	1881	0
Flt Permitted						
Satd. Flow (perm)	1544	0	0	1719	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	16%	0%	0%	9%	0%	0%
Adj. Flow (vph)	41	0	0	19	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	19	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	26	0	0	12	0	0
Future Vol, veh/h	26	0	0	12	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	16	0	0	9	0	0
Mvmt Flow	41	0	0	19	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	41	0	59	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	19	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1163	-	1099	1099
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	1173	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1163	-	1099	1099
Mov Cap-2 Maneuver	-	-	-	-	1099	-
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	1173	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1163	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	42	2	0	77	2
Future Volume (vph)	0	42	2	0	77	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1835	0	0	1847	1862	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1835	0	0	1847	1862	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	0%	0%	0%	0%	4%	0%
Adj. Flow (vph)	0	48	2	0	89	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	48	0	0	2	91	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	14.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	284	120	37	312	46	330	1	170	27	0	32
Future Volume (vph)	14	284	120	37	312	46	330	1	170	27	0	32
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.955			0.981				0.850		0.927	
Flt Protected	0.950			0.950			0.950	0.953			0.978	
Satd. Flow (prot)	1785	1654	0	1650	3293	0	1495	1501	1477	0	1831	0
Flt Permitted	0.467			0.284			0.950	0.953			0.737	
Satd. Flow (perm)	877	1654	0	493	3293	0	1495	1501	1477	0	1380	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		36			28				239		146	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Heavy Vehicles (%)	0%	2%	12%	6%	1%	0%	7%	0%	2%	0%	0%	0%
Adj. Flow (vph)	20	400	169	52	439	65	465	1	239	38	0	45
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	20	569	0	52	504	0	232	234	239	0	83	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

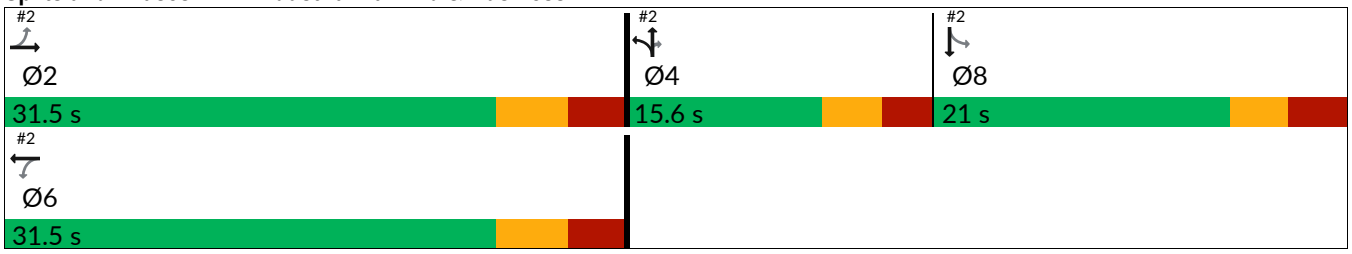
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	26.5	26.5		26.5	26.5		8.6	8.6	8.6	22.0	22.0	
Total Split (s)	31.5	31.5		31.5	31.5		15.6	15.6	15.6	21.0	21.0	
Total Split (%)	46.3%	46.3%		46.3%	46.3%		22.9%	22.9%	22.9%	30.8%	30.8%	
Maximum Green (s)	25.0	25.0		25.0	25.0		10.0	10.0	10.0	15.0	15.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	24.8	24.8		24.8	24.8		11.3	11.3	11.3		7.0	
Actuated g/C Ratio	0.45	0.45		0.45	0.45		0.20	0.20	0.20		0.13	
v/c Ratio	0.05	0.75		0.24	0.34		0.76	0.77	0.49		0.27	
Control Delay (s/veh)	10.1	20.8		14.0	10.7		43.5	43.7	7.6		3.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	10.1	20.8		14.0	10.7		43.5	43.7	7.6		3.8	
LOS	B	C		B	B		D	D	A		A	
Approach Delay (s/veh)		20.5			11.0			31.4			3.8	
Approach LOS		C			B			C			A	
Queue Length 50th (ft)	4	152		11	54		88	85	0		0	
Queue Length 95th (ft)	11	181		26	65		#142	#135	22		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	421	814		237	1599		304	305	491		511	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.05	0.70		0.22	0.32		0.76	0.77	0.49		0.16	

Intersection Summary	
Area Type:	Other
Cycle Length: 68.1	
Actuated Cycle Length: 55.3	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.77	
Intersection Signal Delay (s/veh): 21.0	Intersection LOS: C
Intersection Capacity Utilization 57.2%	ICU Level of Service B
Analysis Period (min) 15	

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	20	569	52	504	232	234	239	83
v/c Ratio	0.05	0.75	0.24	0.34	0.76	0.77	0.49	0.27
Control Delay (s/veh)	10.1	20.8	14.0	10.7	43.5	43.7	7.6	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	10.1	20.8	14.0	10.7	43.5	43.7	7.6	3.8
Queue Length 50th (ft)	4	152	11	54	88	85	0	0
Queue Length 95th (ft)	11	181	26	65	#142	#135	22	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	421	814	237	1599	304	305	491	511
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.70	0.22	0.32	0.76	0.77	0.49	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	284	120	37	312	46	330	1	170	27	0	32
Future Volume (veh/h)	14	284	120	37	312	46	330	1	170	27	0	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1846	1772	1761	1764	1778	1652	1750	1722	1778	1849	1778
Adj Flow Rate, veh/h	20	400	0	52	439	65	466	0	239	38	0	45
Peak Hour Factor	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Percent Heavy Veh, %	0	2	12	6	1	0	7	0	2	0	0	0
Cap, veh/h	411	726		355	1152	170	685	0	318	63	0	75
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.37	0.22	0.00	0.22	0.06	0.00	0.06
Sat Flow, veh/h	933	1846	0	927	2930	431	3146	0	1459	755	0	895
Grp Volume(v), veh/h	20	400	0	52	250	254	466	0	239	83	0	0
Grp Sat Flow(s),veh/h/ln	933	1846	0	927	1675	1686	1573	0	1459	1650	0	0
Q Serve(g_s), s	0.8	8.3	0.0	2.3	5.3	5.3	6.7	0.0	7.6	2.4	0.0	0.0
Cycle Q Clear(g_c), s	6.1	8.3	0.0	10.6	5.3	5.3	6.7	0.0	7.6	2.4	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.26	1.00		1.00	0.46		0.54
Lane Grp Cap(c), veh/h	411	726		355	658	663	685	0	318	137	0	0
V/C Ratio(X)	0.05	0.55		0.15	0.38	0.38	0.68	0.00	0.75	0.60	0.00	0.00
Avail Cap(c_a), veh/h	536	973		479	883	888	701	0	325	535	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.9	11.6	0.0	15.7	10.7	10.8	17.7	0.0	18.1	22.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.8	0.0	0.8	1.6	1.6	2.6	0.0	9.3	4.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	3.3	0.0	0.5	1.9	1.9	2.5	0.0	3.1	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	13.1	14.4	0.0	16.5	12.2	12.4	20.3	0.0	27.4	26.5	0.0	0.0
LnGrp LOS	B	B		B	B	B	C		C	C		
Approach Vol, veh/h		420			556			705			83	
Approach Delay, s/veh		14.3			12.7			22.7			26.5	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		24.9		15.3		24.9		9.1				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		25.0		10.0		25.0		15.0				
Max Q Clear Time (g_c+I1), s		10.3		9.6		12.6		4.4				
Green Ext Time (p_c), s		5.3		0.2		5.8		0.2				

Intersection Summary												
HCM 7th Control Delay, s/veh			17.7									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	13	0	3	6	25	5	453	7	27	112	15
Future Volume (vph)	33	13	0	3	6	25	5	453	7	27	112	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.901			0.998			0.987	
Flt Protected		0.965			0.996			0.999			0.991	
Satd. Flow (prot)	0	1795	0	0	1582	0	0	1996	0	0	1771	0
Flt Permitted		0.965			0.996			0.999			0.991	
Satd. Flow (perm)	0	1795	0	0	1582	0	0	1996	0	0	1771	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
Heavy Vehicles (%)	3%	0%	0%	0%	0%	5%	0%	4%	0%	12%	10%	7%
Adj. Flow (vph)	65	25	0	6	12	49	10	888	14	53	220	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	67	0	0	912	0	0	302	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	8.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	33	13	0	3	6	25	5	453	7	27	112	15
Future Vol, veh/h	33	13	0	3	6	25	5	453	7	27	112	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	51	51	51	51	51	51	51	51	51	51	51	51
Heavy Vehicles, %	3	0	0	0	0	5	0	4	0	12	10	7
Mvmt Flow	65	25	0	6	12	49	10	888	14	53	220	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1254	1262	234	1253	1270	895	249	0	0	902	0	0
Stage 1	340	340	-	915	915	-	-	-	-	-	-	-
Stage 2	914	922	-	338	355	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.5	6.2	7.3	6.7	6.35	4.3	-	-	4.5	-	-
Critical Hdwy Stg 1	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.2	3	-	-	3.2	-	-
Pot Cap-1 Maneuver	161	172	857	152	158	336	987	-	-	530	-	-
Stage 1	772	643	-	346	337	-	-	-	-	-	-	-
Stage 2	362	352	-	762	621	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	110	149	857	112	137	336	987	-	-	530	-	-
Mov Cap-2 Maneuver	110	149	-	112	137	-	-	-	-	-	-	-
Stage 1	682	568	-	339	330	-	-	-	-	-	-	-
Stage 2	292	345	-	643	549	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	95.97	26.33	0.09	2.2
HCM LOS	F	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	19	-	-	119	235	308	-	-
HCM Lane V/C Ratio	0.01	-	-	0.758	0.284	0.1	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	96	26.3	12.5	0	-
HCM Lane LOS	A	A	-	F	D	B	A	-
HCM 95th %tile Q(veh)	0	-	-	4.3	1.1	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	6	1	17	12	0	0	94	43	9	25	43
Future Volume (vph)	70	6	1	17	12	0	0	94	43	9	25	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999						0.958			0.925	
Flt Protected		0.956			0.972						0.994	
Satd. Flow (prot)	0	1770	0	0	1741	0	0	1720	0	0	1590	0
Flt Permitted		0.956			0.972						0.994	
Satd. Flow (perm)	0	1770	0	0	1741	0	0	1720	0	0	1590	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	10%	0%	0%	38%	2%
Adj. Flow (vph)	103	9	1	25	18	0	0	138	63	13	37	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	43	0	0	201	0	0	113	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	6	1	17	12	0	0	94	43	9	25	43
Future Vol, veh/h	70	6	1	17	12	0	0	94	43	9	25	43
Peak Hour Factor	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
Heavy Vehicles, %	2	2	0	0	0	0	0	10	0	0	38	2
Mvmt Flow	103	9	1	25	18	0	0	138	63	13	37	63
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.8	8.2	8.8	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	91%	59%	12%
Vol Thru, %	69%	8%	41%	32%
Vol Right, %	31%	1%	0%	56%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	77	29	77
LT Vol	0	70	17	9
Through Vol	94	6	12	25
RT Vol	43	1	0	43
Lane Flow Rate	201	113	43	113
Geometry Grp	1	1	1	1
Degree of Util (X)	0.246	0.153	0.058	0.132
Departure Headway (Hd)	4.389	4.856	4.859	4.197
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	820	738	736	854
Service Time	2.412	2.888	2.894	2.223
HCM Lane V/C Ratio	0.245	0.153	0.058	0.132
HCM Control Delay, s/veh	8.8	8.8	8.2	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.5	0.2	0.5

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	518	11	38	554	4	69
Future Volume (vph)	518	11	38	554	4	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997				0.872	
Flt Protected				0.997	0.997	
Satd. Flow (prot)	1849	0	0	1887	1693	0
Flt Permitted				0.997	0.997	
Satd. Flow (perm)	1849	0	0	1887	1693	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	0%	0%	2%	0%	6%
Adj. Flow (vph)	540	11	40	577	4	72
Shared Lane Traffic (%)						
Lane Group Flow (vph)	551	0	0	617	76	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.5%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	518	11	38	554	4	69
Future Vol, veh/h	518	11	38	554	4	69
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, %	1	-	-	-3	3	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	0	0	2	0	6
Mvmt Flow	540	11	40	577	4	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	551	0	1202	545
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	656	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.2
Pot Cap-1 Maneuver	-	-	775	-	190	530
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	522	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	775	-	176	530
Mov Cap-2 Maneuver	-	-	-	-	176	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.64	13.96
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	477	-	-	116	-
HCM Lane V/C Ratio	0.159	-	-	0.051	-
HCM Ctrl Dly (s/v)	14	-	-	9.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	23	23	0	0	0
Future Volume (vph)	0	23	23	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	25	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	25	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	23	0	0	0
Future Vol, veh/h	0	23	23	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	25	25	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	25	0	-	0	50	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1006	-	-	-	1099	1023
Stage 1	-	-	-	-	1165	-
Stage 2	-	-	-	-	1165	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1006	-	-	-	1099	1023
Mov Cap-2 Maneuver	-	-	-	-	1099	-
Stage 1	-	-	-	-	1165	-
Stage 2	-	-	-	-	1165	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1006	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	23	23	34	64	0
Future Volume (vph)	0	23	23	34	64	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.919			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1594	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1594	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	25	25	37	70	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	62	0	70	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	23	23	34	64	0
Future Vol, veh/h	0	23	23	34	64	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	25	25	37	70	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	62	0	-	0	68	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	974	-	-	-	1064	998
Stage 1	-	-	-	-	1139	-
Stage 2	-	-	-	-	1165	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	974	-	-	-	1064	998
Mov Cap-2 Maneuver	-	-	-	-	1064	-
Stage 1	-	-	-	-	1139	-
Stage 2	-	-	-	-	1165	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.62
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	974	-	-	-	1064
HCM Lane V/C Ratio	-	-	-	-	0.065
HCM Ctrl Dly (s/v)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	39	9	0	24	16	0
Future Volume (vph)	39	9	0	24	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.975					
Flt Protected					0.950	
Satd. Flow (prot)	1692	0	0	1757	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1692	0	0	1757	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	2%	0%	4%	2%	0%
Adj. Flow (vph)	44	10	0	27	18	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	0	0	27	18	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	9	0	24	16	0
Future Vol, veh/h	39	9	0	24	16	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	8	2	0	4	2	0
Mvmt Flow	44	10	0	27	18	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	77	49
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1150	-	1072	1086
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1161	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	1072	1086
Mov Cap-2 Maneuver	-	-	-	-	1072	-
Stage 1	-	-	-	-	1131	-
Stage 2	-	-	-	-	1161	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.42
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1072	-	-	1150	-
HCM Lane V/C Ratio	0.017	-	-	-	-
HCM Ctrl Dly (s/v)	8.4	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	39	0	0	24	0	0
Future Volume (vph)	39	0	0	24	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1658	0	0	1801	1881	0
Flt Permitted						
Satd. Flow (perm)	1658	0	0	1801	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	8%	0%	0%	4%	0%	0%
Adj. Flow (vph)	44	0	0	27	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	27	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	39	0	0	24	0	0
Future Vol, veh/h	39	0	0	24	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	8	0	0	4	0	0
Mvmt Flow	44	0	0	27	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	44	0	72	44
Stage 1	-	-	-	-	44	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1159	-	1080	1094
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1162	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1159	-	1080	1094
Mov Cap-2 Maneuver	-	-	-	-	1080	-
Stage 1	-	-	-	-	1138	-
Stage 2	-	-	-	-	1162	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1159	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

WEEKEND

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	39	1	0	37	1
Future Volume (vph)	0	39	1	0	37	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865				0.997	
Flt Protected				0.950	0.953	
Satd. Flow (prot)	1747	0	0	1847	1828	0
Flt Permitted				0.950	0.953	
Satd. Flow (perm)	1747	0	0	1847	1828	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	0%	5%	0%	0%	6%	0%
Adj. Flow (vph)	0	49	1	0	46	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	0	0	1	47	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

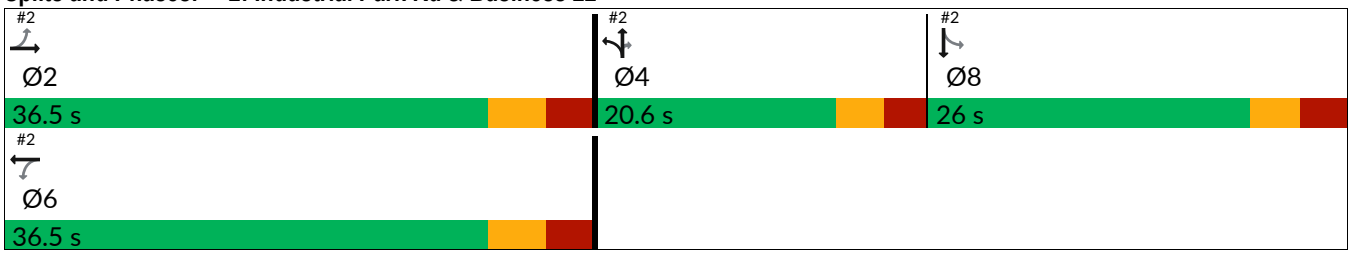
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	201	137	36	214	24	69	0	49	25	0	15
Future Volume (vph)	15	201	137	36	214	24	69	0	49	25	0	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.939			0.985				0.850		0.951	
Flt Protected	0.950			0.950			0.950	0.950			0.969	
Satd. Flow (prot)	1785	1693	0	1605	3335	0	1416	1416	1383	0	1771	0
Flt Permitted	0.599			0.544			0.950	0.950				
Satd. Flow (perm)	1125	1693	0	919	3335	0	1416	1416	1383	0	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		47			17				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	9%	0%	0%	13%	0%	9%	4%	0%	7%
Adj. Flow (vph)	15	207	141	37	221	25	71	0	51	26	0	15
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	15	348	0	37	246	0	35	36	51	0	41	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.4	27.4		27.4	27.4		8.4	8.4	8.4		7.1	
Actuated g/C Ratio	0.60	0.60		0.60	0.60		0.19	0.19	0.19		0.16	
v/c Ratio	0.02	0.33		0.07	0.12		0.13	0.14	0.14		0.11	
Control Delay (s/veh)	8.5	8.4		8.6	7.1		20.1	20.1	0.8		0.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	8.5	8.4		8.6	7.1		20.1	20.1	0.8		0.6	
LOS	A	A		A	A		C	C	A		A	
Approach Delay (s/veh)		8.4			7.3			12.0			0.6	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	1	31		4	11		6	6	0		0	
Queue Length 95th (ft)	11	124		23	41		37	34	1		0	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	811	1233		662	2409		527	527	593		953	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.02	0.28		0.06	0.10		0.07	0.07	0.09		0.04	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 45.4	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.33	
Intersection Signal Delay (s/veh): 8.2	Intersection LOS: A
Intersection Capacity Utilization 49.4%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	15	348	37	246	35	36	51	41
v/c Ratio	0.02	0.33	0.07	0.12	0.13	0.14	0.14	0.11
Control Delay (s/veh)	8.5	8.4	8.6	7.1	20.1	20.1	0.8	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	8.5	8.4	8.6	7.1	20.1	20.1	0.8	0.6
Queue Length 50th (ft)	1	31	4	11	6	6	0	0
Queue Length 95th (ft)	11	124	23	41	37	34	1	0
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	811	1233	662	2409	527	527	593	953
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.28	0.06	0.10	0.07	0.07	0.09	0.04

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	201	137	36	214	24	69	0	49	25	0	15
Future Volume (veh/h)	15	201	137	36	214	24	69	0	49	25	0	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1950	1875	1920	1717	1778	1778	1567	1750	1623	1722	1849	1679
Adj Flow Rate, veh/h	15	207	0	37	221	25	71	0	51	26	0	15
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	9	0	0	13	0	9	4	0	7
Cap, veh/h	586	660		524	1079	121	308	0	142	65	0	37
Arrive On Green	0.35	0.35	0.00	0.35	0.35	0.32	0.10	0.00	0.10	0.03	0.00	0.03
Sat Flow, veh/h	1182	1875	0	1079	3062	343	2985	0	1376	1068	0	616
Grp Volume(v), veh/h	15	207	0	37	121	125	71	0	51	41	0	0
Grp Sat Flow(s),veh/h/ln	1182	1875	0	1079	1689	1716	1493	0	1376	1684	0	0
Q Serve(g_s), s	0.3	2.5	0.0	0.8	1.6	1.6	0.7	0.0	1.1	0.7	0.0	0.0
Cycle Q Clear(g_c), s	1.9	2.5	0.0	3.3	1.6	1.6	0.7	0.0	1.1	0.7	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.20	1.00		1.00	0.63		0.37
Lane Grp Cap(c), veh/h	586	660		524	595	605	308	0	142	102	0	0
V/C Ratio(X)	0.03	0.31		0.07	0.20	0.21	0.23	0.00	0.36	0.40	0.00	0.00
Avail Cap(c_a), veh/h	1343	1861		1215	1677	1704	1530	0	705	1133	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.7	7.4	0.0	8.6	7.1	7.1	12.9	0.0	13.0	14.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.2	0.0	0.2	0.7	0.7	0.4	0.0	1.5	2.5	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.9	0.0	0.2	0.5	0.5	0.2	0.0	0.3	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	8.5	0.0	8.8	7.8	7.9	13.2	0.0	14.6	17.1	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		222			283			122			41	
Approach Delay, s/veh		8.5			7.9			13.8			17.1	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.5		7.8		16.5		6.9				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		4.5		3.1		5.3		2.7				
Green Ext Time (p_c), s		3.4		0.3		4.2		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.7									
HCM 7th LOS			A									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	3	7	2	2	10	2	108	1	25	200	6
Future Volume (vph)	5	3	7	2	2	10	2	108	1	25	200	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.939			0.905			0.999			0.997	
Flt Protected		0.983			0.993			0.999			0.995	
Satd. Flow (prot)	0	1754	0	0	1620	0	0	1961	0	0	1907	0
Flt Permitted		0.983			0.993			0.999			0.995	
Satd. Flow (perm)	0	1754	0	0	1620	0	0	1961	0	0	1907	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	6%	0%	10%	3%	0%
Adj. Flow (vph)	7	4	9	3	3	14	3	146	1	34	270	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	20	0	0	20	0	0	150	0	0	312	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	3	7	2	2	10	2	108	1	25	200	6
Future Vol, veh/h	5	3	7	2	2	10	2	108	1	25	200	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	0	0	0	0	0	2	0	6	0	10	3	0
Mvmt Flow	7	4	9	3	3	14	3	146	1	34	270	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	495	495	274	492	498	147	278	0	0	147	0	0
Stage 1	342	342	-	152	152	-	-	-	-	-	-	-
Stage 2	153	153	-	340	346	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.3	6.7	6.32	4.3	-	-	4.4	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.1	3	4	3.1	3	-	-	3.1	-	-
Pot Cap-1 Maneuver	552	479	813	539	464	956	964	-	-	1033	-	-
Stage 1	773	642	-	979	769	-	-	-	-	-	-	-
Stage 2	987	775	-	760	627	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	519	459	813	507	445	956	964	-	-	1033	-	-
Mov Cap-2 Maneuver	519	459	-	507	445	-	-	-	-	-	-	-
Stage 1	743	617	-	976	767	-	-	-	-	-	-	-
Stage 2	966	773	-	718	603	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.16	9.99	0.16	0.93
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	32	-	-	605	740	194	-	-
HCM Lane V/C Ratio	0.003	-	-	0.033	0.026	0.033	-	-
HCM Ctrl Dly (s/v)	8.7	0	-	11.2	10	8.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	6	0	31	2	9	2	61	59	4	54	82
Future Volume (vph)	30	6	0	31	2	9	2	61	59	4	54	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.971			0.935			0.921	
Flt Protected		0.960			0.965			0.999			0.999	
Satd. Flow (prot)	0	1785	0	0	1676	0	0	1749	0	0	1733	0
Flt Permitted		0.960			0.965			0.999			0.999	
Satd. Flow (perm)	0	1785	0	0	1676	0	0	1749	0	0	1733	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles (%)	2%	0%	0%	0%	2%	0%	0%	5%	0%	0%	8%	2%
Adj. Flow (vph)	38	8	0	40	3	12	3	78	76	5	69	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	55	0	0	157	0	0	179	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	30	6	0	31	2	9	2	61	59	4	54	82
Future Vol, veh/h	30	6	0	31	2	9	2	61	59	4	54	82
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	0	0	0	2	0	0	5	0	0	8	2
Mvmt Flow	38	8	0	40	3	12	3	78	76	5	69	105
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.2	8	7.9	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	83%	74%	3%
Vol Thru, %	50%	17%	5%	39%
Vol Right, %	48%	0%	21%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	122	36	42	140
LT Vol	2	30	31	4
Through Vol	61	6	2	54
RT Vol	59	0	9	82
Lane Flow Rate	156	46	54	179
Geometry Grp	1	1	1	1
Degree of Util (X)	0.175	0.062	0.07	0.197
Departure Headway (Hd)	4.033	4.86	4.67	3.956
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	893	738	769	910
Service Time	2.044	2.879	2.688	1.965
HCM Lane V/C Ratio	0.175	0.062	0.07	0.197
HCM Control Delay, s/veh	7.9	8.2	8	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.2	0.2	0.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	379	6	36	395	6	61
Future Volume (vph)	379	6	36	395	6	61
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.877	
Flt Protected				0.996	0.995	
Satd. Flow (prot)	1833	0	0	1882	1796	0
Flt Permitted				0.996	0.995	
Satd. Flow (perm)	1833	0	0	1882	1796	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	3%	0%	3%	2%	0%	0%
Adj. Flow (vph)	436	7	41	454	7	70
Shared Lane Traffic (%)						
Lane Group Flow (vph)	443	0	0	495	77	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.2%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	379	6	36	395	6	61
Future Vol, veh/h	379	6	36	395	6	61
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, %	1	-	-	-3	3	-
Peak Hour Factor	87	87	87	87	87	87
Heavy Vehicles, %	3	0	3	2	0	0
Mvmt Flow	436	7	41	454	7	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	443	0	976	439
Stage 1	-	-	-	-	439	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	846	-	270	631
Stage 1	-	-	-	-	689	-
Stage 2	-	-	-	-	608	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	846	-	252	631
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	644	-
Stage 2	-	-	-	-	608	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.79	12.51
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	556	-	-	150	-
HCM Lane V/C Ratio	0.138	-	-	0.049	-
HCM Ctrl Dly (s/v)	12.5	-	-	9.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	13	0	0	0
Future Volume (vph)	0	20	13	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	23	15	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	15	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	13	0	0	0
Future Vol, veh/h	0	20	13	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	23	15	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	15	0	-	0	38	15
Stage 1	-	-	-	-	15	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1015	-	-	-	1122	1037
Stage 1	-	-	-	-	1179	-
Stage 2	-	-	-	-	1167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1015	-	-	-	1122	1037
Mov Cap-2 Maneuver	-	-	-	-	1122	-
Stage 1	-	-	-	-	1179	-
Stage 2	-	-	-	-	1167	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1015	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	13	82	28	0
Future Volume (vph)	0	20	13	82	28	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.883			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1524	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1524	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	23	15	95	33	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	23	110	0	33	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	15.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	13	82	28	0
Future Vol, veh/h	0	20	13	82	28	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	23	15	95	33	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	110	0	-	0	86	63
Stage 1	-	-	-	-	63	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	933	-	-	-	1032	972
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	1167	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	933	-	-	-	1032	972
Mov Cap-2 Maneuver	-	-	-	-	1032	-
Stage 1	-	-	-	-	1113	-
Stage 2	-	-	-	-	1167	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.6
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	933	-	-	-	1032
HCM Lane V/C Ratio	-	-	-	-	0.032
HCM Ctrl Dly (s/v)	0	-	-	-	8.6
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	22	21	0	21	7	0
Future Volume (vph)	22	21	0	21	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.934					
Flt Protected					0.950	
Satd. Flow (prot)	1716	0	0	1589	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1716	0	0	1589	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	2%	0%	15%	2%	0%
Adj. Flow (vph)	24	23	0	23	8	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	0	23	8	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	21	0	21	7	0
Future Vol, veh/h	22	21	0	21	7	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	2	0	15	2	0
Mvmt Flow	24	23	0	23	8	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	46	0	58	35
Stage 1	-	-	-	-	35	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.3	-	6.82	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1158	-	1102	1108
Stage 1	-	-	-	-	1151	-
Stage 2	-	-	-	-	1168	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1158	-	1102	1108
Mov Cap-2 Maneuver	-	-	-	-	1102	-
Stage 1	-	-	-	-	1151	-
Stage 2	-	-	-	-	1168	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.29
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1102	-	-	1158	-
HCM Lane V/C Ratio	0.007	-	-	-	-
HCM Ctrl Dly (s/v)	8.3	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	22	0	0	21	0	0
Future Volume (vph)	22	0	0	21	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1791	0	0	1629	1881	0
Flt Permitted						
Satd. Flow (perm)	1791	0	0	1629	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	0%	0%	15%	0%	0%
Adj. Flow (vph)	24	0	0	23	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	0	0	23	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	22	0	0	21	0	0
Future Vol, veh/h	22	0	0	21	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	15	0	0
Mvmt Flow	24	0	0	23	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	24	0	46	24
Stage 1	-	-	-	-	24	-
Stage 2	-	-	-	-	23	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1178	-	1121	1125
Stage 1	-	-	-	-	1167	-
Stage 2	-	-	-	-	1168	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1178	-	1121	1125
Mov Cap-2 Maneuver	-	-	-	-	1121	-
Stage 1	-	-	-	-	1167	-
Stage 2	-	-	-	-	1168	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1178	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Volume (vph)	0	53	0	0	57	0
Future Volume (vph)	0	53	0	0	57	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14
Grade (%)	3%			2%	-1%	
Storage Length (ft)		125	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		100	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865					
Flt Protected					0.950	
Satd. Flow (prot)	1799	0	0	1944	1935	0
Flt Permitted					0.950	
Satd. Flow (perm)	1799	0	0	1944	1935	0
Link Speed (mph)	35			25	25	
Link Distance (ft)	404			260	237	
Travel Time (s)	7.9			7.1	6.5	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	2%	0%	0%	0%	0%
Adj. Flow (vph)	0	59	0	0	63	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	0	63	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	14	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	0.86	0.86	1.01	0.97	0.91	0.91
Turning Speed (mph)		9	15		15	9
Sign Control	Stop			Stop	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

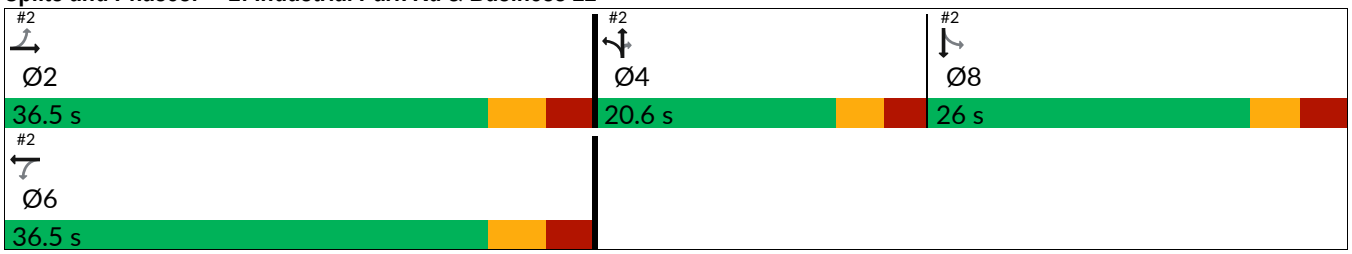
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	229	102	33	303	18	114	1	33	21	0	26
Future Volume (vph)	17	229	102	33	303	18	114	1	33	21	0	26
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	13	12	15	13	12	12	12	12	12	12	16	12
Grade (%)		-2%			2%			3%			2%	
Storage Length (ft)	365		250	160		0	150		150	0		0
Storage Lanes	1		0	1		0	1		1	0		0
Taper Length (ft)	200		100	100		25	100		100	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt		0.954			0.992				0.850		0.925	
Flt Protected	0.950			0.950			0.950	0.953			0.978	
Satd. Flow (prot)	1684	1718	0	1590	3359	0	1524	1530	1422	0	1827	0
Flt Permitted	0.535			0.507			0.950	0.953			0.824	
Satd. Flow (perm)	948	1718	0	849	3359	0	1524	1530	1422	0	1539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			8				125		119	
Link Speed (mph)		30			30			25			25	
Link Distance (ft)		1143			1064			838			237	
Travel Time (s)		26.0			24.2			22.9			6.5	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	0%	3%	10%	0%	0%	5%	0%	6%	0%	0%	0%
Adj. Flow (vph)	19	260	116	38	344	20	130	1	38	24	0	30
Shared Lane Traffic (%)							50%					
Lane Group Flow (vph)	19	376	0	38	364	0	65	66	38	0	54	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		13			13			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.06	0.94	1.04	1.09	1.09	1.09	1.09	1.09	1.09	0.92	1.09
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	1		1	1		1	1	1		1	
Detector Template												
Leading Detector (ft)	111	111		40	111		45	45	45		45	
Trailing Detector (ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Position(ft)	-5	105		-5	105		-5	-5	-5		-5	
Detector 1 Size(ft)	50	6		45	6		50	50	50		50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Detector 2 Position(ft)	105											
Detector 2 Size(ft)	6											
Detector 2 Type	Cl+Ex											
Detector 2 Channel												
Detector 2 Extend (s)	0.0											

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Perm	NA		Perm	NA		Split	NA	Perm	Perm	NA	
Protected Phases		2			6		4	4			8	
Permitted Phases	2			6					4	8		
Detector Phase	2	2		6	6		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	16.5	16.5		16.5	16.5		8.6	8.6	8.6	9.0	9.0	
Total Split (s)	36.5	36.5		36.5	36.5		20.6	20.6	20.6	26.0	26.0	
Total Split (%)	43.9%	43.9%		43.9%	43.9%		24.8%	24.8%	24.8%	31.3%	31.3%	
Maximum Green (s)	30.0	30.0		30.0	30.0		15.0	15.0	15.0	20.0	20.0	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.9	2.9		2.9	2.9		2.6	2.6	2.6	3.0	3.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0		-1.0	
Total Lost Time (s)	5.5	5.5		5.5	5.5		4.6	4.6	4.6		5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.3	6.3		6.3	6.3		3.0	3.0	3.0	3.0	3.0	
Minimum Gap (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Time Before Reduce (s)	20.0	20.0		20.0	20.0		0.0	0.0	0.0	0.0	0.0	
Time To Reduce (s)	10.0	10.0		10.0	10.0		0.0	0.0	0.0	0.0	0.0	
Recall Mode	Min	Min		Min	Min		None	None	None	None	None	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0	7.0	7.0	7.0	
Flash Don't Walk (s)	13.0	13.0		13.0	13.0		9.0	9.0	9.0	9.0	9.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	27.7	27.7		27.7	27.7		9.3	9.3	9.3		7.2	
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.19	0.19	0.19		0.15	
v/c Ratio	0.04	0.38		0.08	0.19		0.22	0.23	0.10		0.16	
Control Delay (s/veh)	9.5	10.6		10.0	8.8		22.6	22.6	0.5		1.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0		0.0	
Total Delay (s/veh)	9.5	10.6		10.0	8.8		22.6	22.6	0.5		1.5	
LOS	A	B		A	A		C	C	A		A	
Approach Delay (s/veh)		10.5			8.9			17.6			1.5	
Approach LOS		B			A			B			A	
Queue Length 50th (ft)	4	74		7	36		18	18	0		0	
Queue Length 95th (ft)	14	142		24	62		56	55	0		3	
Internal Link Dist (ft)		1063			984			758			157	
Turn Bay Length (ft)	365			160			150		150			
Base Capacity (vph)	648	1185		580	2300		538	540	582		776	
Starvation Cap Reductn	0	0		0	0		0	0	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.03	0.32		0.07	0.16		0.12	0.12	0.07		0.07	

Intersection Summary	
Area Type:	Other
Cycle Length: 83.1	
Actuated Cycle Length: 48.6	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	

Maximum v/c Ratio: 0.38	
Intersection Signal Delay (s/veh): 10.6	Intersection LOS: B
Intersection Capacity Utilization 47.3%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Industrial Park Rd & Business 22



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBT
Lane Group Flow (vph)	19	376	38	364	65	66	38	54
v/c Ratio	0.04	0.38	0.08	0.19	0.22	0.23	0.10	0.16
Control Delay (s/veh)	9.5	10.6	10.0	8.8	22.6	22.6	0.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (s/veh)	9.5	10.6	10.0	8.8	22.6	22.6	0.5	1.5
Queue Length 50th (ft)	4	74	7	36	18	18	0	0
Queue Length 95th (ft)	14	142	24	62	56	55	0	3
Internal Link Dist (ft)		1063		984		758		157
Turn Bay Length (ft)	365		160		150		150	
Base Capacity (vph)	648	1185	580	2300	538	540	582	776
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.32	0.07	0.16	0.12	0.12	0.07	0.07

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	229	102	33	303	18	114	1	33	21	0	26
Future Volume (veh/h)	17	229	102	33	303	18	114	1	33	21	0	26
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.04	1.00	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1861	1875	1905	1703	1778	1778	1680	1750	1666	1778	1849	1778
Adj Flow Rate, veh/h	19	260	0	38	344	20	131	0	38	24	0	30
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	0	3	10	0	0	5	0	6	0	0	0
Cap, veh/h	523	725		499	1255	73	372	0	164	49	0	61
Arrive On Green	0.39	0.39	0.00	0.39	0.39	0.36	0.12	0.00	0.12	0.04	0.00	0.04
Sat Flow, veh/h	1013	1875	0	1019	3245	188	3199	0	1411	732	0	915
Grp Volume(v), veh/h	19	260	0	38	178	186	131	0	38	54	0	0
Grp Sat Flow(s),veh/h/ln	1013	1875	0	1019	1689	1744	1600	0	1411	1647	0	0
Q Serve(g_s), s	0.5	3.5	0.0	1.0	2.5	2.6	1.3	0.0	0.9	1.1	0.0	0.0
Cycle Q Clear(g_c), s	3.0	3.5	0.0	4.4	2.5	2.6	1.3	0.0	0.9	1.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		0.11	1.00		1.00	0.44		0.56
Lane Grp Cap(c), veh/h	523	725		499	653	674	372	0	164	109	0	0
V/C Ratio(X)	0.04	0.36		0.08	0.27	0.28	0.35	0.00	0.23	0.49	0.00	0.00
Avail Cap(c_a), veh/h	1026	1657		1005	1493	1541	1459	0	644	986	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.4	7.7	0.0	9.2	7.4	7.4	14.3	0.0	14.1	16.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.3	0.0	0.3	1.0	0.9	0.6	0.0	0.7	3.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.2	0.0	0.2	0.8	0.8	0.4	0.0	0.3	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.5	8.9	0.0	9.5	8.3	8.4	14.8	0.0	14.8	19.7	0.0	0.0
LnGrp LOS	A	A		A	A	A	B		B	B		
Approach Vol, veh/h		279			402			169			54	
Approach Delay, s/veh		8.9			8.5			14.8			19.7	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.1		8.7		19.1		7.3				
Change Period (Y+Rc), s		6.5		5.6		6.5		6.0				
Max Green Setting (Gmax), s		30.0		15.0		30.0		20.0				
Max Q Clear Time (g_c+I1), s		5.5		3.3		6.4		3.1				
Green Ext Time (p_c), s		4.4		0.5		6.1		0.1				

Intersection Summary												
HCM 7th Control Delay, s/veh			10.5									
HCM 7th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	9	1	4	13	25	1	103	2	16	85	23
Future Volume (vph)	24	9	1	4	13	25	1	103	2	16	85	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	11	11	15	15	15	13	13	13
Grade (%)		0%			1%			1%			-3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.921			0.998			0.975	
Flt Protected		0.966			0.995						0.994	
Satd. Flow (prot)	0	1777	0	0	1655	0	0	1961	0	0	1834	0
Flt Permitted		0.966			0.995						0.994	
Satd. Flow (perm)	0	1777	0	0	1655	0	0	1961	0	0	1834	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		1207			1270			4220			838	
Travel Time (s)		23.5			24.7			82.2			16.3	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	0%	11%	0%	0%	0%	2%	0%	6%	0%	2%	6%	5%
Adj. Flow (vph)	29	11	1	5	16	30	1	124	2	19	102	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	41	0	0	51	0	0	127	0	0	149	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.05	1.05	1.05	0.89	0.89	0.89	0.94	0.94	0.94
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.6%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	9	1	4	13	25	1	103	2	16	85	23
Future Vol, veh/h	24	9	1	4	13	25	1	103	2	16	85	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	1	-	-	1	-	-	-3	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	0	11	0	0	0	2	0	6	0	2	6	5
Mvmt Flow	29	11	1	5	16	30	1	124	2	19	102	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	289	284	116	274	296	125	130	0	0	127	0	0
Stage 1	155	155	-	128	128	-	-	-	-	-	-	-
Stage 2	134	129	-	146	169	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.61	6.2	7.3	6.7	6.32	4.3	-	-	4.3	-	-
Critical Hdwy Stg 1	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.61	-	6.3	5.7	-	-	-	-	-	-	-
Follow-up Hdwy	3	4.099	3.1	3	4	3.1	3	-	-	3	-	-
Pot Cap-1 Maneuver	763	610	999	770	608	983	1084	-	-	1087	-	-
Stage 1	984	753	-	1012	789	-	-	-	-	-	-	-
Stage 2	1010	772	-	987	756	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	706	598	999	740	596	983	1084	-	-	1087	-	-
Mov Cap-2 Maneuver	706	598	-	740	596	-	-	-	-	-	-	-
Stage 1	965	738	-	1010	788	-	-	-	-	-	-	-
Stage 2	959	772	-	952	741	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.64	9.82	0.08	1.08
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	17	-	-	680	798	223	-	-
HCM Lane V/C Ratio	0.001	-	-	0.06	0.063	0.018	-	-
HCM Ctrl Dly (s/v)	8.3	0	-	10.6	9.8	8.4	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.2	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	9	2	12	4	8	1	23	14	4	36	49
Future Volume (vph)	72	9	2	12	4	8	1	23	14	4	36	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	10	10	10	12	12	12	13	13	13
Grade (%)		1%			-2%			-2%			0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.953			0.950			0.926	
Flt Protected		0.958			0.976			0.999			0.998	
Satd. Flow (prot)	0	1771	0	0	1666	0	0	1564	0	0	1733	0
Flt Permitted		0.958			0.976			0.999			0.998	
Satd. Flow (perm)	0	1771	0	0	1666	0	0	1564	0	0	1733	0
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		925			686			929			4220	
Travel Time (s)		18.0			13.4			18.1			82.2	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	0%	0%	0%	0%	0%	27%	0%	0%	9%	2%
Adj. Flow (vph)	87	11	2	14	5	10	1	28	17	5	43	59
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	29	0	0	46	0	0	107	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.01	1.01	1.01	1.08	1.08	1.08	0.99	0.99	0.99	0.96	0.96	0.96
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	7.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	72	9	2	12	4	8	1	23	14	4	36	49
Future Vol, veh/h	72	9	2	12	4	8	1	23	14	4	36	49
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	2	2	0	0	0	0	0	27	0	0	9	2
Mvmt Flow	87	11	2	14	5	10	1	28	17	5	43	59
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay, s/veh	8.1	7.4	7.3	7.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	87%	50%	4%
Vol Thru, %	61%	11%	17%	40%
Vol Right, %	37%	2%	33%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	83	24	89
LT Vol	1	72	12	4
Through Vol	23	9	4	36
RT Vol	14	2	8	49
Lane Flow Rate	46	100	29	107
Geometry Grp	1	1	1	1
Degree of Util (X)	0.051	0.122	0.033	0.114
Departure Headway (Hd)	3.991	4.381	4.143	3.838
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	881	812	852	919
Service Time	2.087	2.443	2.23	1.925
HCM Lane V/C Ratio	0.052	0.123	0.034	0.116
HCM Control Delay, s/veh	7.3	8.1	7.4	7.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.1	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	478	17	53	514	1	48
Future Volume (vph)	478	17	53	514	1	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	15	15
Grade (%)	1%			-3%	3%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.995				0.868	
Flt Protected				0.995	0.999	
Satd. Flow (prot)	1845	0	0	1885	1785	0
Flt Permitted				0.995	0.999	
Satd. Flow (perm)	1845	0	0	1885	1785	0
Link Speed (mph)	45			45	35	
Link Distance (ft)	884			826	1031	
Travel Time (s)	13.4			12.5	20.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	2%	0%	0%	2%	0%	0%
Adj. Flow (vph)	509	18	56	547	1	51
Shared Lane Traffic (%)						
Lane Group Flow (vph)	527	0	0	603	52	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	15	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.01	1.01	0.98	0.98	0.90	0.90
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	478	17	53	514	1	48
Future Vol, veh/h	478	17	53	514	1	48
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, %	1	-	-	-3	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	509	18	56	547	1	51

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	527	0	1177	518
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	660	-
Critical Hdwy	-	-	4.3	-	6.9	6.5
Critical Hdwy Stg 1	-	-	-	-	6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	790	-	197	565
Stage 1	-	-	-	-	624	-
Stage 2	-	-	-	-	520	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	790	-	177	565
Mov Cap-2 Maneuver	-	-	-	-	177	-
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	520	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0.93	12.36
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	541	-	-	168	-
HCM Lane V/C Ratio	0.096	-	-	0.071	-
HCM Ctrl Dly (s/v)	12.4	-	-	9.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	20	0	0	0
Future Volume (vph)	0	20	20	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	0	1800	1756	0	1881	0
Flt Permitted						
Satd. Flow (perm)	0	1800	1756	0	1881	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		838	622		271	
Travel Time (s)		22.9	17.0		12.3	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	25	25	0	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	25	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 6.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	20	0	0	0
Future Vol, veh/h	0	20	20	0	0	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	25	25	0	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	25	0	-	0	51	25
Stage 1	-	-	-	-	25	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	1006	-	-	-	1098	1023
Stage 1	-	-	-	-	1164	-
Stage 2	-	-	-	-	1164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1006	-	-	-	1098	1023
Mov Cap-2 Maneuver	-	-	-	-	1098	-
Stage 1	-	-	-	-	1164	-
Stage 2	-	-	-	-	1164	-

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1006	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	20	20	34	64	0
Future Volume (vph)	0	20	20	34	64	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	12	12
Grade (%)		-3%	2%		2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.915			
Flt Protected					0.950	
Satd. Flow (prot)	0	1800	1586	0	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	0	1800	1586	0	1752	0
Link Speed (mph)		25	25		15	
Link Distance (ft)		622	925		316	
Travel Time (s)		17.0	25.2		14.4	
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	0%	0%	0%	2%	2%	0%
Adj. Flow (vph)	0	25	25	43	81	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	25	68	0	81	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		0	0		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.07	1.07	1.11	1.11	1.01	1.01
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	20	20	34	64	0
Future Vol, veh/h	0	20	20	34	64	0
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, %	-	-3	2	-	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	0	25	25	43	81	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	68	0	-	0	72	47
Stage 1	-	-	-	-	47	-
Stage 2	-	-	-	-	25	-
Critical Hdwy	4.9	-	-	-	7.8	6.6
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	3.5	-	-	-	3	3.4
Pot Cap-1 Maneuver	969	-	-	-	1057	993
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	969	-	-	-	1057	993
Mov Cap-2 Maneuver	-	-	-	-	1057	-
Stage 1	-	-	-	-	1134	-
Stage 2	-	-	-	-	1164	-

Approach	EB	WB	SB
HCM Ctrl Dly, s/v	0	0	8.69
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	1057
HCM Lane V/C Ratio	-	-	-	-	0.077
HCM Ctrl Dly (s/v)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	9	0	27	16	0
Future Volume (vph)	24	9	0	27	16	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	-2%			1%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.964					
Flt Protected					0.950	
Satd. Flow (prot)	1779	0	0	1757	1752	0
Flt Permitted					0.950	
Satd. Flow (perm)	1779	0	0	1757	1752	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	1270			900	172	
Travel Time (s)	24.7			17.5	7.8	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	0%	2%	0%	4%	2%	0%
Adj. Flow (vph)	38	14	0	42	25	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	0	42	25	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.03	1.03	1.05	1.05	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	9	0	27	16	0
Future Vol, veh/h	24	9	0	27	16	0
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, %	-2	-	-	1	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	0	2	0	4	2	0
Mvmt Flow	38	14	0	42	25	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	52	0	87	45
Stage 1	-	-	-	-	45	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.82	-
Critical Hdwy Stg 2	-	-	-	-	5.82	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1153	-	1056	1094
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	1141	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1153	-	1056	1094
Mov Cap-2 Maneuver	-	-	-	-	1056	-
Stage 1	-	-	-	-	1137	-
Stage 2	-	-	-	-	1141	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	8.49
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	1056	-	-	1153	-
HCM Lane V/C Ratio	0.024	-	-	-	-
HCM Ctrl Dly (s/v)	8.5	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	24	0	0	27	0	0
Future Volume (vph)	24	0	0	27	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	5%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1791	0	0	1801	1881	0
Flt Permitted						
Satd. Flow (perm)	1791	0	0	1801	1881	0
Link Speed (mph)	35			35	15	
Link Distance (ft)	900			344	206	
Travel Time (s)	17.5			6.7	9.4	
Peak Hour Factor	0.64	0.64	0.64	0.64	0.64	0.64
Heavy Vehicles (%)	0%	0%	0%	4%	0%	0%
Adj. Flow (vph)	38	0	0	42	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	38	0	0	42	0	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Left	Left	Right
Median Width(ft)	0			0	12	
Link Offset(ft)	0			0	0	
Crosswalk Width(ft)	16			16	16	
Two way Left Turn Lane						
Headway Factor	1.08	1.08	1.02	1.02	1.01	1.01
Turning Speed (mph)		9	15		15	9
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	24	0	0	27	0	0
Future Vol, veh/h	24	0	0	27	0	0
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, %	5	-	-	-4	2	-
Peak Hour Factor	64	64	64	64	64	64
Heavy Vehicles, %	0	0	0	4	0	0
Mvmt Flow	38	0	0	42	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	38	0	80	38
Stage 1	-	-	-	-	38	-
Stage 2	-	-	-	-	42	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1165	-	1067	1104
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	1141	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1165	-	1067	1104
Mov Cap-2 Maneuver	-	-	-	-	1067	-
Stage 1	-	-	-	-	1147	-
Stage 2	-	-	-	-	1141	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1165	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

N.06 – Existing Condition: SimTraffic Queue Reports

WEEKDAY

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2078
Vehs Exited	2055
Starting Vehs	0
Ending Vehs	23
Travel Distance (mi)	1097
Travel Time (hr)	41.8
Total Delay (hr)	6.4
Total Stops	1019
Fuel Used (gal)	34.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	461
Vehs Exited	424
Starting Vehs	0
Ending Vehs	37
Travel Distance (mi)	243
Travel Time (hr)	9.5
Total Delay (hr)	1.6
Total Stops	238
Fuel Used (gal)	7.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	397
Vehs Exited	407
Starting Vehs	37
Ending Vehs	27
Travel Distance (mi)	214
Travel Time (hr)	8.3
Total Delay (hr)	1.3
Total Stops	189
Fuel Used (gal)	6.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	390
Vehs Exited	384
Starting Vehs	27
Ending Vehs	33
Travel Distance (mi)	206
Travel Time (hr)	7.8
Total Delay (hr)	1.1
Total Stops	196
Fuel Used (gal)	6.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	425
Vehs Exited	426
Starting Vehs	33
Ending Vehs	32
Travel Distance (mi)	212
Travel Time (hr)	7.9
Total Delay (hr)	1.1
Total Stops	198
Fuel Used (gal)	6.7

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	405
Vehs Exited	414
Starting Vehs	32
Ending Vehs	23
Travel Distance (mi)	223
Travel Time (hr)	8.3
Total Delay (hr)	1.2
Total Stops	198
Fuel Used (gal)	7.0

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	4
95th Queue (ft)	22
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	120	80	85	28	26	82	45	56
Average Queue (ft)	2	41	19	25	5	1	33	20	10
95th Queue (ft)	15	92	53	53	23	8	59	40	28
Link Distance (ft)		1110		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	54	46
Average Queue (ft)	19	13
95th Queue (ft)	47	39
Link Distance (ft)	1170	1663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	48	74	75
Average Queue (ft)	7	22	31	47
95th Queue (ft)	24	36	56	74
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	65
Average Queue (ft)	9	24
95th Queue (ft)	33	40
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2915
Vehs Exited	2878
Starting Vehs	0
Ending Vehs	37
Travel Distance (mi)	1347
Travel Time (hr)	52.0
Total Delay (hr)	8.3
Total Stops	1274
Fuel Used (gal)	42.6

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	798
Vehs Exited	747
Starting Vehs	0
Ending Vehs	51
Travel Distance (mi)	403
Travel Time (hr)	16.1
Total Delay (hr)	3.0
Total Stops	385
Fuel Used (gal)	13.0

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	511
Vehs Exited	535
Starting Vehs	51
Ending Vehs	27
Travel Distance (mi)	233
Travel Time (hr)	8.8
Total Delay (hr)	1.2
Total Stops	211
Fuel Used (gal)	7.3

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	546
Vehs Exited	537
Starting Vehs	27
Ending Vehs	36
Travel Distance (mi)	245
Travel Time (hr)	9.3
Total Delay (hr)	1.4
Total Stops	226
Fuel Used (gal)	7.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	542
Vehs Exited	540
Starting Vehs	36
Ending Vehs	38
Travel Distance (mi)	230
Travel Time (hr)	8.7
Total Delay (hr)	1.3
Total Stops	209
Fuel Used (gal)	7.3

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	518
Vehs Exited	519
Starting Vehs	38
Ending Vehs	37
Travel Distance (mi)	236
Travel Time (hr)	9.0
Total Delay (hr)	1.3
Total Stops	243
Fuel Used (gal)	7.4

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	46	146	43	134	128	133	130	106	55
Average Queue (ft)	9	64	11	49	28	35	63	34	19
95th Queue (ft)	31	126	31	91	68	92	112	66	43
Link Distance (ft)		1106		1004	1004		768		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)						0			
Queuing Penalty (veh)						0			

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	96	64	110
Average Queue (ft)	27	15	9
95th Queue (ft)	66	45	46
Link Distance (ft)	1170	1663	768
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	21	75	71
Average Queue (ft)	9	13	36	27
95th Queue (ft)	26	29	59	59
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	113	70
Average Queue (ft)	18	29
95th Queue (ft)	65	54
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

WEEKEND

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	1942
Vehs Exited	1914
Starting Vehs	0
Ending Vehs	28
Travel Distance (mi)	822
Travel Time (hr)	29.2
Total Delay (hr)	3.1
Total Stops	654
Fuel Used (gal)	24.7

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	446
Vehs Exited	419
Starting Vehs	0
Ending Vehs	27
Travel Distance (mi)	180
Travel Time (hr)	6.5
Total Delay (hr)	0.7
Total Stops	157
Fuel Used (gal)	5.5

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	358
Vehs Exited	367
Starting Vehs	27
Ending Vehs	18
Travel Distance (mi)	158
Travel Time (hr)	5.6
Total Delay (hr)	0.6
Total Stops	117
Fuel Used (gal)	4.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	411
Vehs Exited	407
Starting Vehs	18
Ending Vehs	22
Travel Distance (mi)	178
Travel Time (hr)	6.3
Total Delay (hr)	0.7
Total Stops	138
Fuel Used (gal)	5.3

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	382
Vehs Exited	378
Starting Vehs	22
Ending Vehs	26
Travel Distance (mi)	165
Travel Time (hr)	6.0
Total Delay (hr)	0.7
Total Stops	151
Fuel Used (gal)	5.1

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	345
Vehs Exited	343
Starting Vehs	26
Ending Vehs	28
Travel Distance (mi)	141
Travel Time (hr)	4.9
Total Delay (hr)	0.4
Total Stops	91
Fuel Used (gal)	4.2

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	71	56	89	51	50	104	56	35
Average Queue (ft)	3	28	10	29	12	1	22	16	13
95th Queue (ft)	17	64	34	71	38	15	59	39	31
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	28	30	75
Average Queue (ft)	7	7	1	2
95th Queue (ft)	27	26	9	23
Link Distance (ft)	1170	1663	4154	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	45	90	76
Average Queue (ft)	6	15	29	25
95th Queue (ft)	23	31	55	56
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	50
Average Queue (ft)	11	24
95th Queue (ft)	39	47
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2161
Vehs Exited	2136
Starting Vehs	0
Ending Vehs	25
Travel Distance (mi)	872
Travel Time (hr)	31.4
Total Delay (hr)	3.6
Total Stops	622
Fuel Used (gal)	26.4

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	497
Vehs Exited	460
Starting Vehs	0
Ending Vehs	37
Travel Distance (mi)	193
Travel Time (hr)	7.2
Total Delay (hr)	1.0
Total Stops	146
Fuel Used (gal)	6.0

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	385
Vehs Exited	398
Starting Vehs	37
Ending Vehs	24
Travel Distance (mi)	159
Travel Time (hr)	5.7
Total Delay (hr)	0.6
Total Stops	114
Fuel Used (gal)	4.9

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	429
Vehs Exited	425
Starting Vehs	24
Ending Vehs	28
Travel Distance (mi)	170
Travel Time (hr)	6.1
Total Delay (hr)	0.7
Total Stops	134
Fuel Used (gal)	5.1

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	424
Vehs Exited	430
Starting Vehs	28
Ending Vehs	22
Travel Distance (mi)	174
Travel Time (hr)	6.2
Total Delay (hr)	0.7
Total Stops	117
Fuel Used (gal)	5.2

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	426
Vehs Exited	423
Starting Vehs	22
Ending Vehs	25
Travel Distance (mi)	177
Travel Time (hr)	6.2
Total Delay (hr)	0.6
Total Stops	111
Fuel Used (gal)	5.3

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	73	38	87	70	26	60	57	38
Average Queue (ft)	6	35	9	32	15	2	21	14	13
95th Queue (ft)	24	72	26	64	46	14	48	36	30
Link Distance (ft)		1100		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	76	29
Average Queue (ft)	18	13
95th Queue (ft)	45	35
Link Distance (ft)	1170	1663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	22	64	50
Average Queue (ft)	10	12	22	19
95th Queue (ft)	31	28	54	41
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	118	48
Average Queue (ft)	32	20
95th Queue (ft)	83	37
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

N.07 – 2032 No Build Condition: SimTraffic Queue Reports

WEEKDAY

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2038
Vehs Exited	2008
Starting Vehs	0
Ending Vehs	30
Travel Distance (mi)	1070
Travel Time (hr)	40.8
Total Delay (hr)	6.2
Total Stops	981
Fuel Used (gal)	34.2

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	442
Vehs Exited	400
Starting Vehs	0
Ending Vehs	42
Travel Distance (mi)	239
Travel Time (hr)	9.1
Total Delay (hr)	1.4
Total Stops	219
Fuel Used (gal)	7.7

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	373
Vehs Exited	391
Starting Vehs	42
Ending Vehs	24
Travel Distance (mi)	193
Travel Time (hr)	7.3
Total Delay (hr)	1.1
Total Stops	169
Fuel Used (gal)	6.1

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	409
Vehs Exited	398
Starting Vehs	24
Ending Vehs	35
Travel Distance (mi)	215
Travel Time (hr)	8.3
Total Delay (hr)	1.3
Total Stops	215
Fuel Used (gal)	6.9

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	410
Vehs Exited	408
Starting Vehs	35
Ending Vehs	37
Travel Distance (mi)	209
Travel Time (hr)	7.9
Total Delay (hr)	1.2
Total Stops	177
Fuel Used (gal)	6.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	404
Vehs Exited	411
Starting Vehs	37
Ending Vehs	30
Travel Distance (mi)	214
Travel Time (hr)	8.1
Total Delay (hr)	1.2
Total Stops	201
Fuel Used (gal)	6.9

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	158	60	68	51	27	64	63	36
Average Queue (ft)	3	46	16	26	6	4	32	22	9
95th Queue (ft)	17	98	41	53	26	19	57	46	23
Link Distance (ft)		1110		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	54	46	30
Average Queue (ft)	18	12	1
95th Queue (ft)	43	38	9
Link Distance (ft)	1170	1663	4154
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	22	48	74
Average Queue (ft)	9	20	27	46
95th Queue (ft)	27	26	45	73
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	68	65
Average Queue (ft)	14	22
95th Queue (ft)	46	42
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	3037
Vehs Exited	2999
Starting Vehs	0
Ending Vehs	38
Travel Distance (mi)	1387
Travel Time (hr)	53.8
Total Delay (hr)	8.7
Total Stops	1364
Fuel Used (gal)	44.0

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	841
Vehs Exited	780
Starting Vehs	0
Ending Vehs	61
Travel Distance (mi)	405
Travel Time (hr)	16.7
Total Delay (hr)	3.5
Total Stops	444
Fuel Used (gal)	13.3

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	531
Vehs Exited	561
Starting Vehs	61
Ending Vehs	31
Travel Distance (mi)	243
Travel Time (hr)	9.3
Total Delay (hr)	1.4
Total Stops	238
Fuel Used (gal)	7.6

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	563
Vehs Exited	552
Starting Vehs	31
Ending Vehs	42
Travel Distance (mi)	250
Travel Time (hr)	9.5
Total Delay (hr)	1.3
Total Stops	229
Fuel Used (gal)	7.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	565
Vehs Exited	569
Starting Vehs	42
Ending Vehs	38
Travel Distance (mi)	246
Travel Time (hr)	9.1
Total Delay (hr)	1.2
Total Stops	218
Fuel Used (gal)	7.8

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	537
Vehs Exited	537
Starting Vehs	38
Ending Vehs	38
Travel Distance (mi)	243
Travel Time (hr)	9.2
Total Delay (hr)	1.3
Total Stops	235
Fuel Used (gal)	7.7

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	226	60	155	120	128	150	64	78
Average Queue (ft)	7	83	10	50	31	34	69	30	16
95th Queue (ft)	26	165	37	95	78	86	118	55	40
Link Distance (ft)		1106		1004	1004		768		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)				0			0		
Queuing Penalty (veh)				0			0		

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	93	63	135	70
Average Queue (ft)	30	14	6	11
95th Queue (ft)	66	41	44	46
Link Distance (ft)	1170	1663	4154	768
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	21	87	90
Average Queue (ft)	6	12	39	28
95th Queue (ft)	22	28	62	65
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	177	49
Average Queue (ft)	27	26
95th Queue (ft)	90	45
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

WEEKEND

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2059
Vehs Exited	2032
Starting Vehs	0
Ending Vehs	27
Travel Distance (mi)	877
Travel Time (hr)	31.3
Total Delay (hr)	3.4
Total Stops	702
Fuel Used (gal)	26.5

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	465
Vehs Exited	435
Starting Vehs	0
Ending Vehs	30
Travel Distance (mi)	190
Travel Time (hr)	6.8
Total Delay (hr)	0.7
Total Stops	150
Fuel Used (gal)	5.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	391
Vehs Exited	392
Starting Vehs	30
Ending Vehs	29
Travel Distance (mi)	172
Travel Time (hr)	6.2
Total Delay (hr)	0.7
Total Stops	138
Fuel Used (gal)	5.2

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	426
Vehs Exited	425
Starting Vehs	29
Ending Vehs	30
Travel Distance (mi)	185
Travel Time (hr)	6.5
Total Delay (hr)	0.7
Total Stops	142
Fuel Used (gal)	5.5

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	381
Vehs Exited	385
Starting Vehs	30
Ending Vehs	26
Travel Distance (mi)	169
Travel Time (hr)	6.1
Total Delay (hr)	0.7
Total Stops	166
Fuel Used (gal)	5.2

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	396
Vehs Exited	395
Starting Vehs	26
Ending Vehs	27
Travel Distance (mi)	161
Travel Time (hr)	5.7
Total Delay (hr)	0.6
Total Stops	106
Fuel Used (gal)	4.8

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	91	59	93	72	49	66	60	35
Average Queue (ft)	6	34	15	31	17	2	19	15	11
95th Queue (ft)	25	76	42	70	47	17	52	42	28
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	30	29	30
Average Queue (ft)	8	8	1
95th Queue (ft)	29	29	9
Link Distance (ft)	1170	1663	4154
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	45	90	76
Average Queue (ft)	6	15	29	27
95th Queue (ft)	21	32	52	56
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	50
Average Queue (ft)	16	25
95th Queue (ft)	44	46
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2340
Vehs Exited	2309
Starting Vehs	0
Ending Vehs	31
Travel Distance (mi)	948
Travel Time (hr)	34.3
Total Delay (hr)	4.0
Total Stops	676
Fuel Used (gal)	28.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	539
Vehs Exited	498
Starting Vehs	0
Ending Vehs	41
Travel Distance (mi)	215
Travel Time (hr)	8.0
Total Delay (hr)	1.1
Total Stops	160
Fuel Used (gal)	6.7

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	426
Vehs Exited	444
Starting Vehs	41
Ending Vehs	23
Travel Distance (mi)	177
Travel Time (hr)	6.3
Total Delay (hr)	0.7
Total Stops	123
Fuel Used (gal)	5.4

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	485
Vehs Exited	485
Starting Vehs	23
Ending Vehs	23
Travel Distance (mi)	194
Travel Time (hr)	7.0
Total Delay (hr)	0.8
Total Stops	139
Fuel Used (gal)	5.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	436
Vehs Exited	437
Starting Vehs	23
Ending Vehs	22
Travel Distance (mi)	179
Travel Time (hr)	6.4
Total Delay (hr)	0.8
Total Stops	140
Fuel Used (gal)	5.4

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	454
Vehs Exited	445
Starting Vehs	22
Ending Vehs	31
Travel Distance (mi)	183
Travel Time (hr)	6.5
Total Delay (hr)	0.6
Total Stops	114
Fuel Used (gal)	5.6

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	92	61	89	70	26	82	57	38
Average Queue (ft)	8	37	14	39	14	1	19	13	12
95th Queue (ft)	27	81	41	81	44	8	52	34	26
Link Distance (ft)		1100		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	76	29
Average Queue (ft)	18	13
95th Queue (ft)	46	34
Link Distance (ft)	1170	1663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	22	64	47
Average Queue (ft)	13	13	24	21
95th Queue (ft)	33	28	56	42
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	118	49
Average Queue (ft)	29	22
95th Queue (ft)	78	42
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

N.08 – 2032 Build Condition: SimTraffic Queue Reports

WEEKDAY

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2294
Vehs Exited	2254
Starting Vehs	0
Ending Vehs	40
Travel Distance (mi)	1307
Travel Time (hr)	51.4
Total Delay (hr)	8.4
Total Stops	1246
Fuel Used (gal)	42.6

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	515
Vehs Exited	465
Starting Vehs	0
Ending Vehs	50
Travel Distance (mi)	262
Travel Time (hr)	10.3
Total Delay (hr)	1.8
Total Stops	235
Fuel Used (gal)	8.5

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	404
Vehs Exited	422
Starting Vehs	50
Ending Vehs	32
Travel Distance (mi)	236
Travel Time (hr)	9.2
Total Delay (hr)	1.4
Total Stops	219
Fuel Used (gal)	7.7

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	480
Vehs Exited	466
Starting Vehs	32
Ending Vehs	46
Travel Distance (mi)	270
Travel Time (hr)	10.7
Total Delay (hr)	1.8
Total Stops	228
Fuel Used (gal)	8.9

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	428
Vehs Exited	421
Starting Vehs	46
Ending Vehs	53
Travel Distance (mi)	268
Travel Time (hr)	10.7
Total Delay (hr)	1.7
Total Stops	289
Fuel Used (gal)	8.8

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	467
Vehs Exited	480
Starting Vehs	53
Ending Vehs	40
Travel Distance (mi)	272
Travel Time (hr)	10.6
Total Delay (hr)	1.7
Total Stops	275
Fuel Used (gal)	8.8

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	79	64	84	29	47	68	68	33
Average Queue (ft)	2	34	15	27	4	9	34	20	5
95th Queue (ft)	14	73	46	53	21	32	64	49	17
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	51	44	30	77
Average Queue (ft)	17	13	1	5
95th Queue (ft)	44	36	9	29
Link Distance (ft)	1170	1200	4156	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	48	74	93
Average Queue (ft)	16	24	34	55
95th Queue (ft)	34	39	59	88
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	74	69
Average Queue (ft)	13	21
95th Queue (ft)	43	44
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	72
Average Queue (ft)	17
95th Queue (ft)	46
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	11
95th Queue (ft)	35
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	3375
Vehs Exited	3325
Starting Vehs	0
Ending Vehs	50
Travel Distance (mi)	1636
Travel Time (hr)	64.1
Total Delay (hr)	10.6
Total Stops	1671
Fuel Used (gal)	52.4

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	912
Vehs Exited	807
Starting Vehs	0
Ending Vehs	105
Travel Distance (mi)	449
Travel Time (hr)	18.3
Total Delay (hr)	3.6
Total Stops	508
Fuel Used (gal)	14.4

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	560
Vehs Exited	613
Starting Vehs	105
Ending Vehs	52
Travel Distance (mi)	299
Travel Time (hr)	11.9
Total Delay (hr)	2.0
Total Stops	316
Fuel Used (gal)	9.8

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	651
Vehs Exited	652
Starting Vehs	52
Ending Vehs	51
Travel Distance (mi)	309
Travel Time (hr)	12.0
Total Delay (hr)	1.9
Total Stops	313
Fuel Used (gal)	9.9

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	623
Vehs Exited	632
Starting Vehs	51
Ending Vehs	42
Travel Distance (mi)	290
Travel Time (hr)	10.9
Total Delay (hr)	1.5
Total Stops	261
Fuel Used (gal)	9.2

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	629
Vehs Exited	621
Starting Vehs	42
Ending Vehs	50
Travel Distance (mi)	289
Travel Time (hr)	11.1
Total Delay (hr)	1.6
Total Stops	273
Fuel Used (gal)	9.1

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	240	66	110	101	107	125	84	59
Average Queue (ft)	2	81	15	55	33	35	71	36	19
95th Queue (ft)	13	153	47	101	69	84	116	63	47
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	74	92	76	227
Average Queue (ft)	28	24	3	15
95th Queue (ft)	49	57	25	75
Link Distance (ft)	1170	1200	4156	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	65	22	75	88
Average Queue (ft)	22	12	39	32
95th Queue (ft)	40	28	66	65
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	97	60
Average Queue (ft)	27	22
95th Queue (ft)	80	42
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	29
95th Queue (ft)	54
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

WEEKEND

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2334
Vehs Exited	2306
Starting Vehs	0
Ending Vehs	28
Travel Distance (mi)	1160
Travel Time (hr)	43.7
Total Delay (hr)	5.9
Total Stops	1071
Fuel Used (gal)	36.4

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	559
Vehs Exited	521
Starting Vehs	0
Ending Vehs	38
Travel Distance (mi)	266
Travel Time (hr)	10.0
Total Delay (hr)	1.4
Total Stops	245
Fuel Used (gal)	8.2

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	418
Vehs Exited	424
Starting Vehs	38
Ending Vehs	32
Travel Distance (mi)	213
Travel Time (hr)	8.1
Total Delay (hr)	1.0
Total Stops	214
Fuel Used (gal)	6.8

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	486
Vehs Exited	482
Starting Vehs	32
Ending Vehs	36
Travel Distance (mi)	248
Travel Time (hr)	9.5
Total Delay (hr)	1.4
Total Stops	233
Fuel Used (gal)	7.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	456
Vehs Exited	443
Starting Vehs	36
Ending Vehs	49
Travel Distance (mi)	223
Travel Time (hr)	8.4
Total Delay (hr)	1.1
Total Stops	202
Fuel Used (gal)	7.2

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	415
Vehs Exited	436
Starting Vehs	49
Ending Vehs	28
Travel Distance (mi)	209
Travel Time (hr)	7.7
Total Delay (hr)	0.9
Total Stops	177
Fuel Used (gal)	6.4

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	49	137	88	68	52	26	67	65	79
Average Queue (ft)	9	55	10	31	17	4	29	18	16
95th Queue (ft)	31	108	39	61	44	18	54	42	45
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	30	29	31
Average Queue (ft)	10	14	3
95th Queue (ft)	32	36	19
Link Distance (ft)	1170	1200	767
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	46	45	48	144
Average Queue (ft)	14	14	28	40
95th Queue (ft)	34	32	38	77
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	141	72
Average Queue (ft)	17	24
95th Queue (ft)	65	52
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	54
Average Queue (ft)	20
95th Queue (ft)	45
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	9
95th Queue (ft)	32
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2512
Vehs Exited	2475
Starting Vehs	0
Ending Vehs	37
Travel Distance (mi)	1152
Travel Time (hr)	43.4
Total Delay (hr)	5.9
Total Stops	1139
Fuel Used (gal)	36.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	576
Vehs Exited	534
Starting Vehs	0
Ending Vehs	42
Travel Distance (mi)	240
Travel Time (hr)	9.1
Total Delay (hr)	1.3
Total Stops	239
Fuel Used (gal)	7.7

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	442
Vehs Exited	440
Starting Vehs	42
Ending Vehs	44
Travel Distance (mi)	214
Travel Time (hr)	8.1
Total Delay (hr)	1.0
Total Stops	207
Fuel Used (gal)	6.9

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	511
Vehs Exited	518
Starting Vehs	44
Ending Vehs	37
Travel Distance (mi)	237
Travel Time (hr)	8.9
Total Delay (hr)	1.2
Total Stops	240
Fuel Used (gal)	7.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	497
Vehs Exited	498
Starting Vehs	37
Ending Vehs	36
Travel Distance (mi)	228
Travel Time (hr)	8.7
Total Delay (hr)	1.3
Total Stops	231
Fuel Used (gal)	7.3

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	486
Vehs Exited	485
Starting Vehs	36
Ending Vehs	37
Travel Distance (mi)	233
Travel Time (hr)	8.7
Total Delay (hr)	1.1
Total Stops	222
Fuel Used (gal)	7.3

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	128	60	117	70	47	91	41	56
Average Queue (ft)	6	52	14	46	21	9	39	10	12
95th Queue (ft)	23	97	39	81	50	32	67	27	23
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	78	51	75
Average Queue (ft)	22	20	4
95th Queue (ft)	53	42	28
Link Distance (ft)	1170	1200	767
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	21	75	99
Average Queue (ft)	21	10	25	31
95th Queue (ft)	33	26	54	64
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	116	48
Average Queue (ft)	28	22
95th Queue (ft)	80	40
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	32
95th Queue (ft)	54
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	15
95th Queue (ft)	42
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

N.09 – 2037 No Build Condition: SimTraffic Queue Reports

WEEKDAY

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2075
Vehs Exited	2040
Starting Vehs	0
Ending Vehs	35
Travel Distance (mi)	1078
Travel Time (hr)	41.2
Total Delay (hr)	6.2
Total Stops	999
Fuel Used (gal)	34.1

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	441
Vehs Exited	409
Starting Vehs	0
Ending Vehs	32
Travel Distance (mi)	228
Travel Time (hr)	8.8
Total Delay (hr)	1.4
Total Stops	195
Fuel Used (gal)	7.2

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	396
Vehs Exited	399
Starting Vehs	32
Ending Vehs	29
Travel Distance (mi)	202
Travel Time (hr)	7.7
Total Delay (hr)	1.1
Total Stops	184
Fuel Used (gal)	6.4

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	401
Vehs Exited	402
Starting Vehs	29
Ending Vehs	28
Travel Distance (mi)	212
Travel Time (hr)	8.1
Total Delay (hr)	1.2
Total Stops	204
Fuel Used (gal)	6.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	418
Vehs Exited	415
Starting Vehs	28
Ending Vehs	31
Travel Distance (mi)	215
Travel Time (hr)	8.2
Total Delay (hr)	1.2
Total Stops	195
Fuel Used (gal)	6.8

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	419
Vehs Exited	415
Starting Vehs	31
Ending Vehs	35
Travel Distance (mi)	221
Travel Time (hr)	8.5
Total Delay (hr)	1.3
Total Stops	221
Fuel Used (gal)	7.0

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	49
Average Queue (ft)	5
95th Queue (ft)	25
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	46	110	63	67	46	50	82	44	13
Average Queue (ft)	4	44	17	29	7	6	34	19	8
95th Queue (ft)	21	88	45	54	27	30	61	41	17
Link Distance (ft)		1110		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	75	46
Average Queue (ft)	17	10
95th Queue (ft)	49	34
Link Distance (ft)	1170	1663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	22	86	76
Average Queue (ft)	10	19	30	43
95th Queue (ft)	28	27	50	72
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	65
Average Queue (ft)	12	22
95th Queue (ft)	42	39
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	3080
Vehs Exited	3041
Starting Vehs	0
Ending Vehs	39
Travel Distance (mi)	1410
Travel Time (hr)	54.8
Total Delay (hr)	9.0
Total Stops	1349
Fuel Used (gal)	44.7

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	859
Vehs Exited	787
Starting Vehs	0
Ending Vehs	72
Travel Distance (mi)	406
Travel Time (hr)	16.6
Total Delay (hr)	3.4
Total Stops	434
Fuel Used (gal)	13.1

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	550
Vehs Exited	595
Starting Vehs	72
Ending Vehs	27
Travel Distance (mi)	262
Travel Time (hr)	10.0
Total Delay (hr)	1.4
Total Stops	247
Fuel Used (gal)	8.3

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	568
Vehs Exited	562
Starting Vehs	27
Ending Vehs	33
Travel Distance (mi)	256
Travel Time (hr)	9.5
Total Delay (hr)	1.2
Total Stops	220
Fuel Used (gal)	7.8

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	548
Vehs Exited	549
Starting Vehs	33
Ending Vehs	32
Travel Distance (mi)	237
Travel Time (hr)	8.9
Total Delay (hr)	1.3
Total Stops	213
Fuel Used (gal)	7.5

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	555
Vehs Exited	548
Starting Vehs	32
Ending Vehs	39
Travel Distance (mi)	249
Travel Time (hr)	9.7
Total Delay (hr)	1.6
Total Stops	235
Fuel Used (gal)	7.9

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	47	205	62	151	114	128	159	100	53
Average Queue (ft)	6	81	17	61	33	33	67	40	15
95th Queue (ft)	26	155	49	116	74	85	120	75	36
Link Distance (ft)		1106		1004	1004		768		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)				0			0		
Queuing Penalty (veh)				0			1		

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	78	63	22	49
Average Queue (ft)	22	16	1	10
95th Queue (ft)	57	43	7	37
Link Distance (ft)	1170	1663	4154	768
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	21	94	71
Average Queue (ft)	7	13	36	28
95th Queue (ft)	24	29	61	61
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	97	63
Average Queue (ft)	26	26
95th Queue (ft)	72	54
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

WEEKEND

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2060
Vehs Exited	2036
Starting Vehs	0
Ending Vehs	24
Travel Distance (mi)	886
Travel Time (hr)	31.6
Total Delay (hr)	3.4
Total Stops	729
Fuel Used (gal)	26.9

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	479
Vehs Exited	449
Starting Vehs	0
Ending Vehs	30
Travel Distance (mi)	203
Travel Time (hr)	7.3
Total Delay (hr)	0.8
Total Stops	174
Fuel Used (gal)	6.2

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	390
Vehs Exited	395
Starting Vehs	30
Ending Vehs	25
Travel Distance (mi)	173
Travel Time (hr)	6.2
Total Delay (hr)	0.6
Total Stops	144
Fuel Used (gal)	5.3

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	422
Vehs Exited	418
Starting Vehs	25
Ending Vehs	29
Travel Distance (mi)	182
Travel Time (hr)	6.4
Total Delay (hr)	0.6
Total Stops	138
Fuel Used (gal)	5.3

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	378
Vehs Exited	385
Starting Vehs	29
Ending Vehs	22
Travel Distance (mi)	165
Travel Time (hr)	6.0
Total Delay (hr)	0.6
Total Stops	166
Fuel Used (gal)	5.1

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	391
Vehs Exited	389
Starting Vehs	22
Ending Vehs	24
Travel Distance (mi)	163
Travel Time (hr)	5.8
Total Delay (hr)	0.6
Total Stops	107
Fuel Used (gal)	4.9

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	14
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	27	136	56	89	72	26	60	56	38
Average Queue (ft)	5	35	13	28	17	1	18	15	11
95th Queue (ft)	21	85	39	62	47	8	42	39	31
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	30	29	30	31
Average Queue (ft)	8	6	1	1
95th Queue (ft)	29	25	9	9
Link Distance (ft)	1170	1663	4154	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	23	21	64	65
Average Queue (ft)	7	17	29	30
95th Queue (ft)	24	29	49	55
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	52	50
Average Queue (ft)	14	25
95th Queue (ft)	38	48
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2398
Vehs Exited	2364
Starting Vehs	0
Ending Vehs	34
Travel Distance (mi)	975
Travel Time (hr)	35.3
Total Delay (hr)	4.2
Total Stops	716
Fuel Used (gal)	29.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	550
Vehs Exited	505
Starting Vehs	0
Ending Vehs	45
Travel Distance (mi)	218
Travel Time (hr)	8.1
Total Delay (hr)	1.1
Total Stops	164
Fuel Used (gal)	6.7

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	468
Vehs Exited	485
Starting Vehs	45
Ending Vehs	28
Travel Distance (mi)	200
Travel Time (hr)	7.2
Total Delay (hr)	0.9
Total Stops	162
Fuel Used (gal)	6.1

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	485
Vehs Exited	489
Starting Vehs	28
Ending Vehs	24
Travel Distance (mi)	195
Travel Time (hr)	7.1
Total Delay (hr)	0.8
Total Stops	139
Fuel Used (gal)	5.9

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	443
Vehs Exited	447
Starting Vehs	24
Ending Vehs	20
Travel Distance (mi)	182
Travel Time (hr)	6.5
Total Delay (hr)	0.8
Total Stops	134
Fuel Used (gal)	5.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	452
Vehs Exited	438
Starting Vehs	20
Ending Vehs	34
Travel Distance (mi)	180
Travel Time (hr)	6.4
Total Delay (hr)	0.7
Total Stops	117
Fuel Used (gal)	5.5

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	94	43	87	70	24	50	41	38
Average Queue (ft)	7	42	10	37	17	1	23	14	11
95th Queue (ft)	26	80	28	73	49	7	52	33	24
Link Distance (ft)		1100		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB
Directions Served	LTR	LTR
Maximum Queue (ft)	54	51
Average Queue (ft)	20	12
95th Queue (ft)	46	38
Link Distance (ft)	1170	1663
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	22	68	65
Average Queue (ft)	11	11	24	22
95th Queue (ft)	32	28	54	46
Link Distance (ft)	2346	643	885	4154
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	118	49
Average Queue (ft)	27	22
95th Queue (ft)	74	41
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

N.10 – 2037 Build Condition: SimTraffic Queue Reports

WEEKDAY

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2293
Vehs Exited	2249
Starting Vehs	0
Ending Vehs	44
Travel Distance (mi)	1280
Travel Time (hr)	50.1
Total Delay (hr)	8.1
Total Stops	1228
Fuel Used (gal)	41.4

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	526
Vehs Exited	480
Starting Vehs	0
Ending Vehs	46
Travel Distance (mi)	273
Travel Time (hr)	10.6
Total Delay (hr)	1.7
Total Stops	245
Fuel Used (gal)	8.8

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	420
Vehs Exited	424
Starting Vehs	46
Ending Vehs	42
Travel Distance (mi)	250
Travel Time (hr)	9.8
Total Delay (hr)	1.6
Total Stops	233
Fuel Used (gal)	8.1

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	481
Vehs Exited	479
Starting Vehs	42
Ending Vehs	44
Travel Distance (mi)	273
Travel Time (hr)	10.7
Total Delay (hr)	1.9
Total Stops	272
Fuel Used (gal)	8.9

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	440
Vehs Exited	439
Starting Vehs	44
Ending Vehs	45
Travel Distance (mi)	246
Travel Time (hr)	9.6
Total Delay (hr)	1.5
Total Stops	232
Fuel Used (gal)	8.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	426
Vehs Exited	427
Starting Vehs	45
Ending Vehs	44
Travel Distance (mi)	239
Travel Time (hr)	9.3
Total Delay (hr)	1.4
Total Stops	246
Fuel Used (gal)	7.7

Intersection: 1: Industrial Park Rd & Hwy 522 S

Movement	WB
Directions Served	LT
Maximum Queue (ft)	50
Average Queue (ft)	5
95th Queue (ft)	24
Link Distance (ft)	233
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	49	124	64	48	29	72	87	64	34
Average Queue (ft)	3	42	23	22	3	10	37	18	9
95th Queue (ft)	21	92	58	47	18	37	67	45	24
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	56	49	52	54
Average Queue (ft)	16	14	1	6
95th Queue (ft)	43	39	16	29
Link Distance (ft)	1170	1200	4156	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	24	43	86	94
Average Queue (ft)	17	21	36	51
95th Queue (ft)	32	22	63	83
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	49
Average Queue (ft)	9	20
95th Queue (ft)	35	37
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	20
95th Queue (ft)	43
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	5
95th Queue (ft)	24
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	3462
Vehs Exited	3417
Starting Vehs	0
Ending Vehs	45
Travel Distance (mi)	1637
Travel Time (hr)	64.4
Total Delay (hr)	10.9
Total Stops	1668
Fuel Used (gal)	52.5

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	927
Vehs Exited	841
Starting Vehs	0
Ending Vehs	86
Travel Distance (mi)	447
Travel Time (hr)	18.3
Total Delay (hr)	3.8
Total Stops	482
Fuel Used (gal)	14.3

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	585
Vehs Exited	629
Starting Vehs	86
Ending Vehs	42
Travel Distance (mi)	285
Travel Time (hr)	11.2
Total Delay (hr)	1.8
Total Stops	312
Fuel Used (gal)	9.2

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	685
Vehs Exited	685
Starting Vehs	42
Ending Vehs	42
Travel Distance (mi)	331
Travel Time (hr)	12.7
Total Delay (hr)	1.9
Total Stops	325
Fuel Used (gal)	10.6

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	634
Vehs Exited	623
Starting Vehs	42
Ending Vehs	53
Travel Distance (mi)	281
Travel Time (hr)	10.9
Total Delay (hr)	1.7
Total Stops	286
Fuel Used (gal)	9.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	631
Vehs Exited	639
Starting Vehs	53
Ending Vehs	45
Travel Distance (mi)	294
Travel Time (hr)	11.3
Total Delay (hr)	1.6
Total Stops	263
Fuel Used (gal)	9.4

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	49	253	41	113	133	130	143	89	59
Average Queue (ft)	5	80	13	57	36	49	80	35	22
95th Queue (ft)	24	152	34	97	79	106	123	61	49
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)						0	0		
Queuing Penalty (veh)						0	0		

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	94	117	181	113
Average Queue (ft)	28	23	5	15
95th Queue (ft)	64	71	55	61
Link Distance (ft)	1170	1200	4156	767
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	22	75	70
Average Queue (ft)	21	9	36	30
95th Queue (ft)	37	25	62	60
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	160	49
Average Queue (ft)	27	25
95th Queue (ft)	86	48
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	28
95th Queue (ft)	49
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	32
Average Queue (ft)	12
95th Queue (ft)	37
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

WEEKEND

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2393
Vehs Exited	2361
Starting Vehs	0
Ending Vehs	32
Travel Distance (mi)	1173
Travel Time (hr)	43.8
Total Delay (hr)	5.6
Total Stops	1046
Fuel Used (gal)	36.8

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	559
Vehs Exited	518
Starting Vehs	0
Ending Vehs	41
Travel Distance (mi)	258
Travel Time (hr)	9.3
Total Delay (hr)	1.1
Total Stops	214
Fuel Used (gal)	7.9

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	448
Vehs Exited	460
Starting Vehs	41
Ending Vehs	29
Travel Distance (mi)	233
Travel Time (hr)	8.8
Total Delay (hr)	1.2
Total Stops	221
Fuel Used (gal)	7.4

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	503
Vehs Exited	492
Starting Vehs	29
Ending Vehs	40
Travel Distance (mi)	239
Travel Time (hr)	9.0
Total Delay (hr)	1.2
Total Stops	217
Fuel Used (gal)	7.5

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	449
Vehs Exited	440
Starting Vehs	40
Ending Vehs	49
Travel Distance (mi)	219
Travel Time (hr)	8.3
Total Delay (hr)	1.1
Total Stops	200
Fuel Used (gal)	7.0

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	434
Vehs Exited	451
Starting Vehs	49
Ending Vehs	32
Travel Distance (mi)	224
Travel Time (hr)	8.3
Total Delay (hr)	1.0
Total Stops	194
Fuel Used (gal)	7.0

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	113	64	68	52	26	68	43	34
Average Queue (ft)	10	49	14	35	16	3	25	18	10
95th Queue (ft)	31	97	43	64	45	16	46	39	25
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	30	29	30
Average Queue (ft)	9	14	1
95th Queue (ft)	30	35	9
Link Distance (ft)	1170	1200	767
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	47	22	49	74
Average Queue (ft)	15	12	27	41
95th Queue (ft)	35	28	40	63
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	53	70
Average Queue (ft)	13	27
95th Queue (ft)	39	49
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	55
Average Queue (ft)	18
95th Queue (ft)	44
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	31
Average Queue (ft)	8
95th Queue (ft)	30
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

Summary of All Intervals

Start Time	7:00
End Time	8:15
Total Time (min)	75
Time Recorded (min)	75
# of Intervals	5
# of Recorded Intervals	5
Vehs Entered	2493
Vehs Exited	2456
Starting Vehs	0
Ending Vehs	37
Travel Distance (mi)	1147
Travel Time (hr)	42.9
Total Delay (hr)	5.7
Total Stops	1099
Fuel Used (gal)	36.3

Interval #0 Information Seeding

Start Time	7:00
End Time	7:15
Total Time (min)	15

Volumes adjusted by PHF.

Vehs Entered	541
Vehs Exited	503
Starting Vehs	0
Ending Vehs	38
Travel Distance (mi)	230
Travel Time (hr)	8.7
Total Delay (hr)	1.3
Total Stops	214
Fuel Used (gal)	7.2

Interval #1 Information

Start Time	7:15
End Time	7:30
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	465
Vehs Exited	466
Starting Vehs	38
Ending Vehs	37
Travel Distance (mi)	218
Travel Time (hr)	8.1
Total Delay (hr)	1.0
Total Stops	220
Fuel Used (gal)	6.9

Interval #2 Information

Start Time	7:30
End Time	7:45
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	511
Vehs Exited	513
Starting Vehs	37
Ending Vehs	35
Travel Distance (mi)	236
Travel Time (hr)	8.8
Total Delay (hr)	1.1
Total Stops	225
Fuel Used (gal)	7.5

Interval #3 Information

Start Time	7:45
End Time	8:00
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	498
Vehs Exited	491
Starting Vehs	35
Ending Vehs	42
Travel Distance (mi)	237
Travel Time (hr)	8.8
Total Delay (hr)	1.2
Total Stops	232
Fuel Used (gal)	7.6

Interval #4 Information Recording

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Anti PHF.

Vehs Entered	478
Vehs Exited	483
Starting Vehs	42
Ending Vehs	37
Travel Distance (mi)	226
Travel Time (hr)	8.5
Total Delay (hr)	1.1
Total Stops	208
Fuel Used (gal)	7.1

Intersection: 1: Industrial Park Rd & Hwy 522 S

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: 2: Industrial Park Rd & Business 22

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	TR	L	T	TR	L	LT	R	LTR
Maximum Queue (ft)	28	179	43	89	51	47	66	40	56
Average Queue (ft)	5	56	12	43	16	7	38	12	11
95th Queue (ft)	23	114	31	75	43	29	62	32	32
Link Distance (ft)		1102		1004	1004		767		136
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)	365		160			150		150	
Storage Blk Time (%)									
Queuing Penalty (veh)									

Intersection: 3: Industrial Park Rd & Middle Rd

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	67	52	30
Average Queue (ft)	23	22	3
95th Queue (ft)	50	45	19
Link Distance (ft)	1170	1200	767
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Industrial Park Rd & Loop Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	40	21	50	73
Average Queue (ft)	22	9	21	29
95th Queue (ft)	32	25	47	59
Link Distance (ft)	853	643	885	4156
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Loop Rd & Business 22

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	160	46
Average Queue (ft)	26	19
95th Queue (ft)	83	38
Link Distance (ft)	804	997
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Loop Rd & Western Site Access

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: 7: Loop Rd & Eastern Site Access

Movement	SB
Directions Served	LR
Maximum Queue (ft)	56
Average Queue (ft)	30
95th Queue (ft)	54
Link Distance (ft)	288
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 8: Western Site Access & Middle Rd

Movement	NB
Directions Served	LR
Maximum Queue (ft)	79
Average Queue (ft)	15
95th Queue (ft)	46
Link Distance (ft)	145
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 9: Eastern Site Access & Middle Rd

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

Appendix O - Auxiliary Turn Lane Warrants

O.01 – Existing Condition: Turn Lane Warrants

WEEKDAY

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	28	7.0%	31

Advancing Volume: 31
Right Turn Volume: 31

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

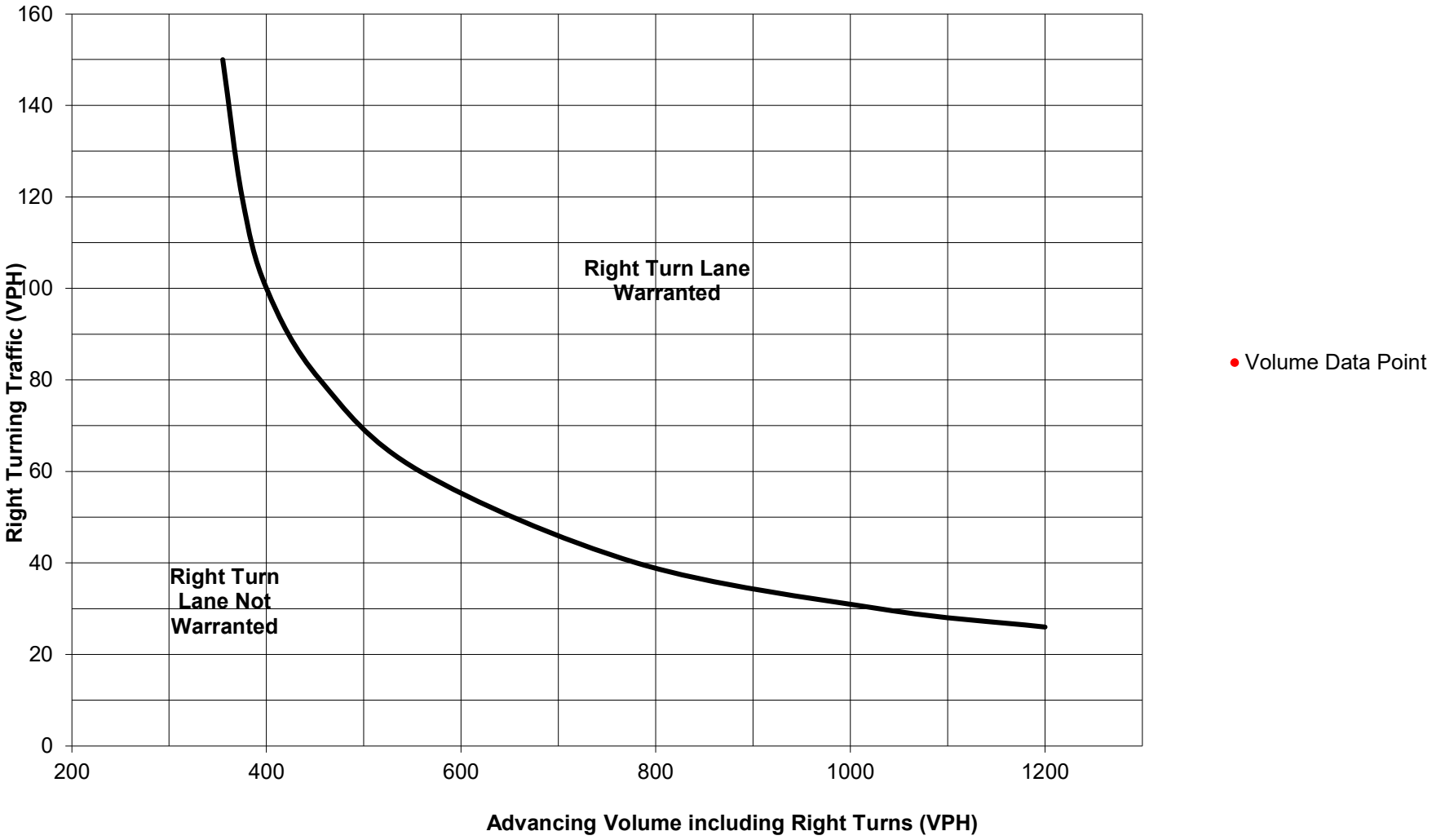
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	50	2.0%	52
	Through	-	0	0.0%	0
	Right	Yes	1	100.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 55
Opposing Volume: 0
Left Turn Volume: 52
% Left Turns in Advancing Volume: 94.55%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	52
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

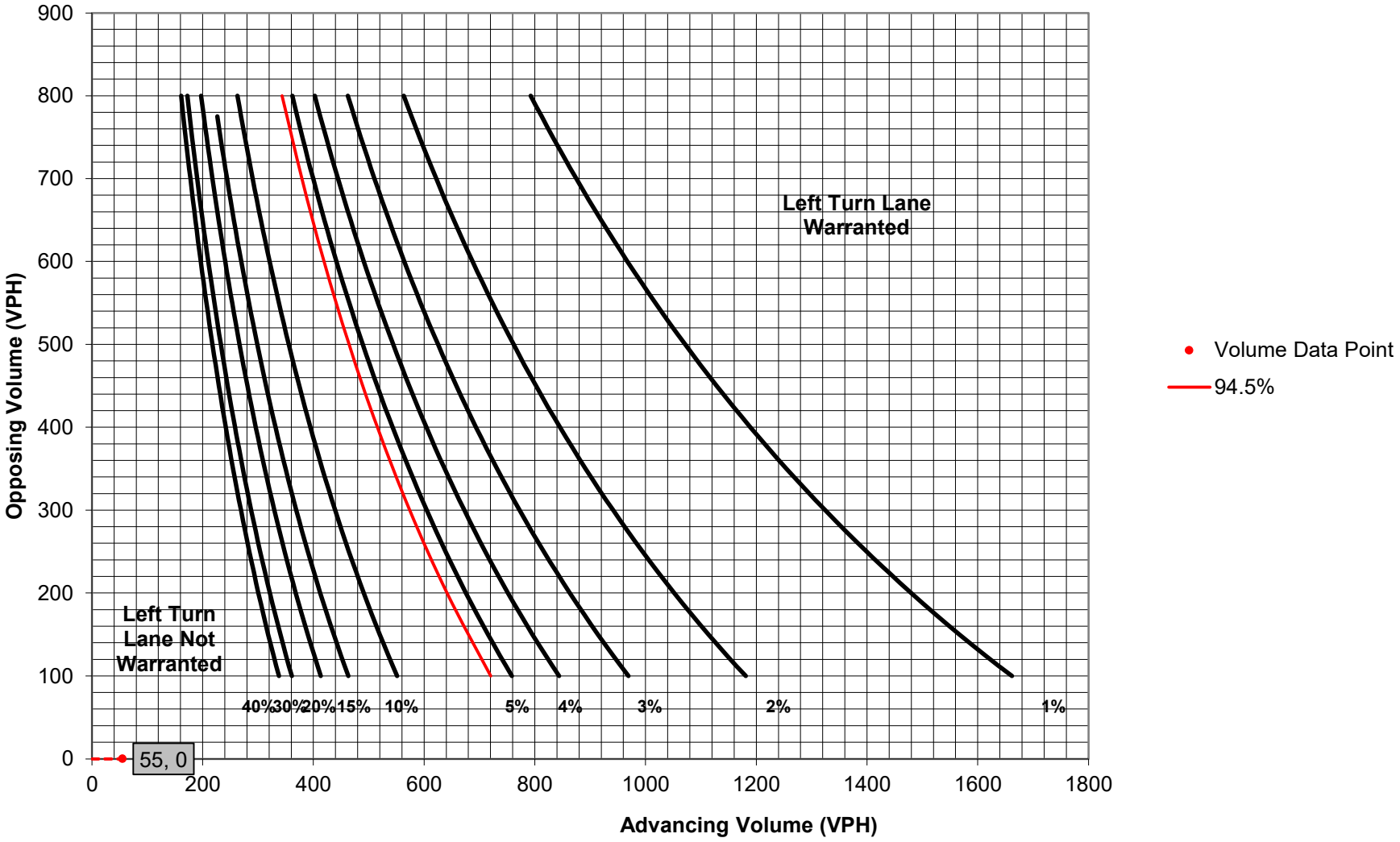
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	50	2.0%	52
	Through	-	0	0.0%	0
	Right	-	1	100.0%	3

Advancing Volume: 55
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

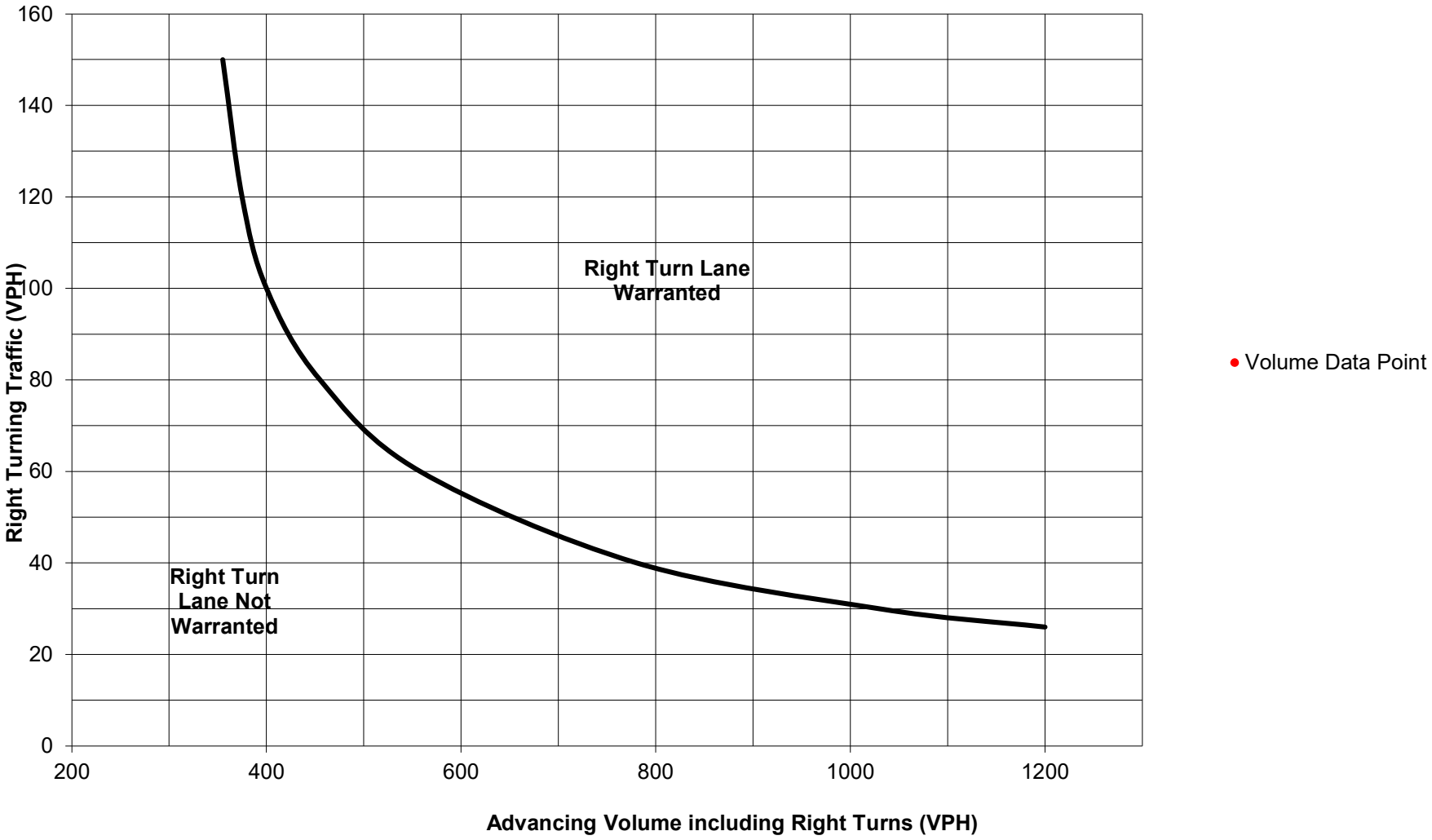
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	33.0%	5
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	28	7.0%	N/A

Advancing Volume:	5
Opposing Volume:	0
Left Turn Volume:	5
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

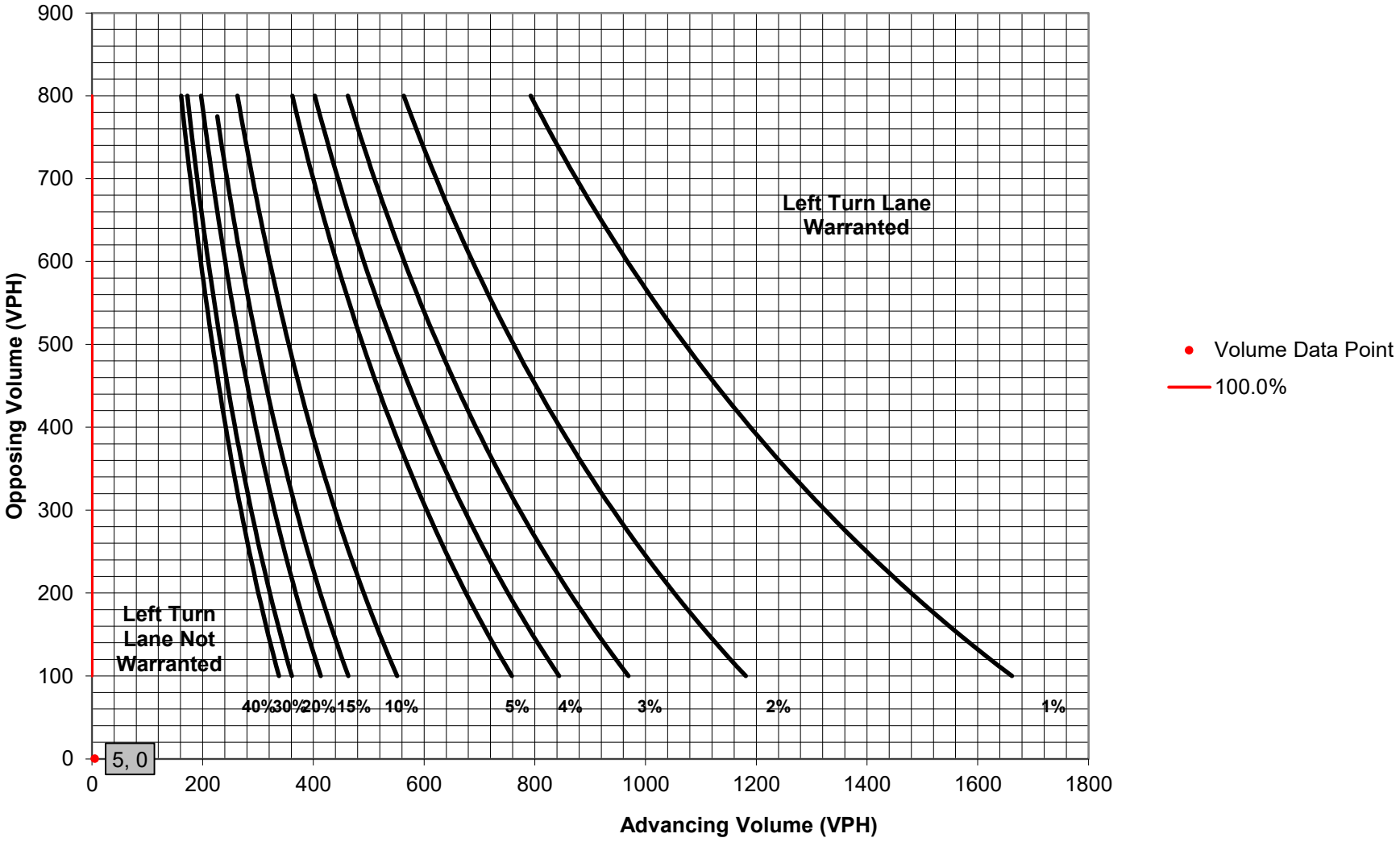
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	40	0.0%	40

Advancing Volume: 40
Right Turn Volume: 40

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

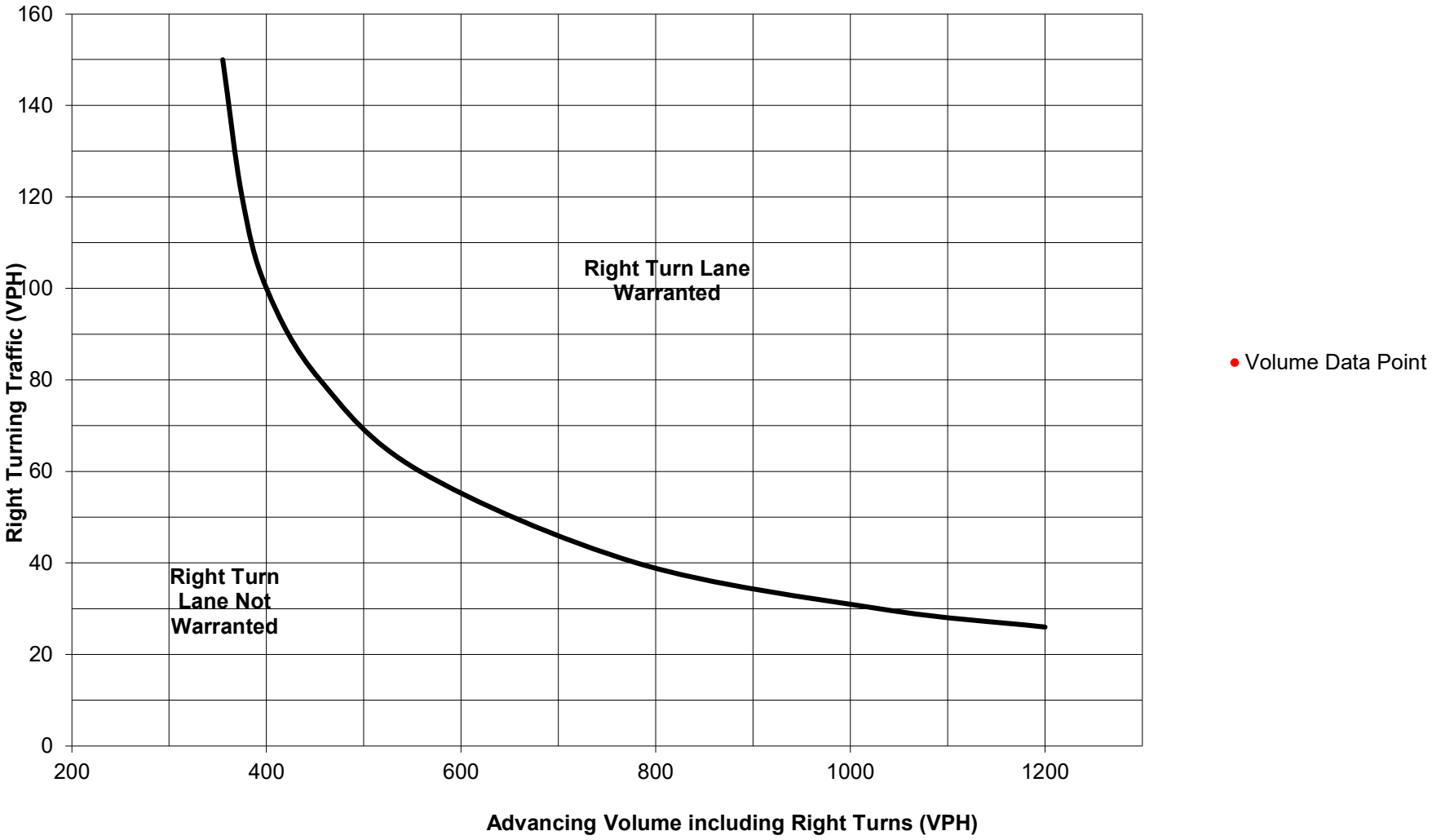
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	73	4.0%	78
	Through	-	0	0.0%	0
	Right	Yes	2	0.0%	2
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	80
Opposing Volume:	0
Left Turn Volume:	78
% Left Turns in Advancing Volume:	97.50%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	78
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

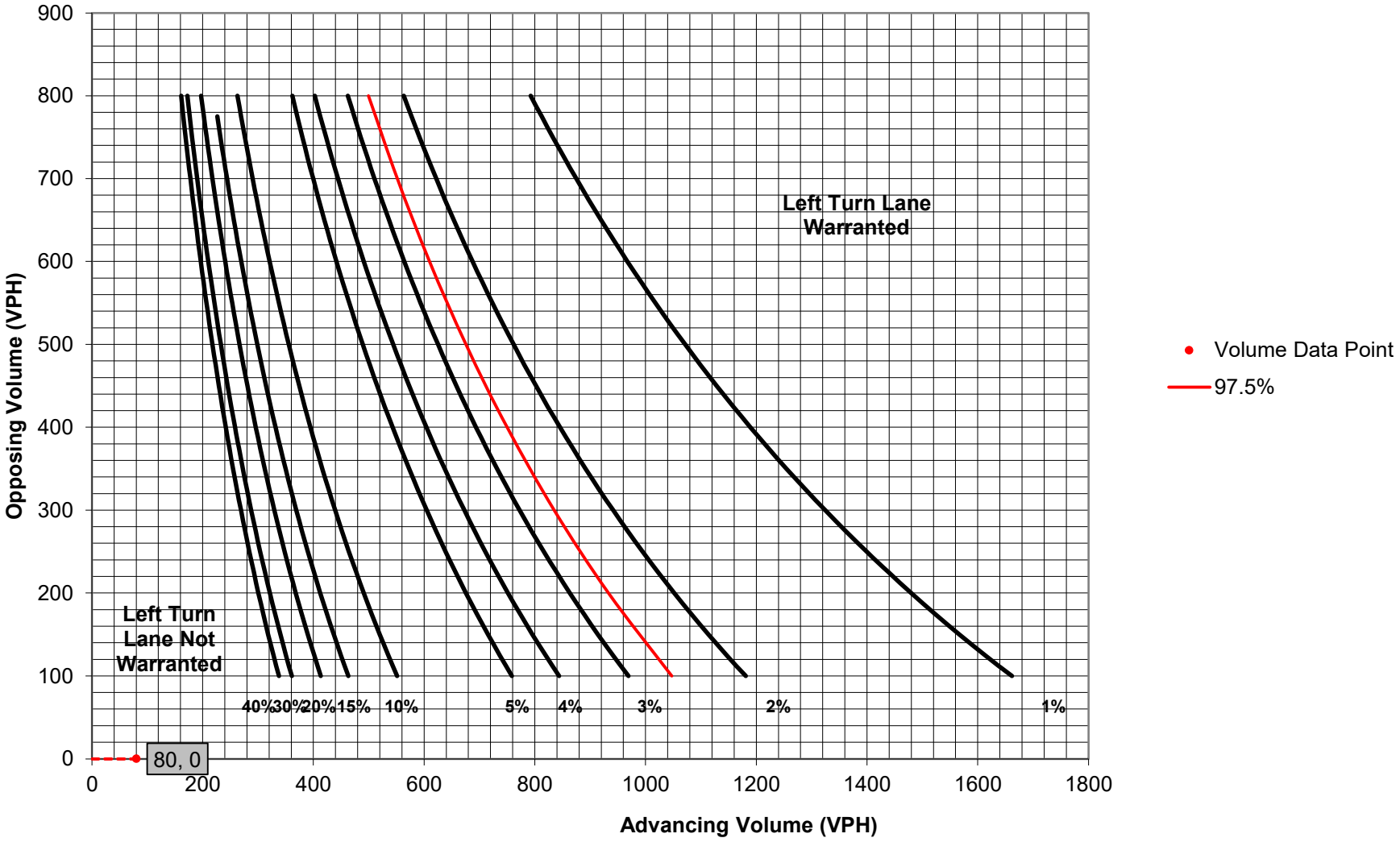
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	73	4.0%	78
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume: 80
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

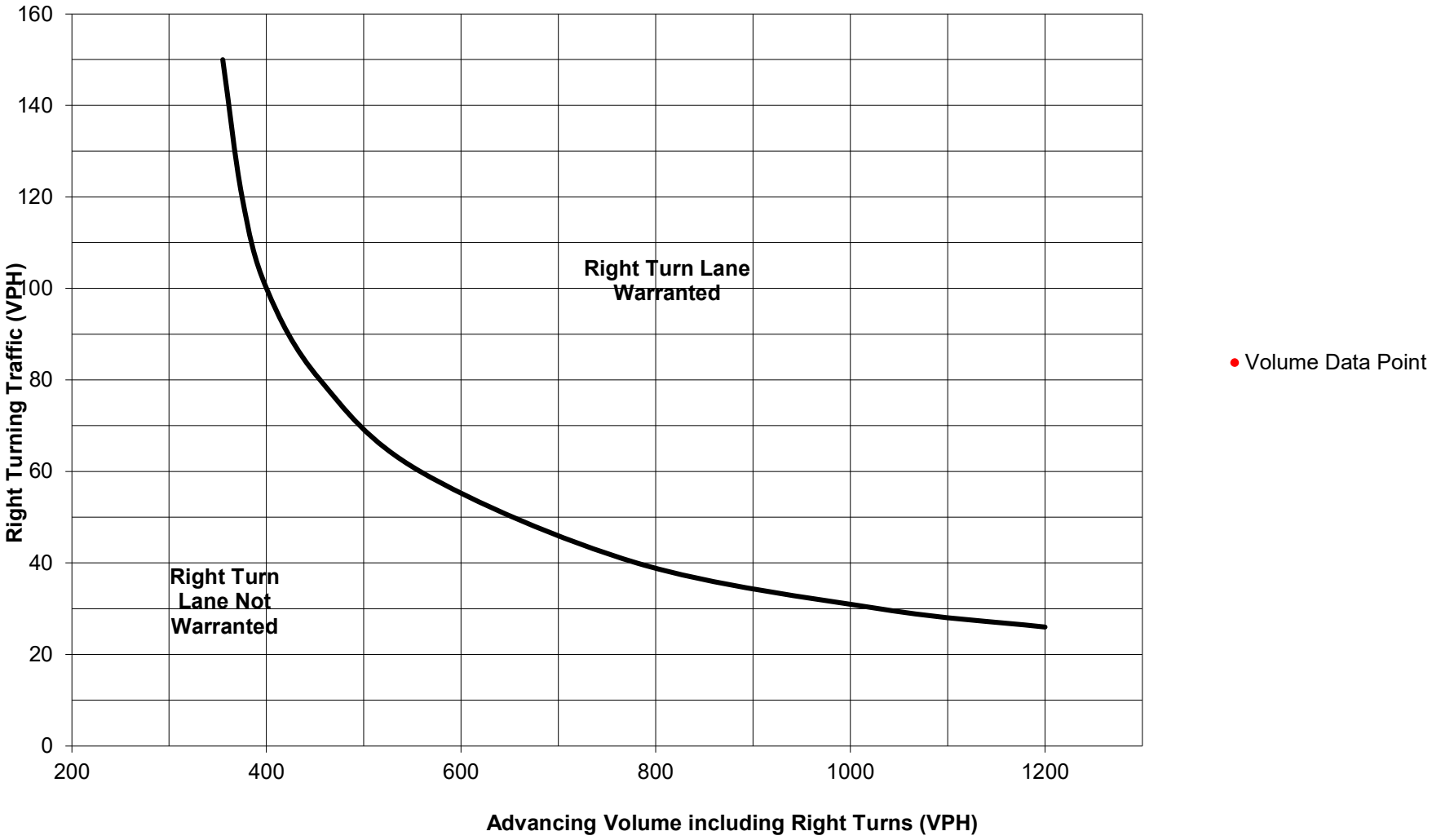
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	40	0.0%	N/A

Advancing Volume:	2
Opposing Volume:	0
Left Turn Volume:	2
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

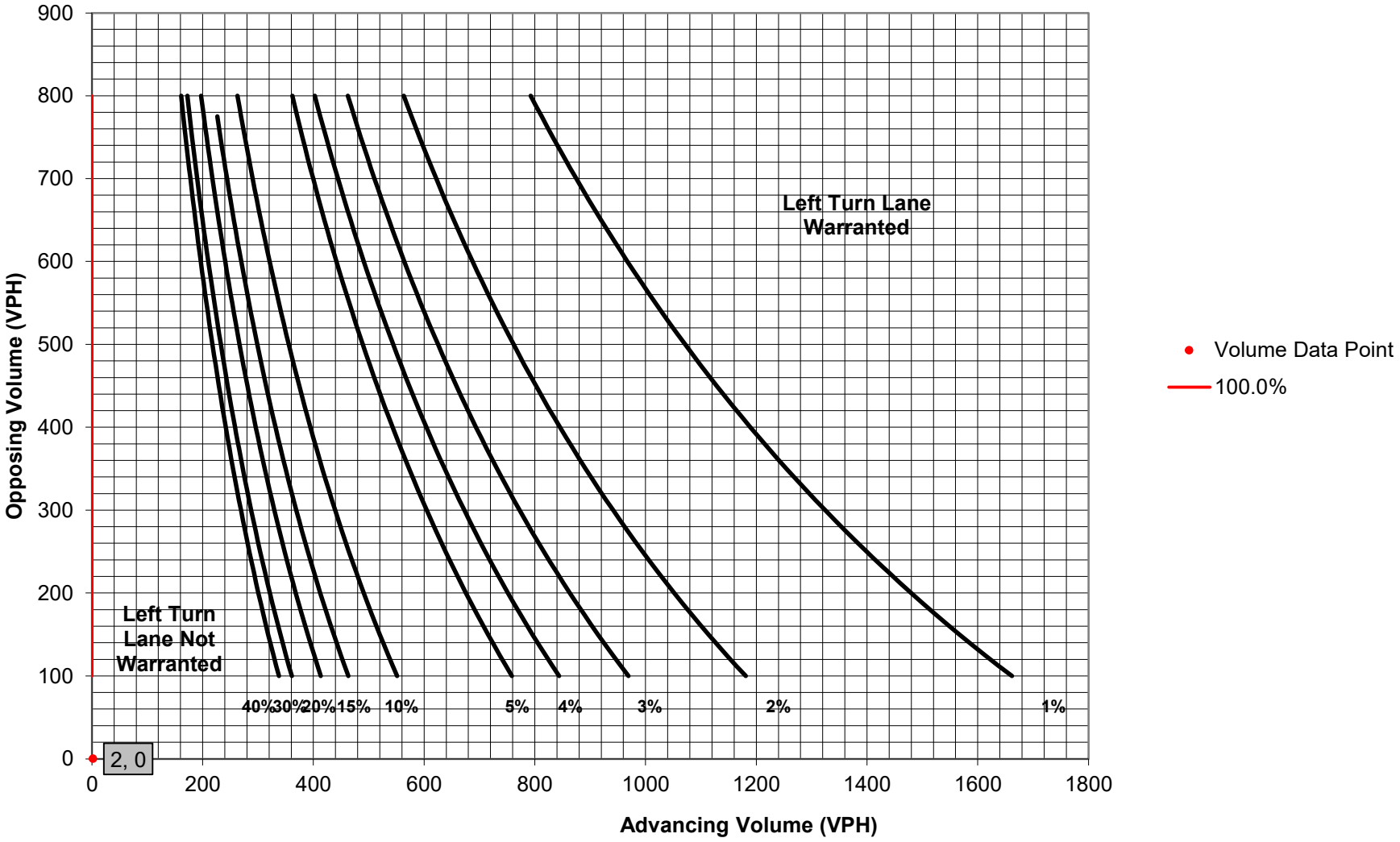
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	133	2.0%	137
	Right	No	252	7.0%	N/A
Opposing	Left	No	71	4.0%	N/A
	Through	-	80	3.0%	84
	Right	Yes	3	33.0%	5

Advancing Volume:	143
Opposing Volume:	89
Left Turn Volume:	6
% Left Turns in Advancing Volume:	4.20%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

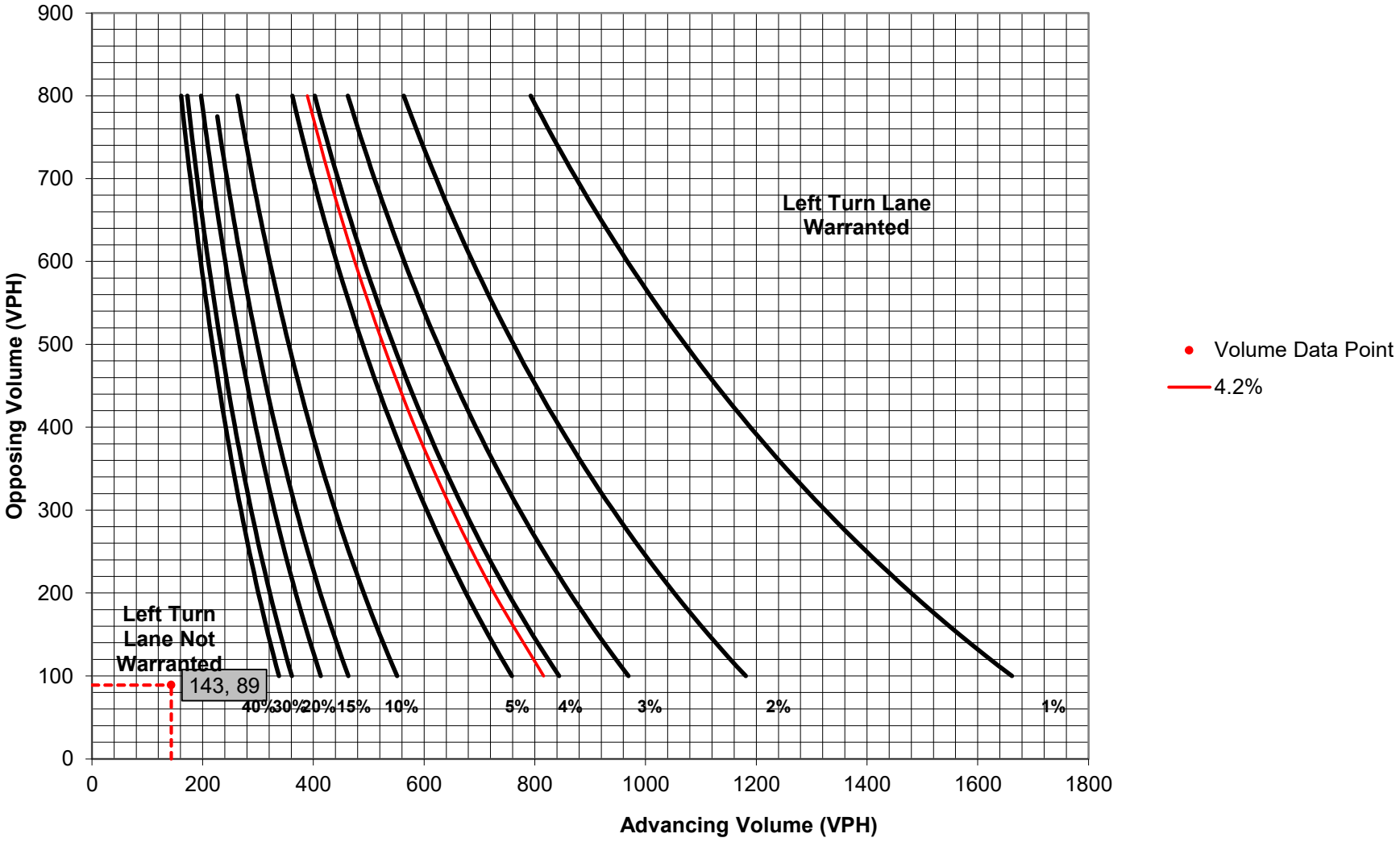
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	6	0.0%	N/A
	Through	-	133	2.0%	137
	Right	-	252	7.0%	279

Advancing Volume:	416
Right Turn Volume:	279

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	279
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

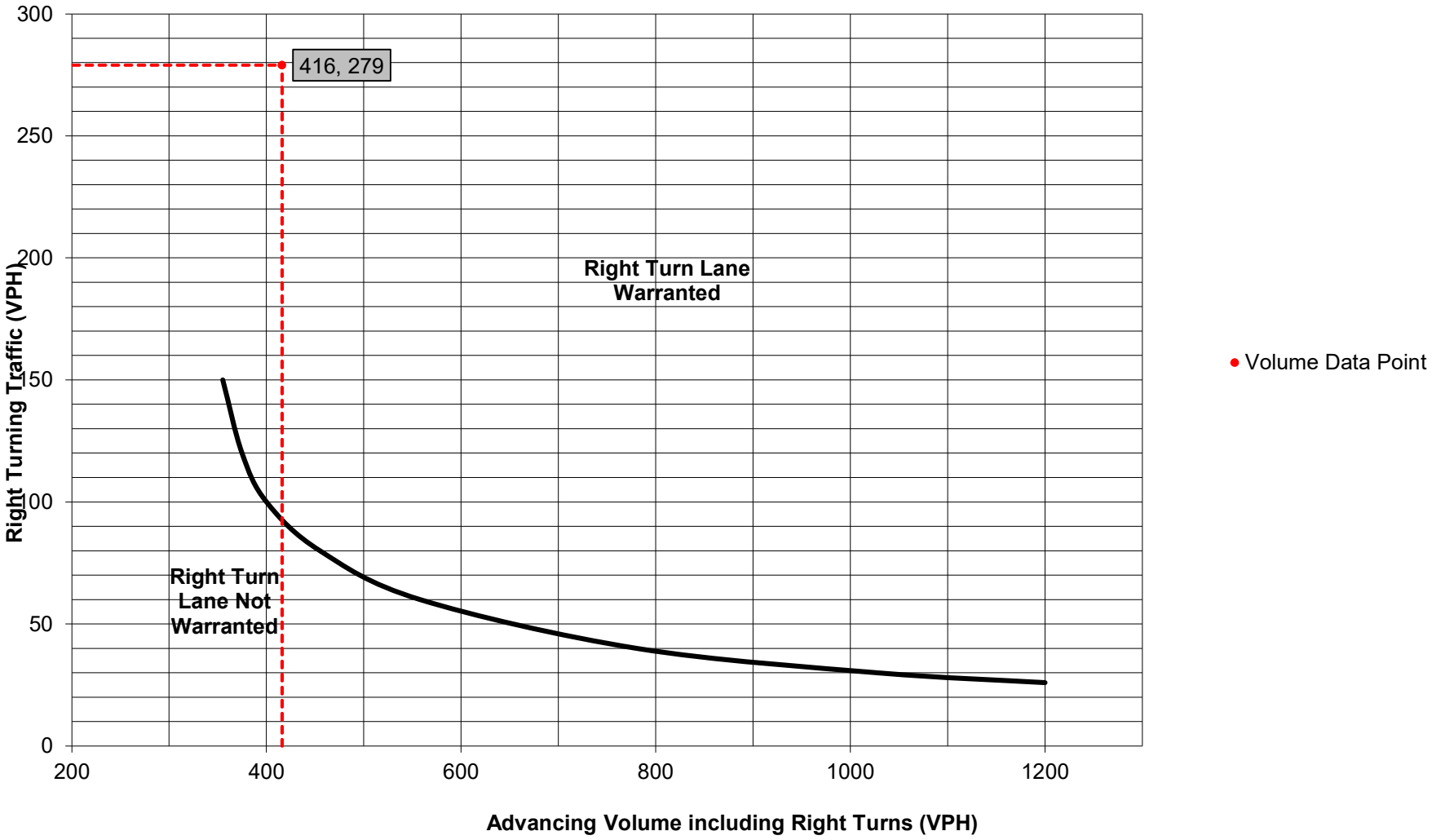
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	200	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	200	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	86	7.0%	96
	Through	-	0	0.0%	0
	Right	No	52	8.0%	N/A
Opposing	Left	No	8	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	12	8.0%	N/A

Advancing Volume:	96
Opposing Volume:	0
Left Turn Volume:	96
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	96
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

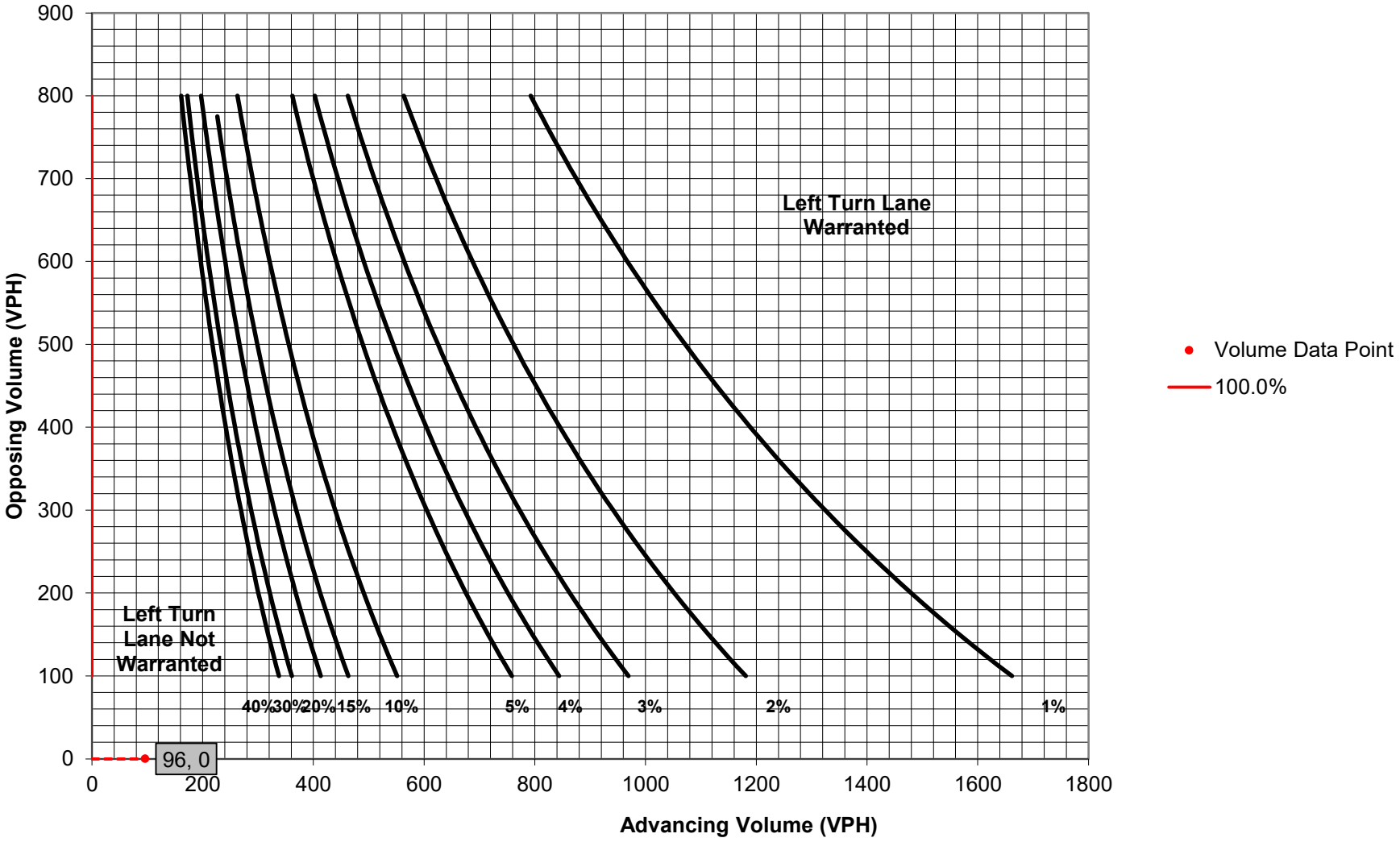
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	86	7.0%	N/A
	Through	-	0	0.0%	0
	Right	-	52	8.0%	59

Advancing Volume: 59
Right Turn Volume: 59

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	59
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

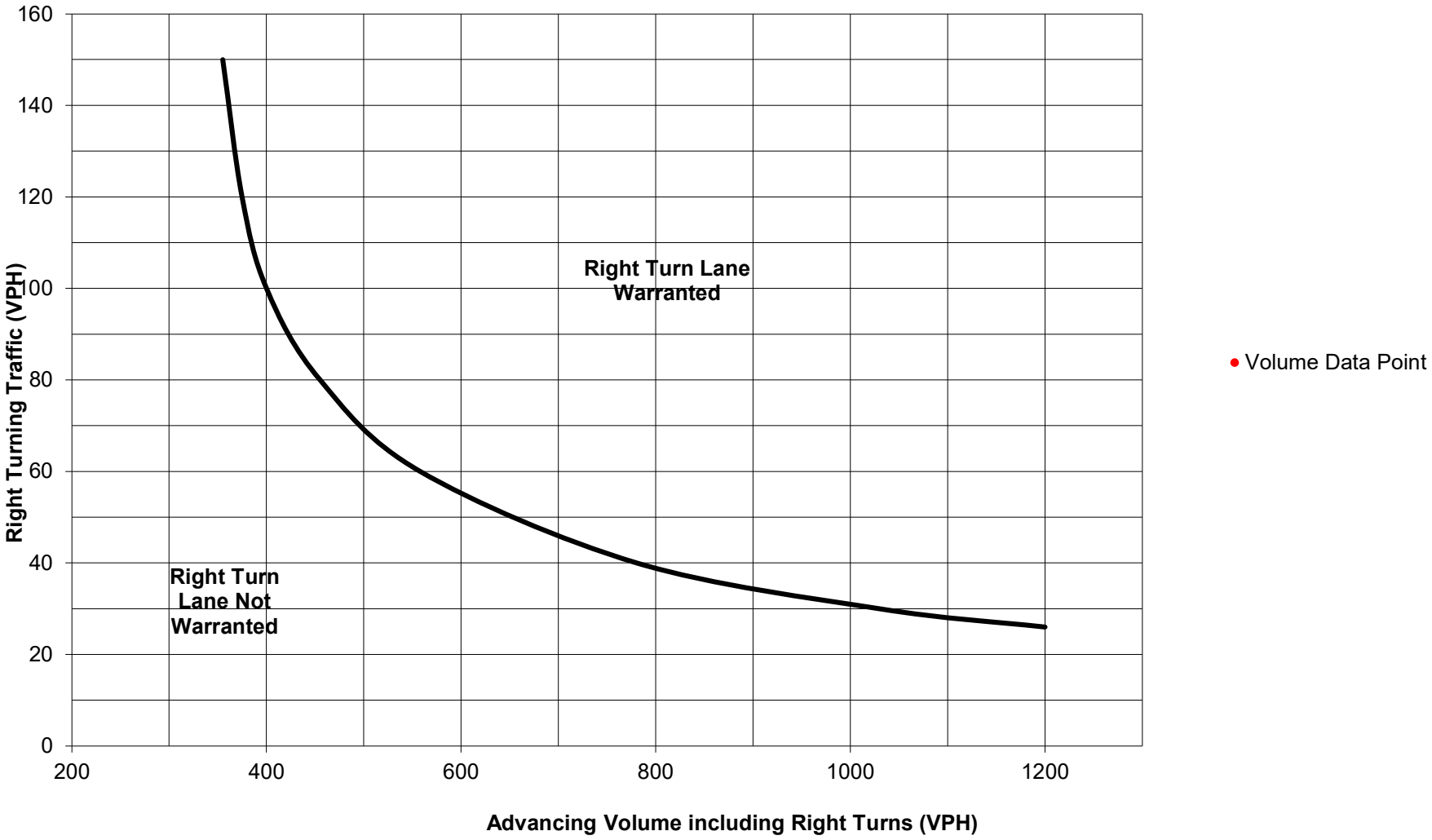
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	Yes	12	8.0%	14
Opposing	Left	No	86	7.0%	N/A
	Through	-	0	0.0%	0
	Right	No	52	8.0%	N/A

Advancing Volume:	22
Opposing Volume:	0
Left Turn Volume:	8
% Left Turns in Advancing Volume:	36.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

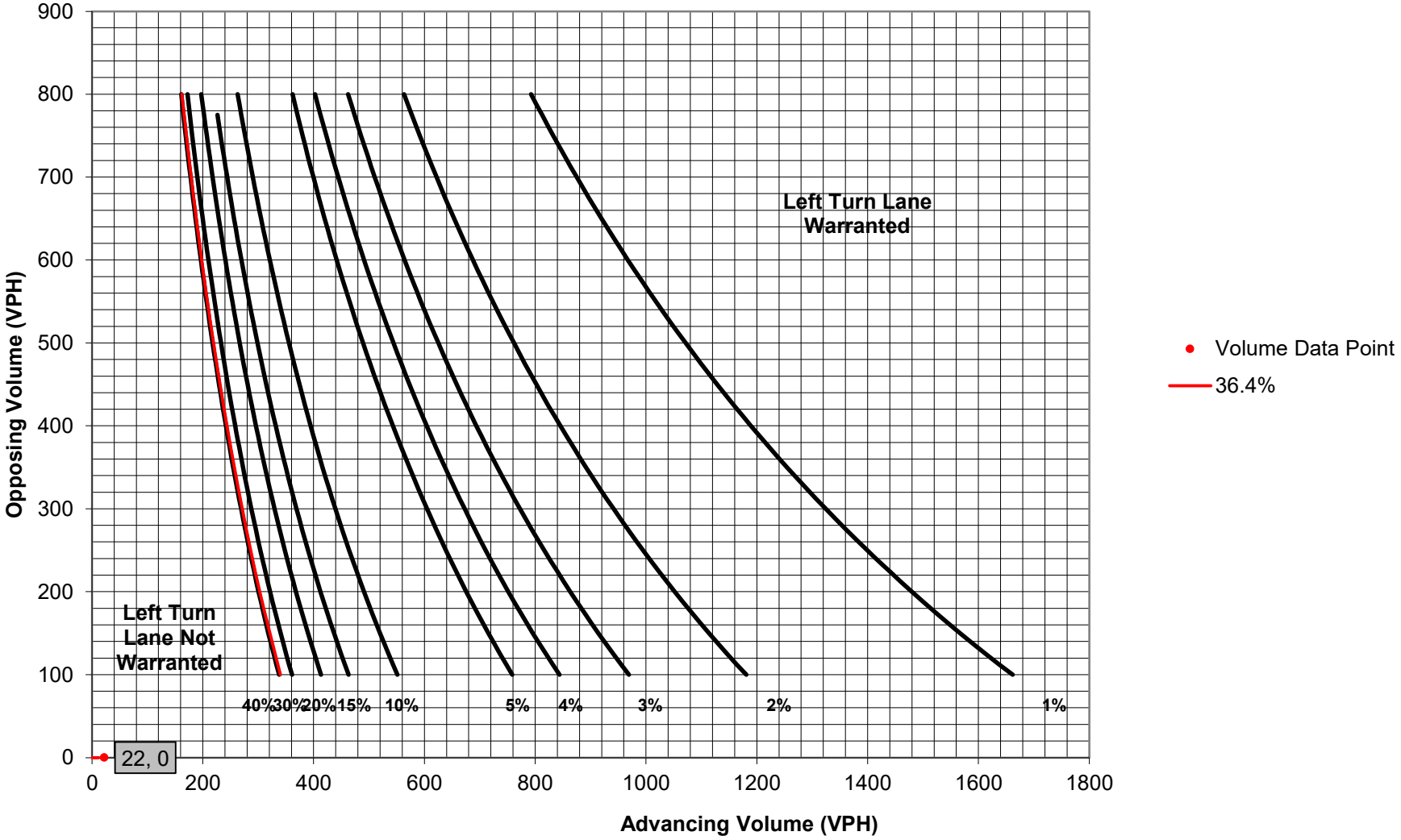
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	-	12	8.0%	14

Advancing Volume: 22
Right Turn Volume: 14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

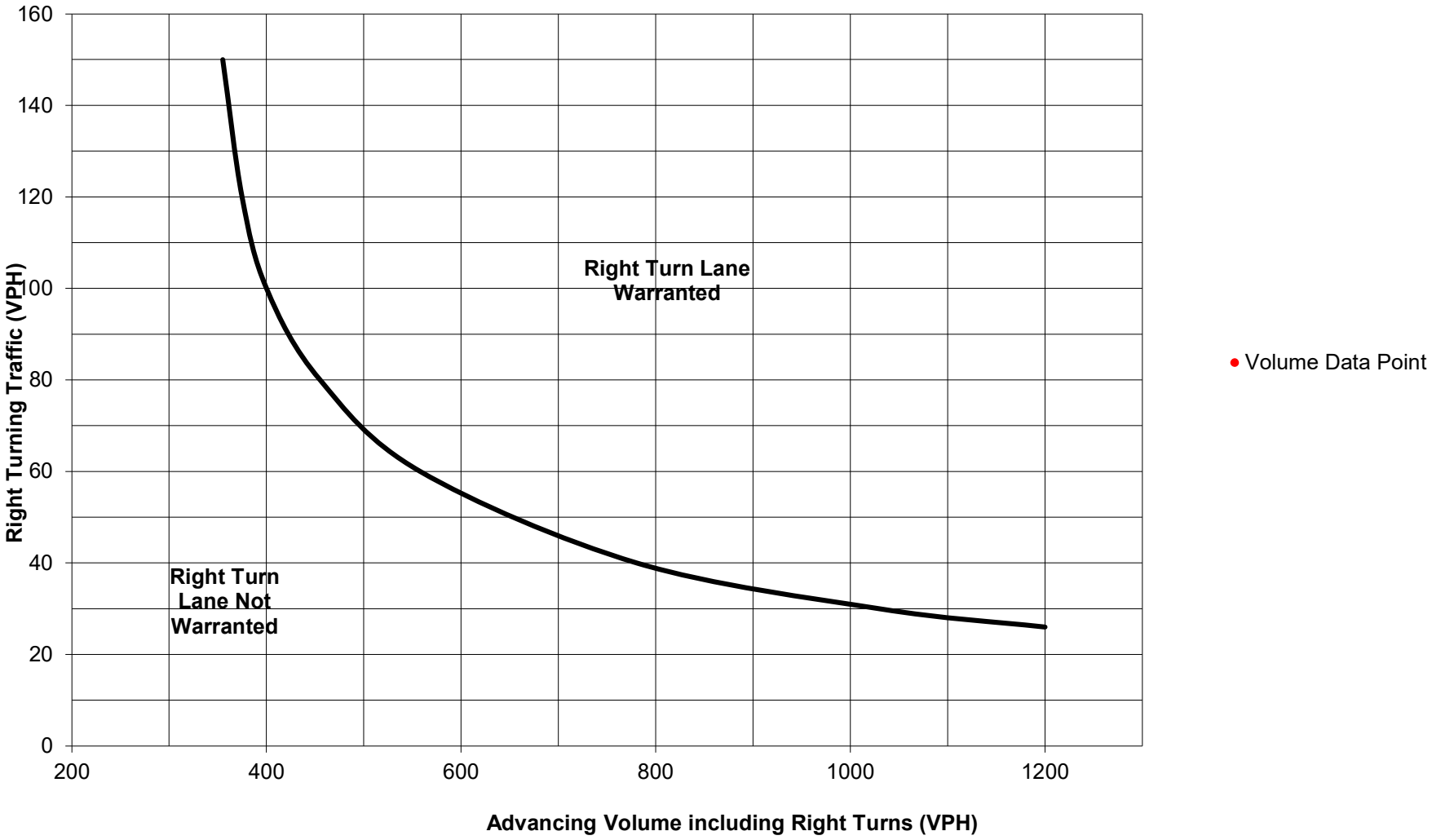
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	71	4.0%	76
	Through	-	80	3.0%	84
	Right	No	3	33.0%	N/A
Opposing	Left	No	6	0.0%	N/A
	Through	-	133	2.0%	137
	Right	No	252	7.0%	N/A

Advancing Volume:	160
Opposing Volume:	137
Left Turn Volume:	76
% Left Turns in Advancing Volume:	47.50%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	76
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

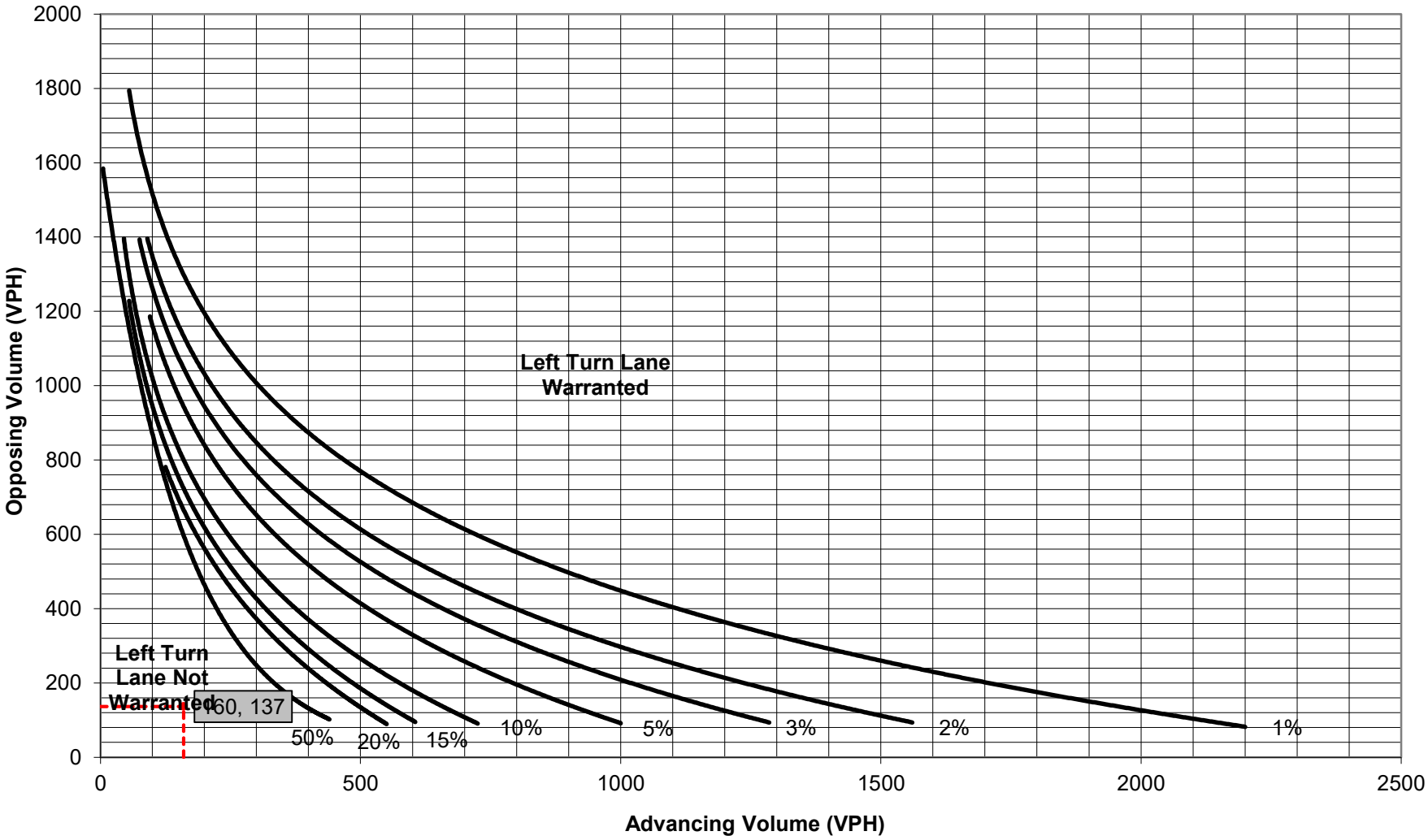
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	71	4.0%	N/A
	Through	-	80	3.0%	84
	Right	-	3	33.0%	5

Advancing Volume: 89
Right Turn Volume: 5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

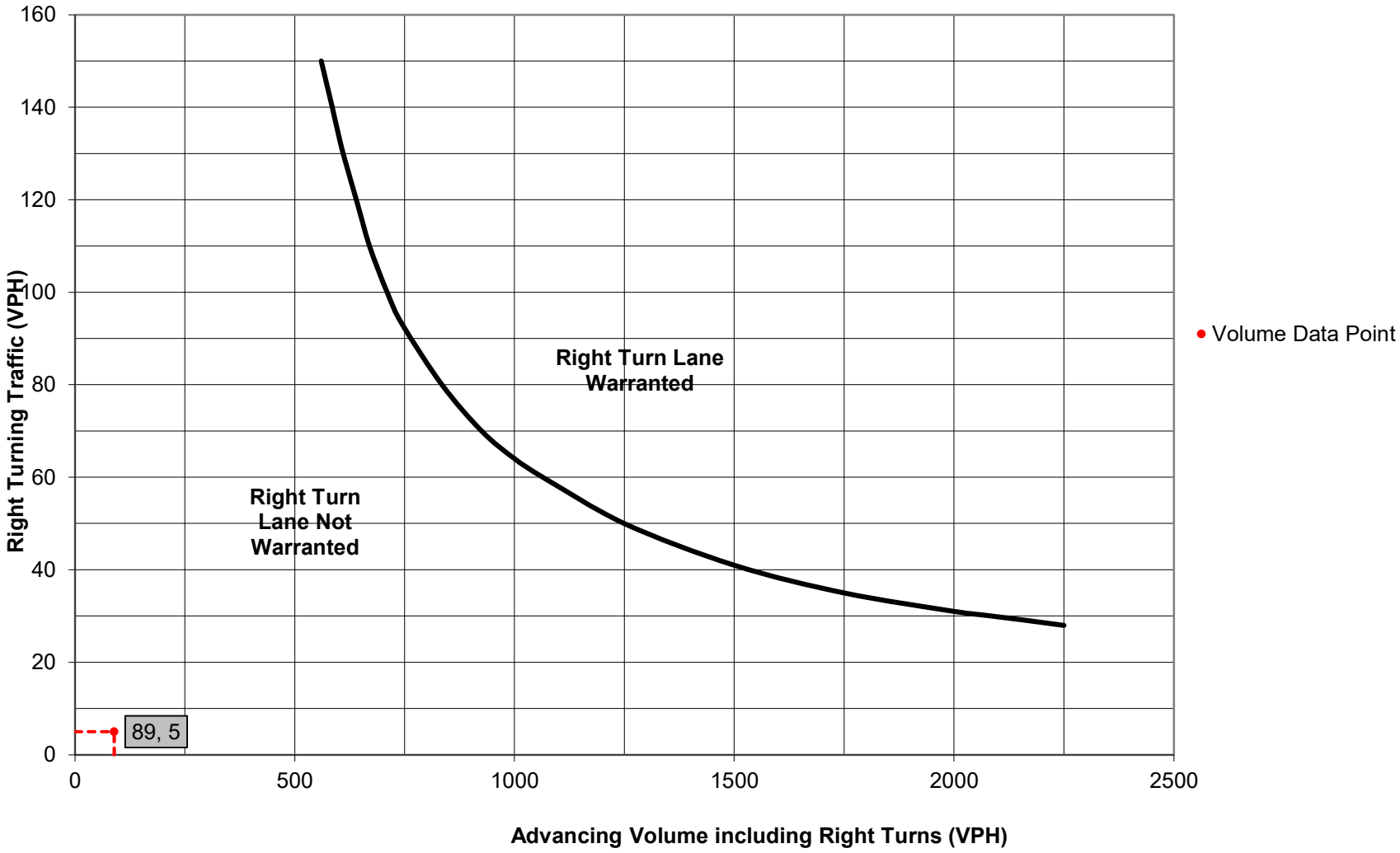
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	13	0.0%	13
	Through	-	269	2.0%	278
	Right	No	76	17.0%	N/A
Opposing	Left	No	32	6.0%	N/A
	Through	-	296	1.0%	301
	Right	Yes	44	0.0%	44

Advancing Volume:	291
Opposing Volume:	345
Left Turn Volume:	13
% Left Turns in Advancing Volume:	4.47%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	13
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

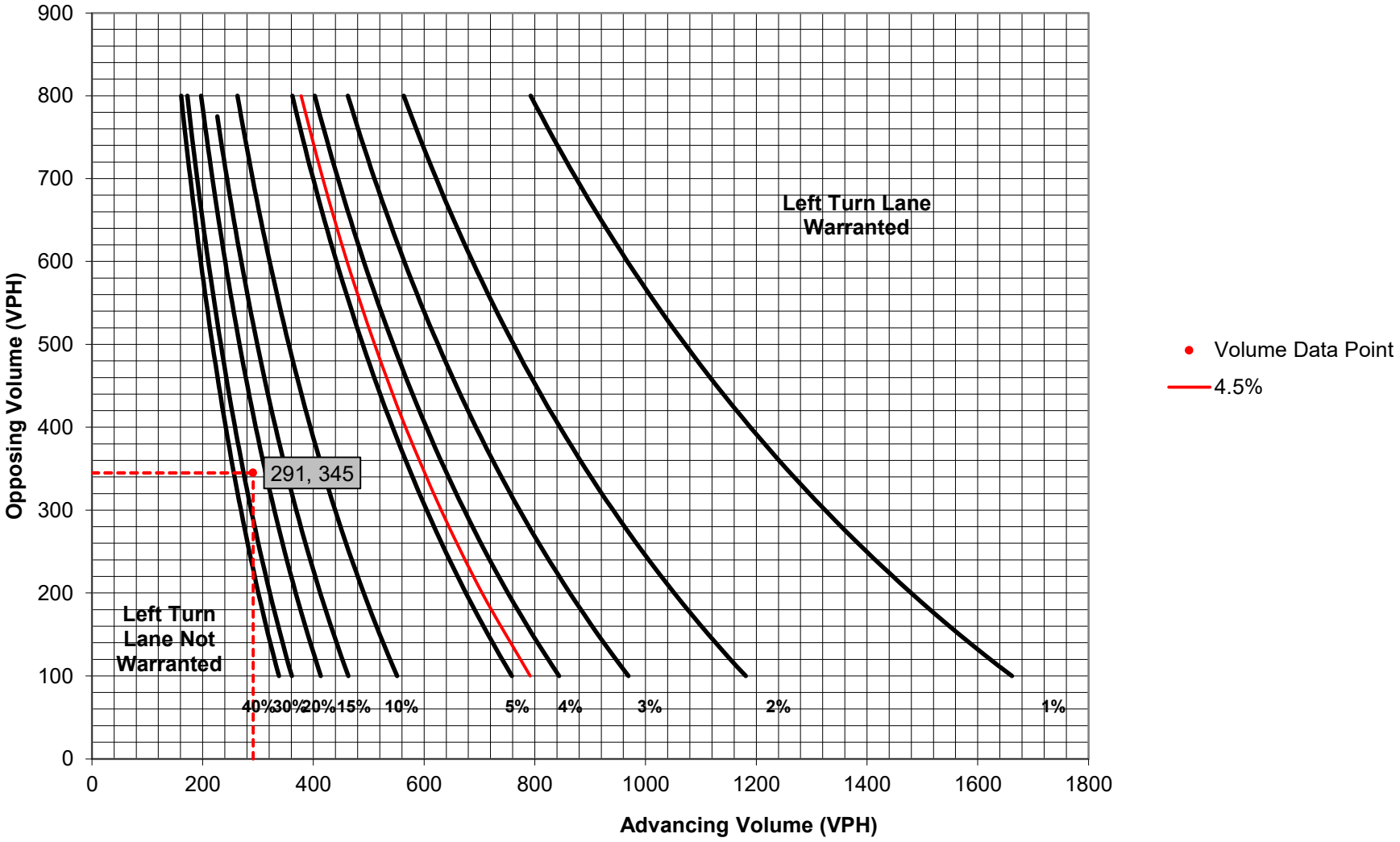
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	13	0.0%	N/A
	Through	-	269	2.0%	278
	Right	-	76	17.0%	96

Advancing Volume:	374
Right Turn Volume:	96

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	96
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

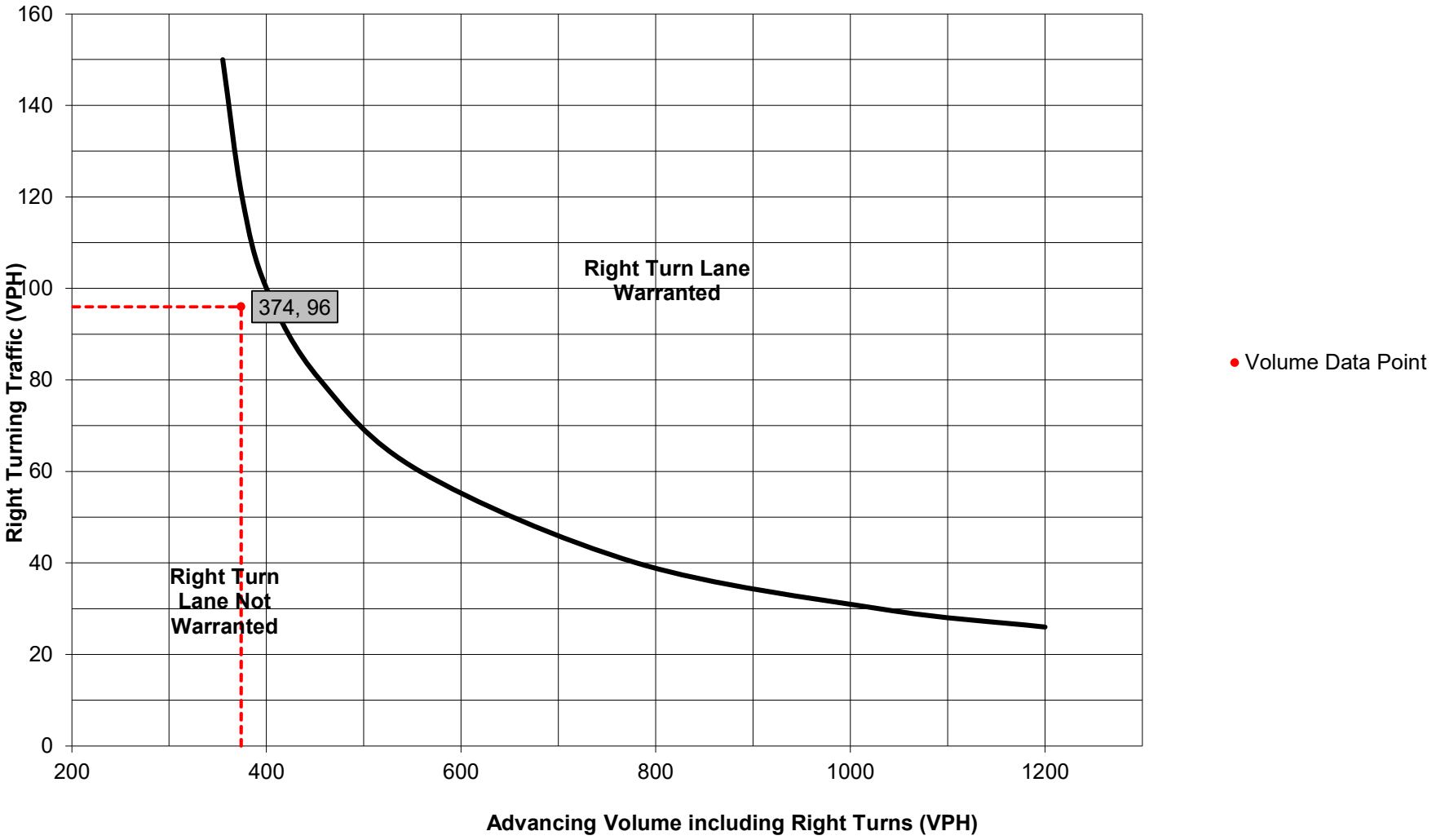
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	243	8.0%	273
	Through	-	1	0.0%	1
	Right	No	157	2.0%	N/A
Opposing	Left	No	26	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	30	0.0%	N/A

Advancing Volume:	274
Opposing Volume:	0
Left Turn Volume:	273
% Left Turns in Advancing Volume:	99.64%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	273
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

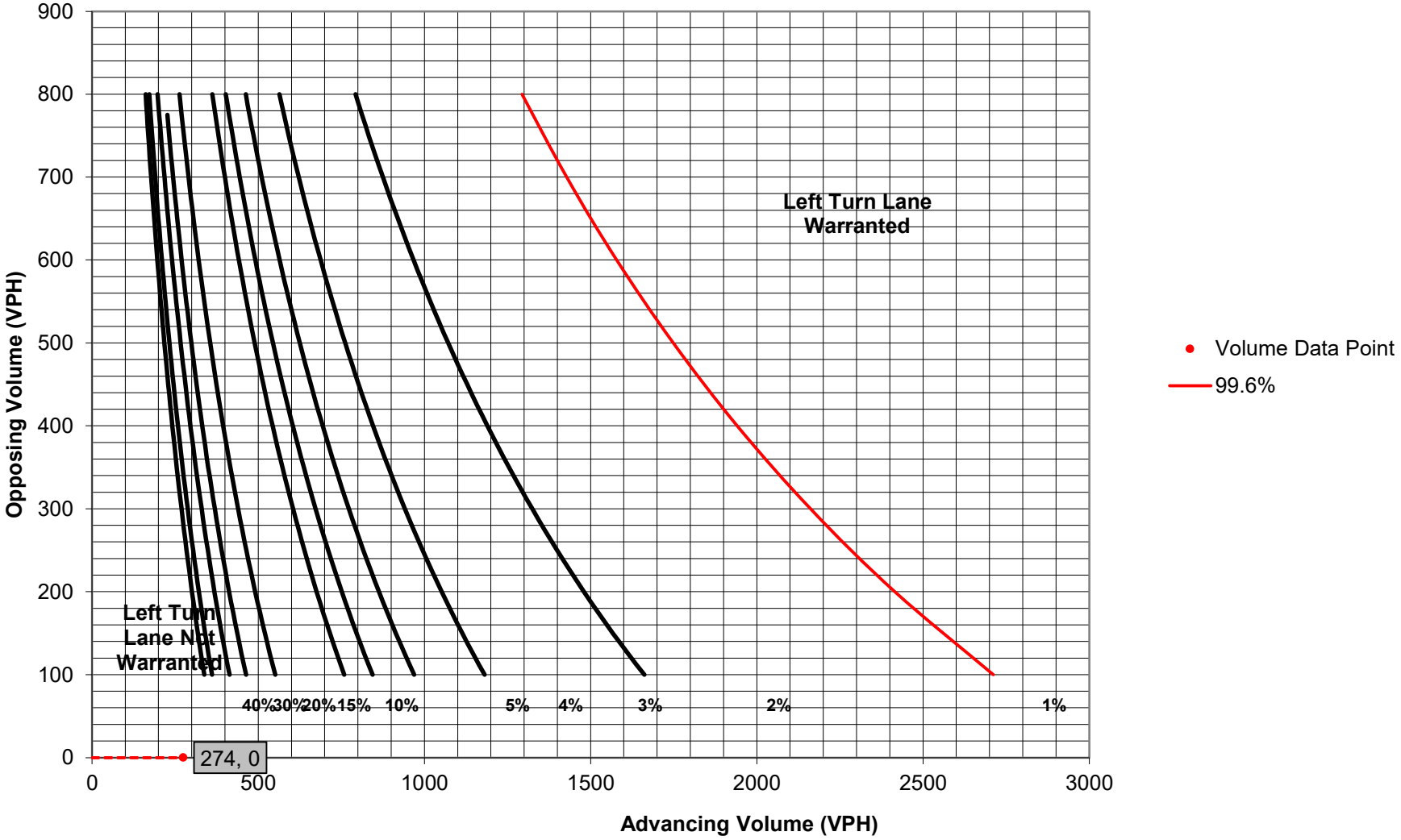
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	243	8.0%	N/A
	Through	-	1	0.0%	1
	Right	-	157	2.0%	162

Advancing Volume:	163
Right Turn Volume:	162

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	162
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

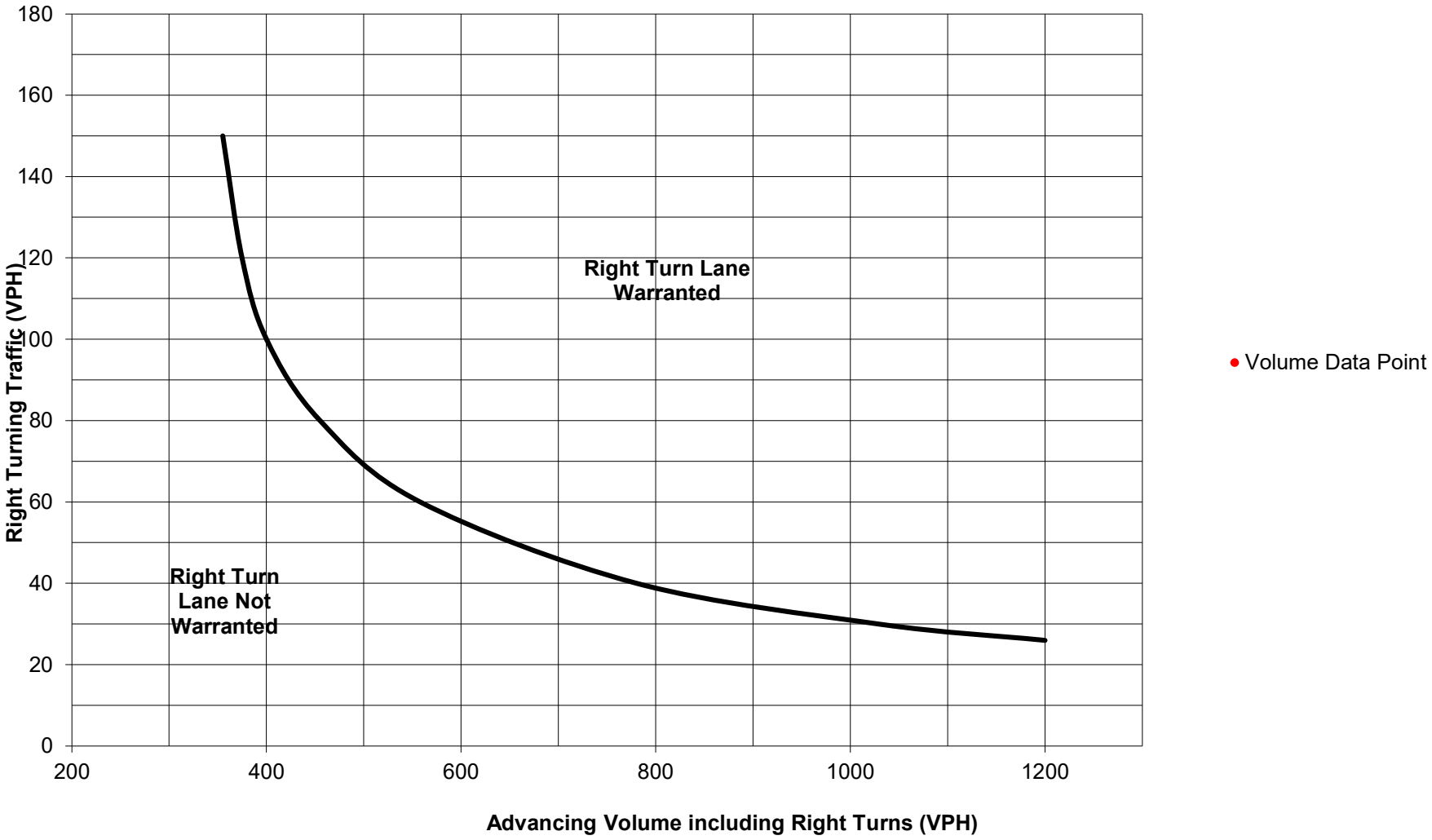
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	26	0.0%	26
	Through	-	0	0.0%	0
	Right	Yes	30	0.0%	30
Opposing	Left	No	243	8.0%	N/A
	Through	-	1	0.0%	1
	Right	No	157	2.0%	N/A

Advancing Volume:	56
Opposing Volume:	1
Left Turn Volume:	26
% Left Turns in Advancing Volume:	46.43%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

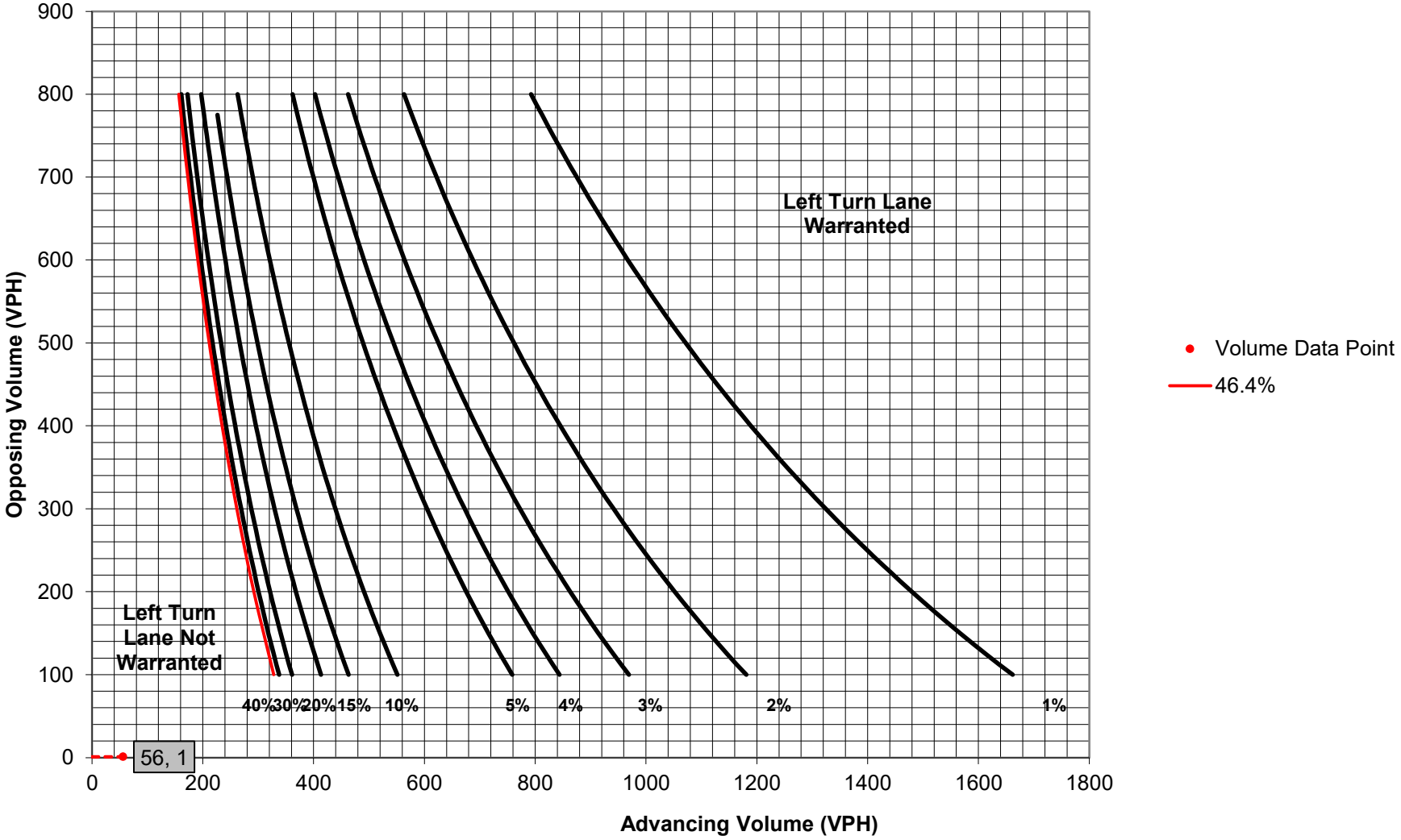
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	26	0.0%	26
	Through	-	0	0.0%	0
	Right	-	30	0.0%	30

Advancing Volume: 56
Right Turn Volume: 30

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

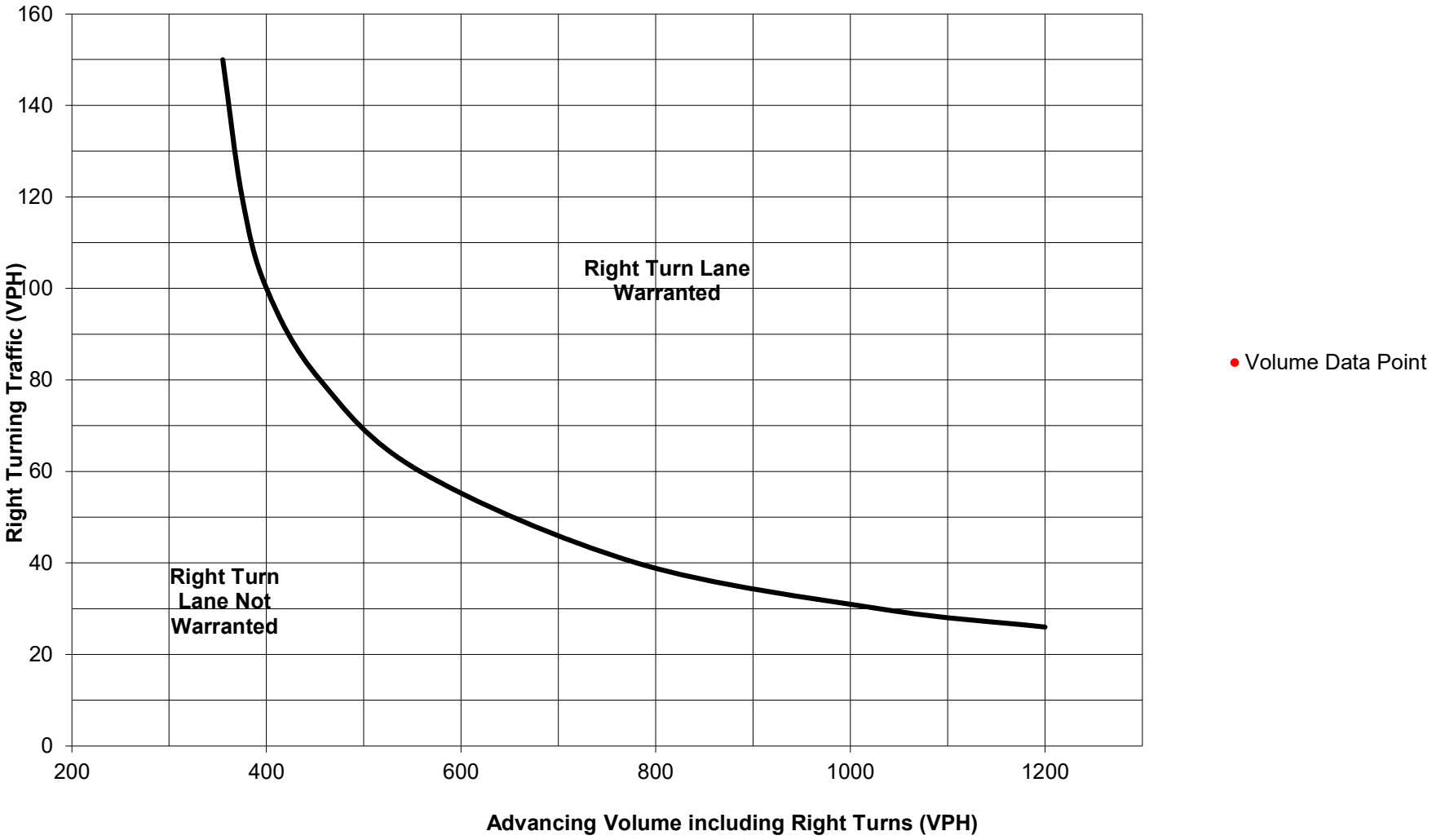
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	32	6.0%	35
	Through	-	296	1.0%	301
	Right	No	44	0.0%	N/A
Opposing	Left	No	13	0.0%	N/A
	Through	-	269	2.0%	278
	Right	No	76	17.0%	N/A

Advancing Volume:	336
Opposing Volume:	278
Left Turn Volume:	35
% Left Turns in Advancing Volume:	10.42%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	35
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

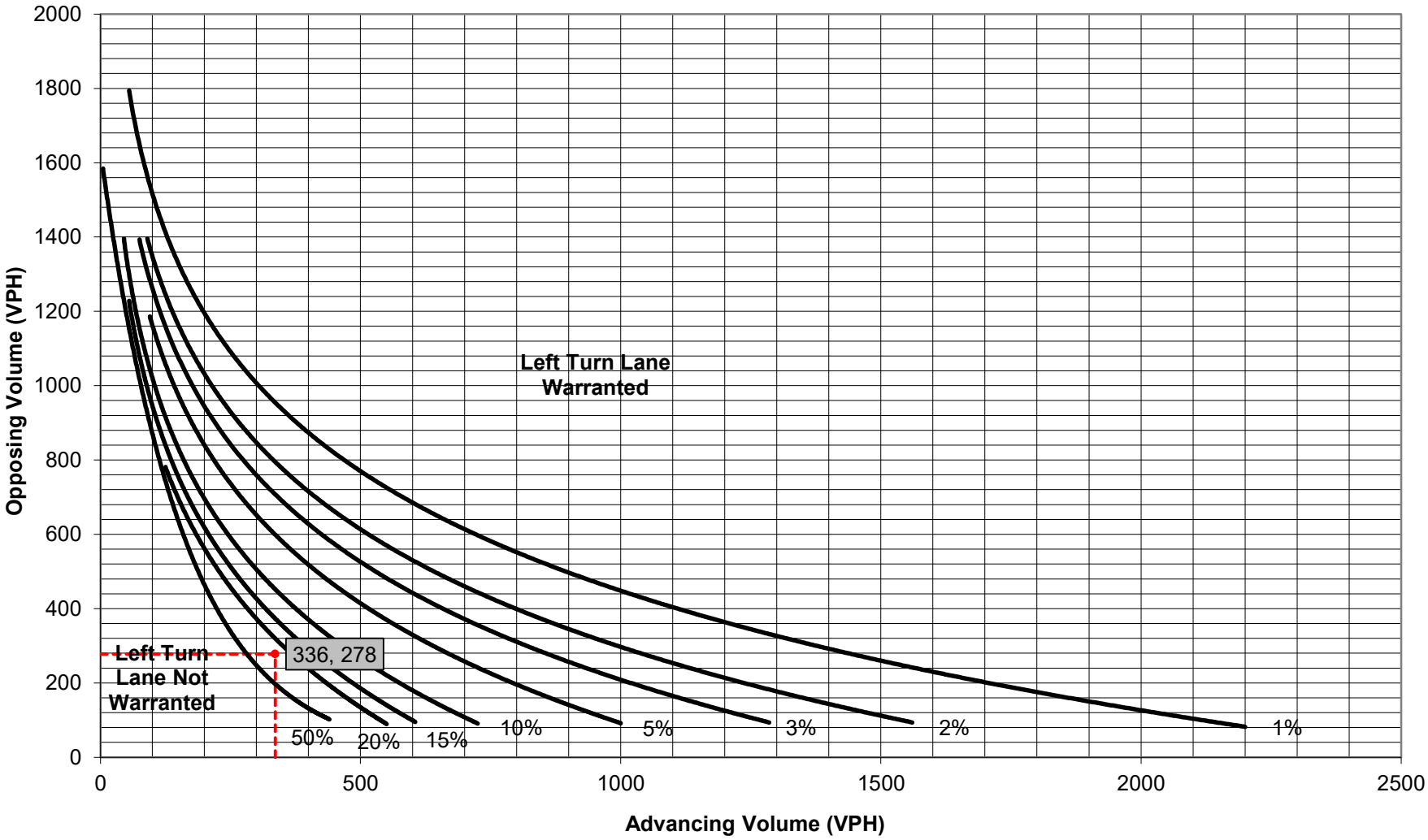
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	32	6.0%	N/A
	Through	-	296	1.0%	301
	Right	-	44	0.0%	44

Advancing Volume: 345
Right Turn Volume: 44

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	44
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

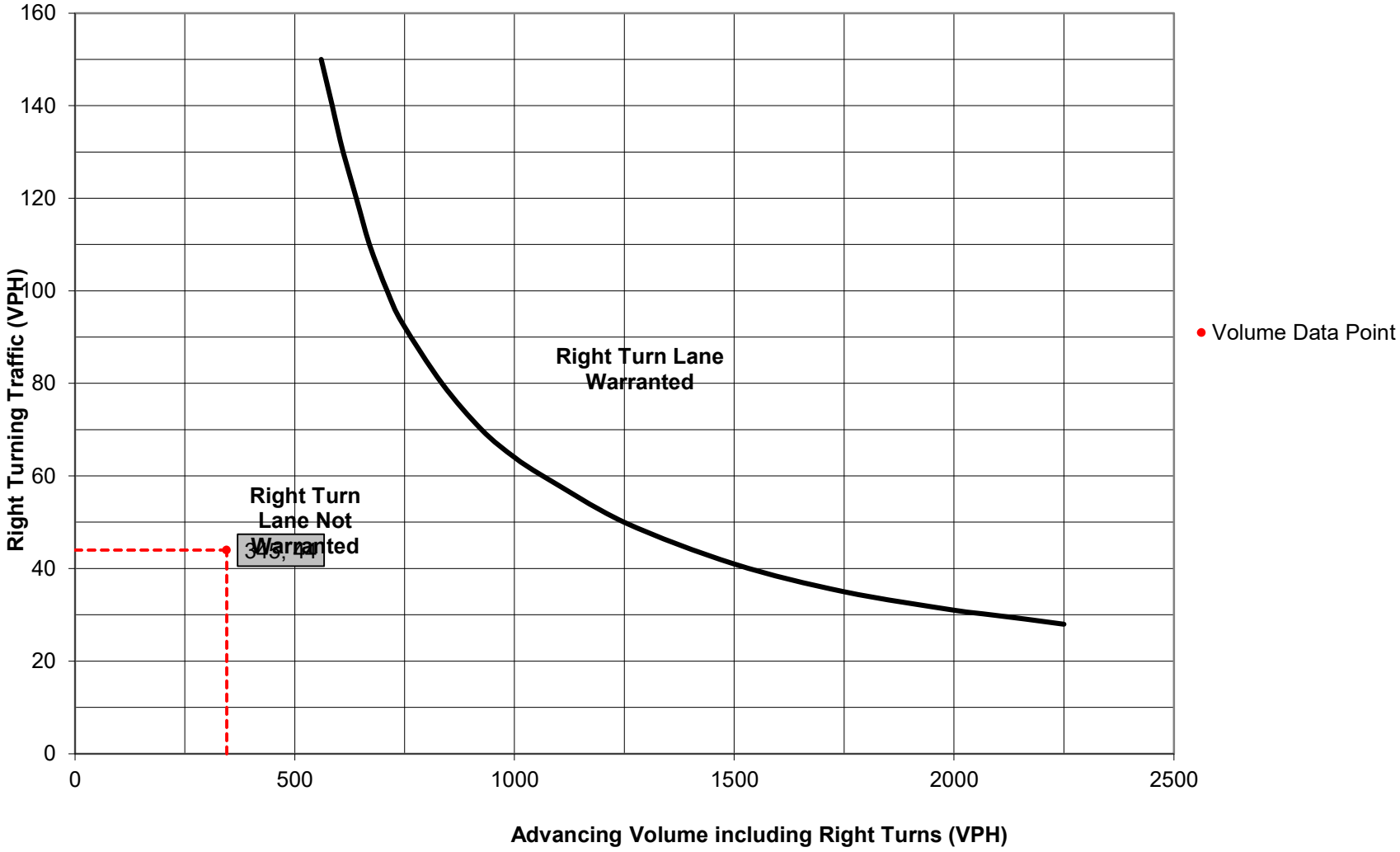
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	5.0%	21
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	8	25.0%	11

Advancing Volume: 28
Opposing Volume: 13
Left Turn Volume: 21
% Left Turns in Advancing Volume: 75.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	21
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

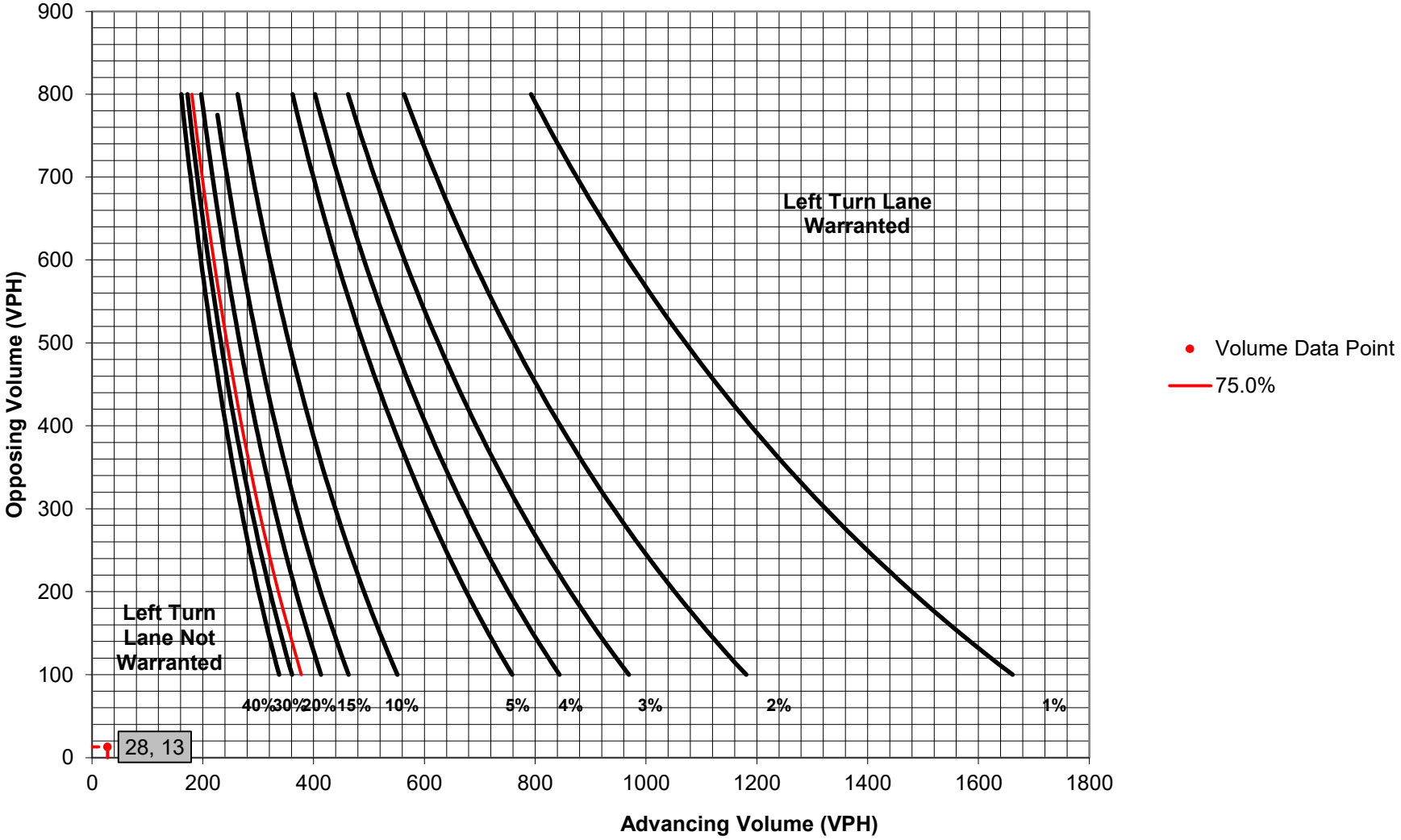
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	5.0%	21
	Through	-	3	0.0%	3
	Right	-	4	0.0%	4

Advancing Volume: 28
Right Turn Volume: 4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

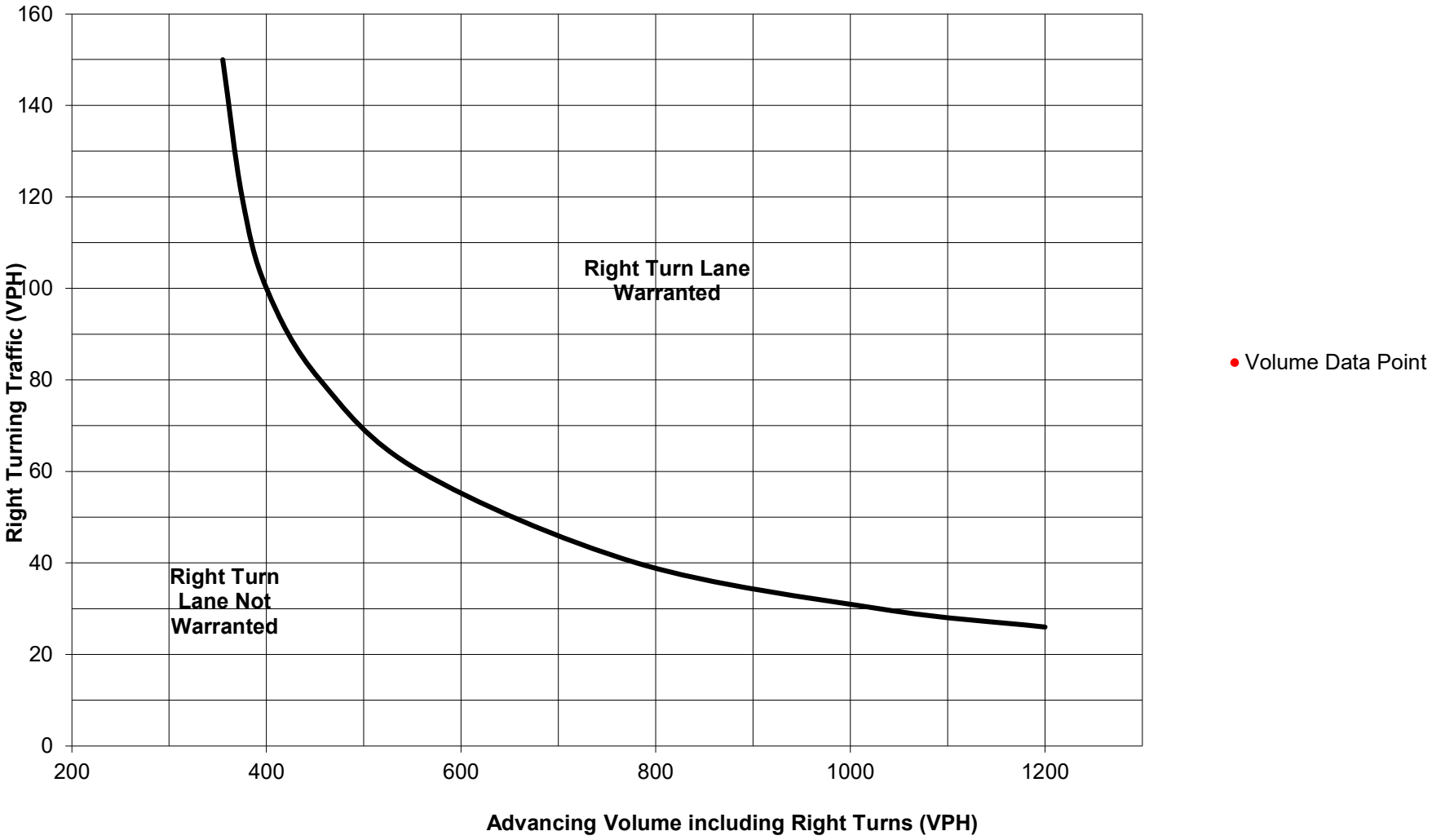
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	115	7.0%	128
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	6	17.0%	8
	Through	-	288	6.0%	314
	Right	Yes	19	11.0%	23

Advancing Volume:	131
Opposing Volume:	345
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.29%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

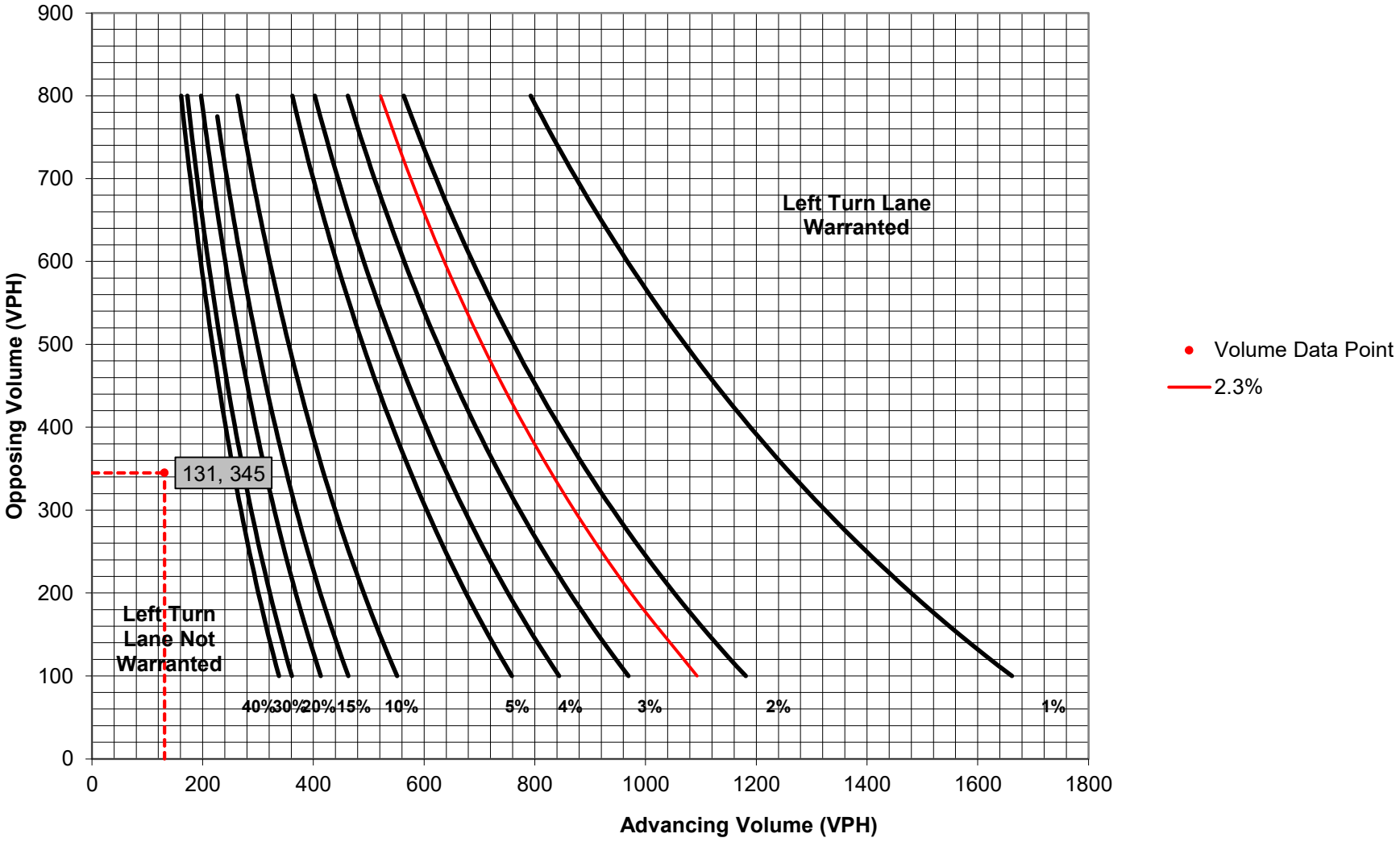
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	115	7.0%	128
	Right	-	0	0.0%	0

Advancing Volume: 131
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

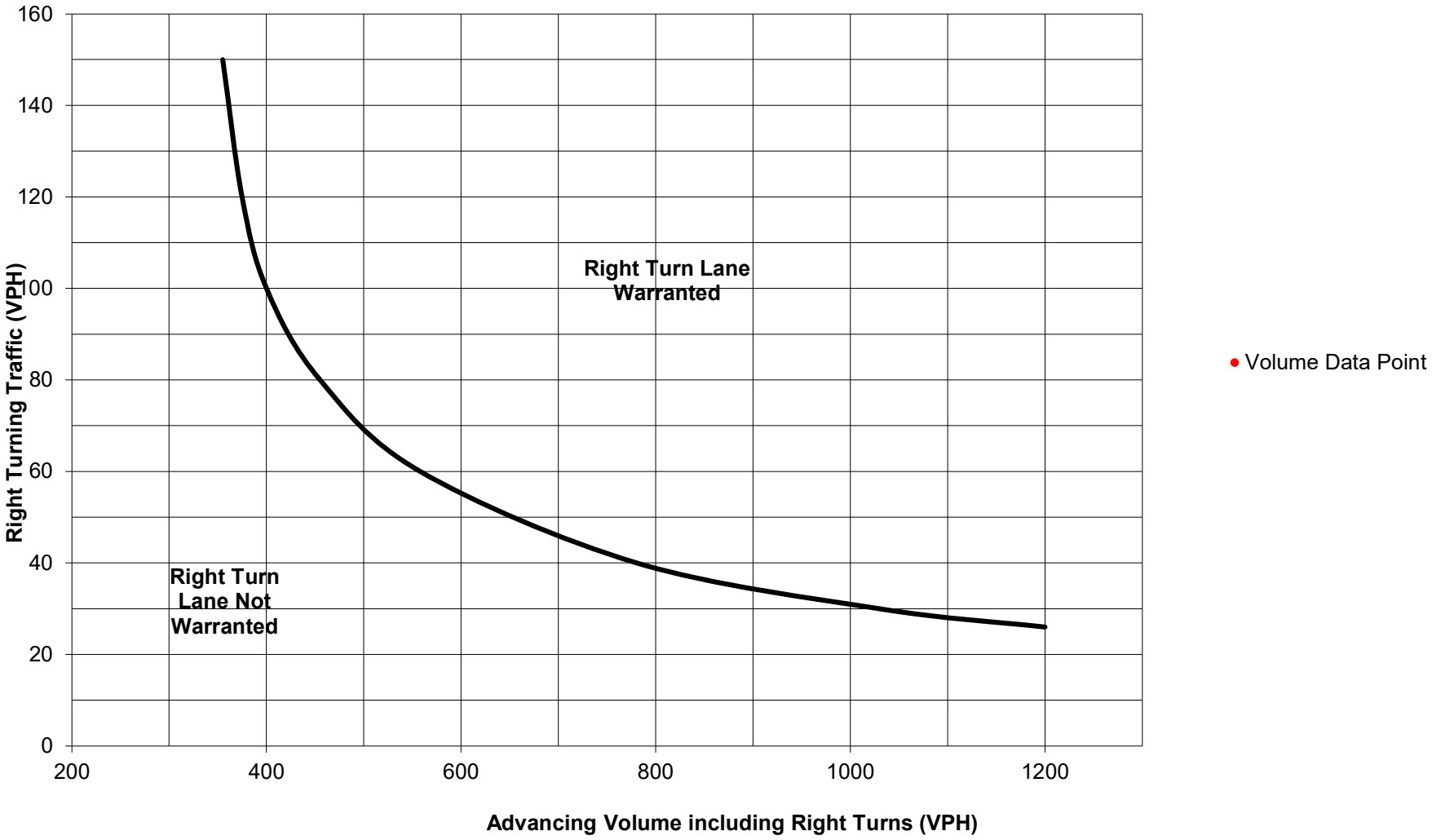
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	8
	Through	-	288	6.0%	314
	Right	Yes	19	11.0%	23
Opposing	Left	Yes	3	0.0%	3
	Through	-	115	7.0%	128
	Right	Yes	0	0.0%	0

Advancing Volume:	345
Opposing Volume:	131
Left Turn Volume:	8
% Left Turns in Advancing Volume:	2.32%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

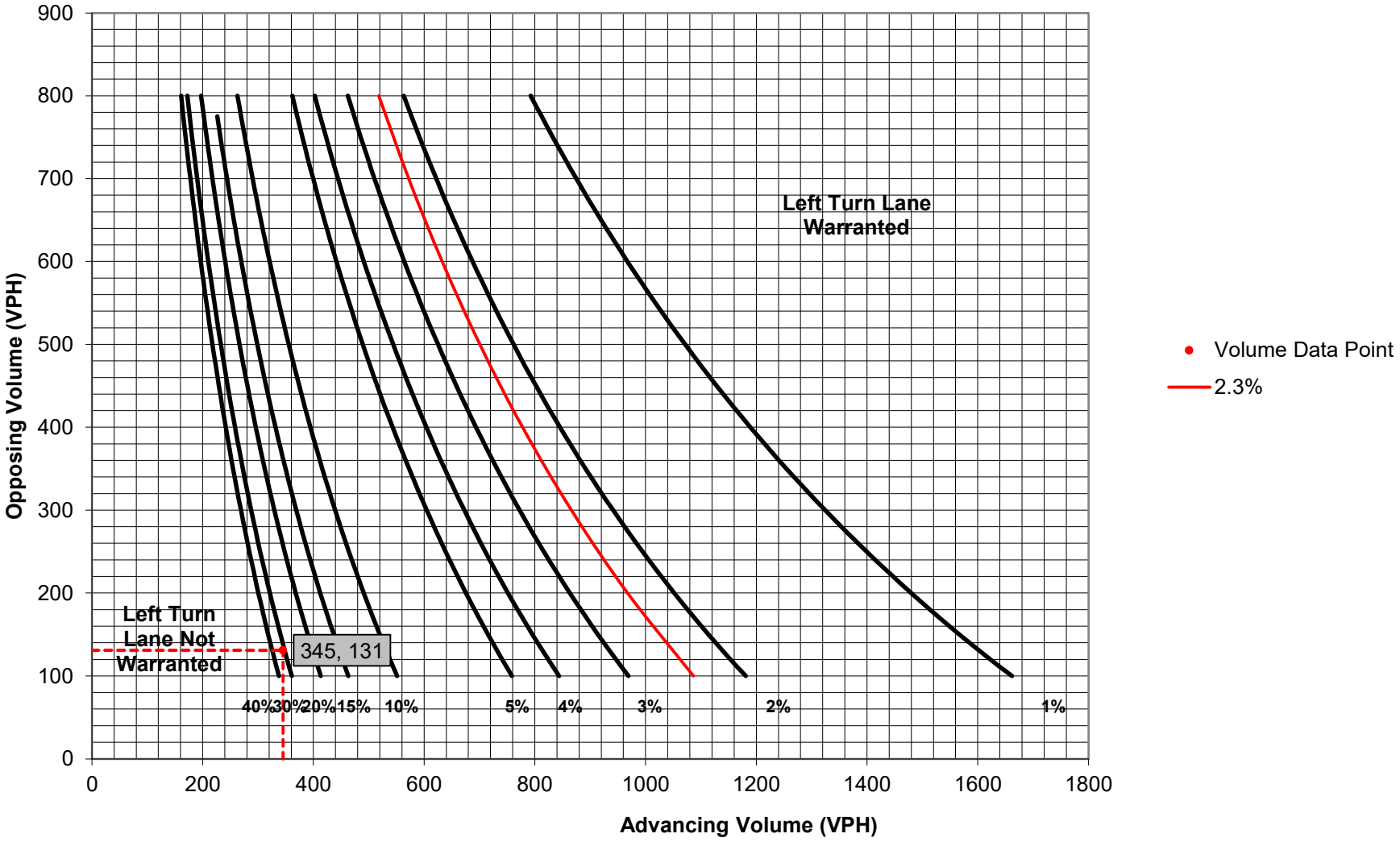
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	8
	Through	-	288	6.0%	314
	Right	-	19	11.0%	23

Advancing Volume: 345
Right Turn Volume: 23

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	23
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

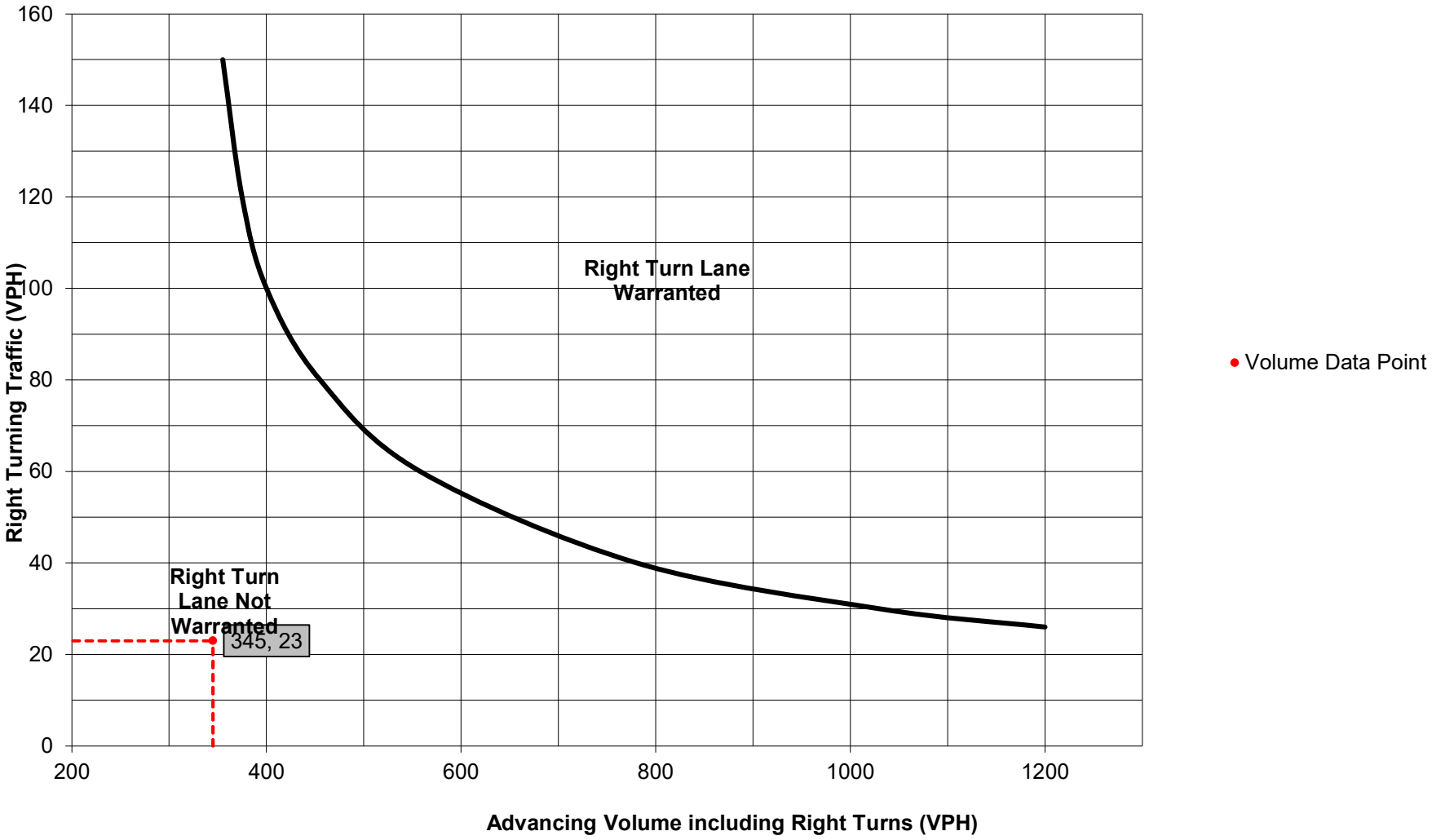
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	8	25.0%	11
Opposing	Left	Yes	19	5.0%	21
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4

Advancing Volume:	13
Opposing Volume:	28
Left Turn Volume:	1
% Left Turns in Advancing Volume:	7.69%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

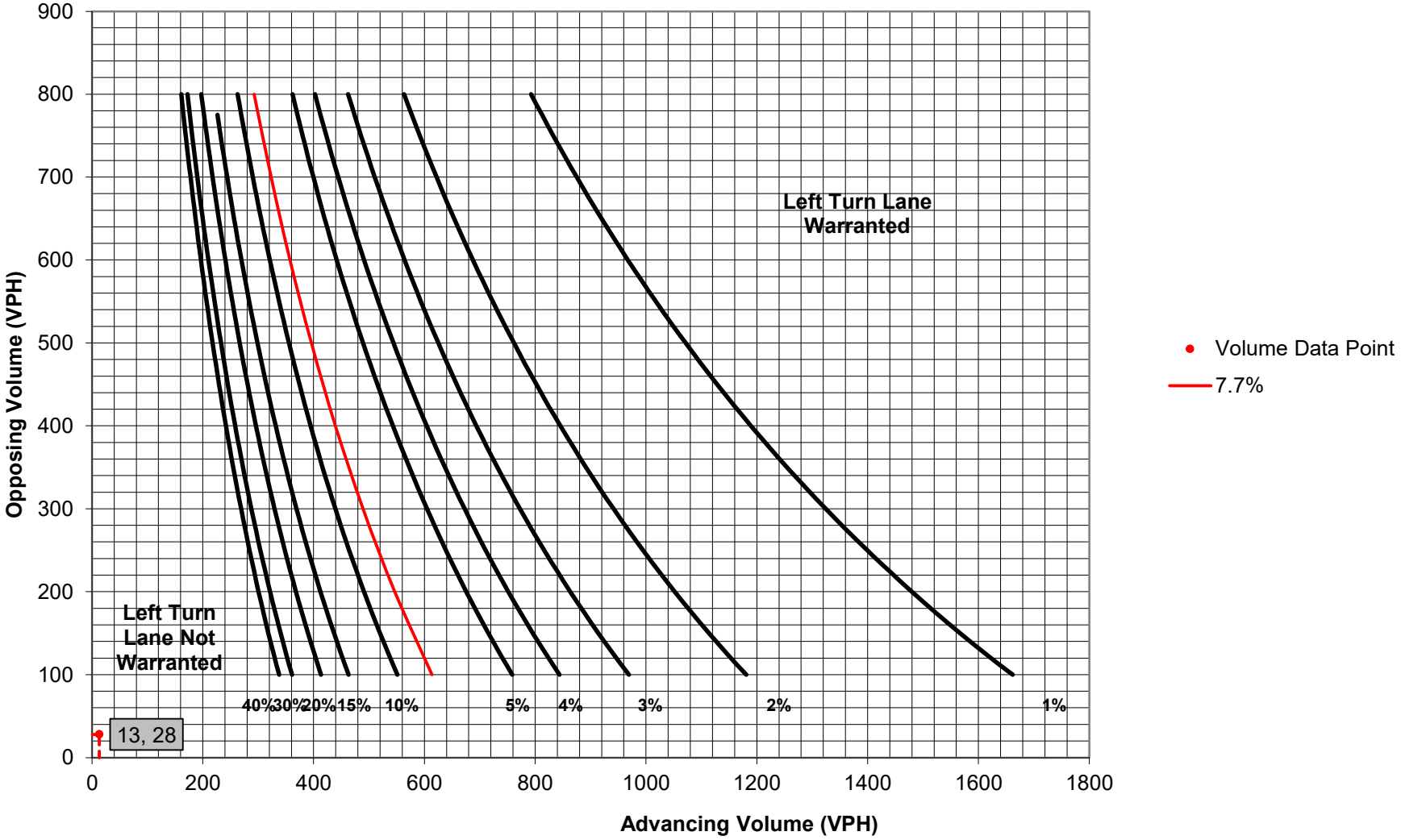
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	-	8	25.0%	11

Advancing Volume: 13
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

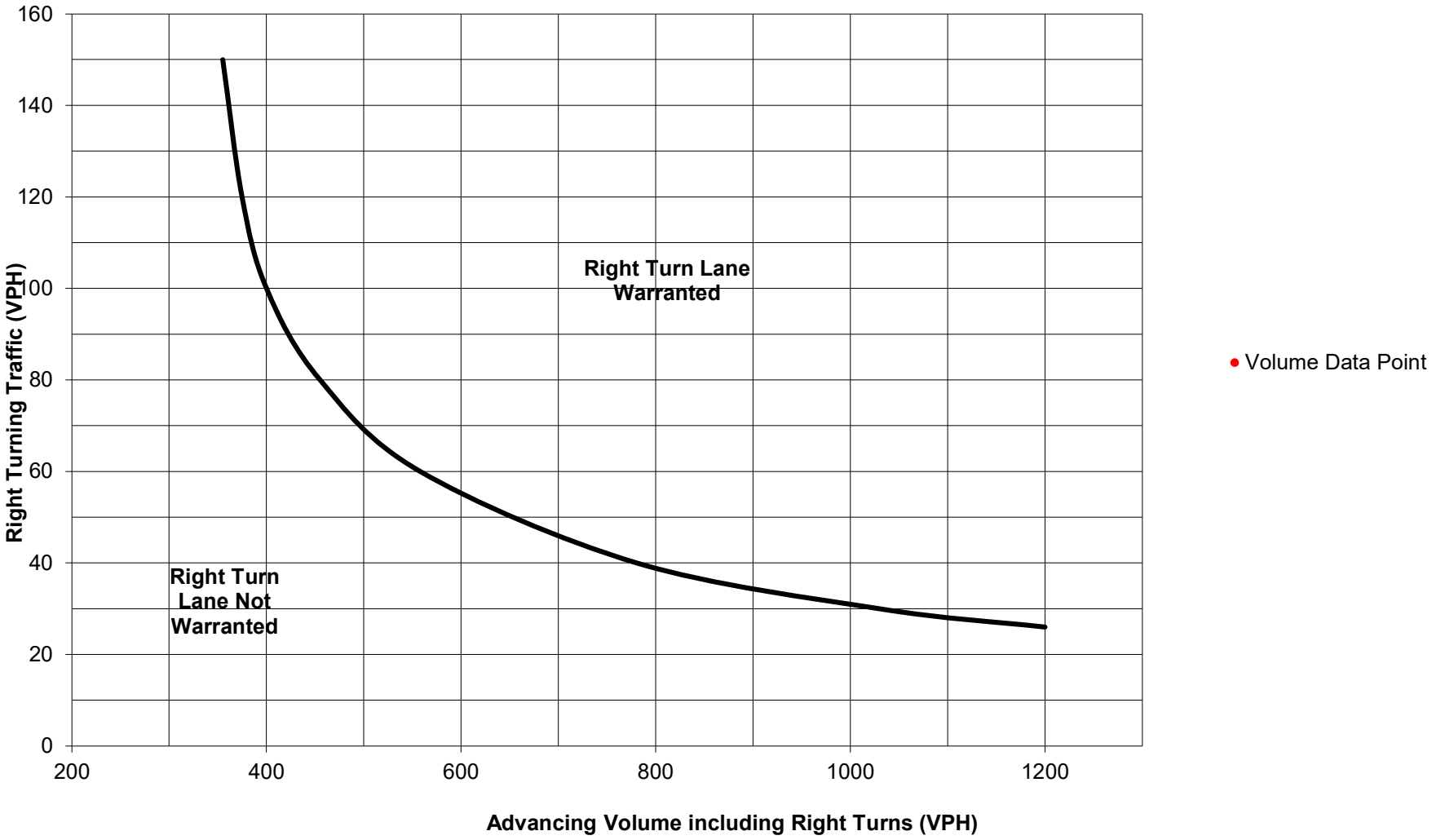
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	3.0%	33
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	9	11.0%	11

Advancing Volume: 45
Opposing Volume: 20
Left Turn Volume: 33
% Left Turns in Advancing Volume: 73.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	33
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

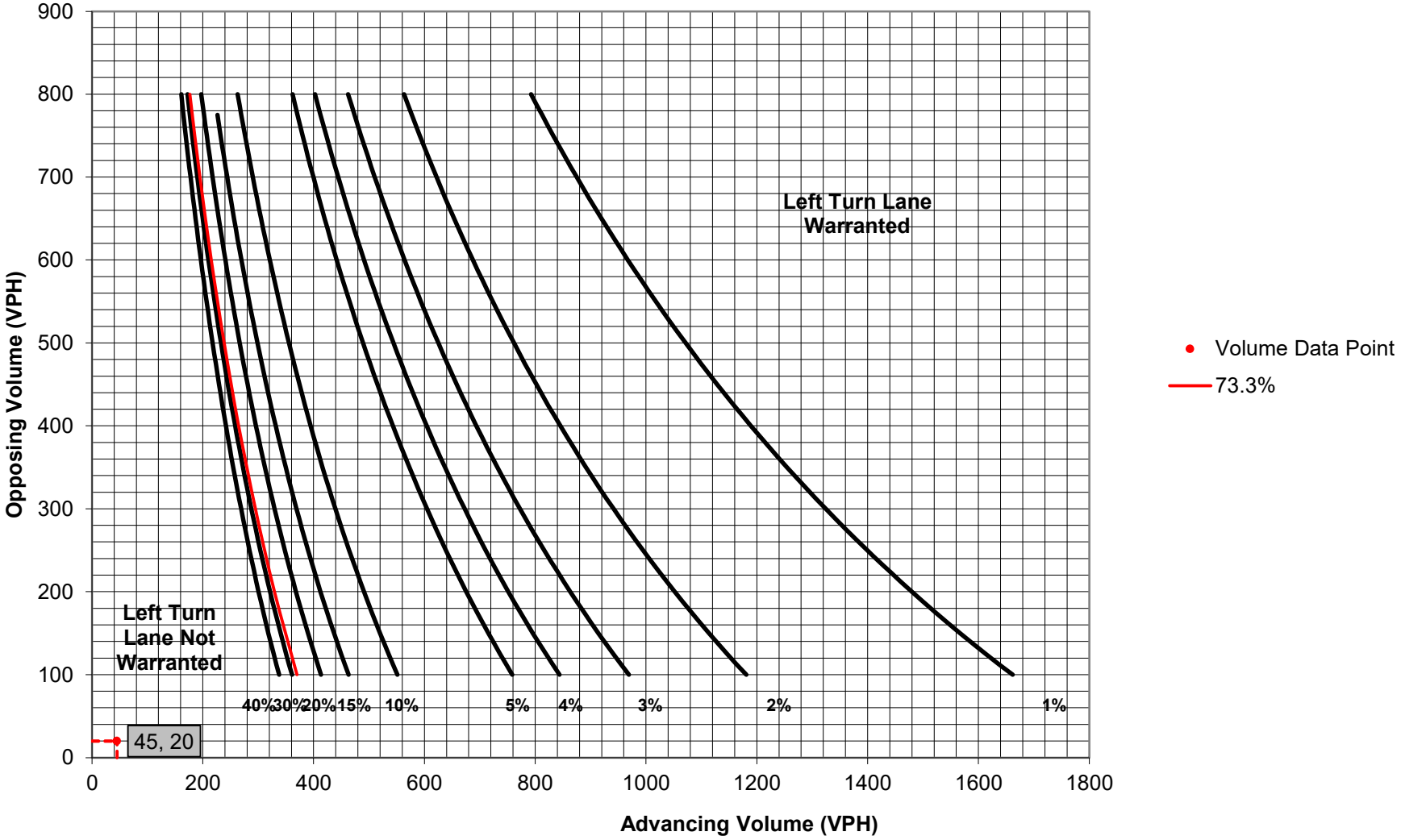
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	3.0%	33
	Through	-	12	0.0%	12
	Right	-	0	0.0%	0

Advancing Volume: 45
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

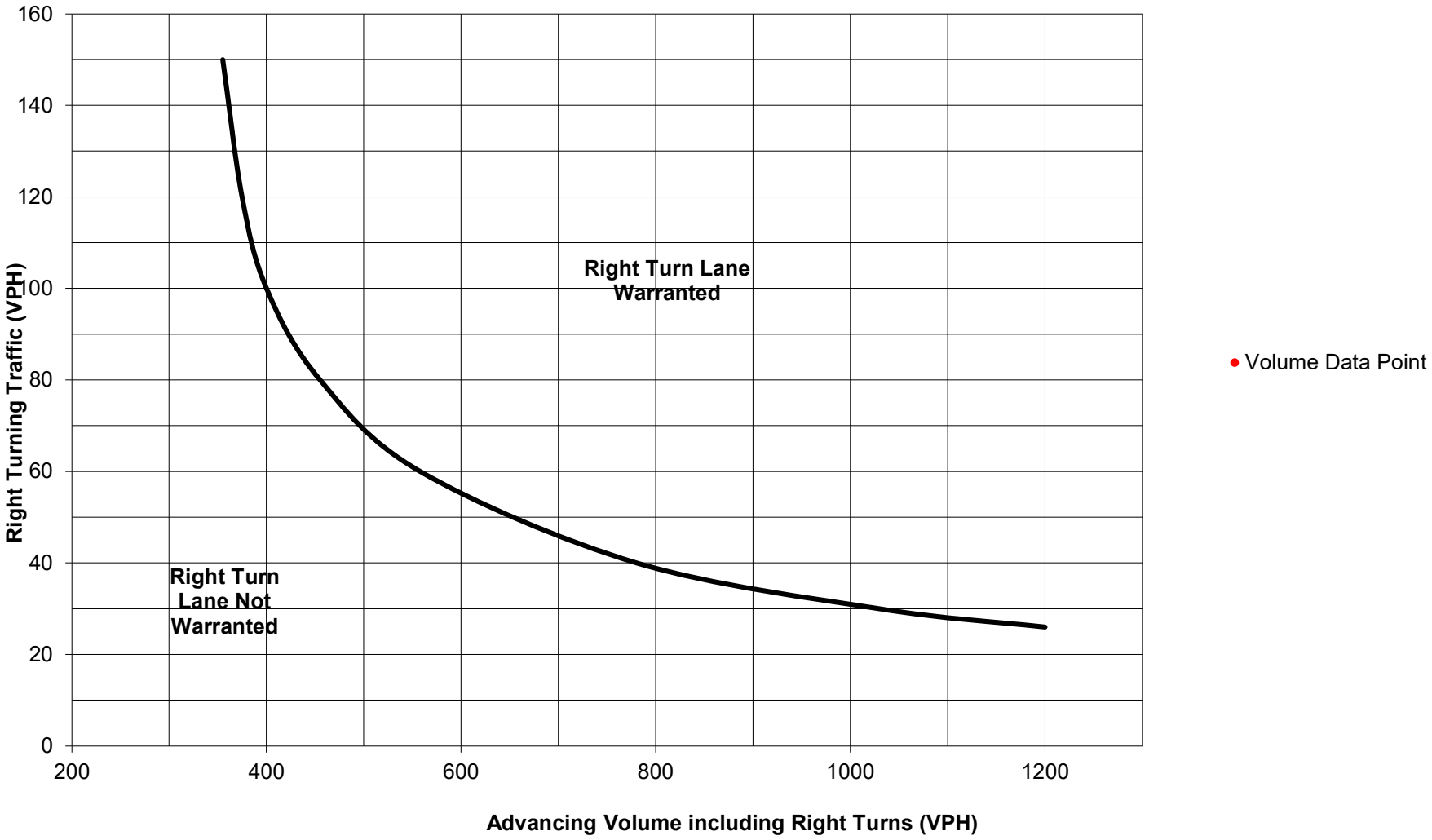
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	370	5.0%	398
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	17	18.0%	22
	Through	-	74	15.0%	91
	Right	Yes	14	7.0%	16

Advancing Volume: 410
Opposing Volume: 129
Left Turn Volume: 5
% Left Turns in Advancing Volume: 1.22%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

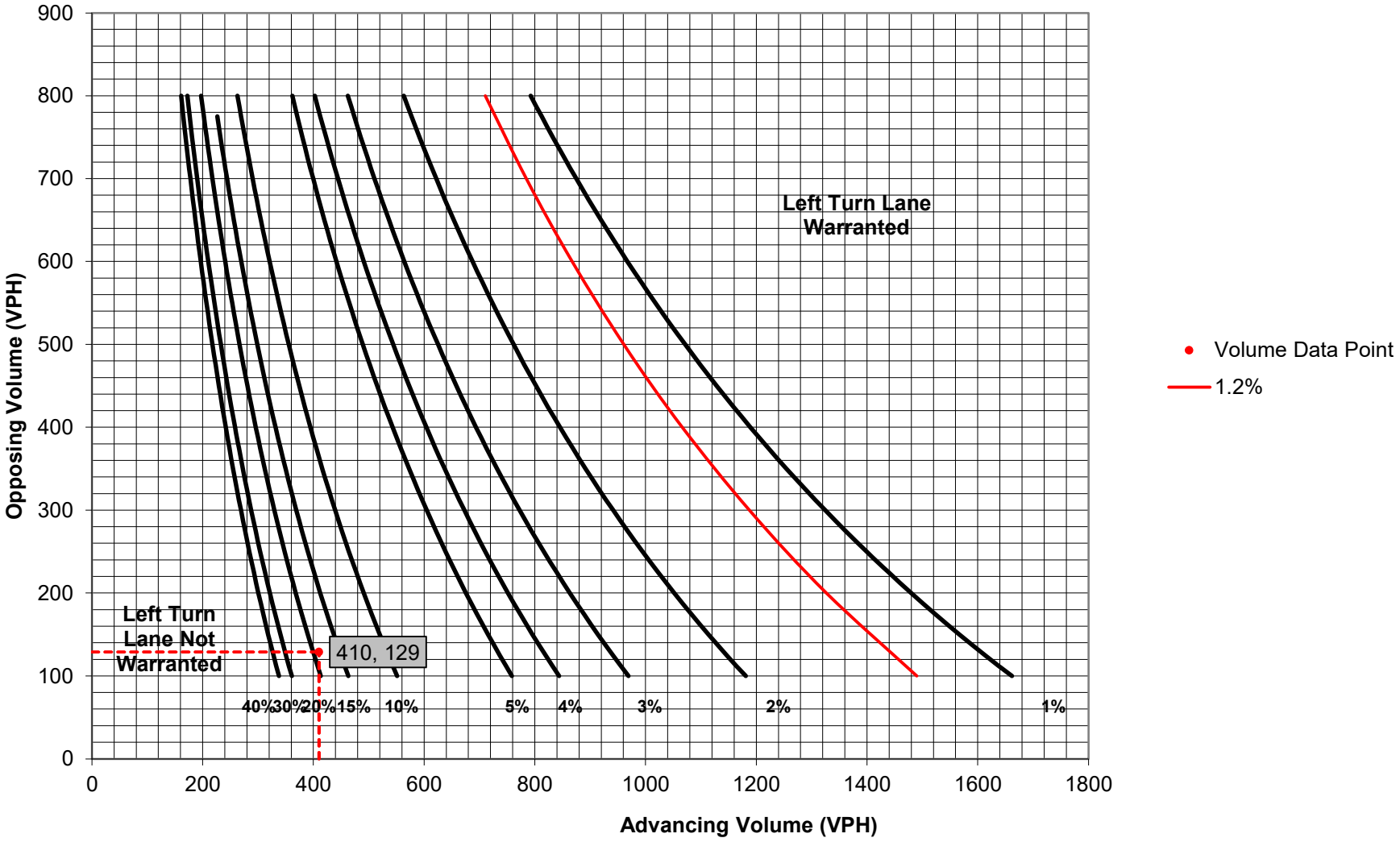
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	370	5.0%	398
	Right	-	7	0.0%	7

Advancing Volume: 410
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

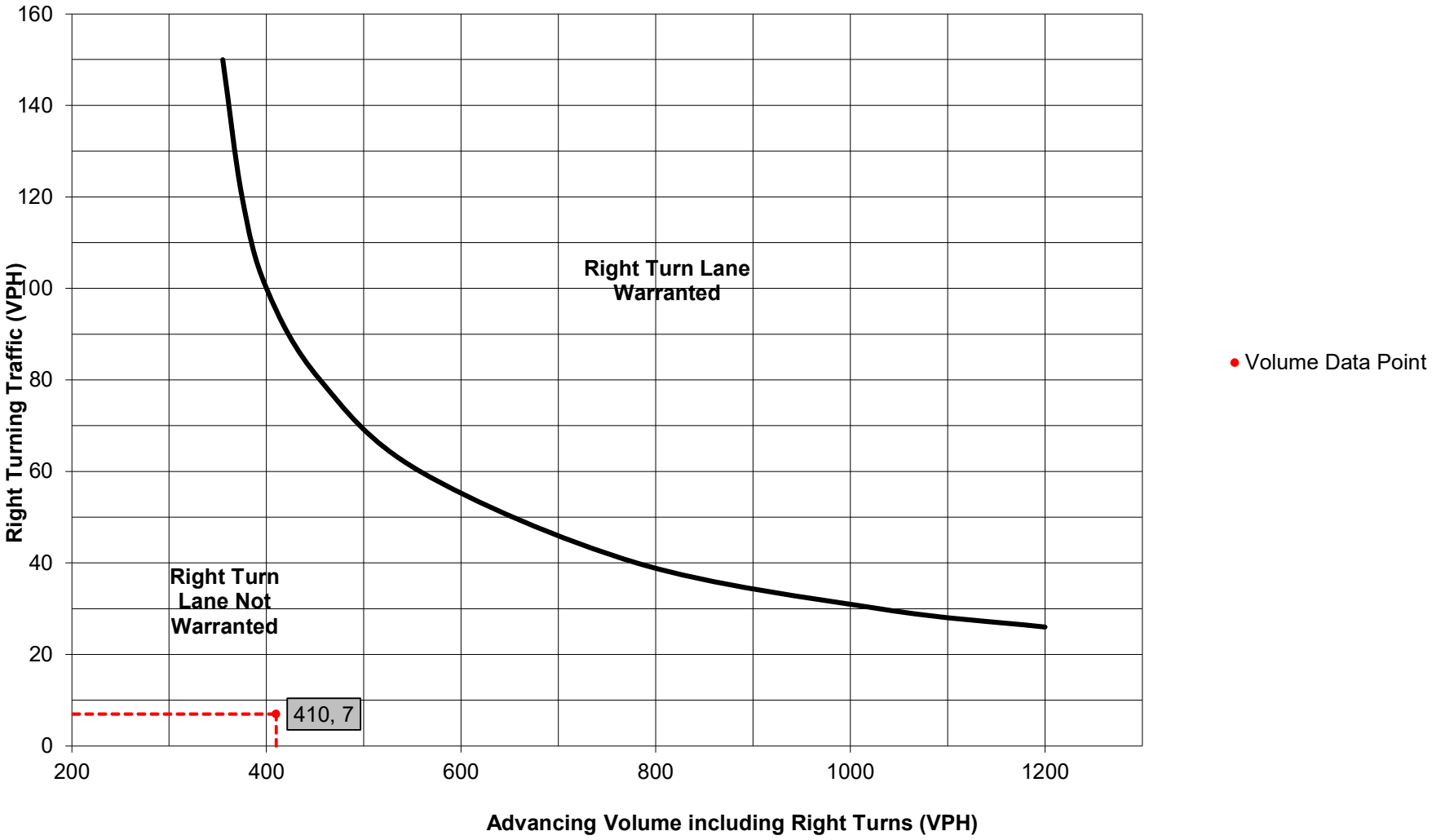
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	18.0%	22
	Through	-	74	15.0%	91
	Right	Yes	14	7.0%	16
Opposing	Left	Yes	5	0.0%	5
	Through	-	370	5.0%	398
	Right	Yes	7	0.0%	7

Advancing Volume: 129
Opposing Volume: 410
Left Turn Volume: 22
% Left Turns in Advancing Volume: 17.05%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

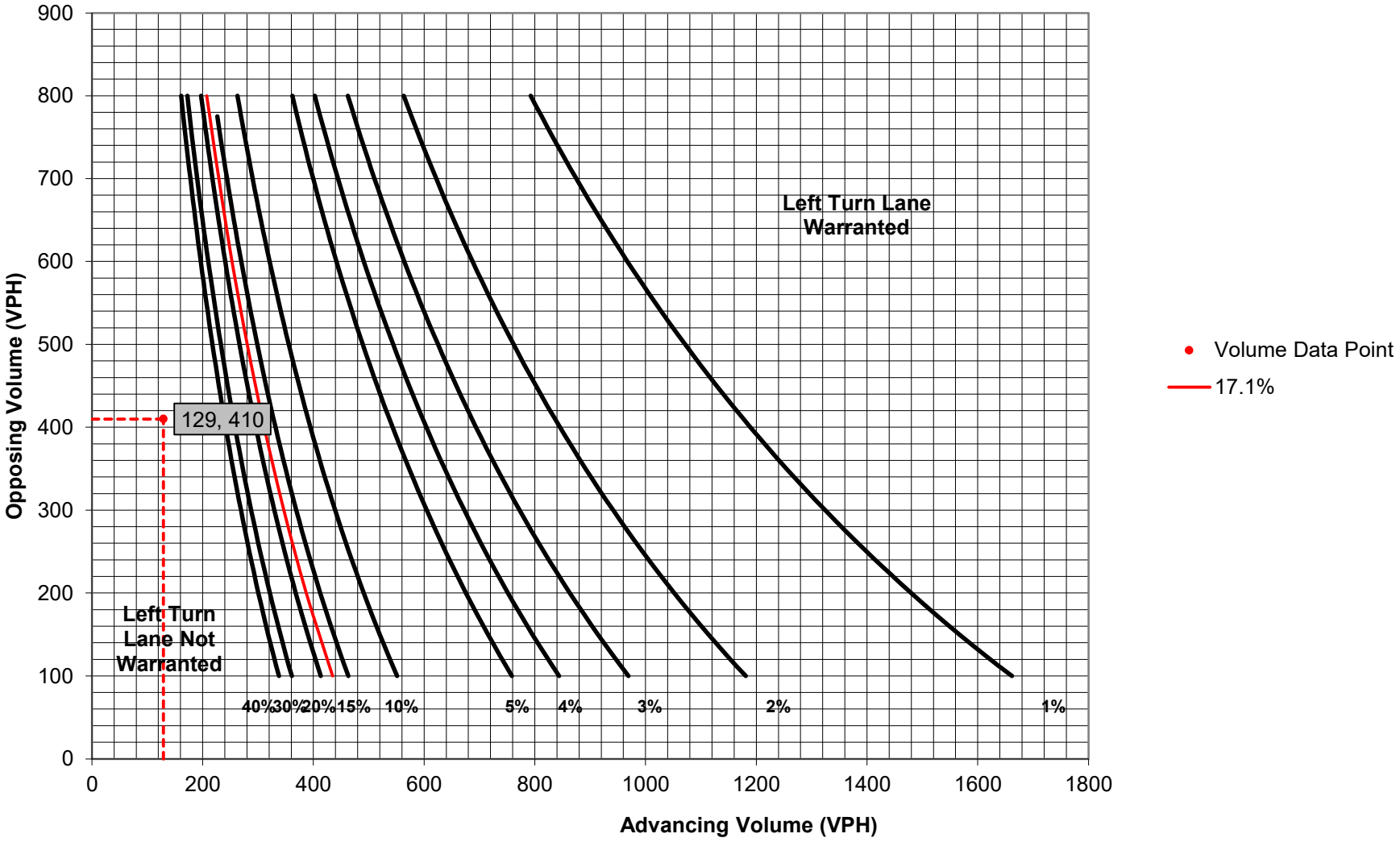
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	18.0%	22
	Through	-	74	15.0%	91
	Right	-	14	7.0%	16

Advancing Volume: 129
Right Turn Volume: 16

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	16
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

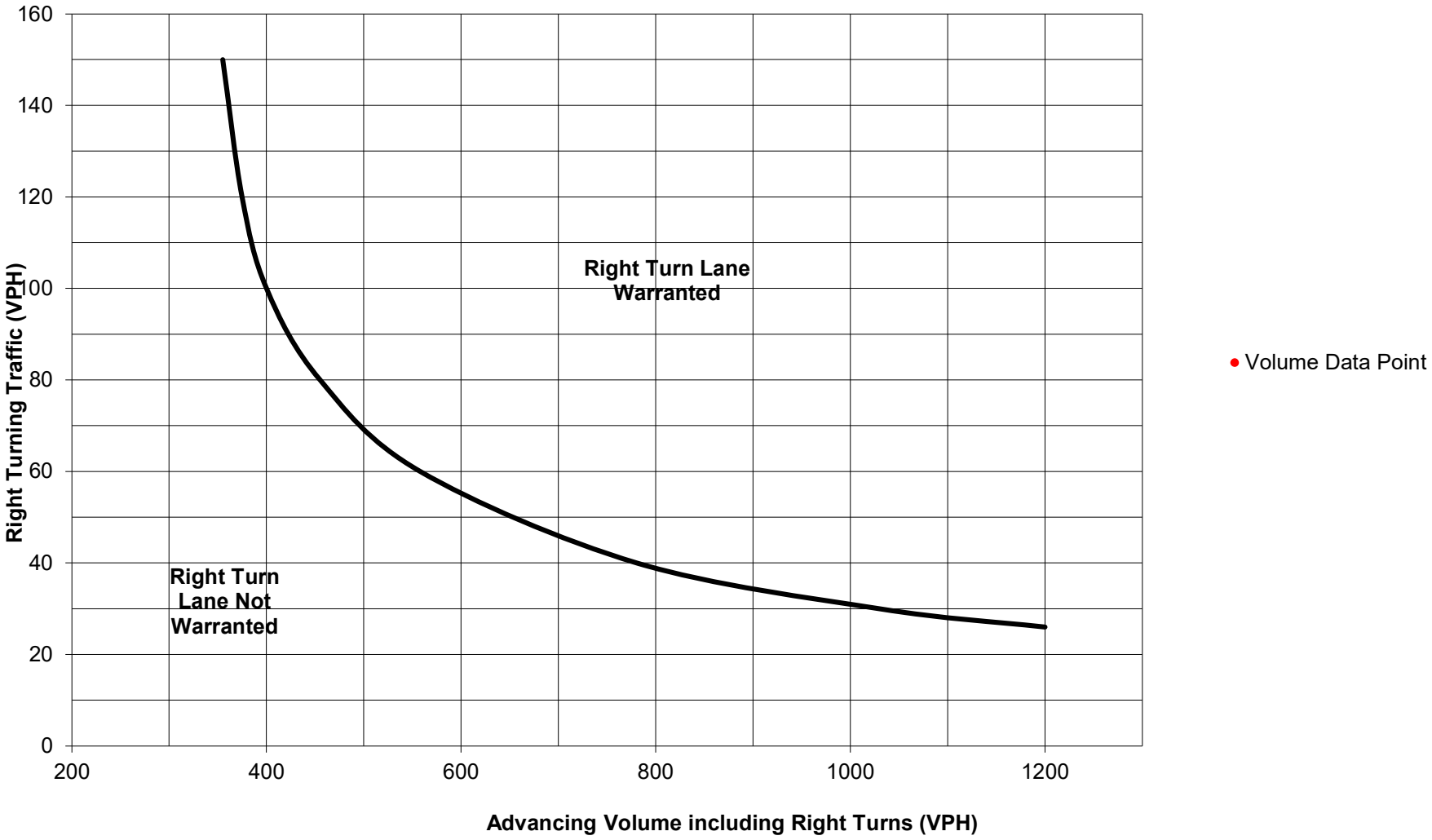
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	9	11.0%	11
Opposing	Left	Yes	31	3.0%	33
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0

Advancing Volume:	20
Opposing Volume:	45
Left Turn Volume:	3
% Left Turns in Advancing Volume:	15.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

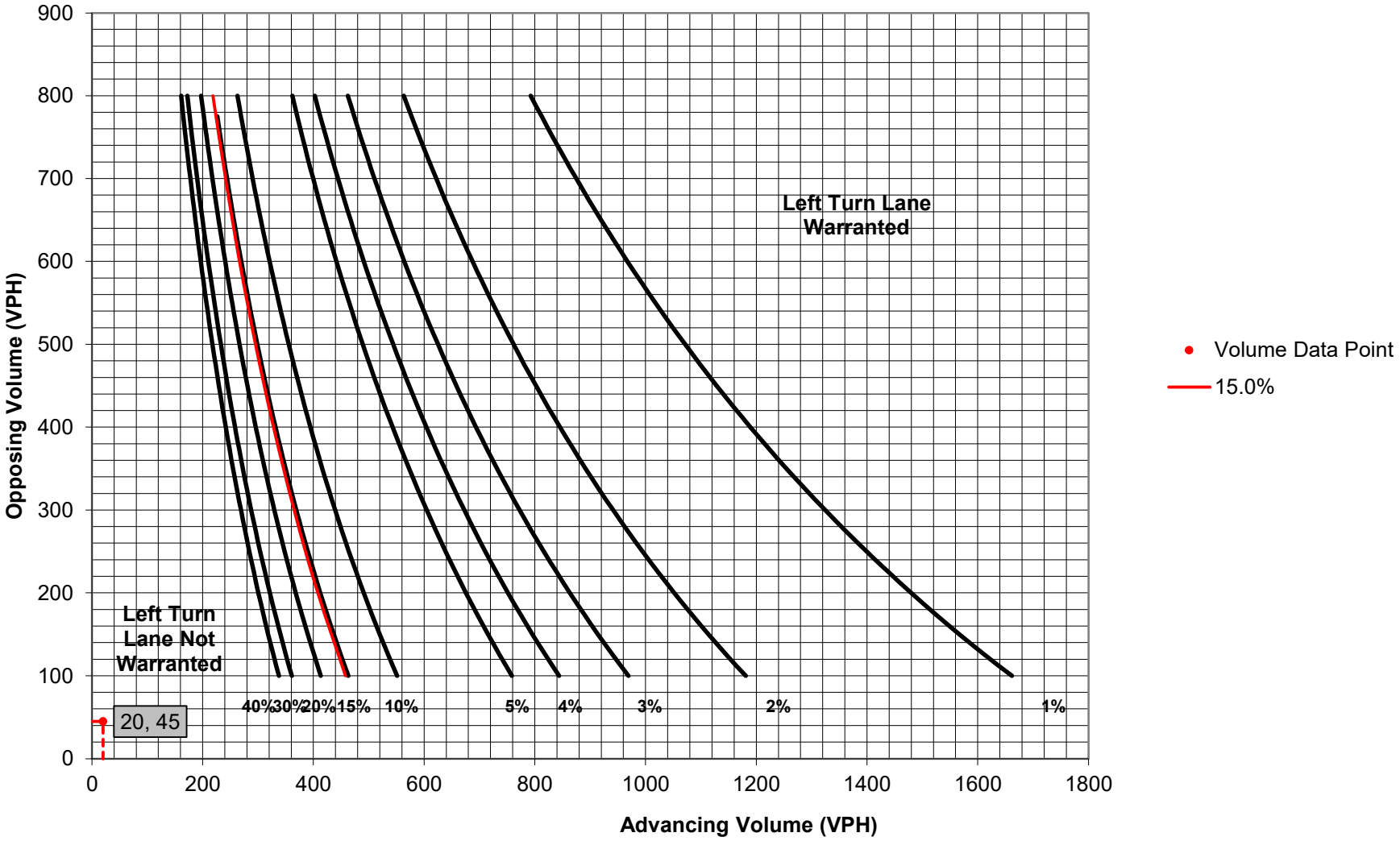
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	-	9	11.0%	11

Advancing Volume: 20
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

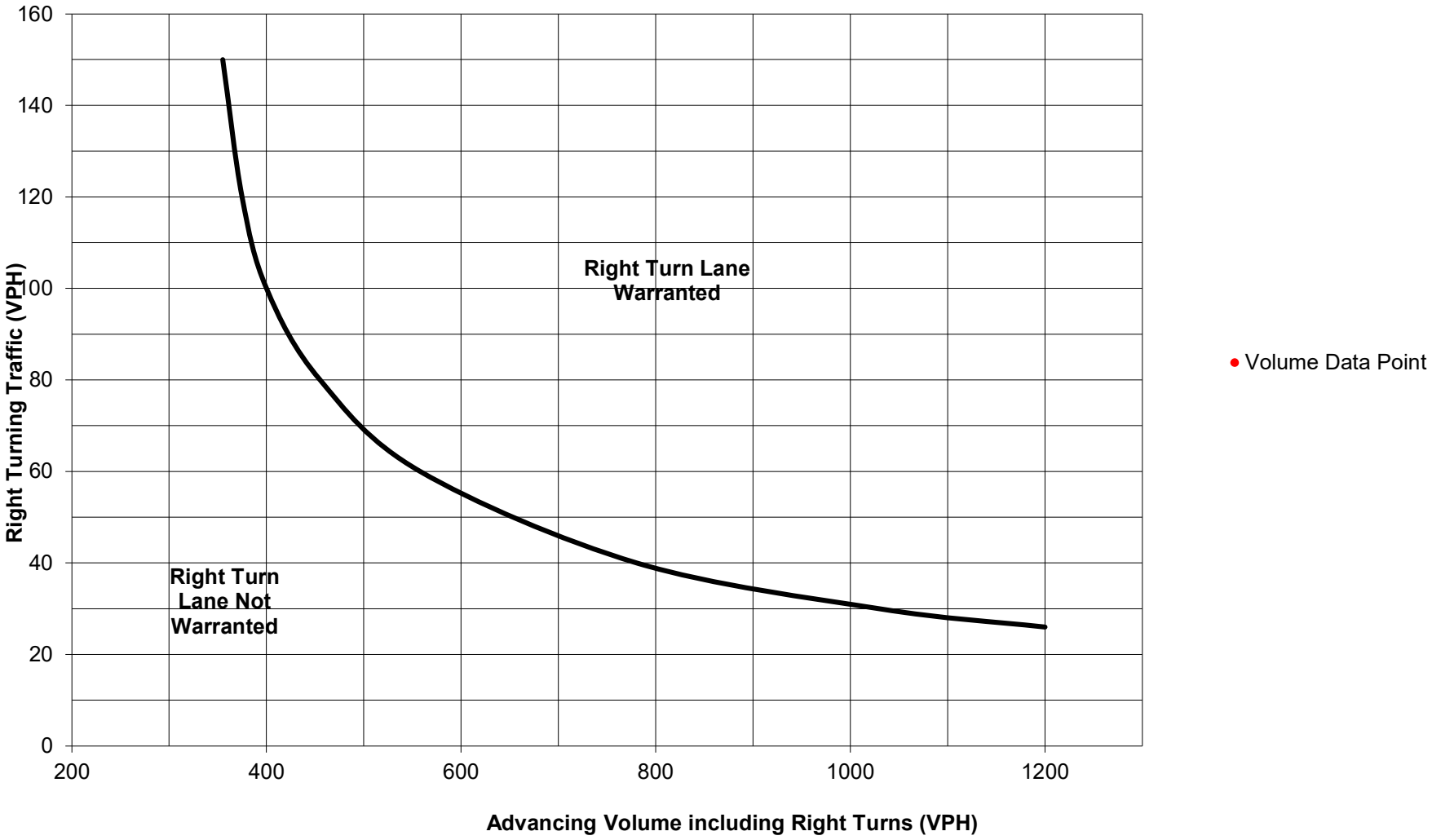
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	67	0.0%	67
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18

Advancing Volume: 14
Opposing Volume: 86
Left Turn Volume: 7
% Left Turns in Advancing Volume: 50.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

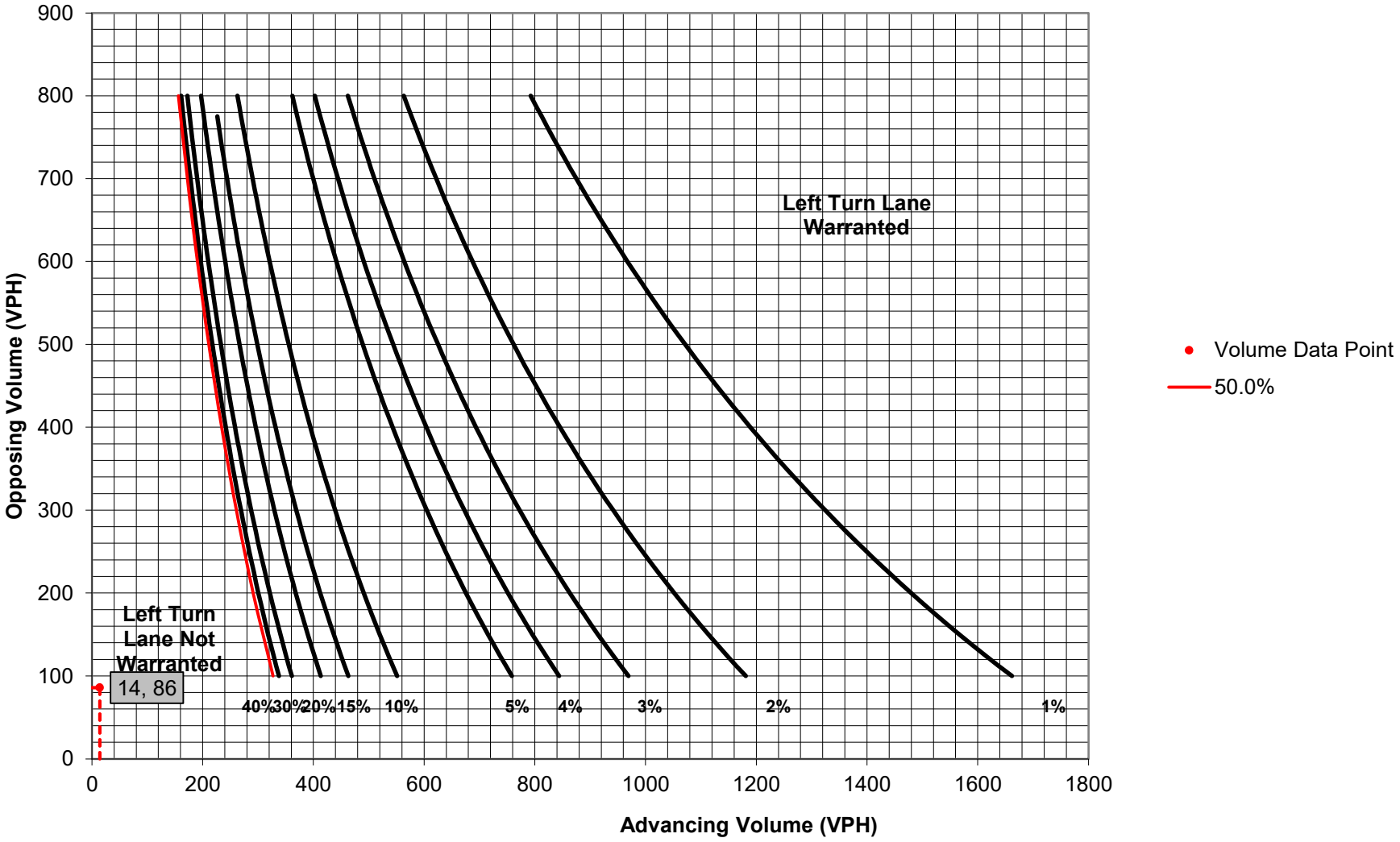
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	-	3	0.0%	3

Advancing Volume: 14
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

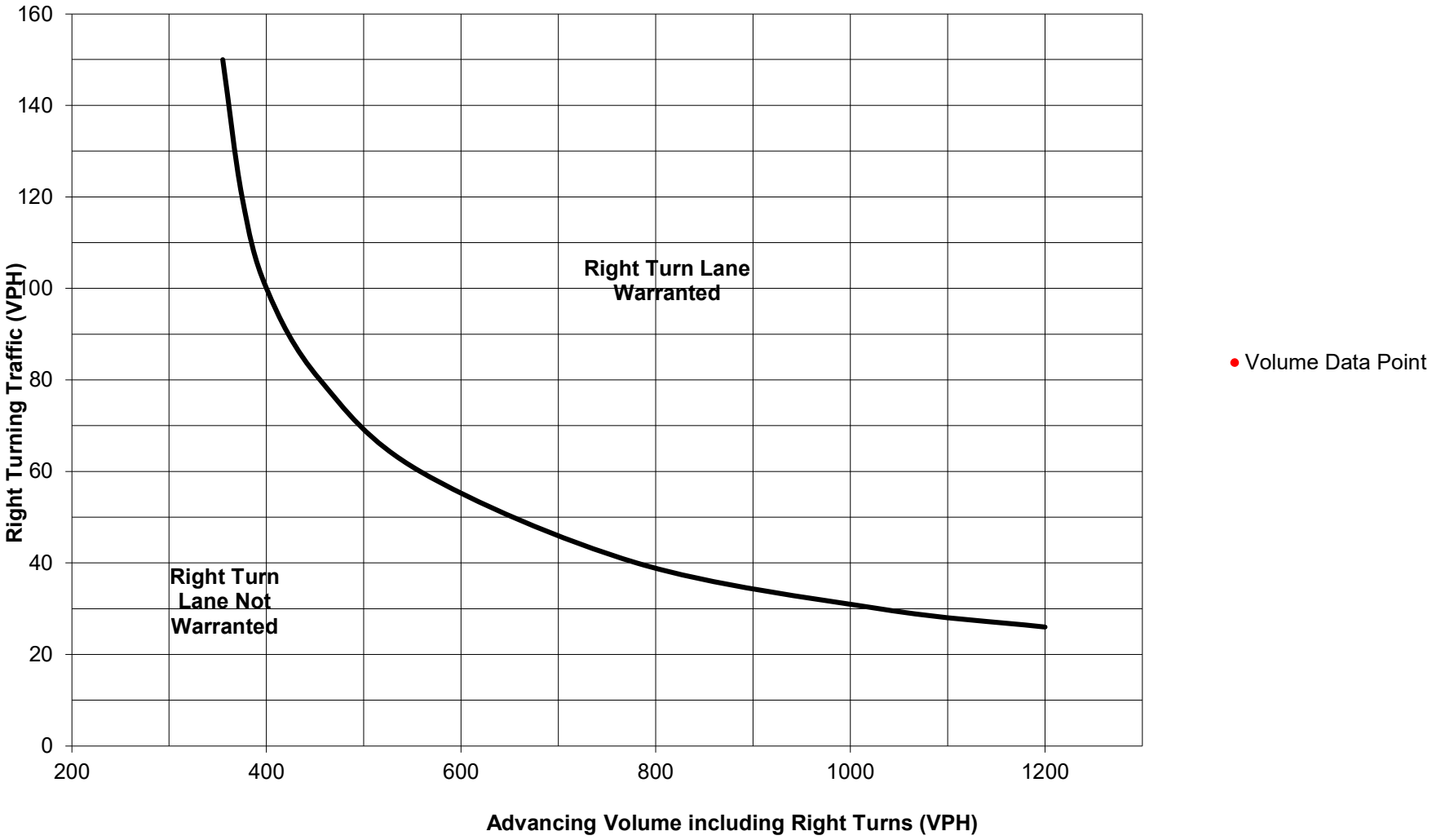
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	60	8.0%	68
	Right	Yes	44	0.0%	44
Opposing	Left	Yes	5	0.0%	5
	Through	-	149	6.0%	163
	Right	Yes	0	0.0%	0

Advancing Volume:	116
Opposing Volume:	168
Left Turn Volume:	4
% Left Turns in Advancing Volume:	3.45%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

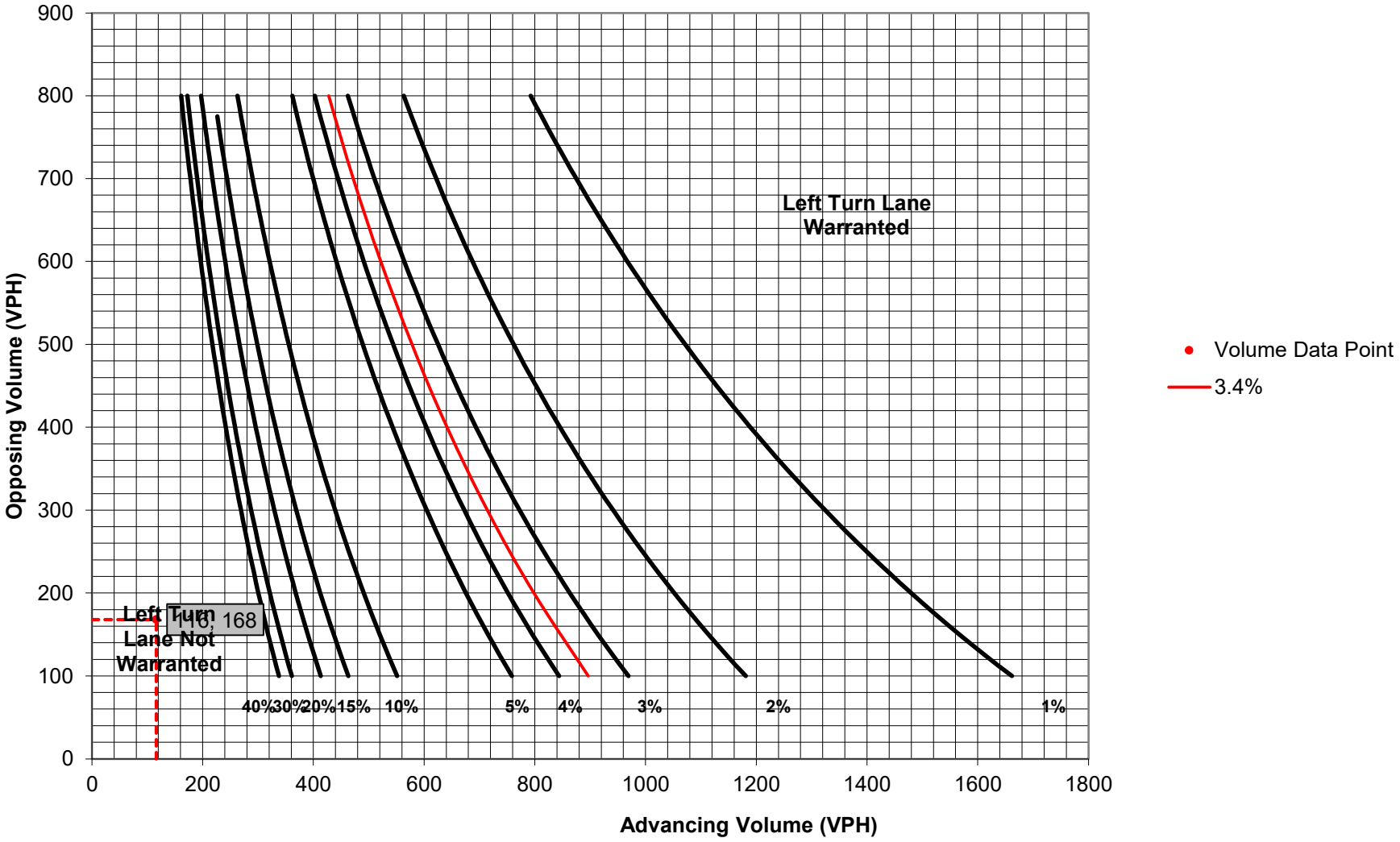
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	60	8.0%	68
	Right	-	44	0.0%	44

Advancing Volume: 116
Right Turn Volume: 44

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	44
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

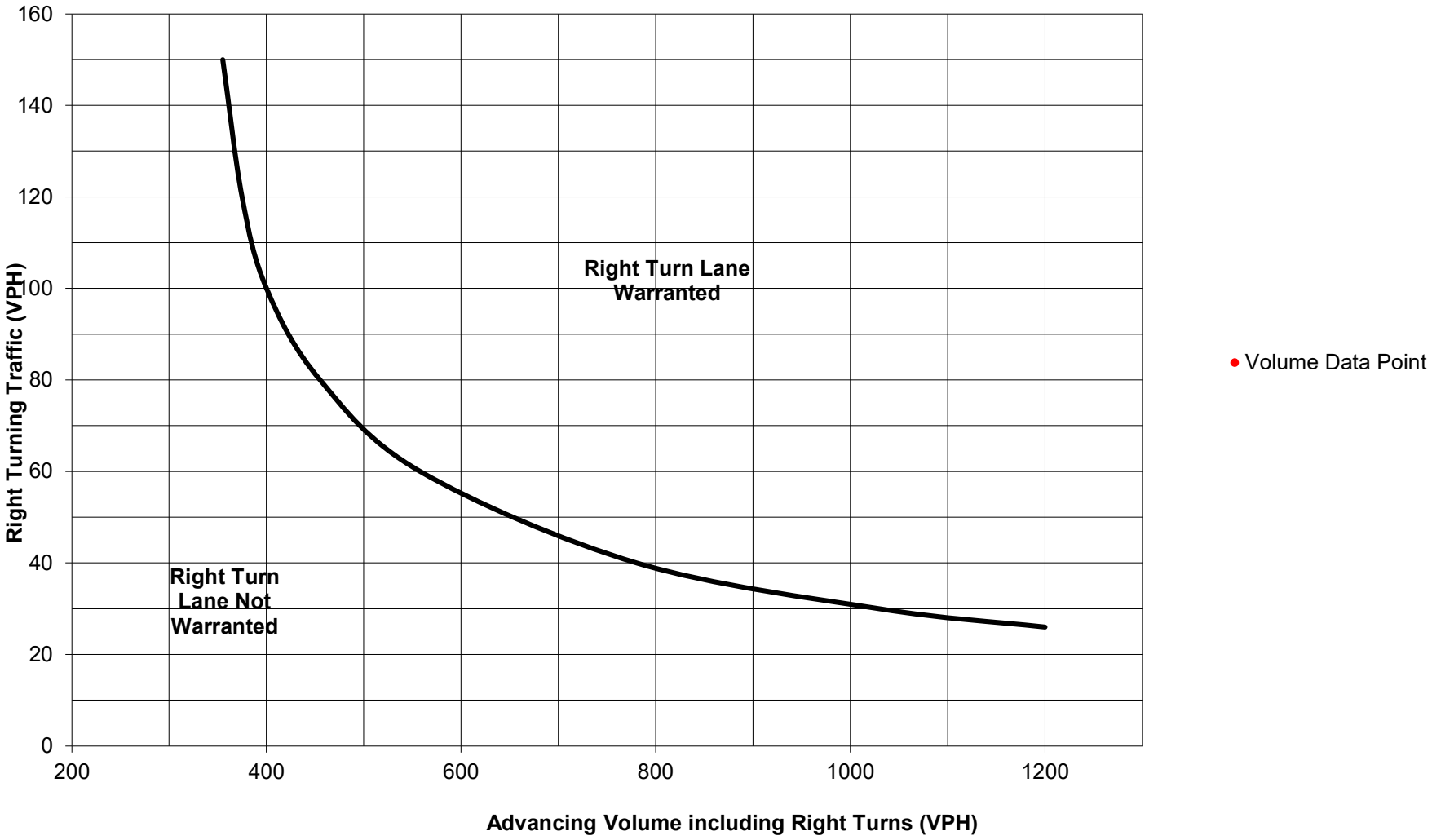
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	149	6.0%	163
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	2	50.0%	4
	Through	-	60	8.0%	68
	Right	Yes	44	0.0%	44

Advancing Volume:	168
Opposing Volume:	116
Left Turn Volume:	5
% Left Turns in Advancing Volume:	2.98%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

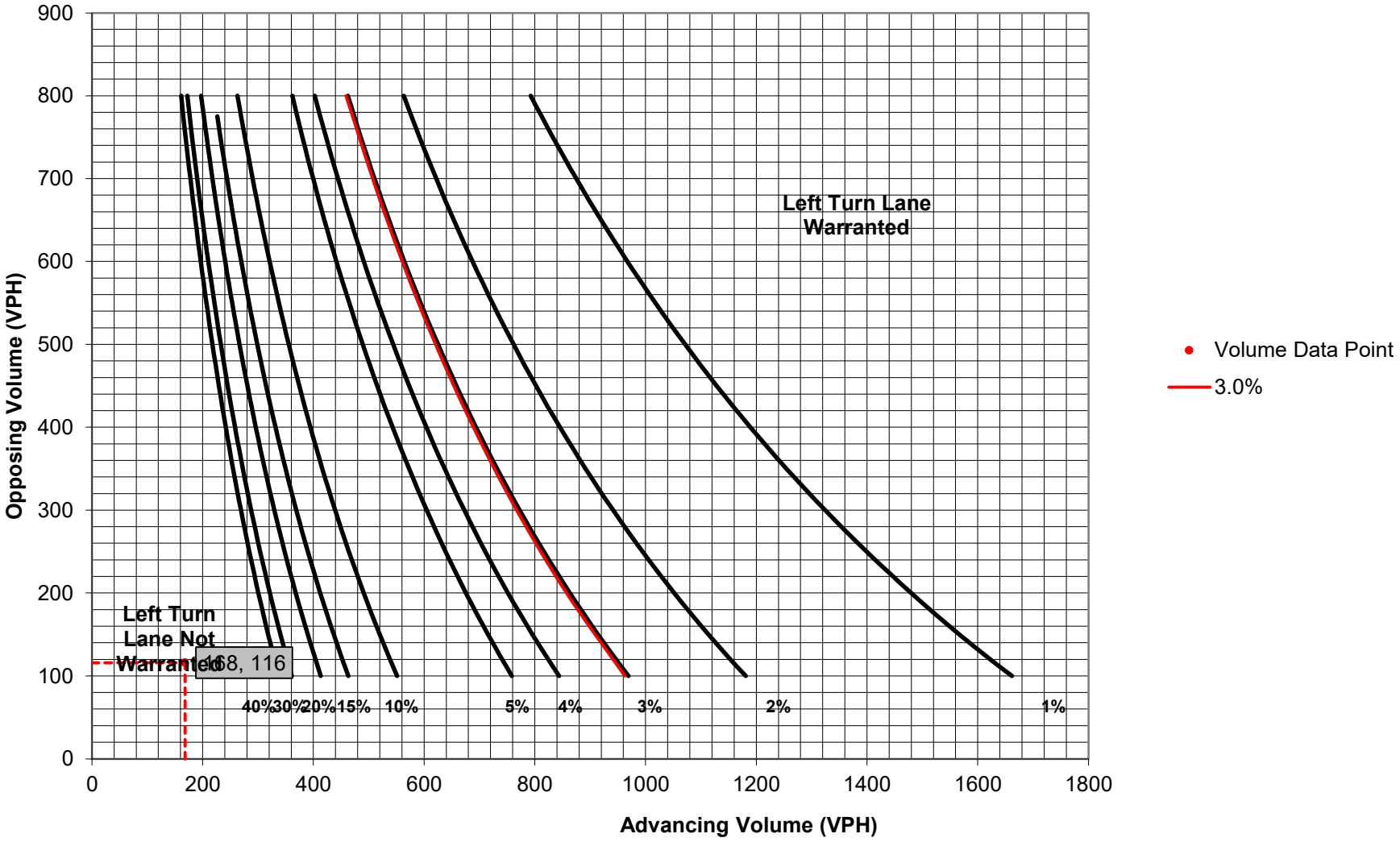
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	149	6.0%	163
	Right	-	0	0.0%	0

Advancing Volume: 168
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

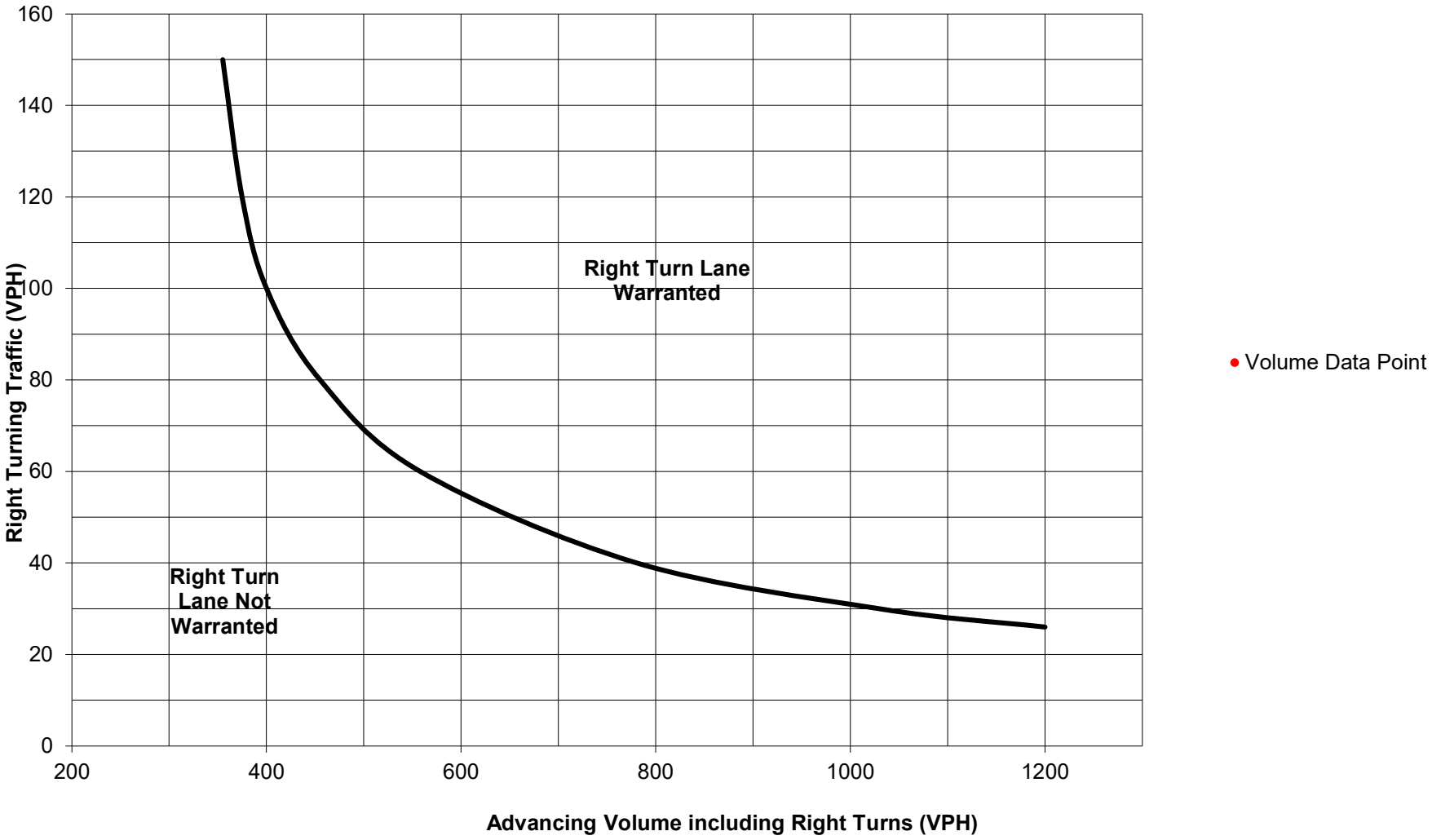
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	67	0.0%	67
	Through	-	1	0.0%	1
	Right	Yes	18	0.0%	18
Opposing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3

Advancing Volume: 86
Opposing Volume: 14
Left Turn Volume: 67
% Left Turns in Advancing Volume: 77.91%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	67
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

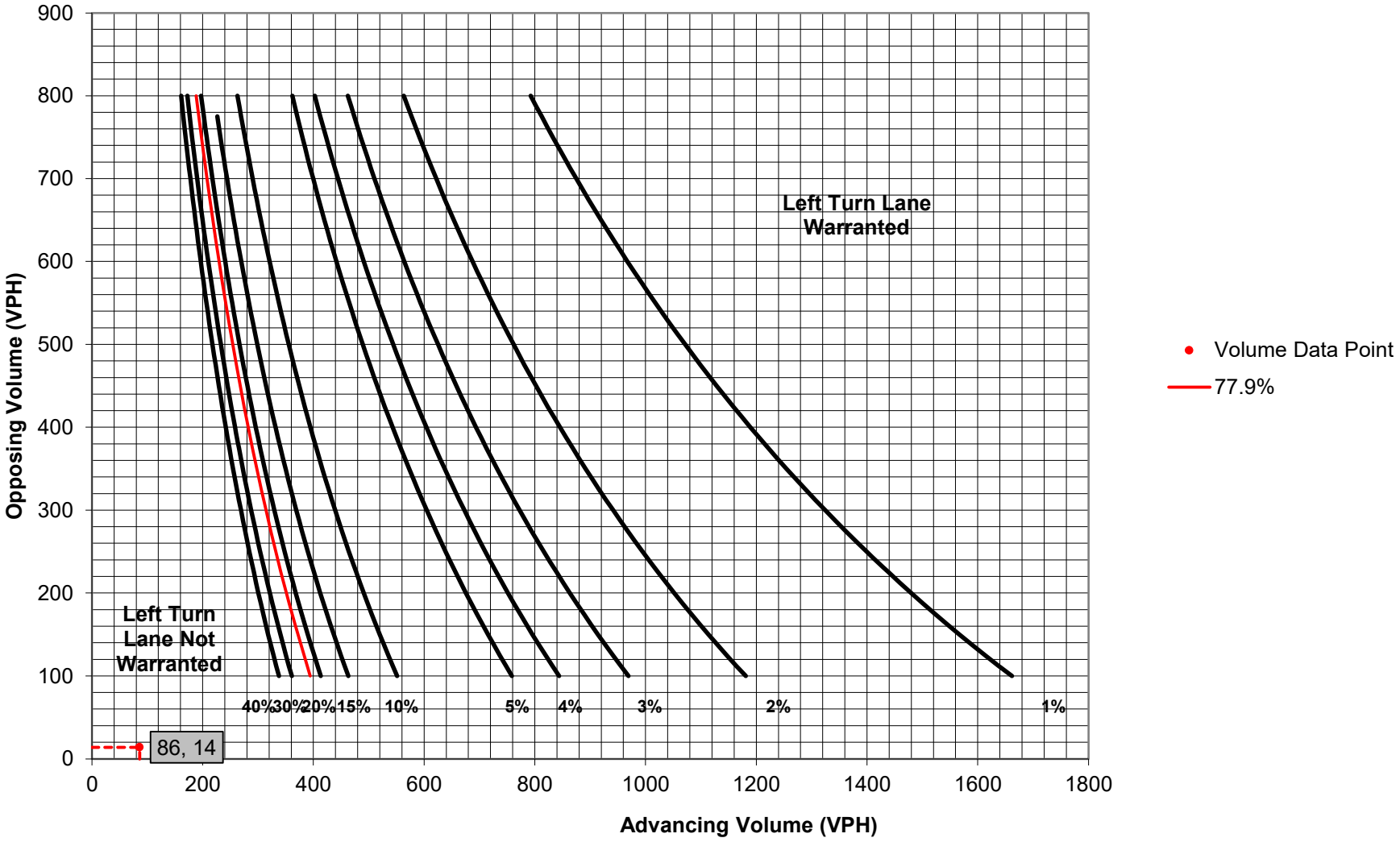
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	67	0.0%	67
	Through	-	1	0.0%	1
	Right	-	18	0.0%	18

Advancing Volume: 86
Right Turn Volume: 18

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

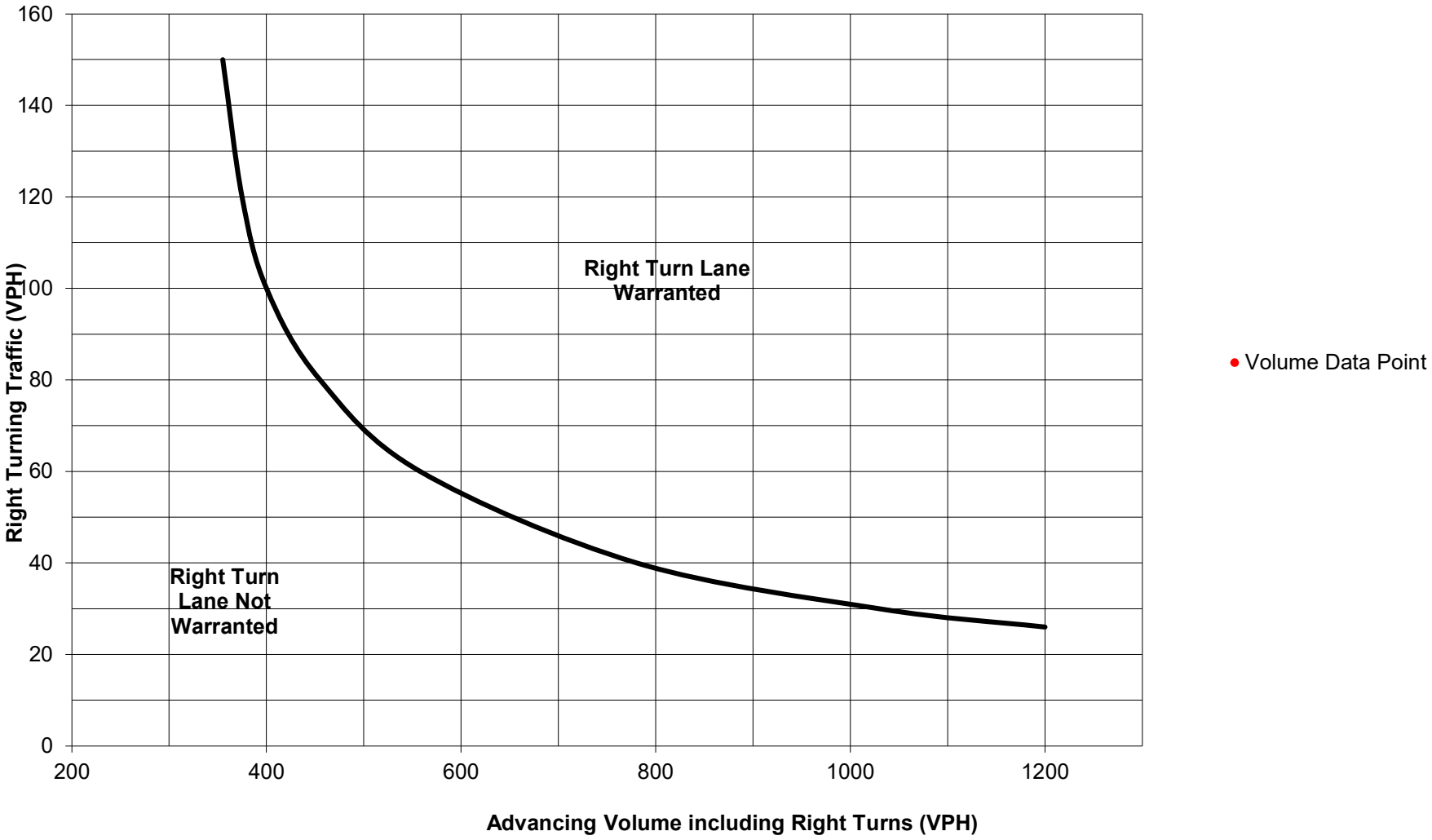
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	16	0.0%	16
	Through	-	11	0.0%	11
	Right	Yes	0	0.0%	0

Advancing Volume:	13
Opposing Volume:	27
Left Turn Volume:	7
% Left Turns in Advancing Volume:	53.85%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

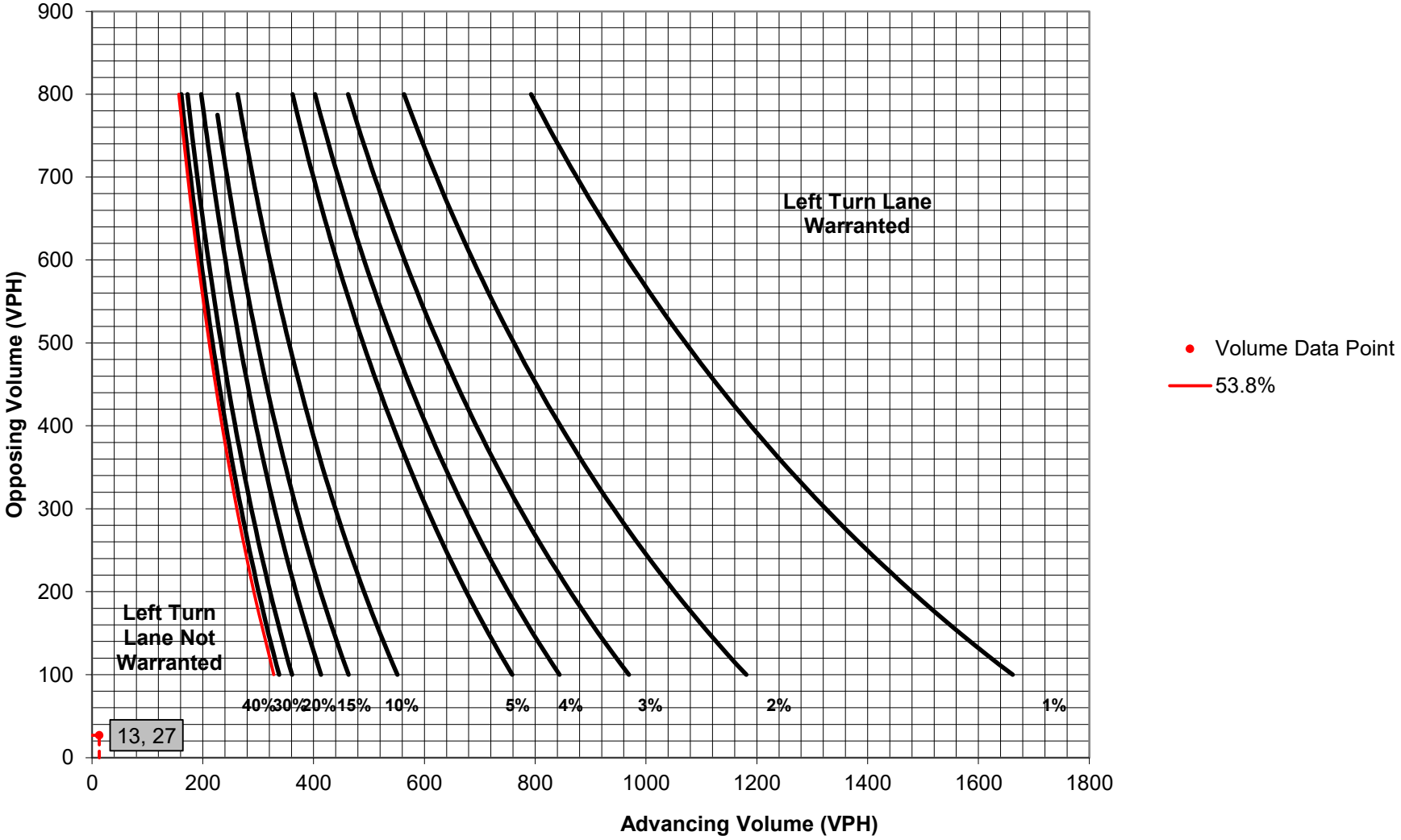
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	-	1	0.0%	1

Advancing Volume: 13
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

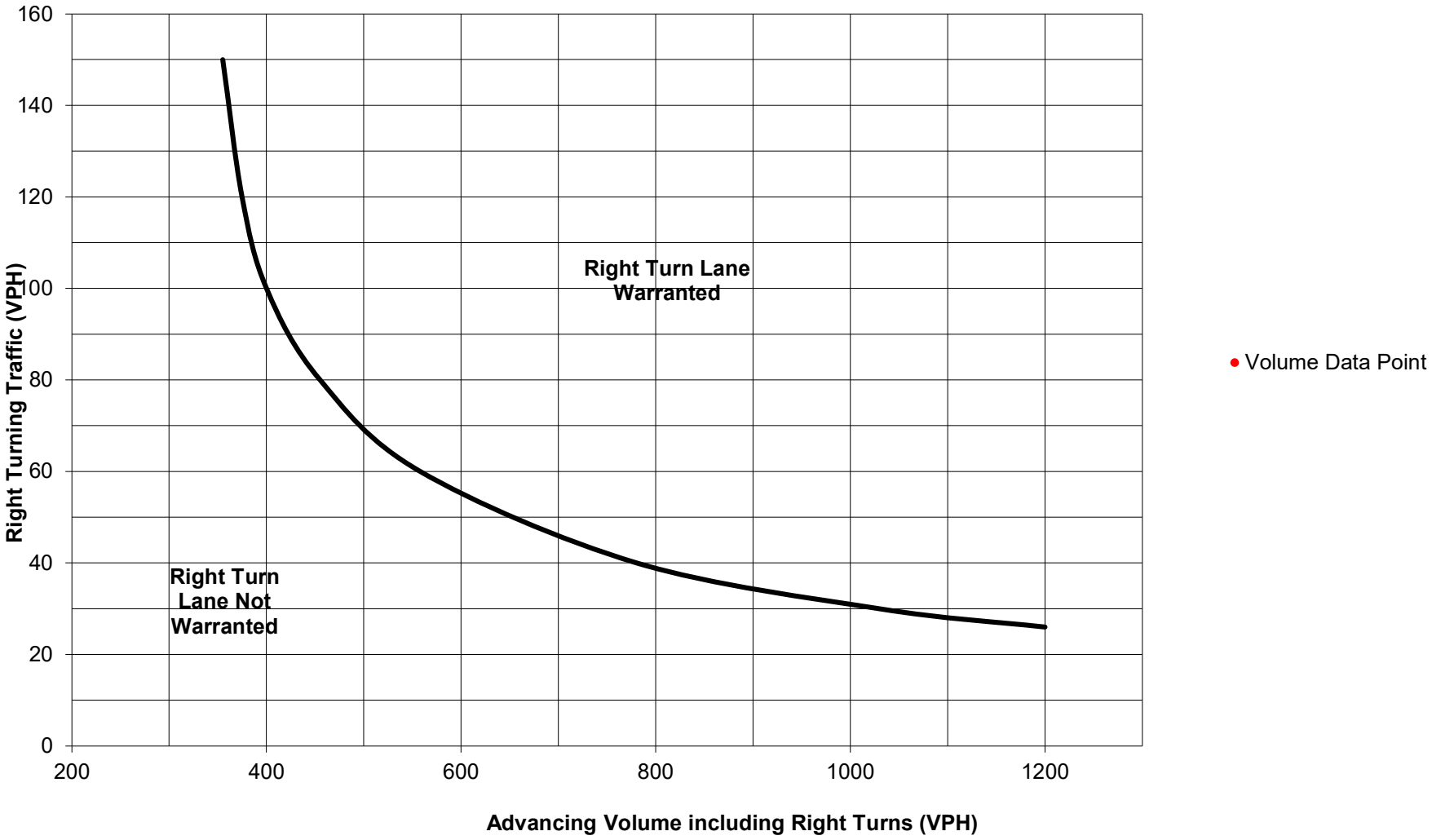
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	89	10.0%	103
	Right	Yes	41	0.0%	41
Opposing	Left	Yes	9	0.0%	9
	Through	-	24	38.0%	38
	Right	Yes	9	0.0%	9

Advancing Volume: 144
Opposing Volume: 56
Left Turn Volume: 0
% Left Turns in Advancing Volume: 0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

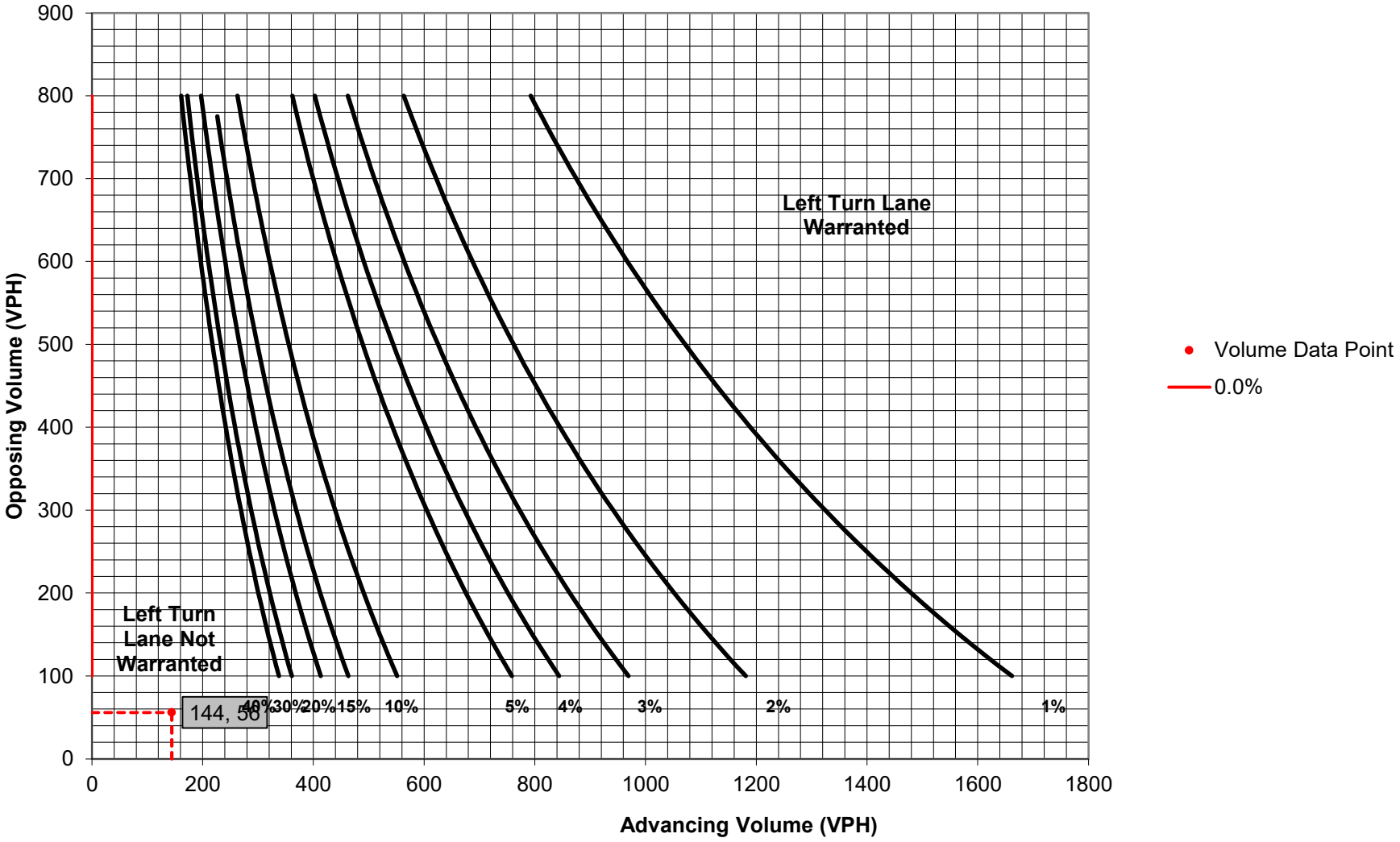
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	89	10.0%	103
	Right	-	41	0.0%	41

Advancing Volume: 144
Right Turn Volume: 41

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

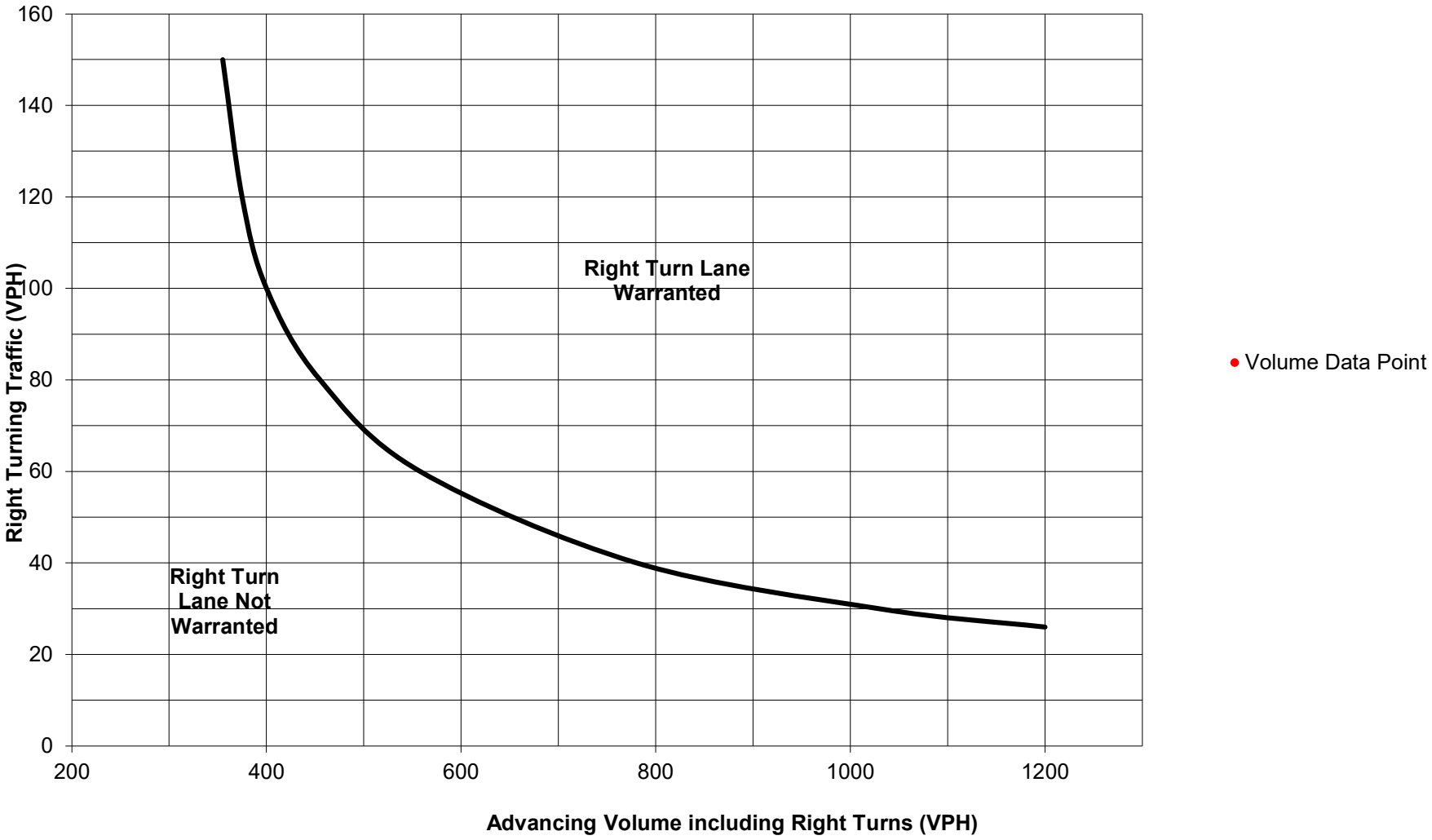
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	24	38.0%	38
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	0	0.0%	0
	Through	-	89	10.0%	103
	Right	Yes	41	0.0%	41

Advancing Volume: 56
Opposing Volume: 144
Left Turn Volume: 9
% Left Turns in Advancing Volume: 16.07%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

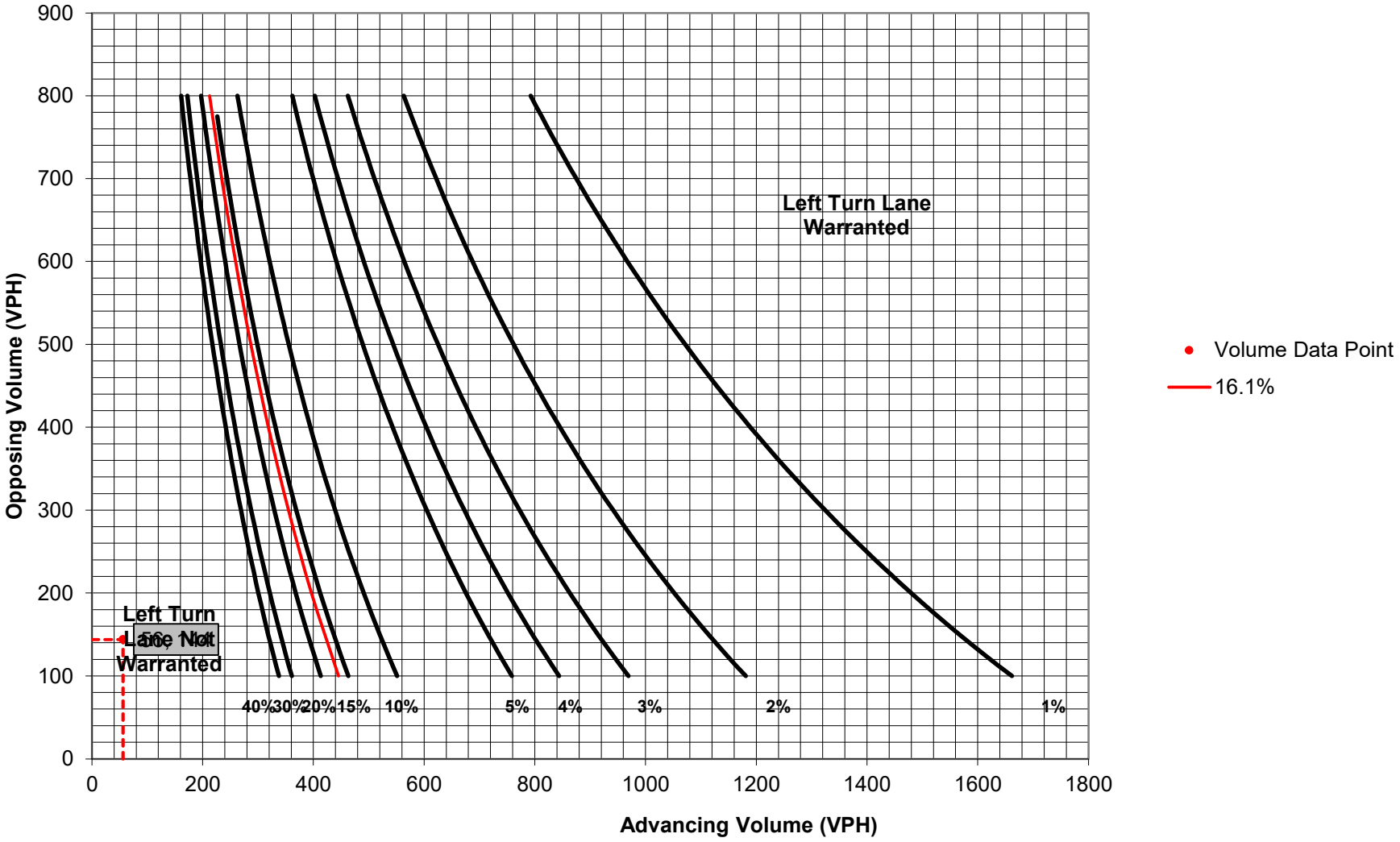
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	24	38.0%	38
	Right	-	9	0.0%	9

Advancing Volume: 56
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

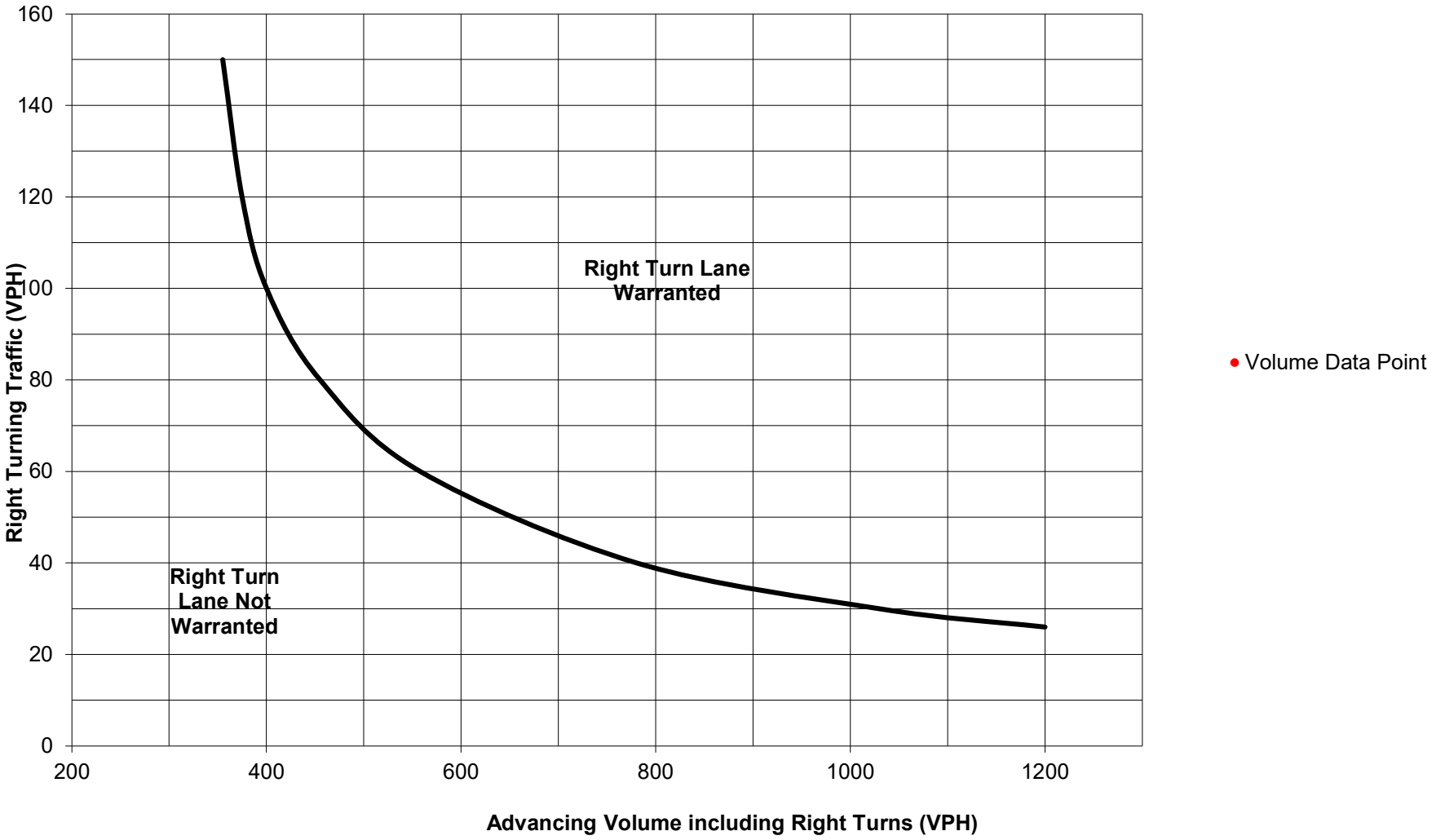
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	0.0%	16
	Through	-	11	0.0%	11
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	Yes	1	0.0%	1

Advancing Volume:	27
Opposing Volume:	13
Left Turn Volume:	16
% Left Turns in Advancing Volume:	59.26%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	16
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

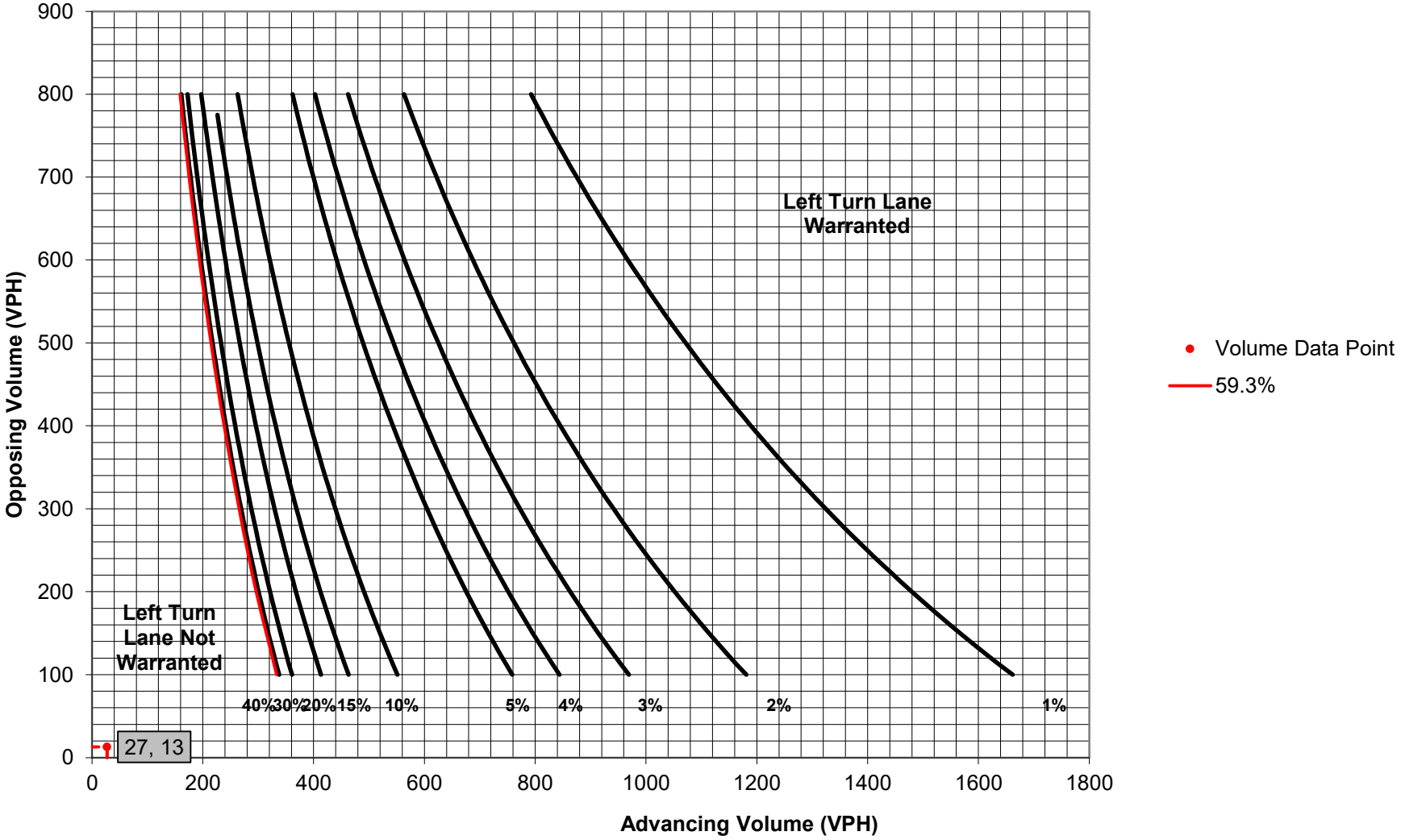
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	0.0%	16
	Through	-	11	0.0%	11
	Right	-	0	0.0%	0

Advancing Volume: 27
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

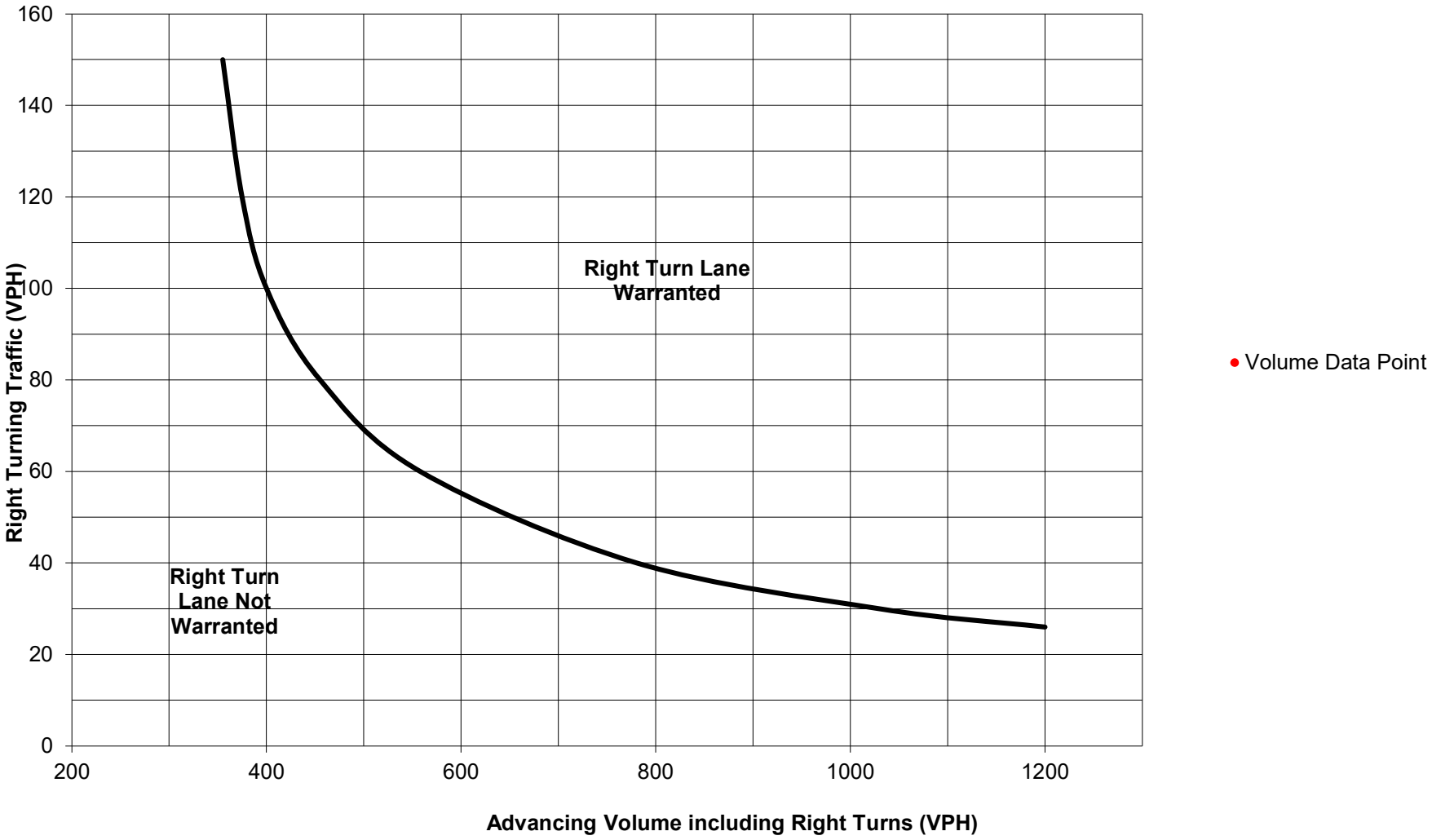
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	312	5.0%	336
	Right	-	5	0.0%	5

Advancing Volume: 341
Right Turn Volume: 5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

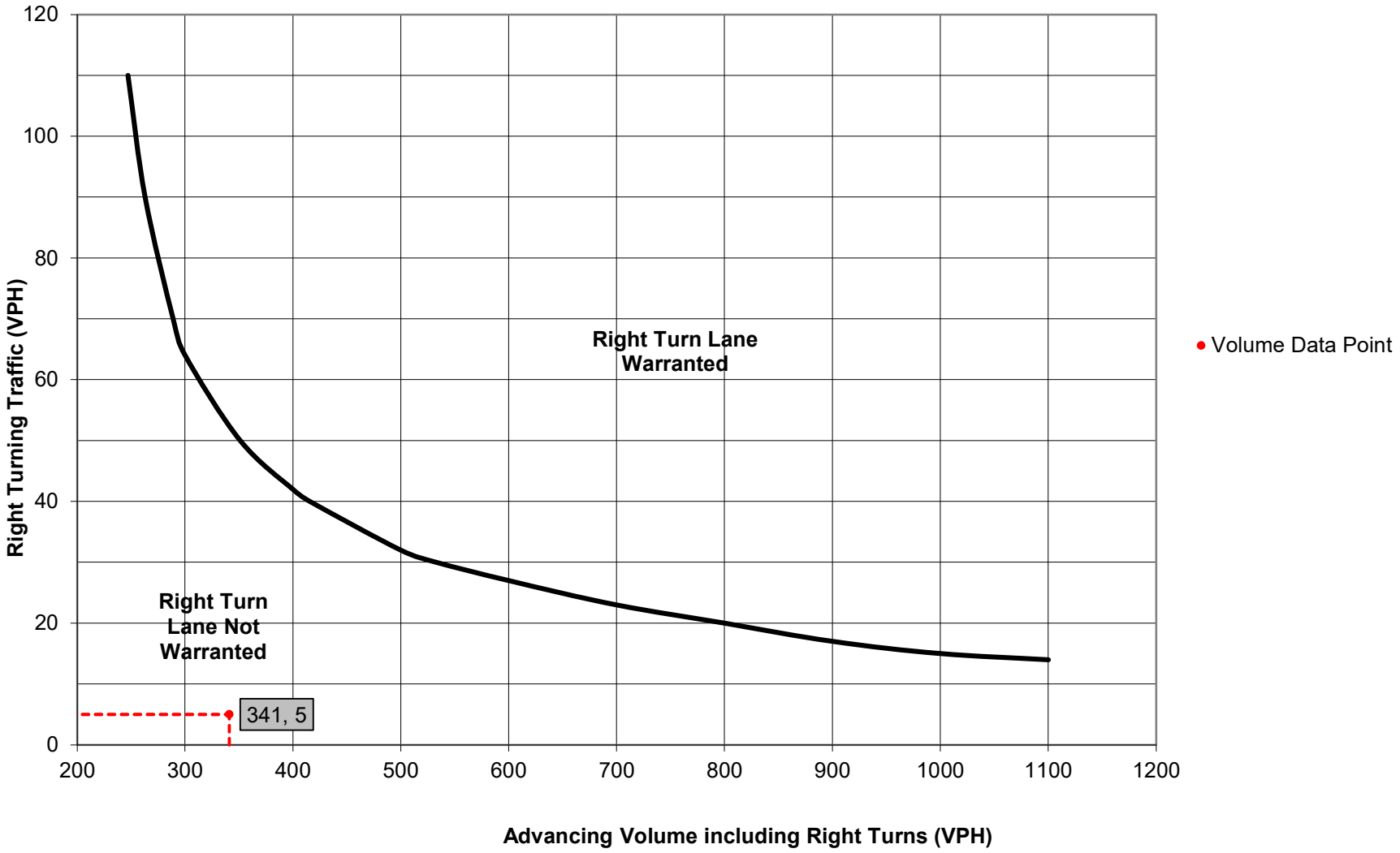
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	38	3.0%	40
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 44
Opposing Volume: 0
Left Turn Volume: 4
% Left Turns in Advancing Volume: 9.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

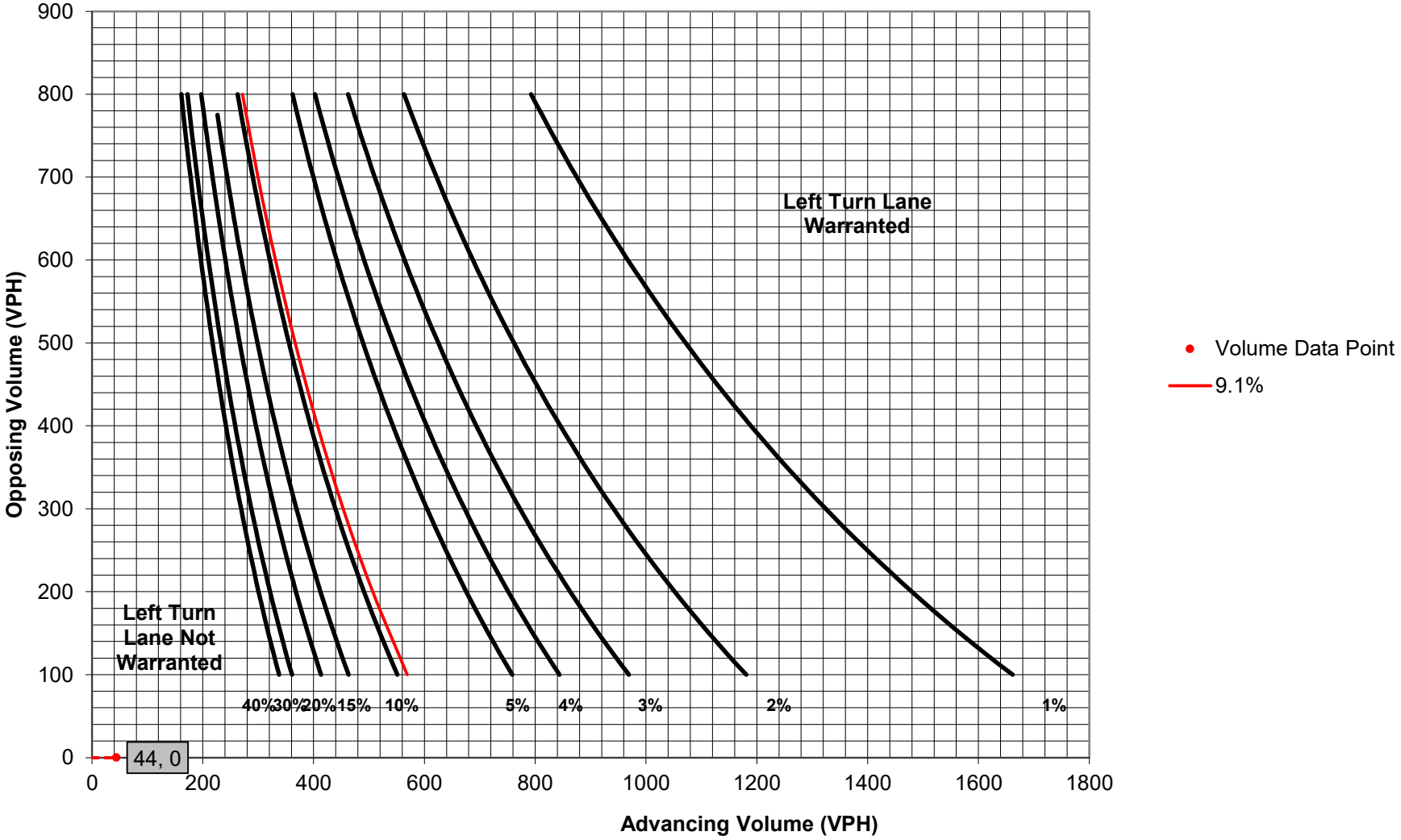
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	38	3.0%	40

Advancing Volume: 44
Right Turn Volume: 40

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

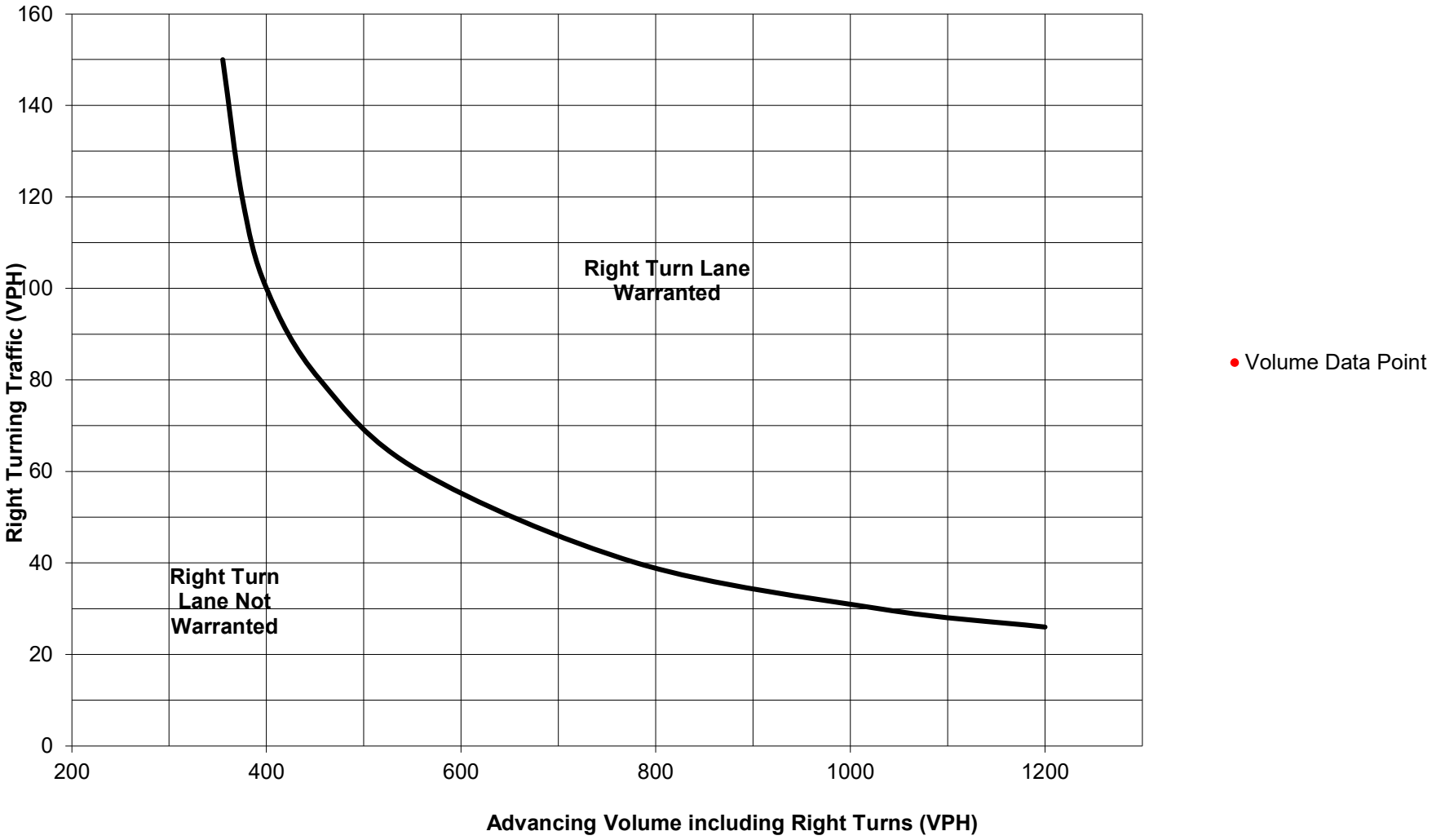
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	0.0%	25
	Through	-	316	4.0%	335
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	312	5.0%	336
	Right	Yes	5	0.0%	5

Advancing Volume: 360
Opposing Volume: 341
Left Turn Volume: 25
% Left Turns in Advancing Volume: 6.94%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

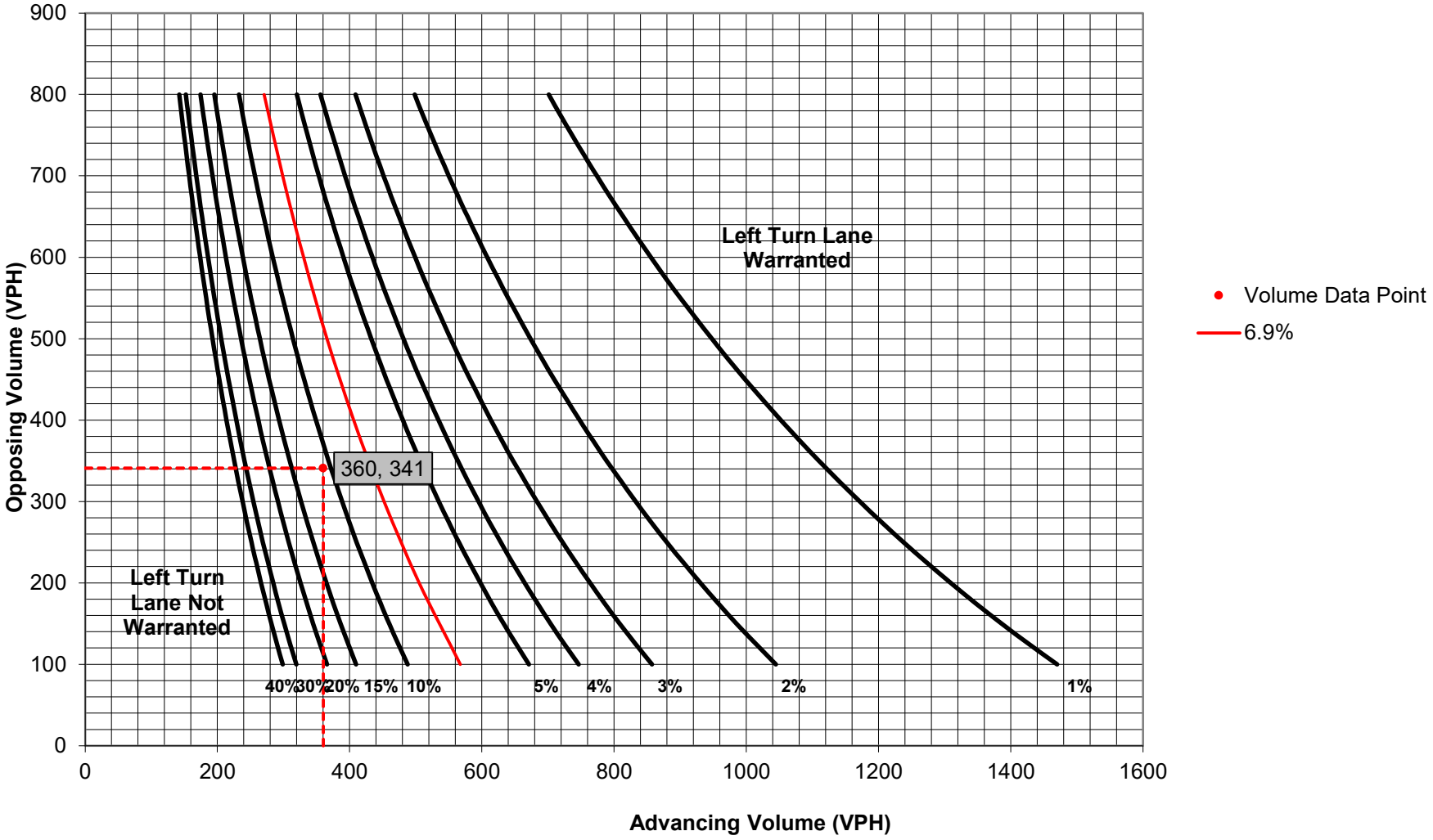
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	487	1.0%	495
	Right	-	10	0.0%	10

Advancing Volume: 505
Right Turn Volume: 10

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

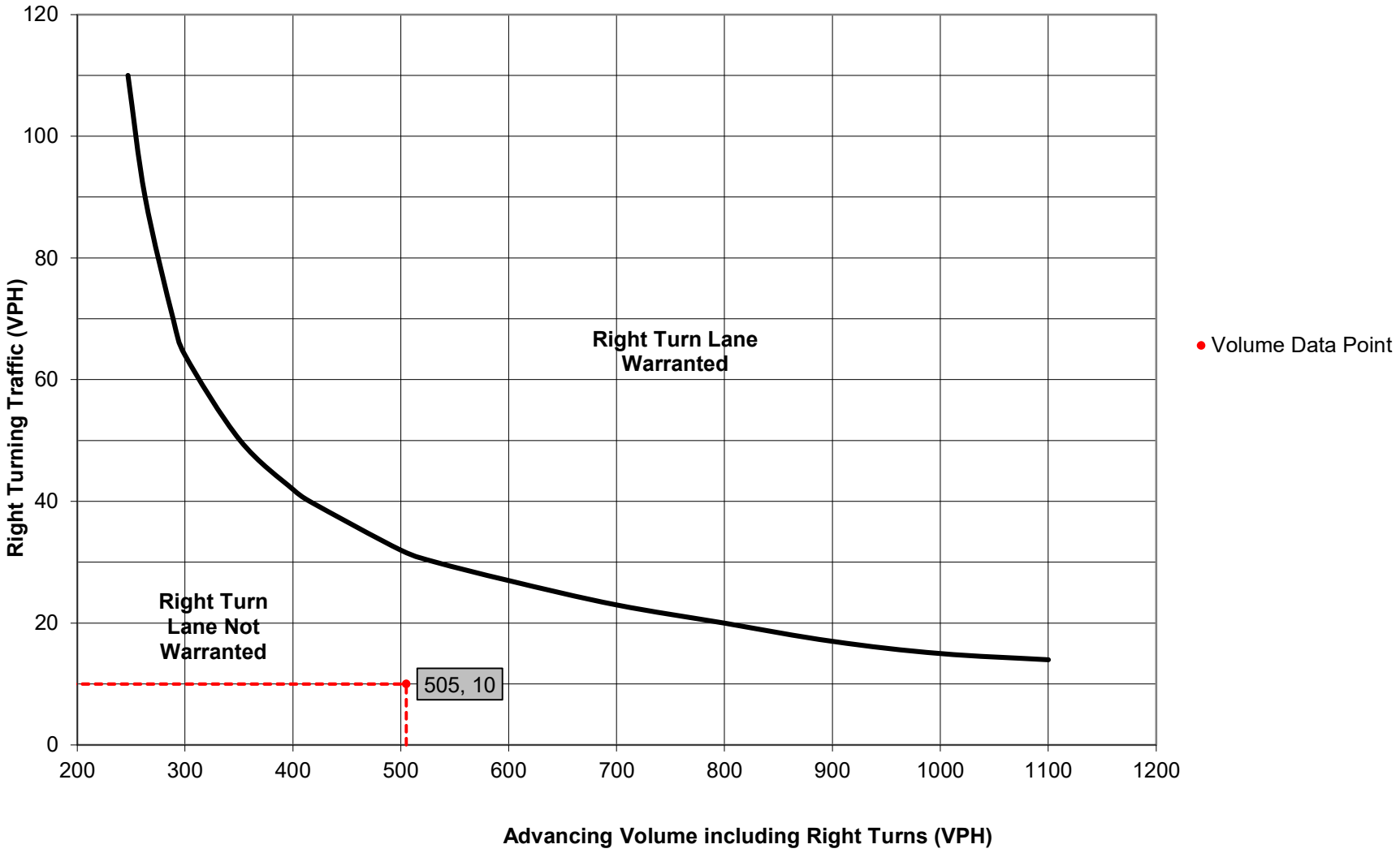
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	65	6.0%	71
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 75
Opposing Volume: 0
Left Turn Volume: 4
% Left Turns in Advancing Volume: 5.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

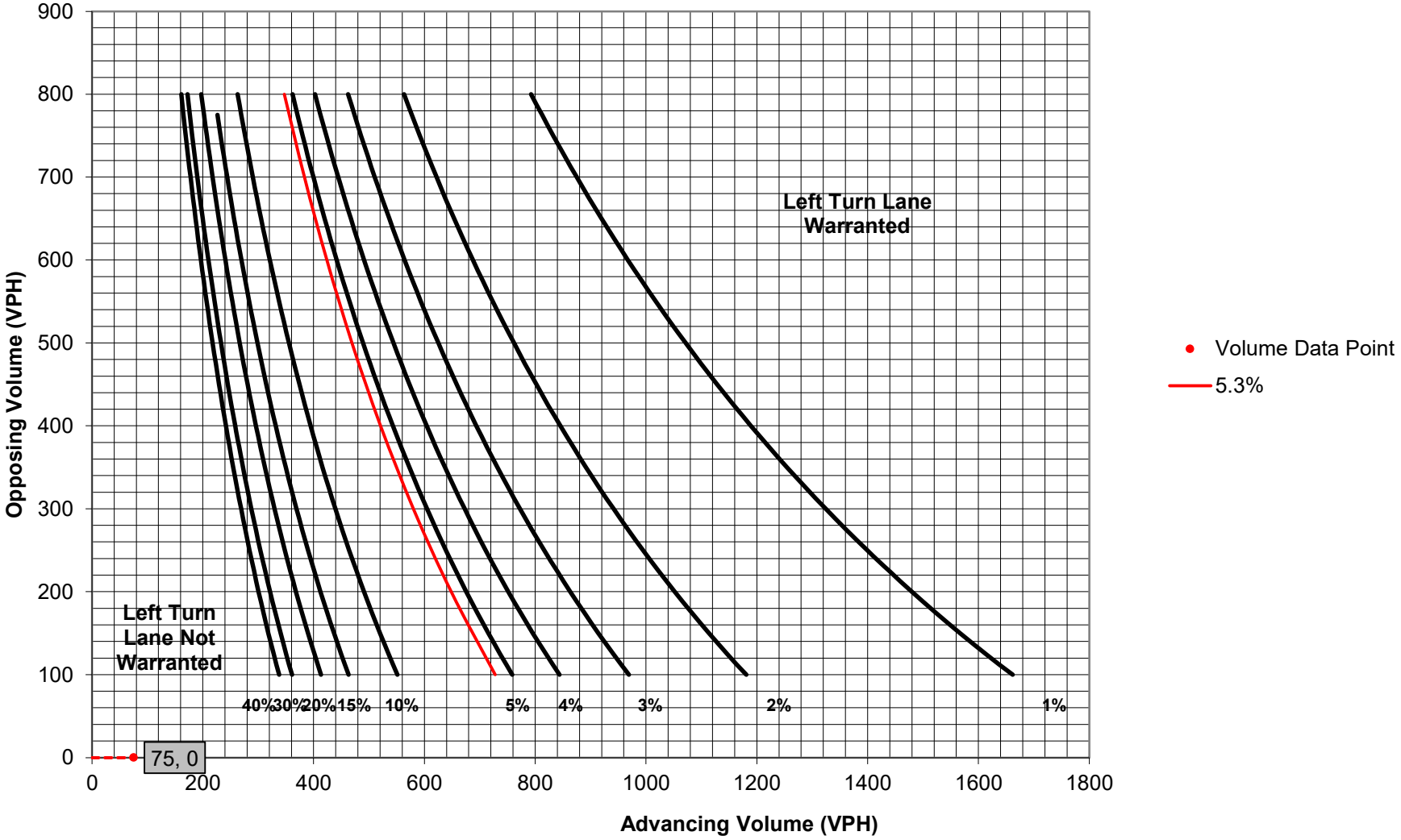
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	65	6.0%	71

Advancing Volume: 75
Right Turn Volume: 71

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	71
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

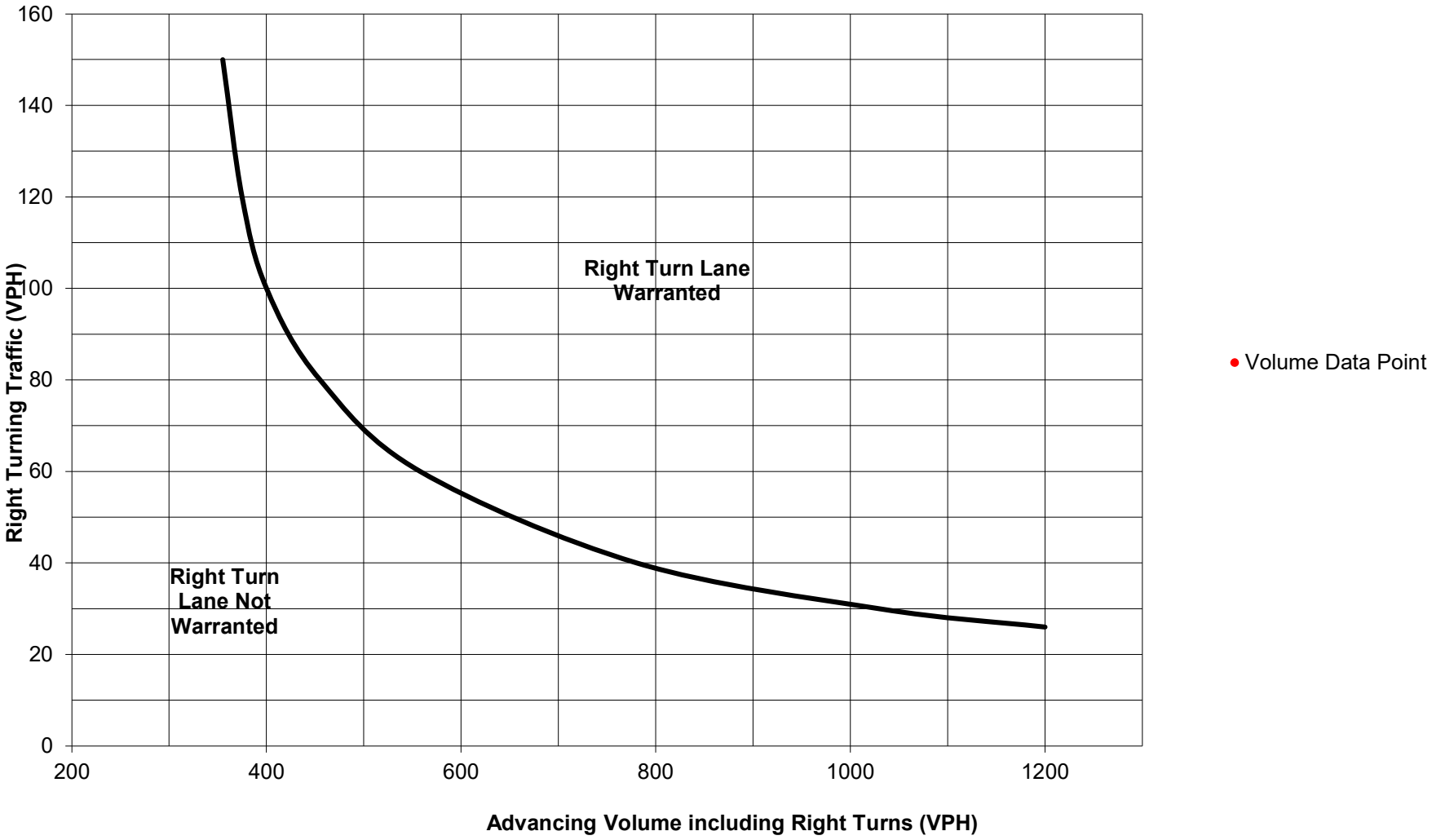
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	36	0.0%	36
	Through	-	523	1.0%	531
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	487	1.0%	495
	Right	Yes	10	0.0%	10

Advancing Volume:	567
Opposing Volume:	505
Left Turn Volume:	36
% Left Turns in Advancing Volume:	6.35%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

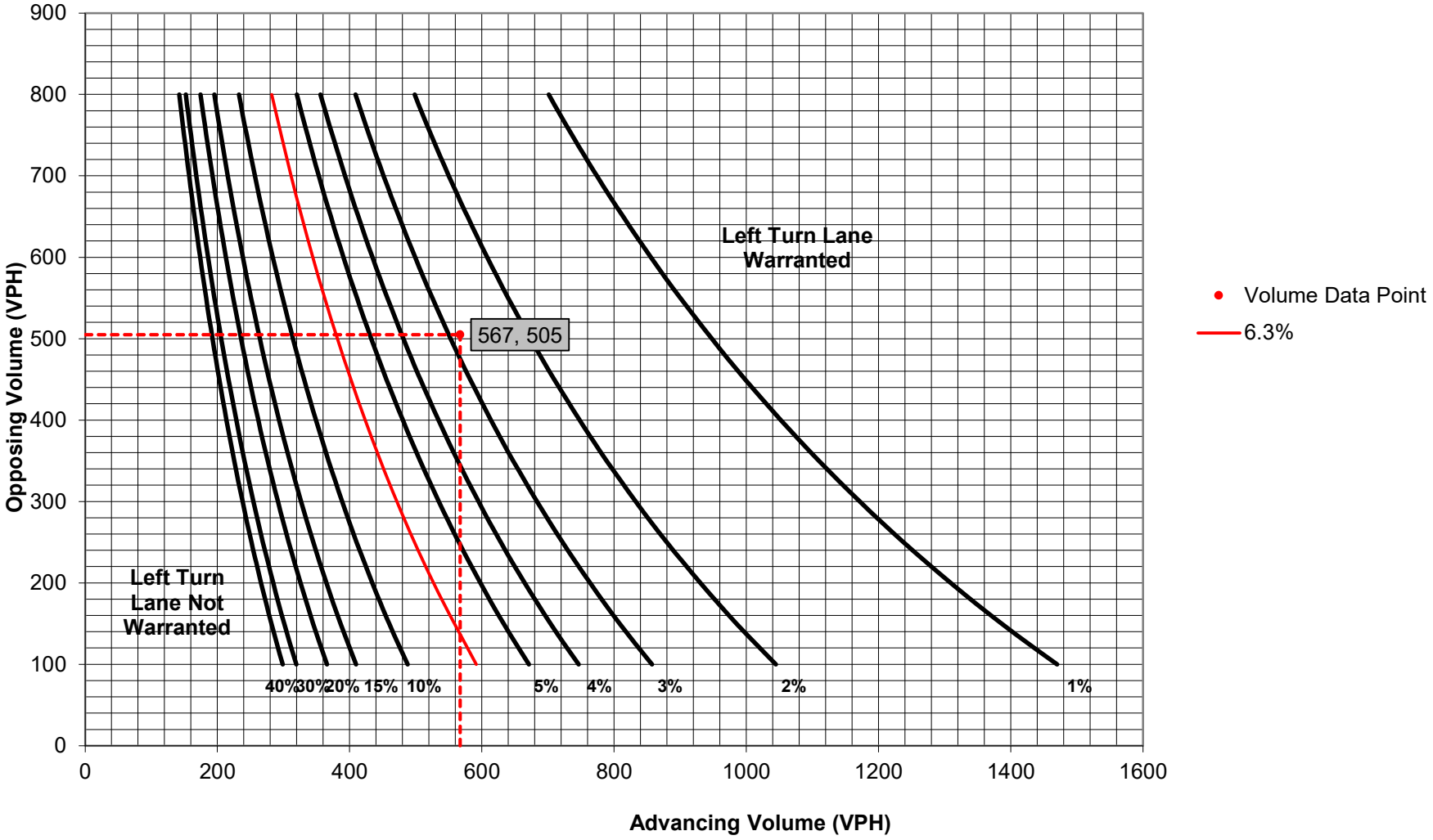
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**125**	**Feet**

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



WEEKEND

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	37	5.0%	40

Advancing Volume: 40
Right Turn Volume: 40

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

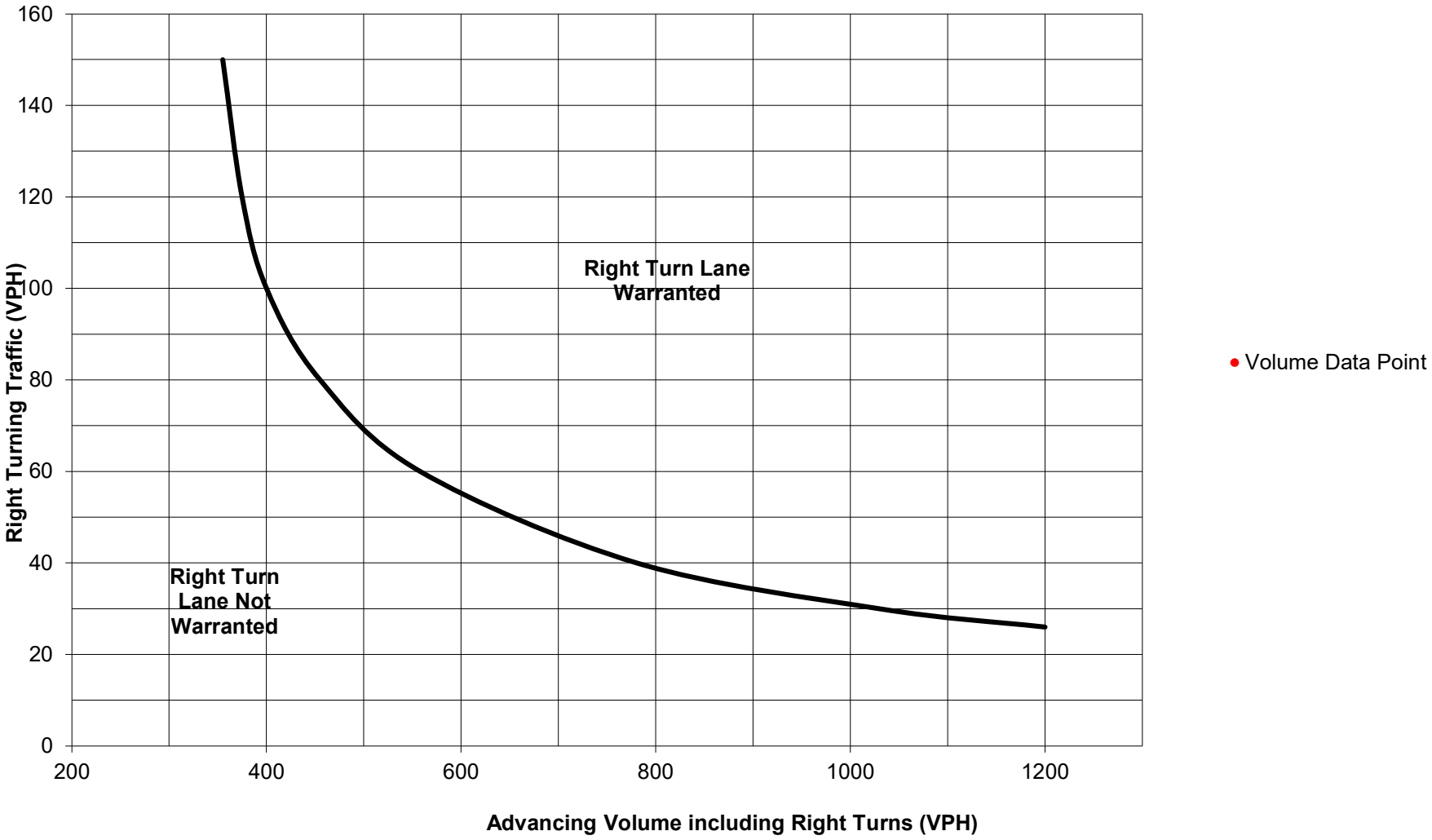
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	6.0%	39
	Through	-	0	0.0%	0
	Right	Yes	1	0.0%	1
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 40
Opposing Volume: 0
Left Turn Volume: 39
% Left Turns in Advancing Volume: 97.50%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	39
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

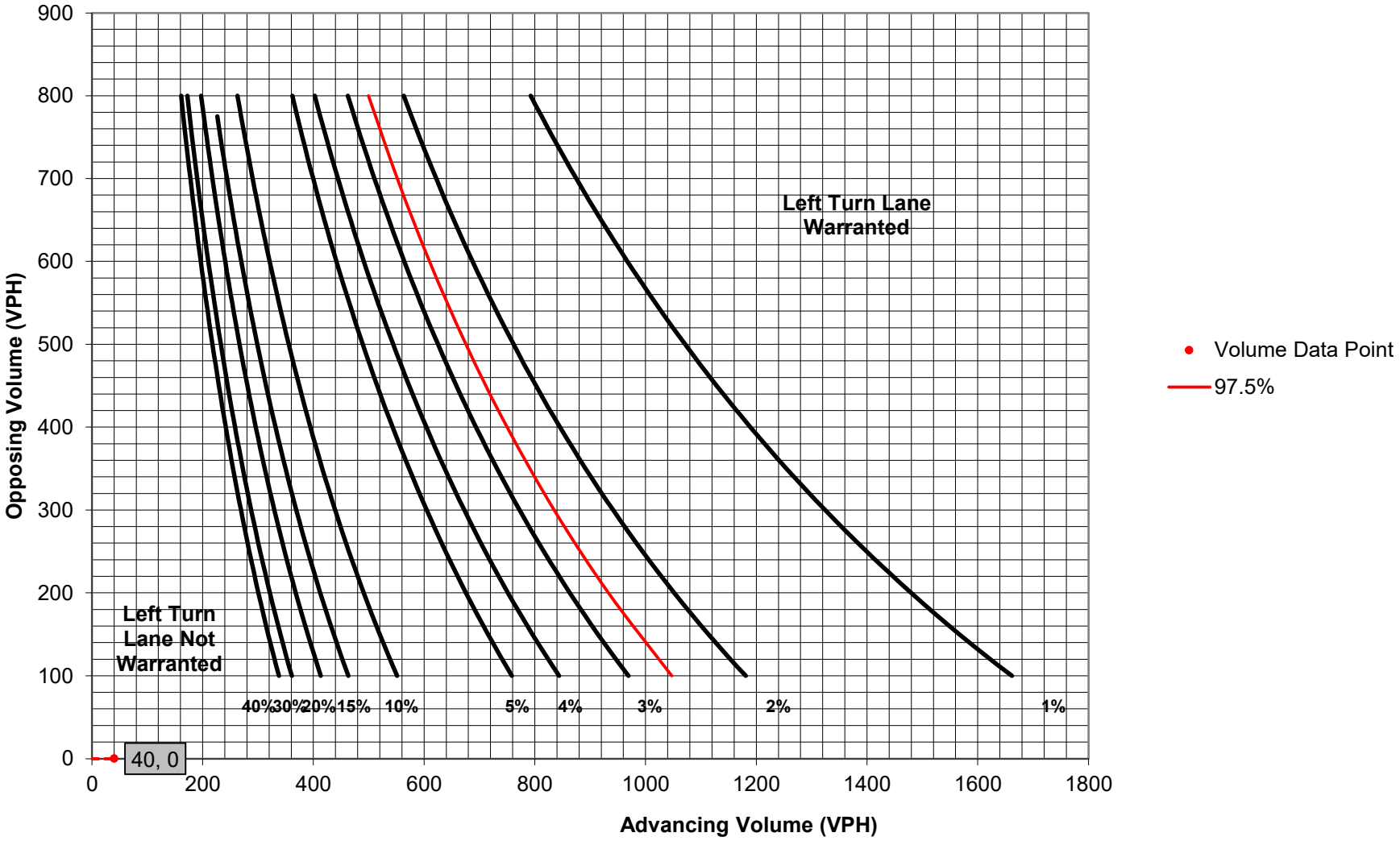
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	6.0%	39
	Through	-	0	0.0%	0
	Right	-	1	0.0%	1

Advancing Volume: 40
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

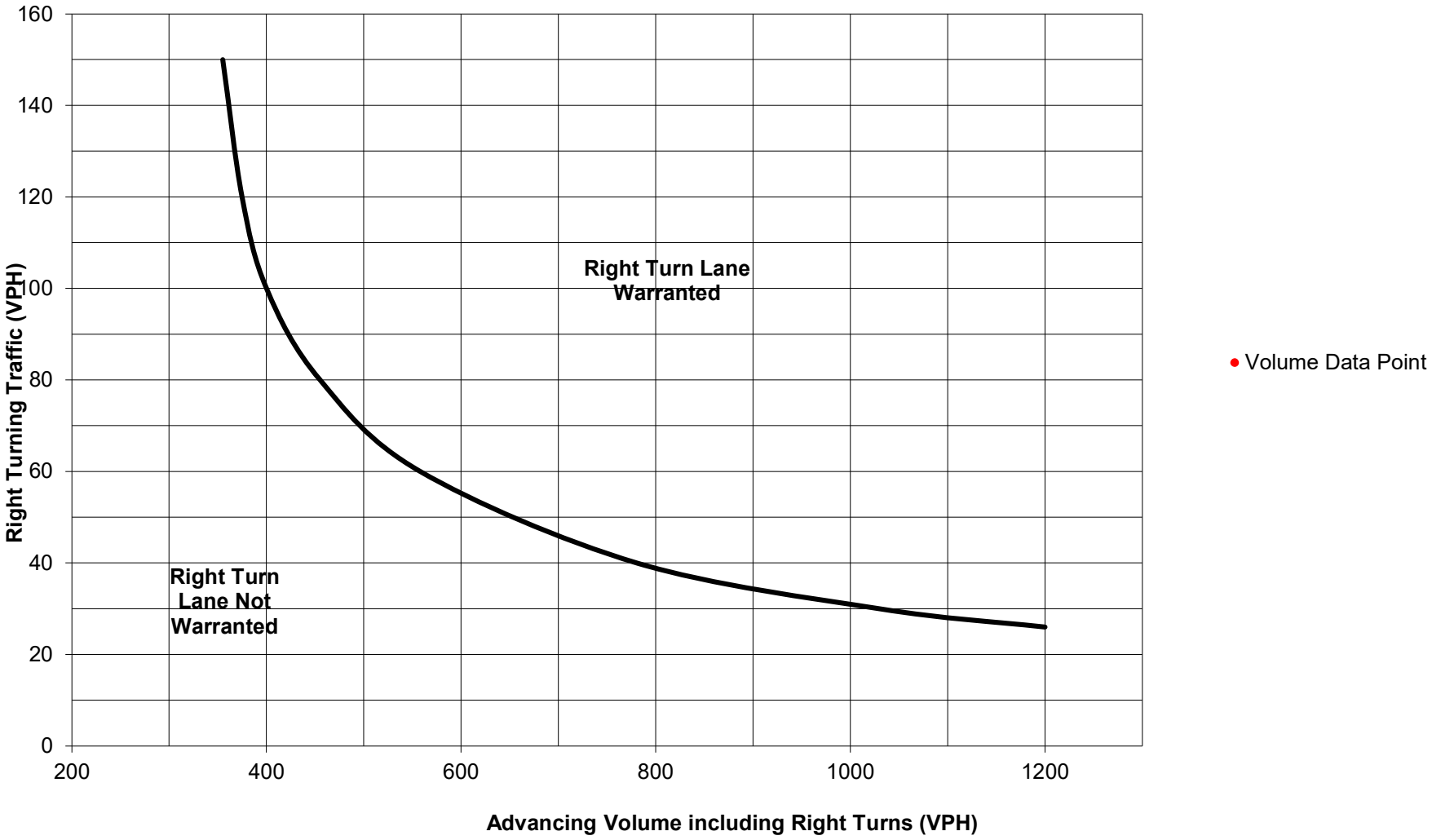
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	37	5.0%	N/A

Advancing Volume:	1
Opposing Volume:	0
Left Turn Volume:	1
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

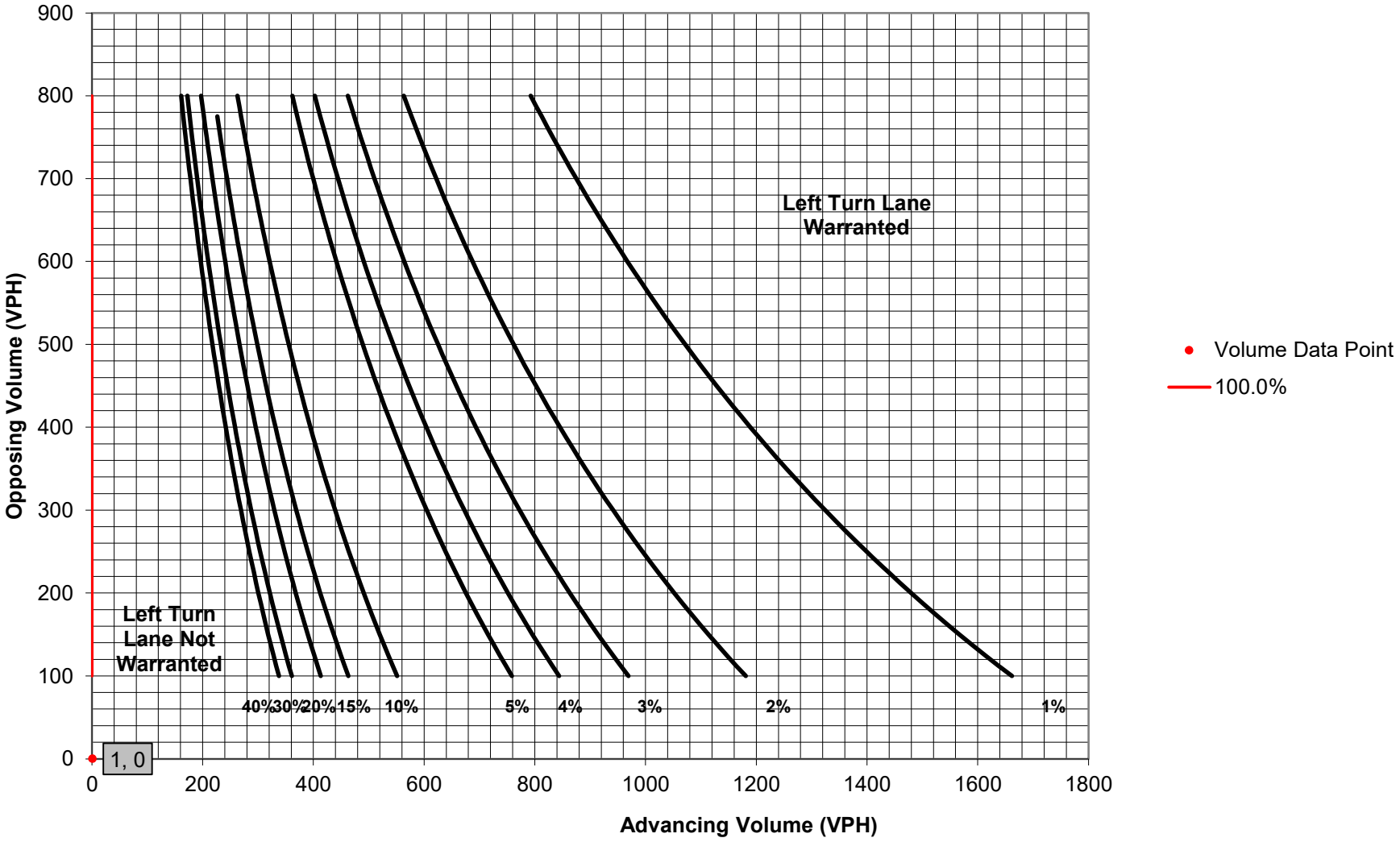
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	50	2.0%	52

Advancing Volume: 52
Right Turn Volume: 52

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	52
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

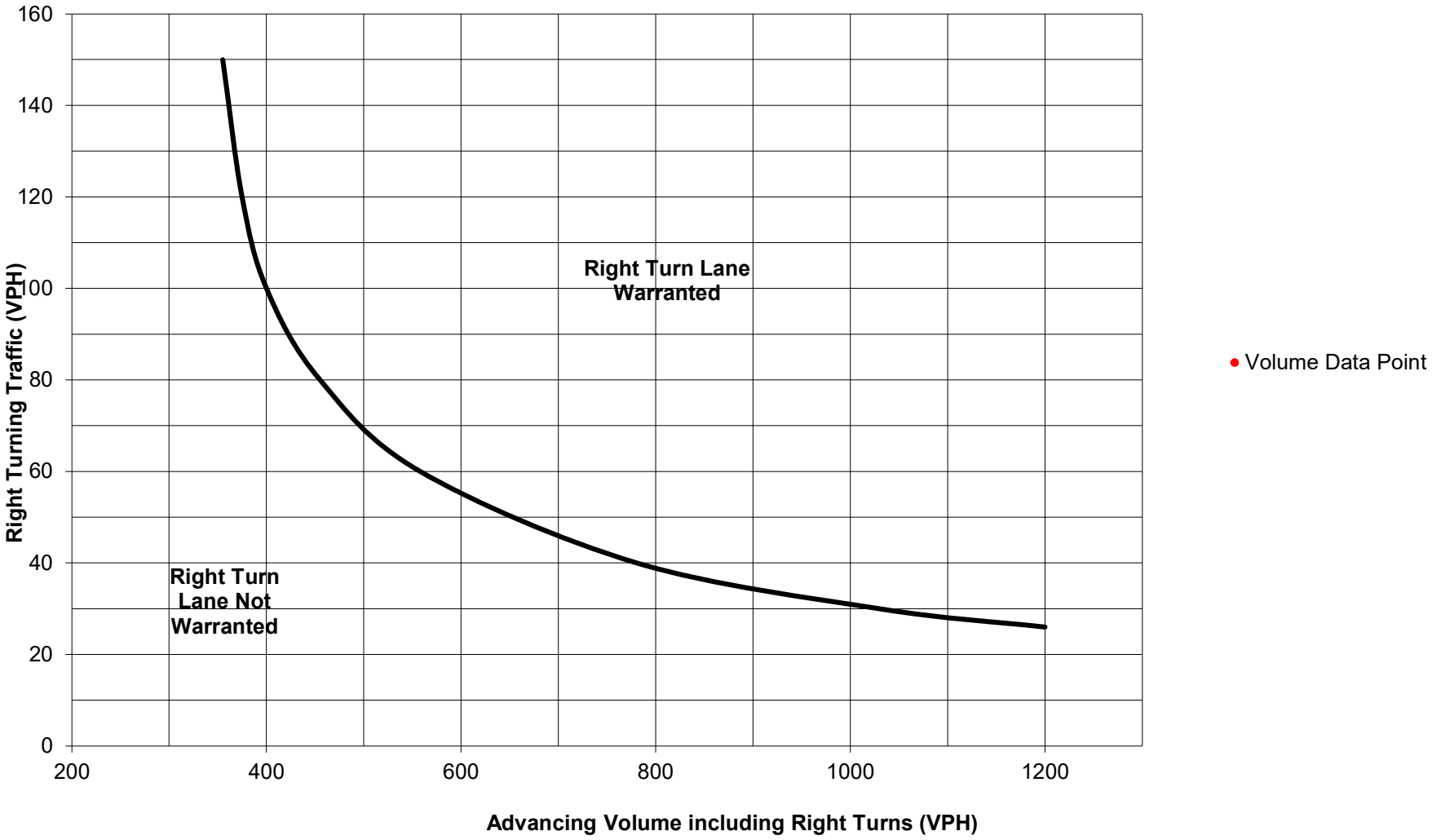
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	0.0%	54
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	54
Opposing Volume:	0
Left Turn Volume:	54
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	54
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

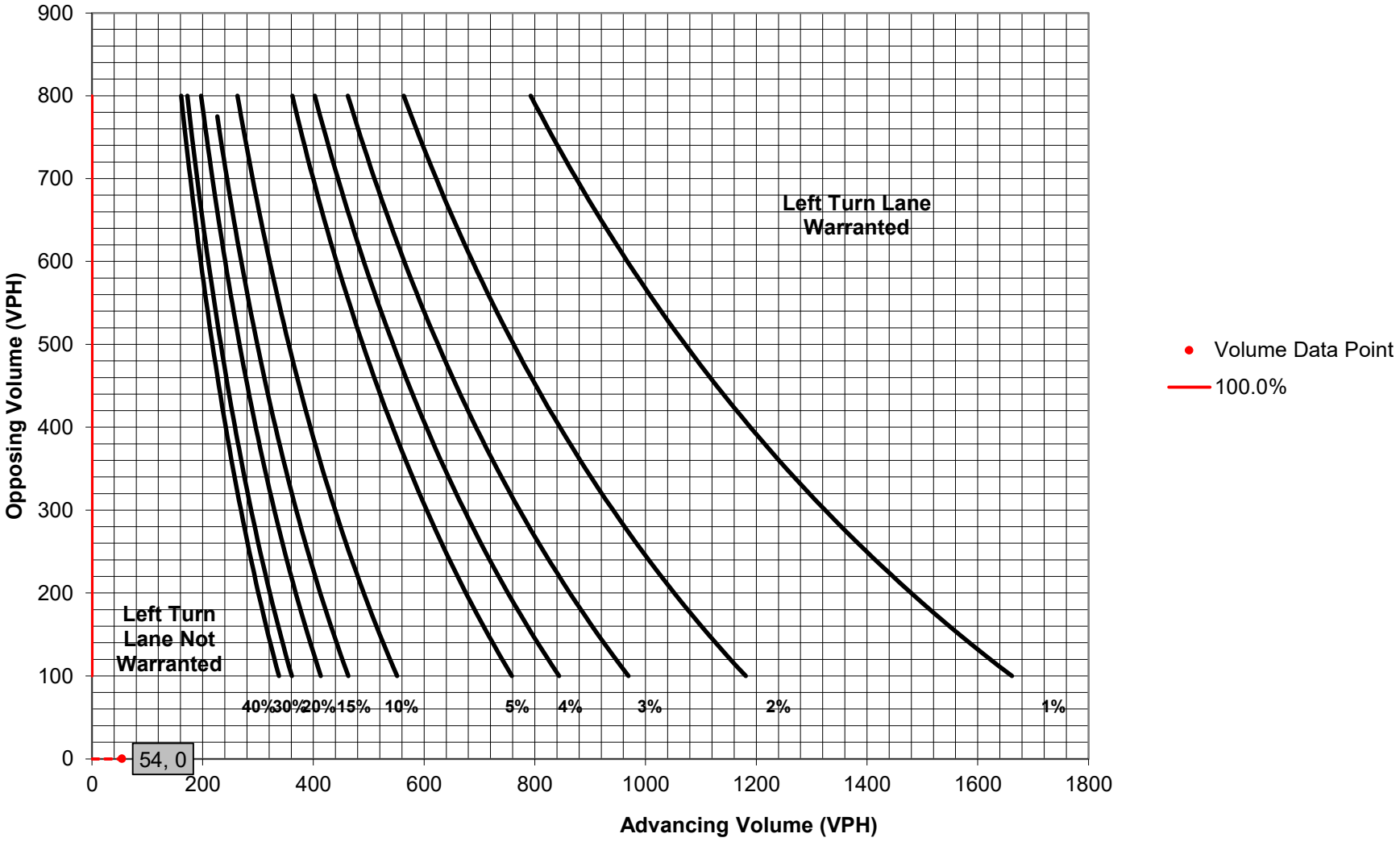
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	54	0.0%	54
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 54
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

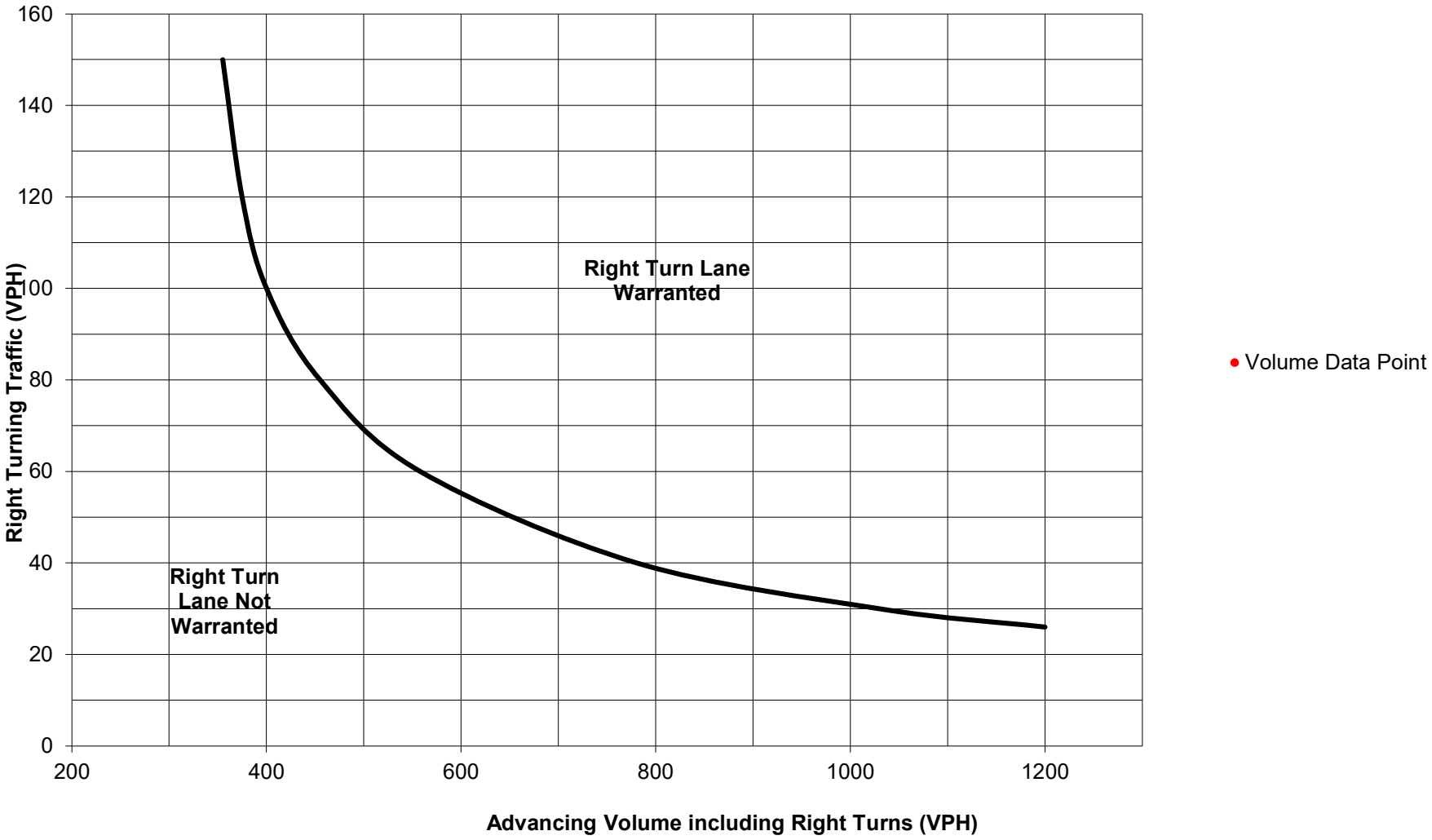
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	50	2.0%	N/A

Advancing Volume:	0
Opposing Volume:	0
Left Turn Volume:	0
% Left Turns in Advancing Volume:	#DIV/0!

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

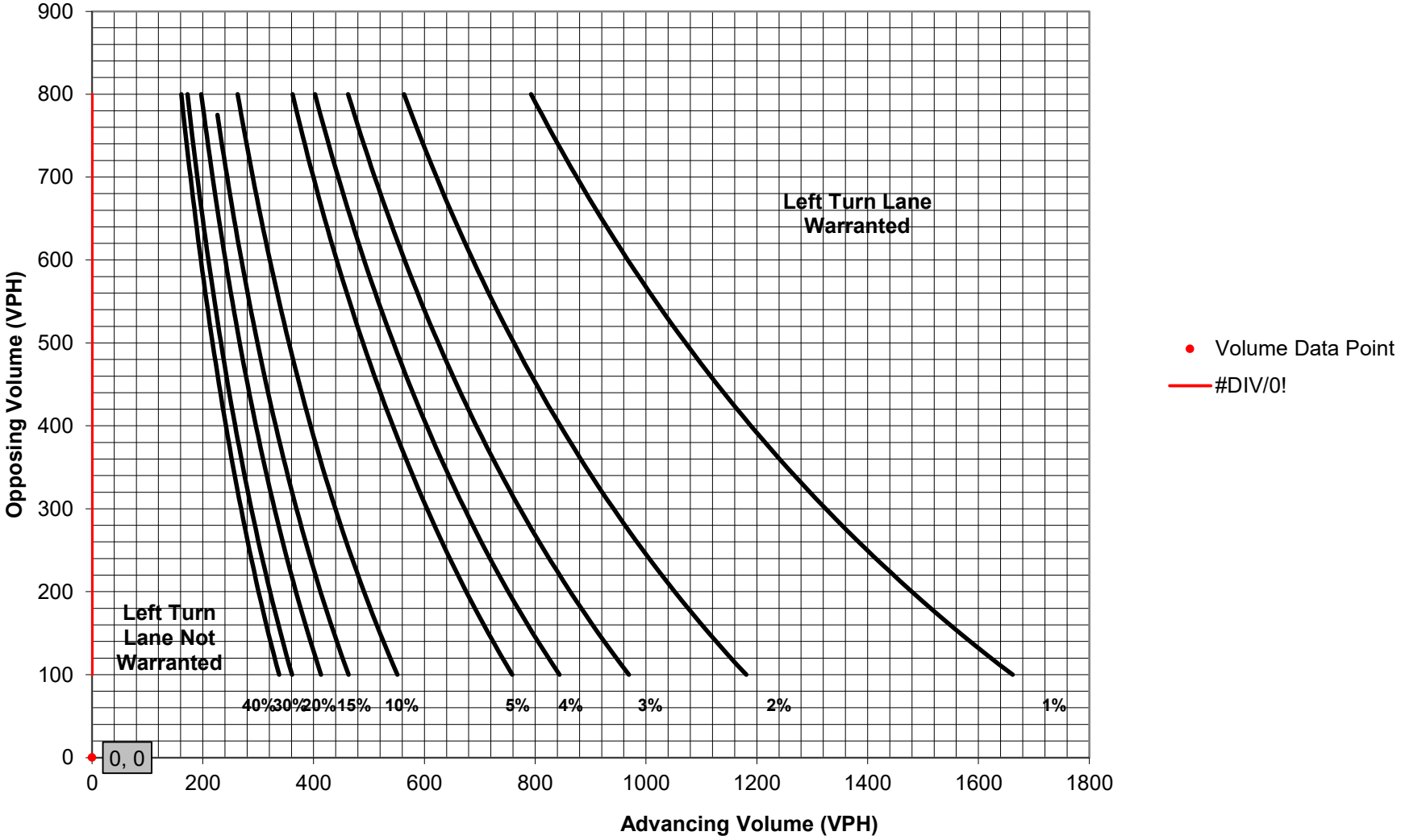
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	0.0%	14
	Through	-	191	0.0%	191
	Right	No	39	0.0%	N/A
Opposing	Left	No	28	11.0%	N/A
	Through	-	203	0.0%	203
	Right	Yes	23	0.0%	23

Advancing Volume:	205
Opposing Volume:	226
Left Turn Volume:	14
% Left Turns in Advancing Volume:	6.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

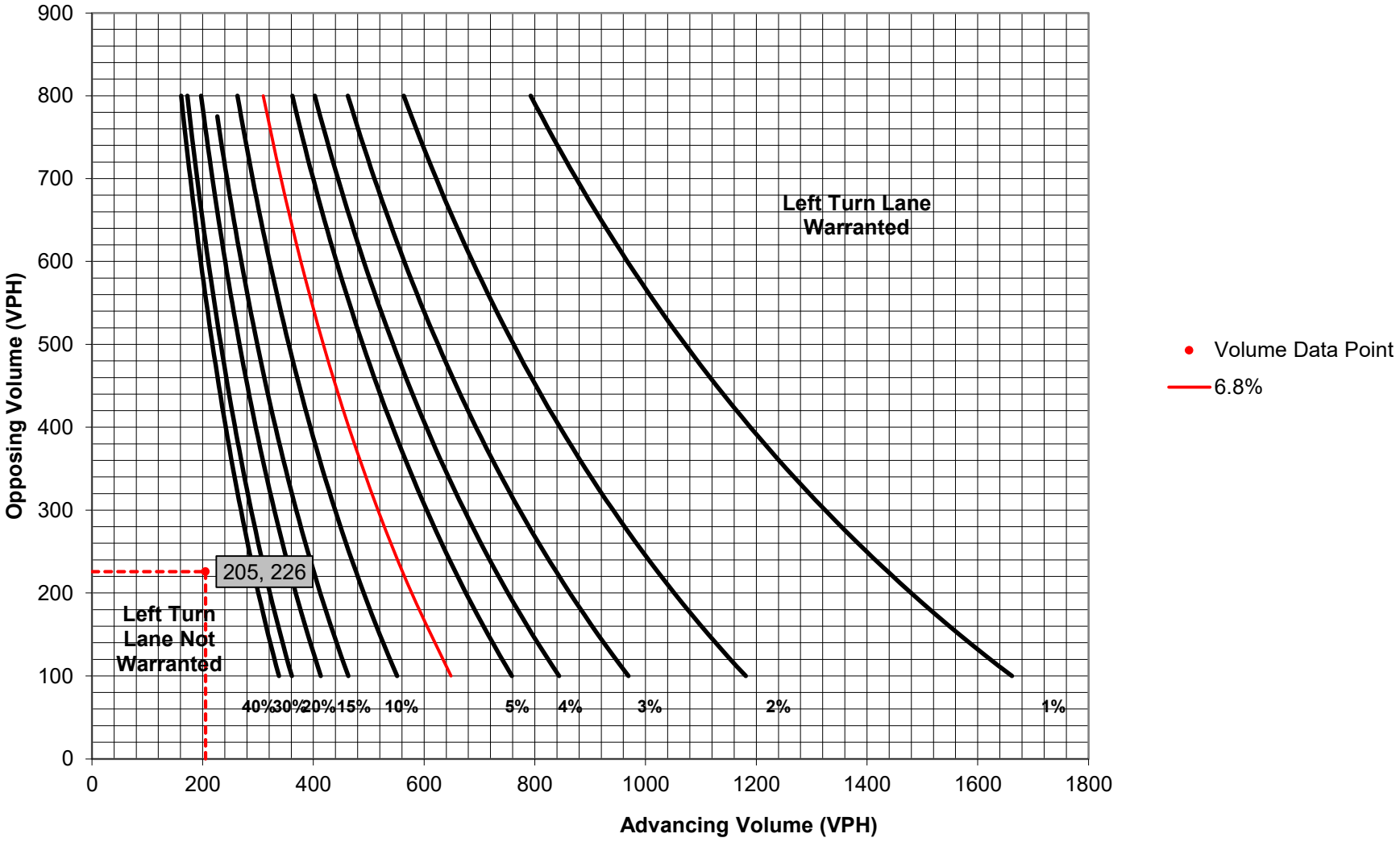
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	14	0.0%	N/A
	Through	-	191	0.0%	191
	Right	-	39	0.0%	39

Advancing Volume: 230
Right Turn Volume: 39

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	39
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

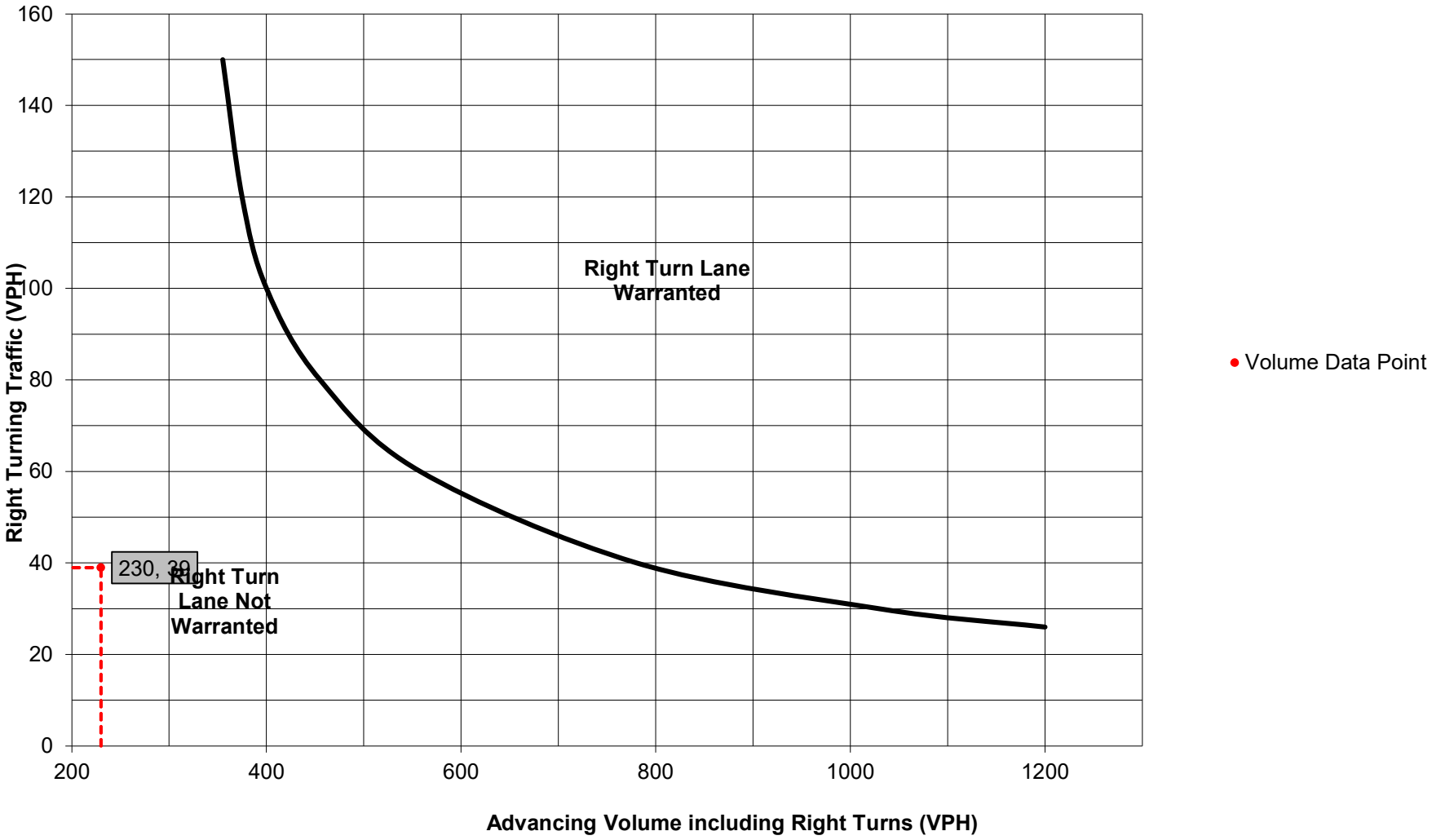
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	34	24.0%	47
	Through	-	0	0.0%	0
	Right	No	45	9.0%	N/A
Opposing	Left	No	24	4.0%	N/A
	Through	-	0	0.0%	0
	Right	No	14	7.0%	N/A

Advancing Volume:	47
Opposing Volume:	0
Left Turn Volume:	47
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	47
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

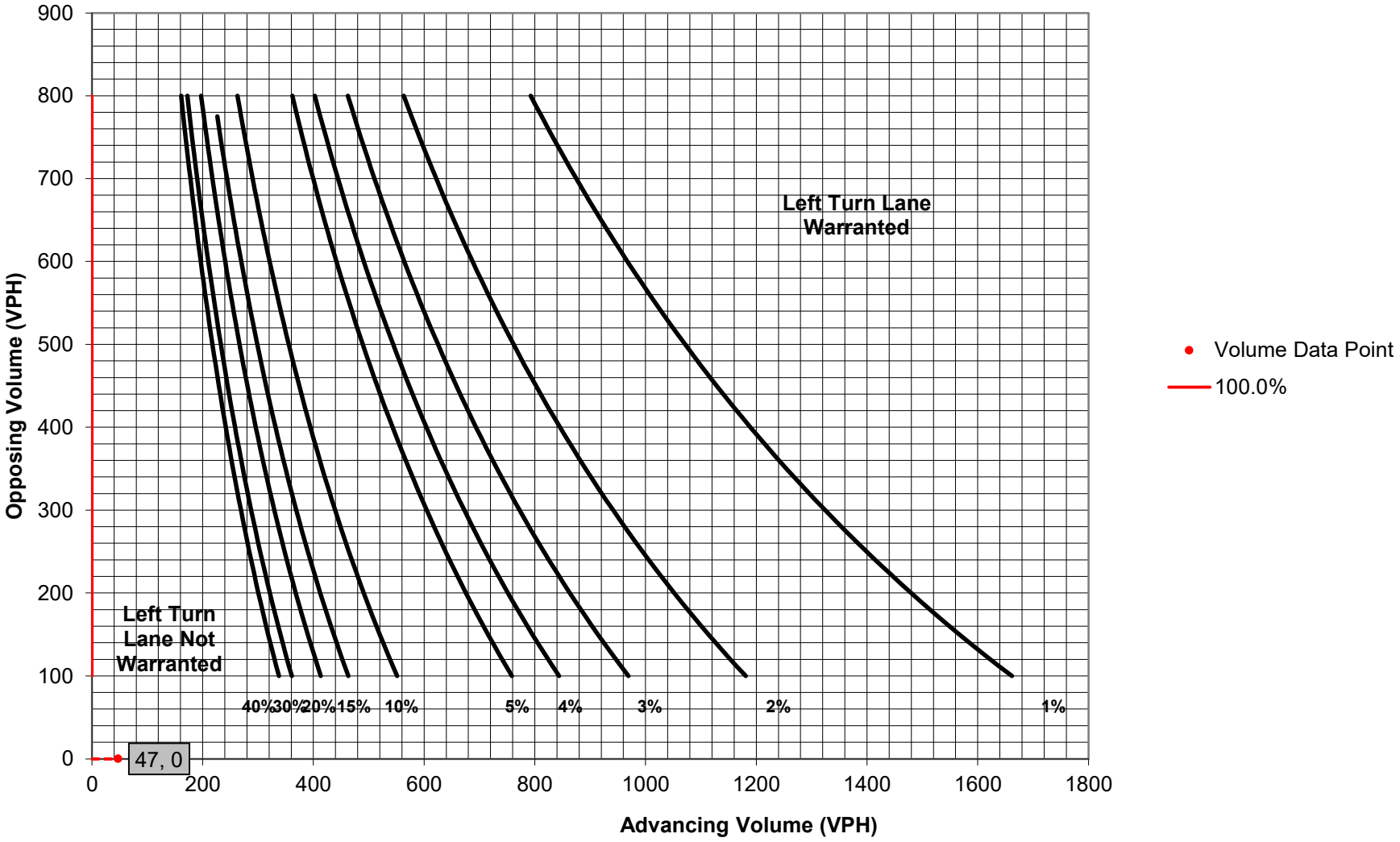
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	34	24.0%	N/A
	Through	-	0	0.0%	0
	Right	-	45	9.0%	52

Advancing Volume: 52
Right Turn Volume: 52

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	52
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

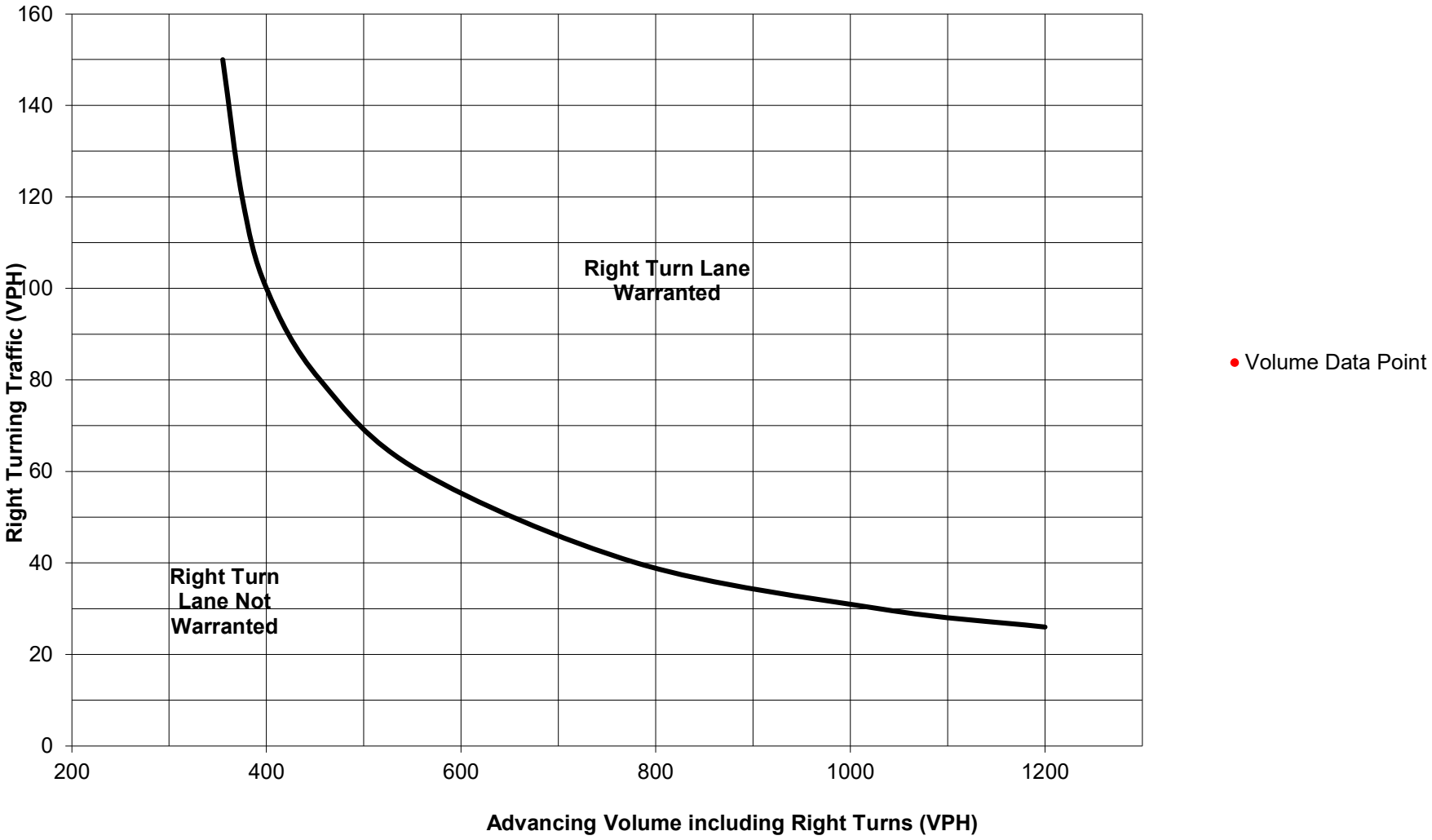
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	4.0%	26
	Through	-	0	0.0%	0
	Right	Yes	14	7.0%	16
Opposing	Left	No	34	24.0%	N/A
	Through	-	0	0.0%	0
	Right	No	45	9.0%	N/A

Advancing Volume:	42
Opposing Volume:	0
Left Turn Volume:	26
% Left Turns in Advancing Volume:	61.90%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

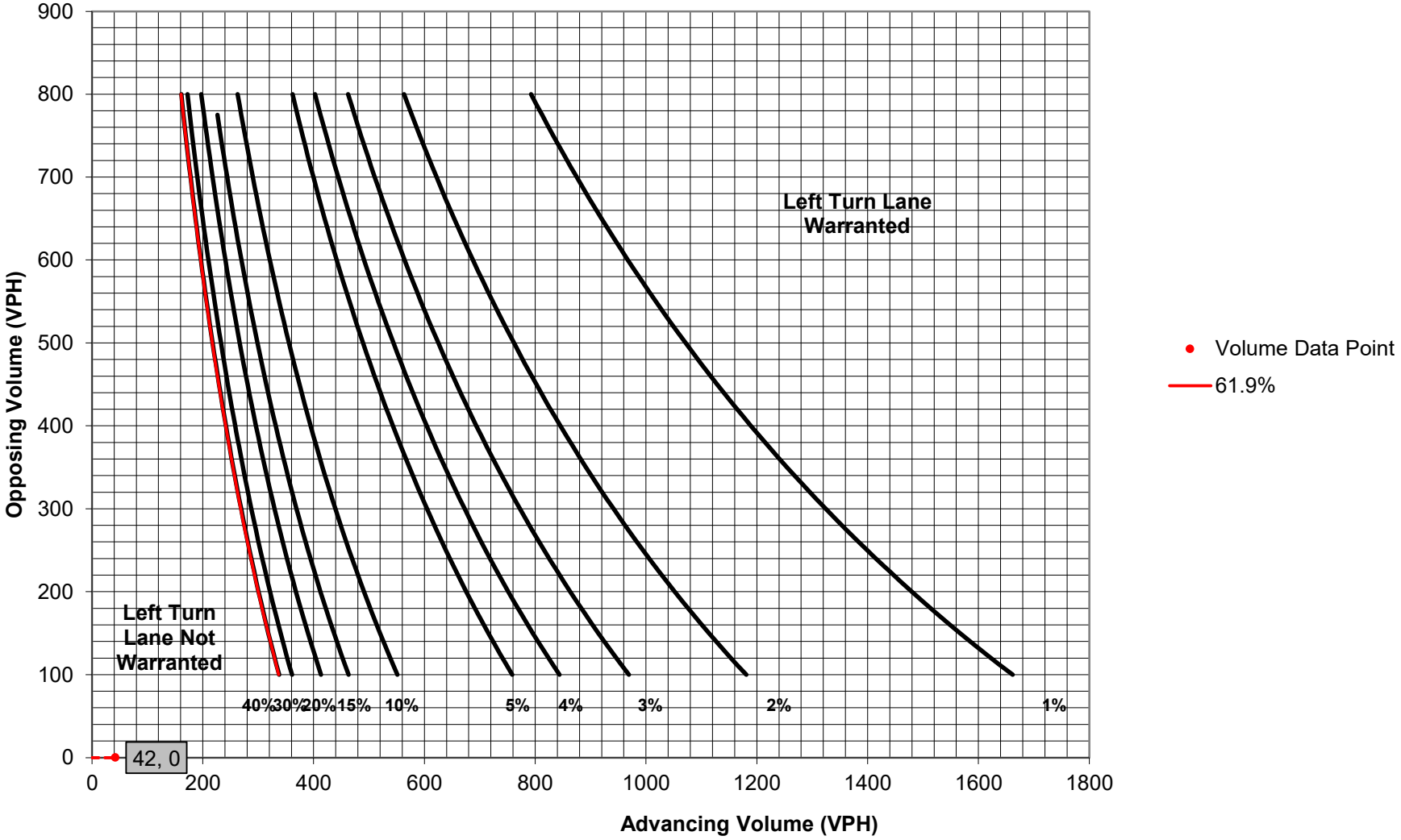
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	4.0%	26
	Through	-	0	0.0%	0
	Right	-	14	7.0%	16

Advancing Volume: 42
Right Turn Volume: 16

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	16
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

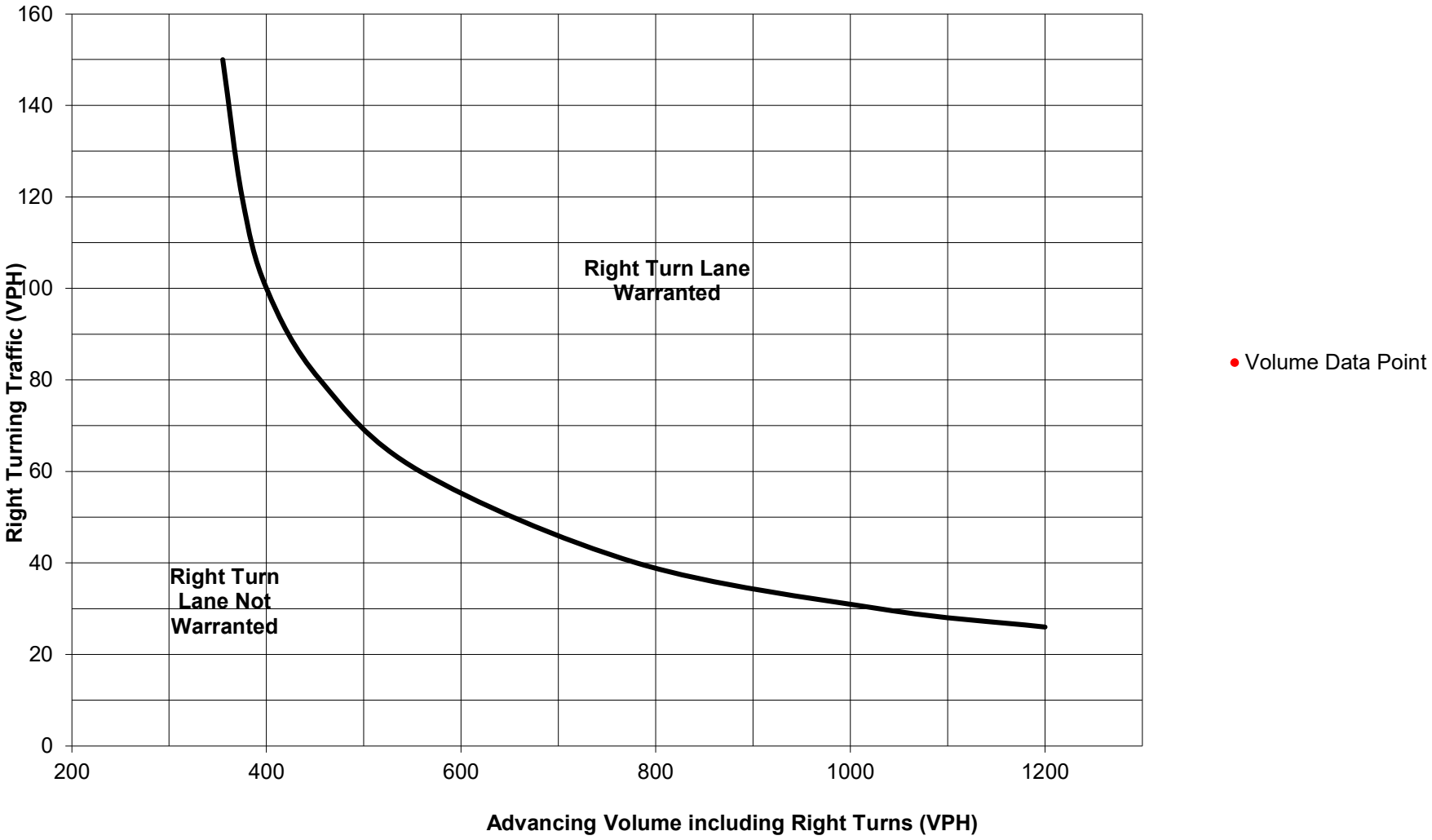
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	11.0%	33
	Through	-	203	0.0%	203
	Right	No	23	0.0%	N/A
Opposing	Left	No	14	0.0%	N/A
	Through	-	191	0.0%	191
	Right	No	39	0.0%	N/A

Advancing Volume:	236
Opposing Volume:	191
Left Turn Volume:	33
% Left Turns in Advancing Volume:	13.98%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

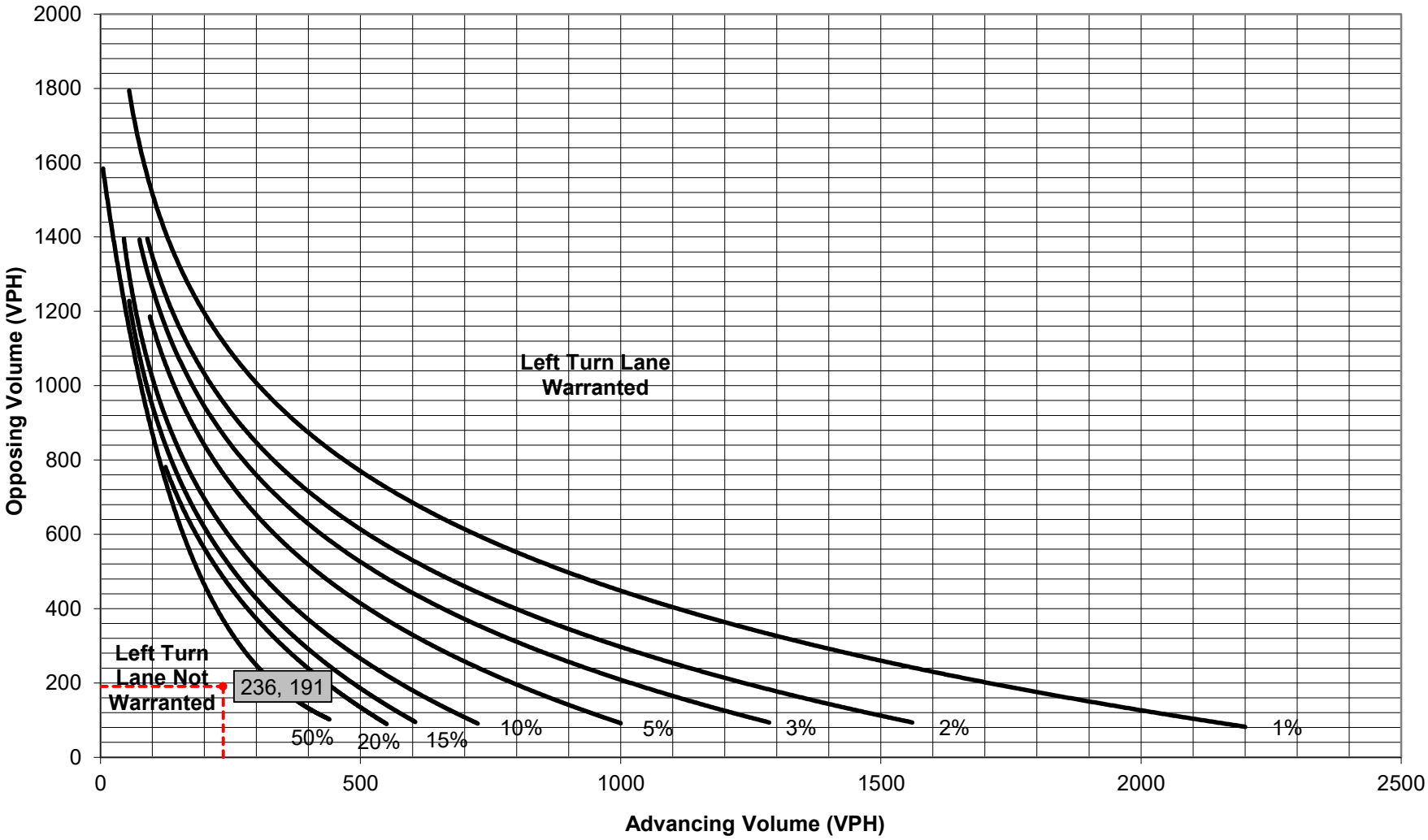
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	28	11.0%	N/A
	Through	-	203	0.0%	203
	Right	-	23	0.0%	23

Advancing Volume: 226
Right Turn Volume: 23

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	23
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

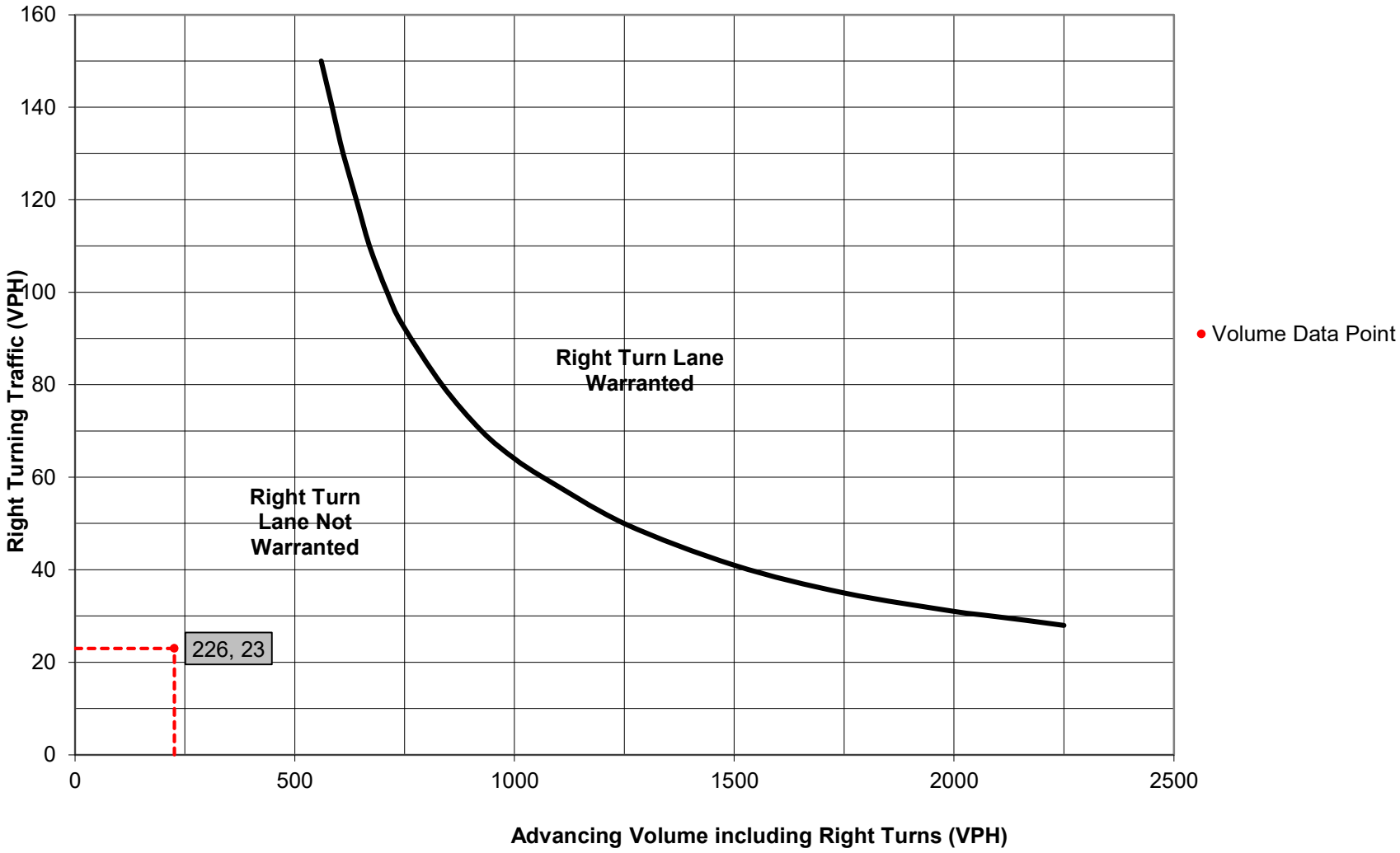
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	6.0%	18
	Through	-	217	0.0%	217
	Right	No	59	3.0%	N/A
Opposing	Left	No	28	11.0%	N/A
	Through	-	287	0.0%	287
	Right	Yes	17	0.0%	17

Advancing Volume:	235
Opposing Volume:	304
Left Turn Volume:	18
% Left Turns in Advancing Volume:	7.66%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

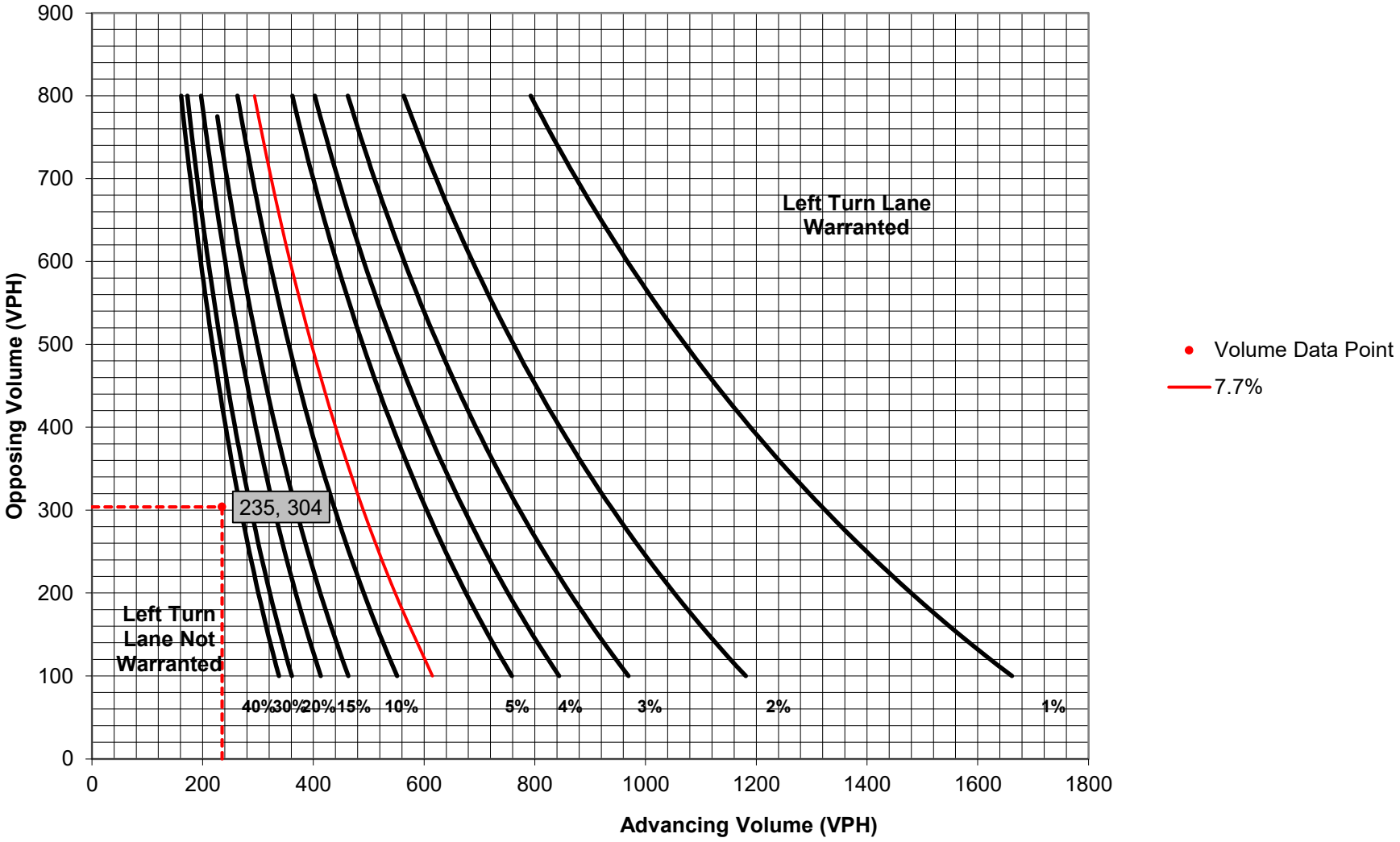
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	16	6.0%	N/A
	Through	-	217	0.0%	217
	Right	-	59	3.0%	62

Advancing Volume: 279
Right Turn Volume: 62

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	62
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

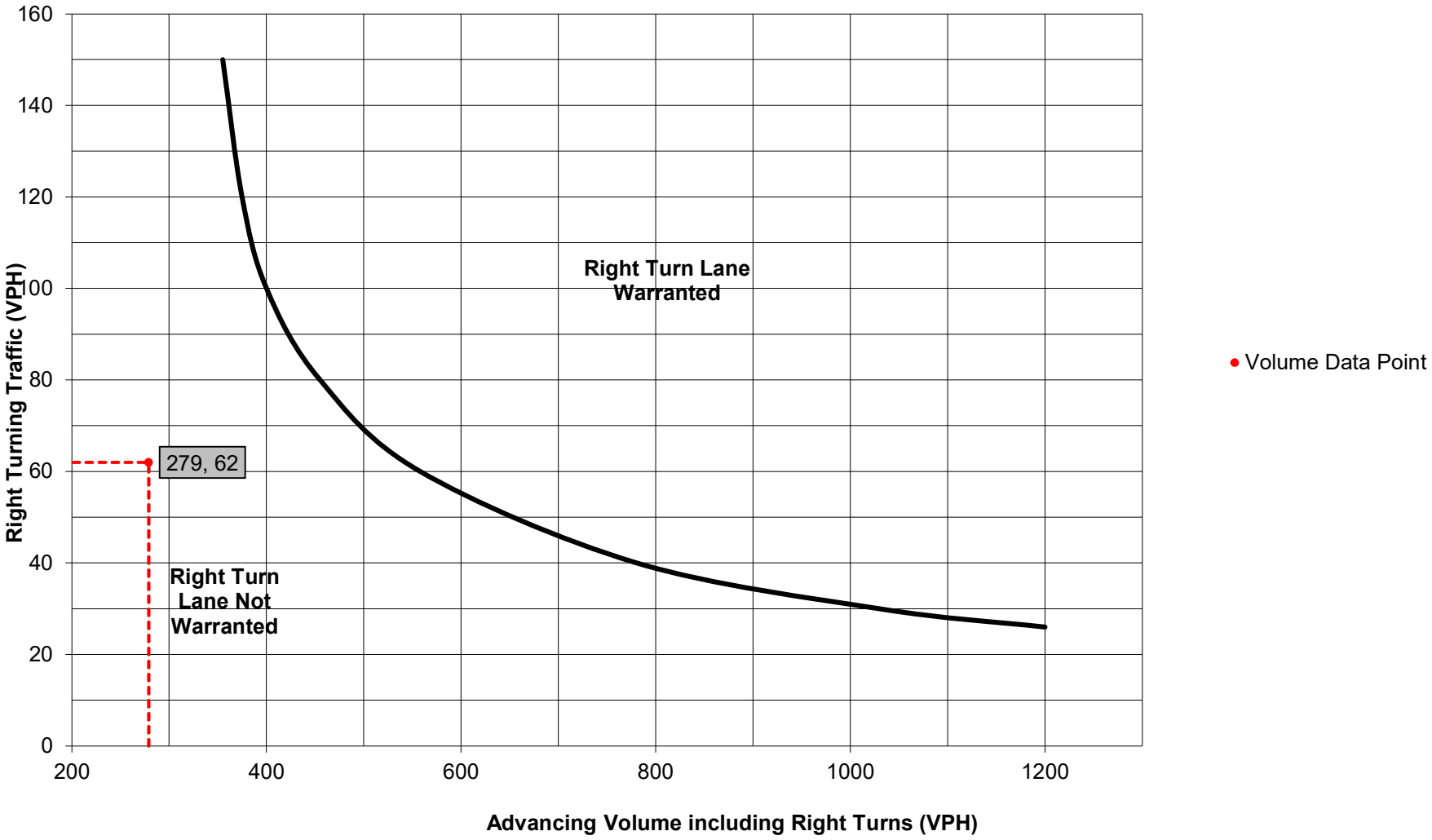
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	38	11.0%	45
	Through	-	1	0.0%	1
	Right	No	27	7.0%	N/A
Opposing	Left	No	20	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	25	0.0%	N/A

Advancing Volume:	46
Opposing Volume:	0
Left Turn Volume:	45
% Left Turns in Advancing Volume:	97.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

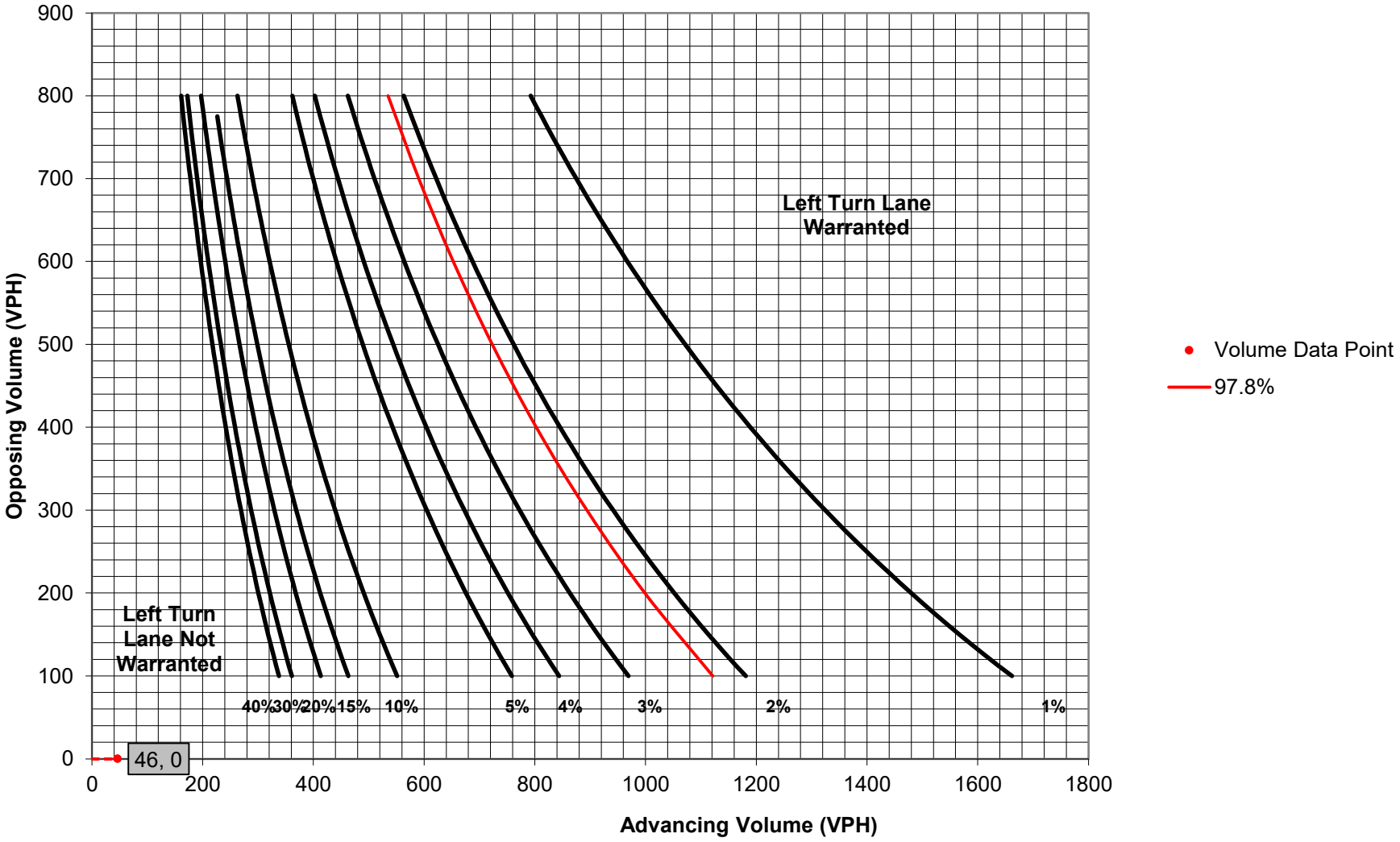
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	38	11.0%	N/A
	Through	-	1	0.0%	1
	Right	-	27	7.0%	30

Advancing Volume: 31
Right Turn Volume: 30

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

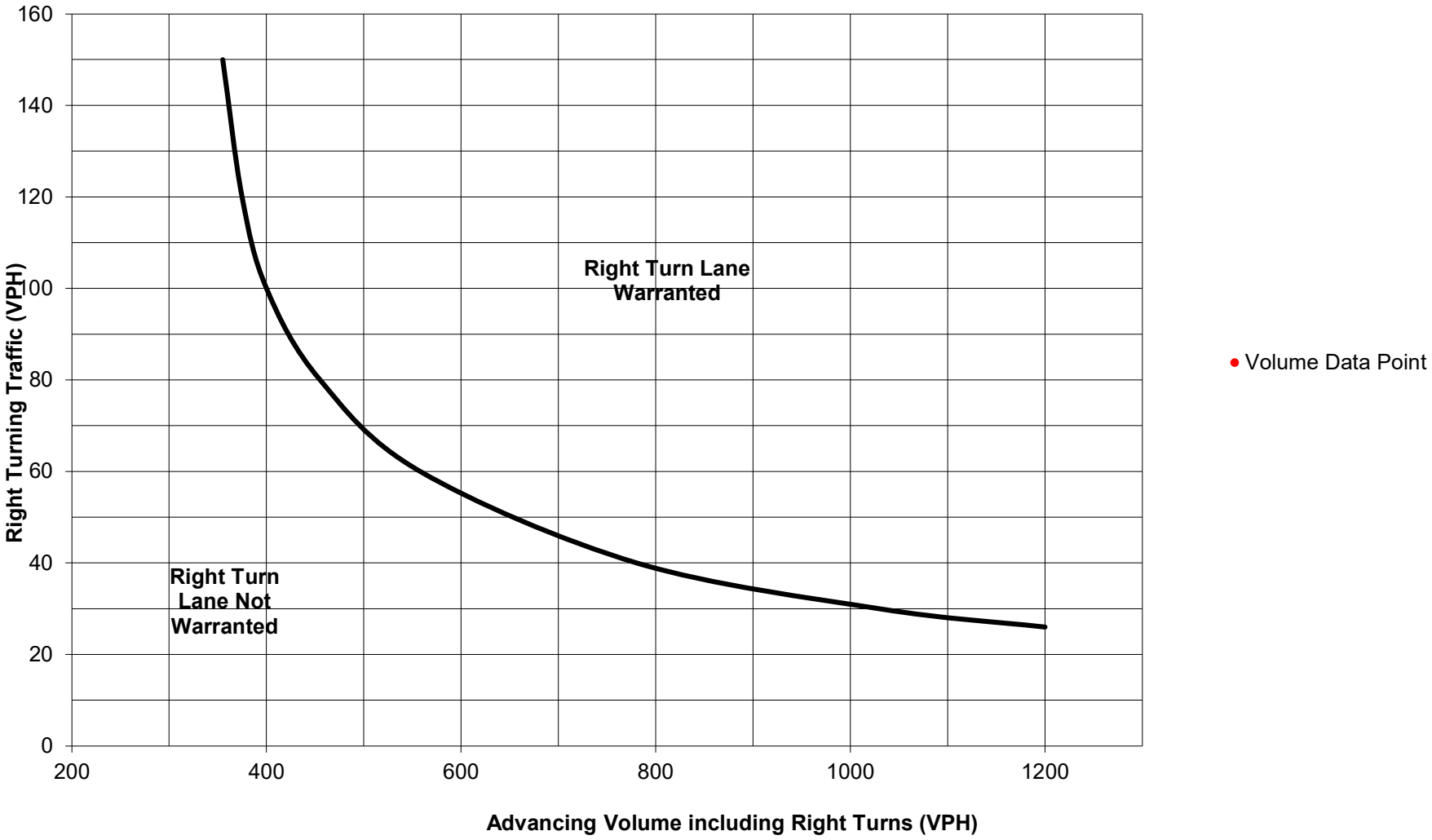
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	0.0%	20
	Through	-	0	0.0%	0
	Right	Yes	25	0.0%	25
Opposing	Left	No	38	11.0%	N/A
	Through	-	1	0.0%	1
	Right	No	27	7.0%	N/A

Advancing Volume:	45
Opposing Volume:	1
Left Turn Volume:	20
% Left Turns in Advancing Volume:	44.44%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	20
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

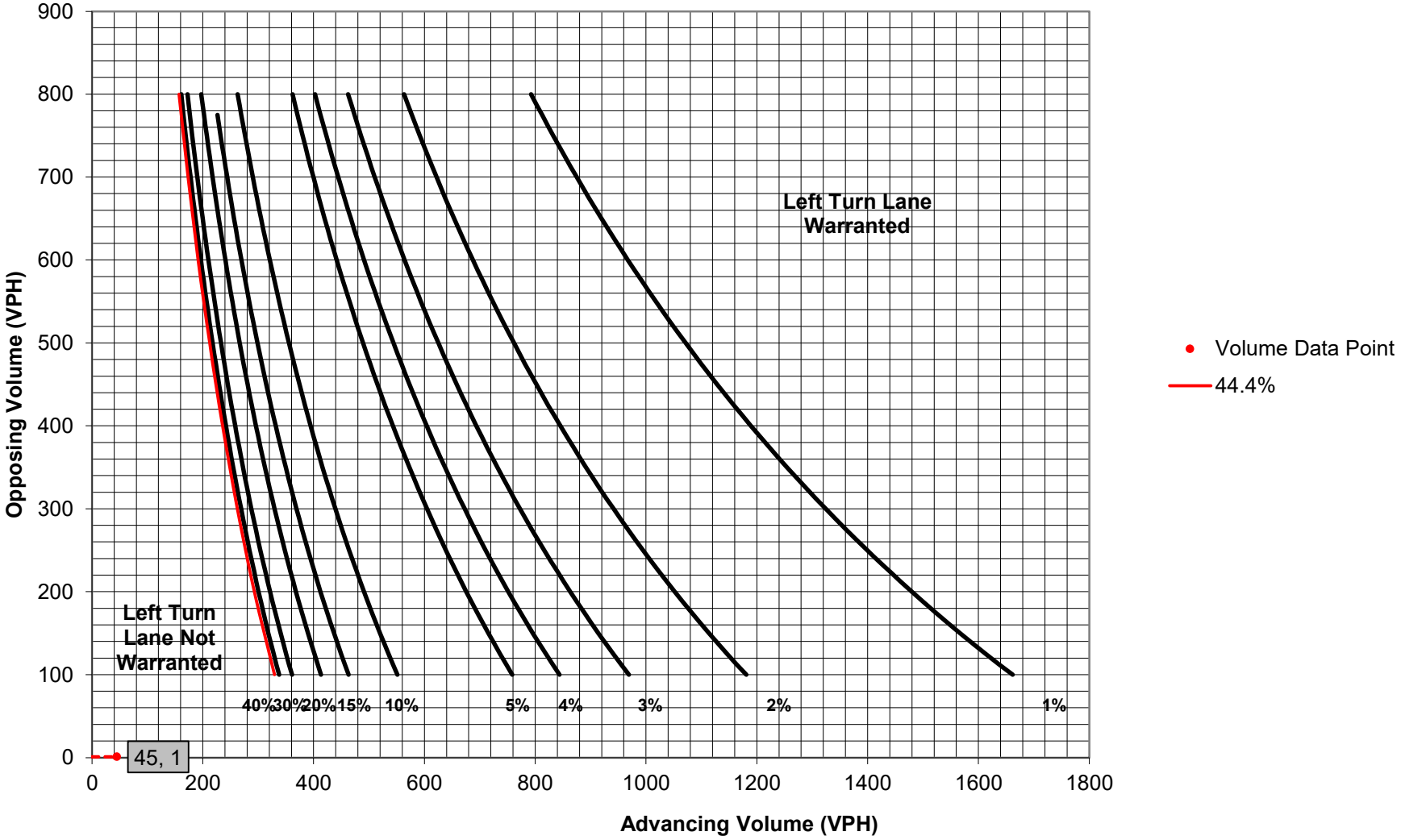
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	0.0%	20
	Through	-	0	0.0%	0
	Right	-	25	0.0%	25

Advancing Volume: 45
Right Turn Volume: 25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

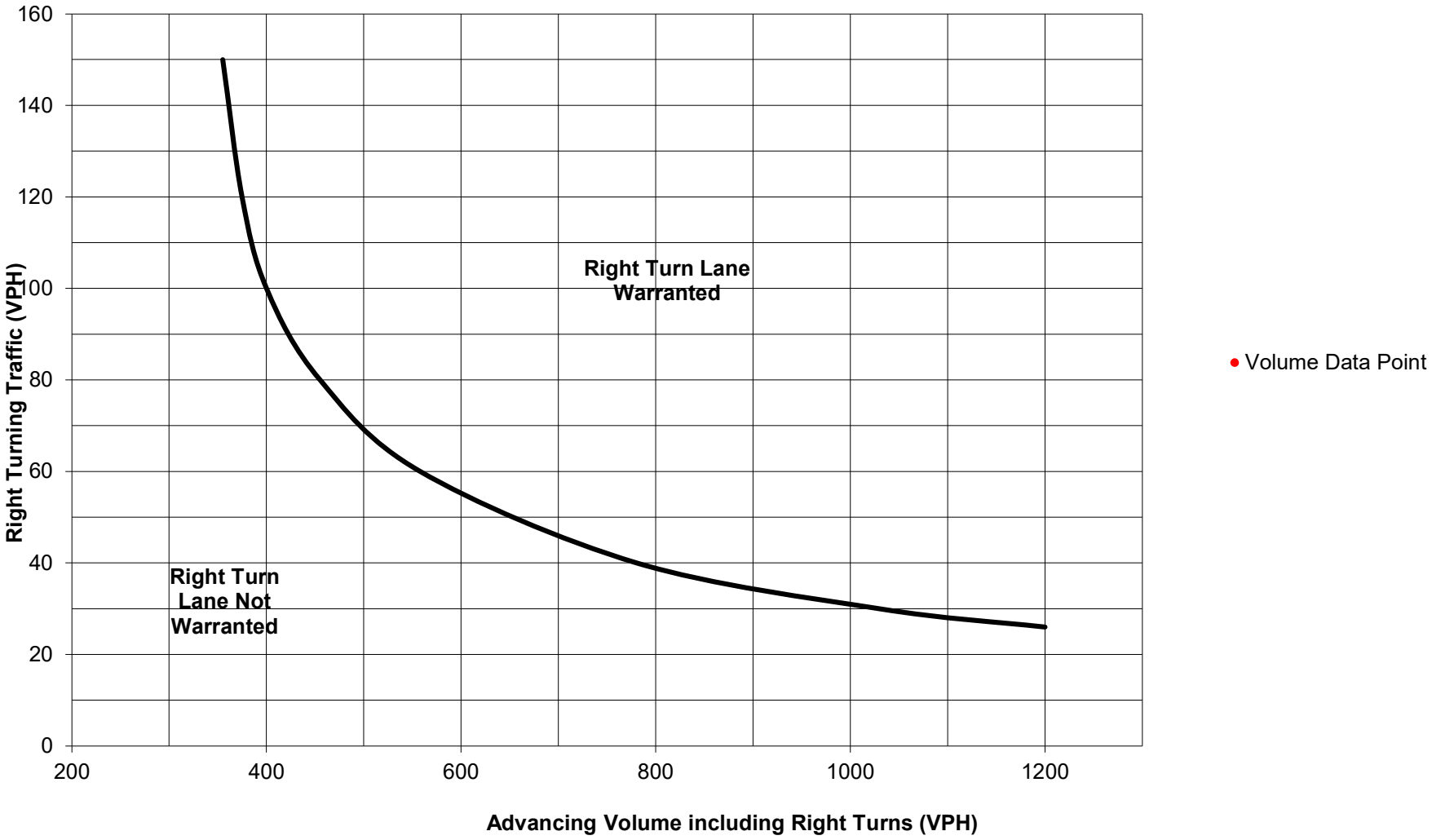
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	11.0%	33
	Through	-	287	0.0%	287
	Right	No	17	0.0%	N/A
Opposing	Left	No	16	6.0%	N/A
	Through	-	217	0.0%	217
	Right	No	59	3.0%	N/A

Advancing Volume:	320
Opposing Volume:	217
Left Turn Volume:	33
% Left Turns in Advancing Volume:	10.31%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	33
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

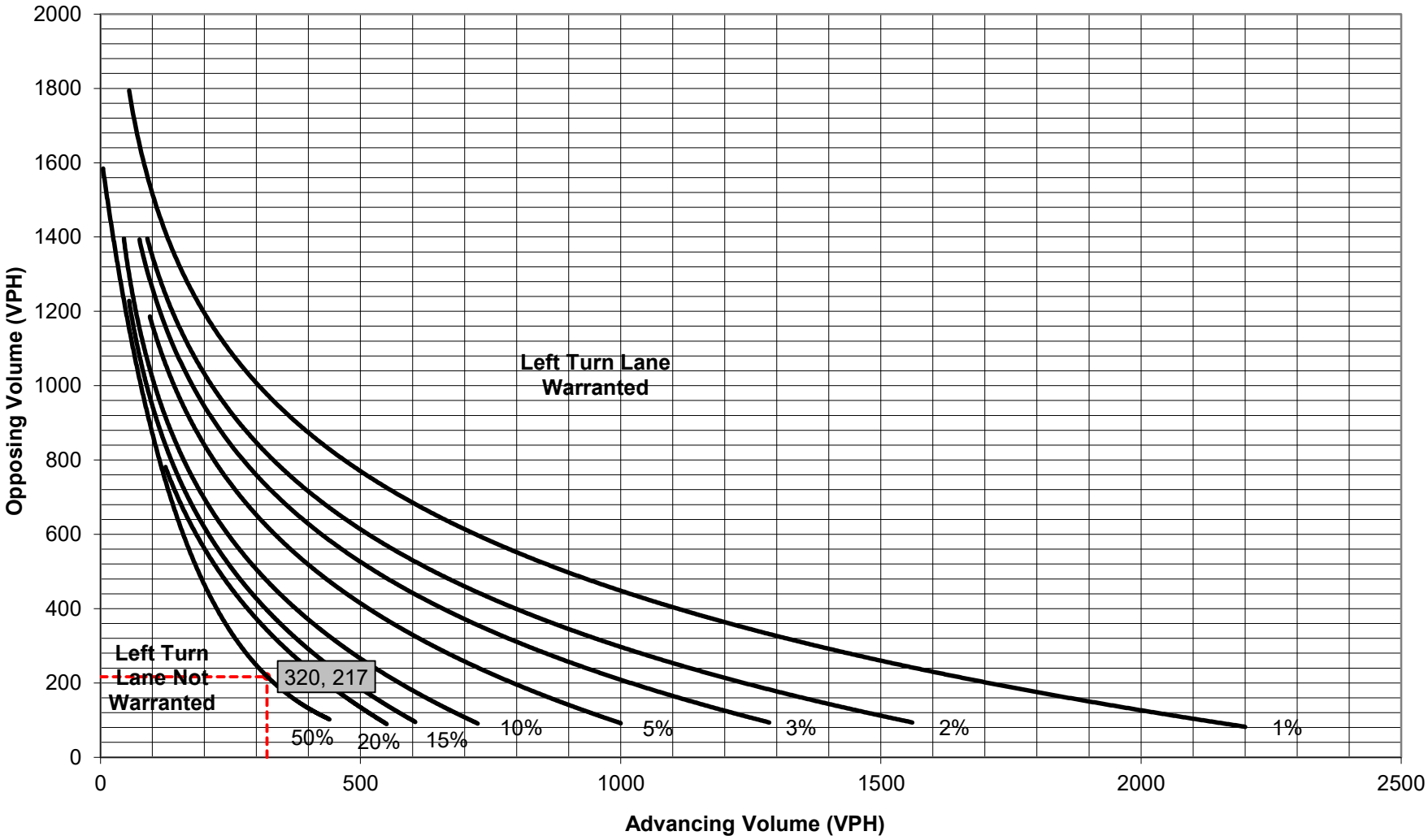
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	28	11.0%	N/A
	Through	-	287	0.0%	287
	Right	-	17	0.0%	17

Advancing Volume: 304
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

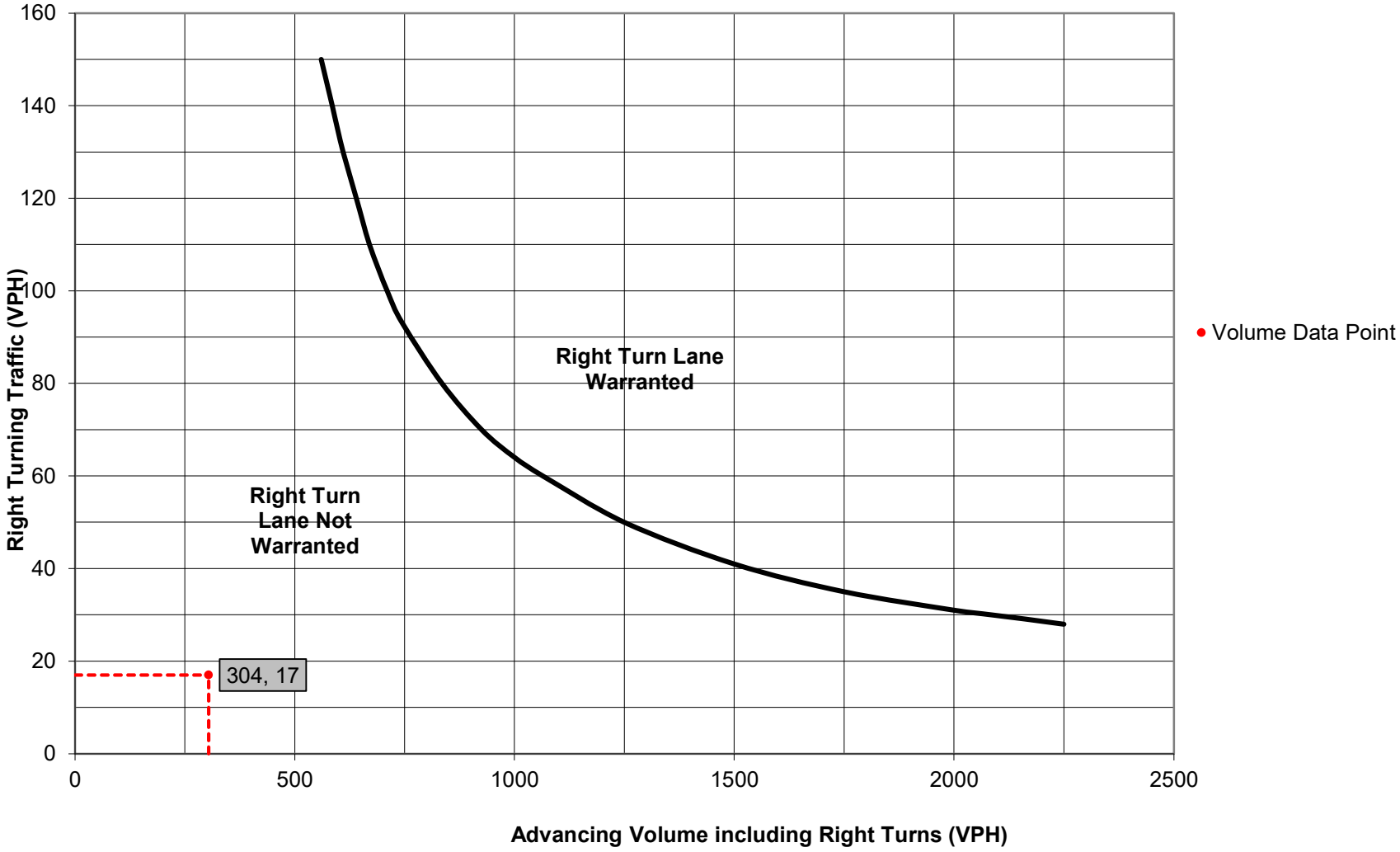
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	-	7	0.0%	7

Advancing Volume: 15
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

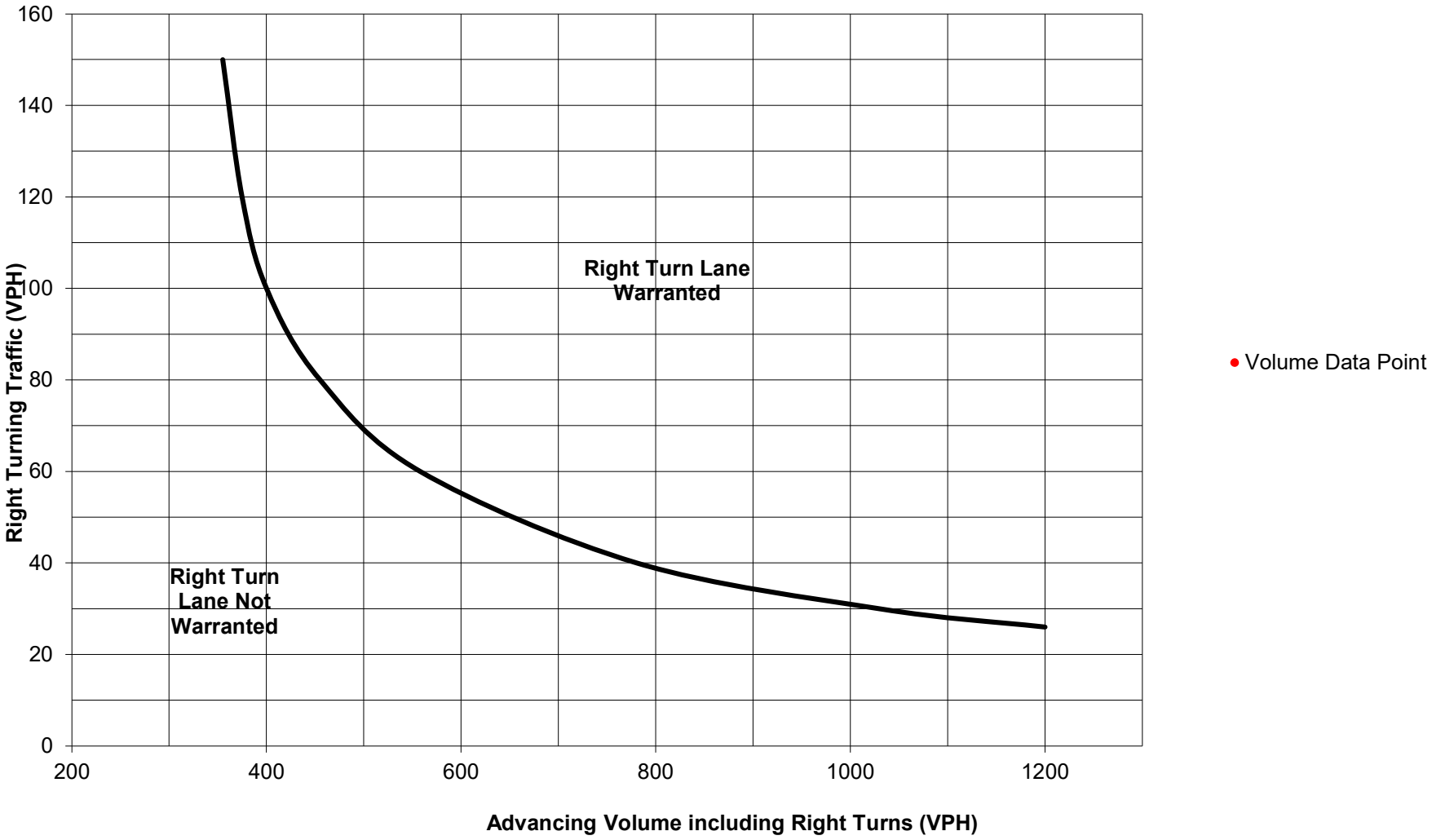
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	76	7.0%	84
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	4	50.0%	7
	Through	-	113	4.0%	120
	Right	Yes	6	0.0%	6

Advancing Volume:	87
Opposing Volume:	133
Left Turn Volume:	2
% Left Turns in Advancing Volume:	2.30%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

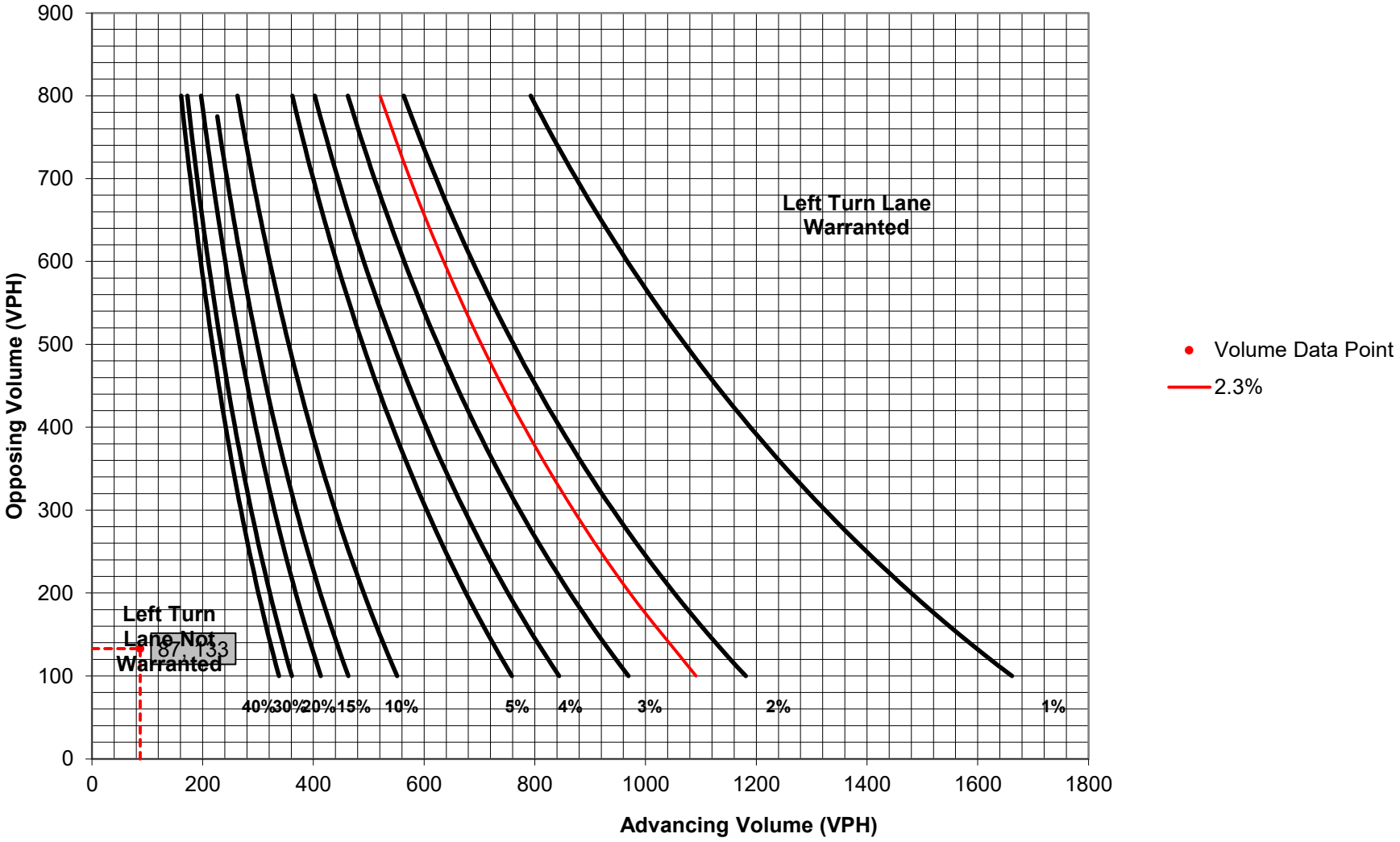
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	76	7.0%	84
	Right	-	1	0.0%	1

Advancing Volume: 87
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

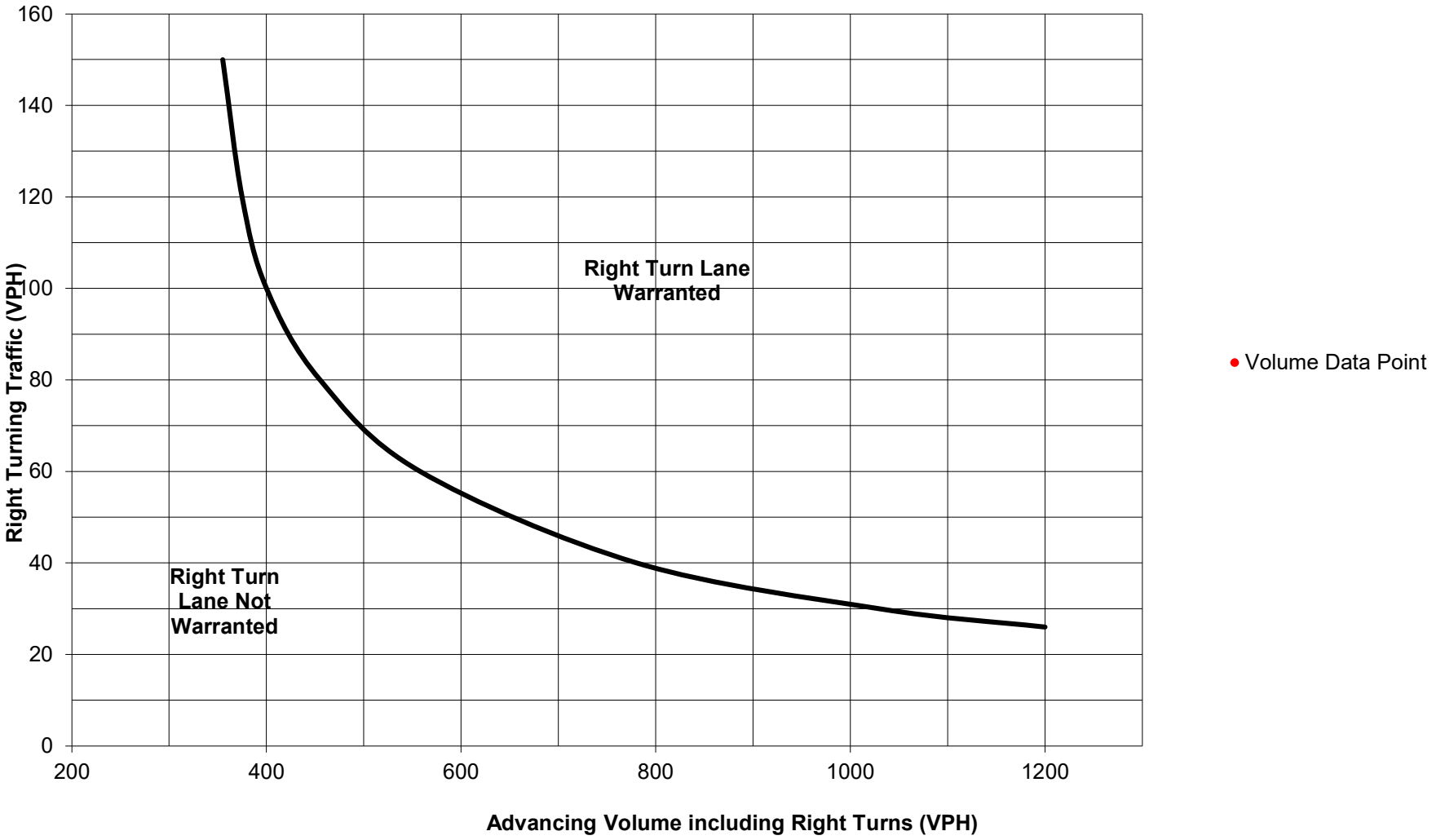
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	50.0%	7
	Through	-	113	4.0%	120
	Right	Yes	6	0.0%	6
Opposing	Left	Yes	2	0.0%	2
	Through	-	76	7.0%	84
	Right	Yes	1	0.0%	1

Advancing Volume: 133
Opposing Volume: 87
Left Turn Volume: 7
% Left Turns in Advancing Volume: 5.26%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

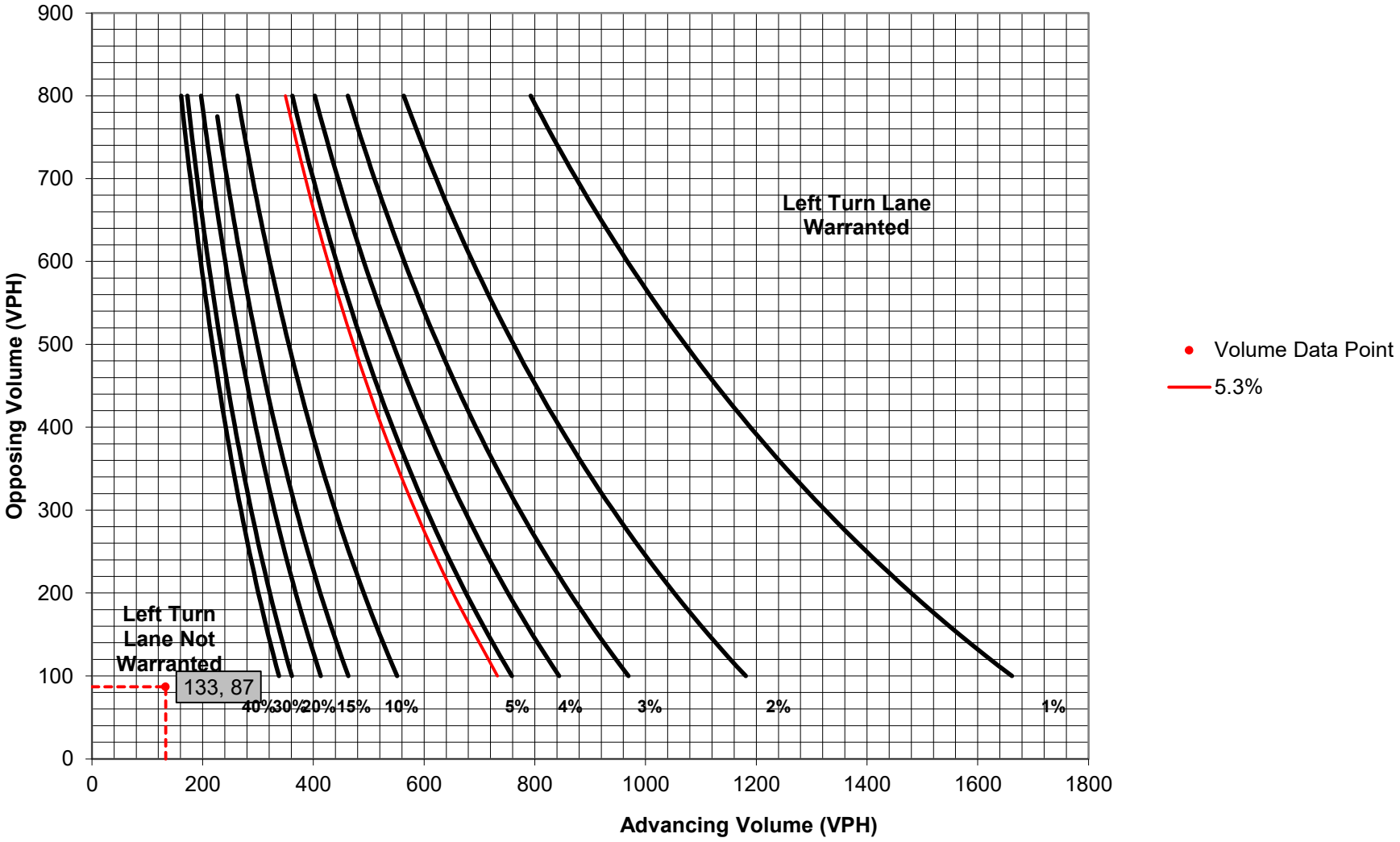
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	50.0%	7
	Through	-	113	4.0%	120
	Right	-	6	0.0%	6

Advancing Volume: 133
Right Turn Volume: 6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

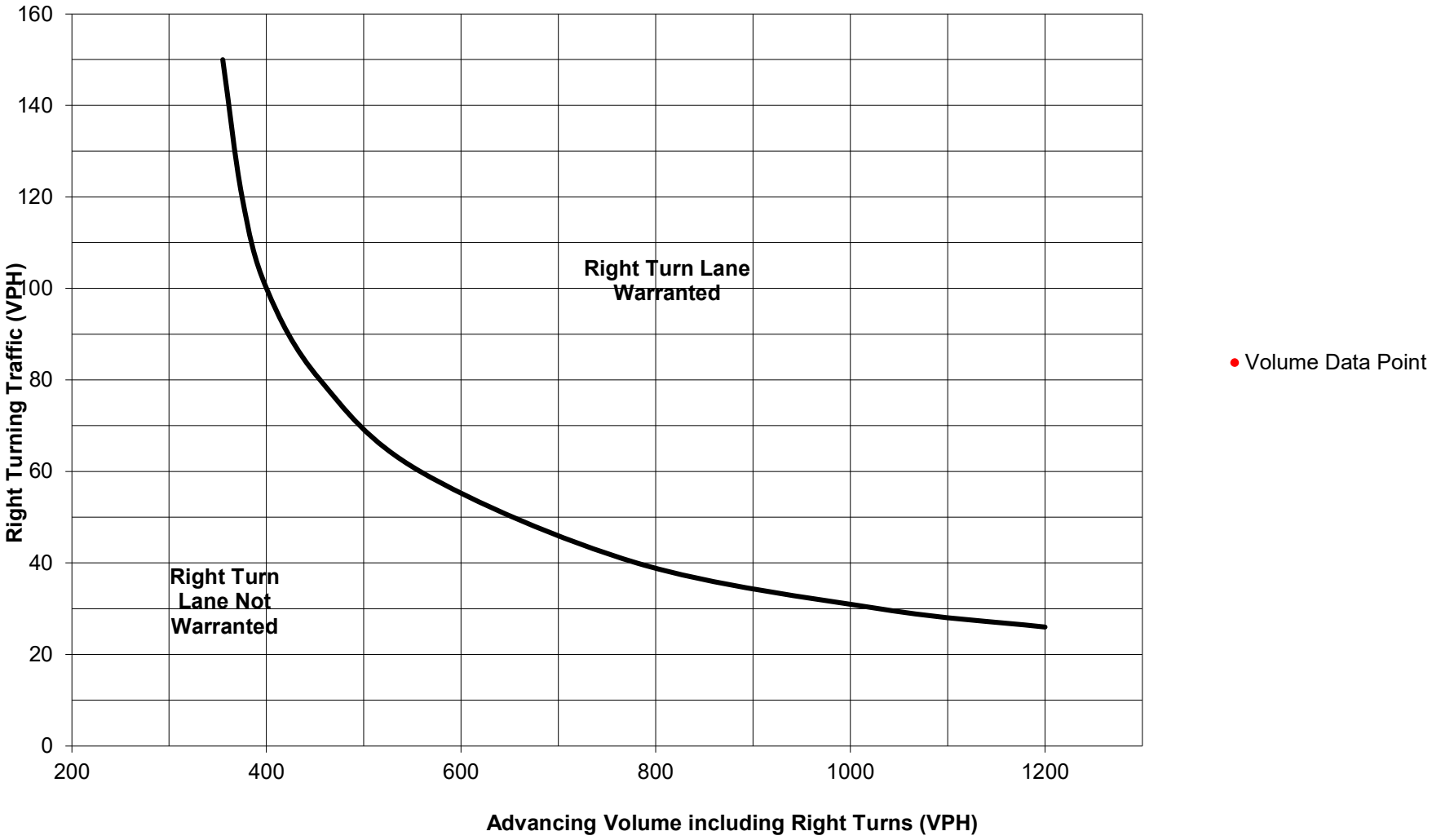
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	Yes	7	0.0%	7

Advancing Volume:	7
Opposing Volume:	15
Left Turn Volume:	2
% Left Turns in Advancing Volume:	28.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

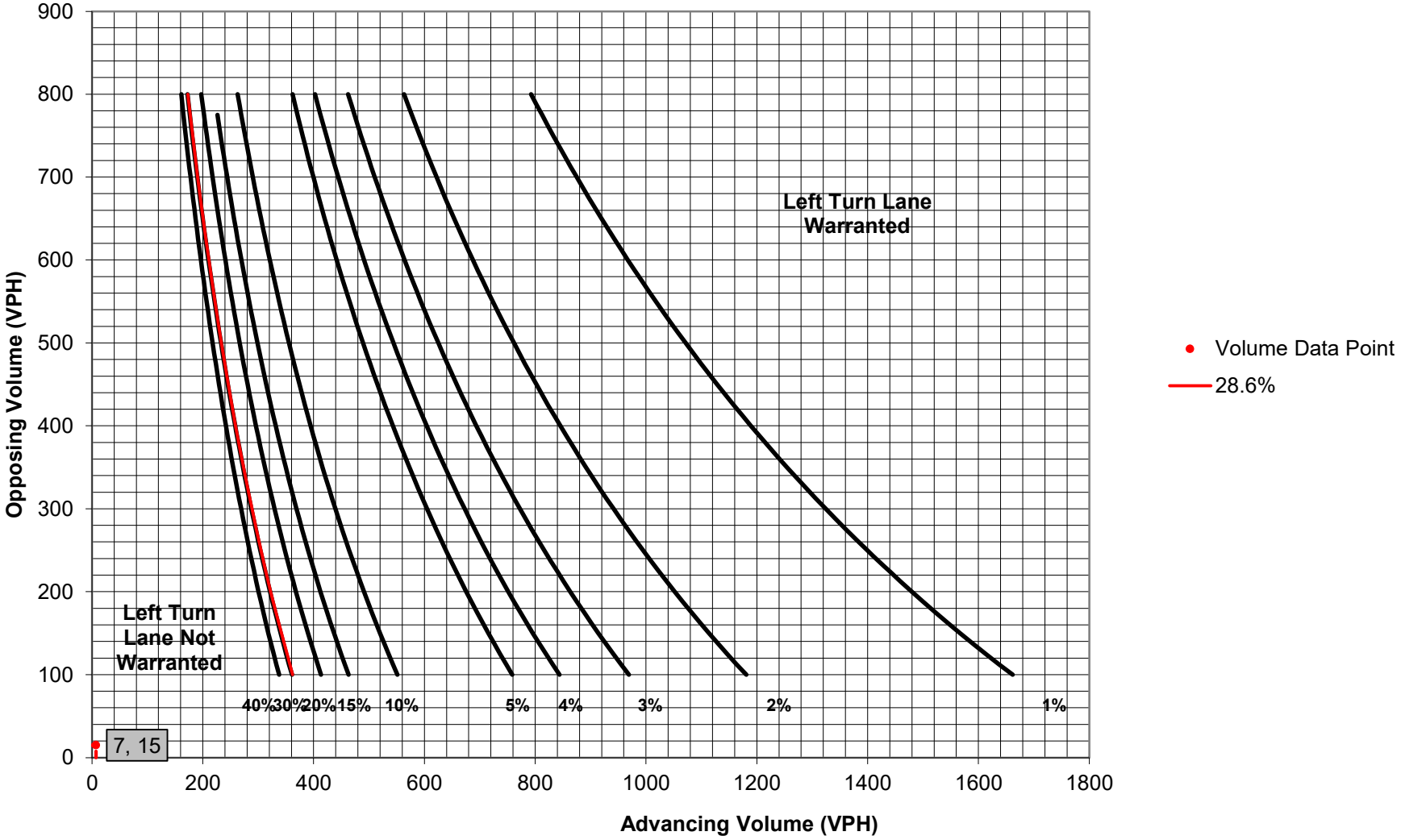
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	-	3	0.0%	3

Advancing Volume: 7
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

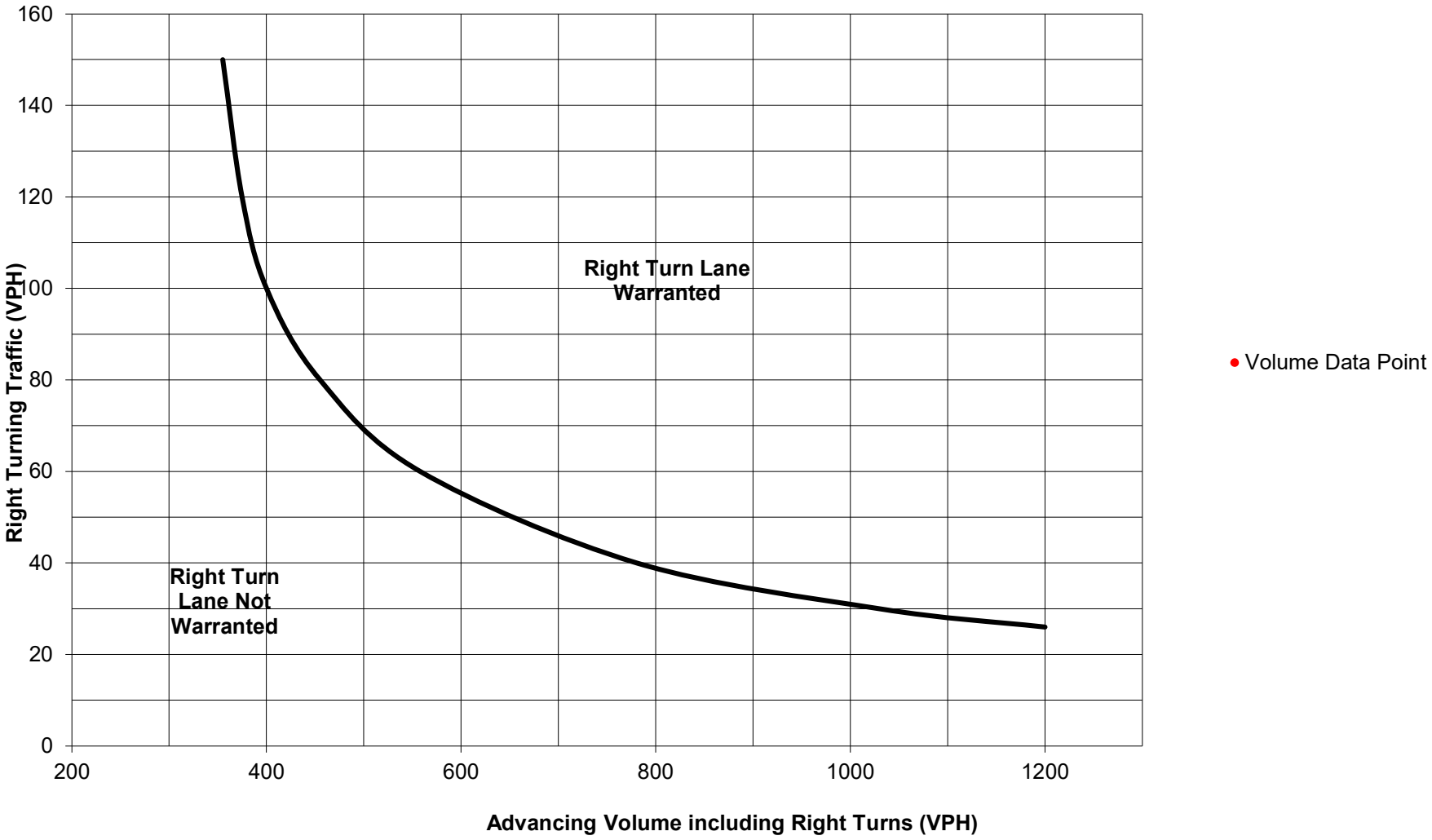
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	4	0.0%	4
	Through	-	12	0.0%	12
	Right	Yes	9	0.0%	9

Advancing Volume:	35
Opposing Volume:	25
Left Turn Volume:	23
% Left Turns in Advancing Volume:	65.71%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	23
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

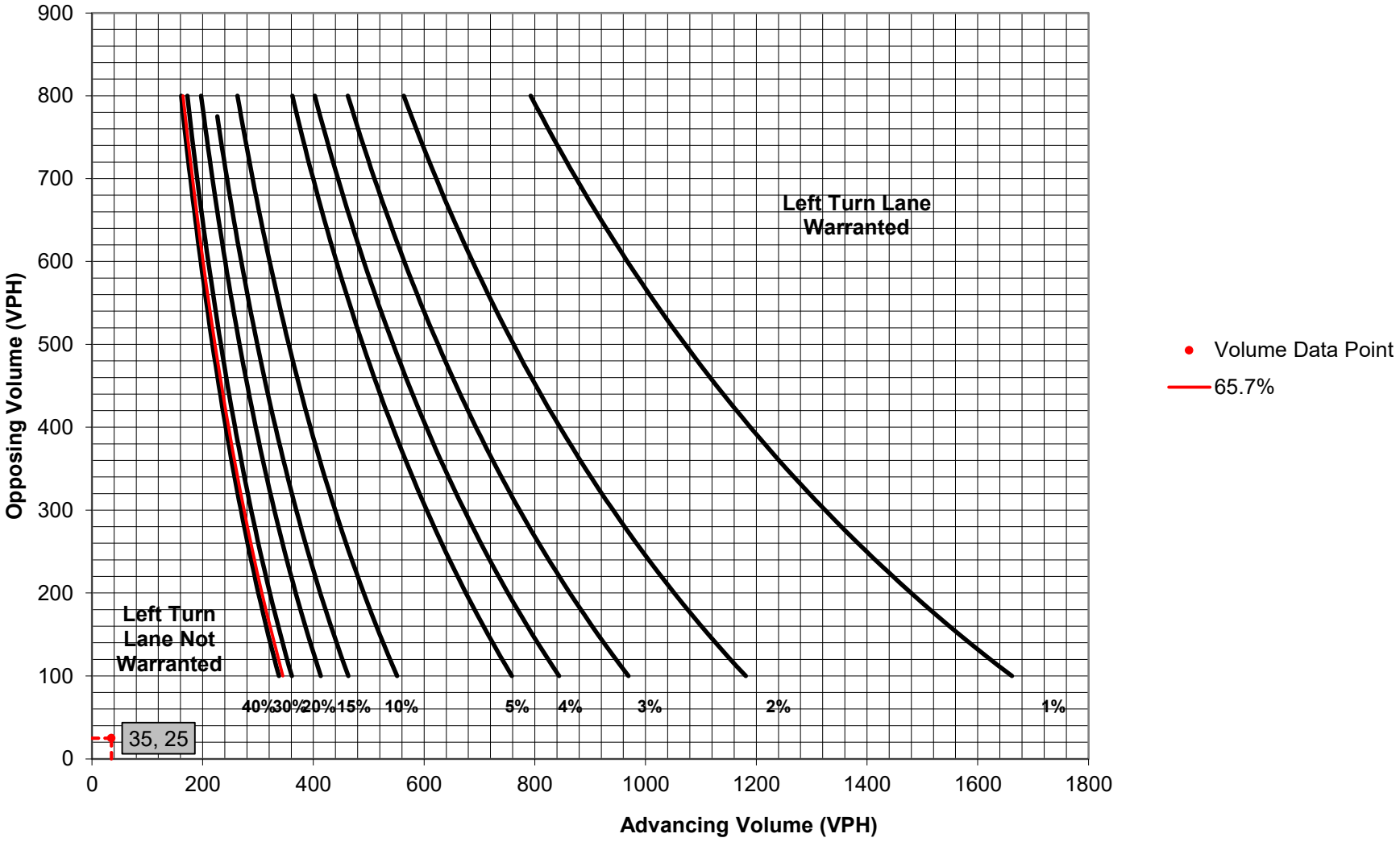
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	9	11.0%	11
	Right	-	1	0.0%	1

Advancing Volume: 35
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

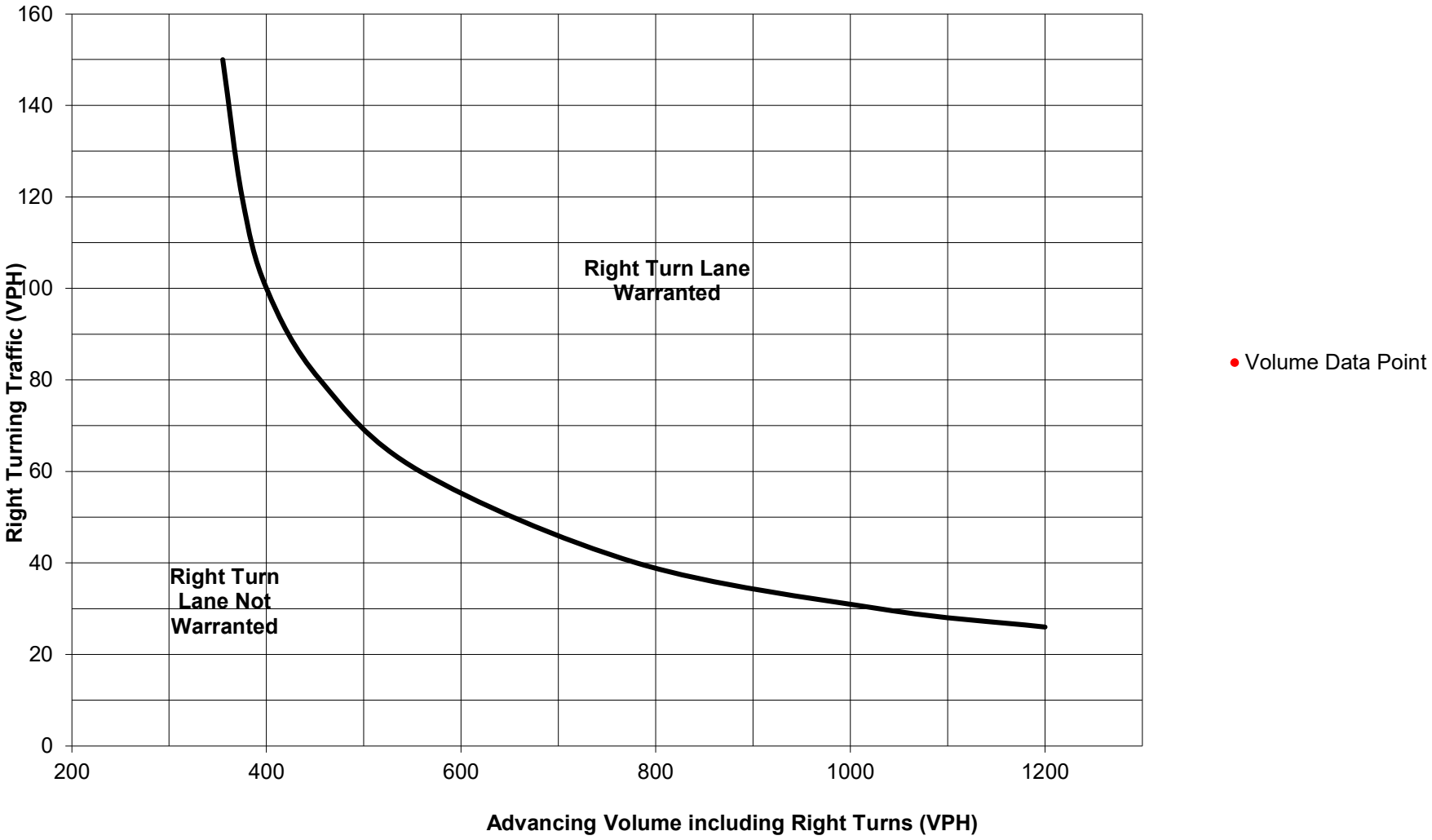
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	38	13.0%	46
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	7	0.0%	7
	Through	-	48	8.0%	54
	Right	Yes	22	5.0%	24

Advancing Volume:	49
Opposing Volume:	85
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.04%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

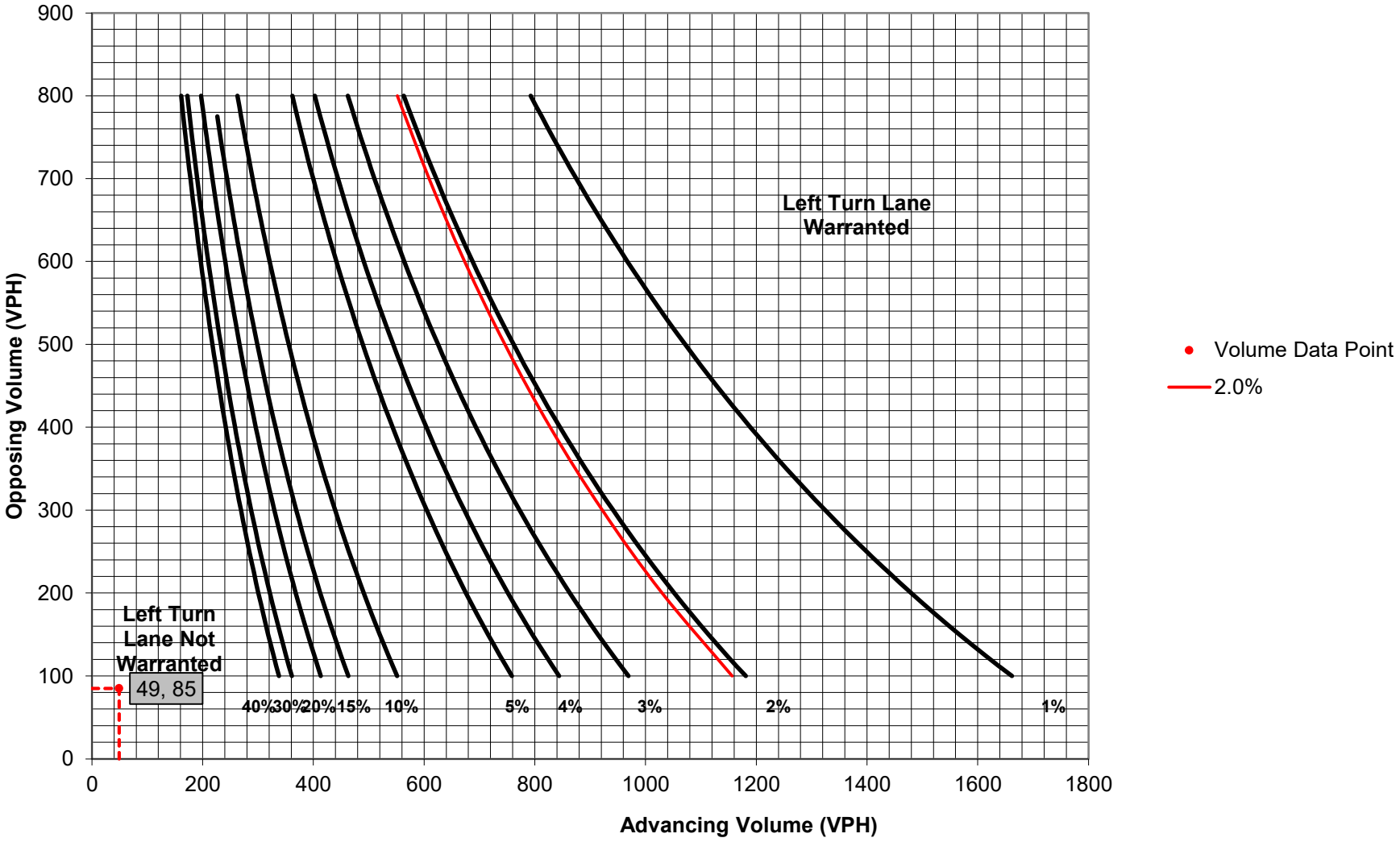
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	38	13.0%	46
	Right	-	2	0.0%	2

Advancing Volume: 49
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

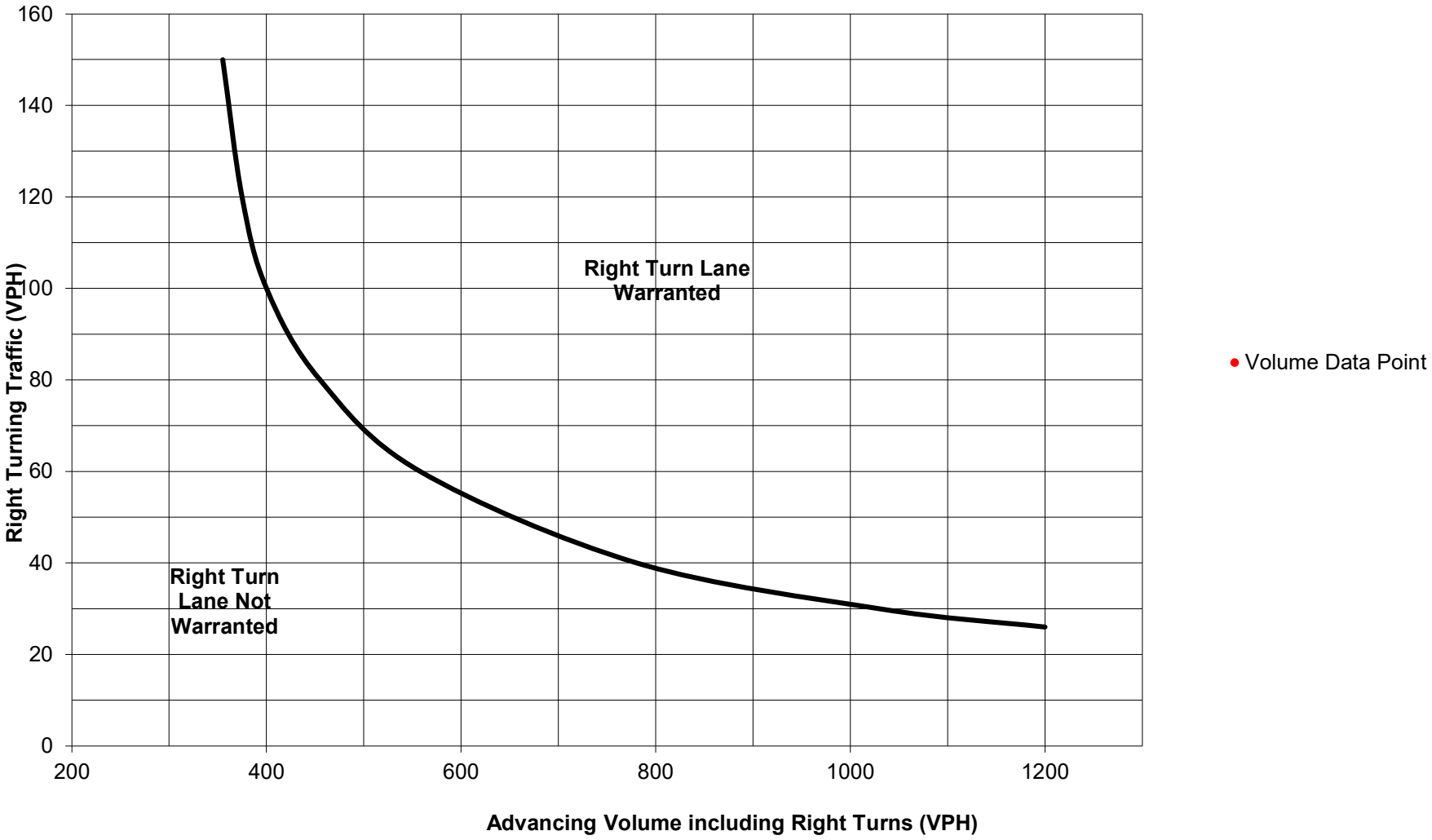
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	48	8.0%	54
	Right	Yes	22	5.0%	24
Opposing	Left	Yes	1	0.0%	1
	Through	-	38	13.0%	46
	Right	Yes	2	0.0%	2

Advancing Volume:	85
Opposing Volume:	49
Left Turn Volume:	7
% Left Turns in Advancing Volume:	8.24%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

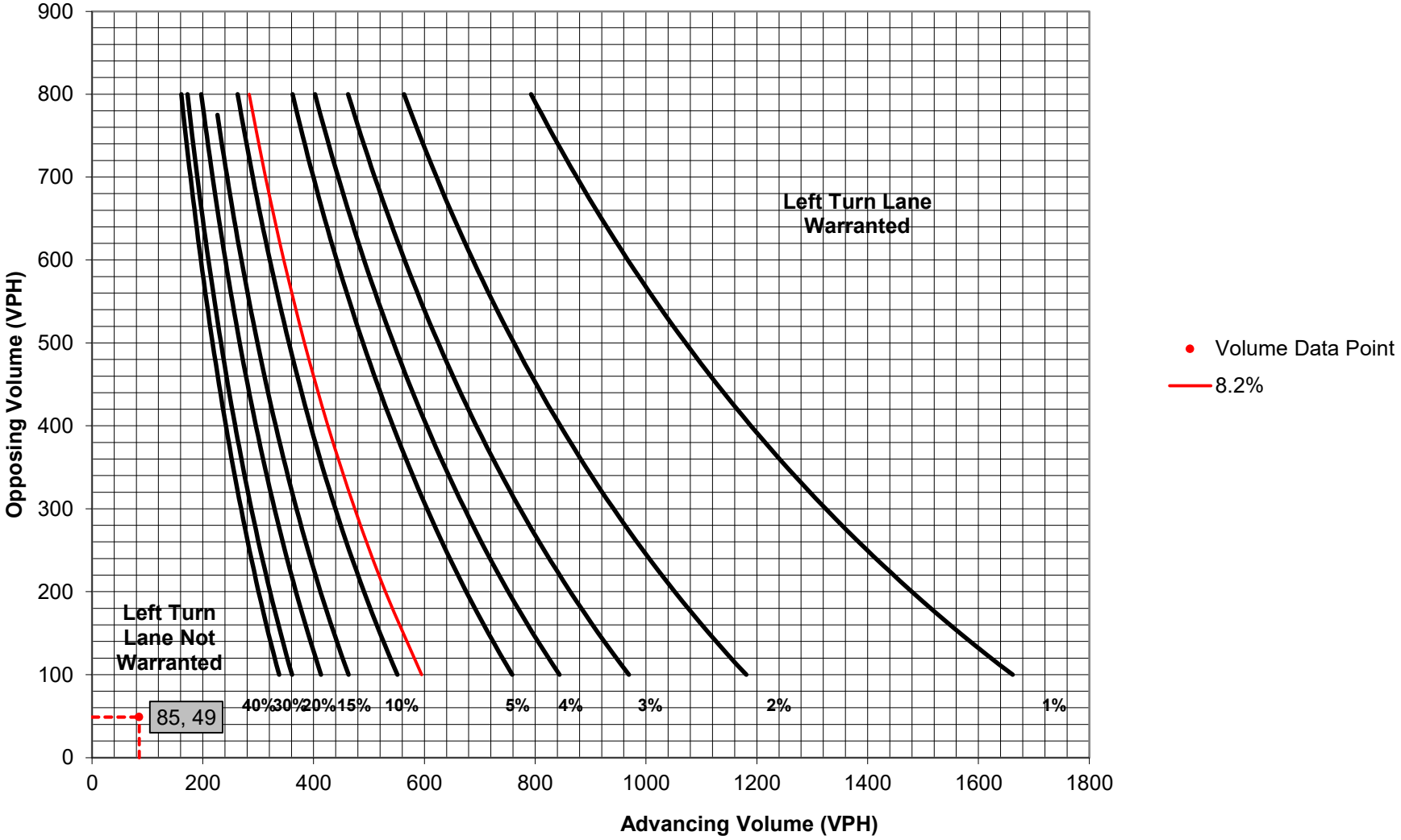
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	48	8.0%	54
	Right	-	22	5.0%	24

Advancing Volume: 85
Right Turn Volume: 24

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

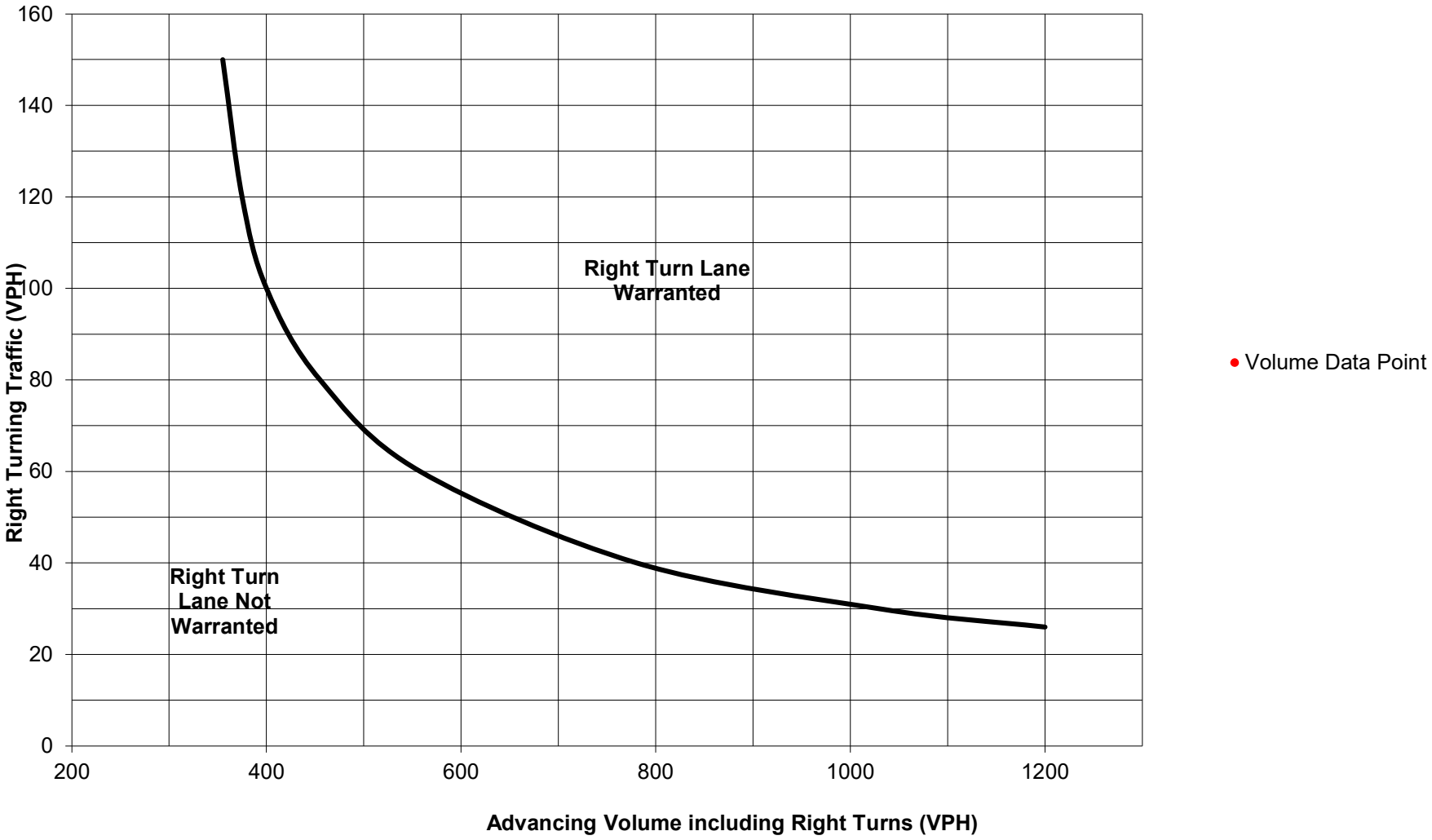
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	12	0.0%	12
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	23	0.0%	23
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1

Advancing Volume: 25
Opposing Volume: 35
Left Turn Volume: 4
% Left Turns in Advancing Volume: 16.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

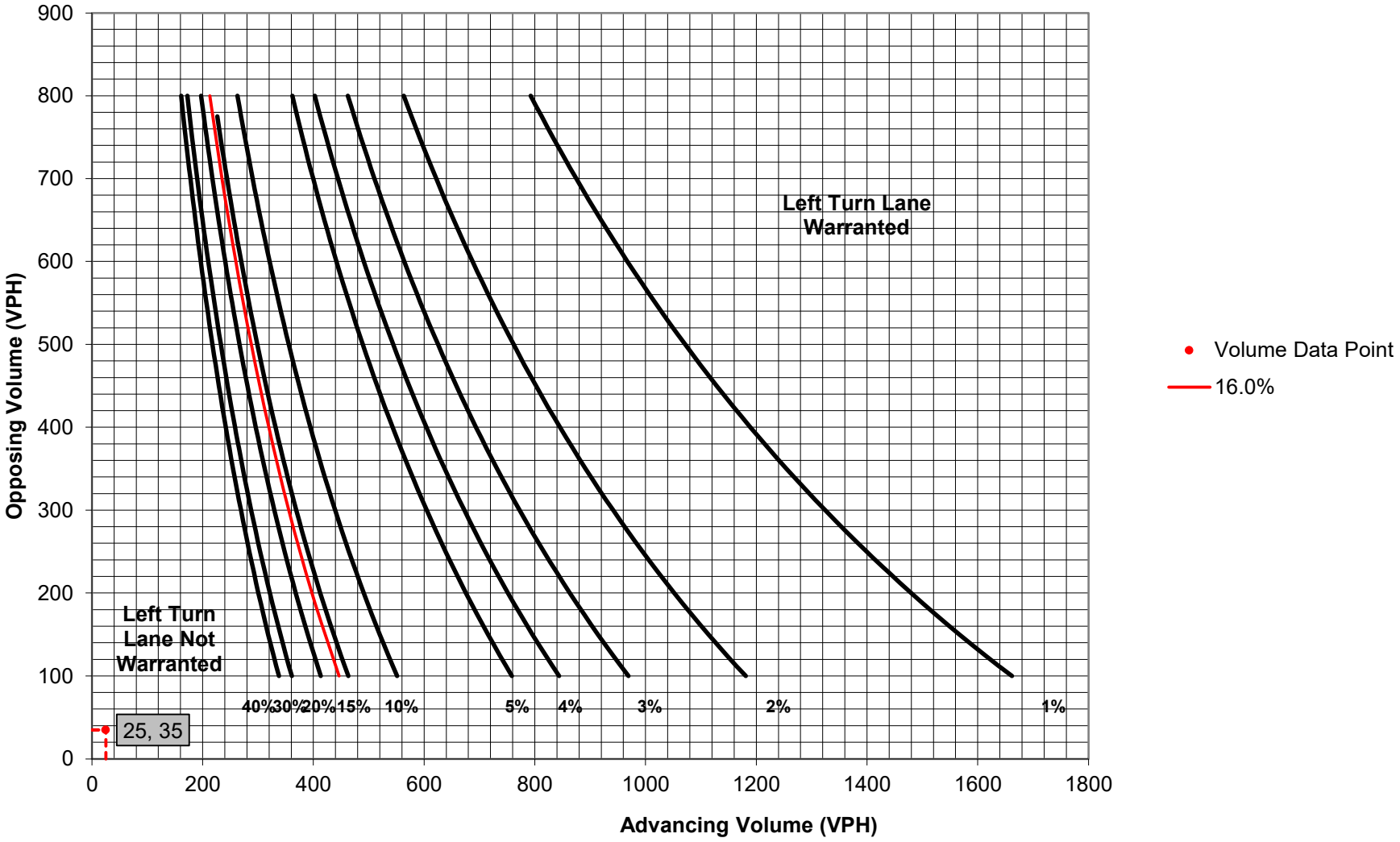
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	12	0.0%	12
	Right	-	9	0.0%	9

Advancing Volume: 25
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

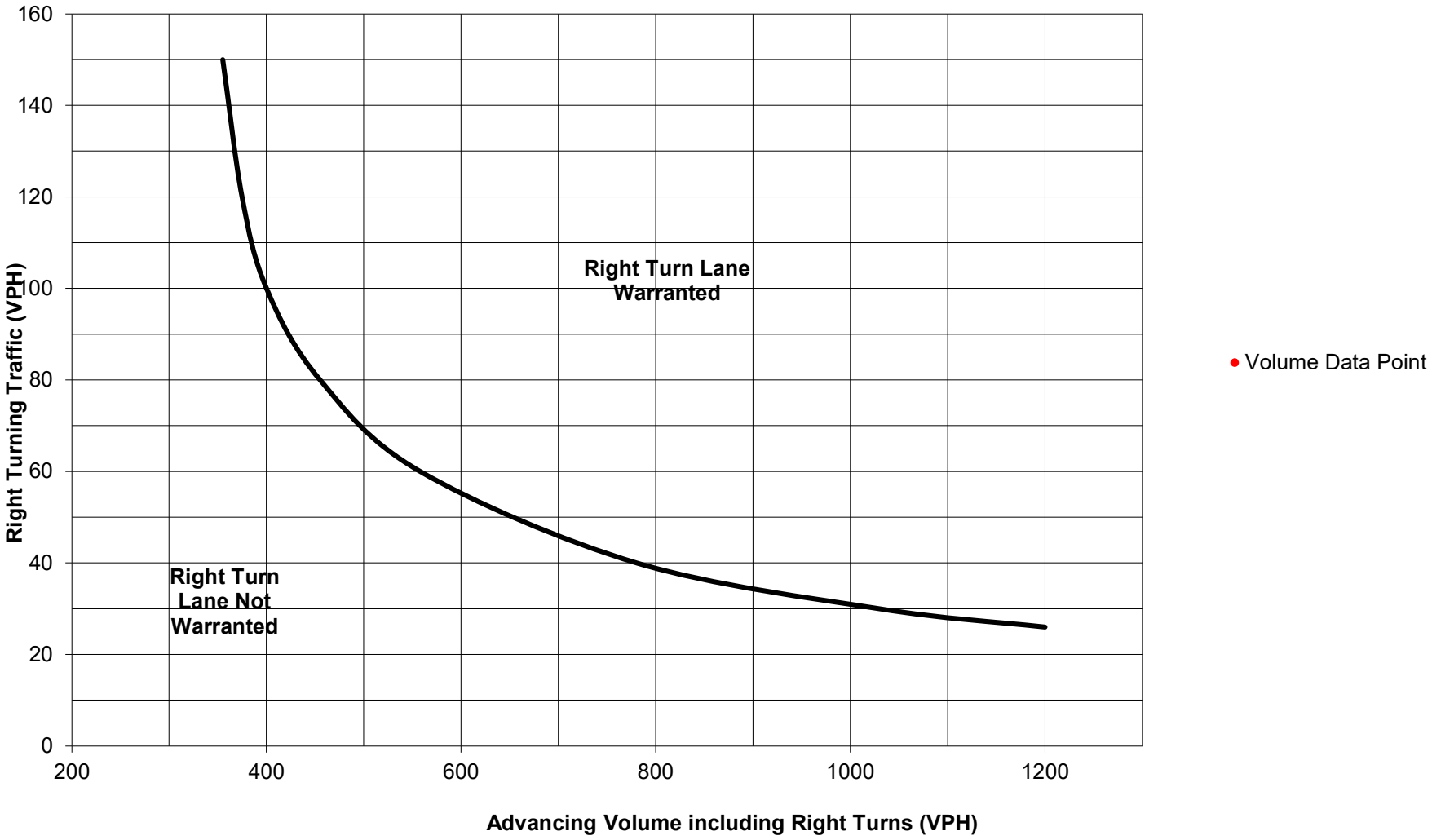
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	6	0.0%	6
	Right	-	0	0.0%	0

Advancing Volume: 8
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

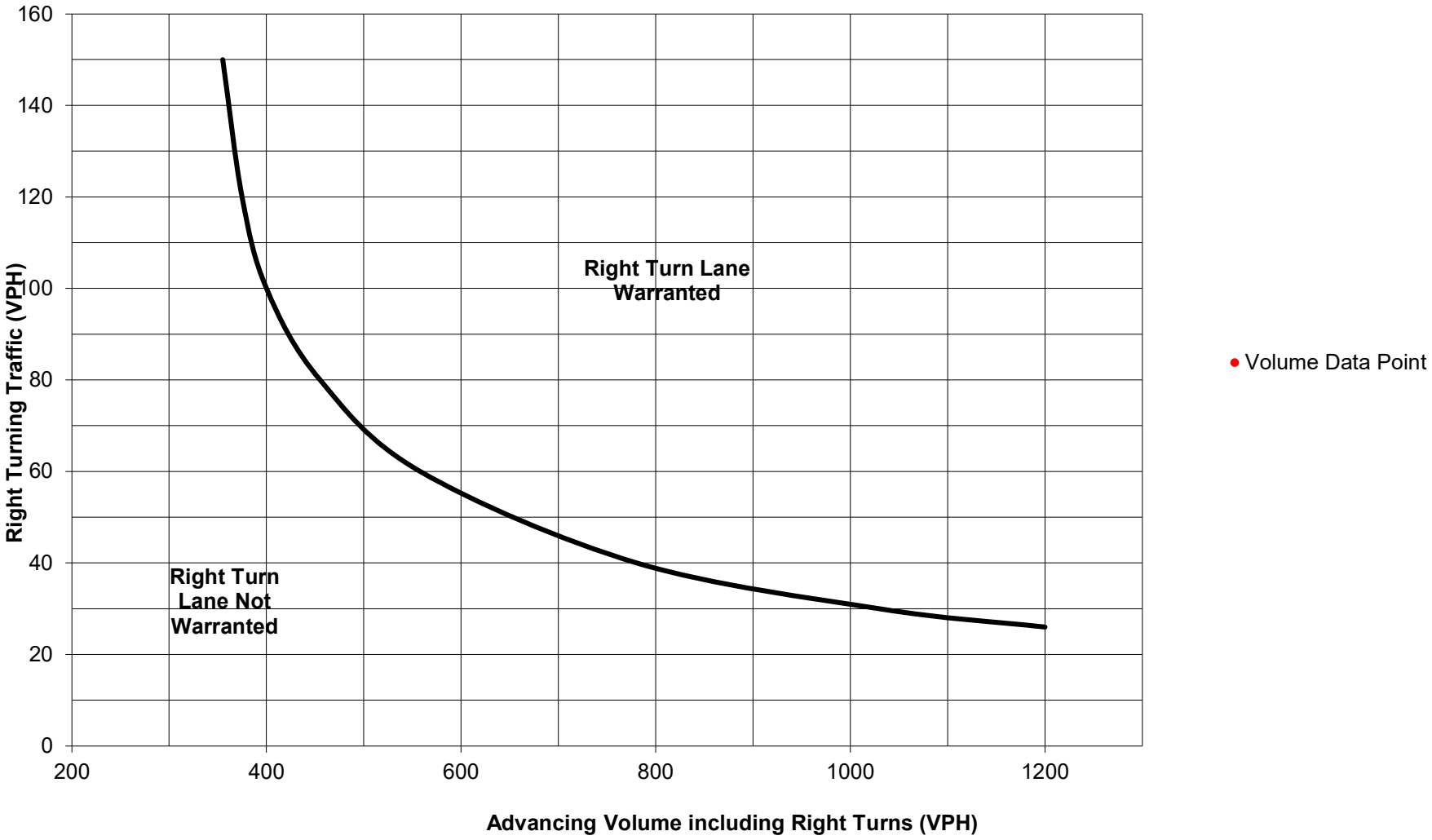
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	58	5.0%	63
	Right	Yes	56	0.0%	56
Opposing	Left	Yes	4	0.0%	4
	Through	-	51	8.0%	58
	Right	Yes	1	0.0%	1

Advancing Volume: 121
Opposing Volume: 63
Left Turn Volume: 2
% Left Turns in Advancing Volume: 1.65%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

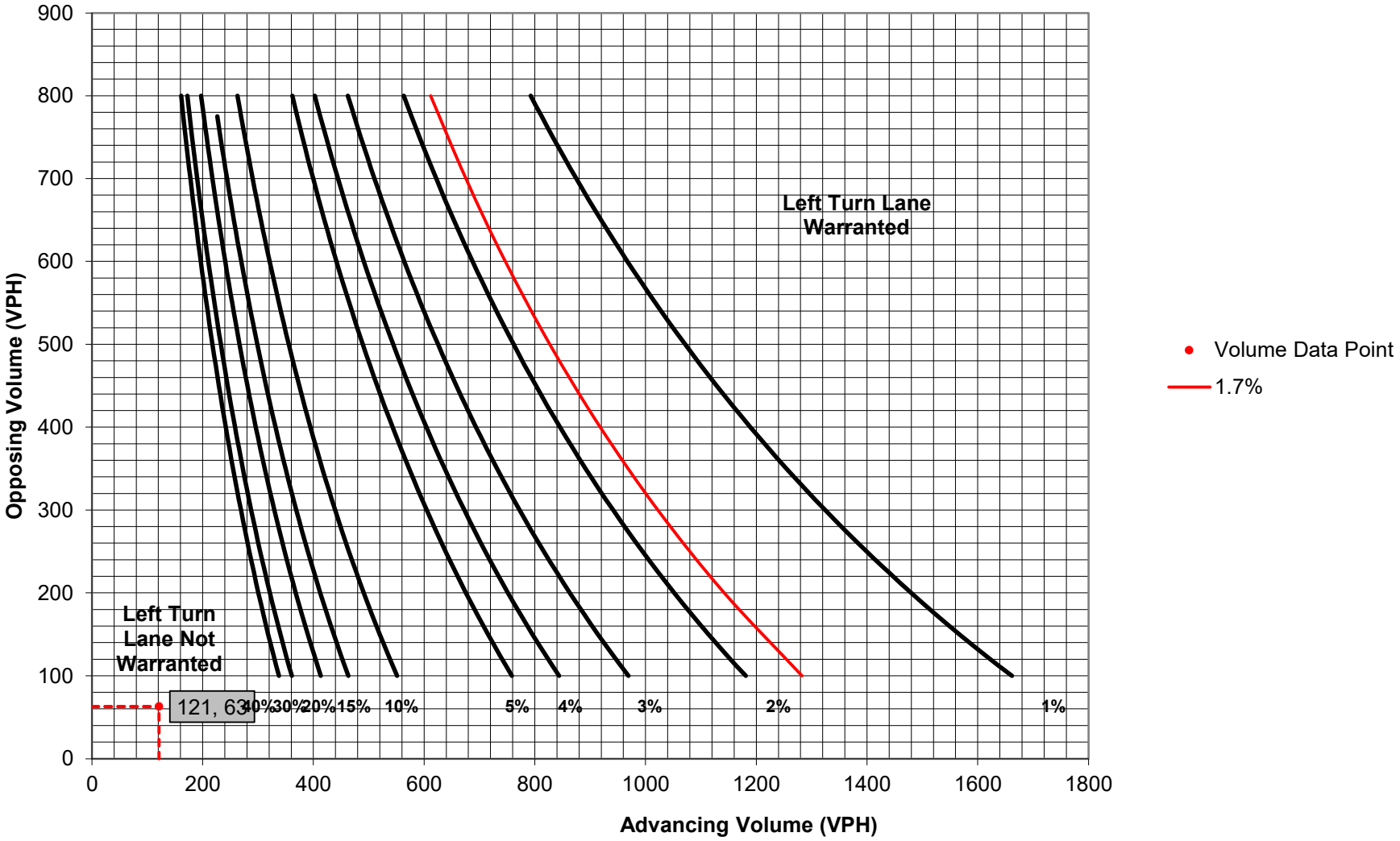
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	58	5.0%	63
	Right	-	56	0.0%	56

Advancing Volume: 121
Right Turn Volume: 56

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	56
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

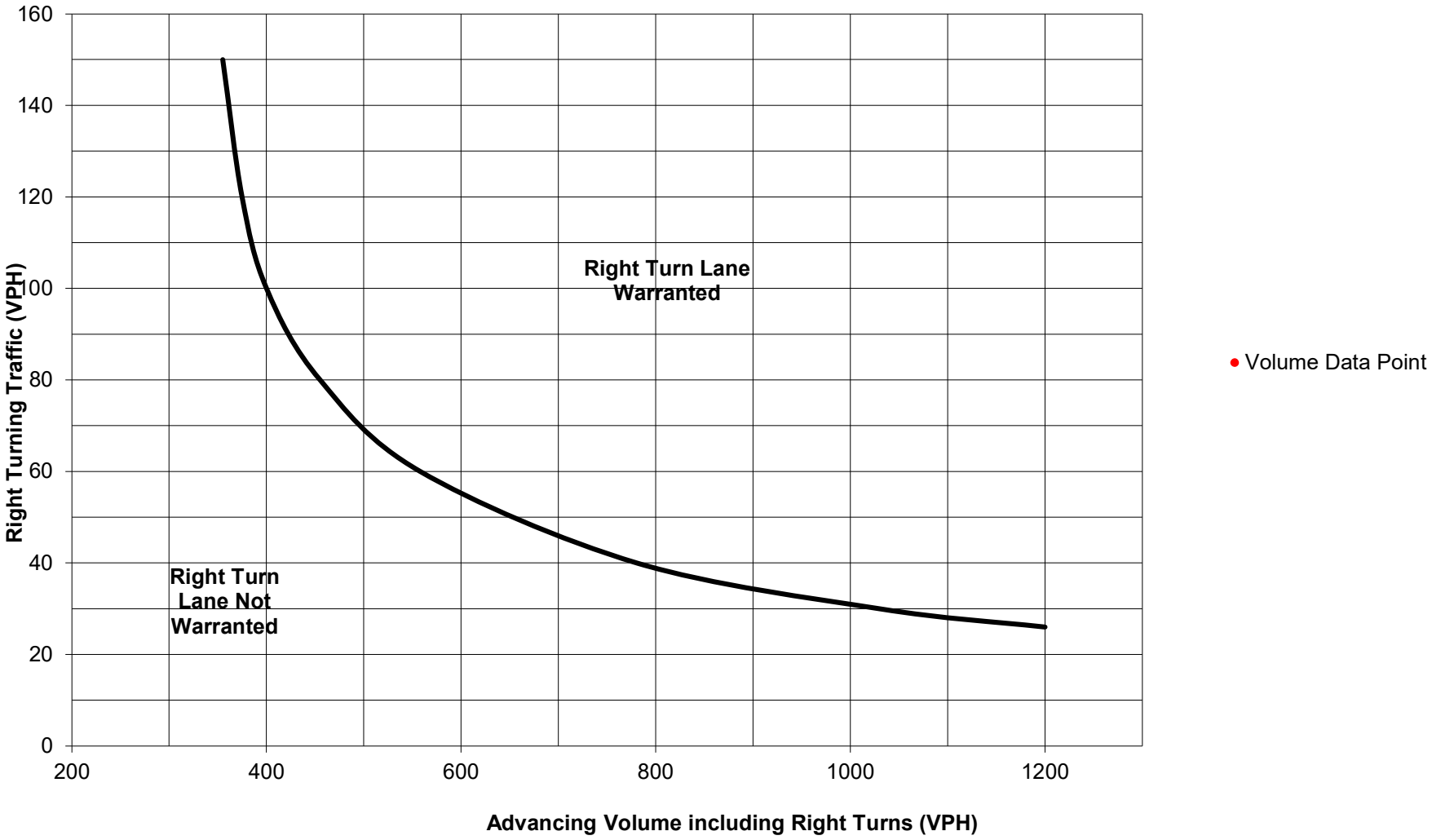
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	51	8.0%	58
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	2	0.0%	2
	Through	-	58	5.0%	63
	Right	Yes	56	0.0%	56

Advancing Volume:	63
Opposing Volume:	121
Left Turn Volume:	4
% Left Turns in Advancing Volume:	6.35%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

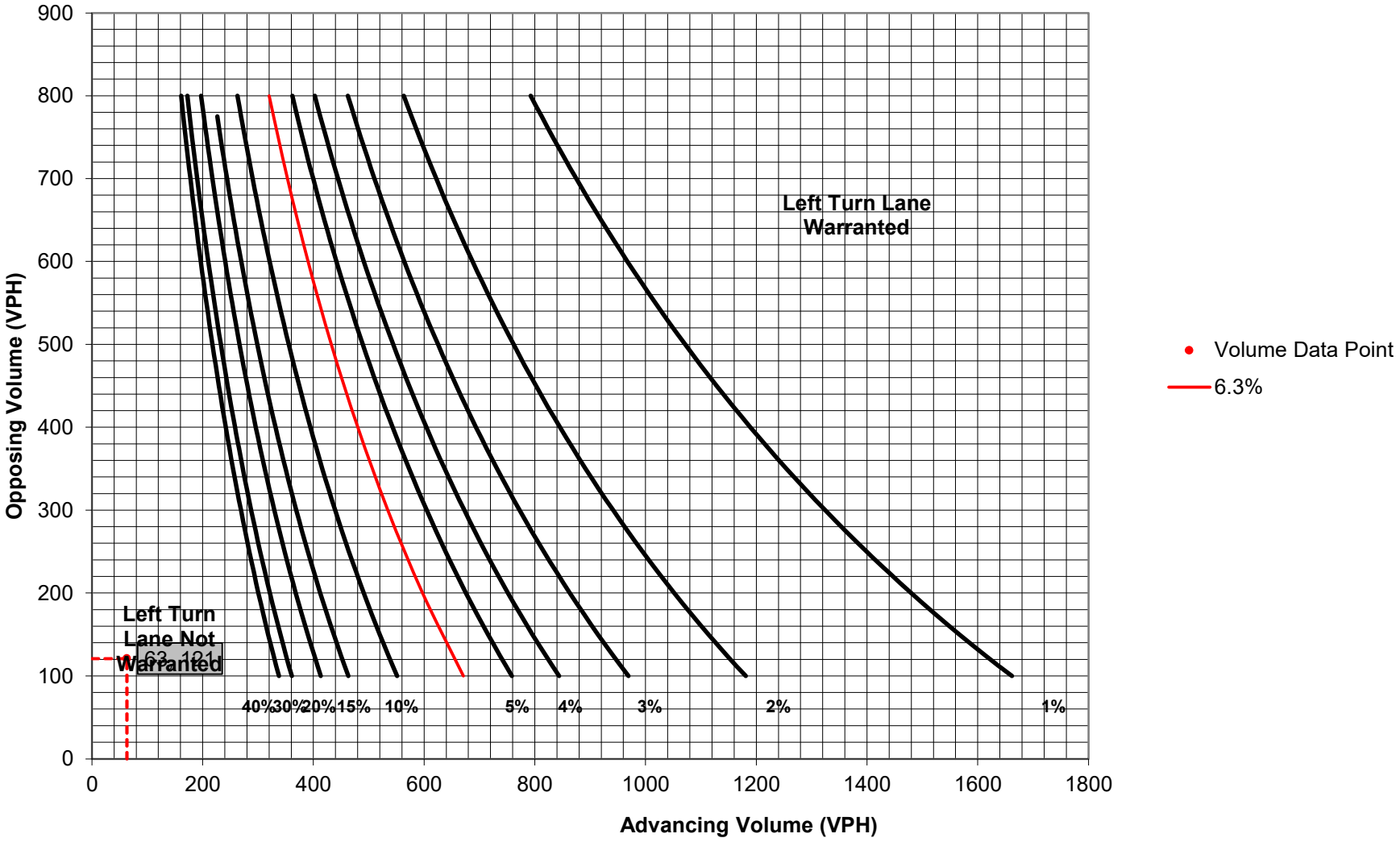
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	51	8.0%	58
	Right	-	1	0.0%	1

Advancing Volume: 63
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

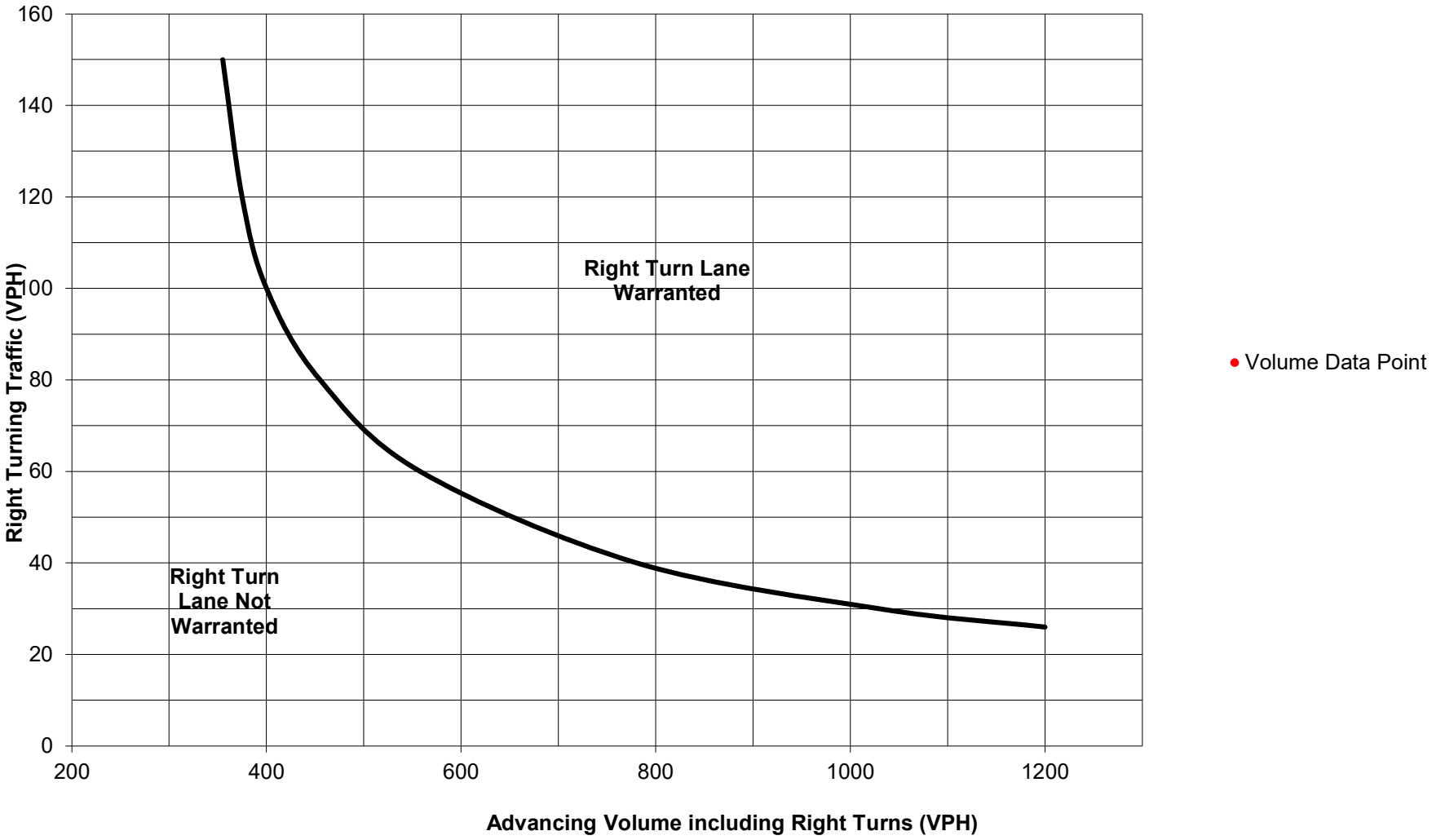
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	29	0.0%	29
	Through	-	1	0.0%	1
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	2	0.0%	2
	Through	-	6	0.0%	6
	Right	Yes	0	0.0%	0

Advancing Volume:	39
Opposing Volume:	8
Left Turn Volume:	29
% Left Turns in Advancing Volume:	74.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	29
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

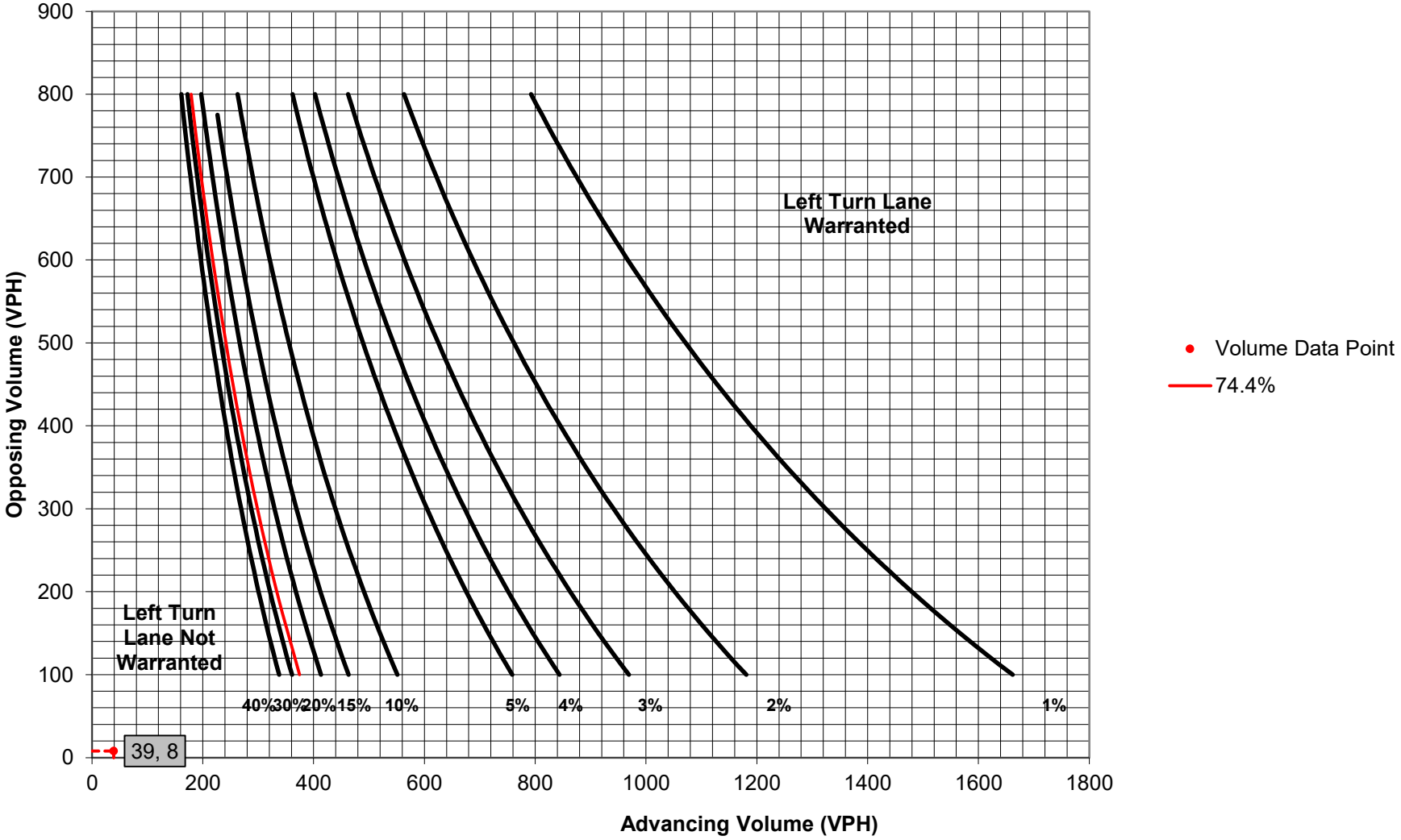
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	29	0.0%	29
	Through	-	1	0.0%	1
	Right	-	9	0.0%	9

Advancing Volume: 39
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

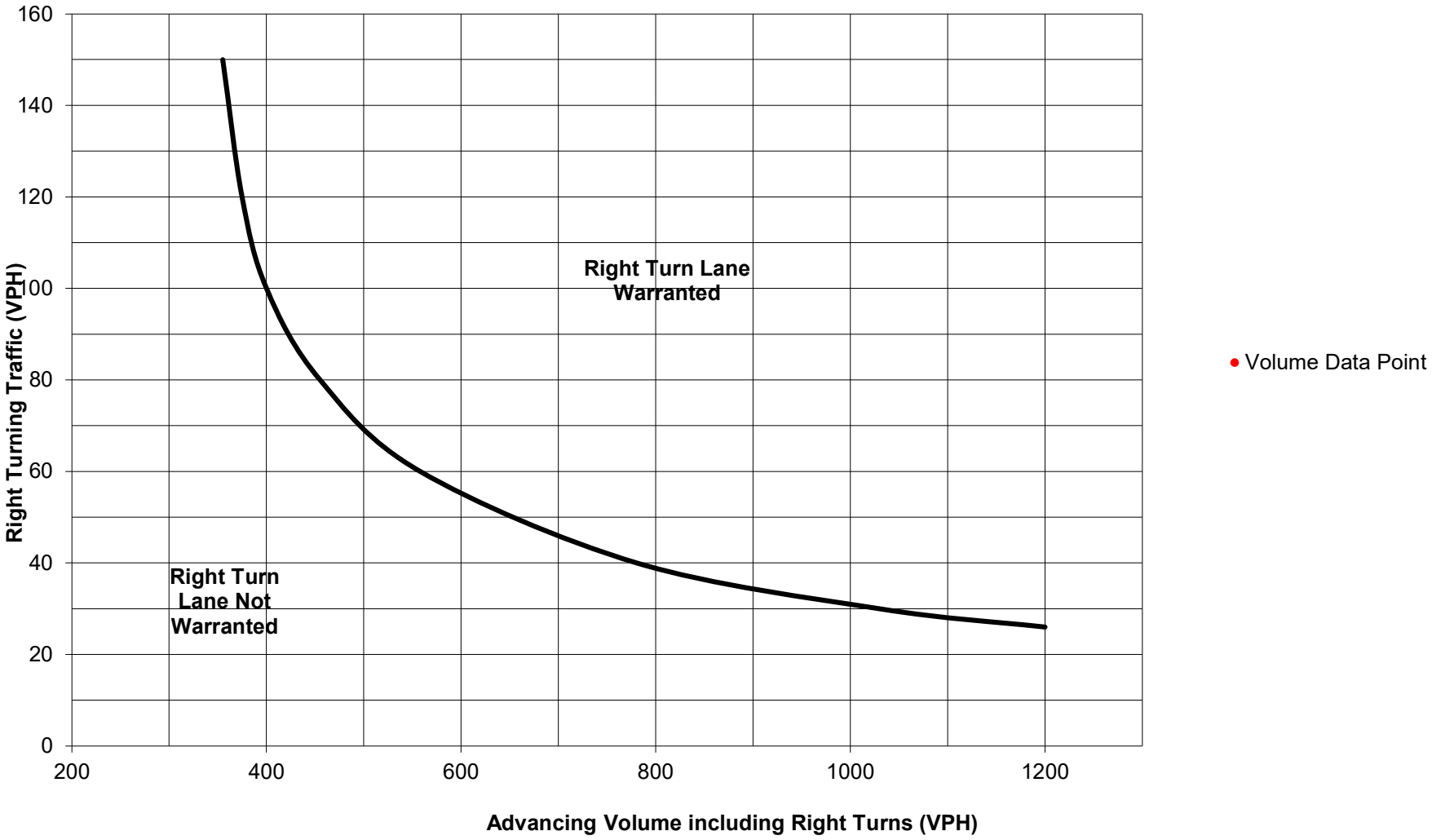
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	11	0.0%	11
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8

Advancing Volume:	19
Opposing Volume:	23
Left Turn Volume:	9
% Left Turns in Advancing Volume:	47.37%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

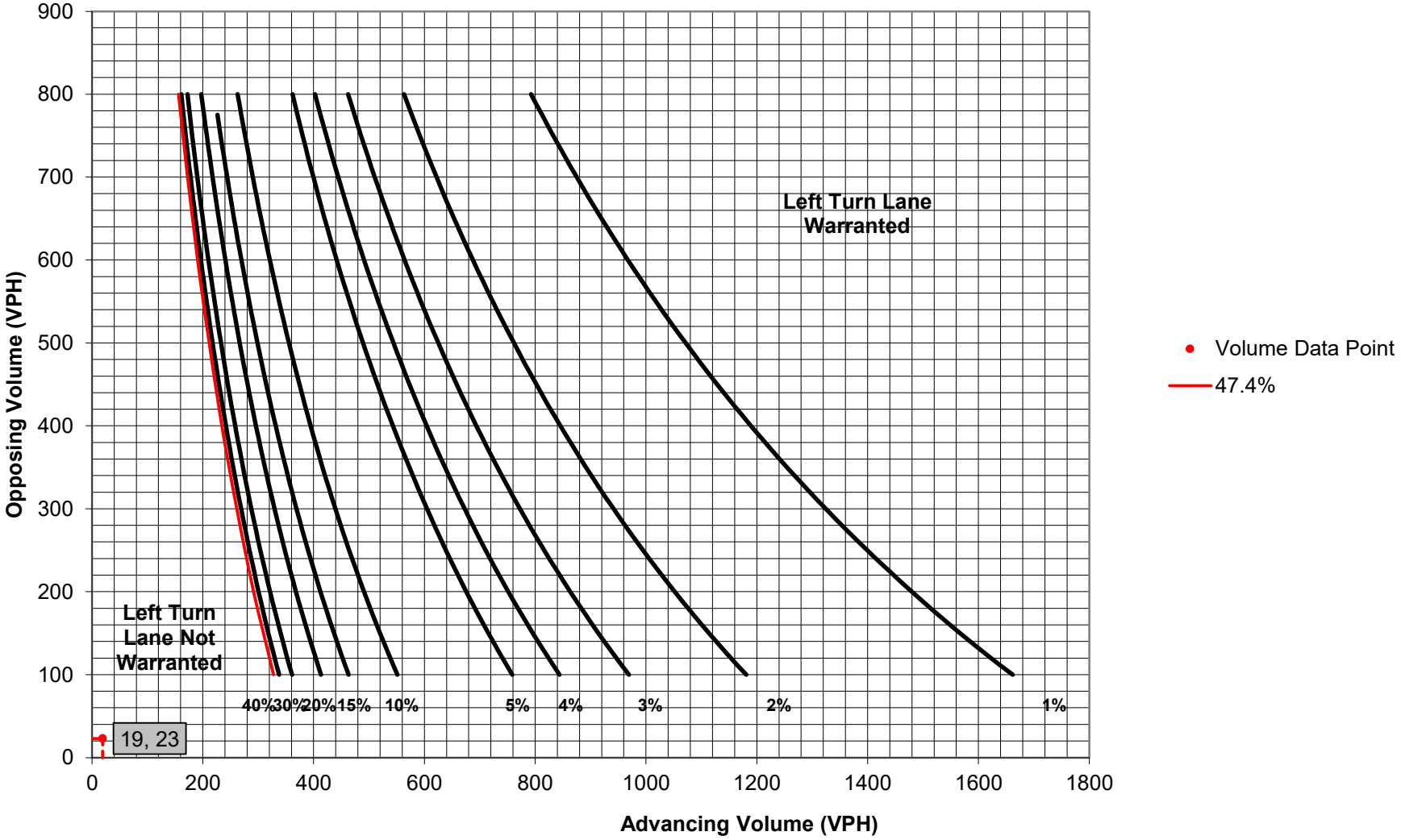
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	-	2	0.0%	2

Advancing Volume: 19
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

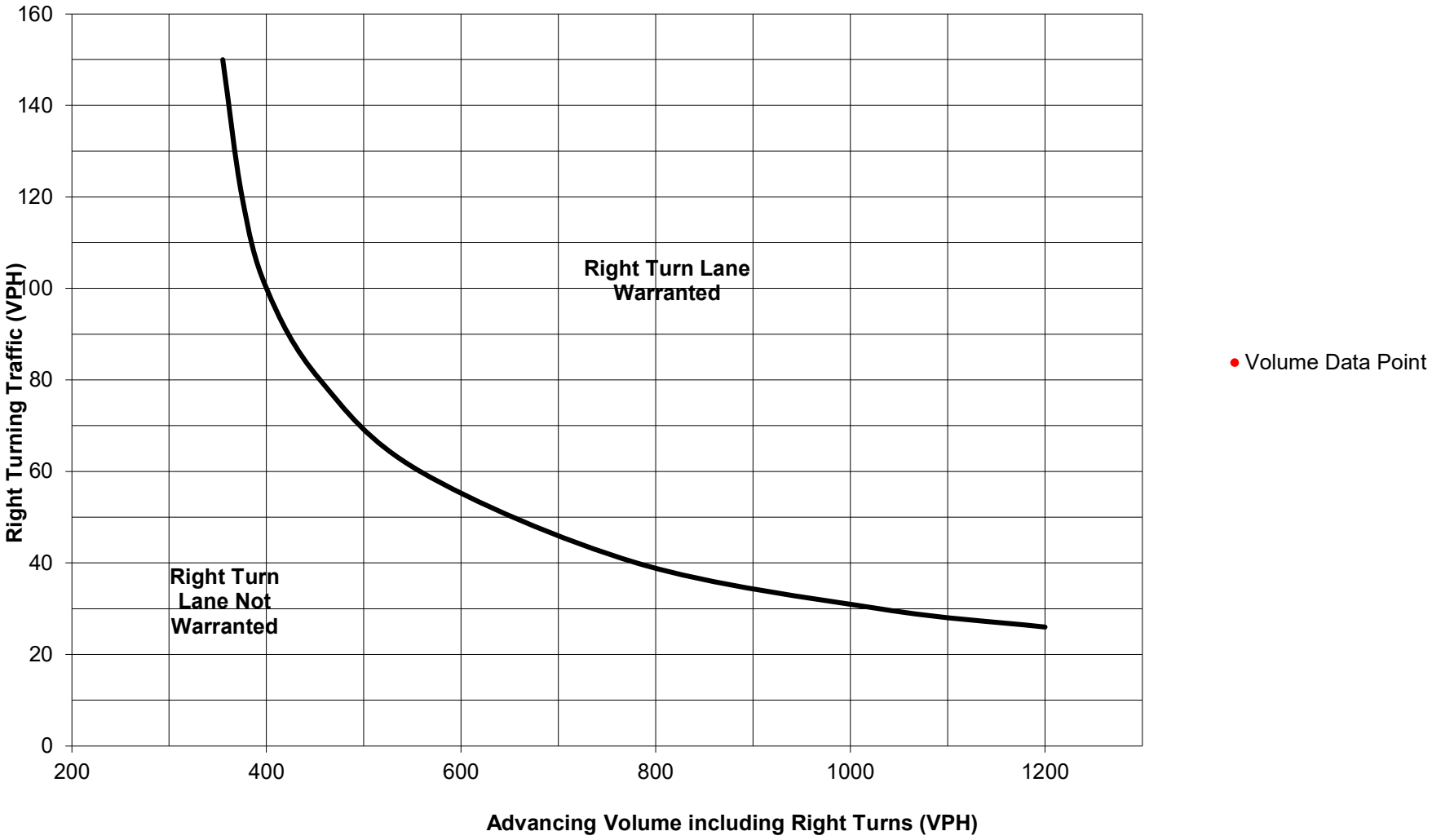
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	22	27.0%	31
	Right	Yes	13	0.0%	13
Opposing	Left	Yes	4	0.0%	4
	Through	-	34	9.0%	39
	Right	Yes	14	0.0%	14

Advancing Volume:	45
Opposing Volume:	57
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.22%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

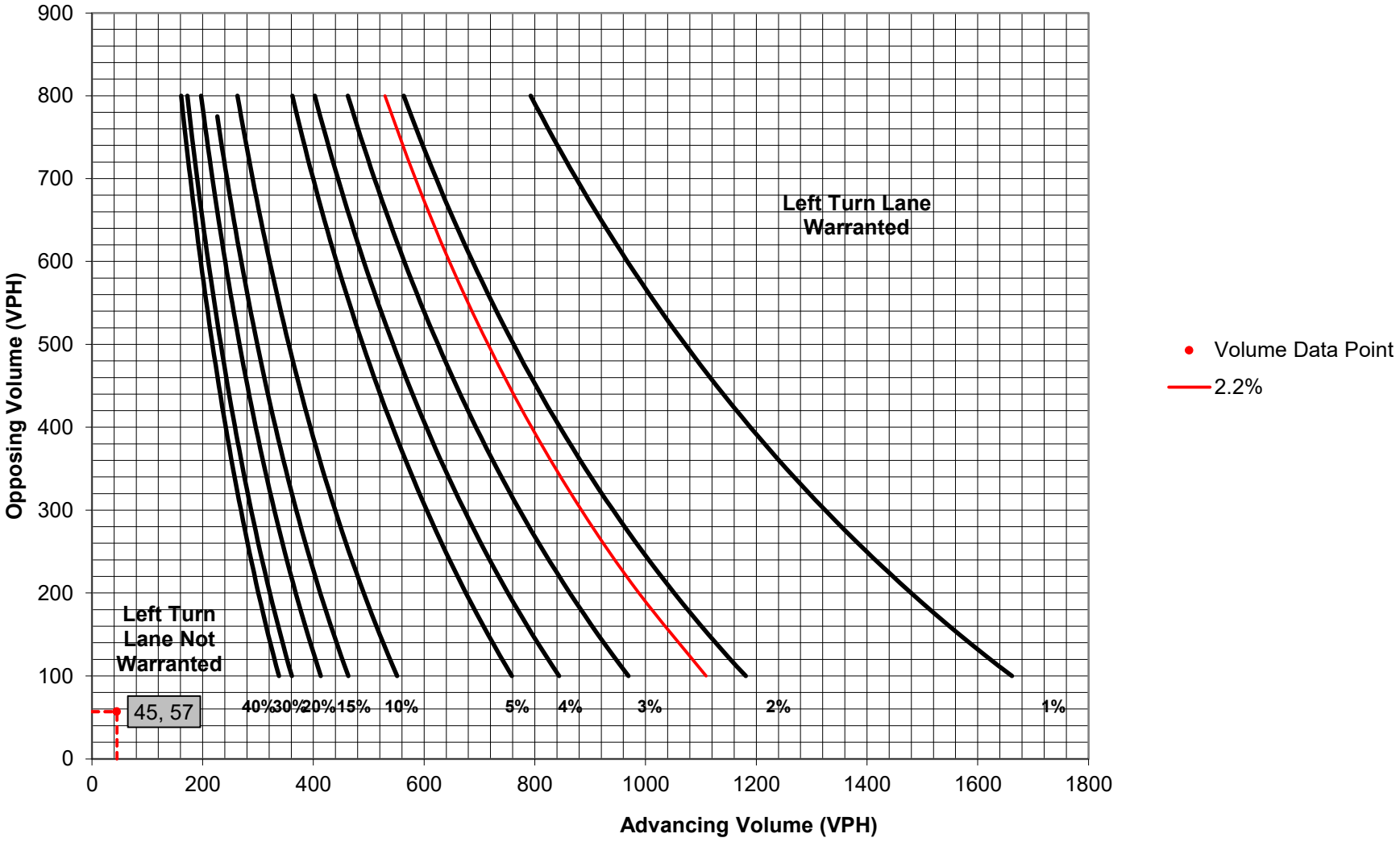
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	22	27.0%	31
	Right	-	13	0.0%	13

Advancing Volume: 45
Right Turn Volume: 13

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	13
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

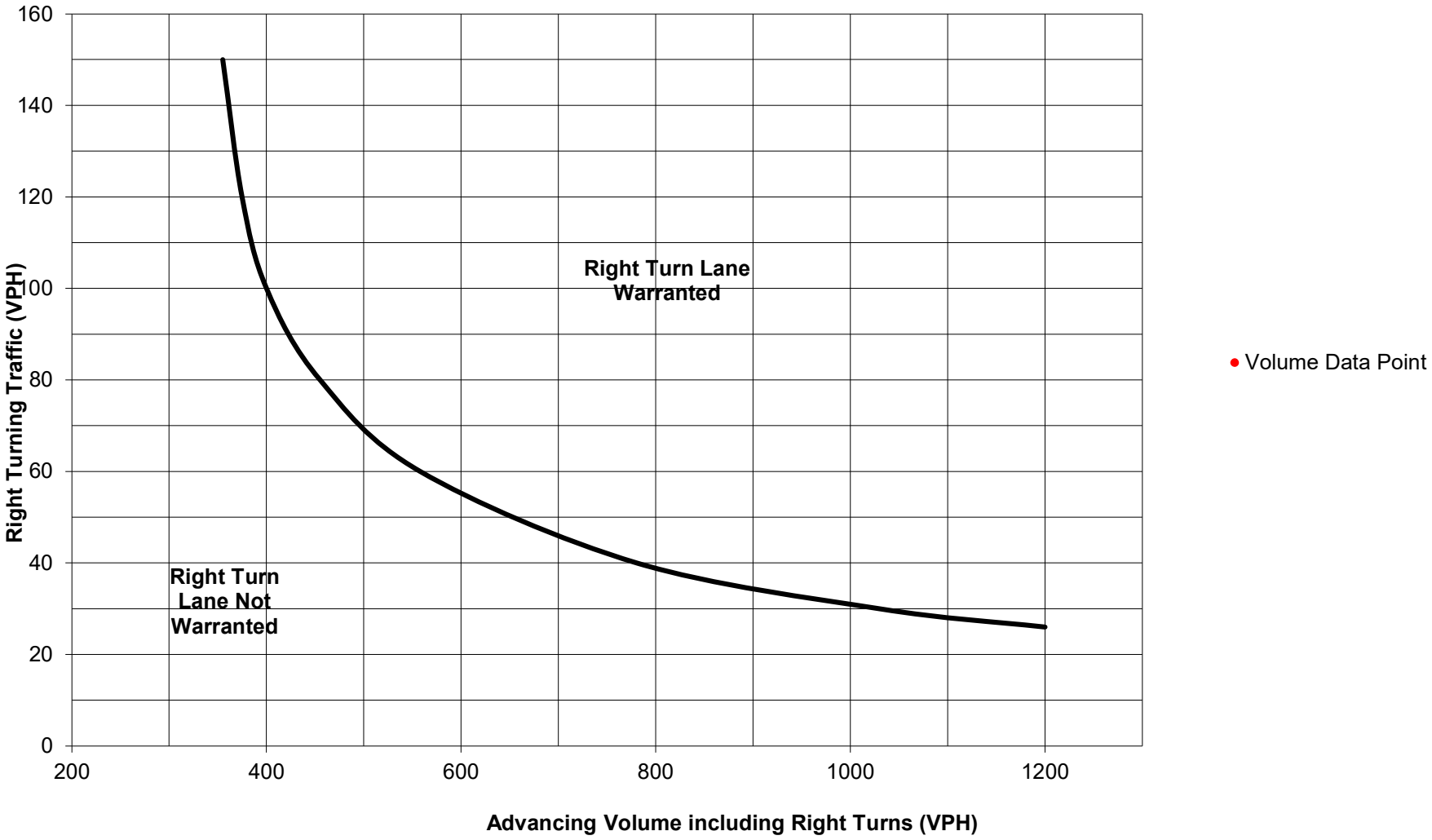
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	34	9.0%	39
	Right	Yes	14	0.0%	14
Opposing	Left	Yes	1	0.0%	1
	Through	-	22	27.0%	31
	Right	Yes	13	0.0%	13

Advancing Volume: 57
Opposing Volume: 45
Left Turn Volume: 4
% Left Turns in Advancing Volume: 7.02%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

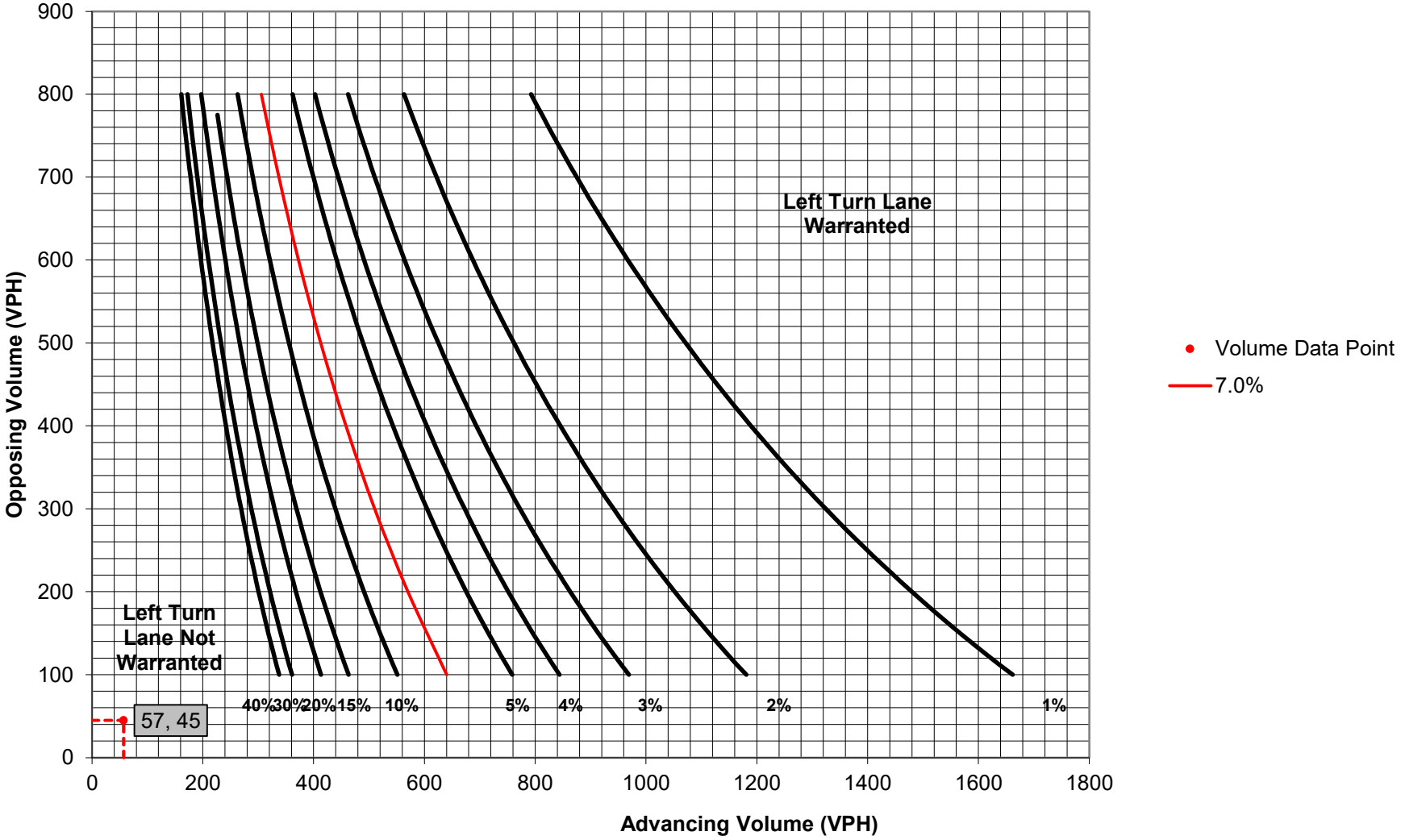
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	34	9.0%	39
	Right	-	14	0.0%	14

Advancing Volume: 57
Right Turn Volume: 14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

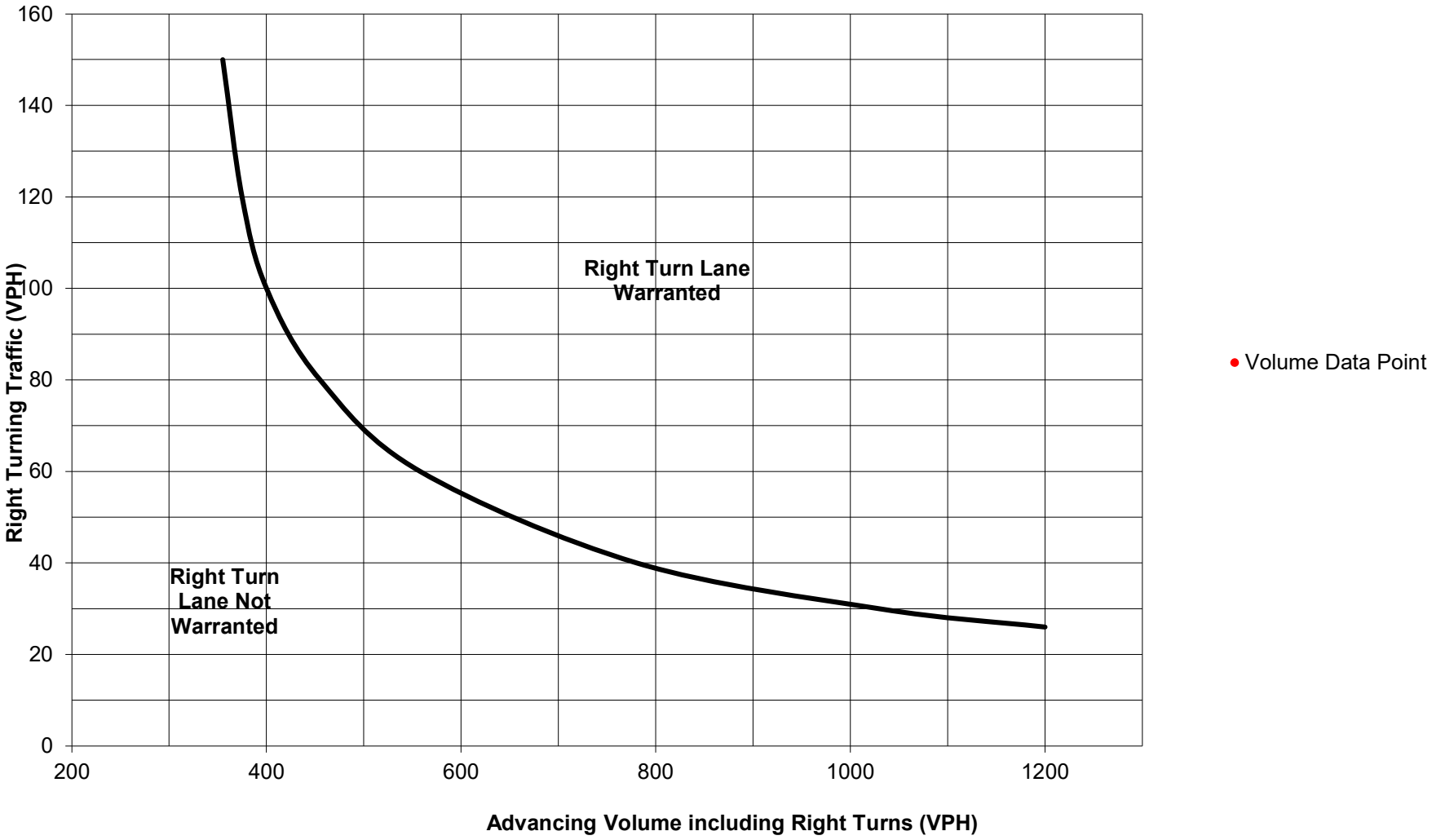
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	11	0.0%	11
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	Yes	2	0.0%	2

Advancing Volume:	23
Opposing Volume:	19
Left Turn Volume:	11
% Left Turns in Advancing Volume:	47.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

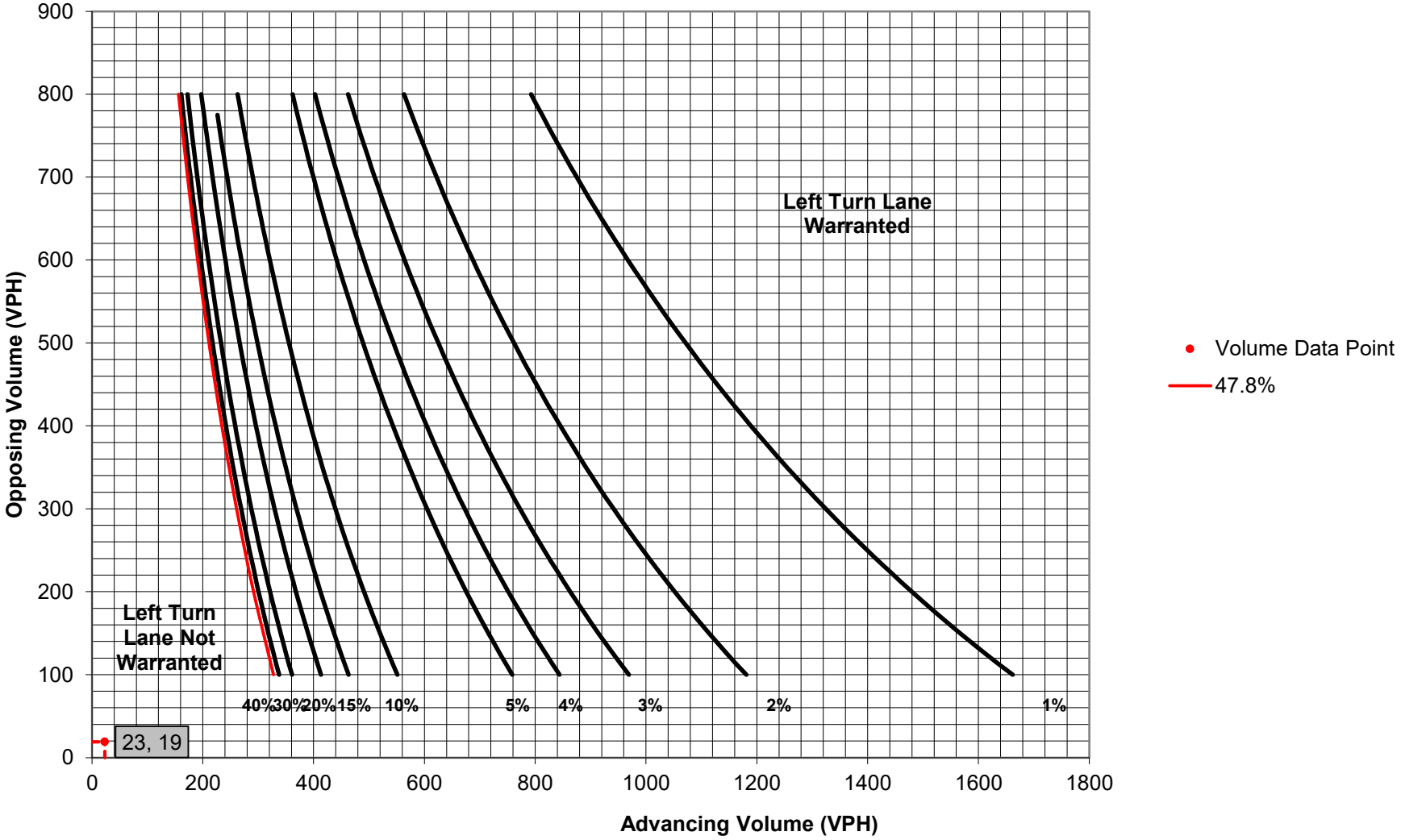
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	11	0.0%	11
	Through	-	4	0.0%	4
	Right	-	8	0.0%	8

Advancing Volume: 23
Right Turn Volume: 8

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

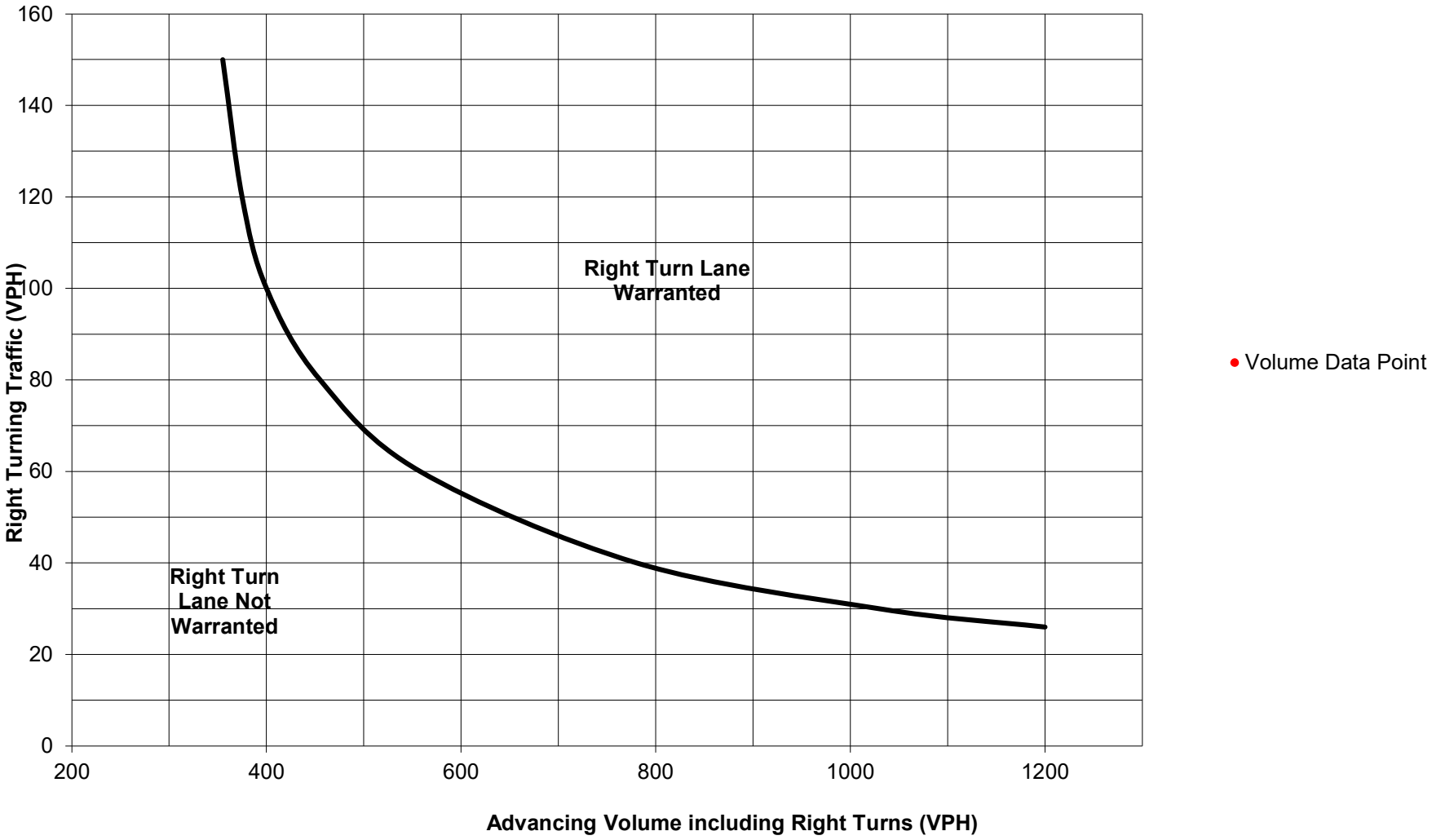
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	Yes	58	0.0%	58
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 64
Opposing Volume: 0
Left Turn Volume: 6
% Left Turns in Advancing Volume: 9.38%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

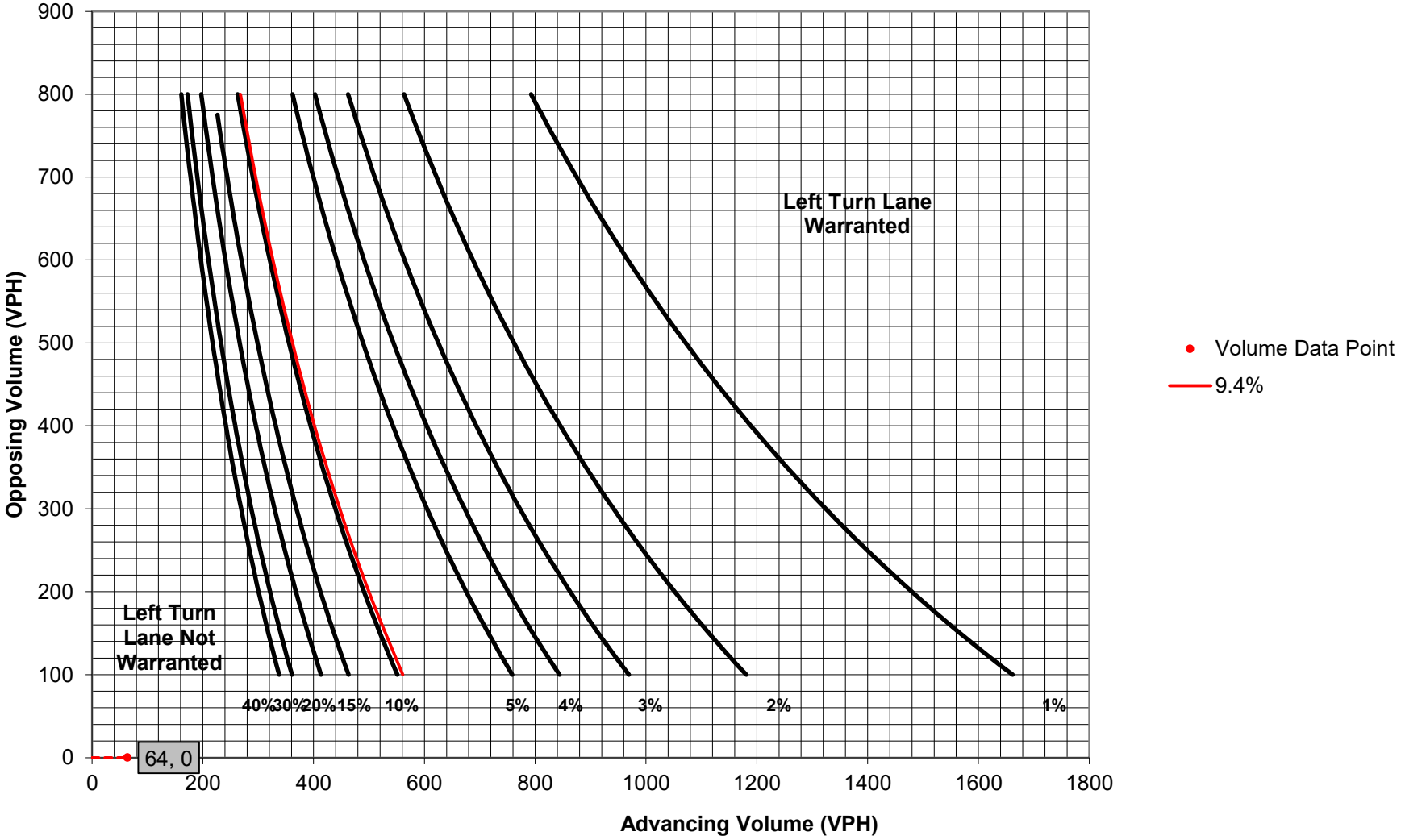
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	-	58	0.0%	58

Advancing Volume: 64
Right Turn Volume: 58

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	58
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

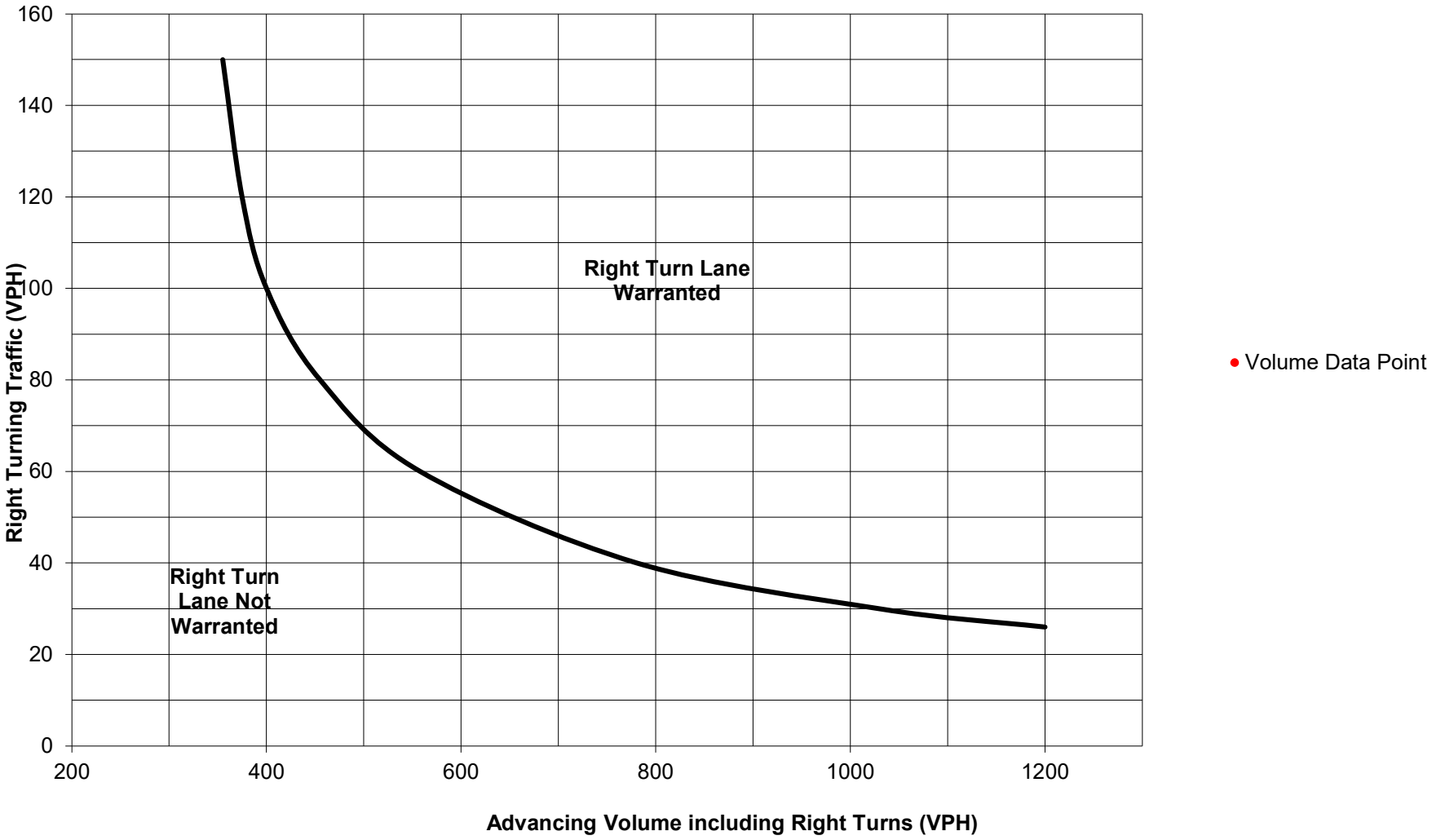
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	34	3.0%	36
	Through	-	369	1.0%	375
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	358	3.0%	375
	Right	Yes	6	0.0%	6

Advancing Volume:	411
Opposing Volume:	381
Left Turn Volume:	36
% Left Turns in Advancing Volume:	8.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

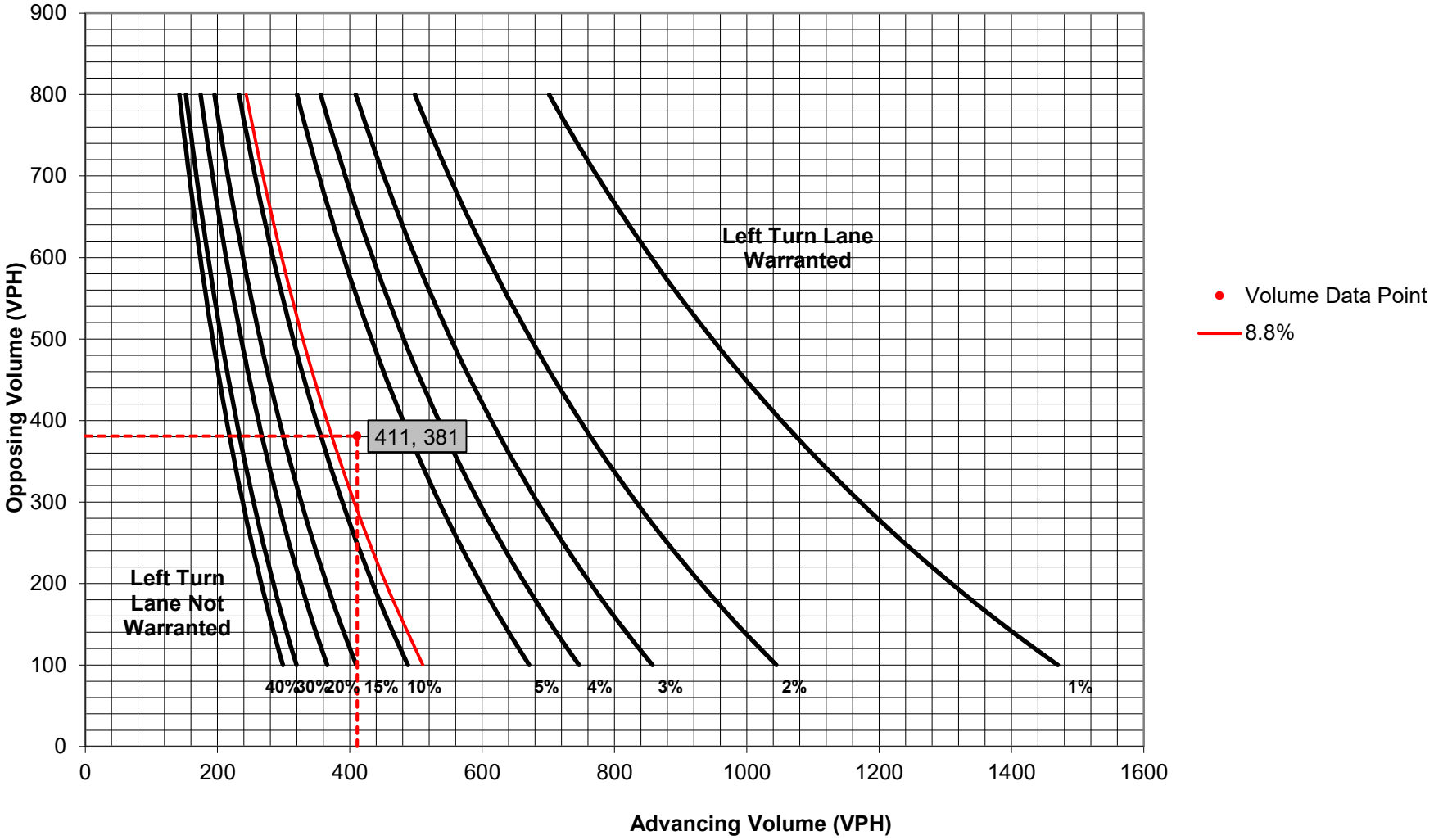
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	449	0.0%	449
	Right	-	16	0.0%	16

Advancing Volume: 465
Right Turn Volume: 16

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	16
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

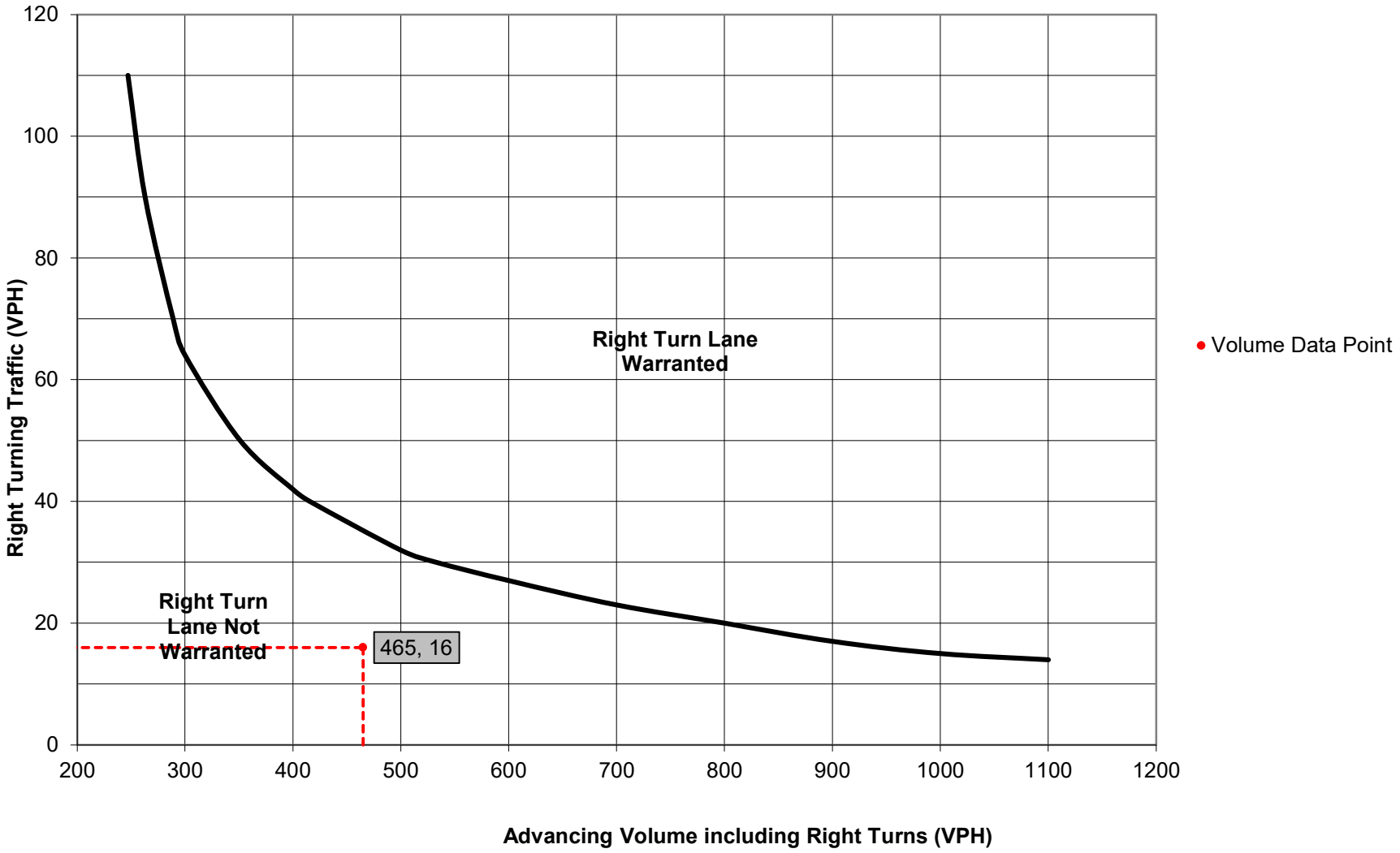
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	Yes	46	0.0%	46
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 47
Opposing Volume: 0
Left Turn Volume: 1
% Left Turns in Advancing Volume: 2.13%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

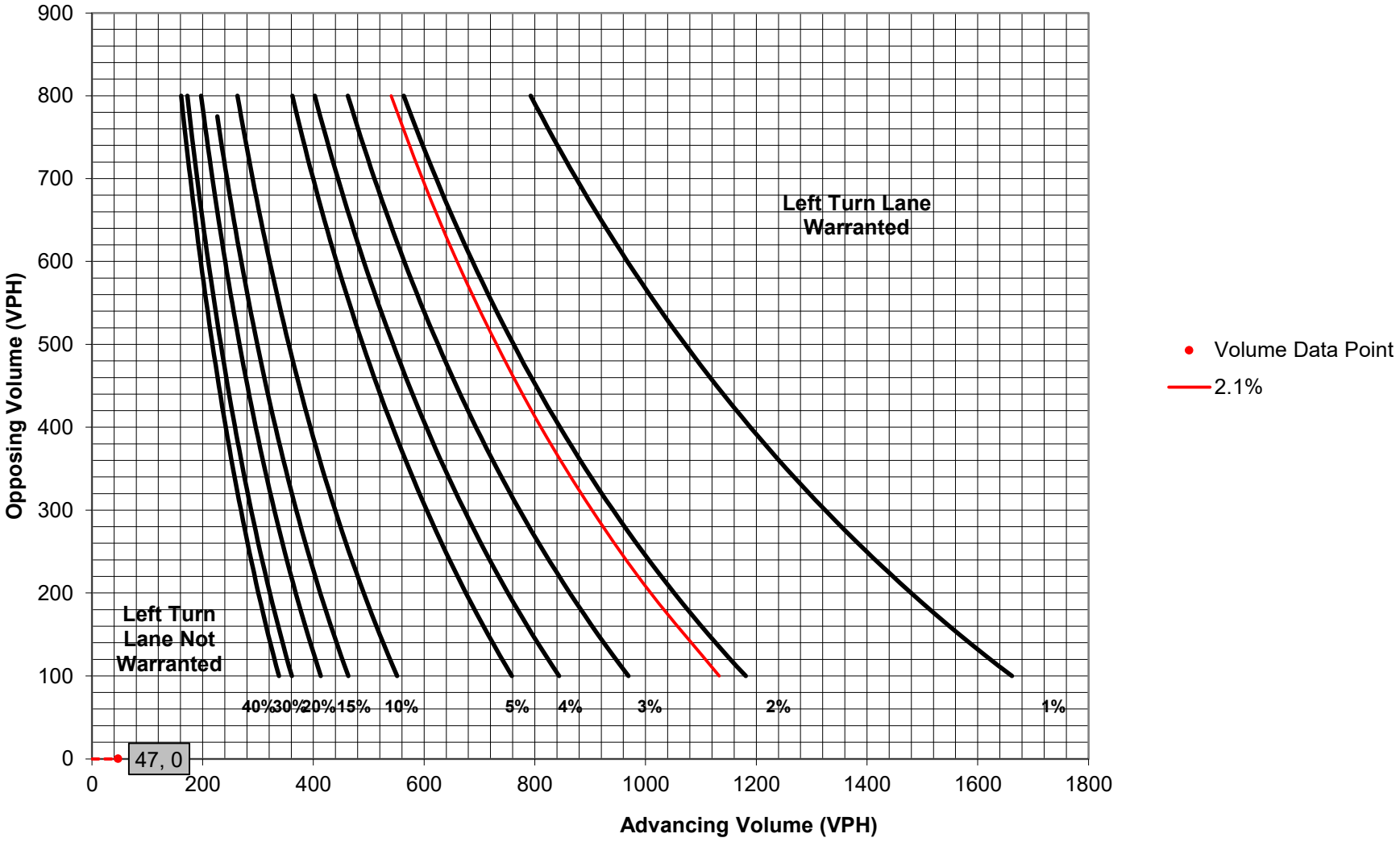
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	-	46	0.0%	46

Advancing Volume: 47
Right Turn Volume: 46

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	46
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

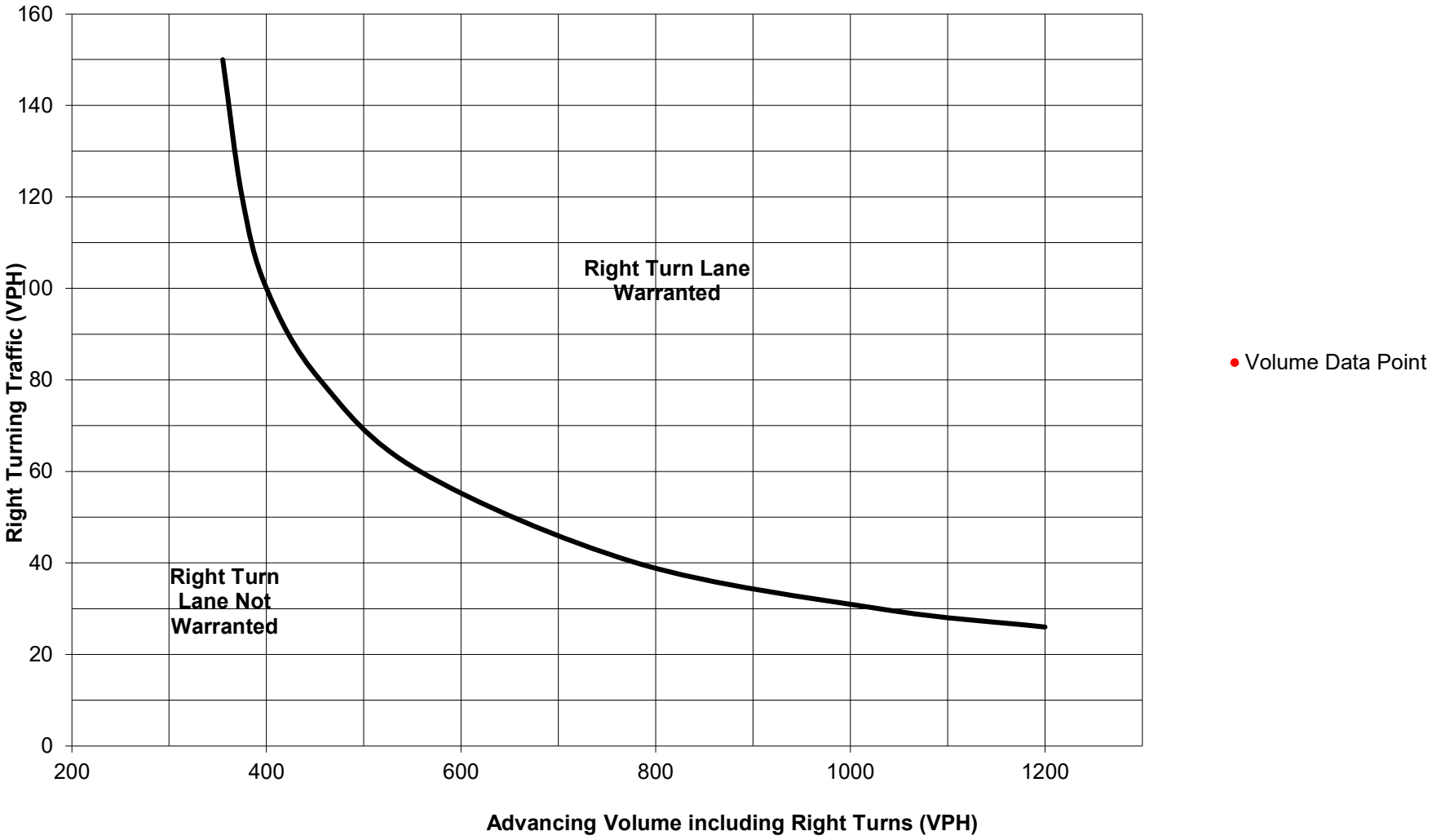
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2026 Existing - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	50	0.0%	50
	Through	-	485	1.0%	493
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	449	0.0%	449
	Right	Yes	16	0.0%	16

Advancing Volume:	543
Opposing Volume:	465
Left Turn Volume:	50
% Left Turns in Advancing Volume:	9.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	50
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

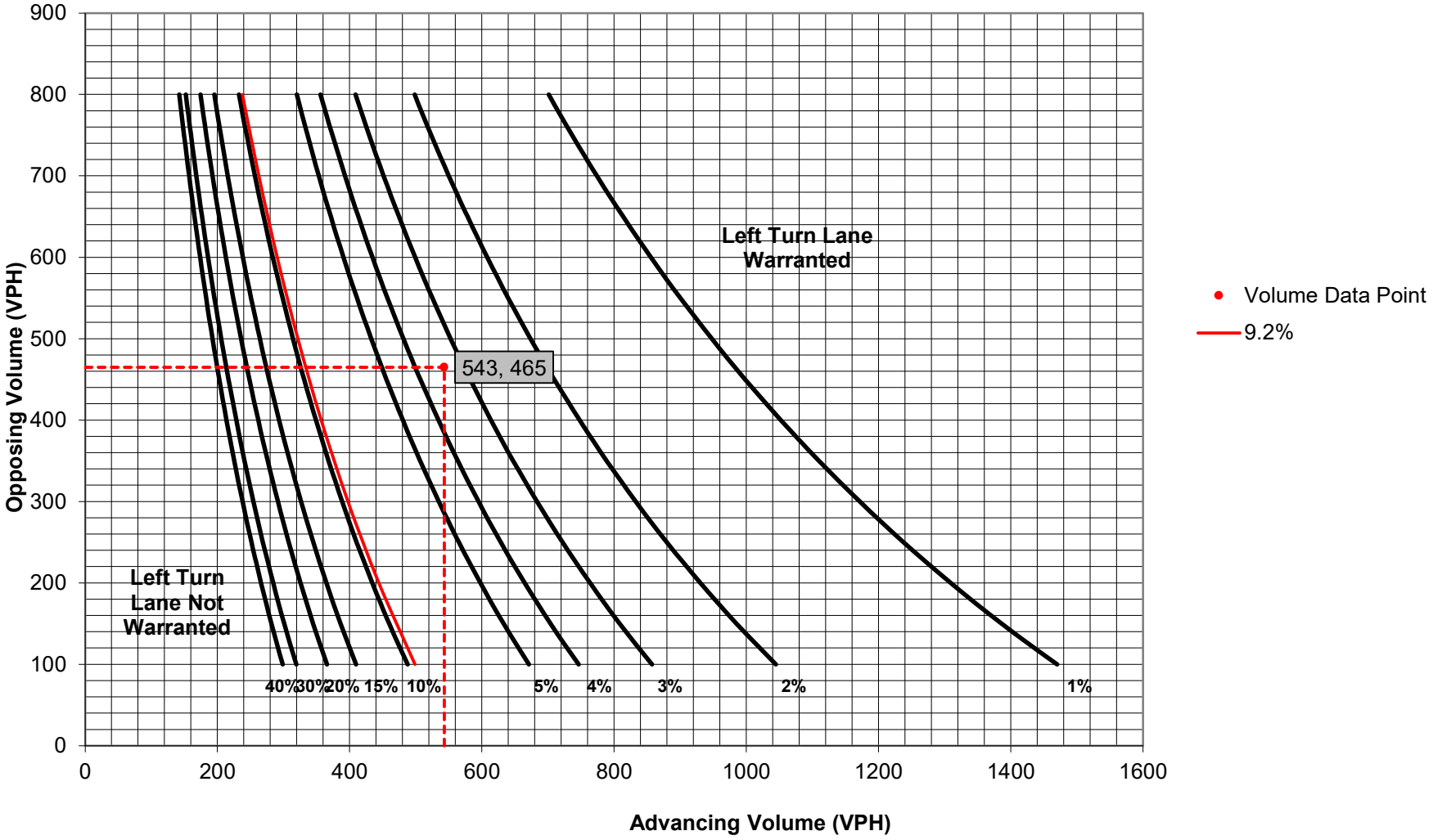
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



O.02 – 2037 No Build Condition: Turn Lane Warrants

WEEKDAY

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	30	7.0%	34

Advancing Volume: 34
Right Turn Volume: 34

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	34
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

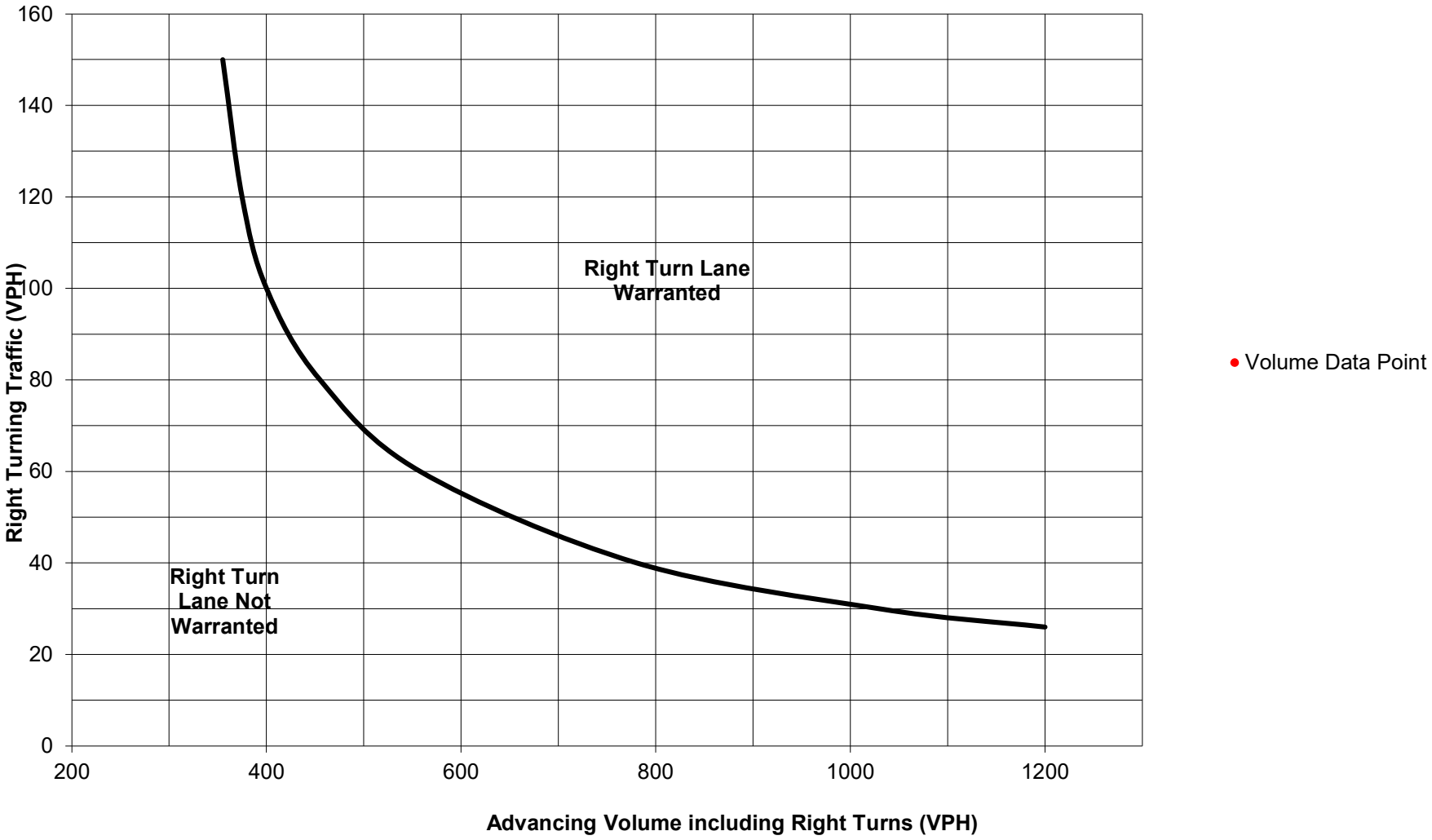
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	2.0%	55
	Through	-	0	0.0%	0
	Right	Yes	1	100.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	58
Opposing Volume:	0
Left Turn Volume:	55
% Left Turns in Advancing Volume:	94.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	55
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

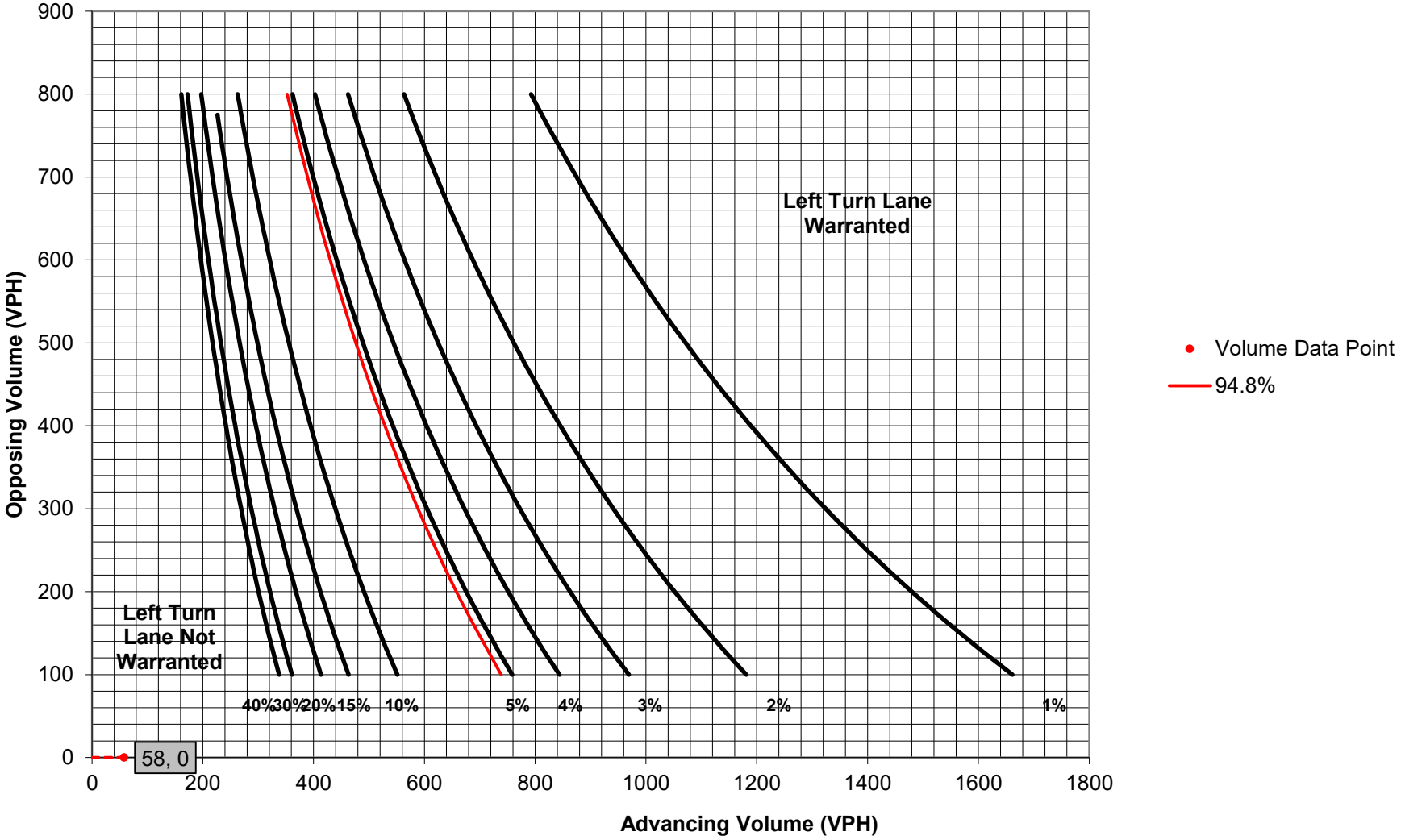
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	2.0%	55
	Through	-	0	0.0%	0
	Right	-	1	100.0%	3

Advancing Volume: 58
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

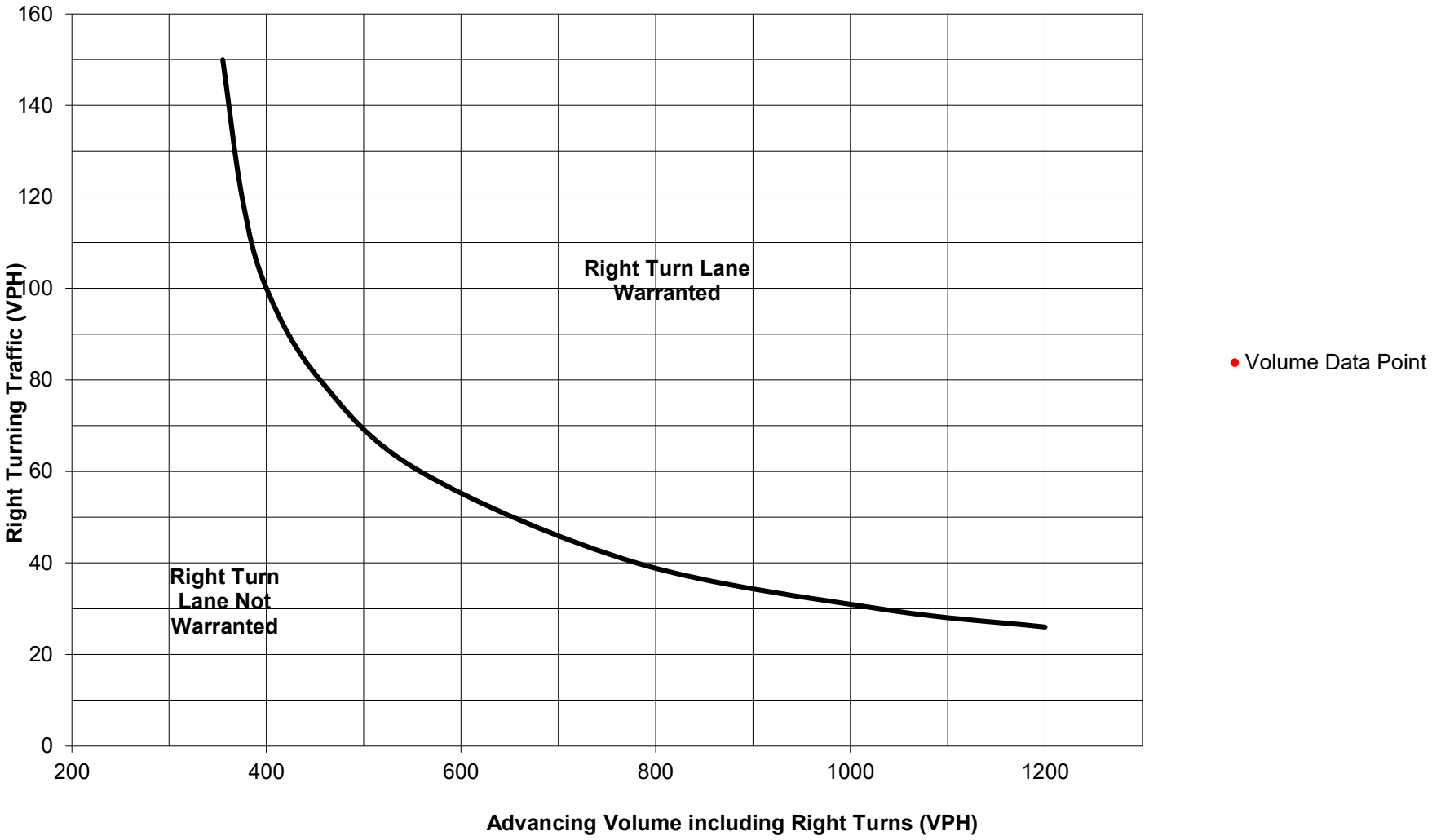
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	33.0%	5
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	Yes	30	7.0%	34

Advancing Volume:	5
Opposing Volume:	34
Left Turn Volume:	5
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

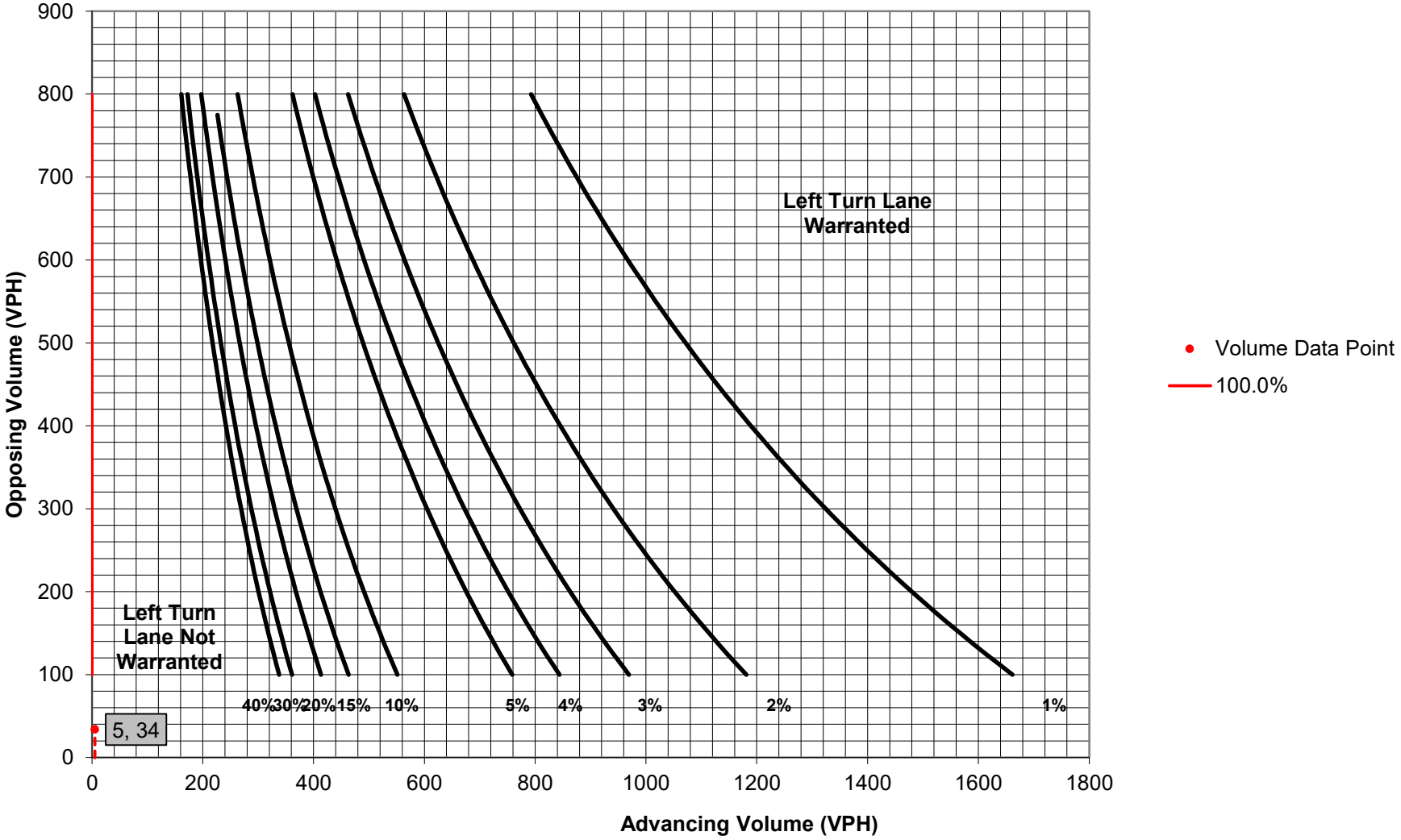
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	42	0.0%	42

Advancing Volume: 42
Right Turn Volume: 42

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

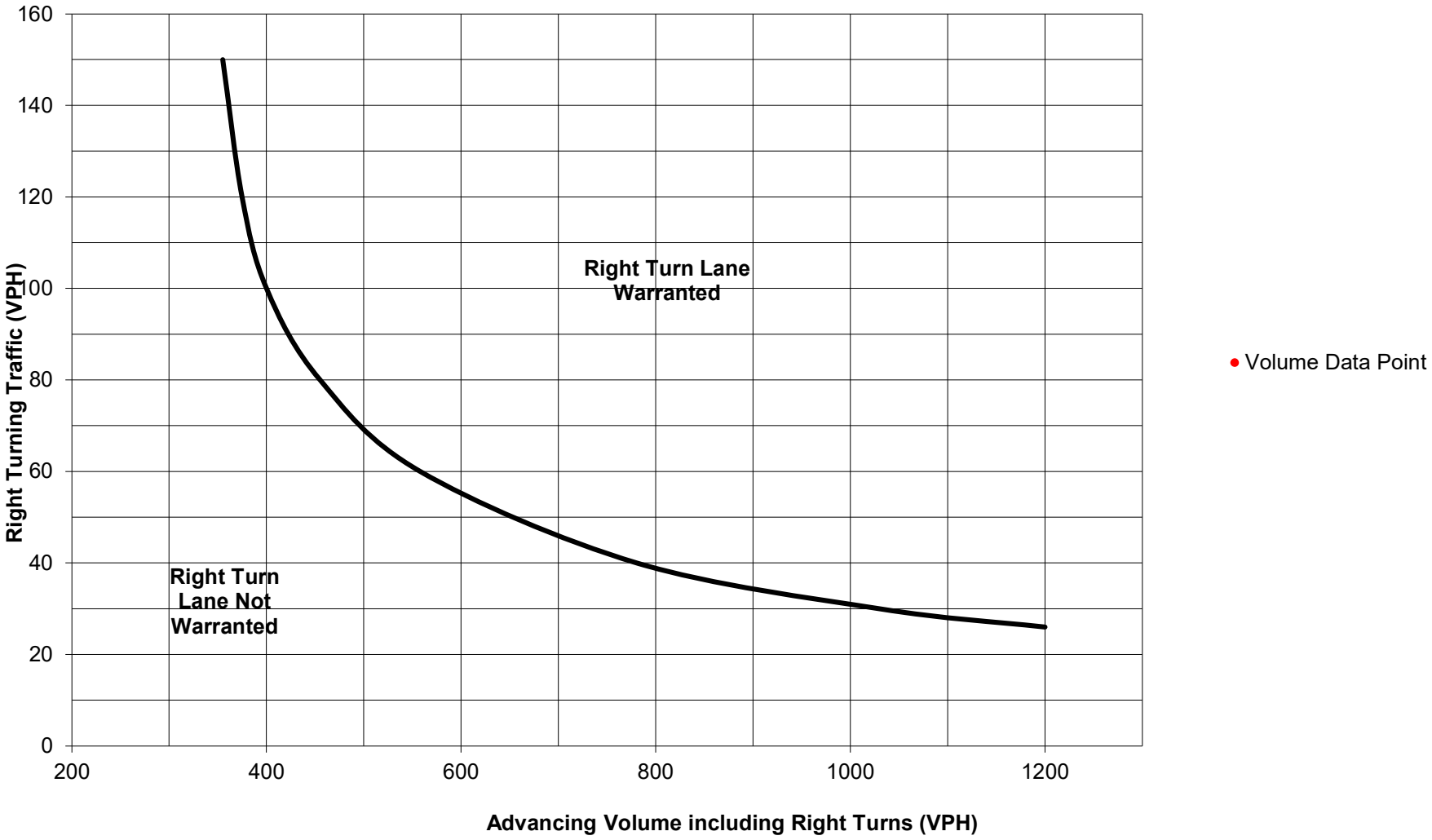
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	77	4.0%	82
	Through	-	0	0.0%	0
	Right	Yes	2	0.0%	2
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	84
Opposing Volume:	0
Left Turn Volume:	82
% Left Turns in Advancing Volume:	97.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	82
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

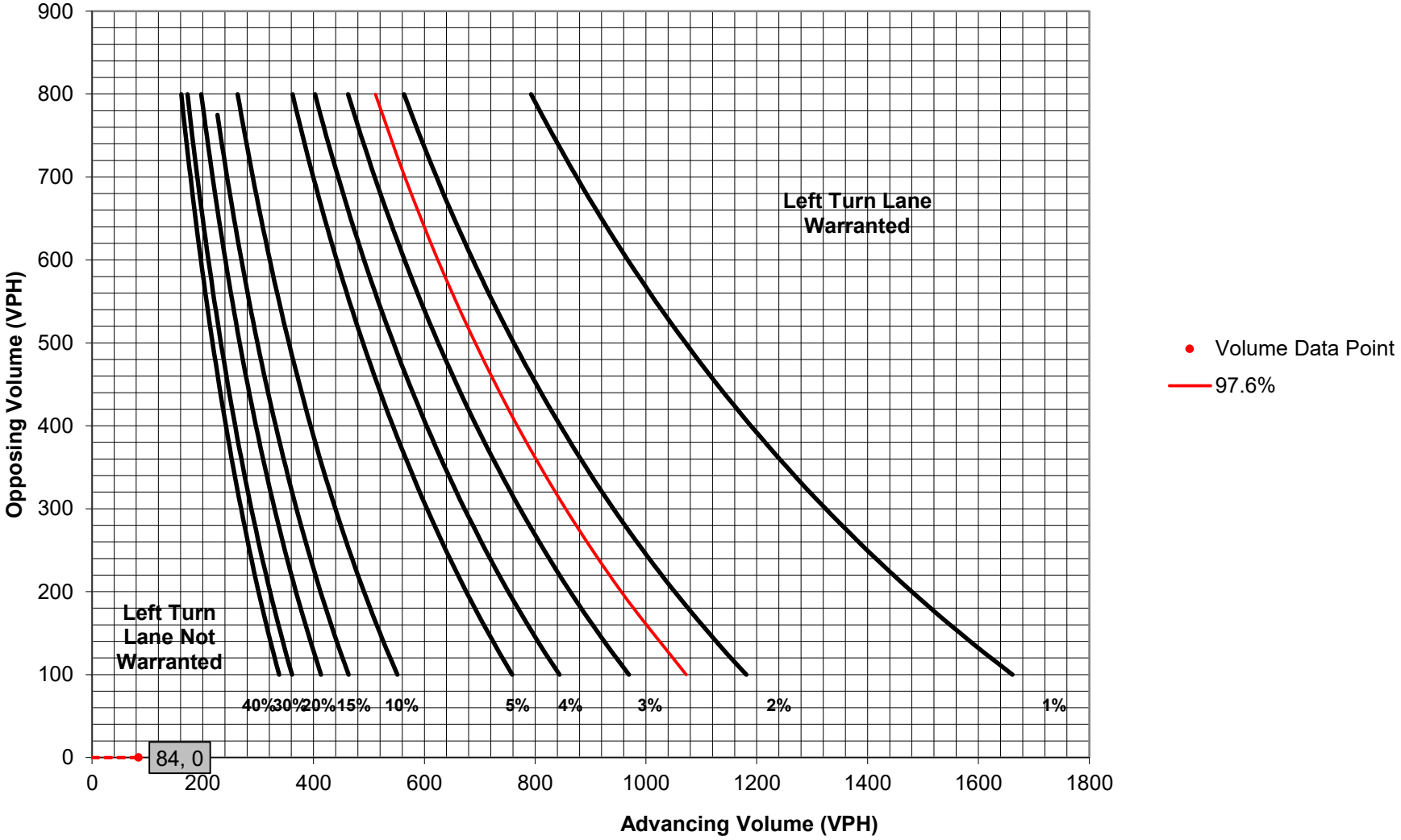
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	77	4.0%	82
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume: 84
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

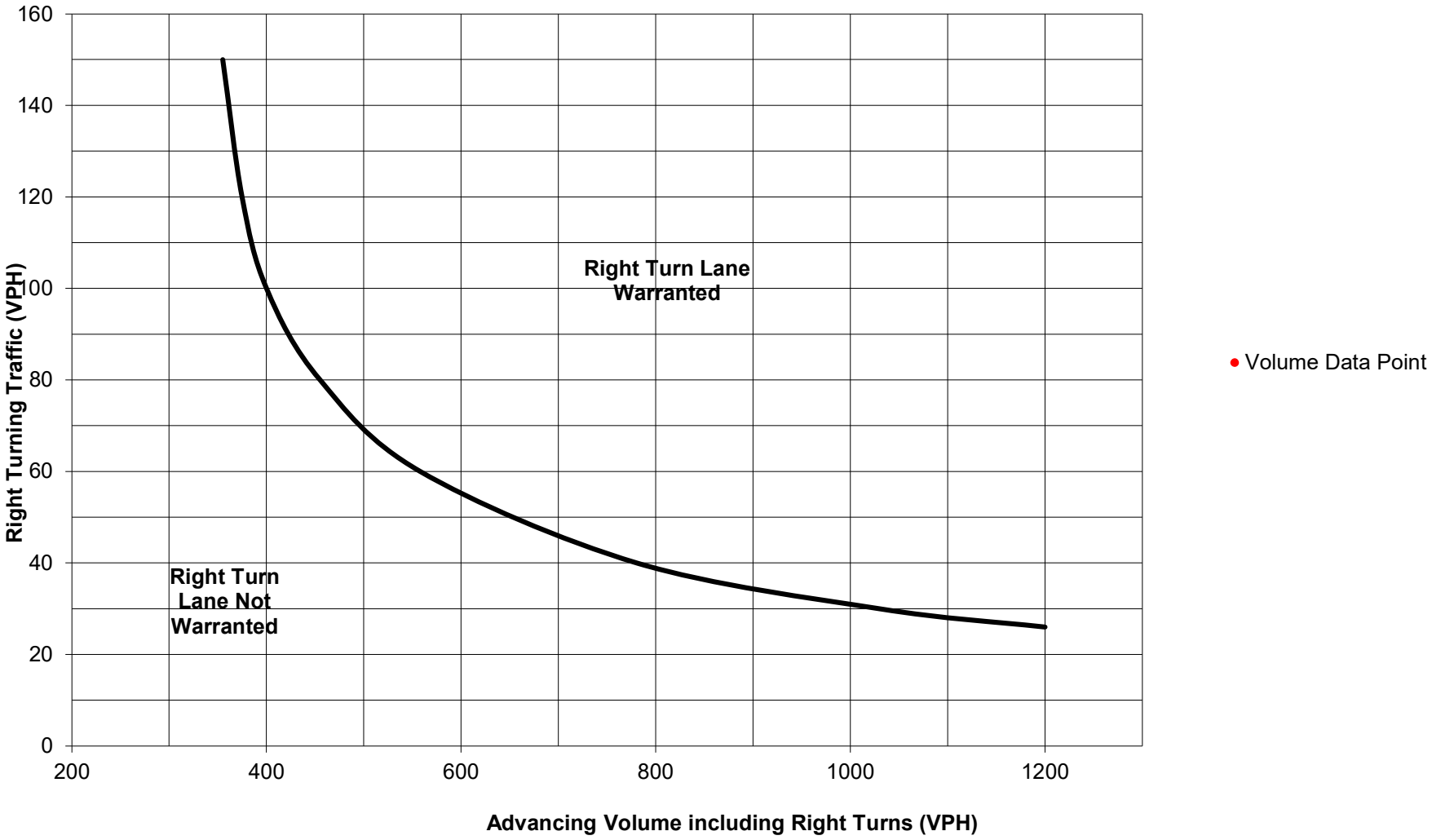
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	Yes	42	0.0%	42

Advancing Volume:	2
Opposing Volume:	42
Left Turn Volume:	2
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

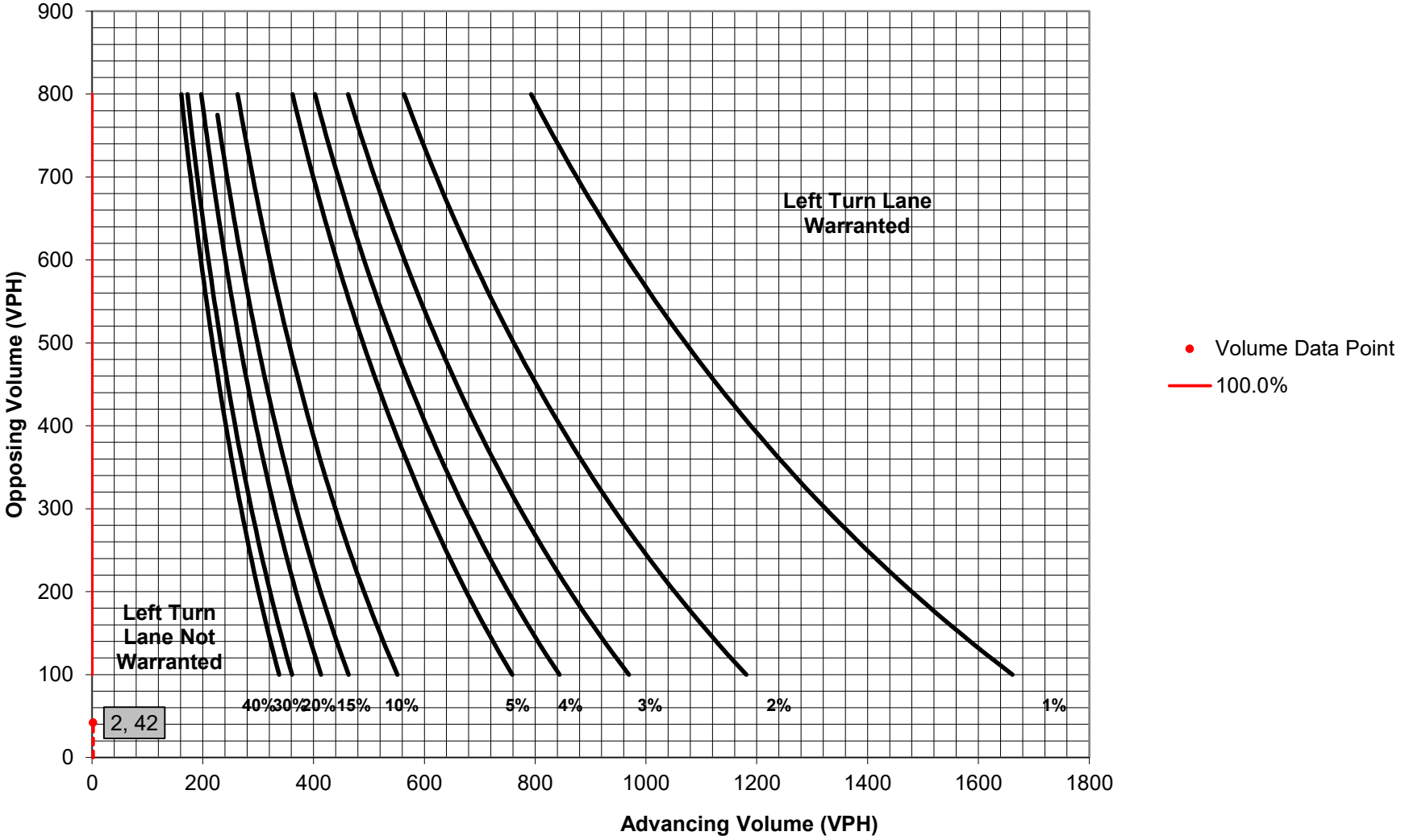
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	6	0.0%	N/A
	Through	-	140	2.0%	145
	Right	-	266	7.0%	294

Advancing Volume: 439
Right Turn Volume: 294

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	294
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

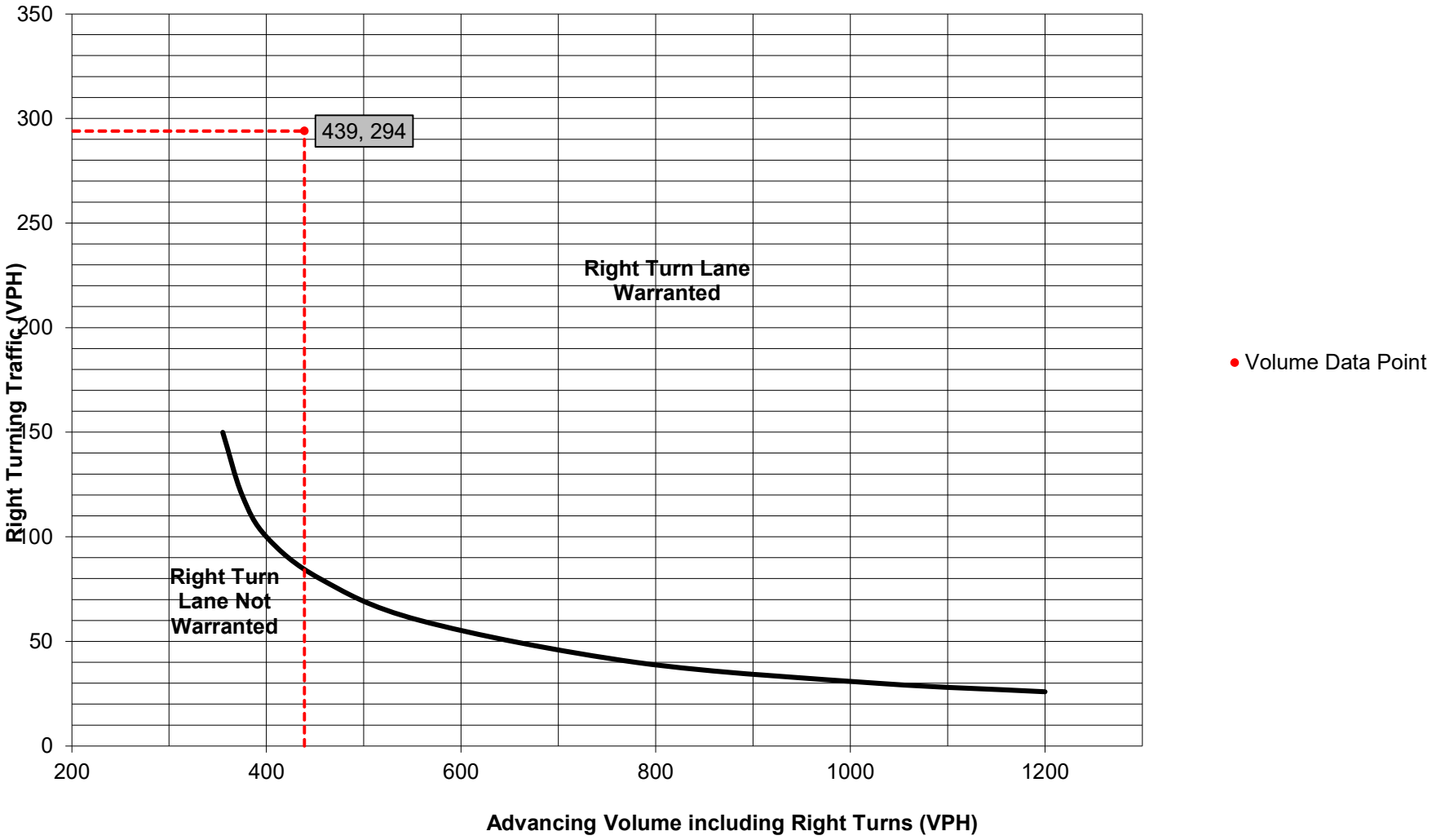
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: 250 Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: 250 Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	91	7.0%	101
	Through	-	0	0.0%	0
	Right	No	55	8.0%	N/A
Opposing	Left	No	8	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	13	8.0%	N/A

Advancing Volume:	101
Opposing Volume:	0
Left Turn Volume:	101
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	101
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

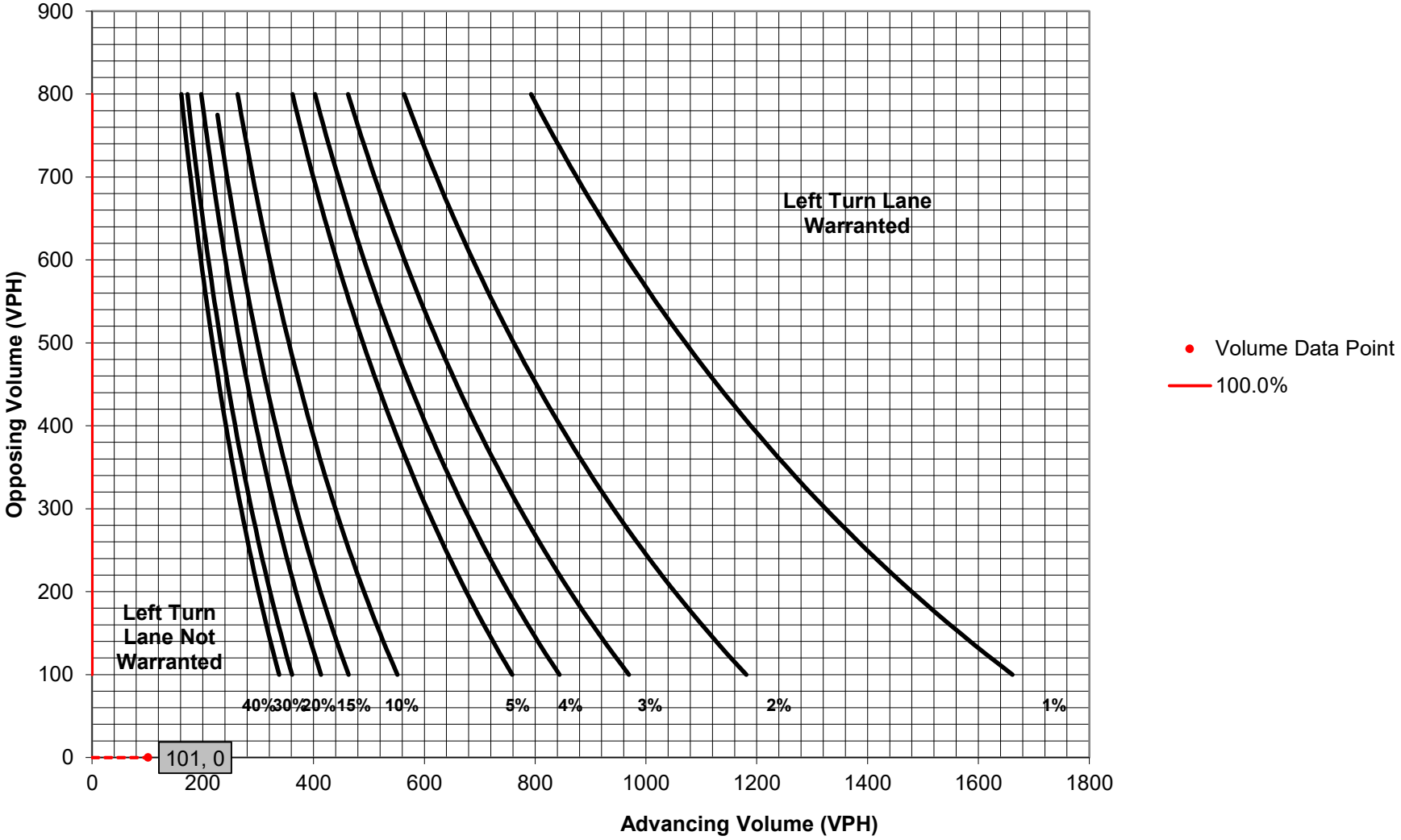
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	91	7.0%	N/A
	Through	-	0	0.0%	0
	Right	-	55	8.0%	62

Advancing Volume:	62
Right Turn Volume:	62

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	62
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

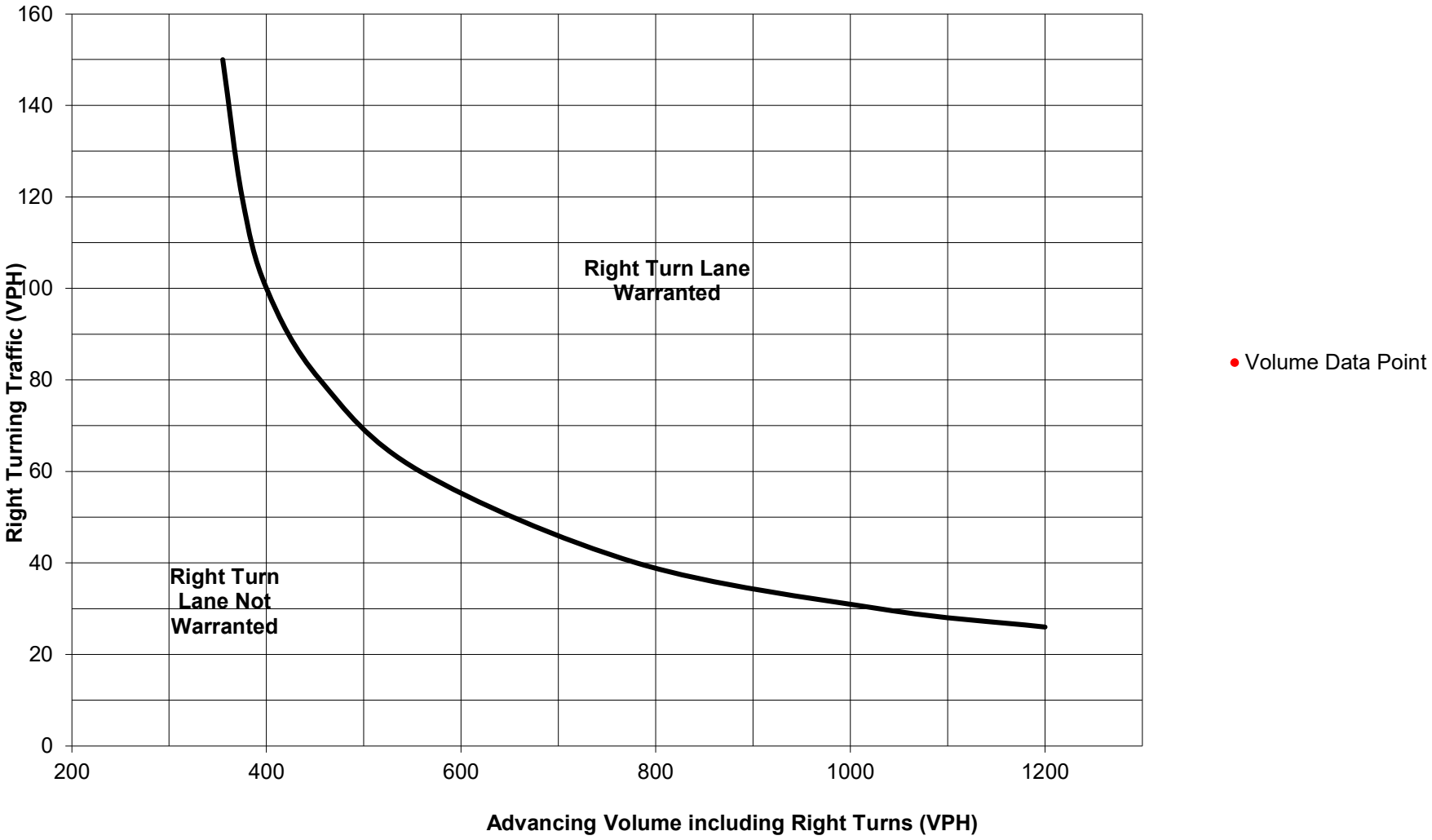
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	Yes	13	8.0%	15
Opposing	Left	No	91	7.0%	N/A
	Through	-	0	0.0%	0
	Right	No	55	8.0%	N/A

Advancing Volume:	23
Opposing Volume:	0
Left Turn Volume:	8
% Left Turns in Advancing Volume:	34.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

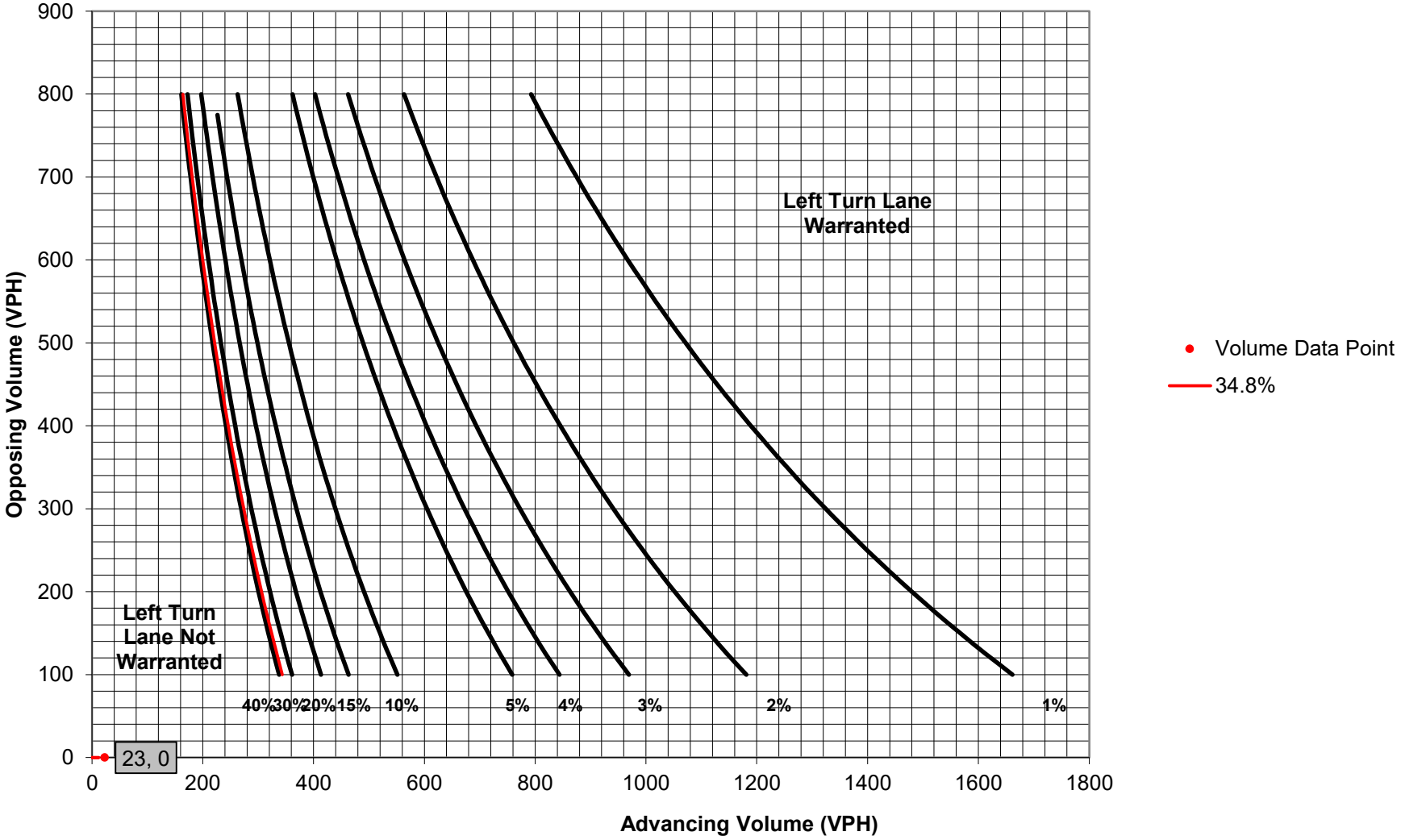
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	-	13	8.0%	15

Advancing Volume: 23
Right Turn Volume: 15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

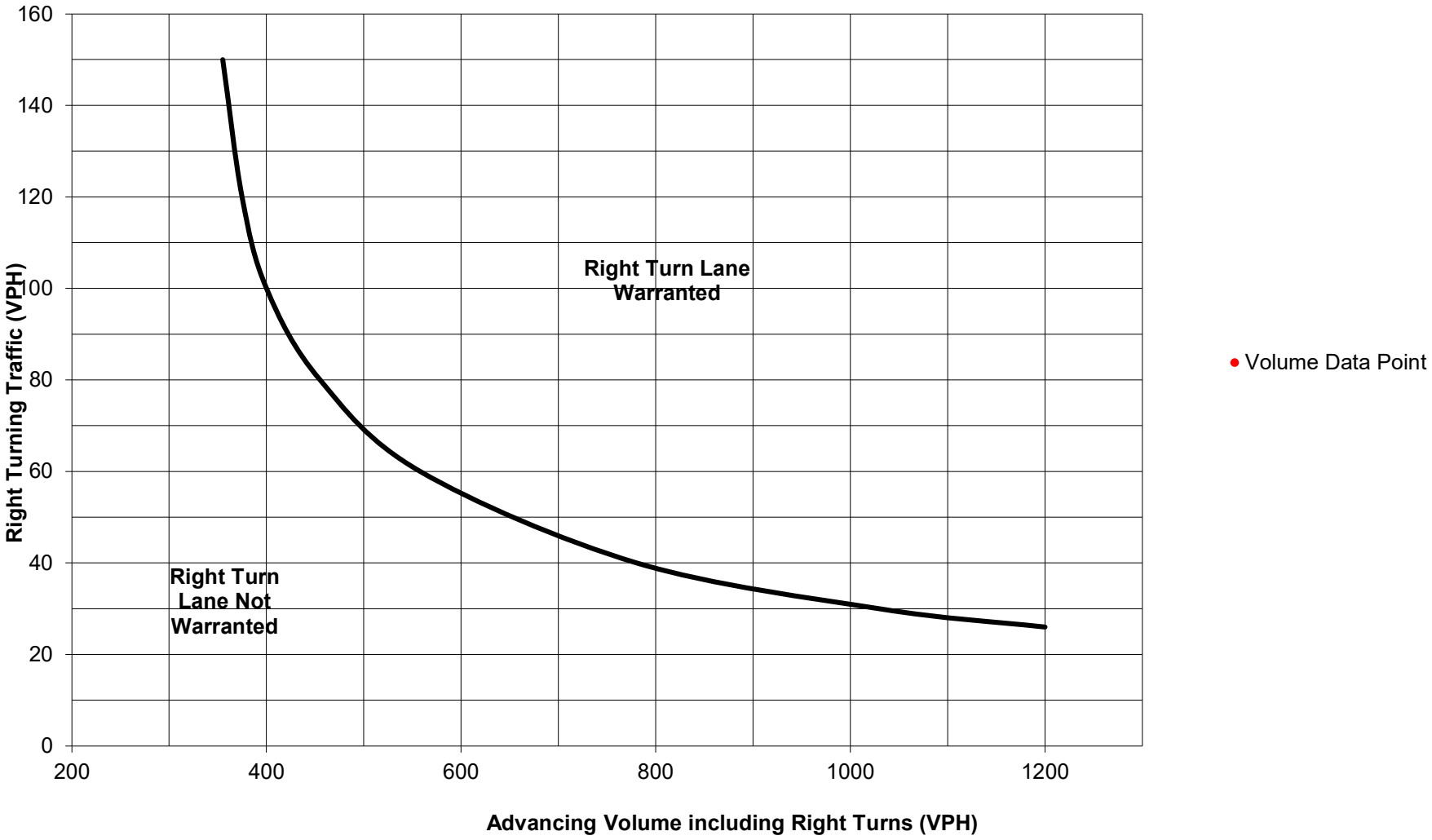
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	75	4.0%	80
	Through	-	84	3.0%	88
	Right	No	3	33.0%	N/A
Opposing	Left	No	6	0.0%	N/A
	Through	-	140	2.0%	145
	Right	No	266	7.0%	N/A

Advancing Volume:	168
Opposing Volume:	145
Left Turn Volume:	80
% Left Turns in Advancing Volume:	47.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	80
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

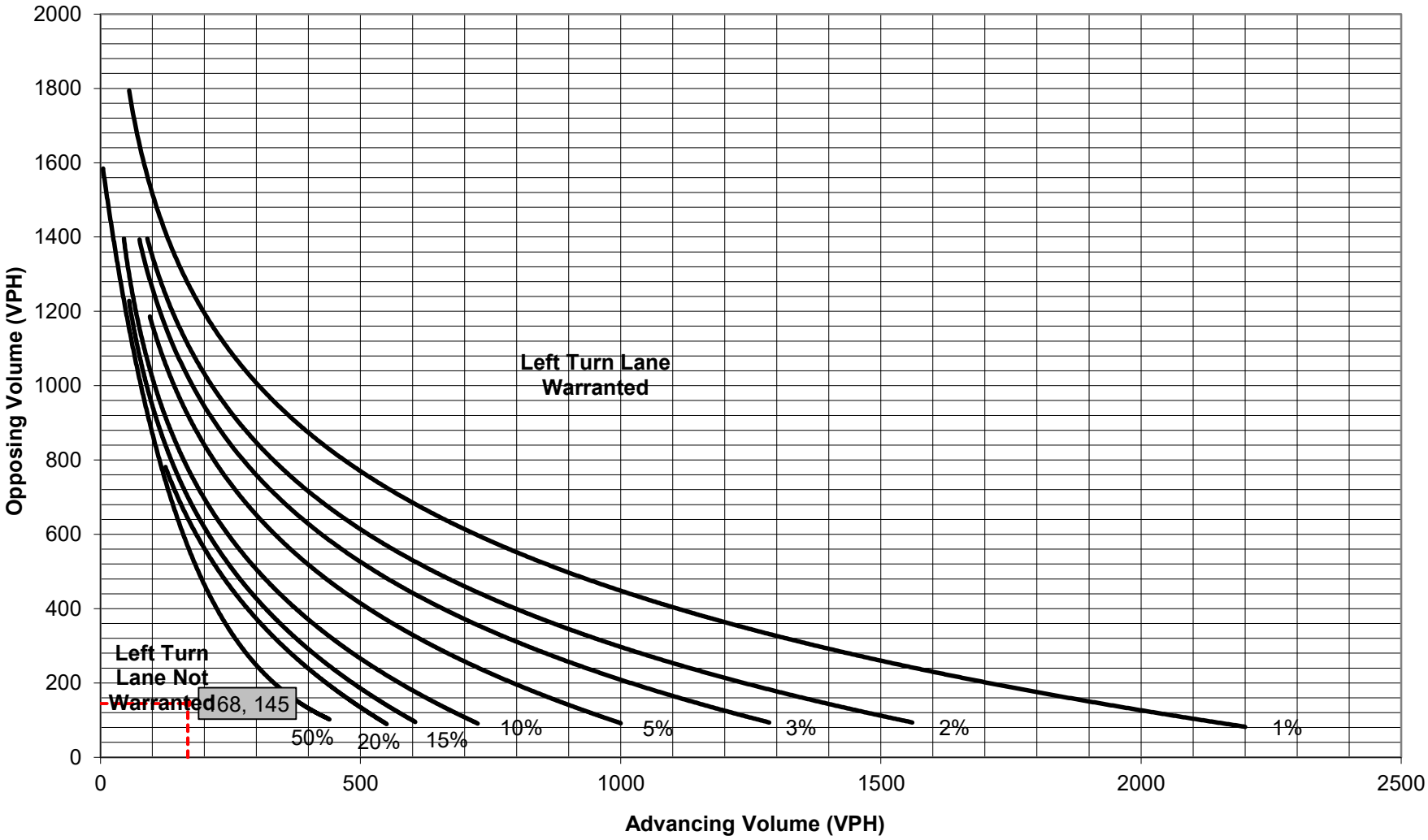
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	75	4.0%	N/A
	Through	-	84	3.0%	88
	Right	-	3	33.0%	5

Advancing Volume: 93
Right Turn Volume: 5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

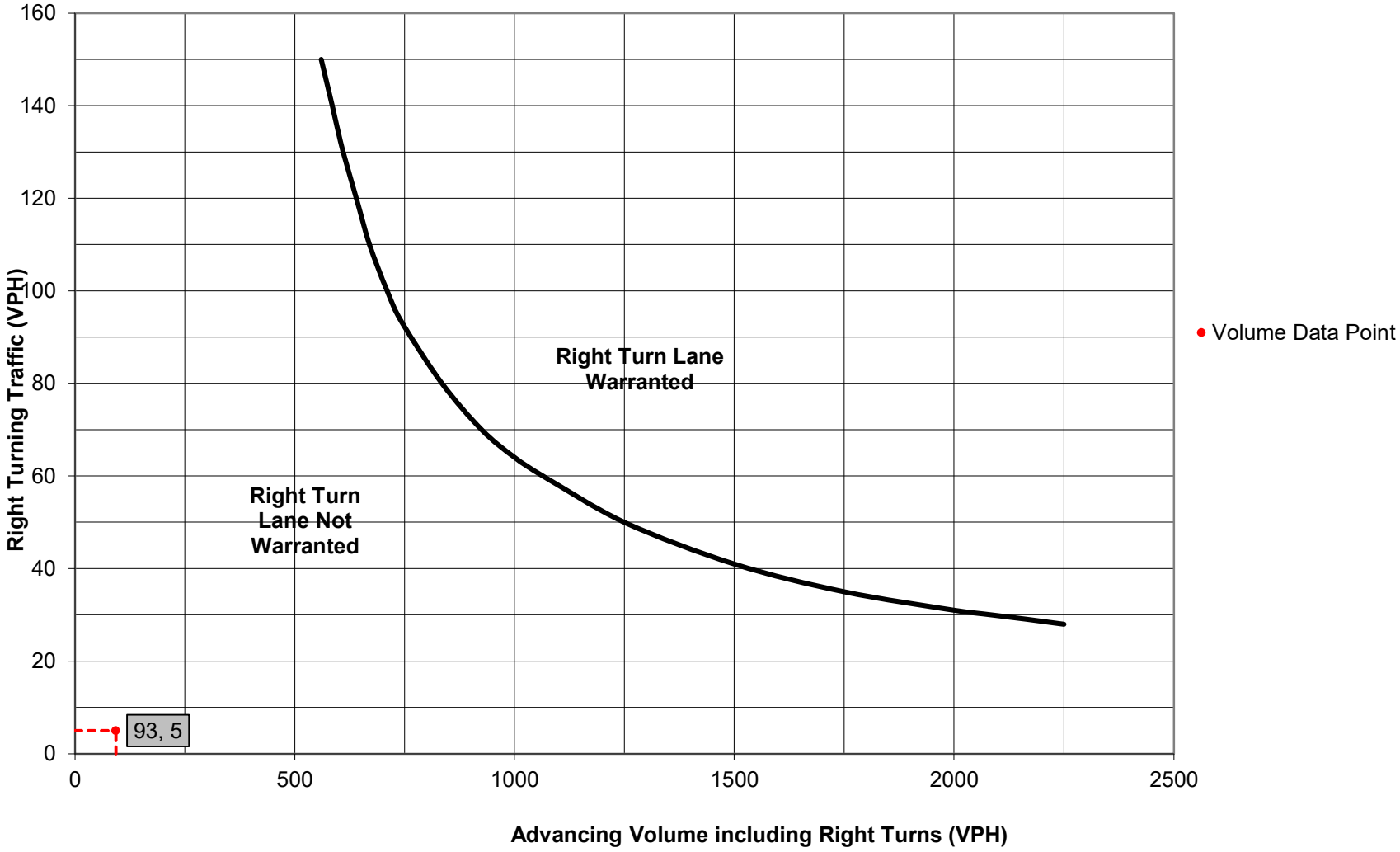
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	0.0%	14
	Through	-	284	2.0%	293
	Right	No	80	17.0%	N/A
Opposing	Left	No	34	6.0%	N/A
	Through	-	312	1.0%	317
	Right	Yes	46	0.0%	46

Advancing Volume:	307
Opposing Volume:	363
Left Turn Volume:	14
% Left Turns in Advancing Volume:	4.56%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

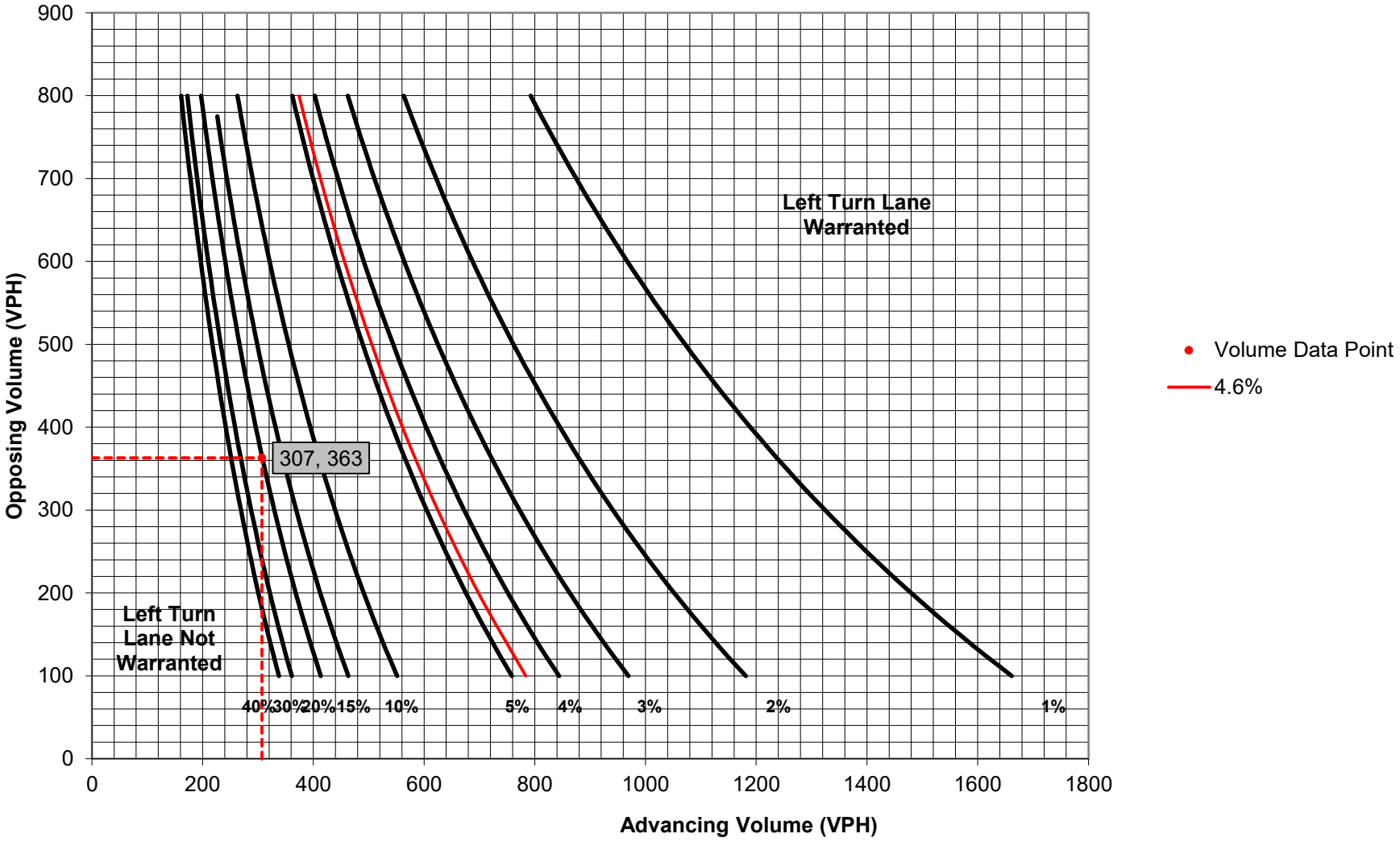
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	14	0.0%	N/A
	Through	-	284	2.0%	293
	Right	-	80	17.0%	101

Advancing Volume:	394
Right Turn Volume:	101

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	101
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

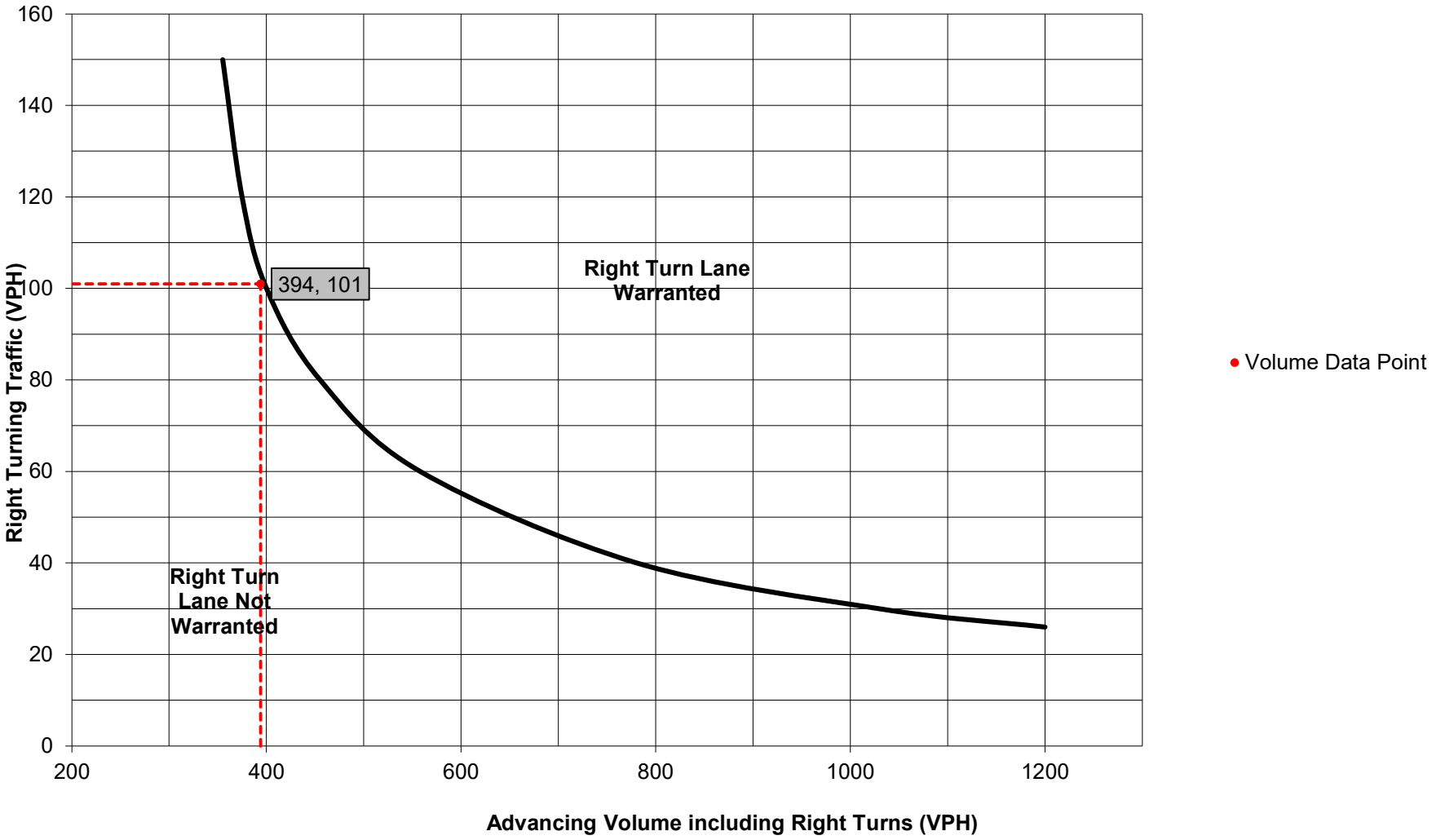
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	256	8.0%	287
	Through	-	1	0.0%	1
	Right	No	165	2.0%	N/A
Opposing	Left	No	27	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	32	0.0%	N/A

Advancing Volume:	288
Opposing Volume:	0
Left Turn Volume:	287
% Left Turns in Advancing Volume:	99.65%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	287
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

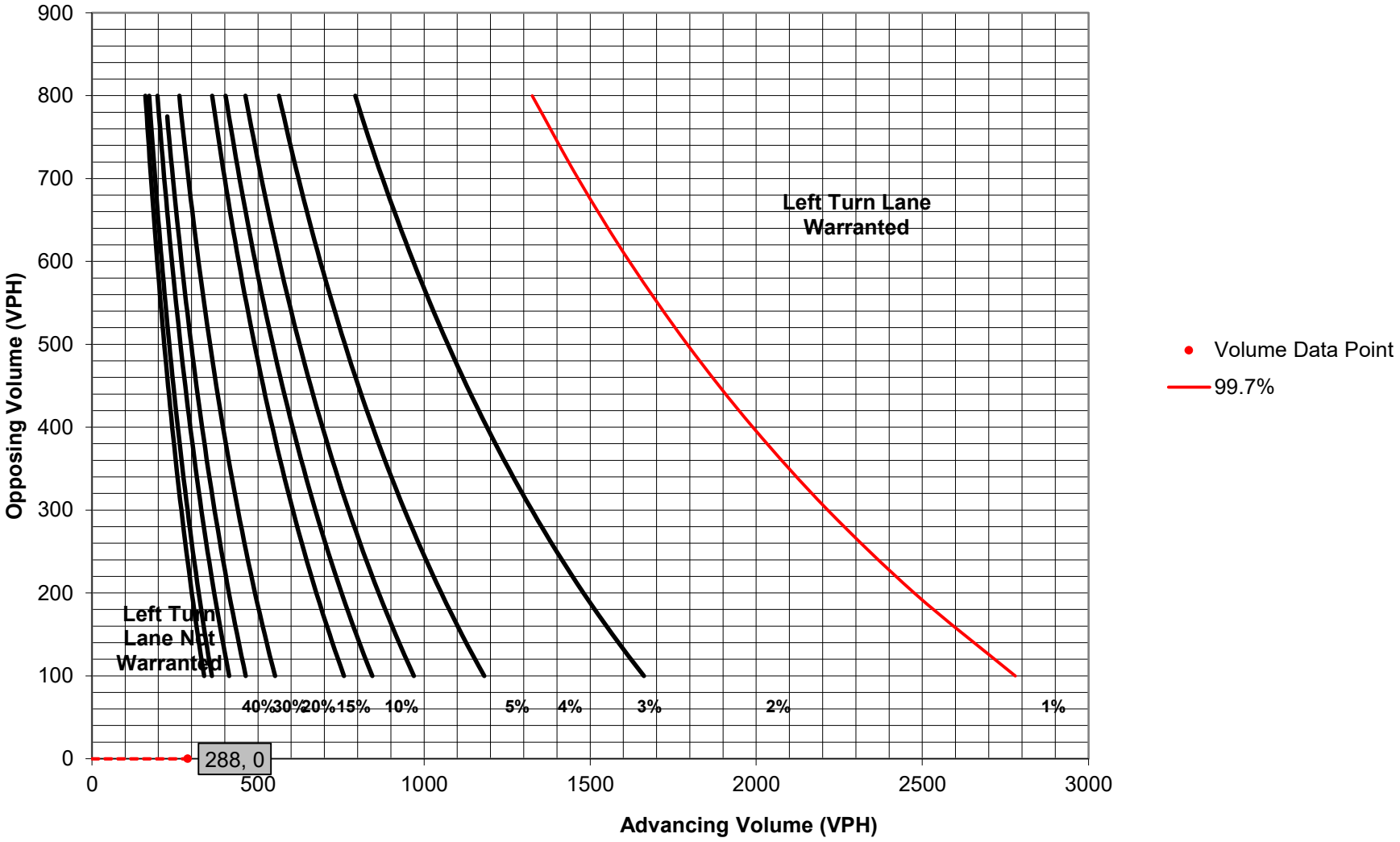
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	256	8.0%	N/A
	Through	-	1	0.0%	1
	Right	-	165	2.0%	170

Advancing Volume: 171
Right Turn Volume: 170

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	170
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

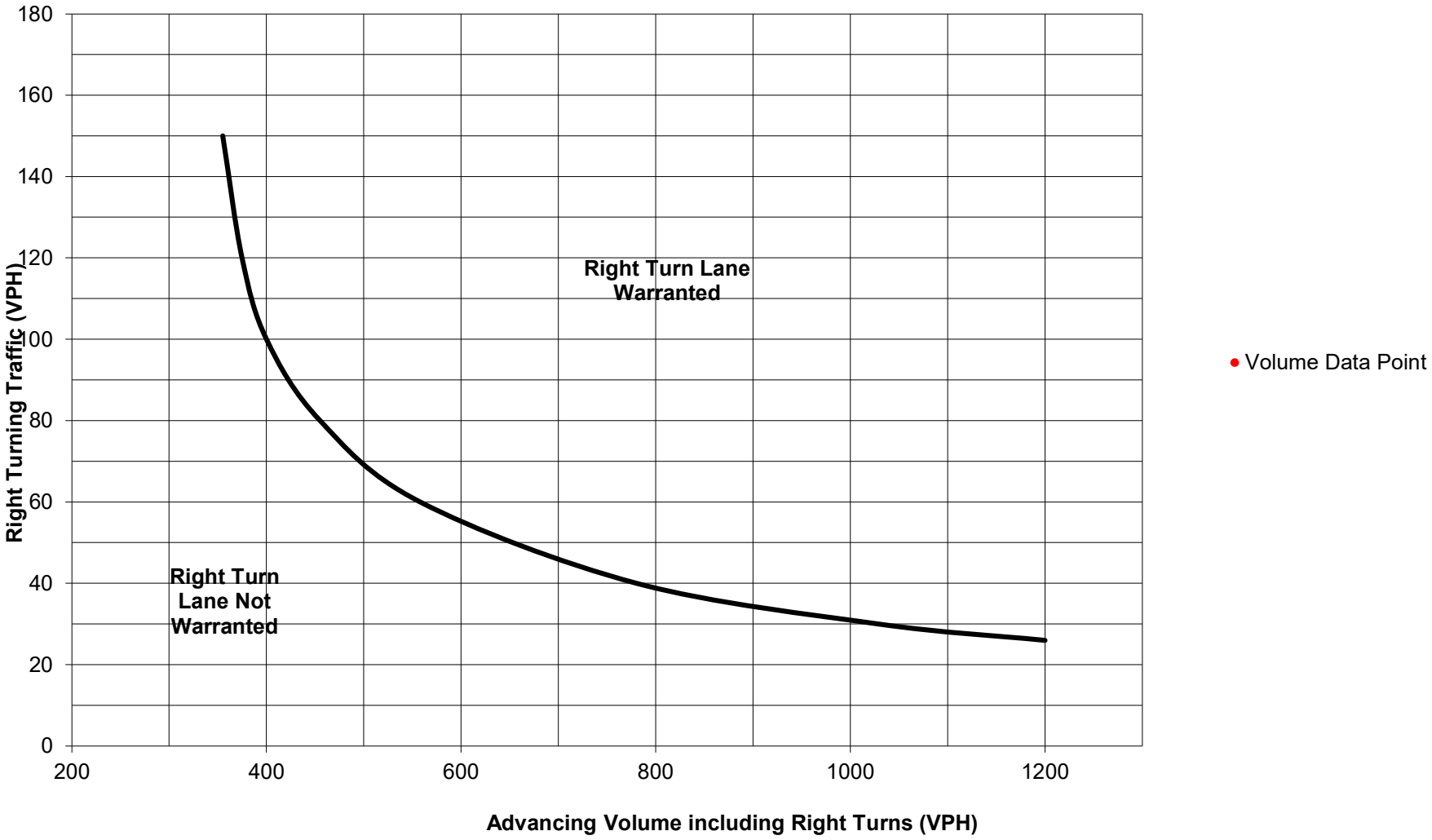
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	0.0%	27
	Through	-	0	0.0%	0
	Right	Yes	32	0.0%	32
Opposing	Left	No	256	8.0%	N/A
	Through	-	1	0.0%	1
	Right	No	165	2.0%	N/A

Advancing Volume:	59
Opposing Volume:	1
Left Turn Volume:	27
% Left Turns in Advancing Volume:	45.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	27
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

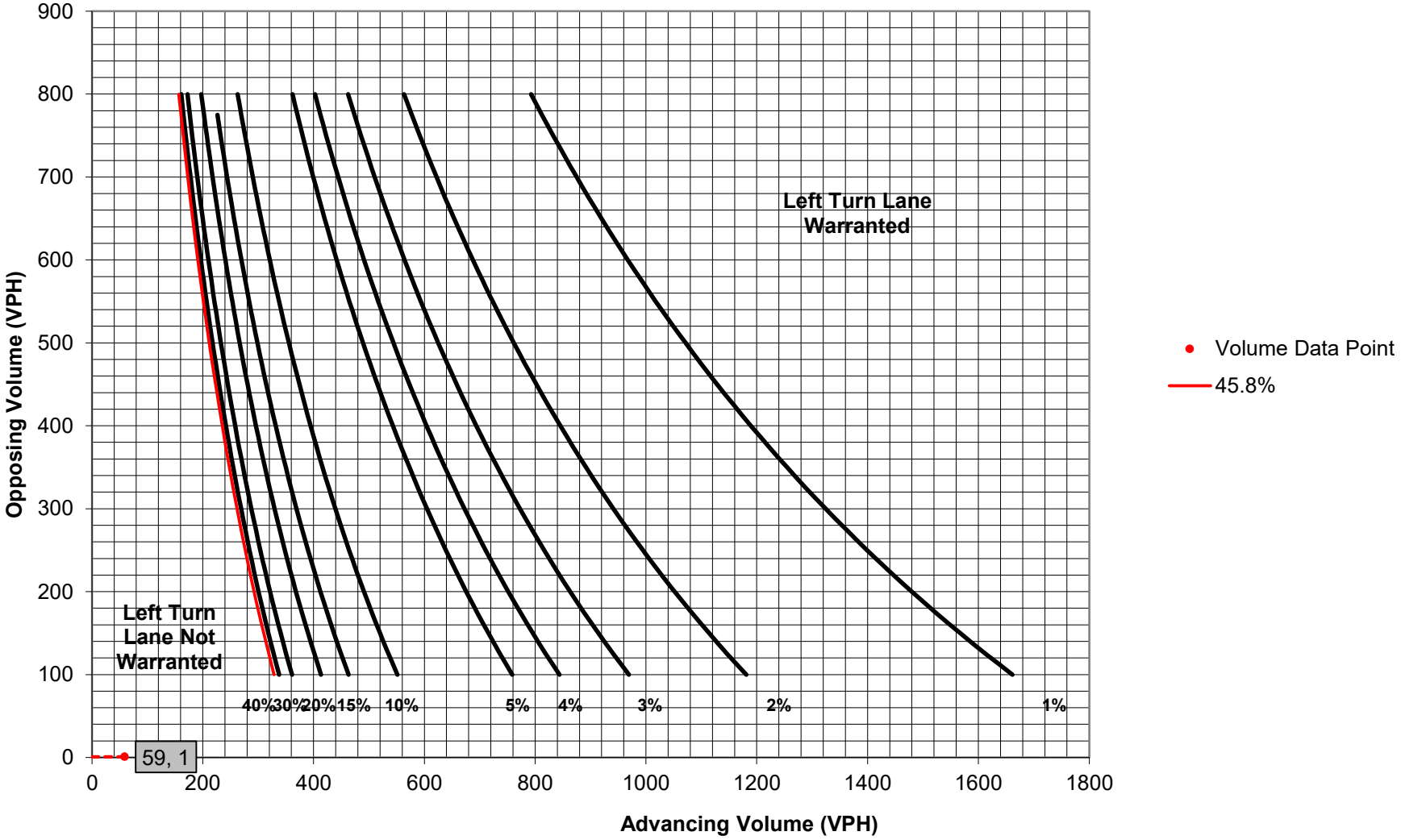
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	0.0%	27
	Through	-	0	0.0%	0
	Right	-	32	0.0%	32

Advancing Volume: 59
Right Turn Volume: 32

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

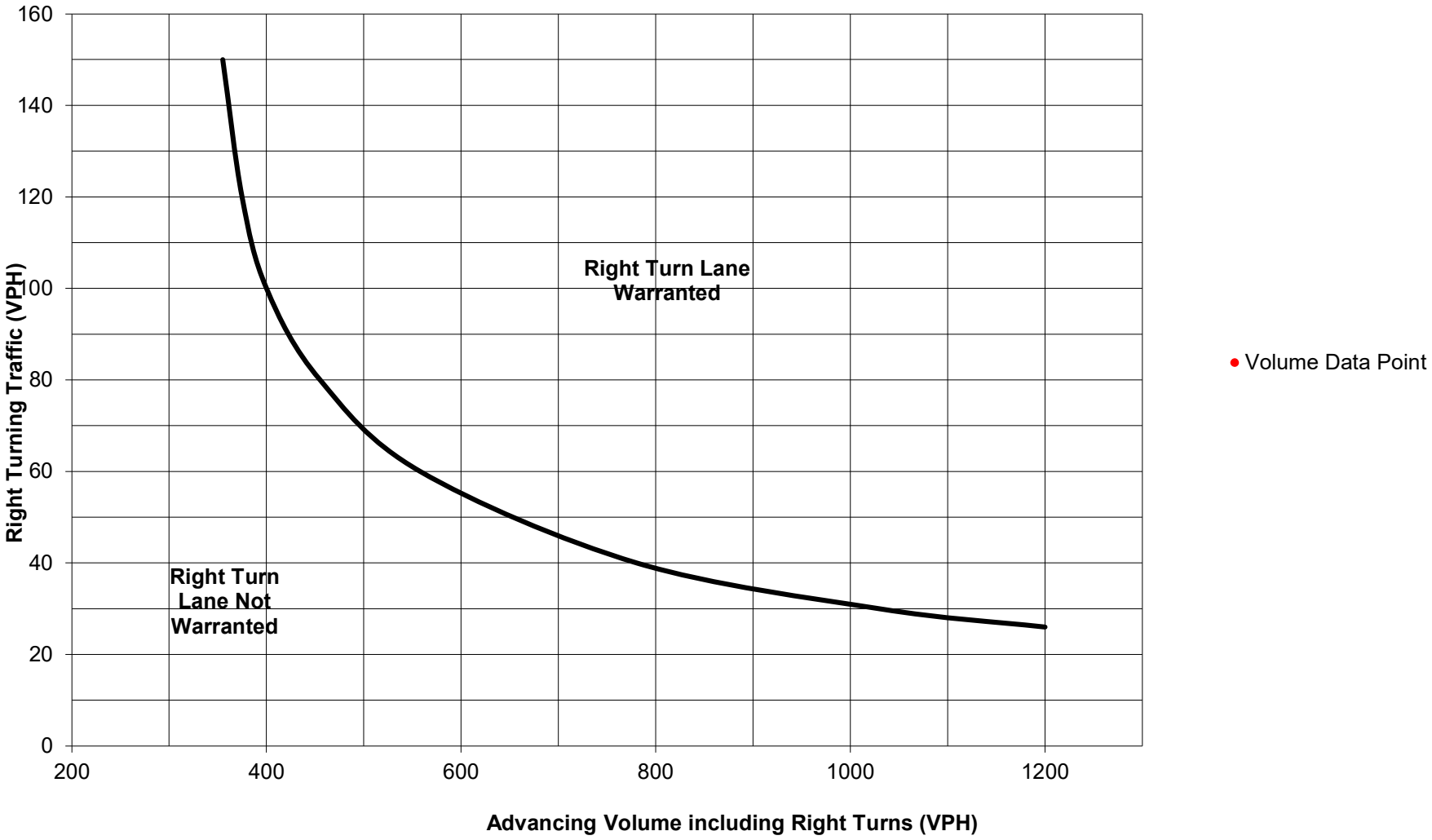
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Buisness 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	34	6.0%	38
	Through	-	312	1.0%	317
	Right	No	46	0.0%	N/A
Opposing	Left	No	14	0.0%	N/A
	Through	-	284	2.0%	293
	Right	No	80	17.0%	N/A

Advancing Volume:	355
Opposing Volume:	293
Left Turn Volume:	38
% Left Turns in Advancing Volume:	10.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

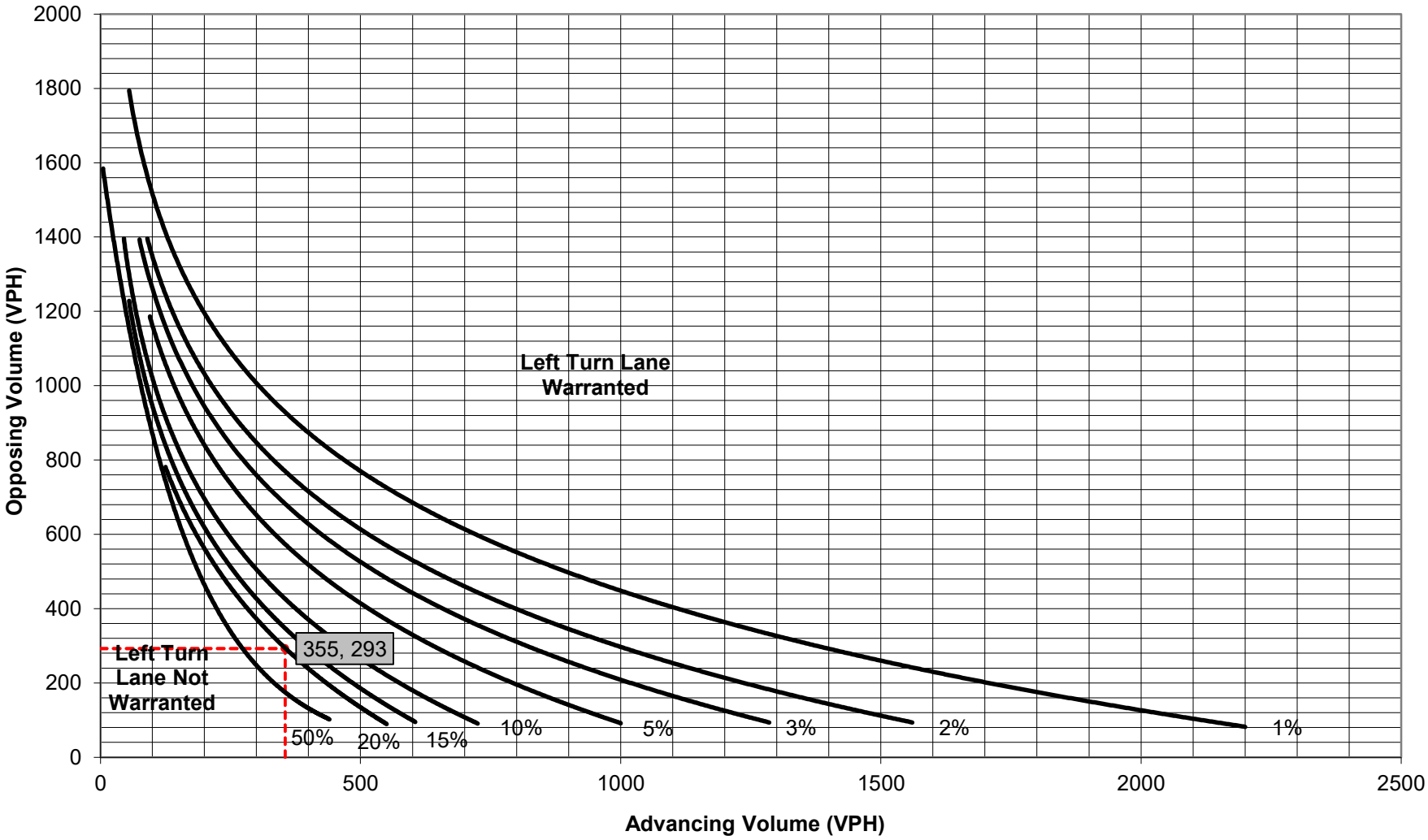
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	34	6.0%	N/A
	Through	-	312	1.0%	317
	Right	-	46	0.0%	46

Advancing Volume: 363
Right Turn Volume: 46

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	46
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

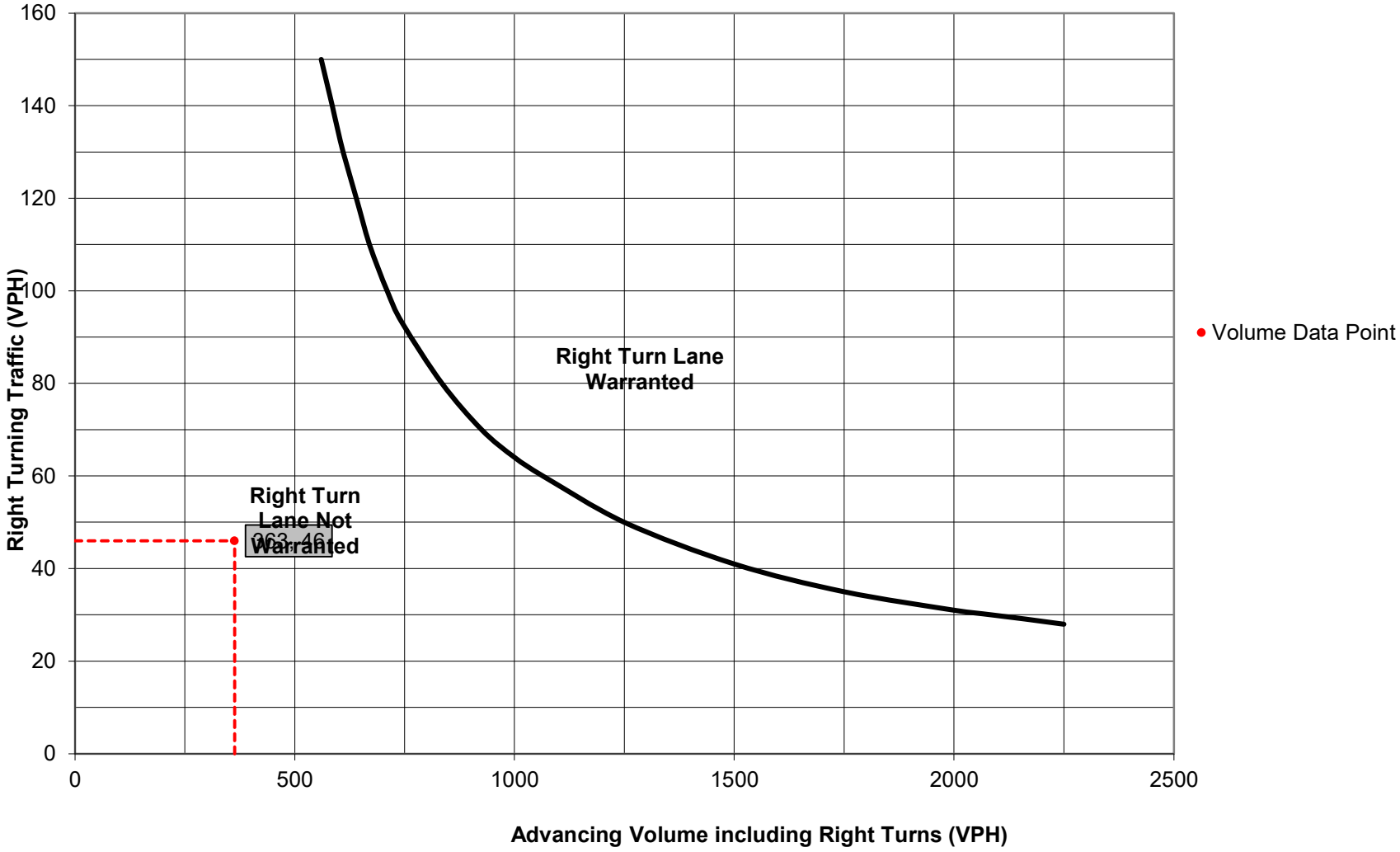
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	8	25.0%	11

Advancing Volume:	29
Opposing Volume:	13
Left Turn Volume:	22
% Left Turns in Advancing Volume:	75.86%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

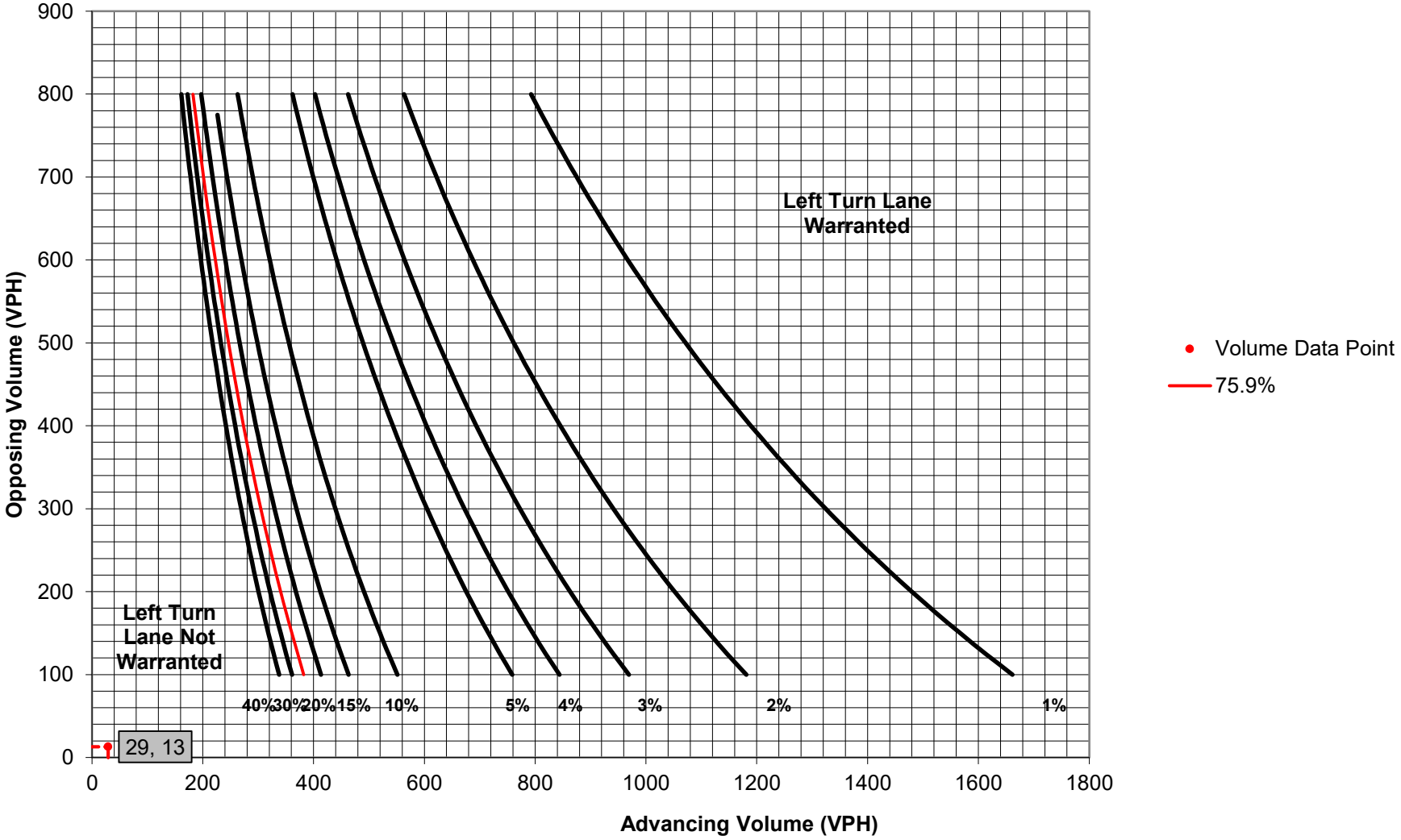
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	-	4	0.0%	4

Advancing Volume:	29
Right Turn Volume:	4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

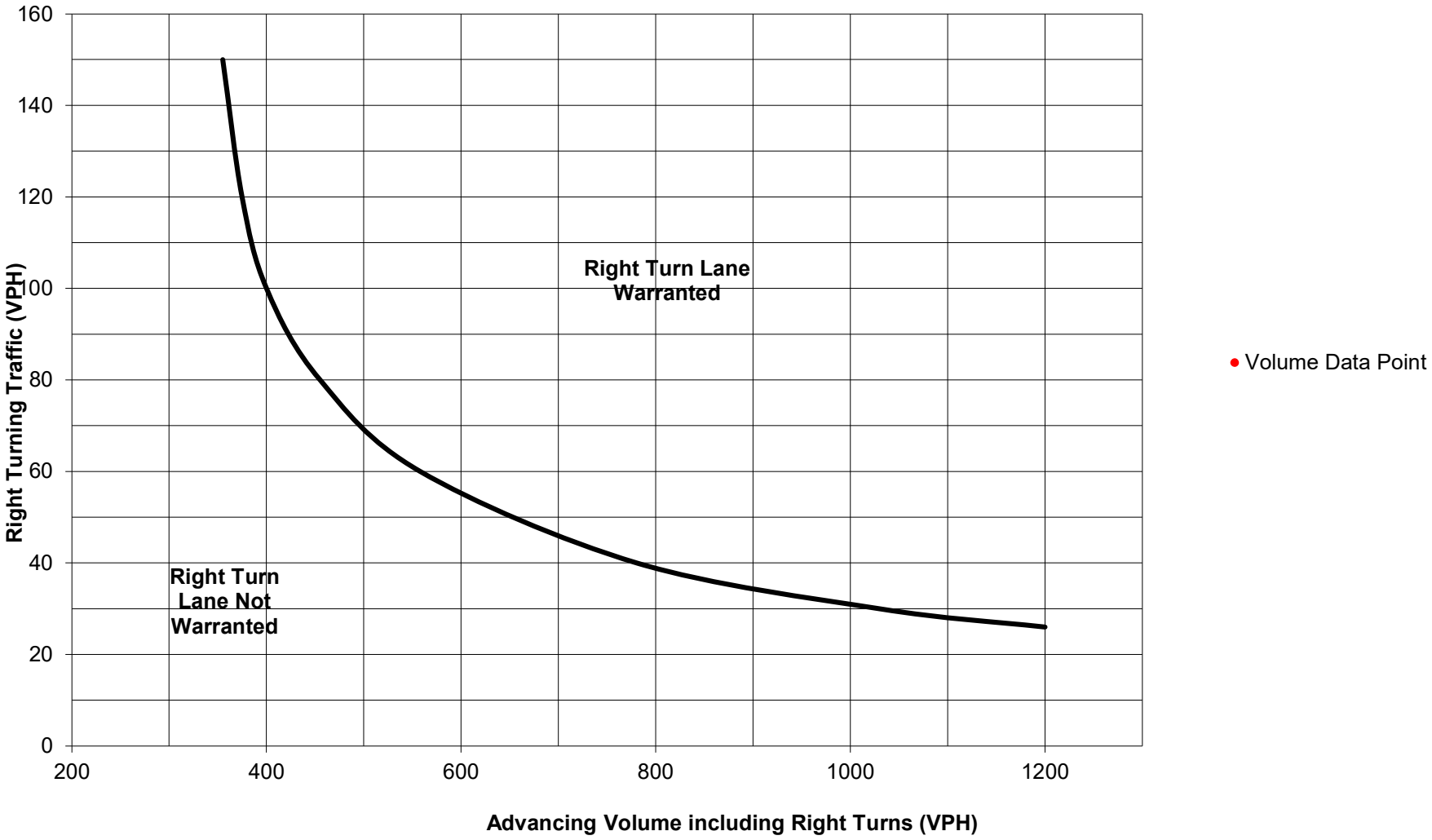
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	121	7.0%	134
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	6	17.0%	8
	Through	-	304	6.0%	332
	Right	Yes	20	11.0%	24

Advancing Volume:	137
Opposing Volume:	364
Left Turn Volume:	3
% Left Turns in Advancing Volume:	2.19%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

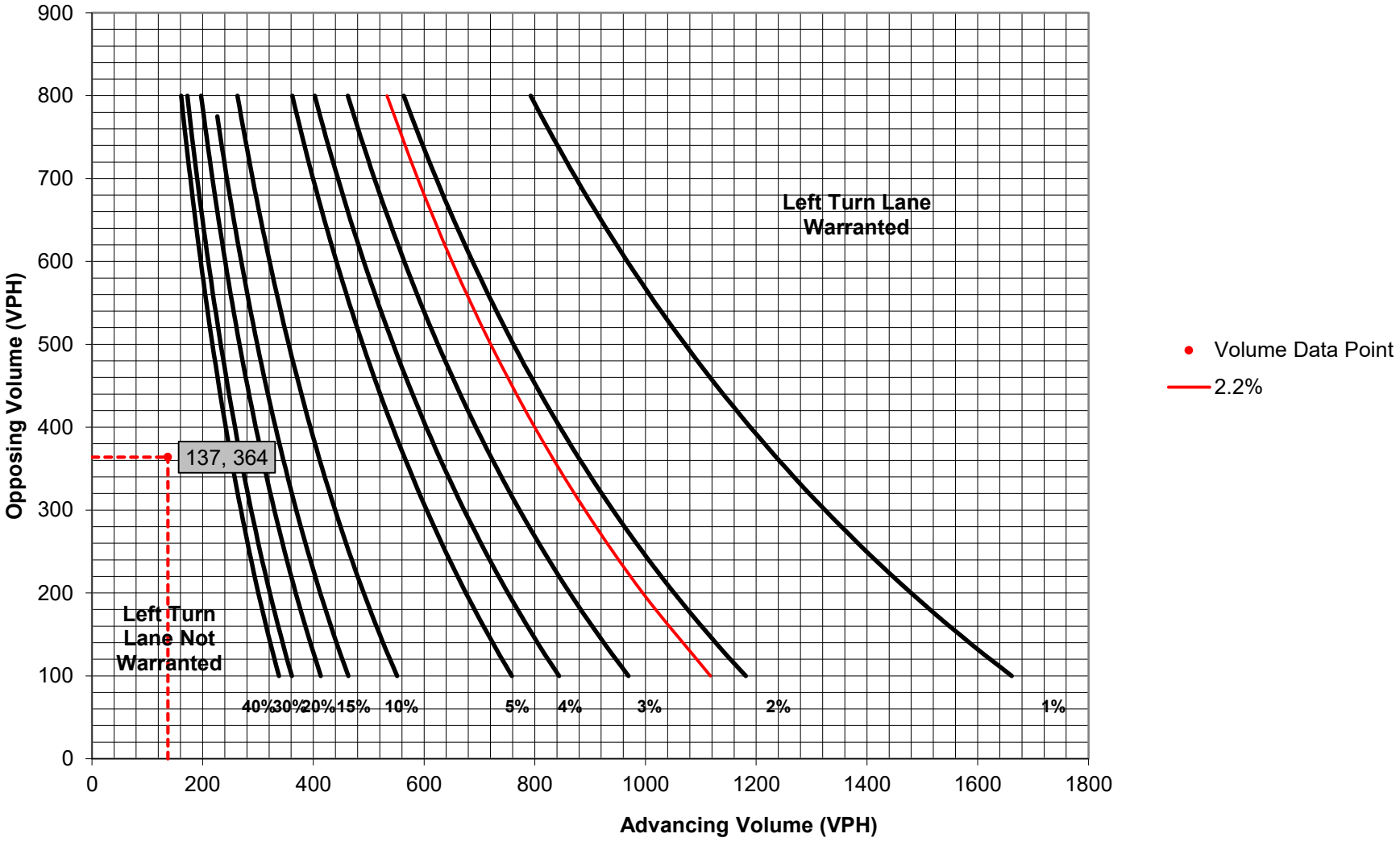
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	121	7.0%	134
	Right	-	0	0.0%	0

Advancing Volume: 137
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 0
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

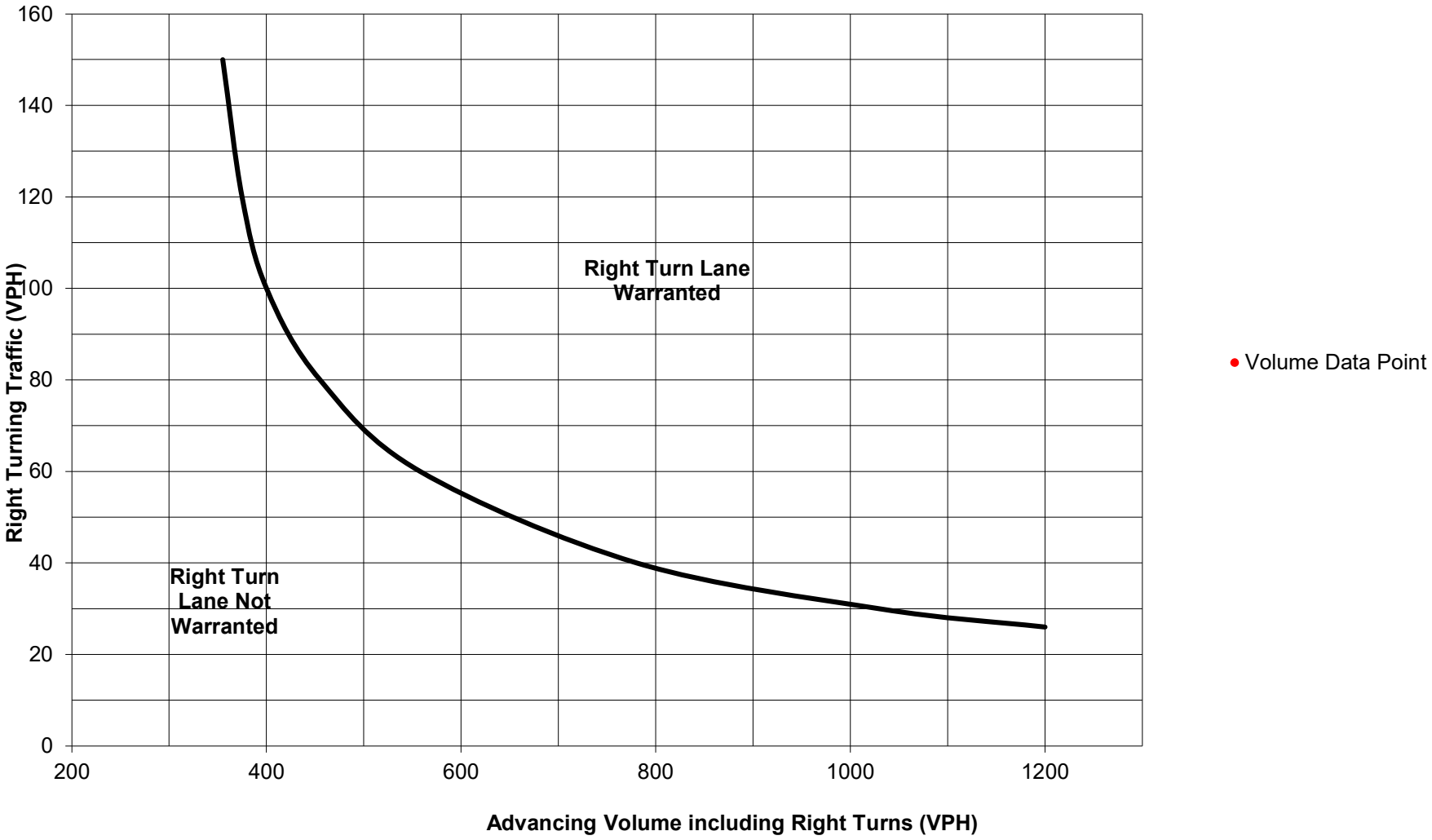
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	8
	Through	-	304	6.0%	332
	Right	Yes	20	11.0%	24
Opposing	Left	Yes	3	0.0%	3
	Through	-	121	7.0%	134
	Right	Yes	0	0.0%	0

Advancing Volume:	364
Opposing Volume:	137
Left Turn Volume:	8
% Left Turns in Advancing Volume:	2.20%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

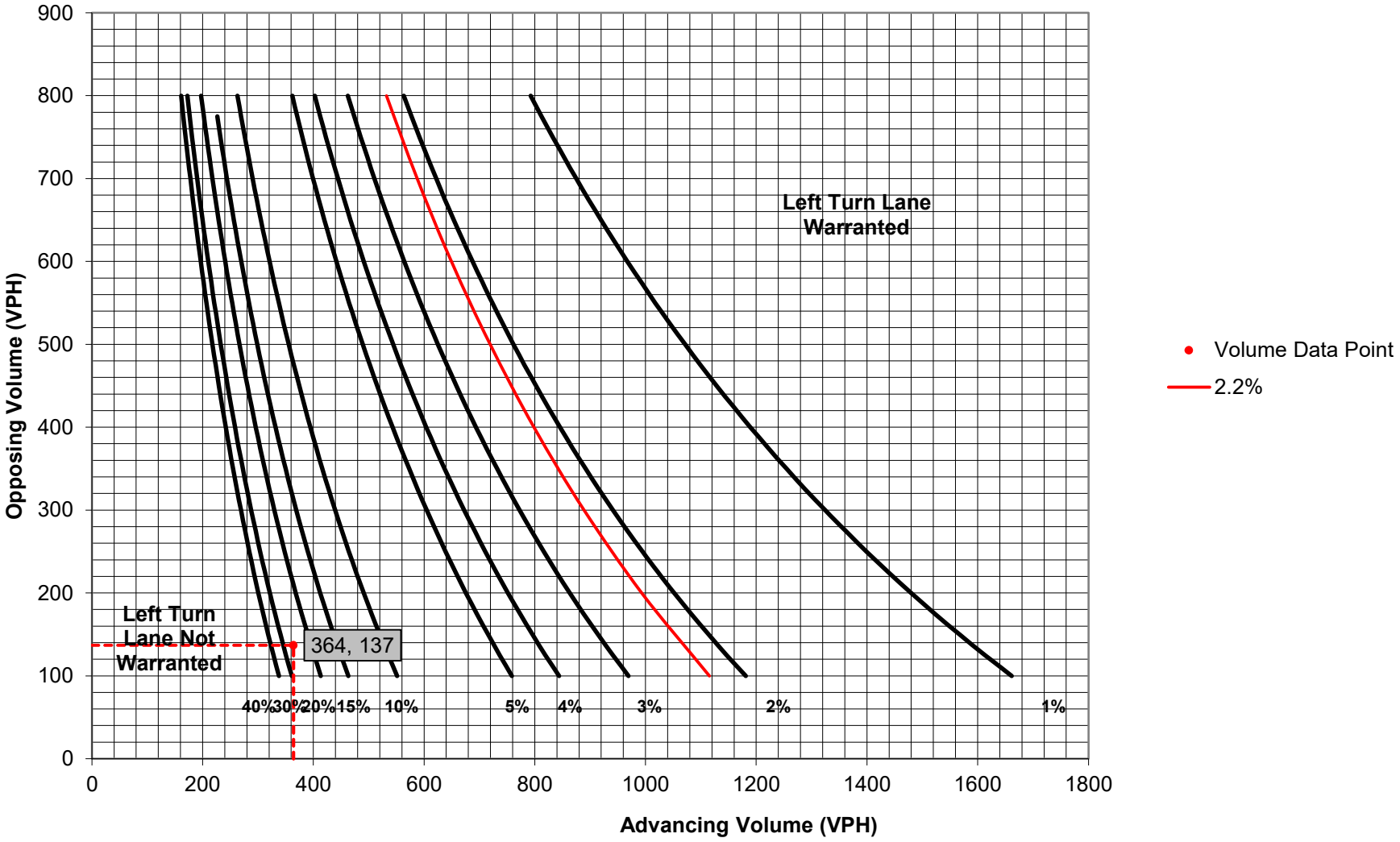
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	17.0%	8
	Through	-	304	6.0%	332
	Right	-	20	11.0%	24

Advancing Volume:	364
Right Turn Volume:	24

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

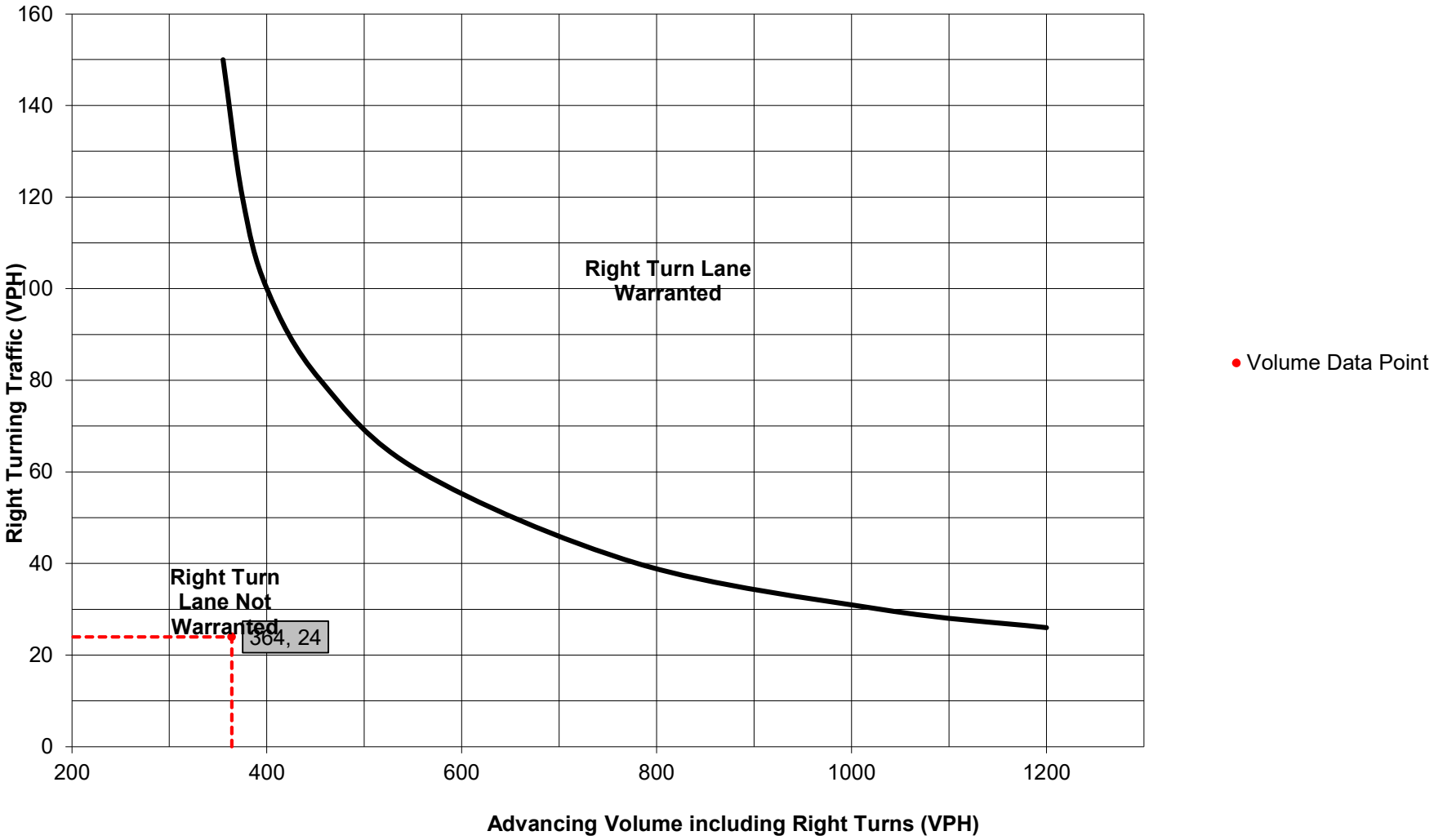
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	8	25.0%	11
Opposing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4

Advancing Volume:	13
Opposing Volume:	29
Left Turn Volume:	1
% Left Turns in Advancing Volume:	7.69%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

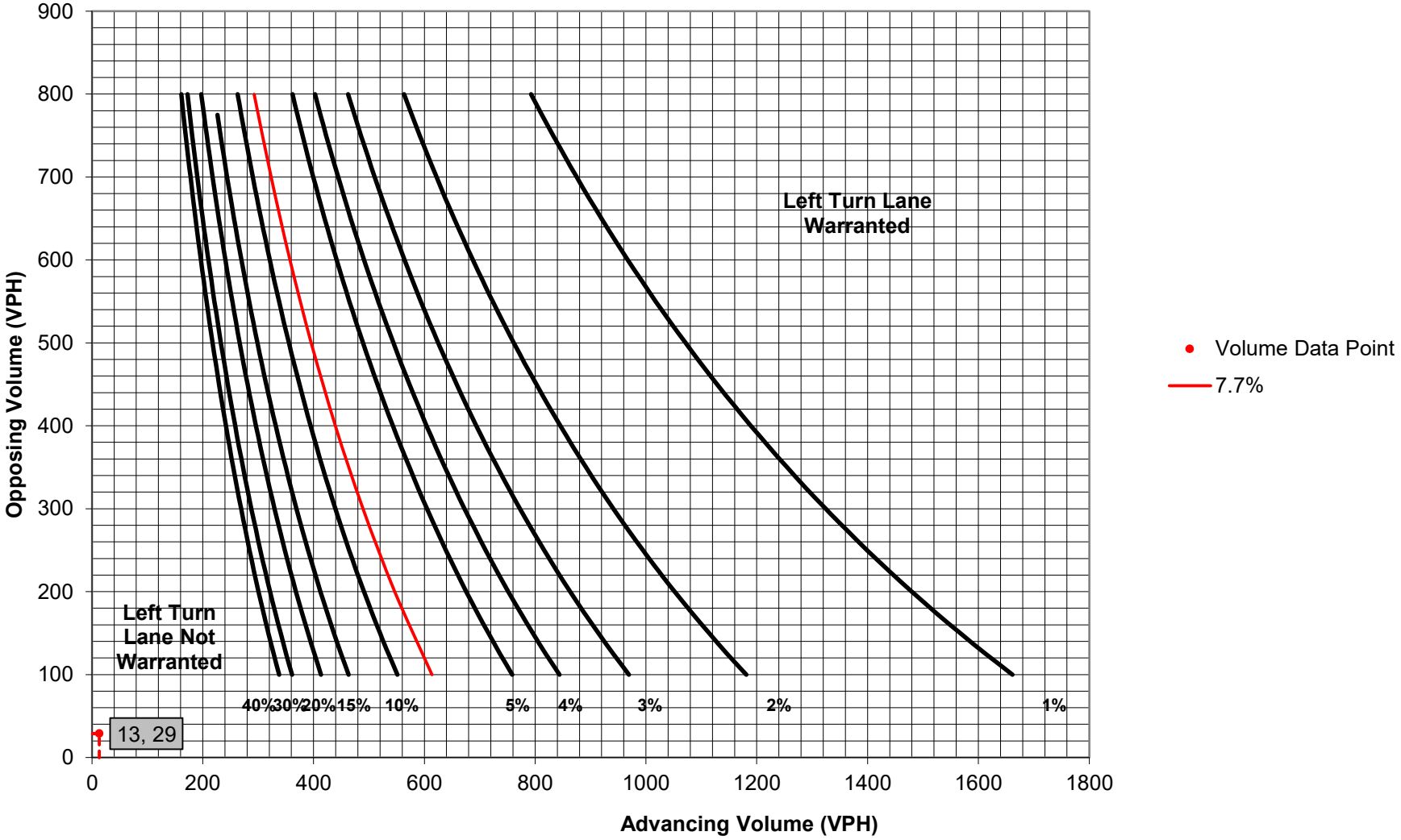
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	-	8	25.0%	11

Advancing Volume: 13
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

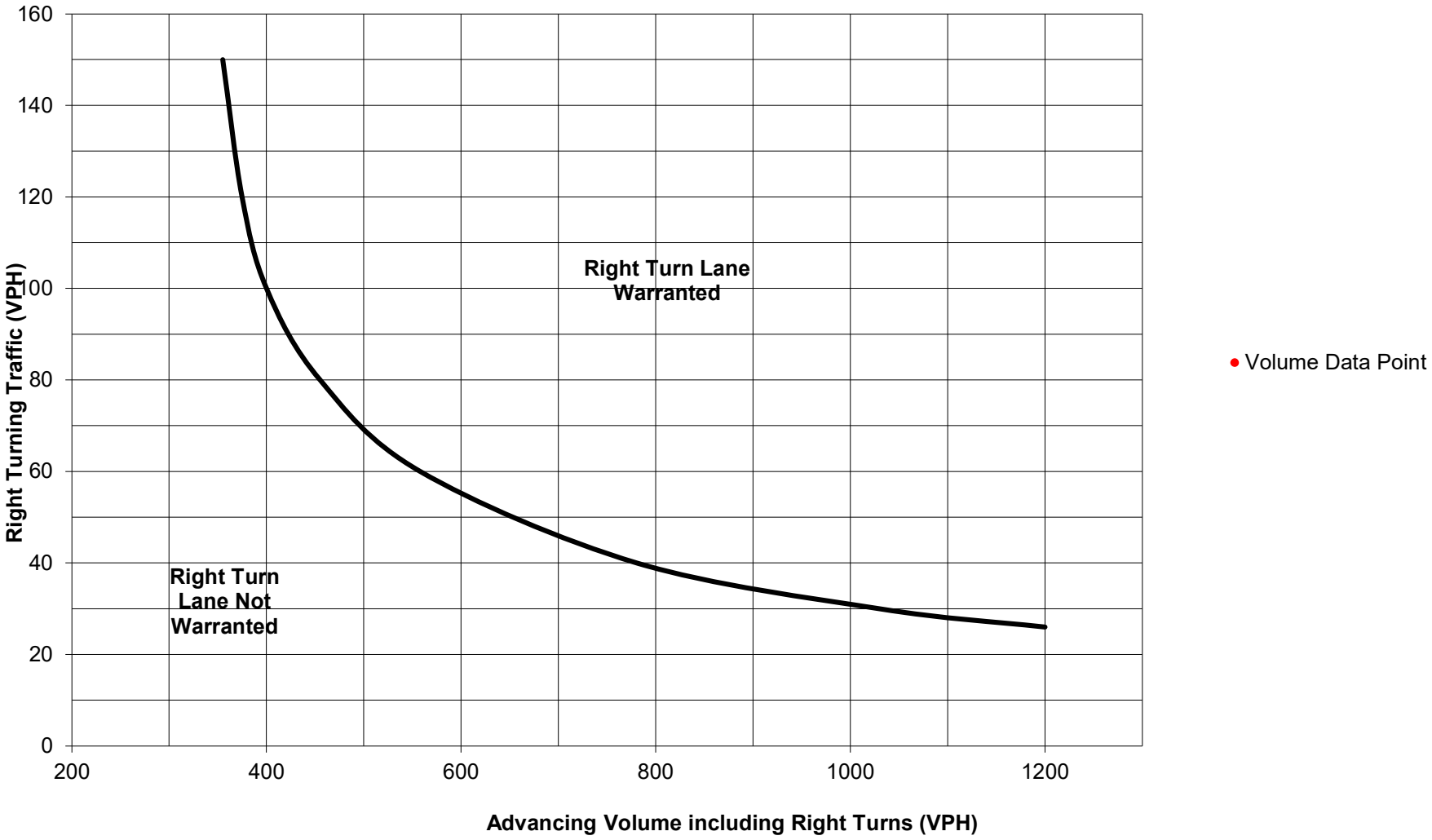
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	9	11.0%	11

Advancing Volume:	48
Opposing Volume:	20
Left Turn Volume:	35
% Left Turns in Advancing Volume:	72.92%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	35
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

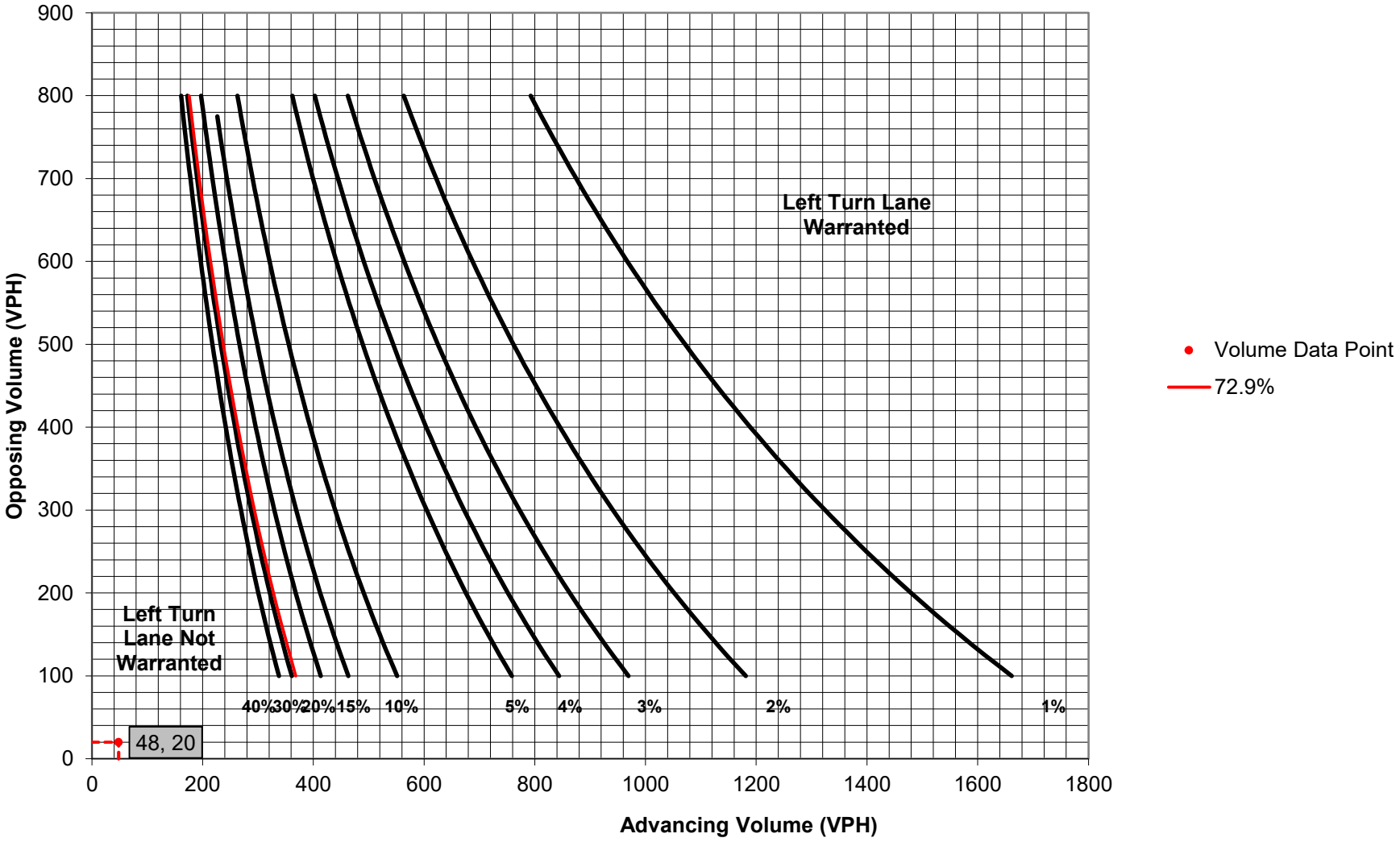
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	-	0	0.0%	0

Advancing Volume:	48
Right Turn Volume:	0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

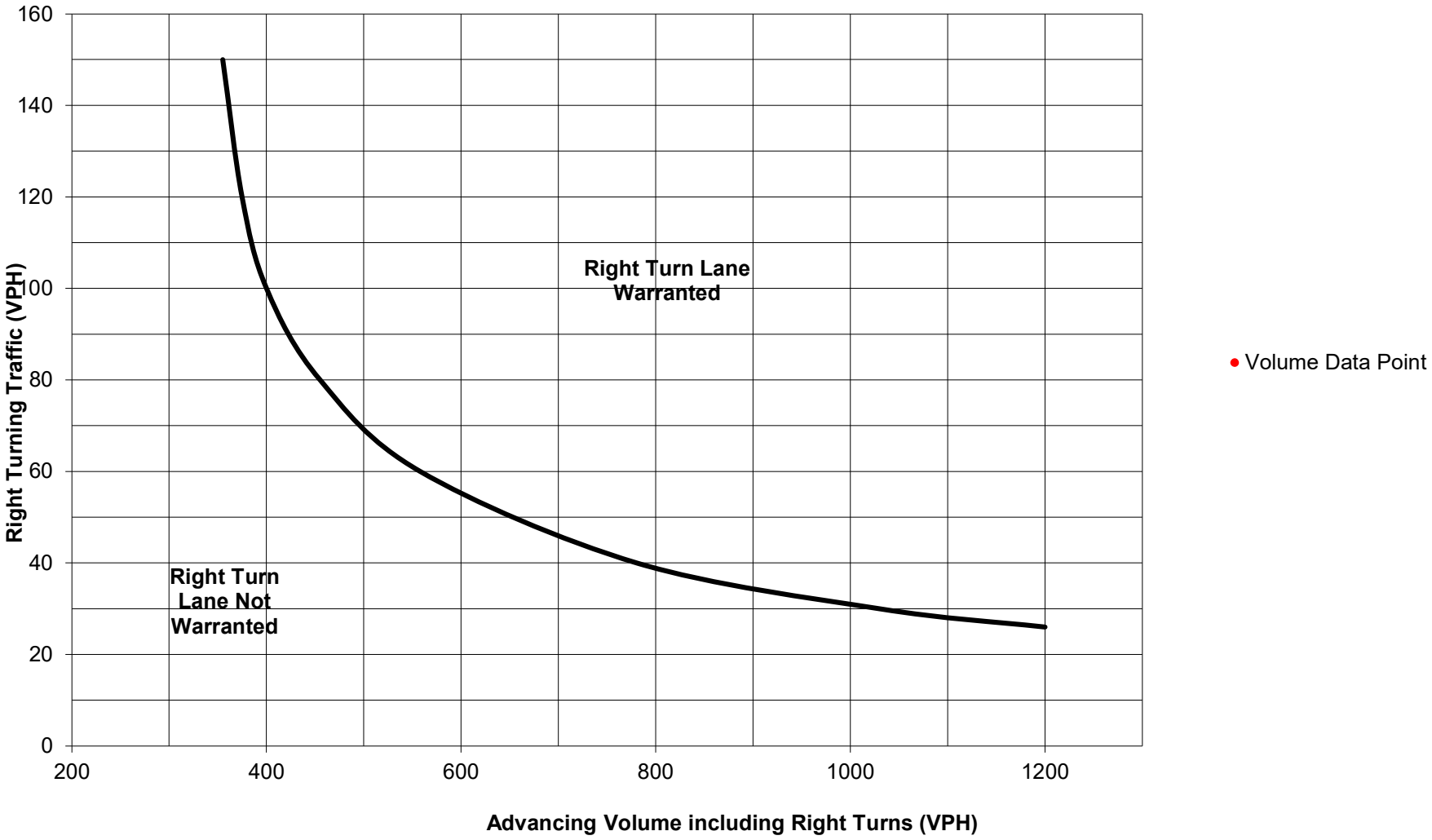
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	390	5.0%	420
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	18	18.0%	23
	Through	-	78	15.0%	96
	Right	Yes	15	7.0%	17

Advancing Volume: 432
Opposing Volume: 136
Left Turn Volume: 5
% Left Turns in Advancing Volume: 1.16%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

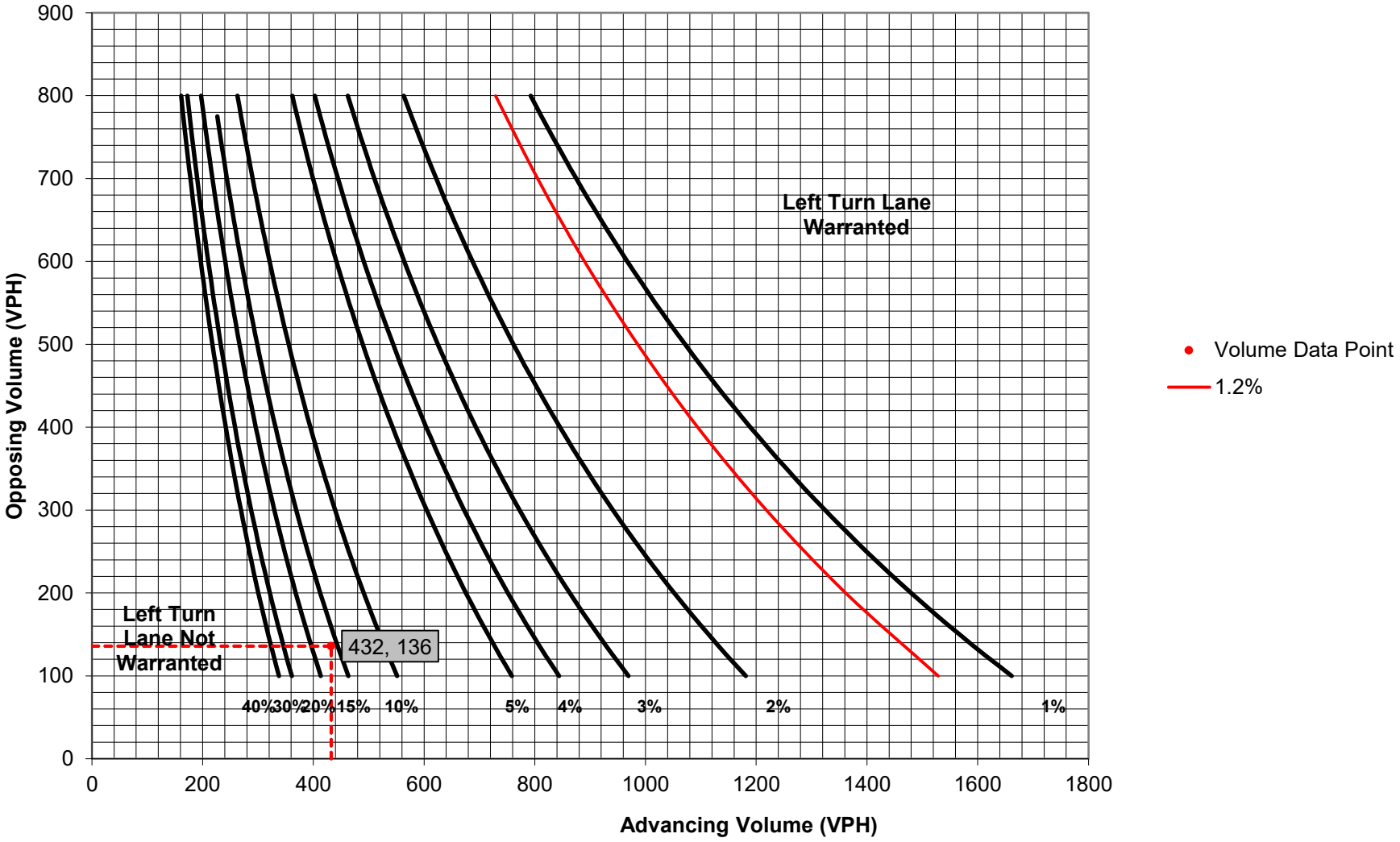
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	390	5.0%	420
	Right	-	7	0.0%	7

Advancing Volume: 432
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

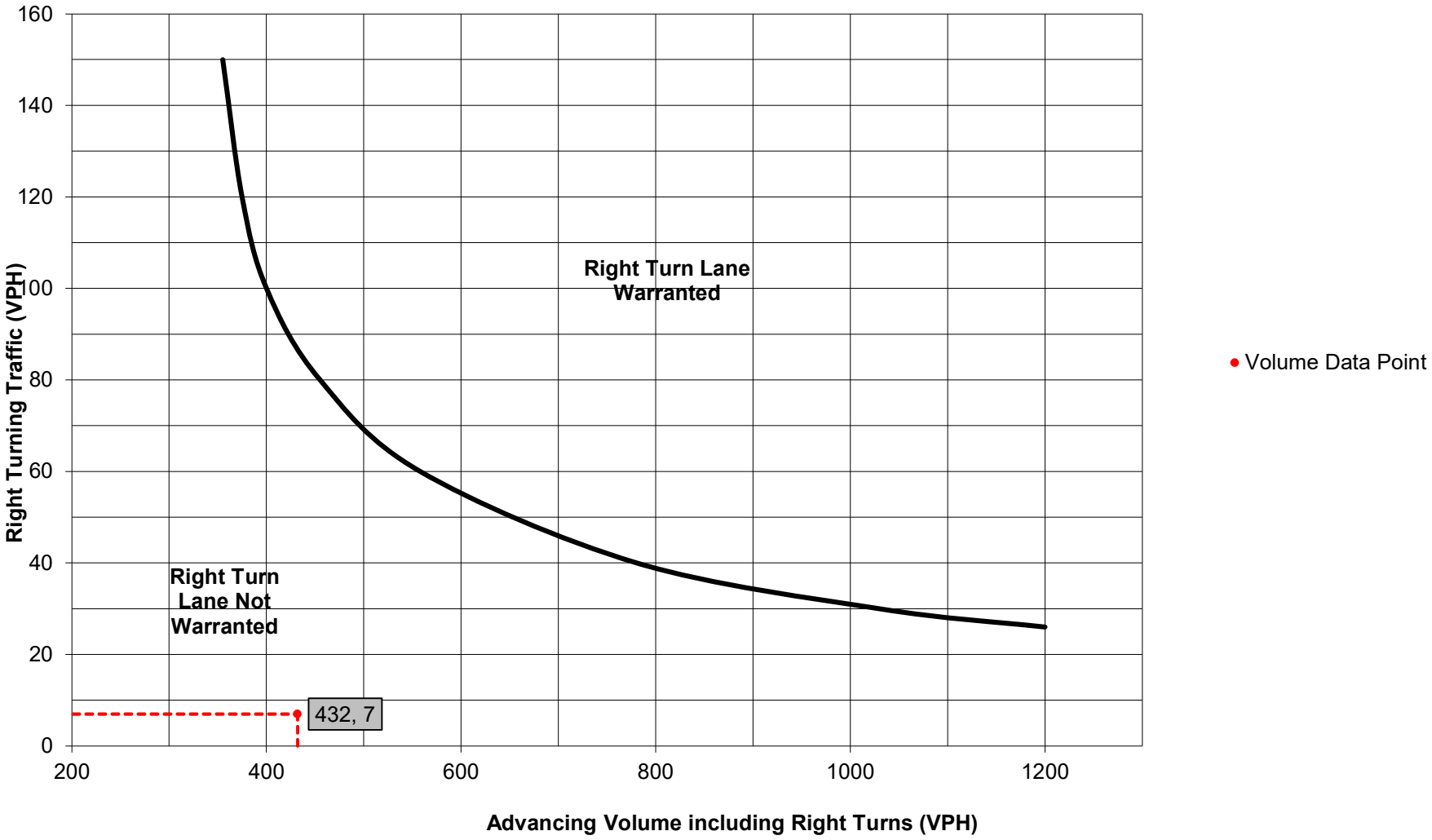
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	18.0%	23
	Through	-	78	15.0%	96
	Right	Yes	15	7.0%	17
Opposing	Left	Yes	5	0.0%	5
	Through	-	390	5.0%	420
	Right	Yes	7	0.0%	7

Advancing Volume:	136
Opposing Volume:	432
Left Turn Volume:	23
% Left Turns in Advancing Volume:	16.91%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	23
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

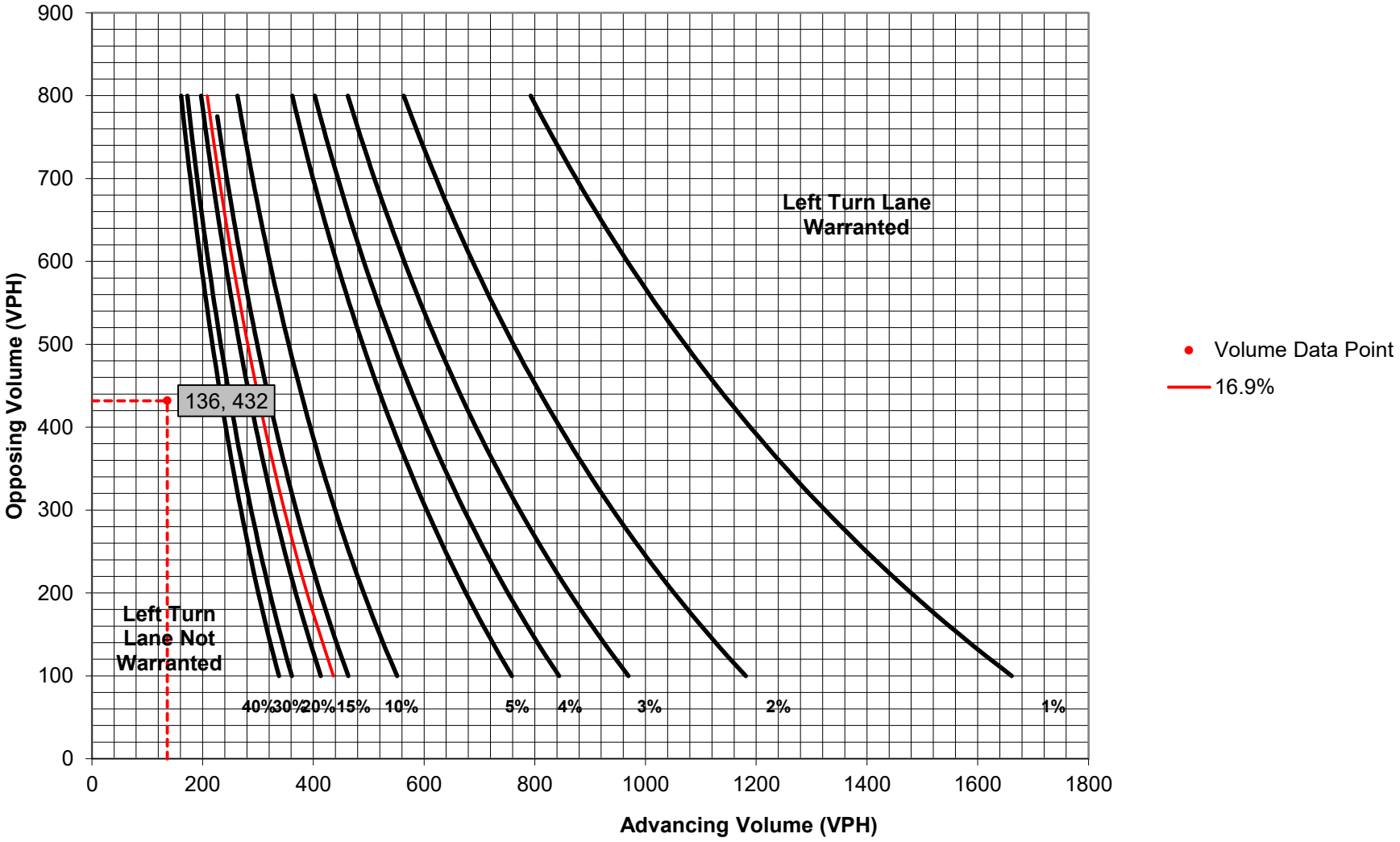
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	18.0%	23
	Through	-	78	15.0%	96
	Right	-	15	7.0%	17

Advancing Volume: 136
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 17
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

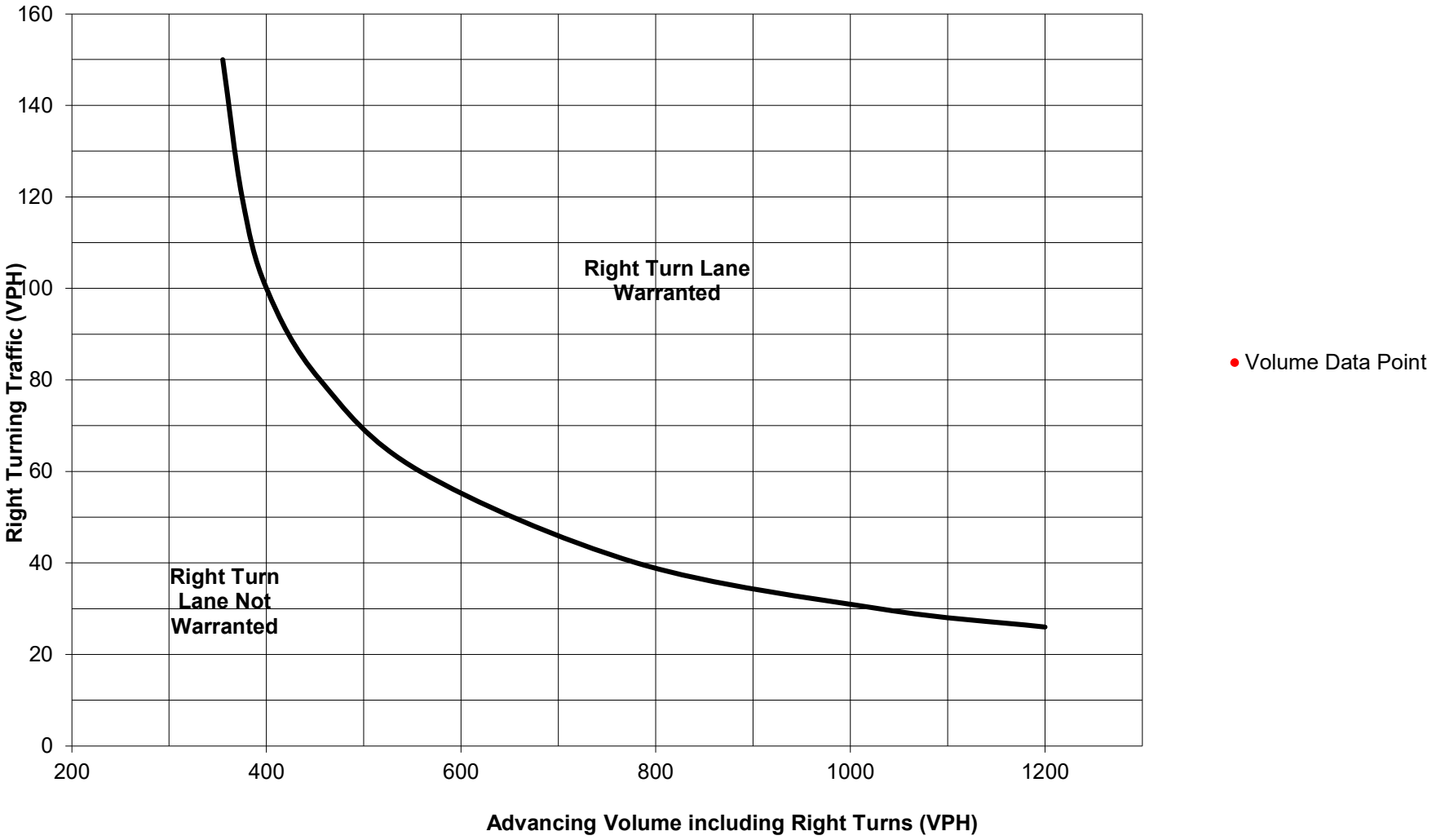
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	9	11.0%	11
Opposing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	Yes	0	0.0%	0

Advancing Volume:	20
Opposing Volume:	48
Left Turn Volume:	3
% Left Turns in Advancing Volume:	15.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

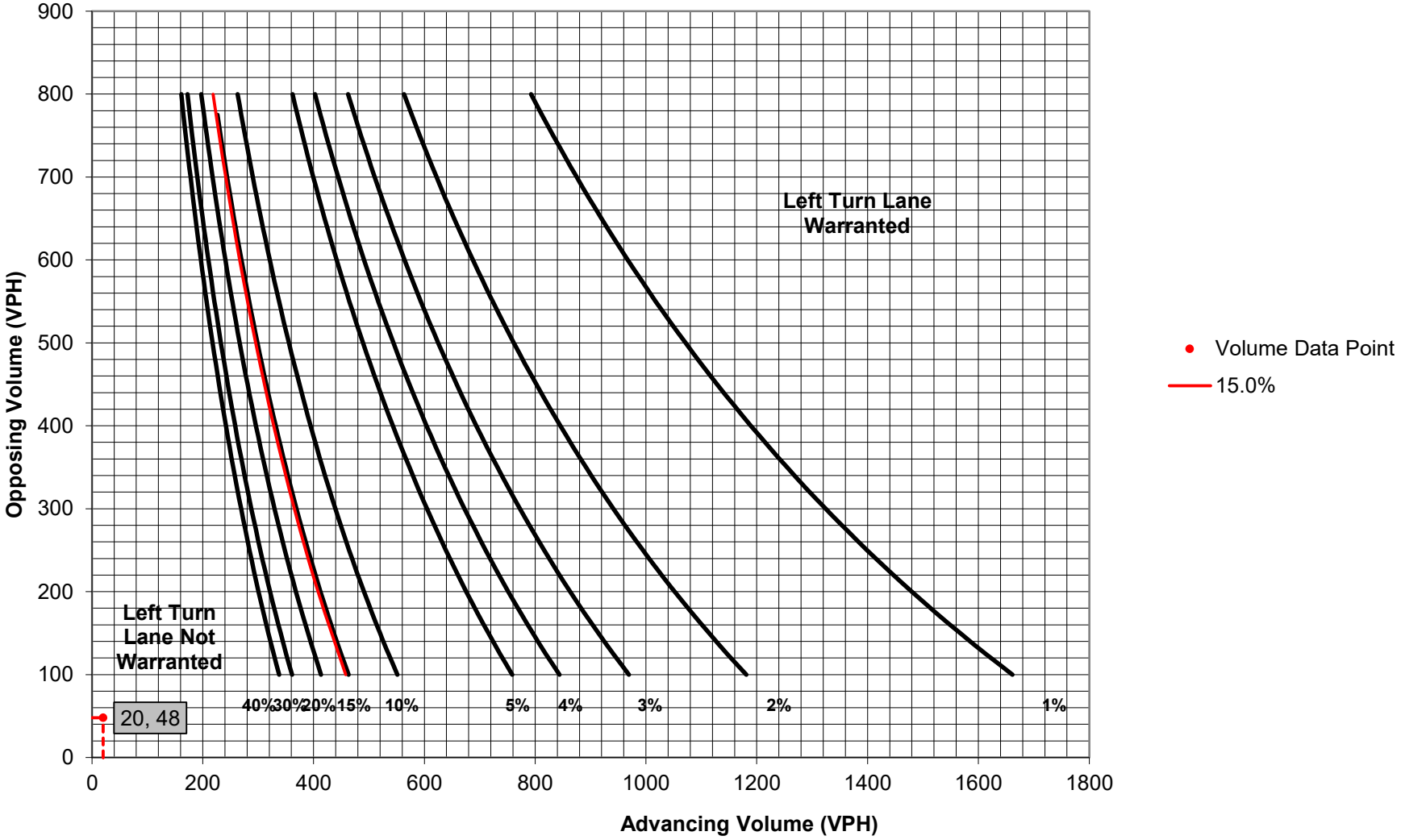
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	-	9	11.0%	11

Advancing Volume: 20
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

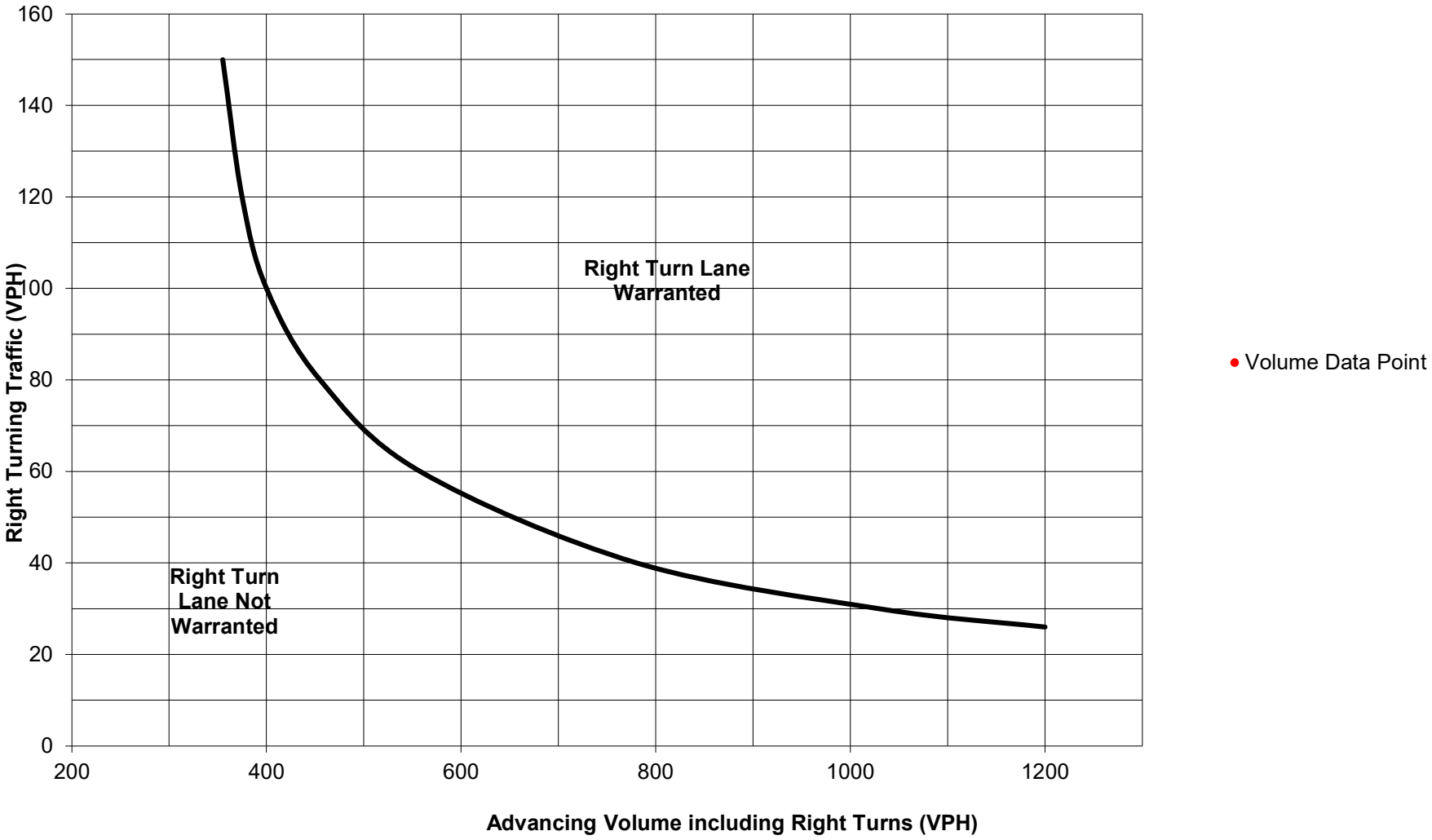
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	71	0.0%	71
	Through	-	1	0.0%	1
	Right	Yes	19	0.0%	19

Advancing Volume:	14
Opposing Volume:	91
Left Turn Volume:	7
% Left Turns in Advancing Volume:	50.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

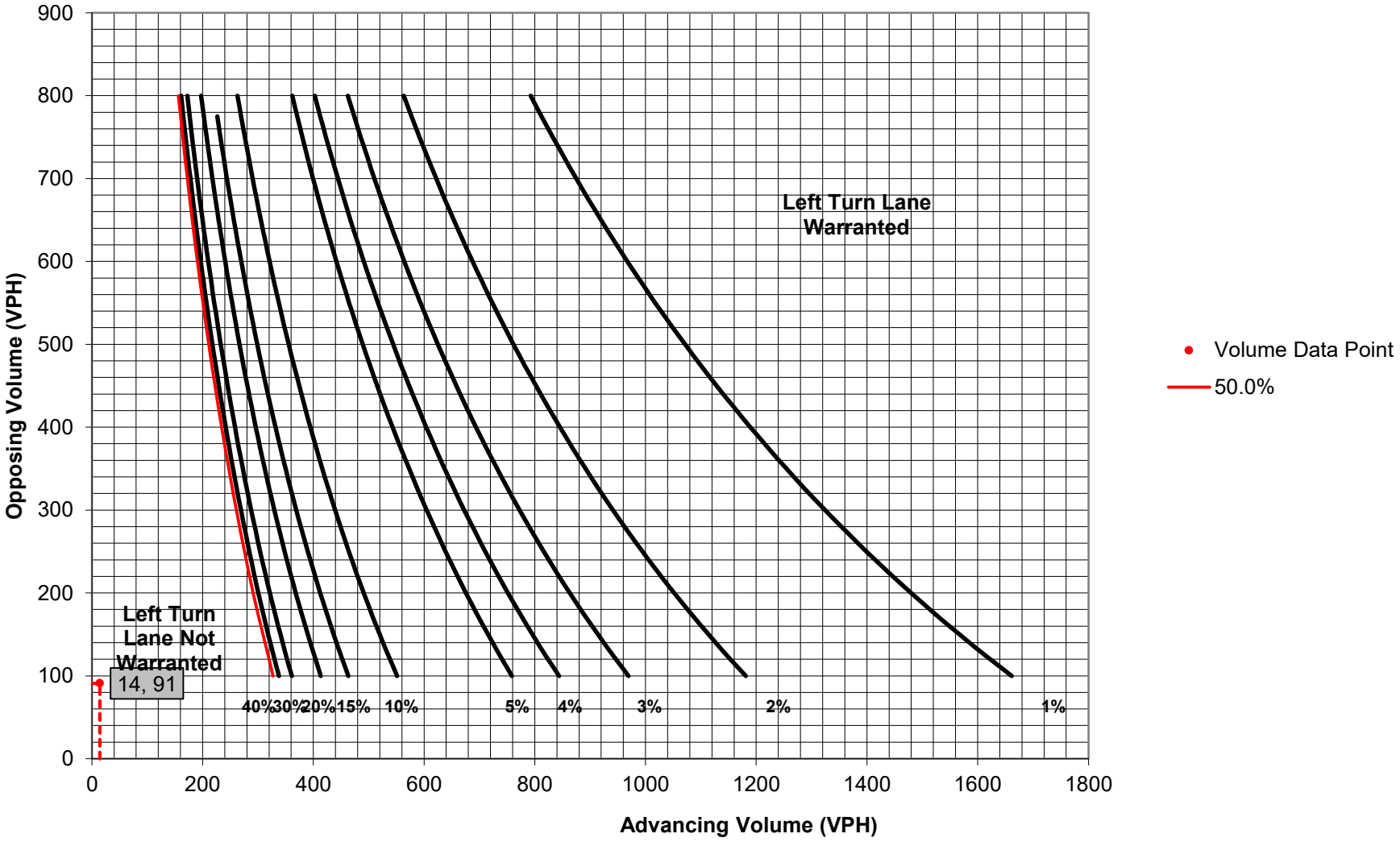
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	-	3	0.0%	3

Advancing Volume: 14
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

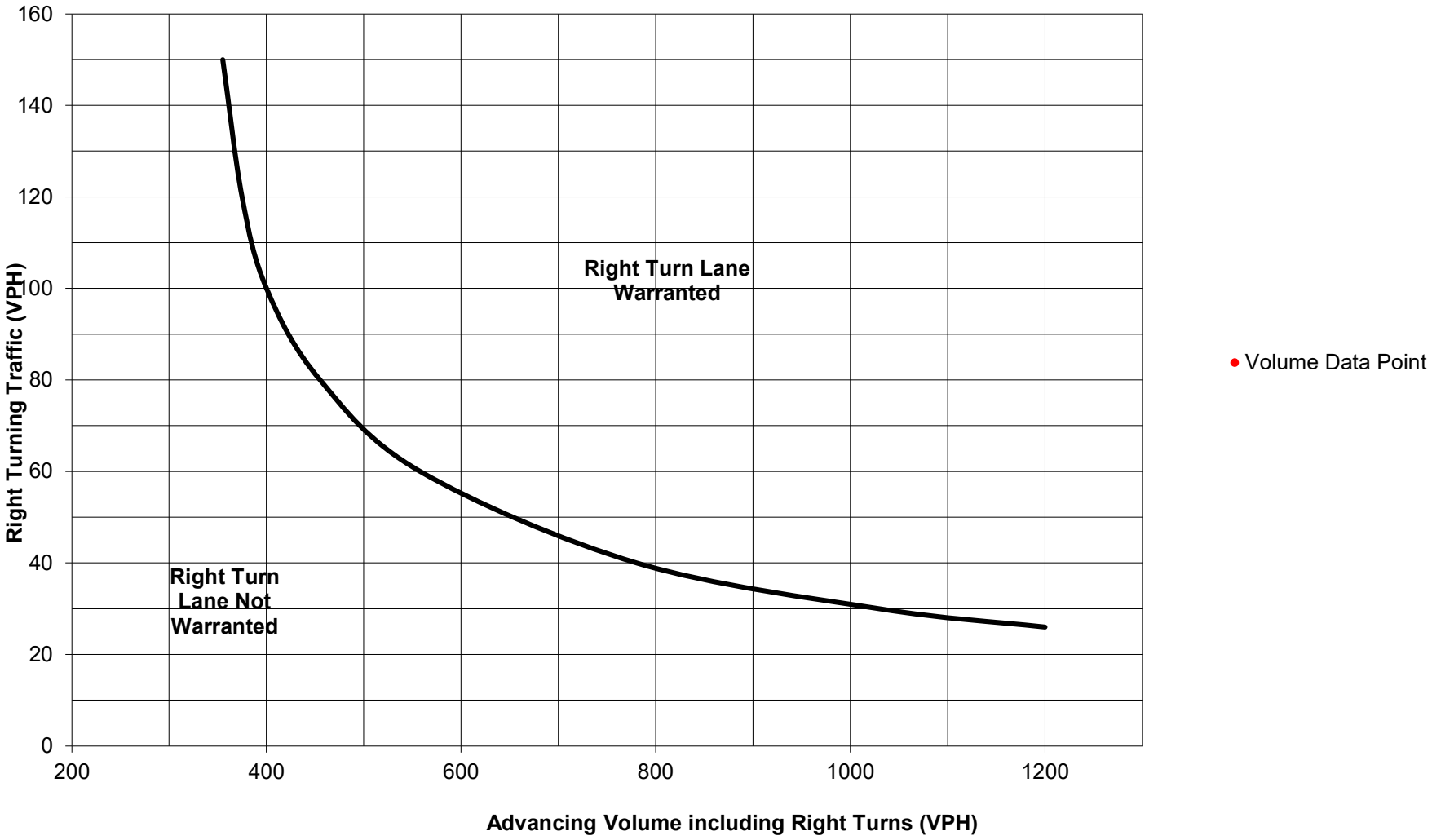
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	Yes	46	0.0%	46
Opposing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	Yes	0	0.0%	0

Advancing Volume:	121
Opposing Volume:	177
Left Turn Volume:	4
% Left Turns in Advancing Volume:	3.31%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

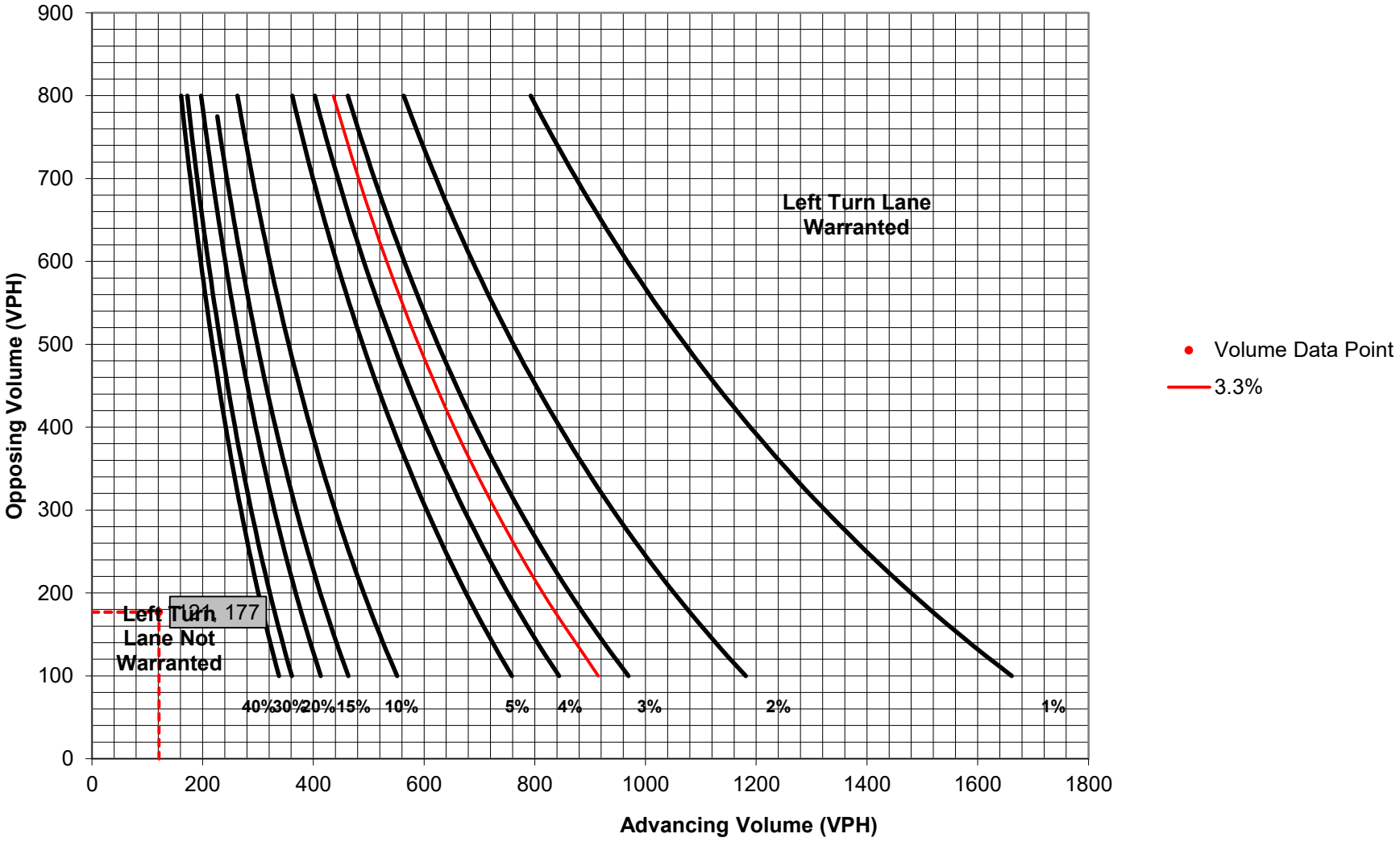
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	-	46	0.0%	46

Advancing Volume: 121
Right Turn Volume: 46

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 46
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

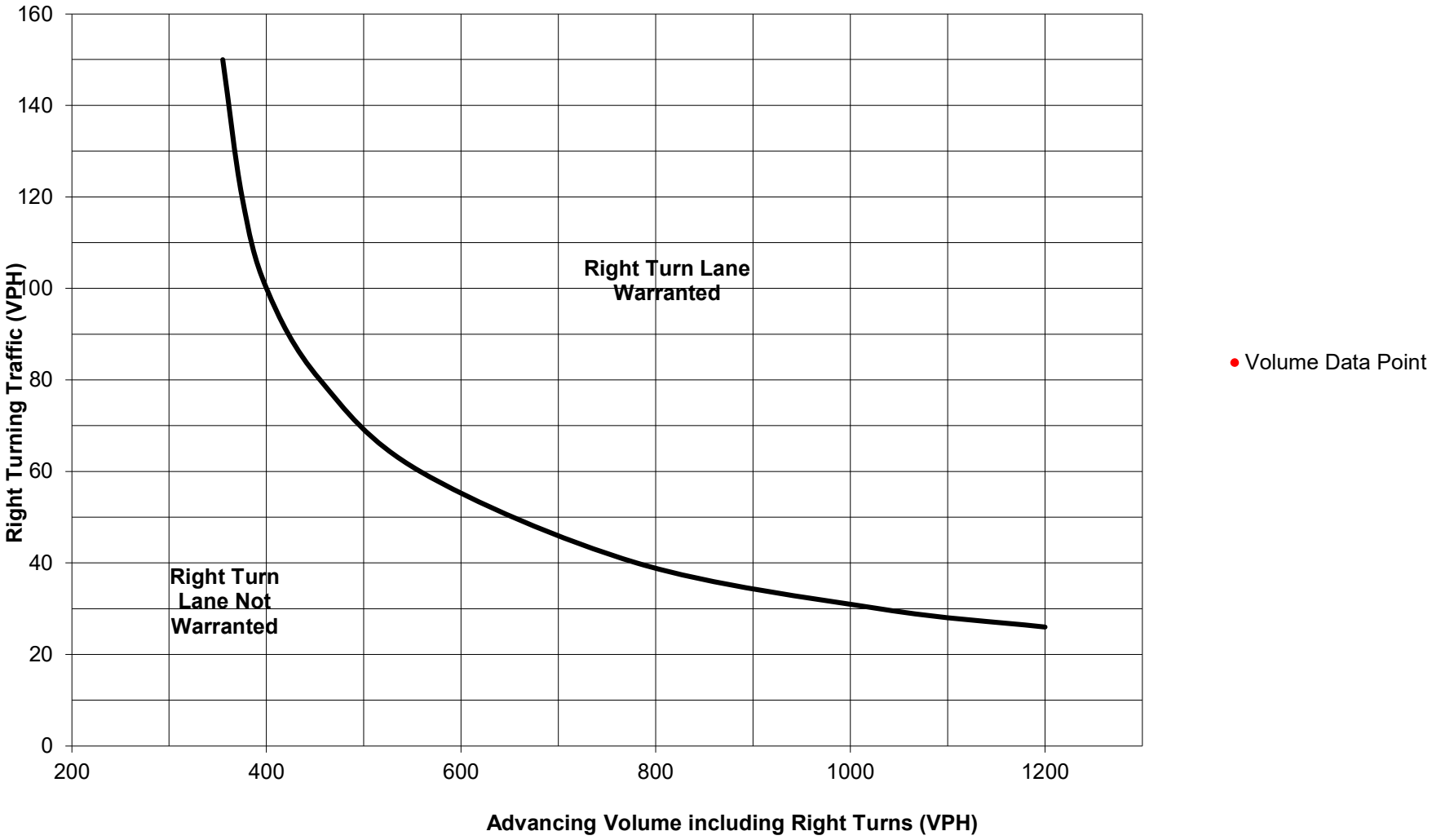
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	Yes	46	0.0%	46

Advancing Volume:	177
Opposing Volume:	121
Left Turn Volume:	5
% Left Turns in Advancing Volume:	2.82%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

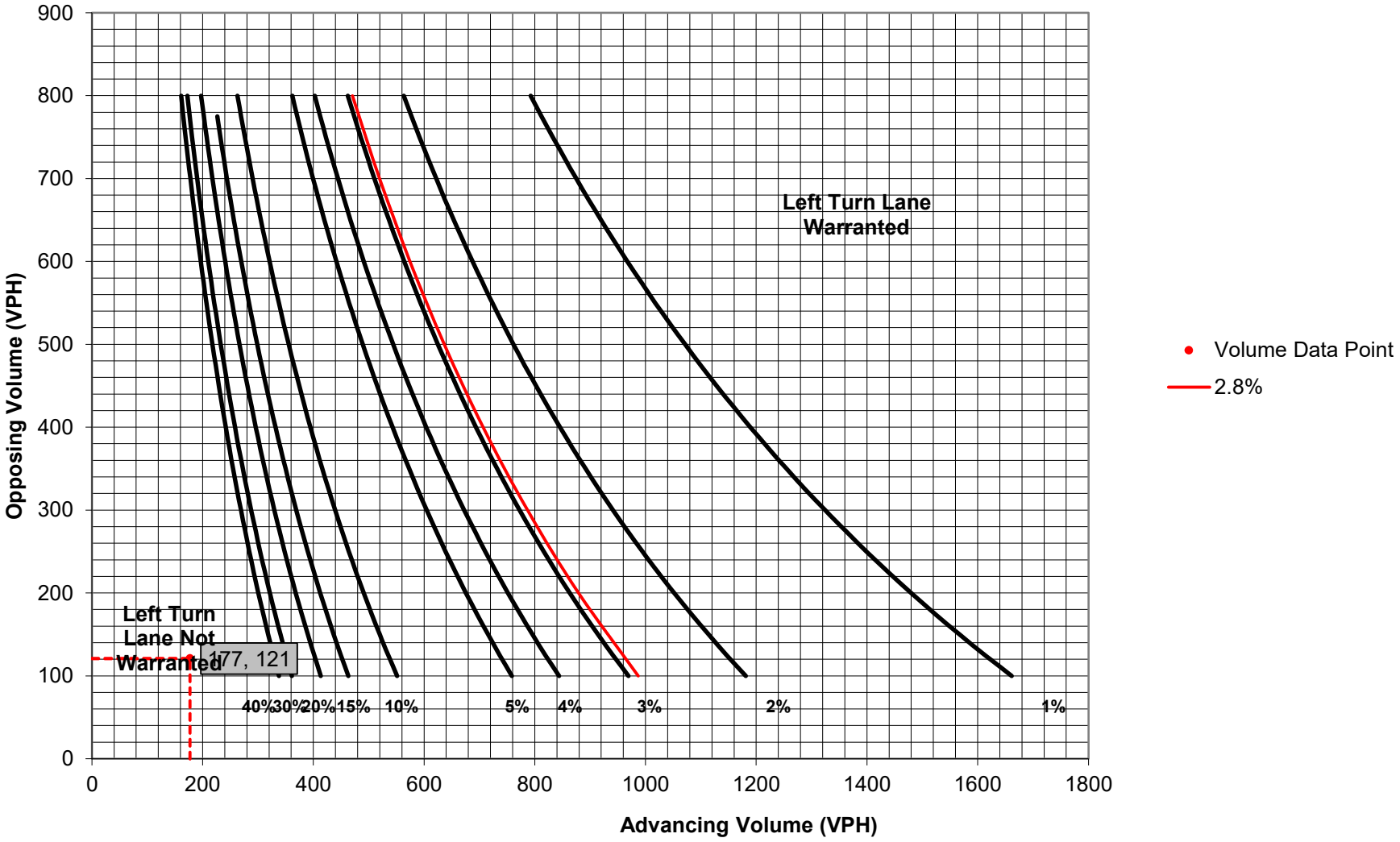
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	-	0	0.0%	0

Advancing Volume: 177
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

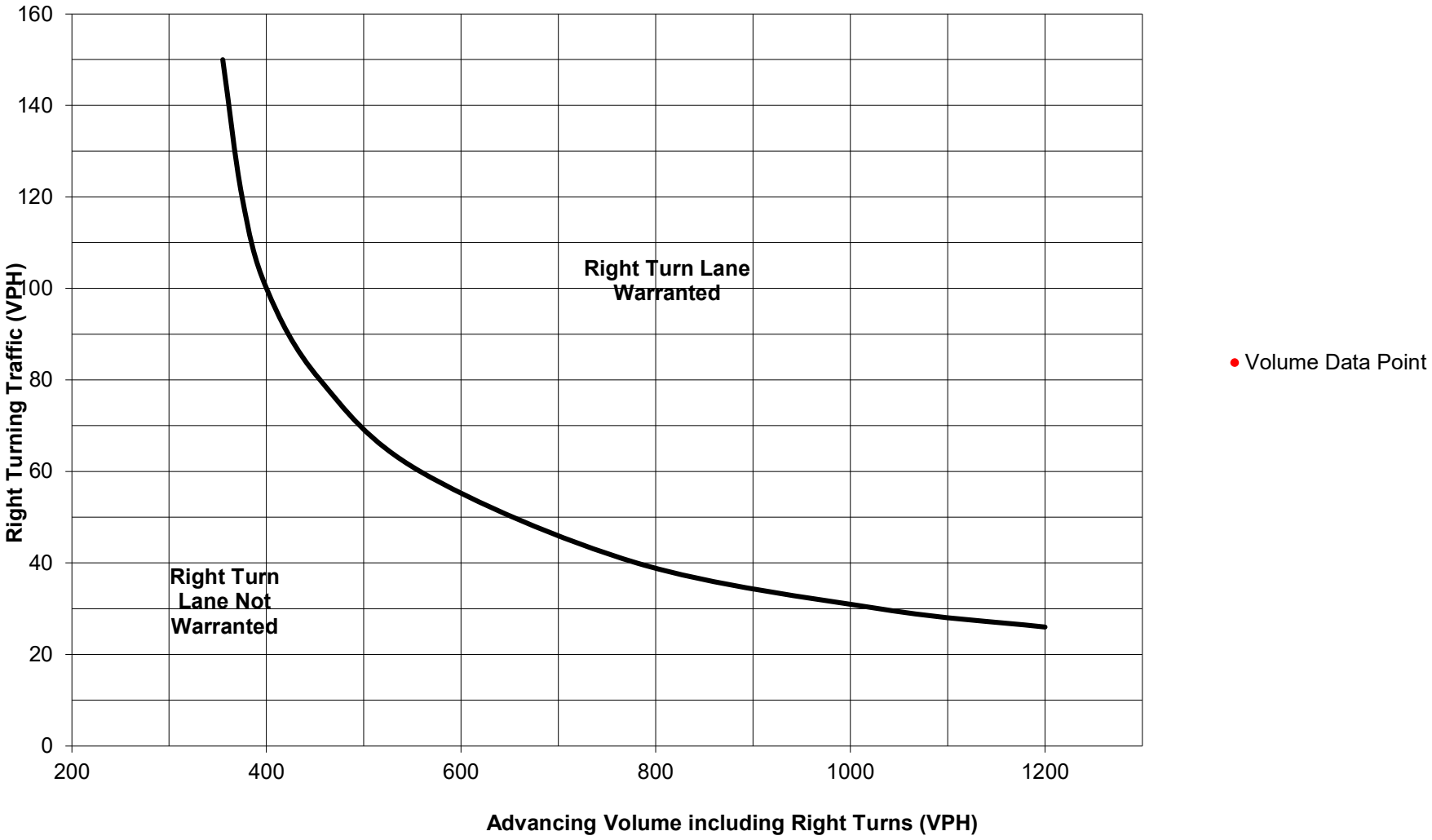
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	71	0.0%	71
	Through	-	1	0.0%	1
	Right	Yes	19	0.0%	19
Opposing	Left	Yes	7	0.0%	7
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3

Advancing Volume:	91
Opposing Volume:	14
Left Turn Volume:	71
% Left Turns in Advancing Volume:	78.02%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	71
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

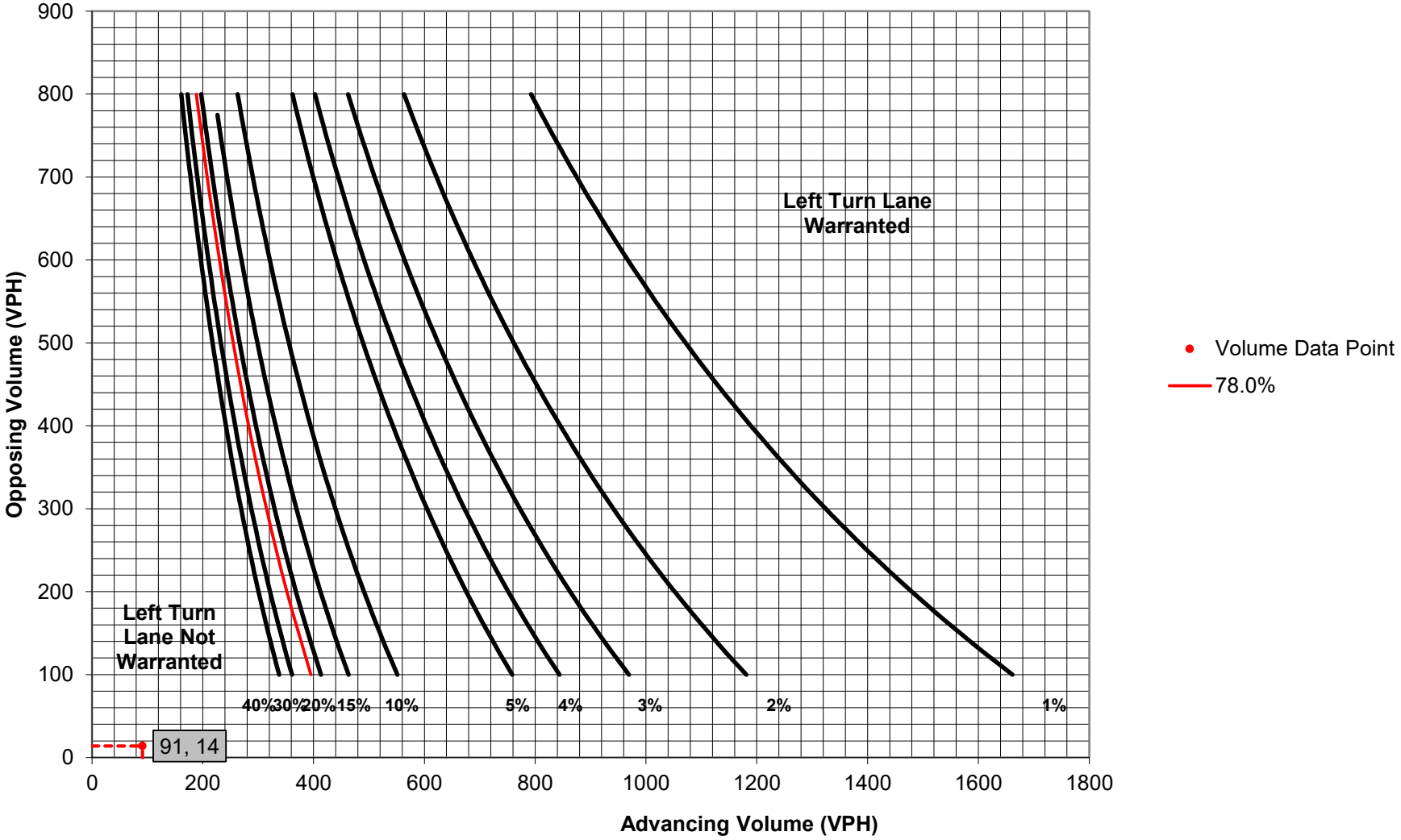
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	71	0.0%	71
	Through	-	1	0.0%	1
	Right	-	19	0.0%	19

Advancing Volume: 91
Right Turn Volume: 19

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

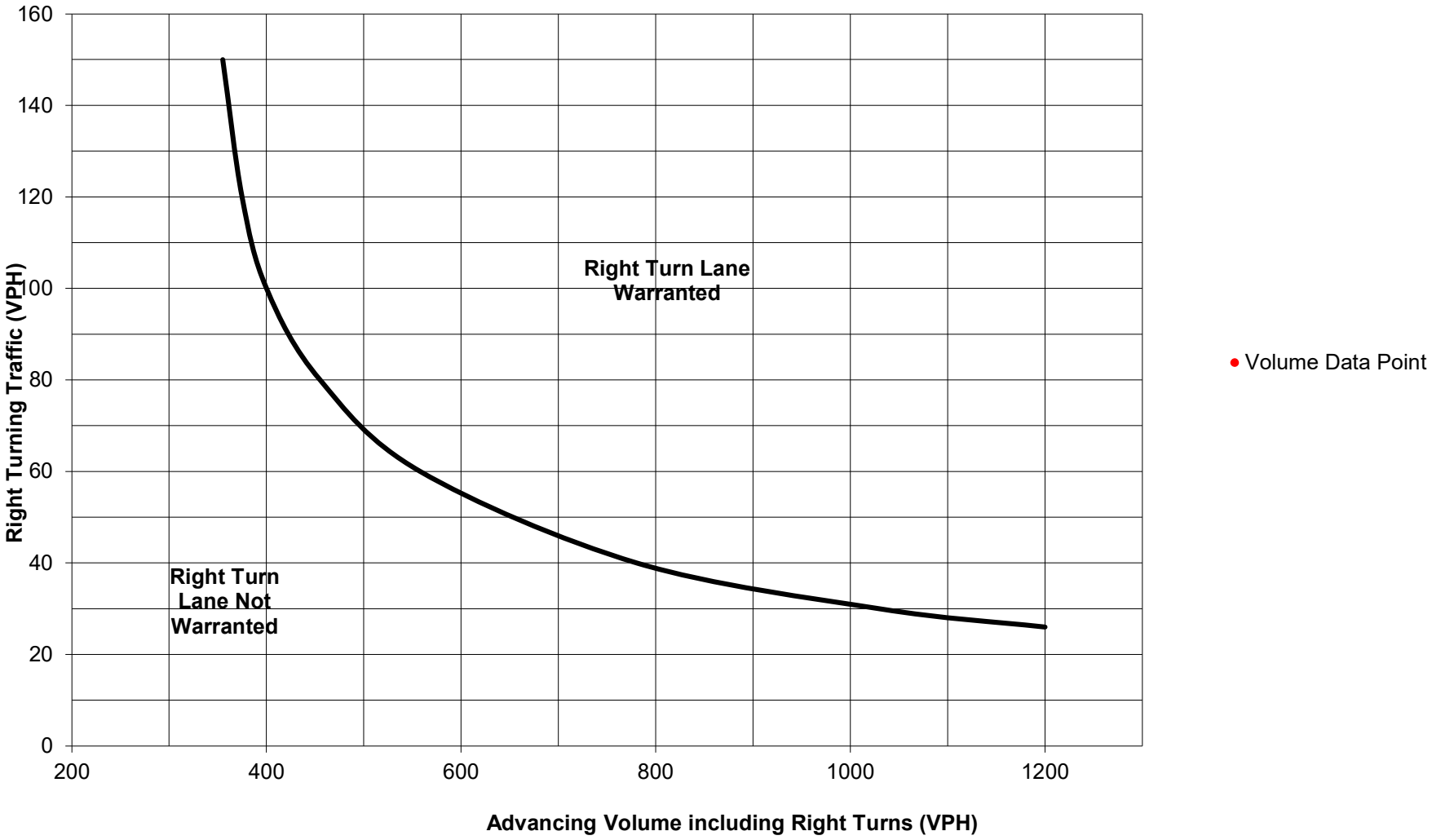
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0

Advancing Volume:	13
Opposing Volume:	29
Left Turn Volume:	7
% Left Turns in Advancing Volume:	53.85%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

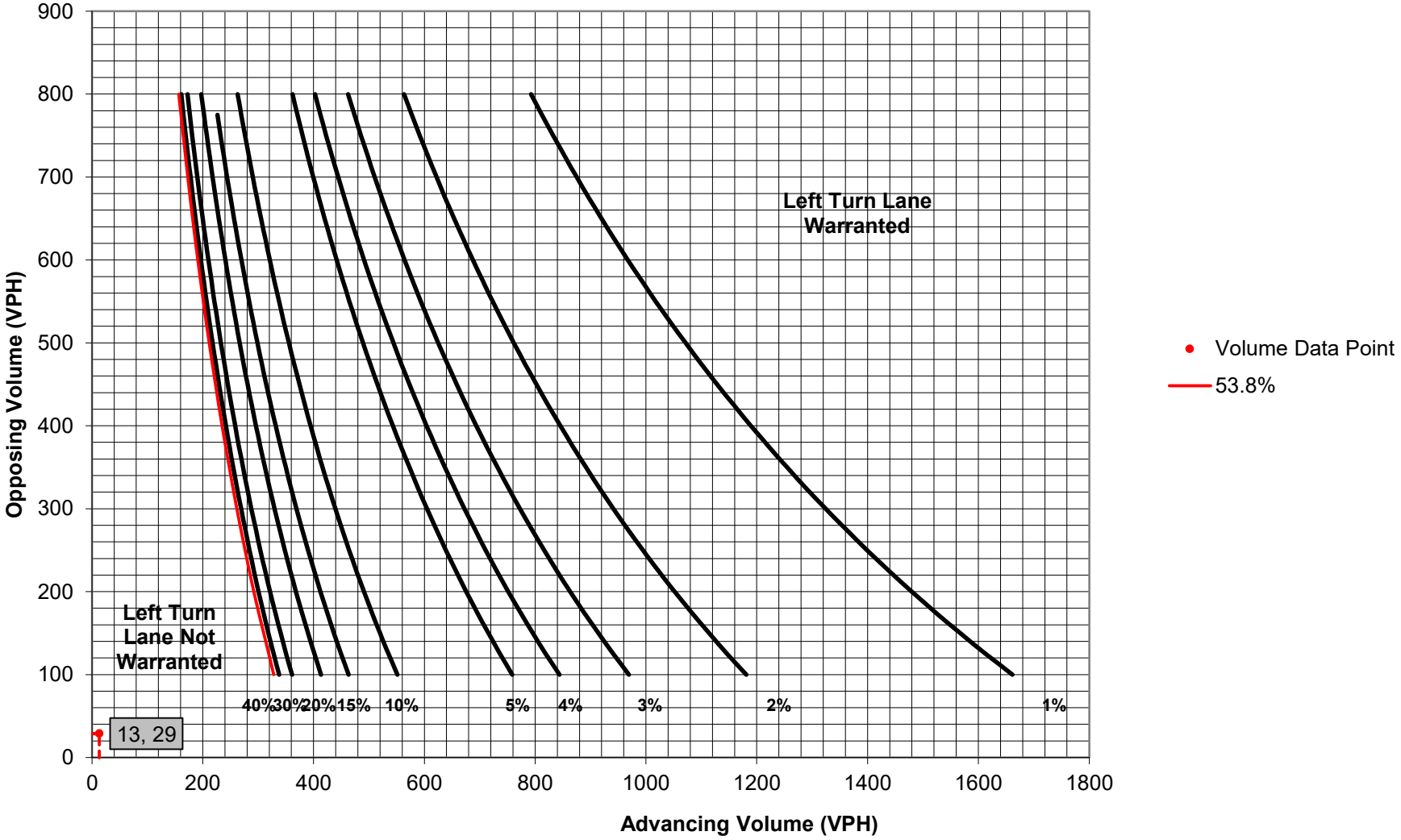
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	-	1	0.0%	1

Advancing Volume: 13
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

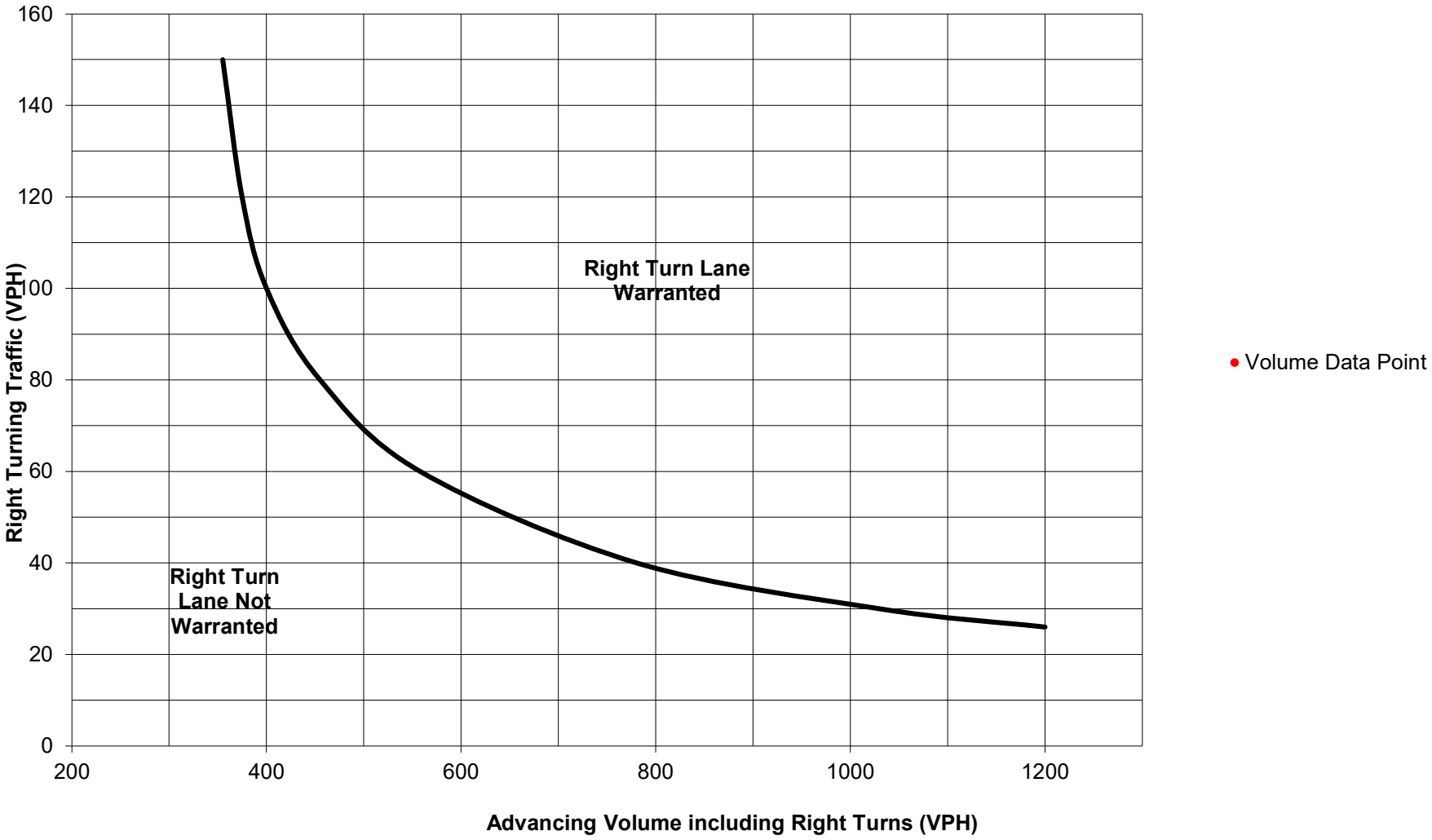
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	Yes	43	0.0%	43
Opposing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	Yes	9	0.0%	9

Advancing Volume: 152
Opposing Volume: 58
Left Turn Volume: 0
% Left Turns in Advancing Volume: 0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

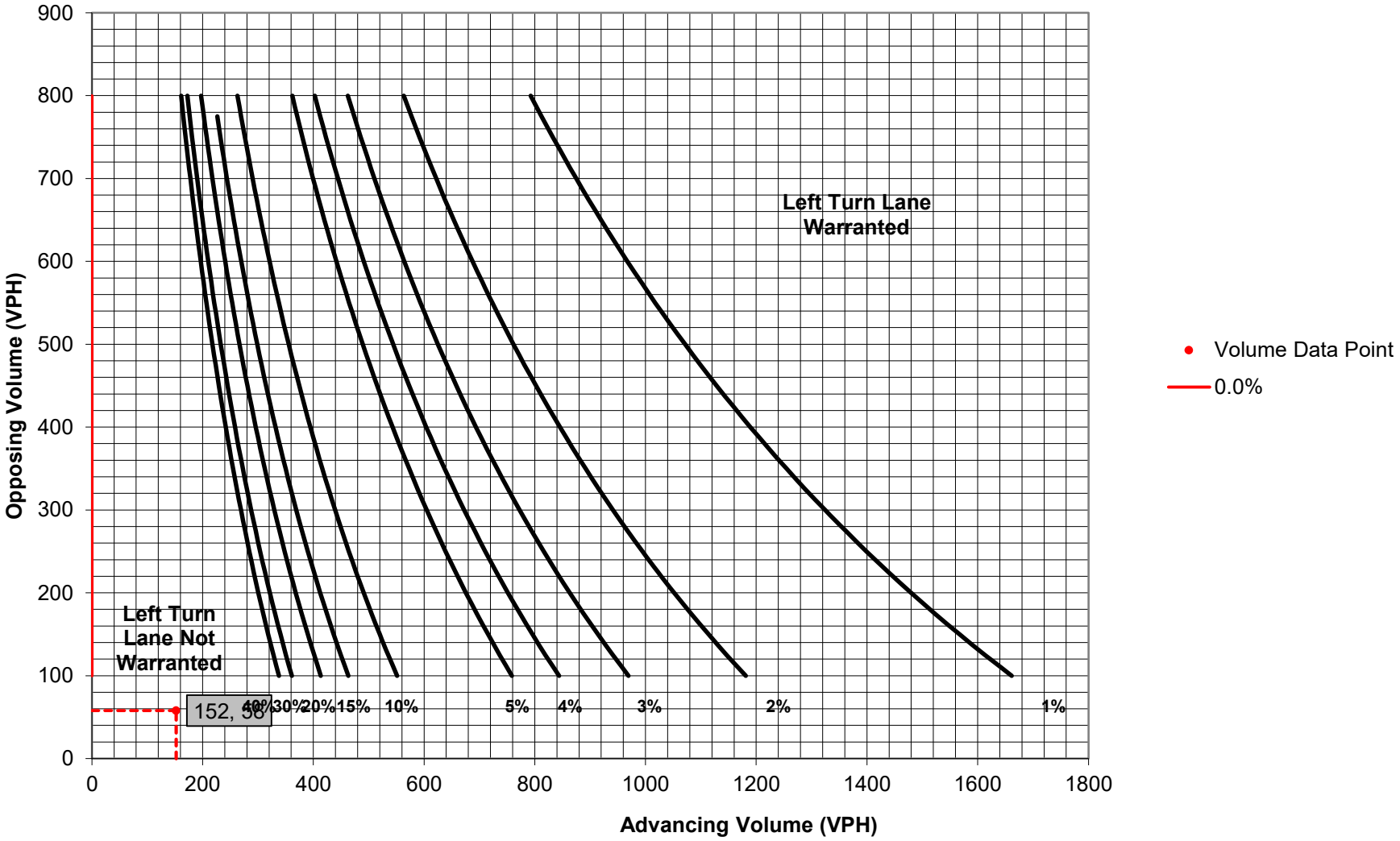
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	-	43	0.0%	43

Advancing Volume:	152
Right Turn Volume:	43

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	43
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

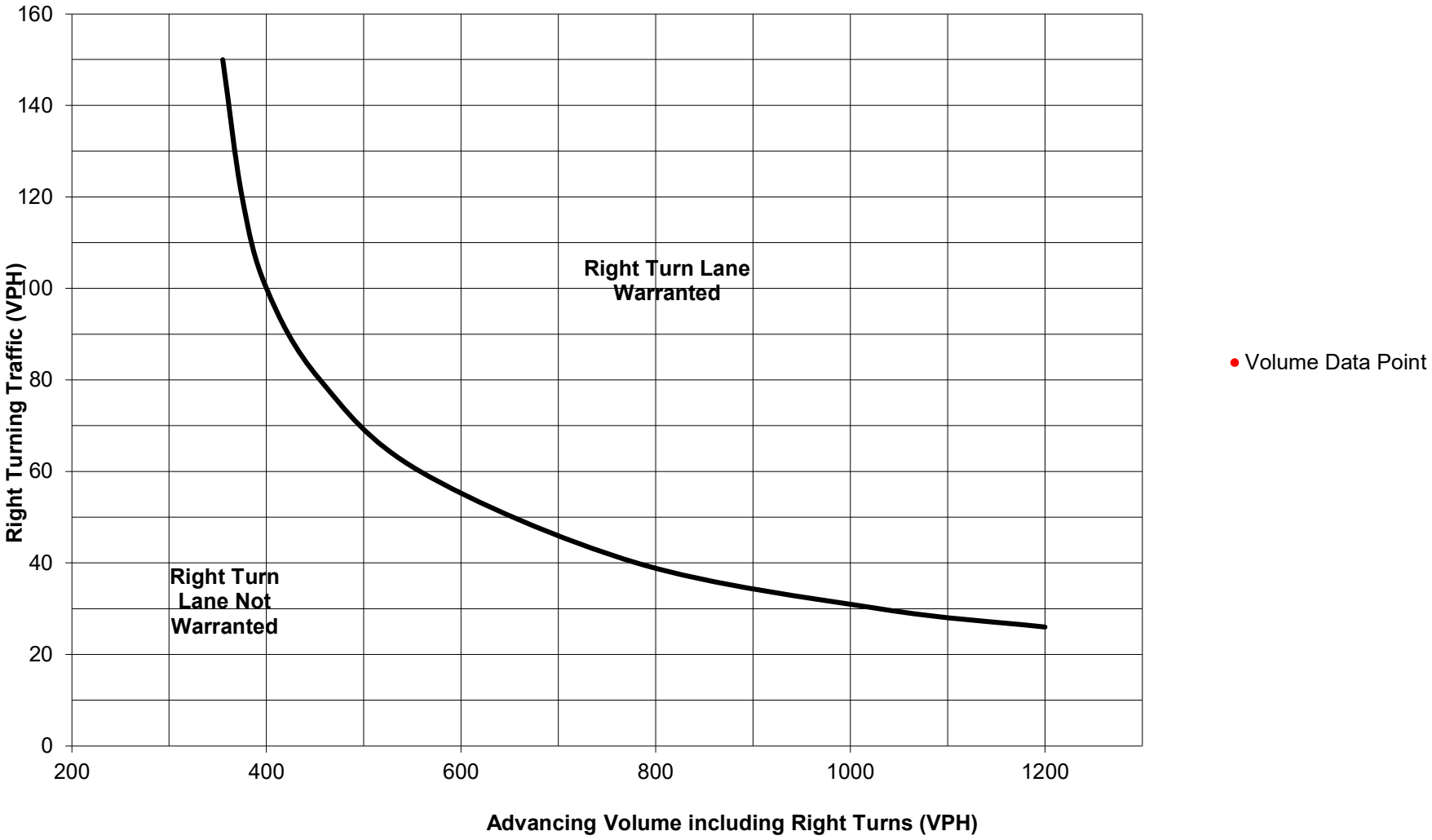
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	Yes	43	0.0%	43

Advancing Volume:	58
Opposing Volume:	152
Left Turn Volume:	9
% Left Turns in Advancing Volume:	15.52%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

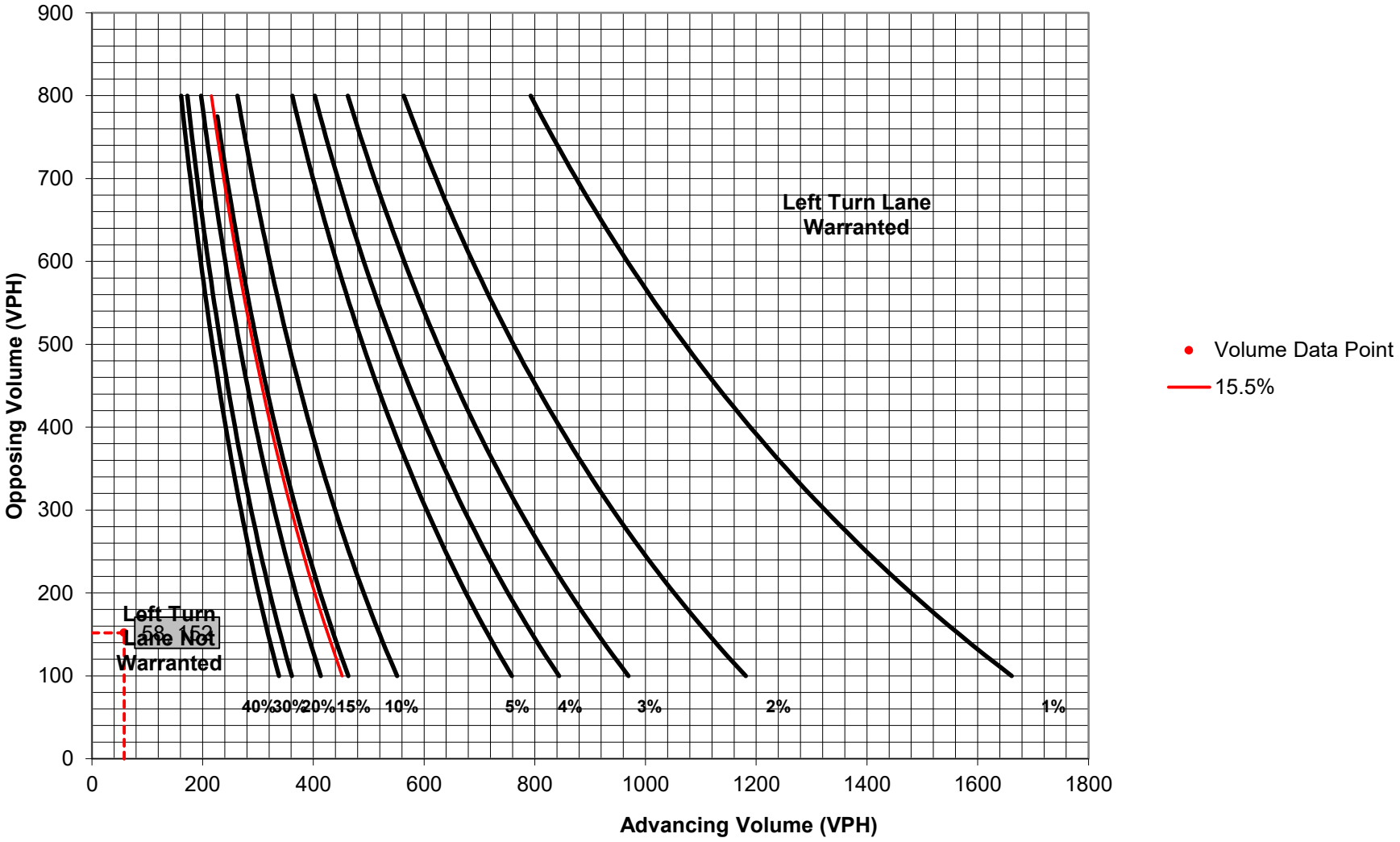
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	-	9	0.0%	9

Advancing Volume: 58
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

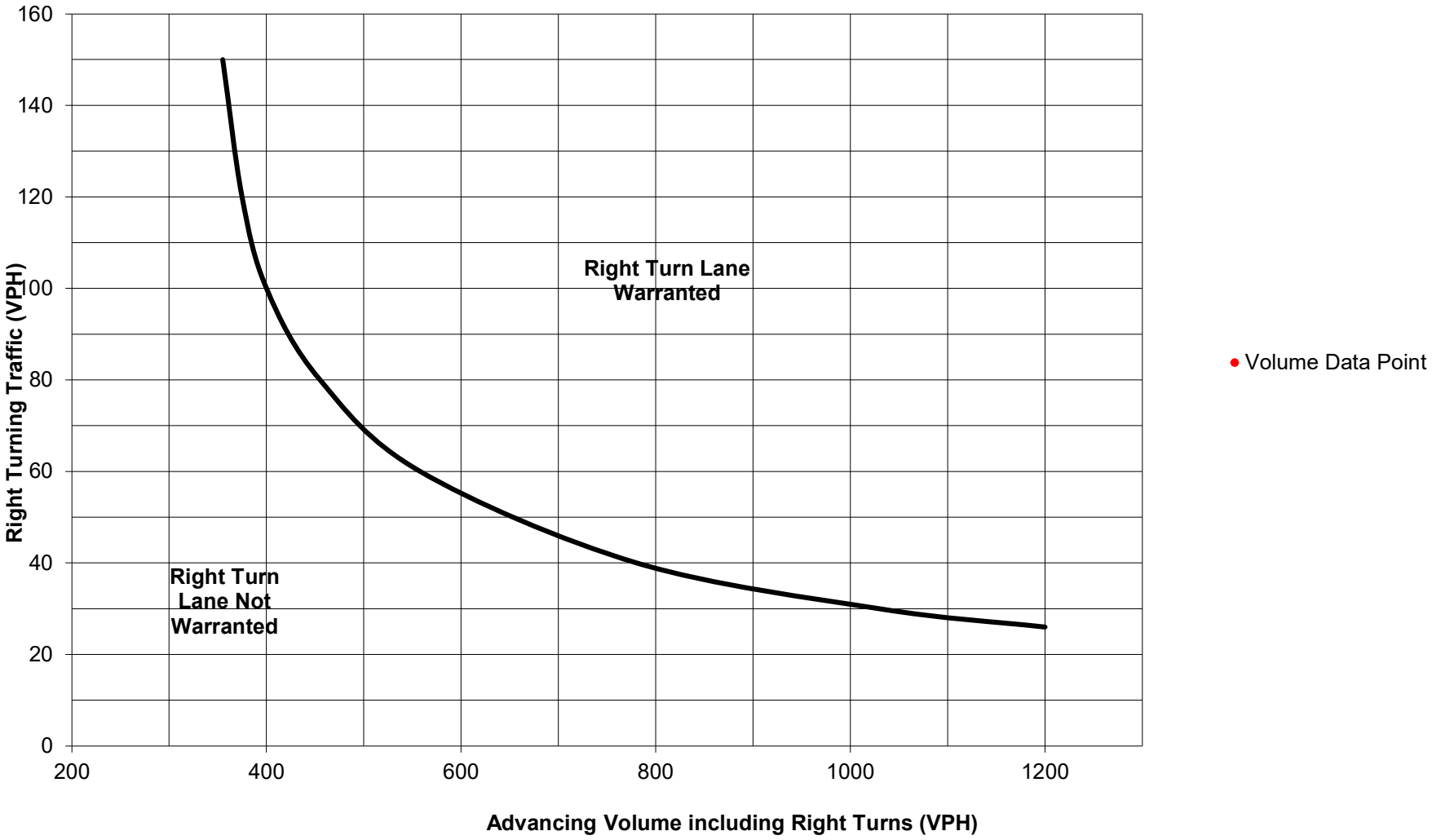
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	7	0.0%	7
	Through	-	5	0.0%	5
	Right	Yes	1	0.0%	1

Advancing Volume:	29
Opposing Volume:	13
Left Turn Volume:	17
% Left Turns in Advancing Volume:	58.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

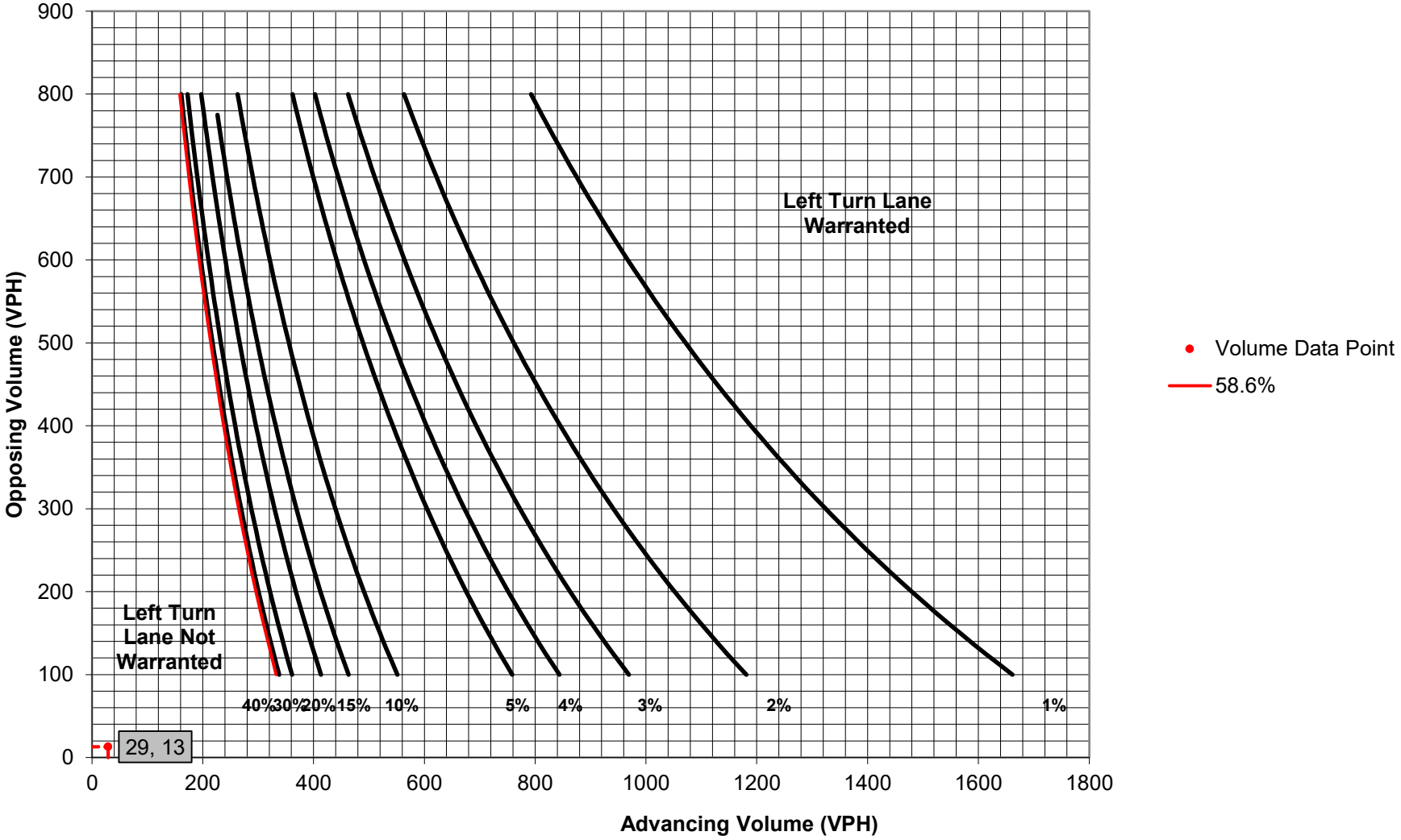
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	-	0	0.0%	0

Advancing Volume:	29
Right Turn Volume:	0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

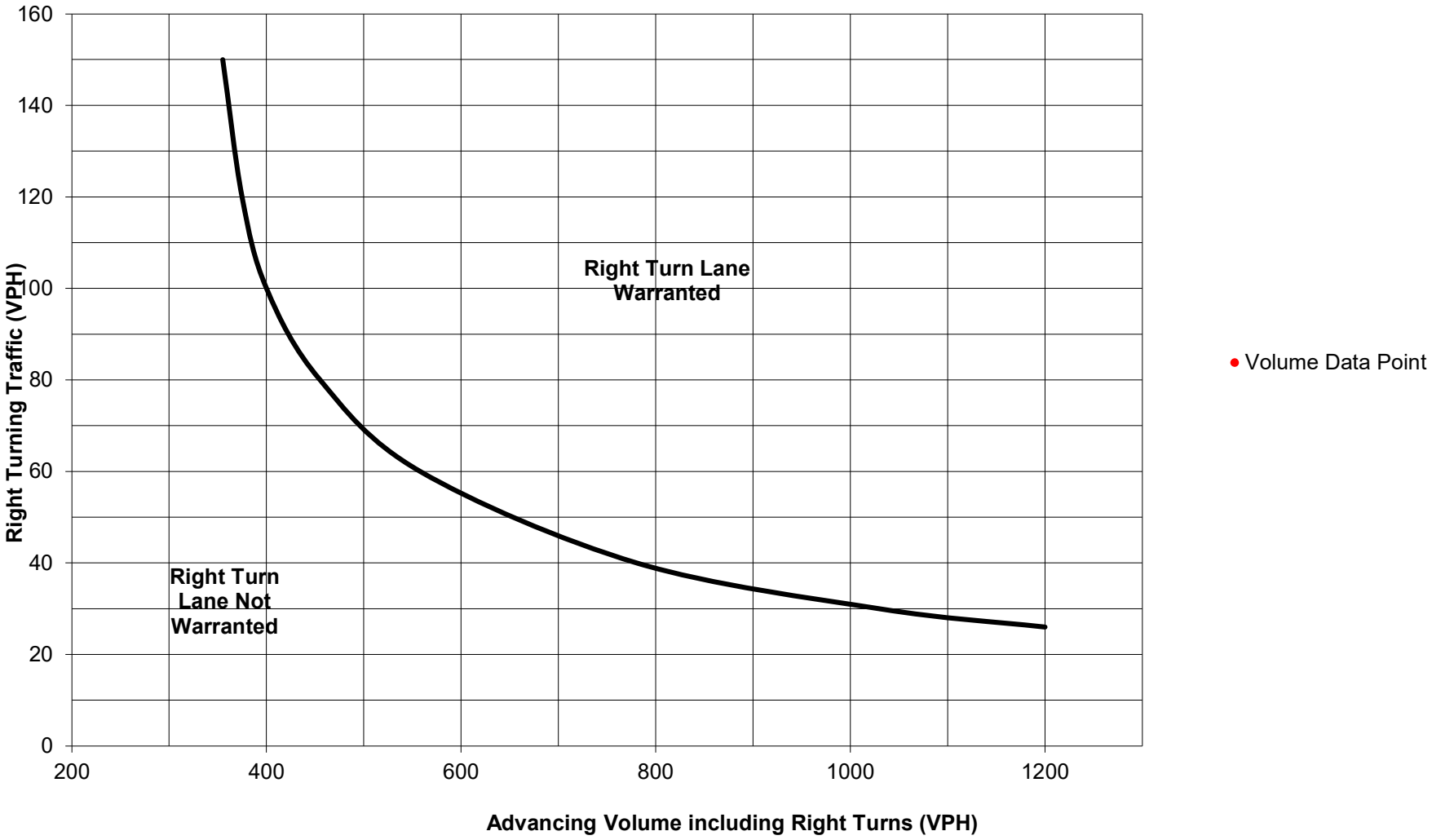
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	329	5.0%	354
	Right	-	5	0.0%	5

Advancing Volume:	359
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

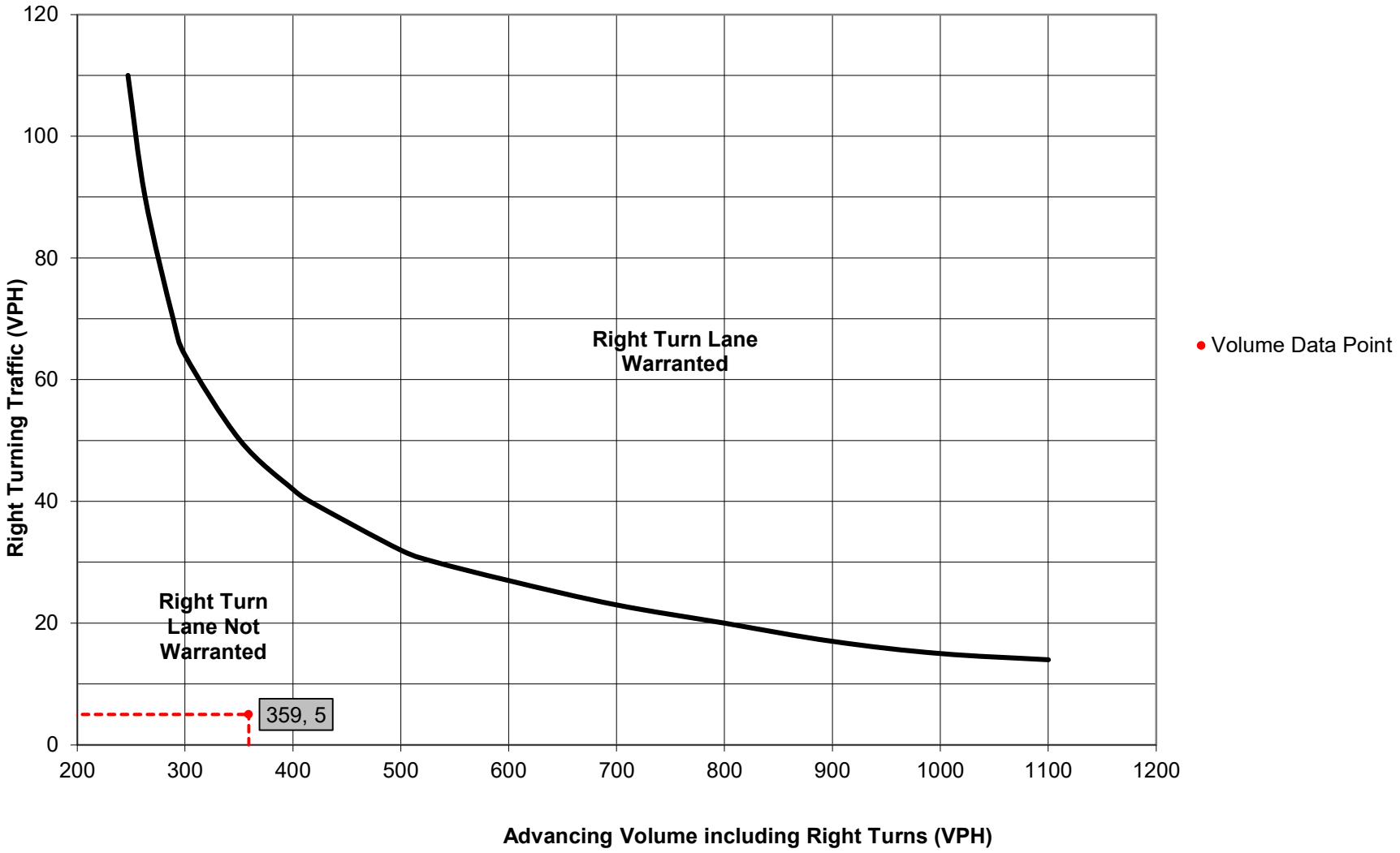
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	40	3.0%	42
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 46
Opposing Volume: 0
Left Turn Volume: 4
% Left Turns in Advancing Volume: 8.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 4
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

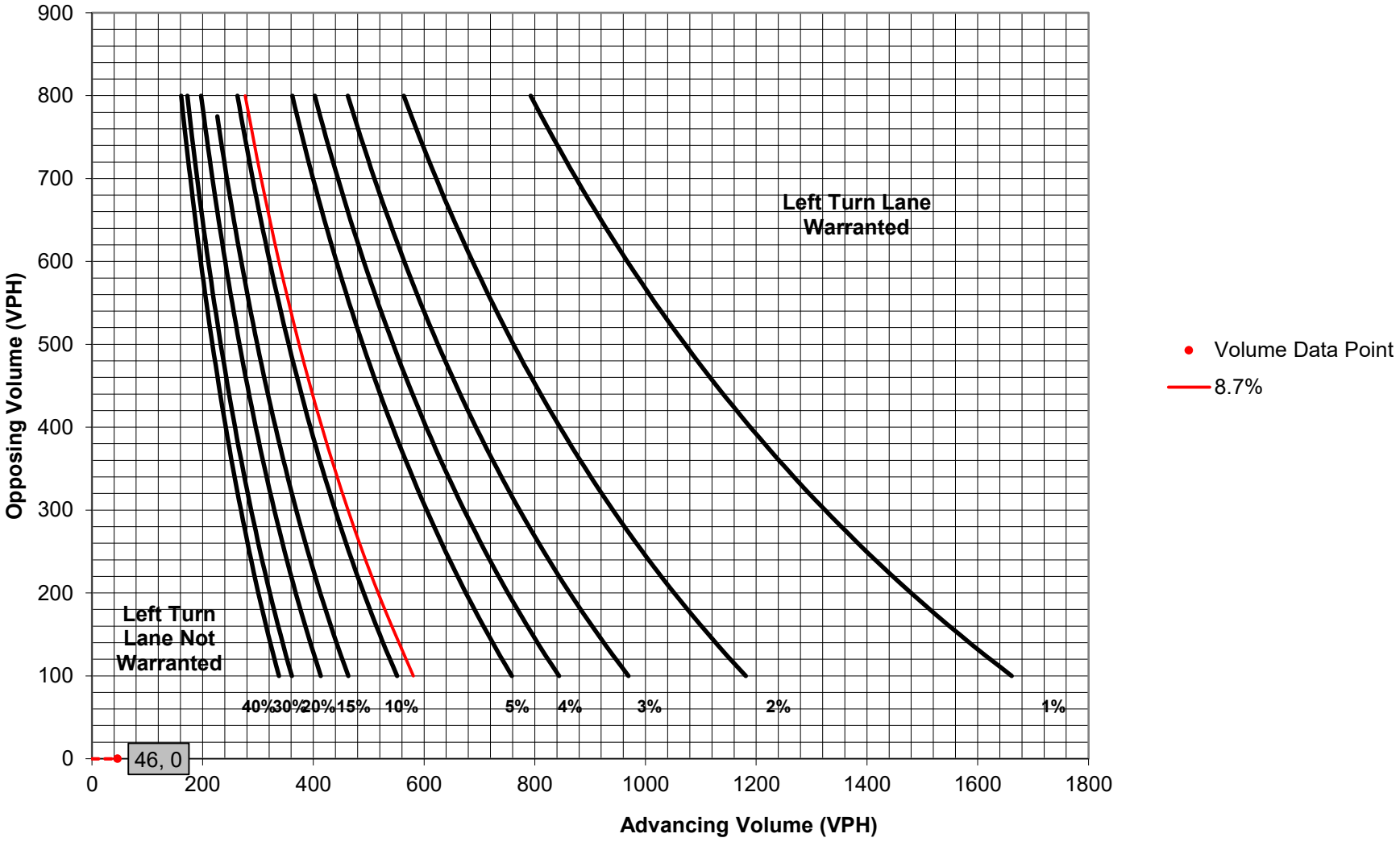
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	40	3.0%	42

Advancing Volume: 46
Right Turn Volume: 42

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

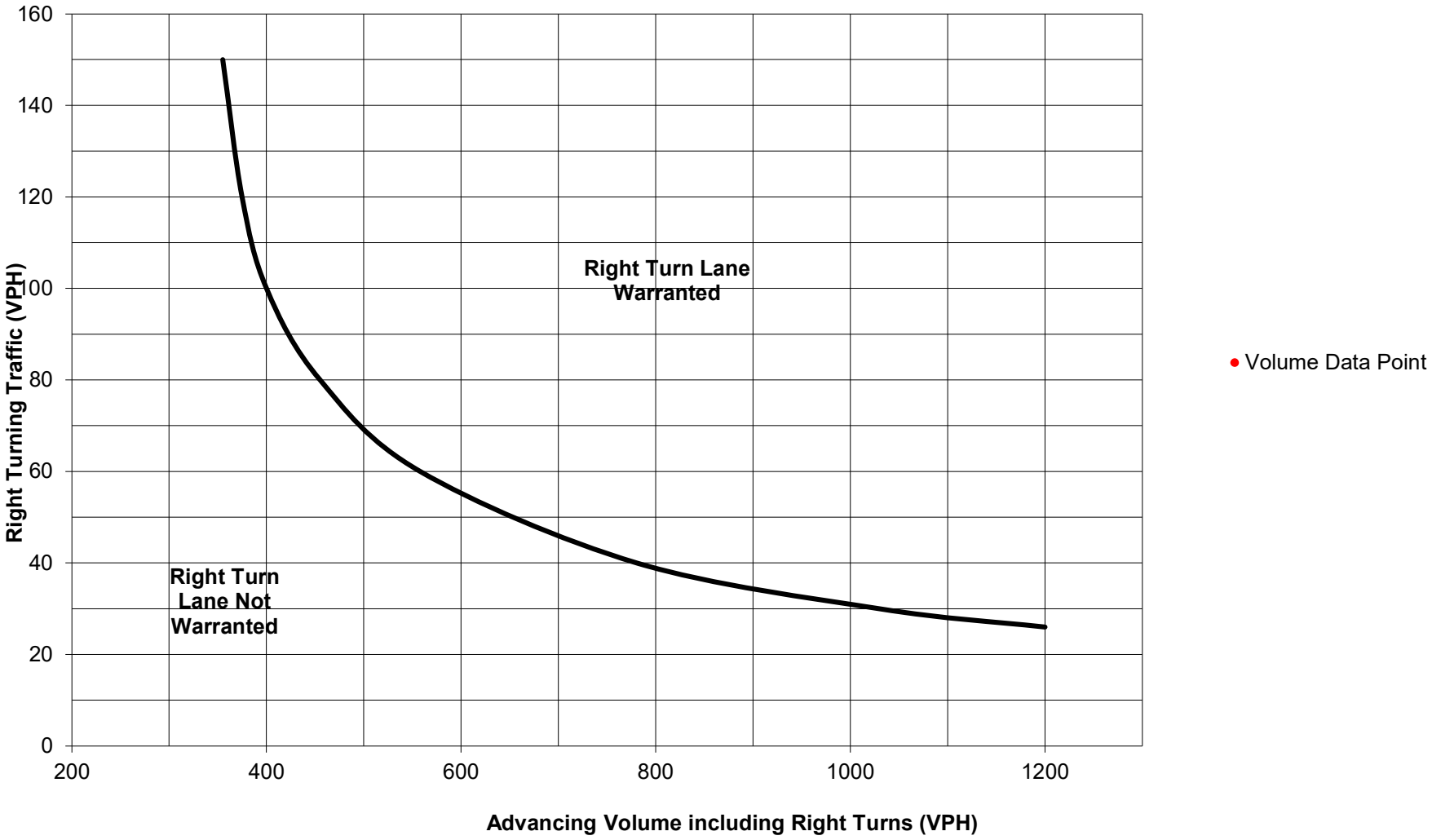
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	26	0.0%	26
	Through	-	333	4.0%	353
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	329	5.0%	354
	Right	Yes	5	0.0%	5

Advancing Volume:	379
Opposing Volume:	359
Left Turn Volume:	26
% Left Turns in Advancing Volume:	6.86%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

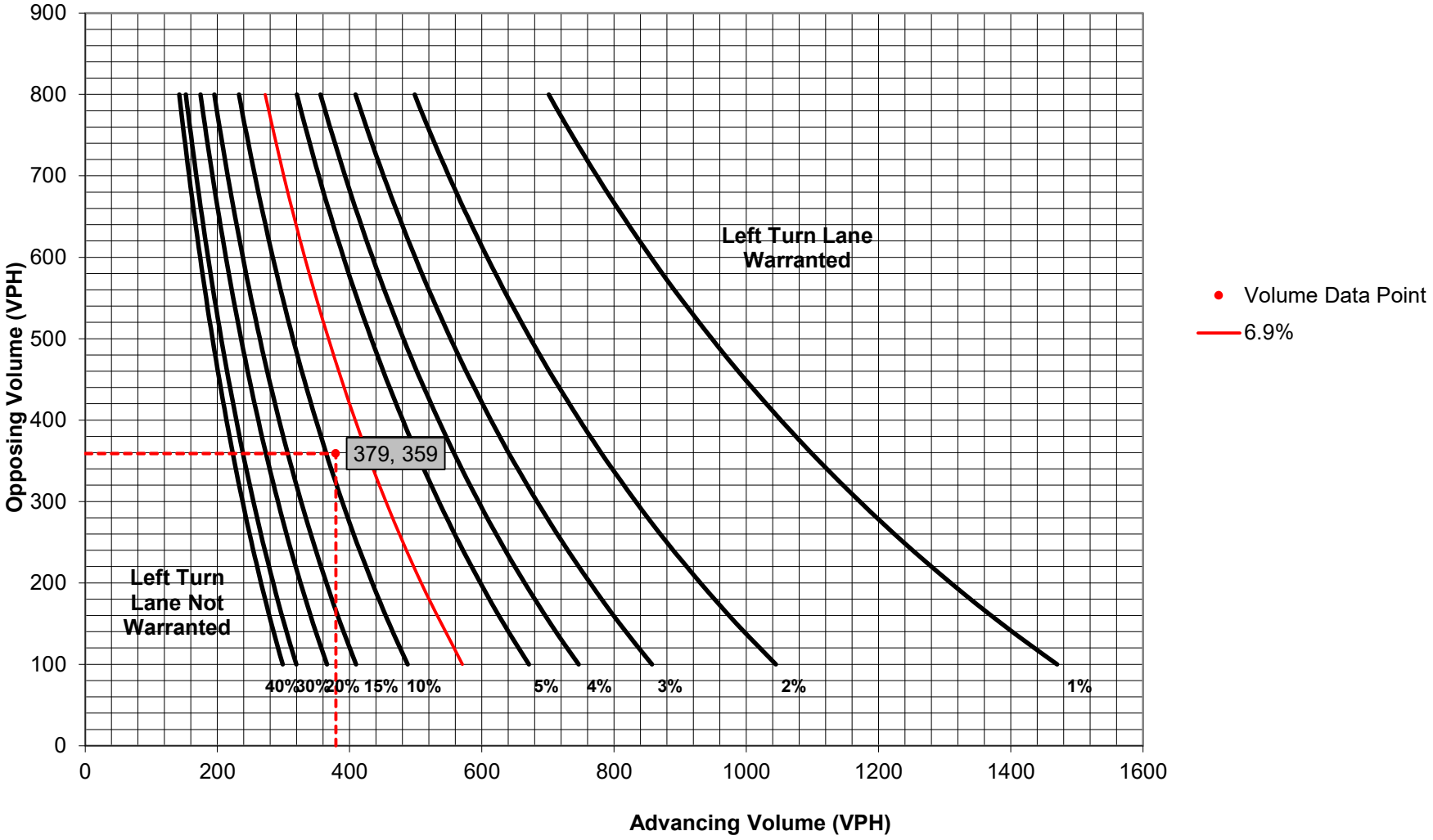
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	513	1.0%	521
	Right	-	11	0.0%	11

Advancing Volume:	532
Right Turn Volume:	11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

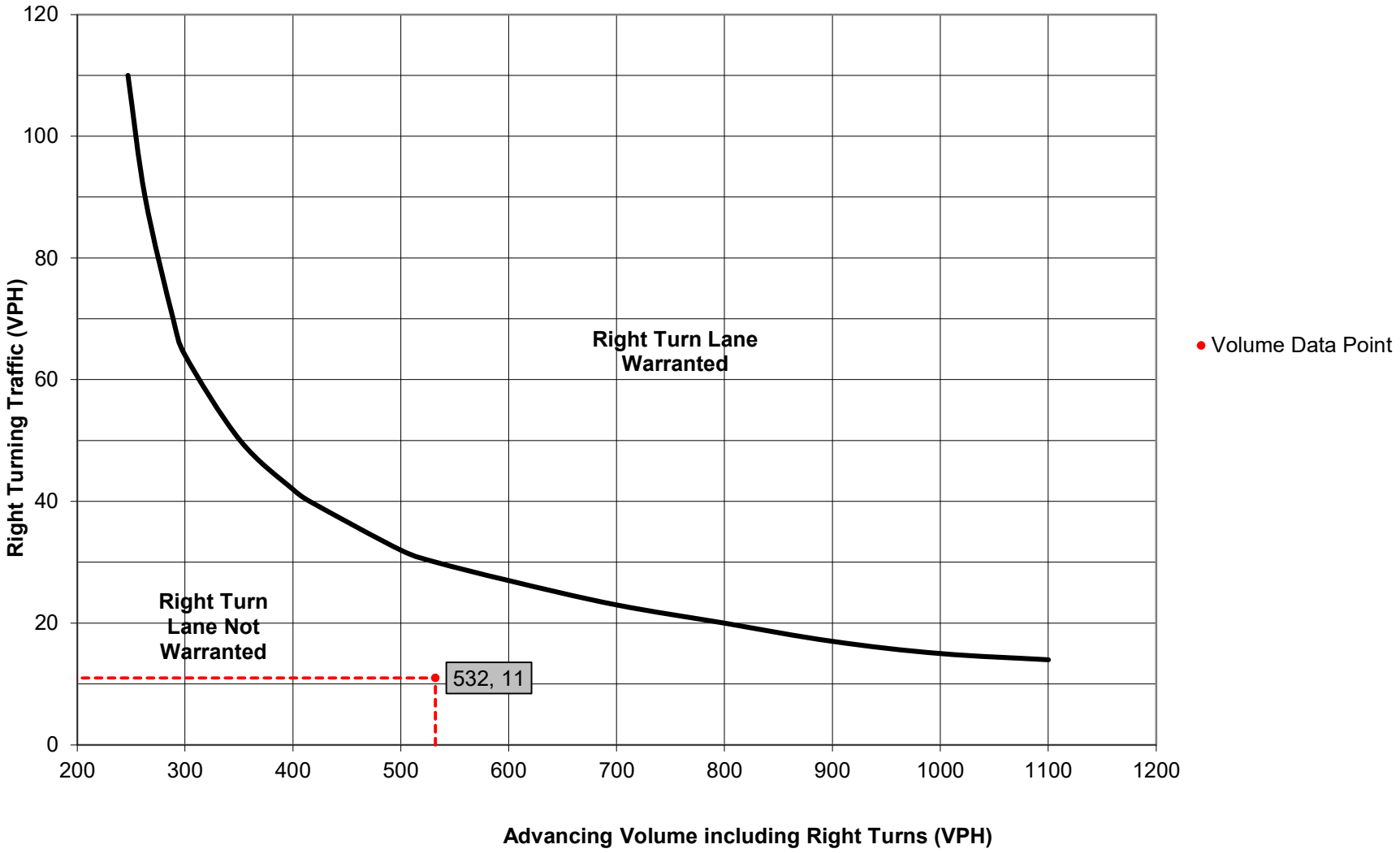
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	69	6.0%	76
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	80
Opposing Volume:	0
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

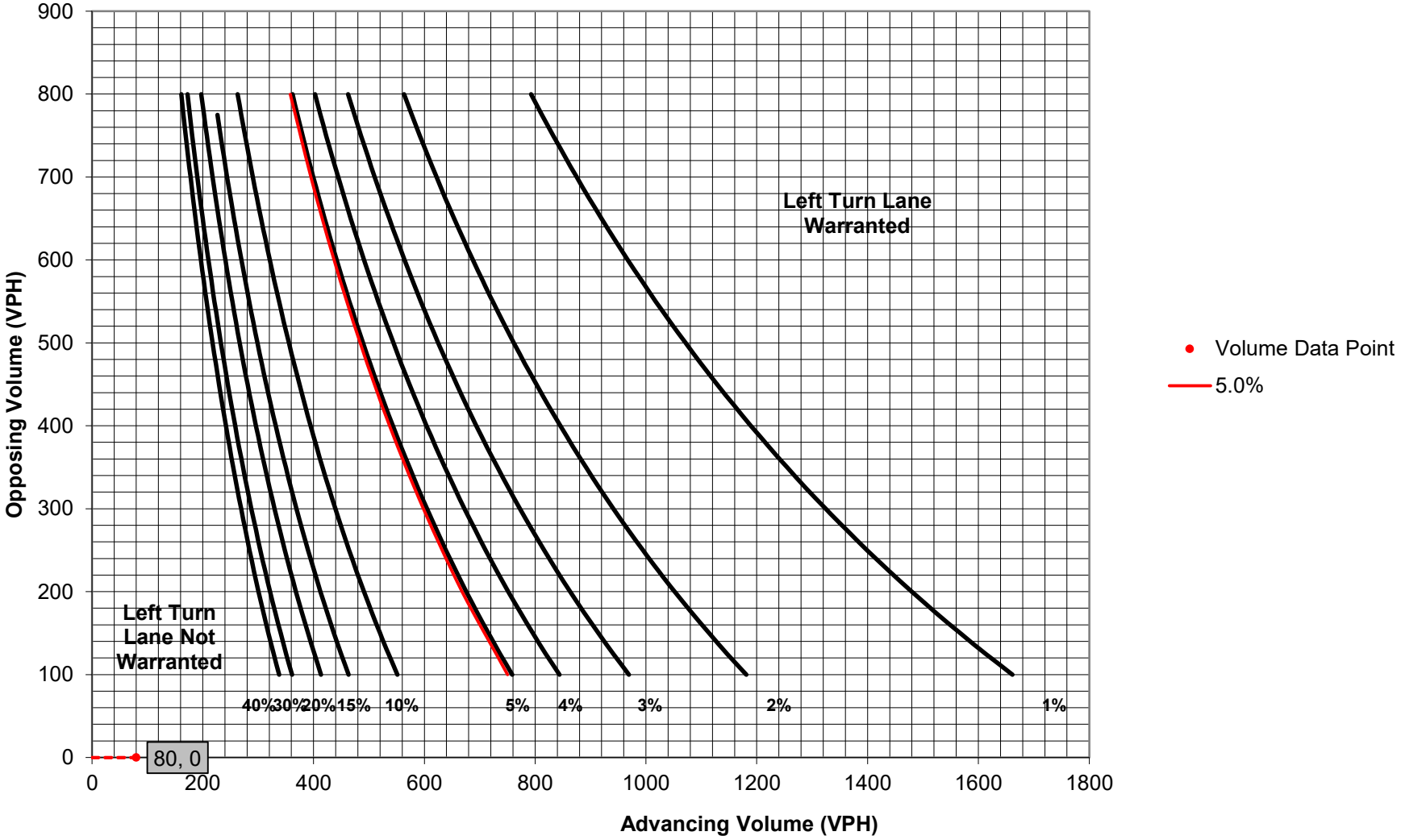
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	69	6.0%	76

Advancing Volume: 80
Right Turn Volume: 76

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	76
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

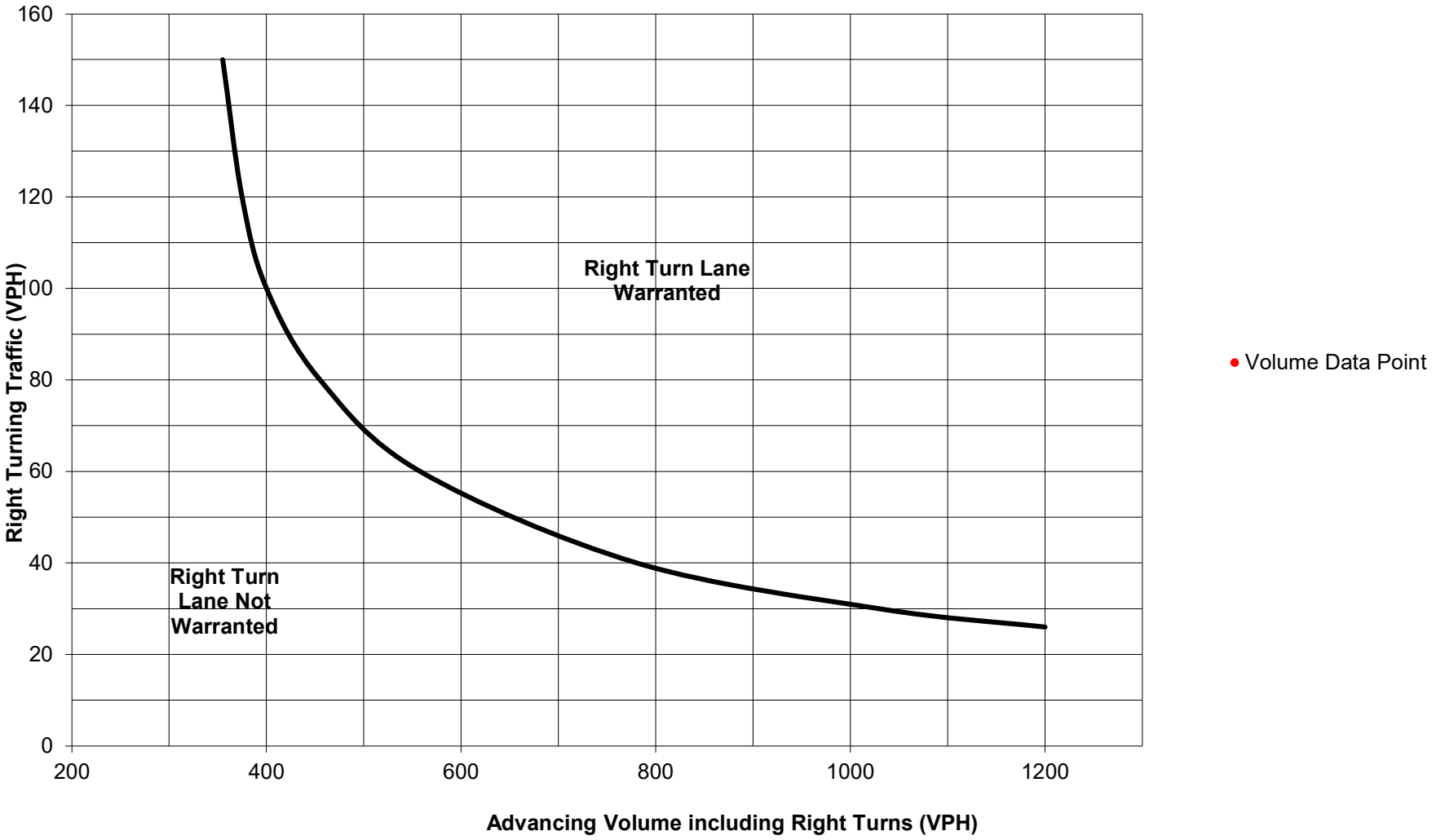
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	38	0.0%	38
	Through	-	551	1.0%	560
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	513	1.0%	521
	Right	Yes	11	0.0%	11

Advancing Volume:	598
Opposing Volume:	532
Left Turn Volume:	38
% Left Turns in Advancing Volume:	6.35%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

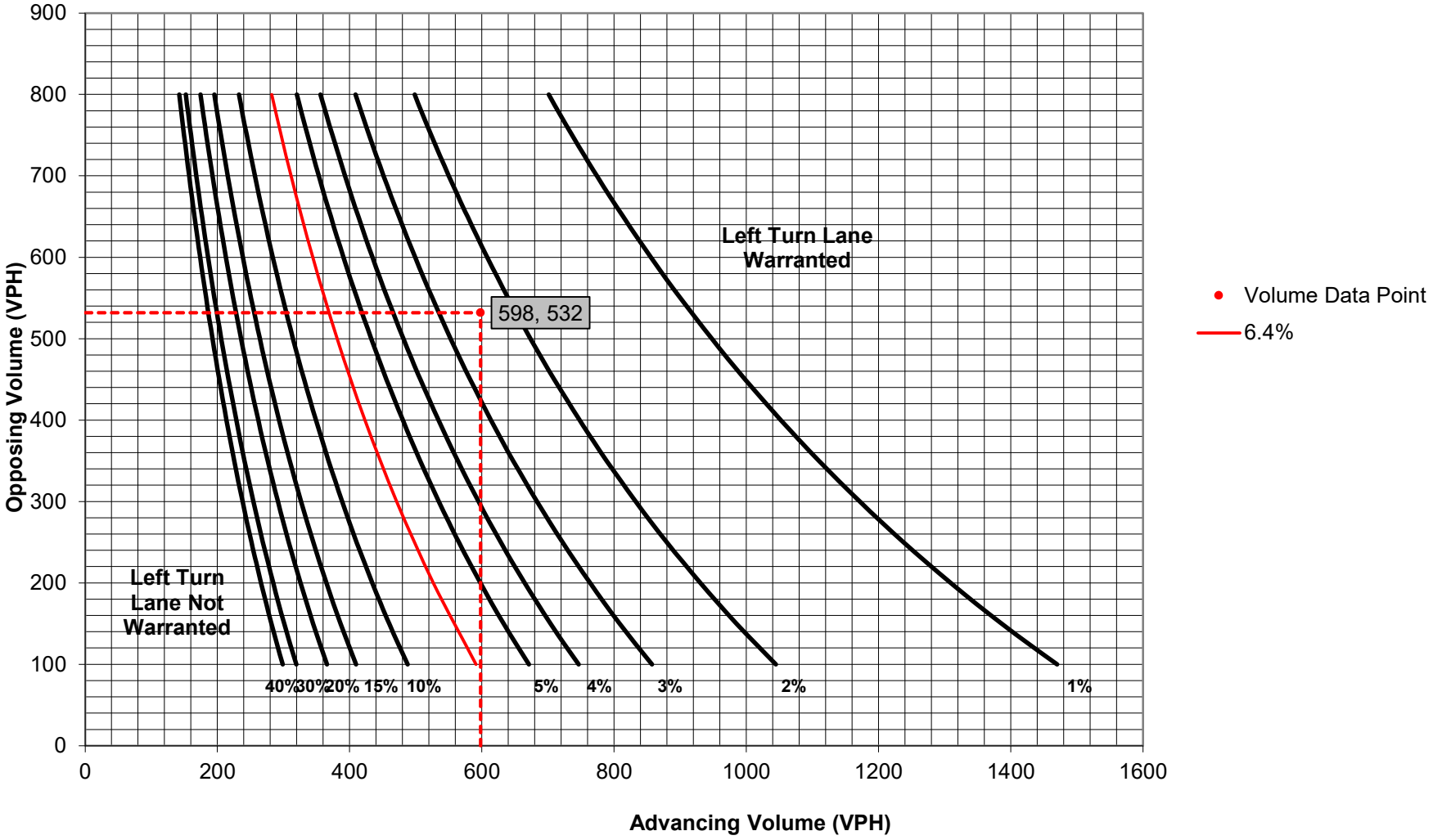
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



WEEKEND

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	37	6.0%	41
	Through	-	0	0.0%	0
	Right	Yes	1	0.0%	1
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	42
Opposing Volume:	0
Left Turn Volume:	41
% Left Turns in Advancing Volume:	97.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

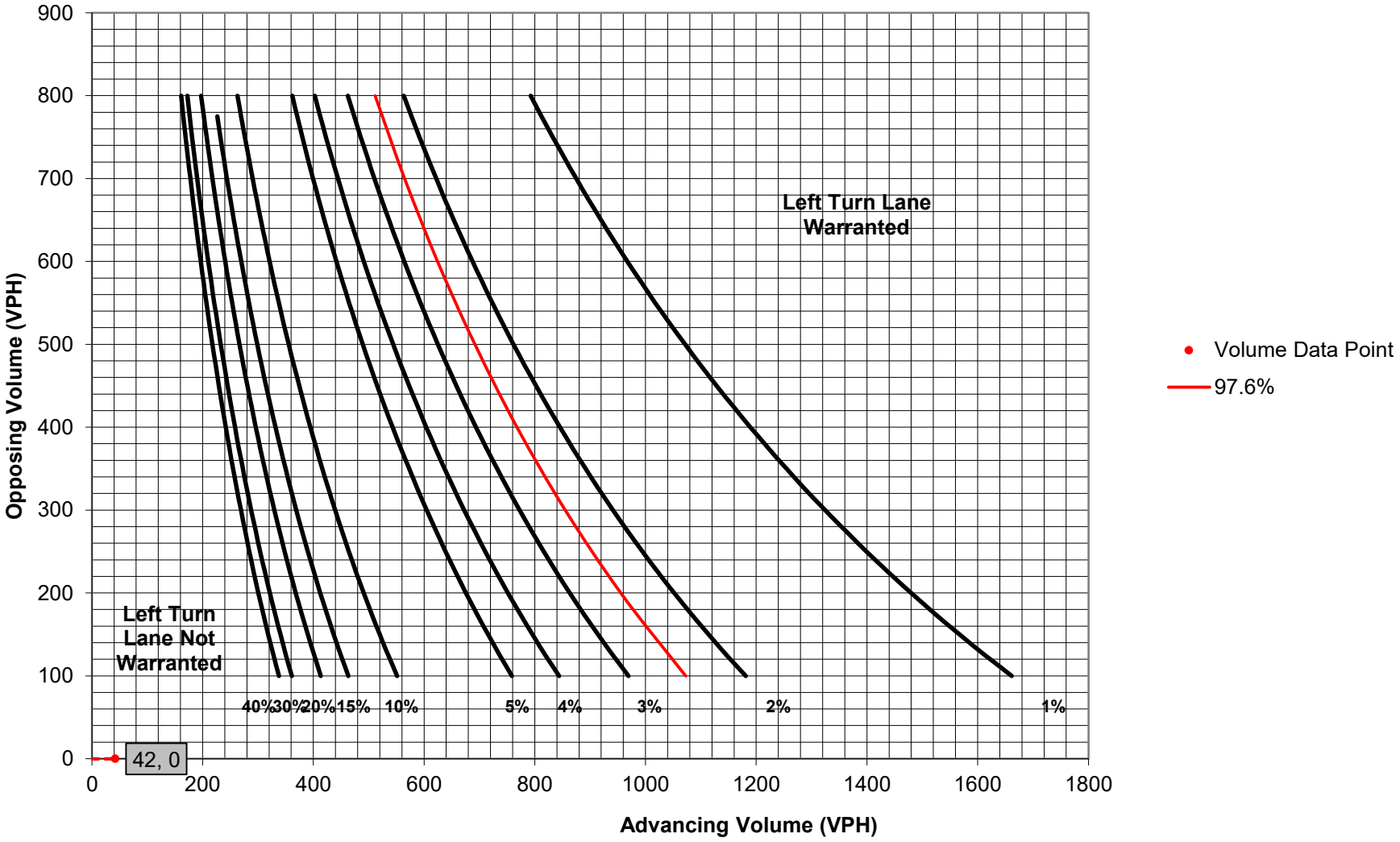
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	37	6.0%	41
	Through	-	0	0.0%	0
	Right	-	1	0.0%	1

Advancing Volume: 42
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

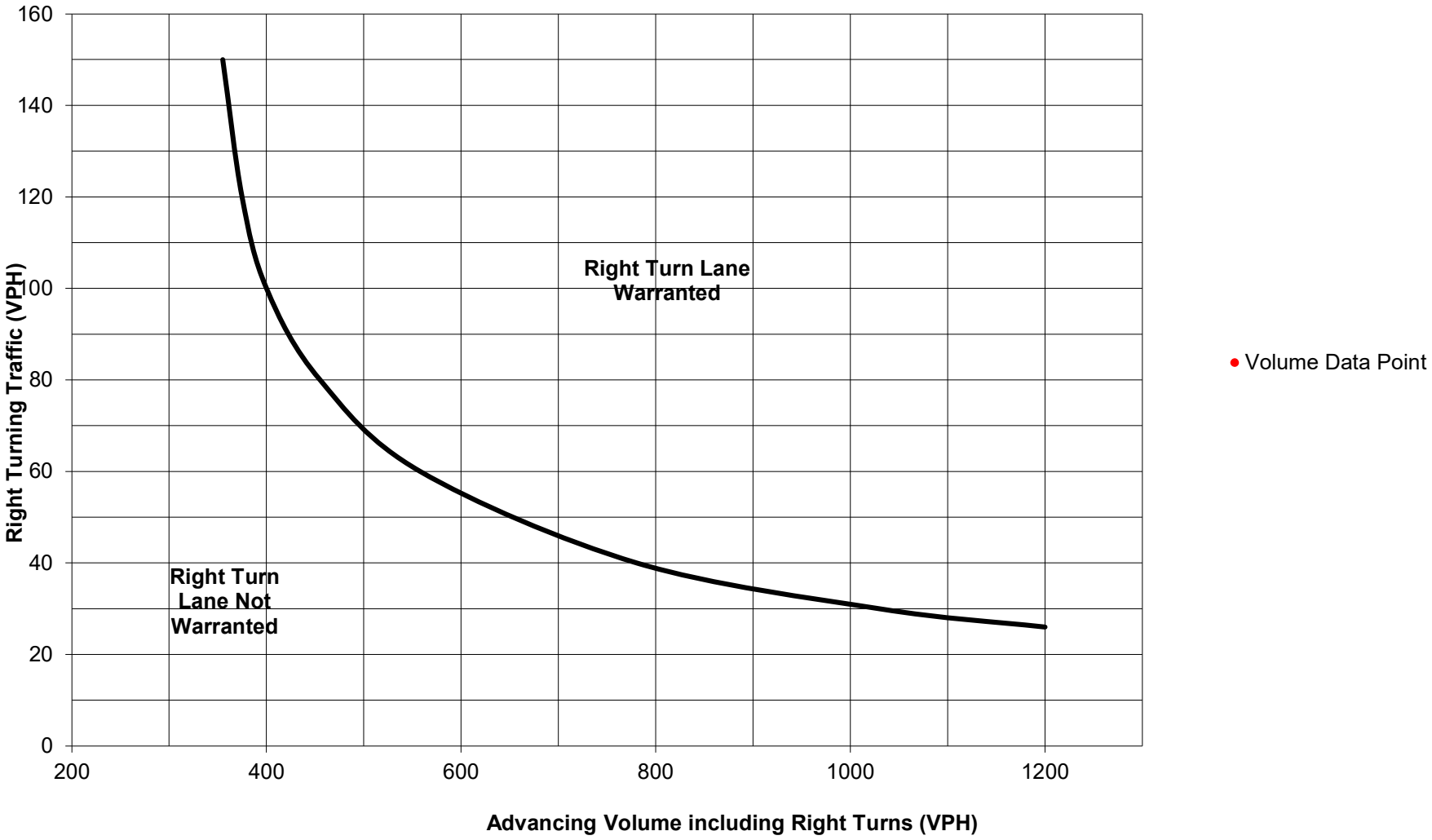
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	39	5.0%	N/A

Advancing Volume:	1
Opposing Volume:	0
Left Turn Volume:	1
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

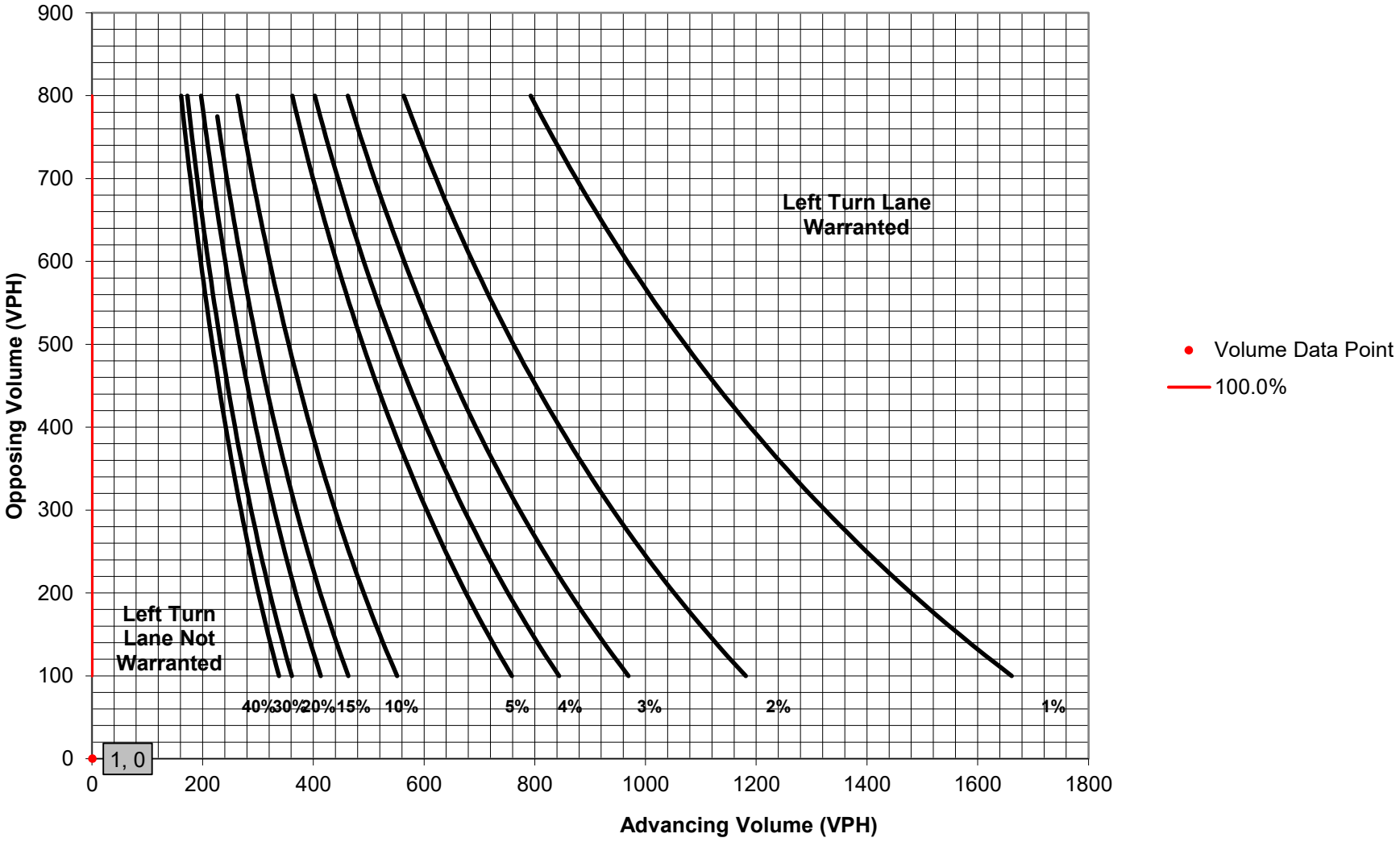
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	53	2.0%	55

Advancing Volume: 55
Right Turn Volume: 55

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	55
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

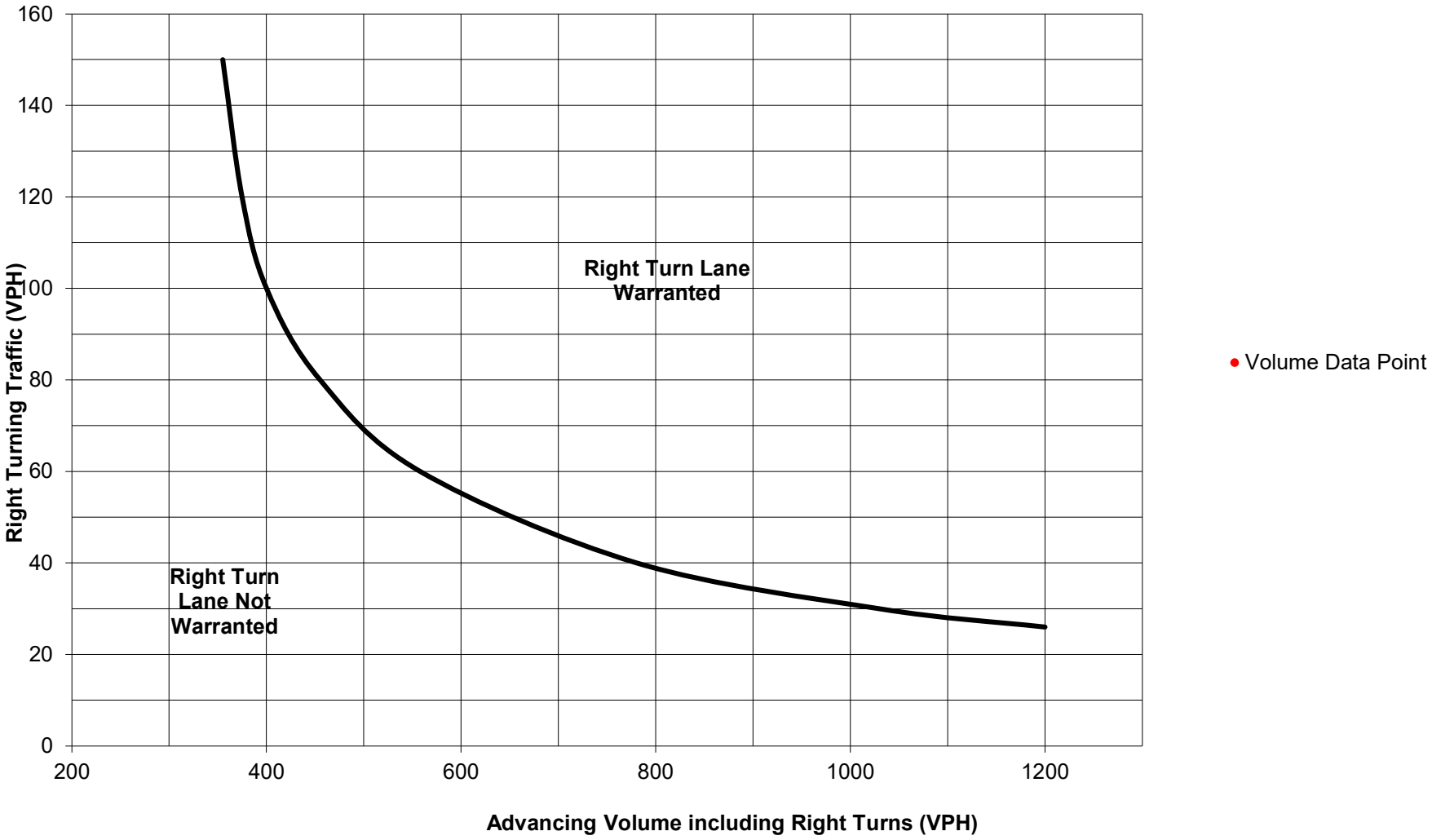
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	0.0%	57
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	57
Opposing Volume:	0
Left Turn Volume:	57
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	57
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

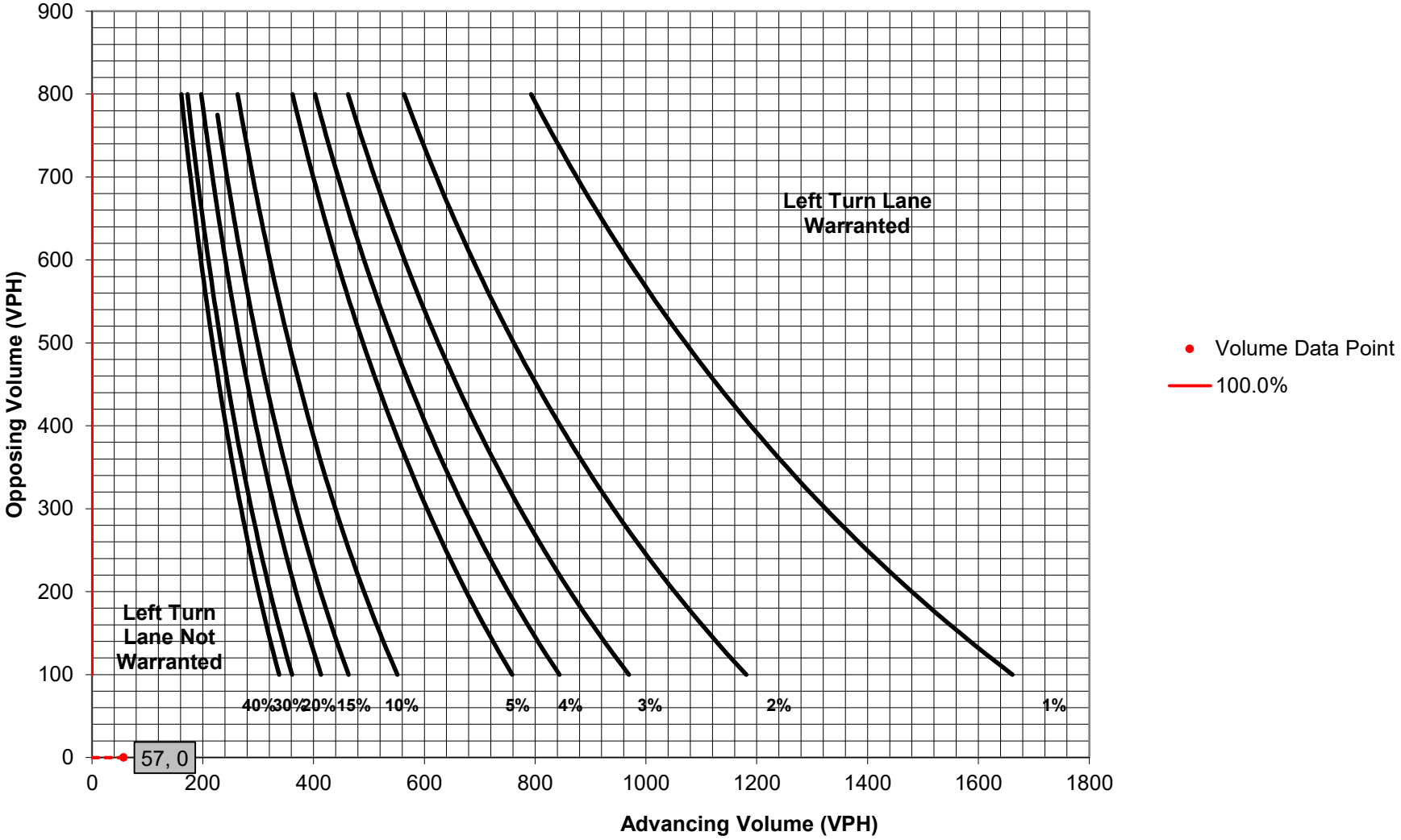
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	0.0%	57
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 57
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

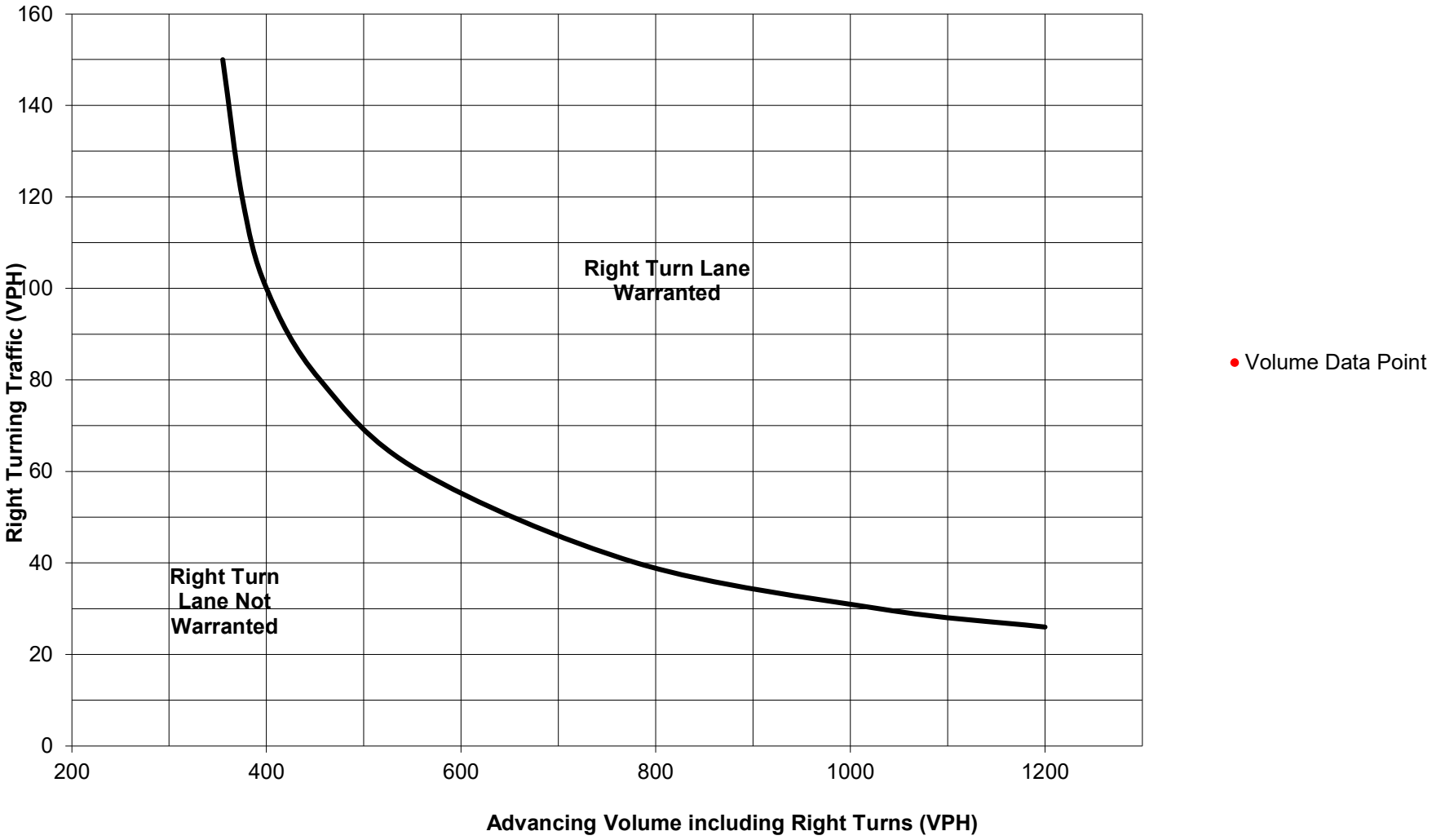
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	53	2.0%	N/A

Advancing Volume:	0
Opposing Volume:	0
Left Turn Volume:	0
% Left Turns in Advancing Volume:	#DIV/0!

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

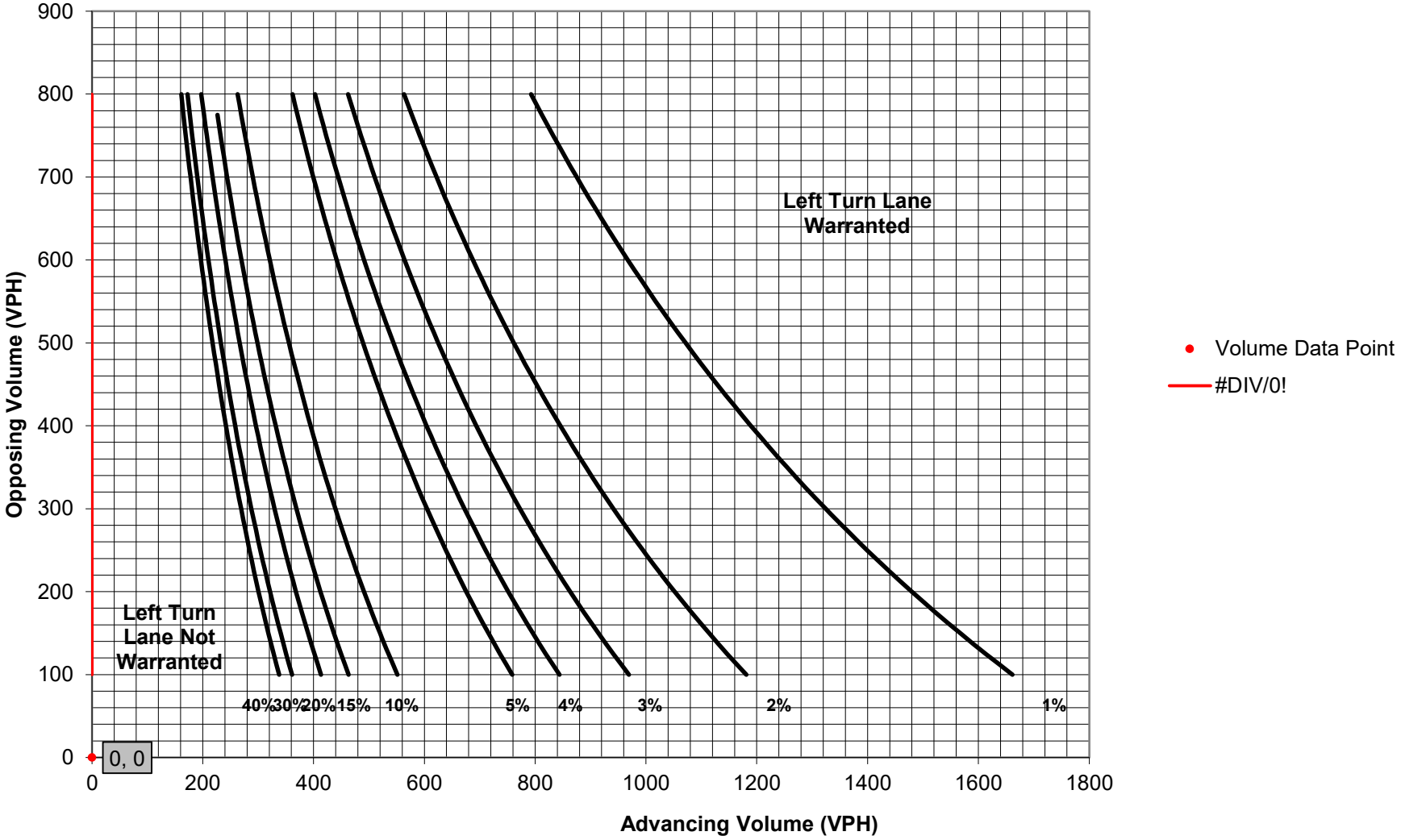
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	15	0.0%	15
	Through	-	201	0.0%	201
	Right	No	41	0.0%	N/A
Opposing	Left	No	30	11.0%	N/A
	Through	-	214	0.0%	214
	Right	Yes	24	0.0%	24

Advancing Volume:	216
Opposing Volume:	238
Left Turn Volume:	15
% Left Turns in Advancing Volume:	6.94%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

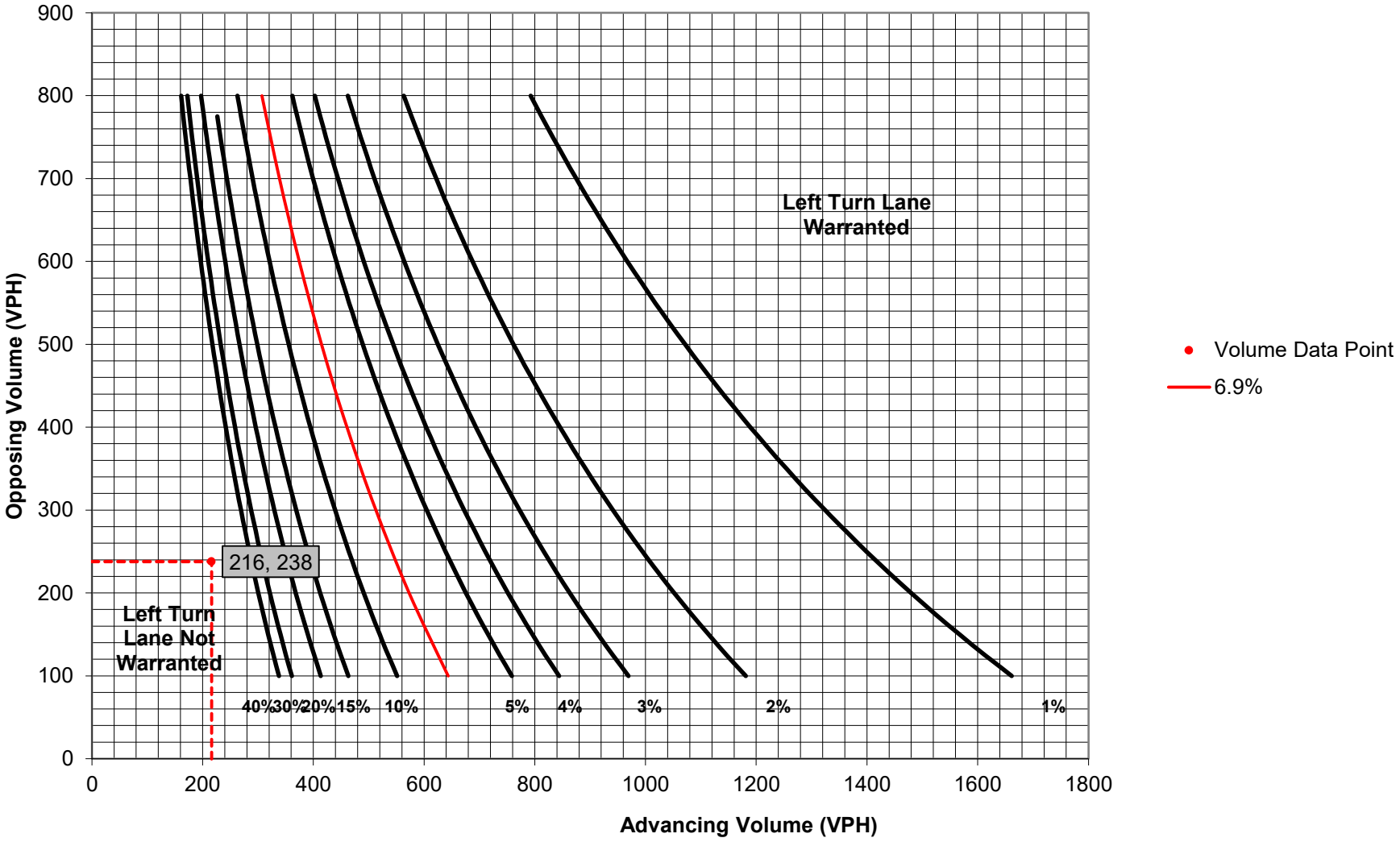
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	15	0.0%	N/A
	Through	-	201	0.0%	201
	Right	-	41	0.0%	41

Advancing Volume: 242
Right Turn Volume: 41

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

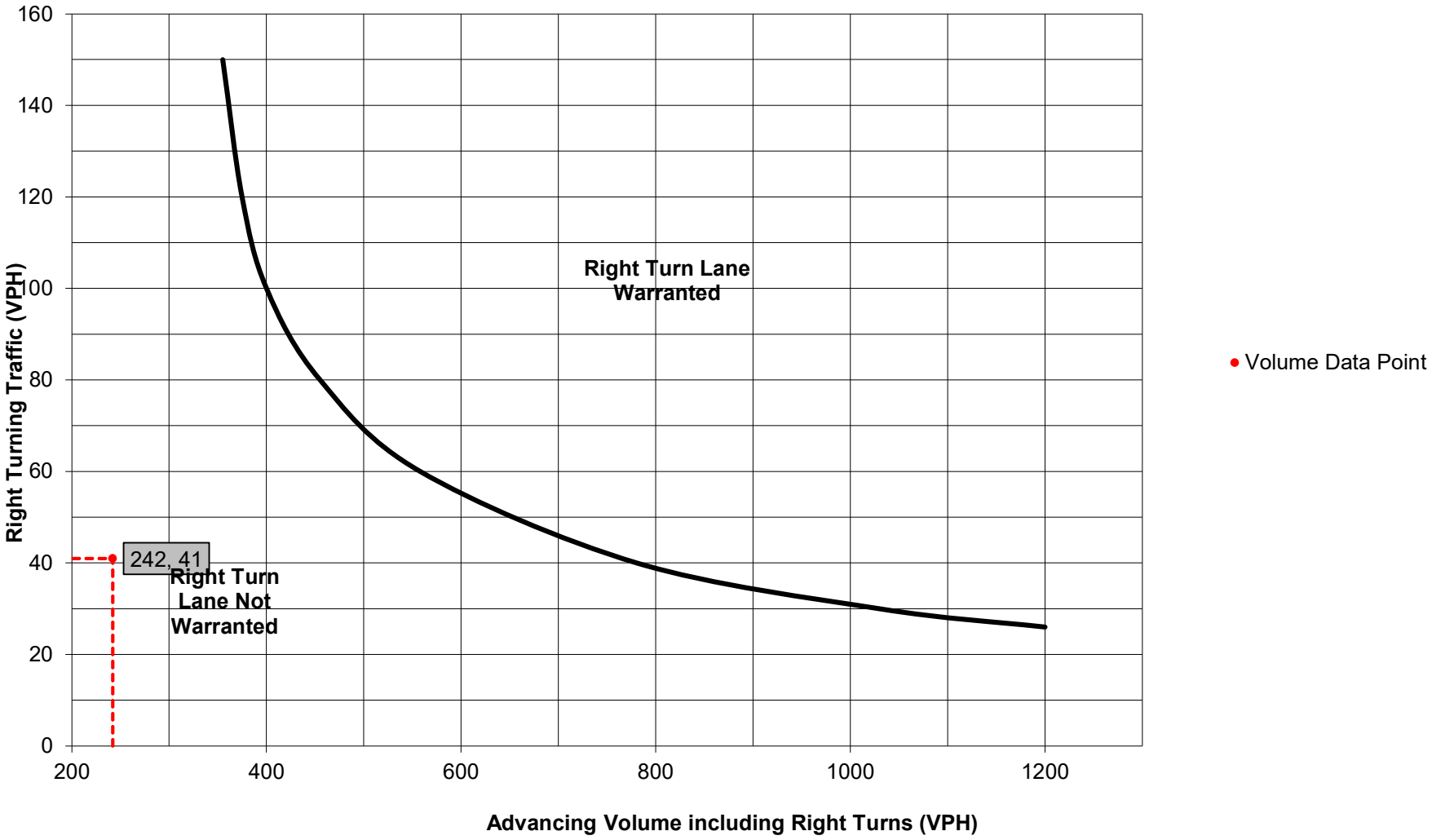
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	36	24.0%	49
	Through	-	0	0.0%	0
	Right	No	47	9.0%	N/A
Opposing	Left	No	25	4.0%	N/A
	Through	-	0	0.0%	0
	Right	No	15	7.0%	N/A

Advancing Volume:	49
Opposing Volume:	0
Left Turn Volume:	49
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	49
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

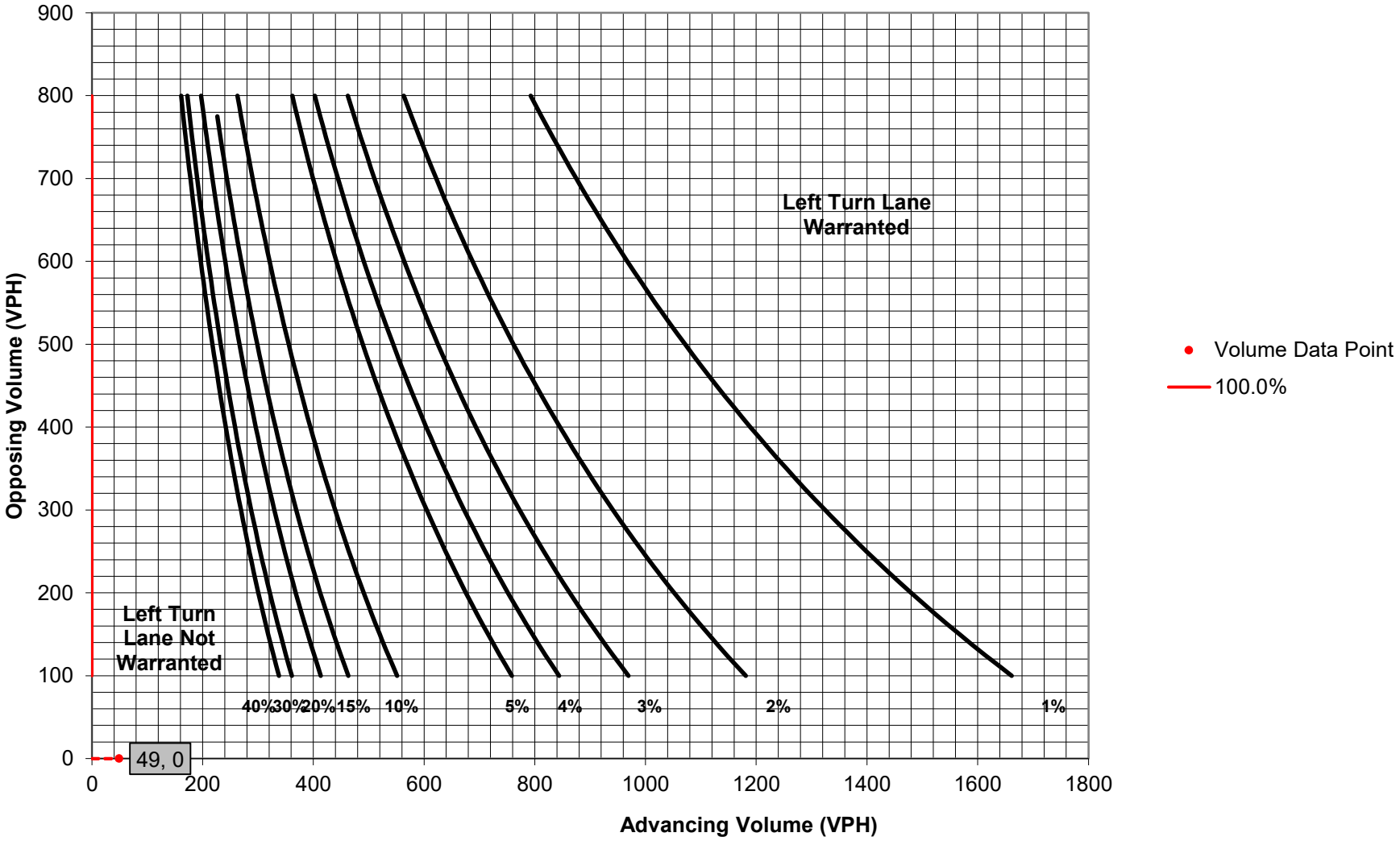
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	36	24.0%	N/A
	Through	-	0	0.0%	0
	Right	-	47	9.0%	54

Advancing Volume: 54
Right Turn Volume: 54

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	54
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

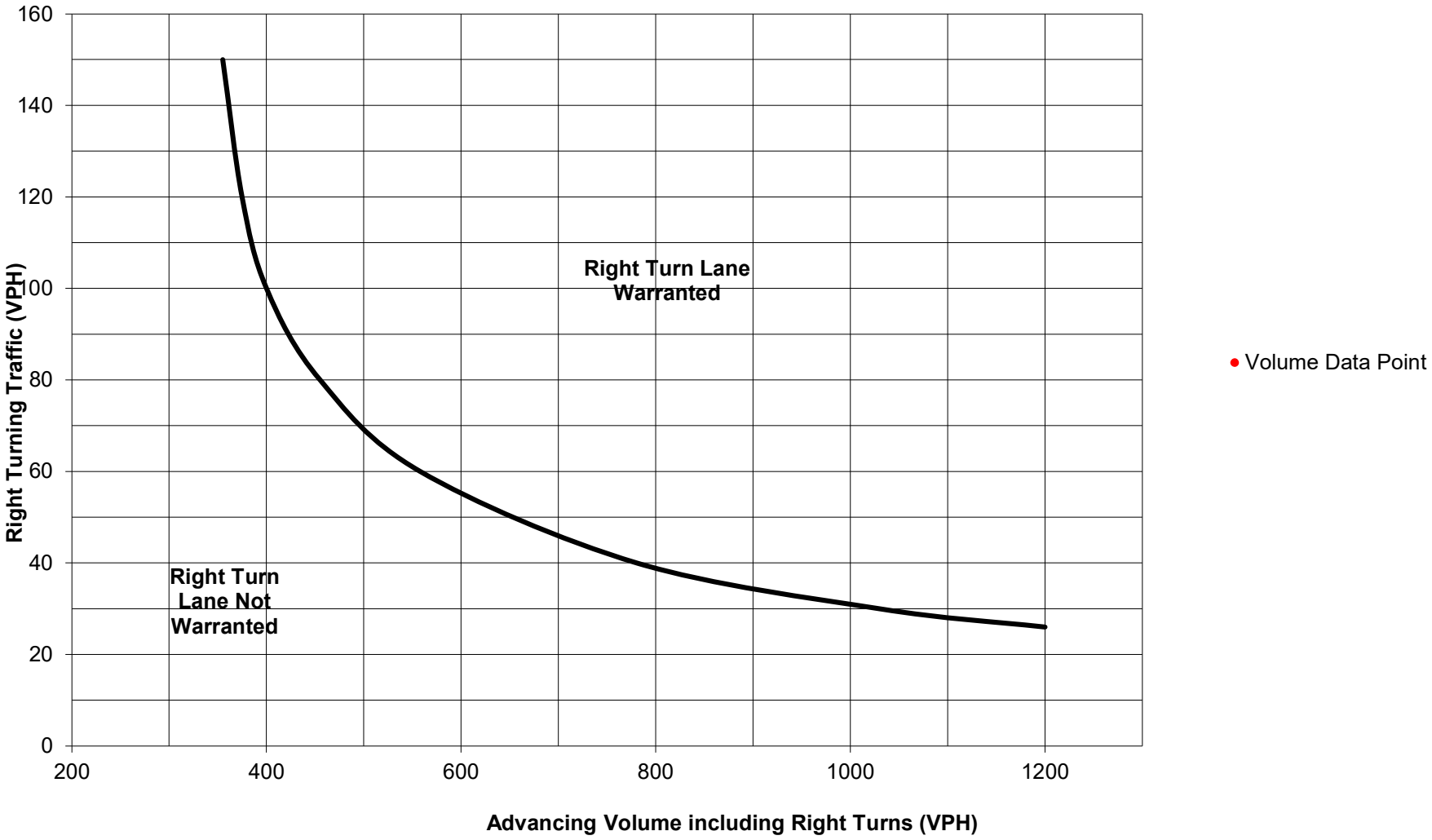
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	27
	Through	-	0	0.0%	0
	Right	Yes	15	7.0%	17
Opposing	Left	No	36	24.0%	N/A
	Through	-	0	0.0%	0
	Right	No	47	9.0%	N/A

Advancing Volume:	44
Opposing Volume:	0
Left Turn Volume:	27
% Left Turns in Advancing Volume:	61.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	27
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

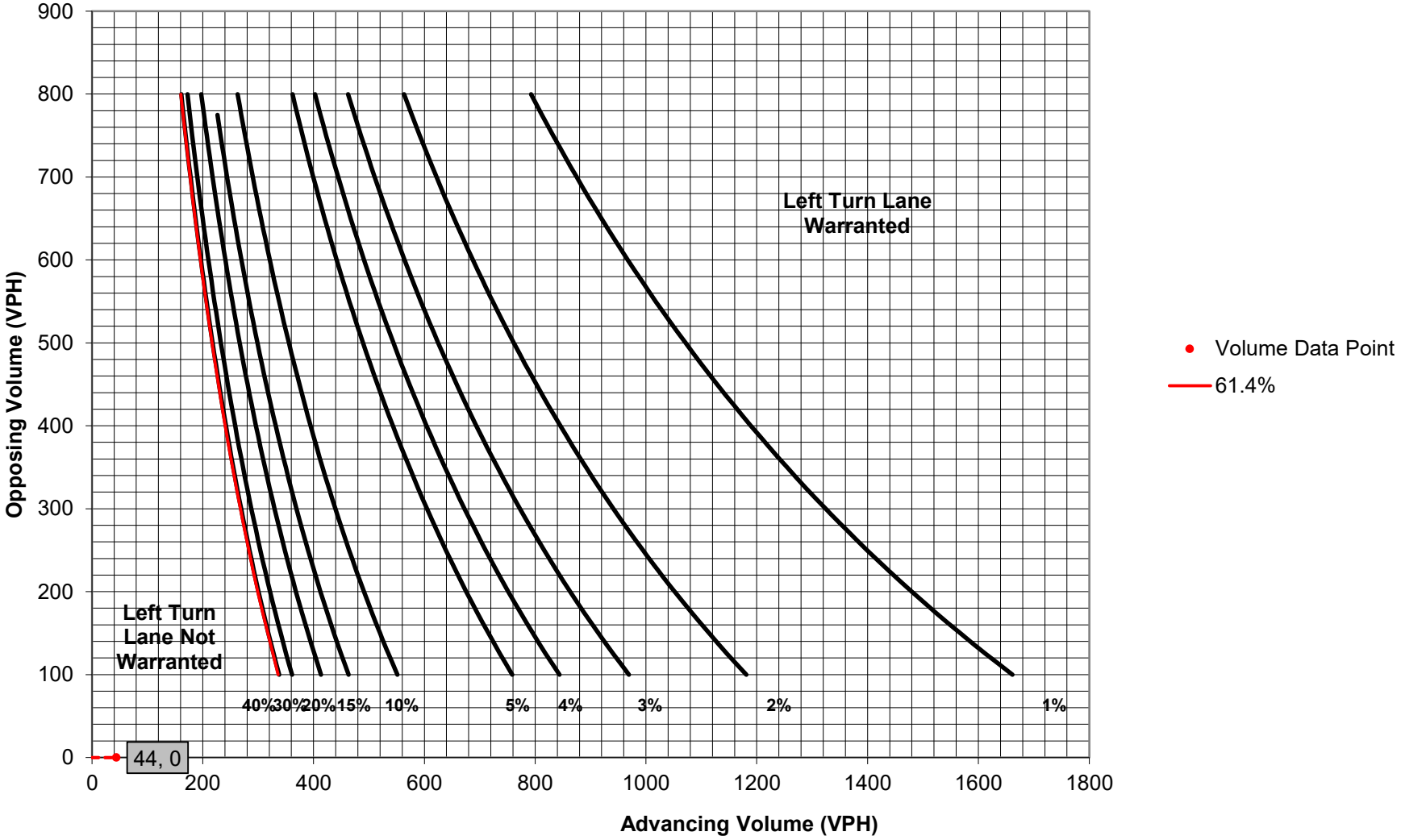
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	27
	Through	-	0	0.0%	0
	Right	-	15	7.0%	17

Advancing Volume: 44
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

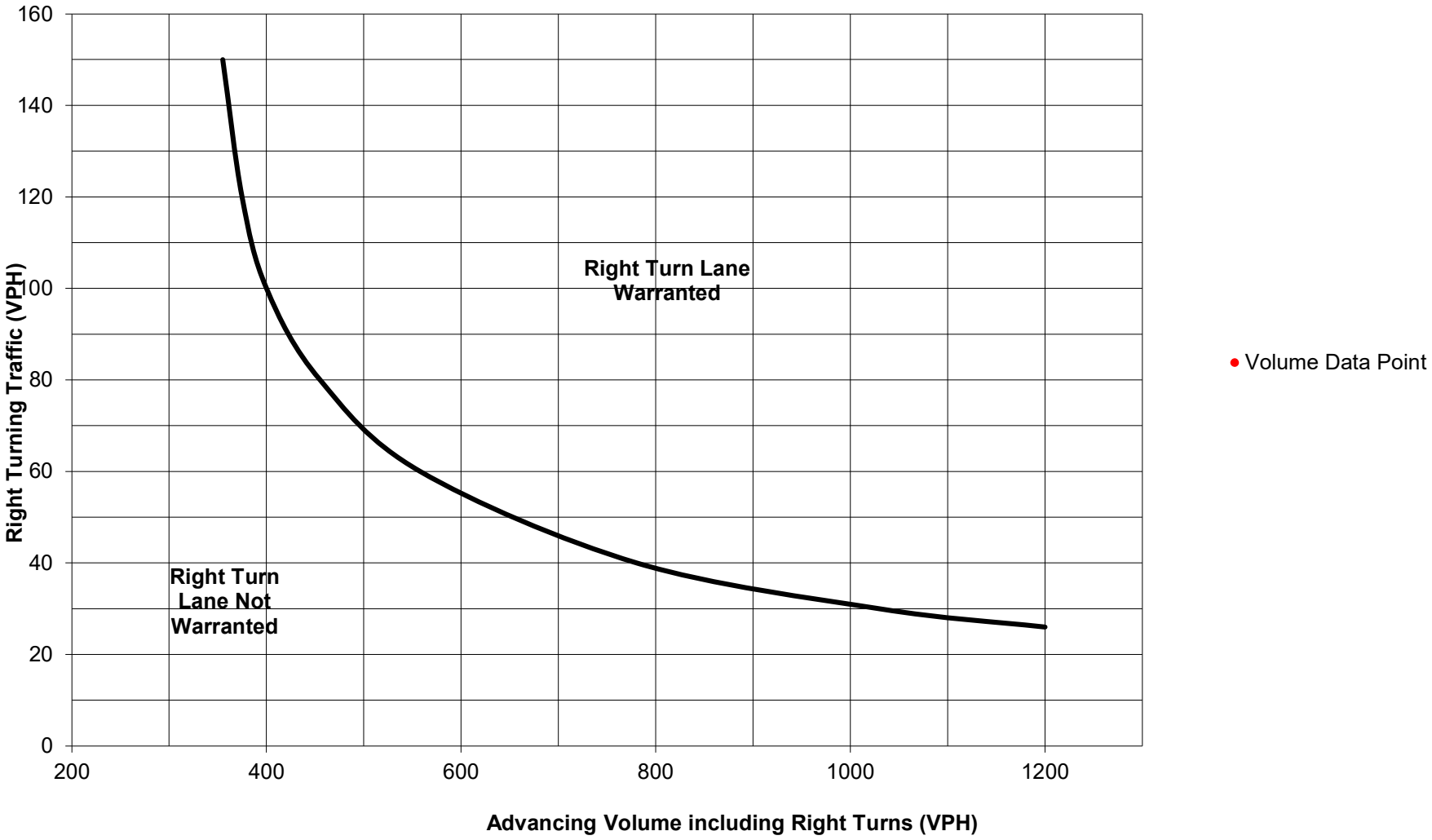
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	11.0%	35
	Through	-	214	0.0%	214
	Right	No	24	0.0%	N/A
Opposing	Left	No	15	0.0%	N/A
	Through	-	201	0.0%	201
	Right	No	41	0.0%	N/A

Advancing Volume:	249
Opposing Volume:	201
Left Turn Volume:	35
% Left Turns in Advancing Volume:	14.06%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	35
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

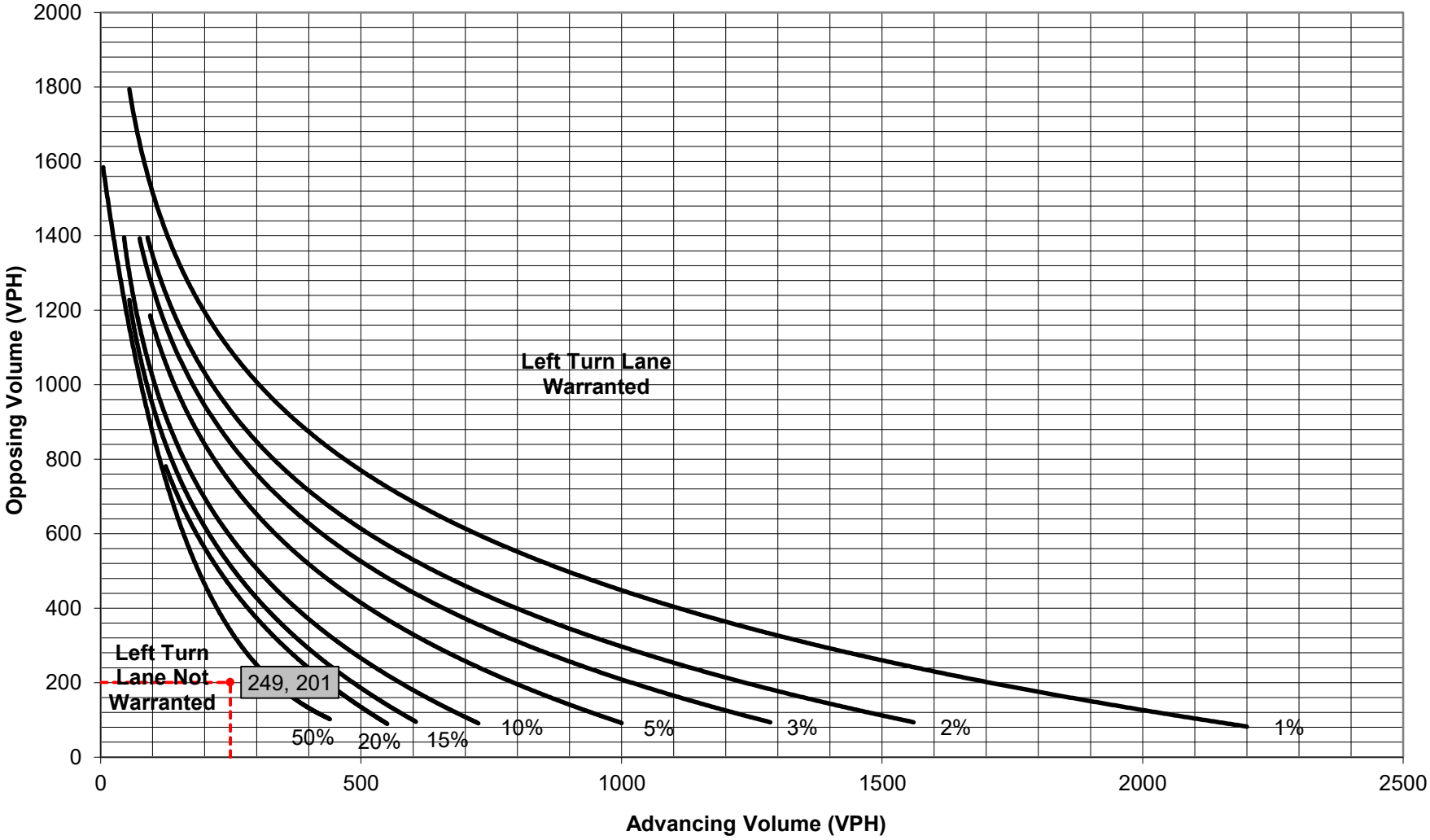
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	30	11.0%	N/A
	Through	-	214	0.0%	214
	Right	-	24	0.0%	24

Advancing Volume: 238
Right Turn Volume: 24

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

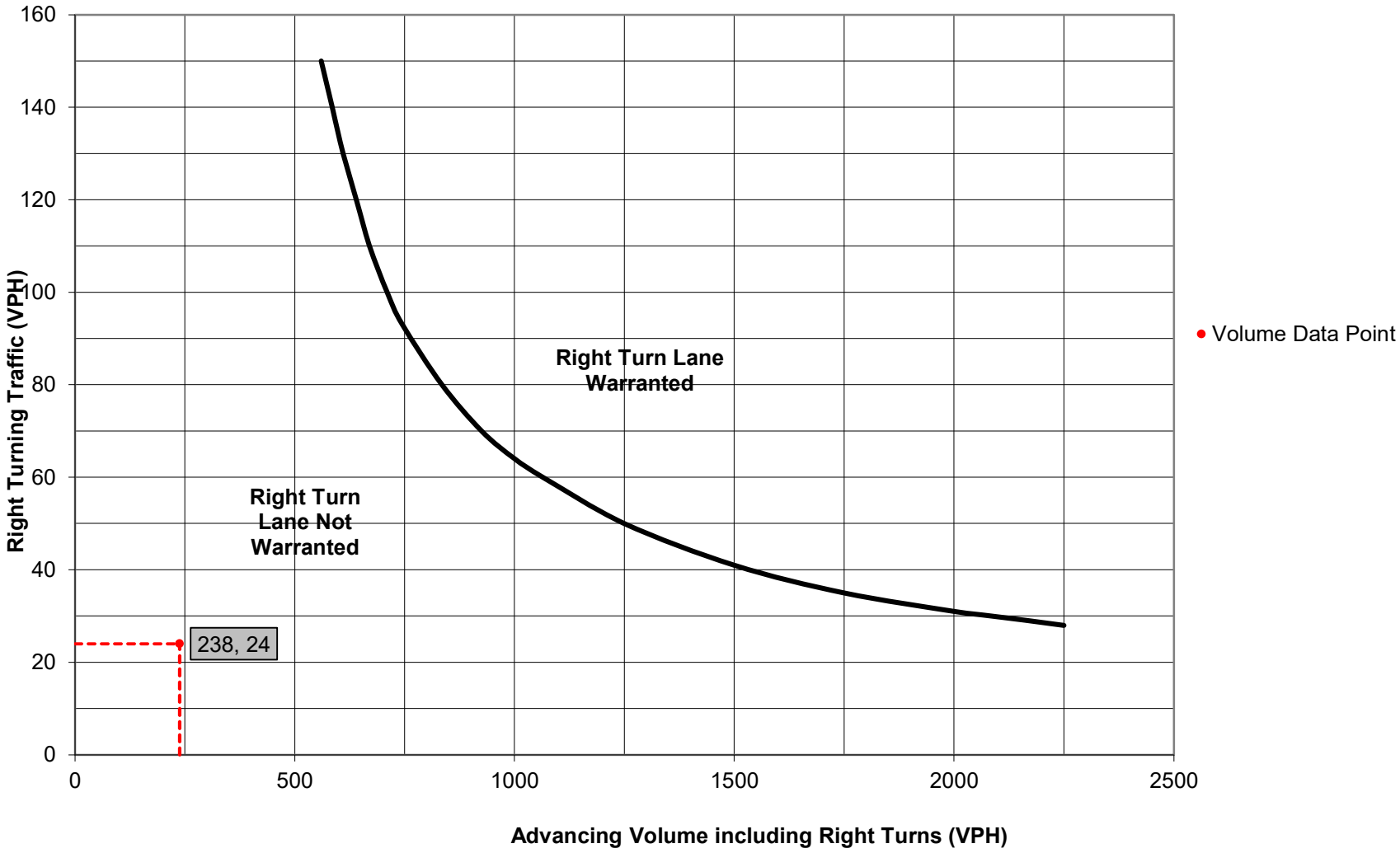
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	6.0%	19
	Through	-	229	0.0%	229
	Right	No	62	3.0%	N/A
Opposing	Left	No	30	11.0%	N/A
	Through	-	303	0.0%	303
	Right	Yes	18	0.0%	18

Advancing Volume:	248
Opposing Volume:	321
Left Turn Volume:	19
% Left Turns in Advancing Volume:	7.66%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

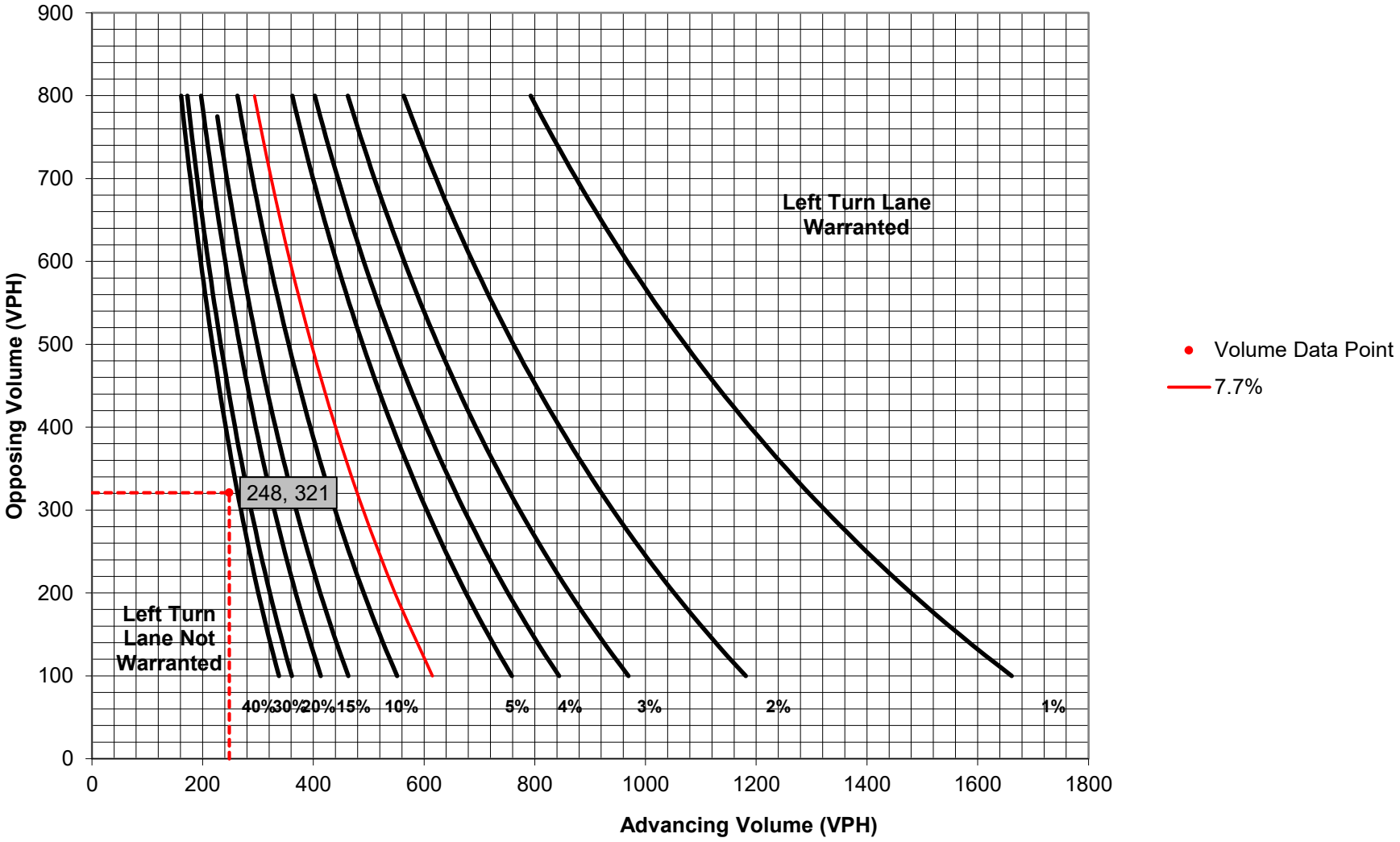
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	17	6.0%	N/A
	Through	-	229	0.0%	229
	Right	-	62	3.0%	65

Advancing Volume:	294
Right Turn Volume:	65

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	65
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

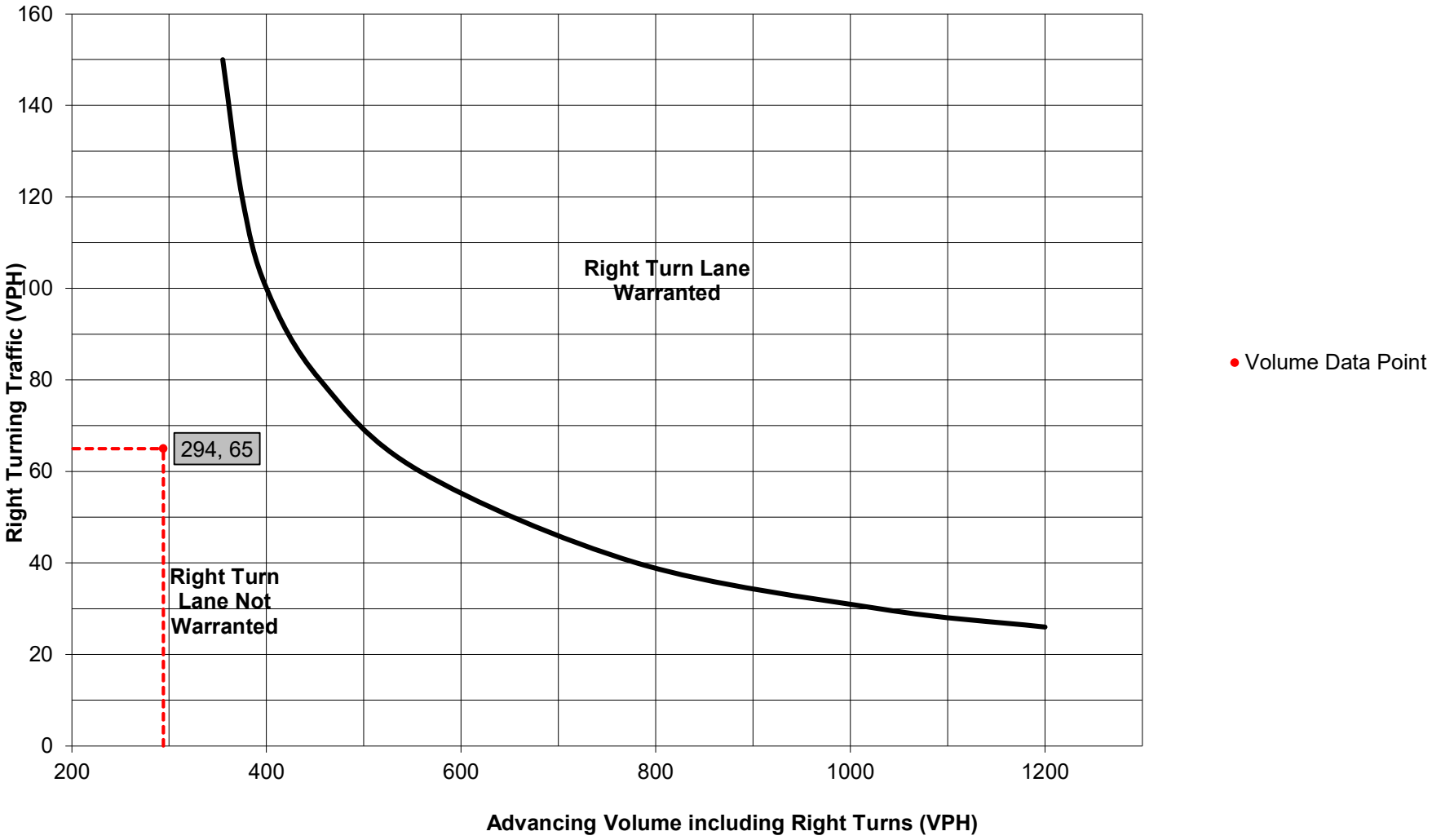
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	40	11.0%	47
	Through	-	1	0.0%	1
	Right	No	28	7.0%	N/A
Opposing	Left	No	21	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	26	0.0%	N/A

Advancing Volume:	48
Opposing Volume:	0
Left Turn Volume:	47
% Left Turns in Advancing Volume:	97.92%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	47
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

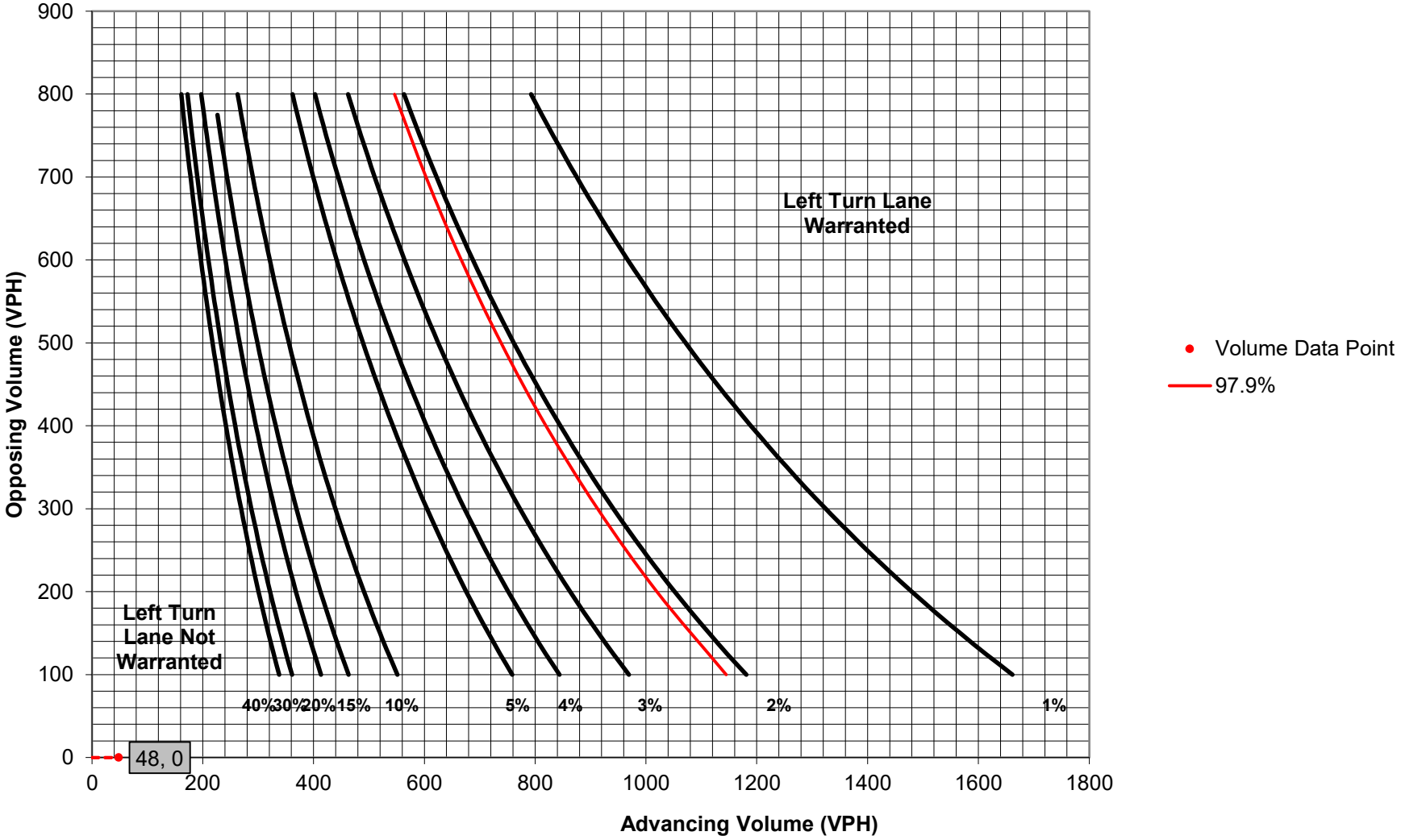
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	40	11.0%	N/A
	Through	-	1	0.0%	1
	Right	-	28	7.0%	31

Advancing Volume: 32
Right Turn Volume: 31

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

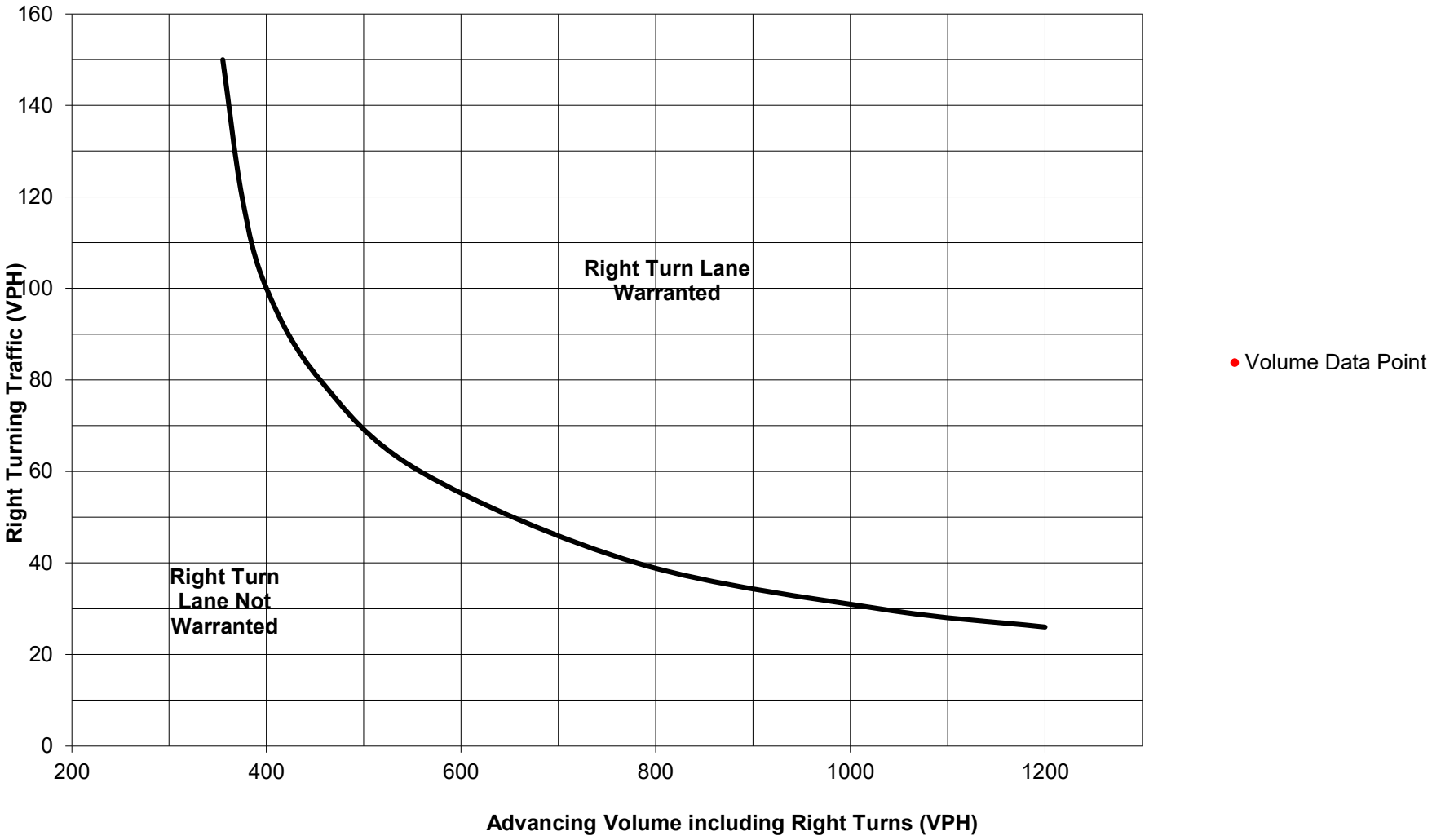
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	0.0%	21
	Through	-	0	0.0%	0
	Right	Yes	26	0.0%	26
Opposing	Left	No	40	11.0%	N/A
	Through	-	1	0.0%	1
	Right	No	28	7.0%	N/A

Advancing Volume:	47
Opposing Volume:	1
Left Turn Volume:	21
% Left Turns in Advancing Volume:	44.68%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	21
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

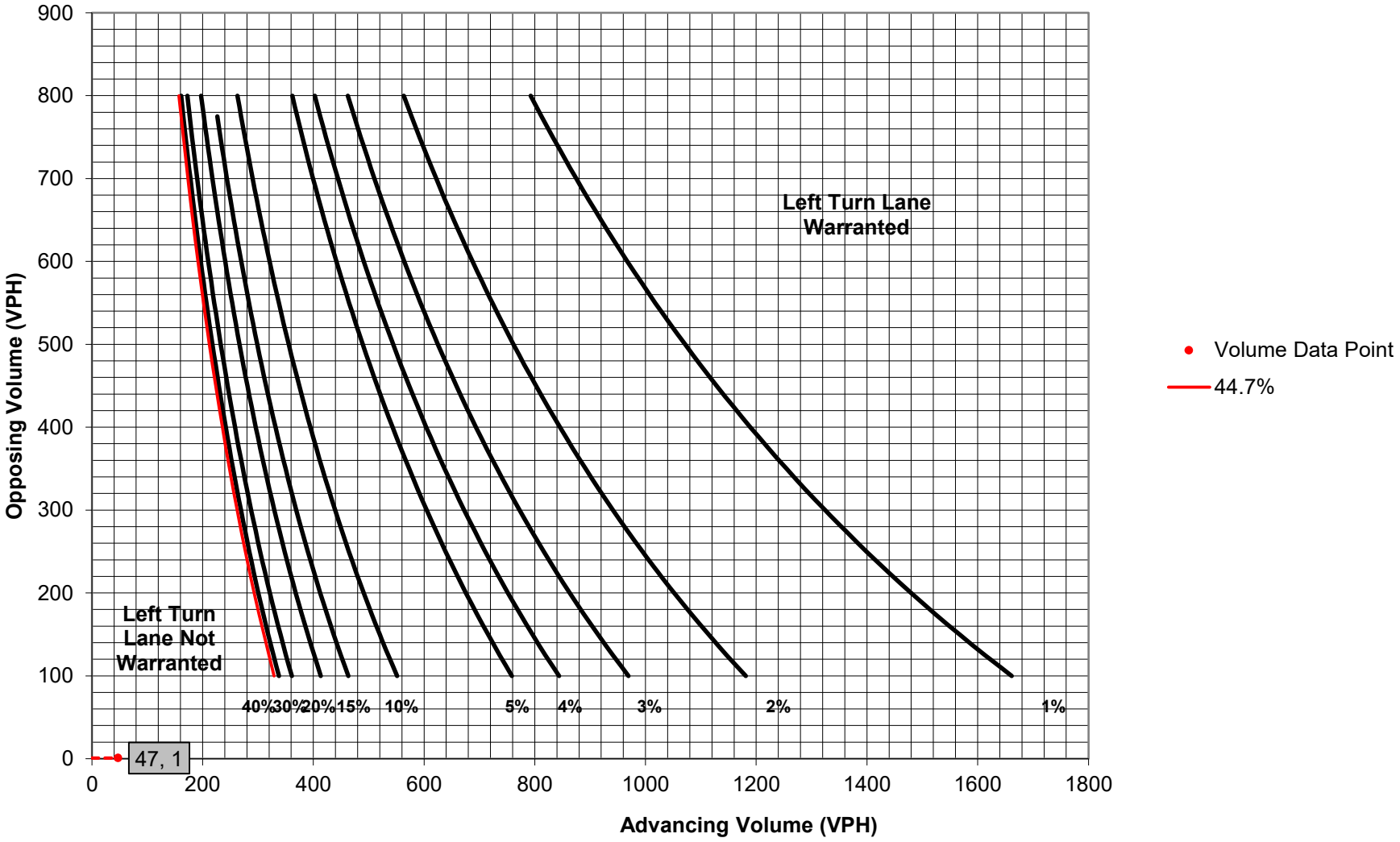
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	0.0%	21
	Through	-	0	0.0%	0
	Right	-	26	0.0%	26

Advancing Volume: 47
Right Turn Volume: 26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

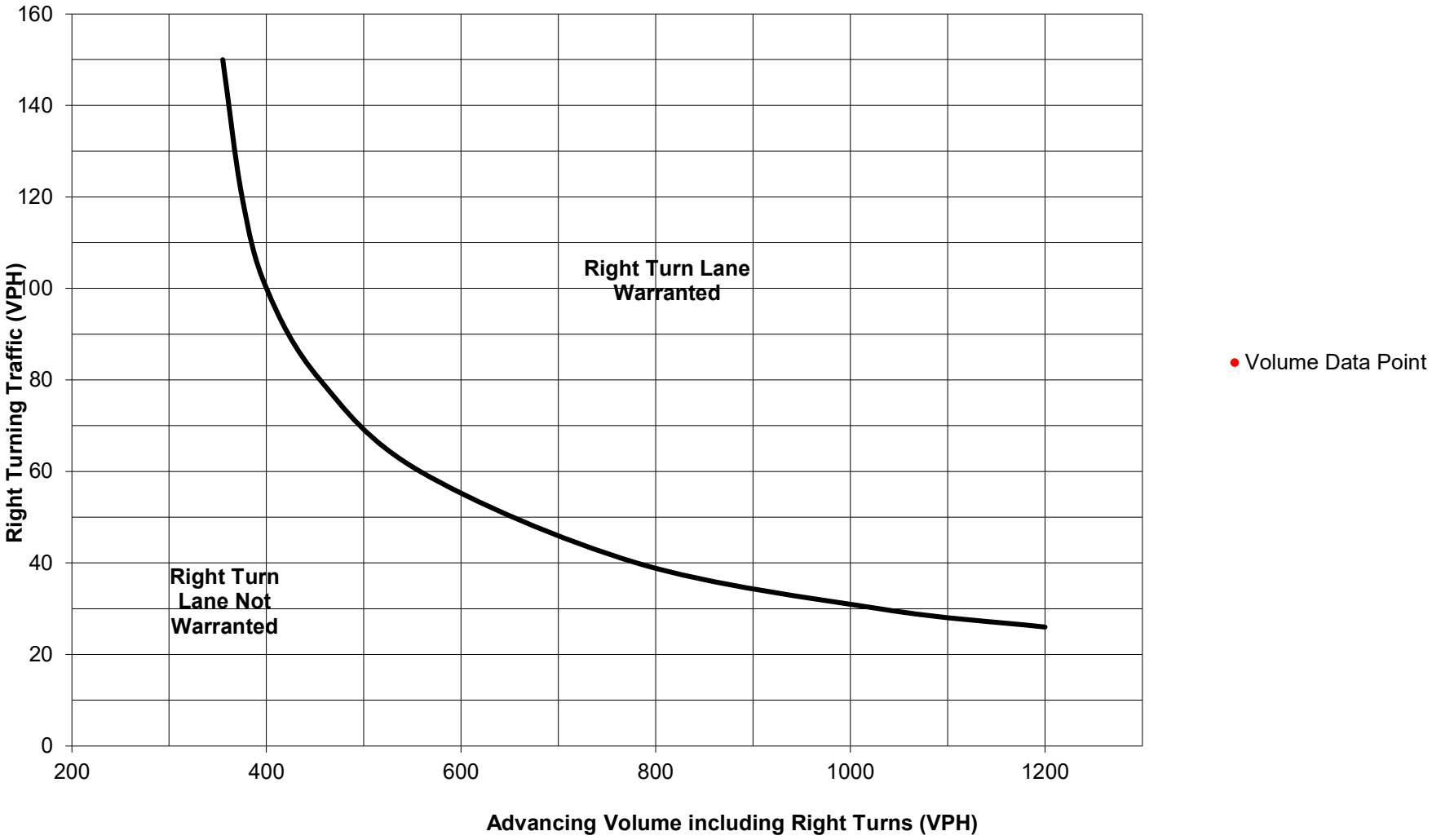
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	11.0%	35
	Through	-	303	0.0%	303
	Right	No	18	0.0%	N/A
Opposing	Left	No	17	6.0%	N/A
	Through	-	229	0.0%	229
	Right	No	62	3.0%	N/A

Advancing Volume:	338
Opposing Volume:	229
Left Turn Volume:	35
% Left Turns in Advancing Volume:	10.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	35
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

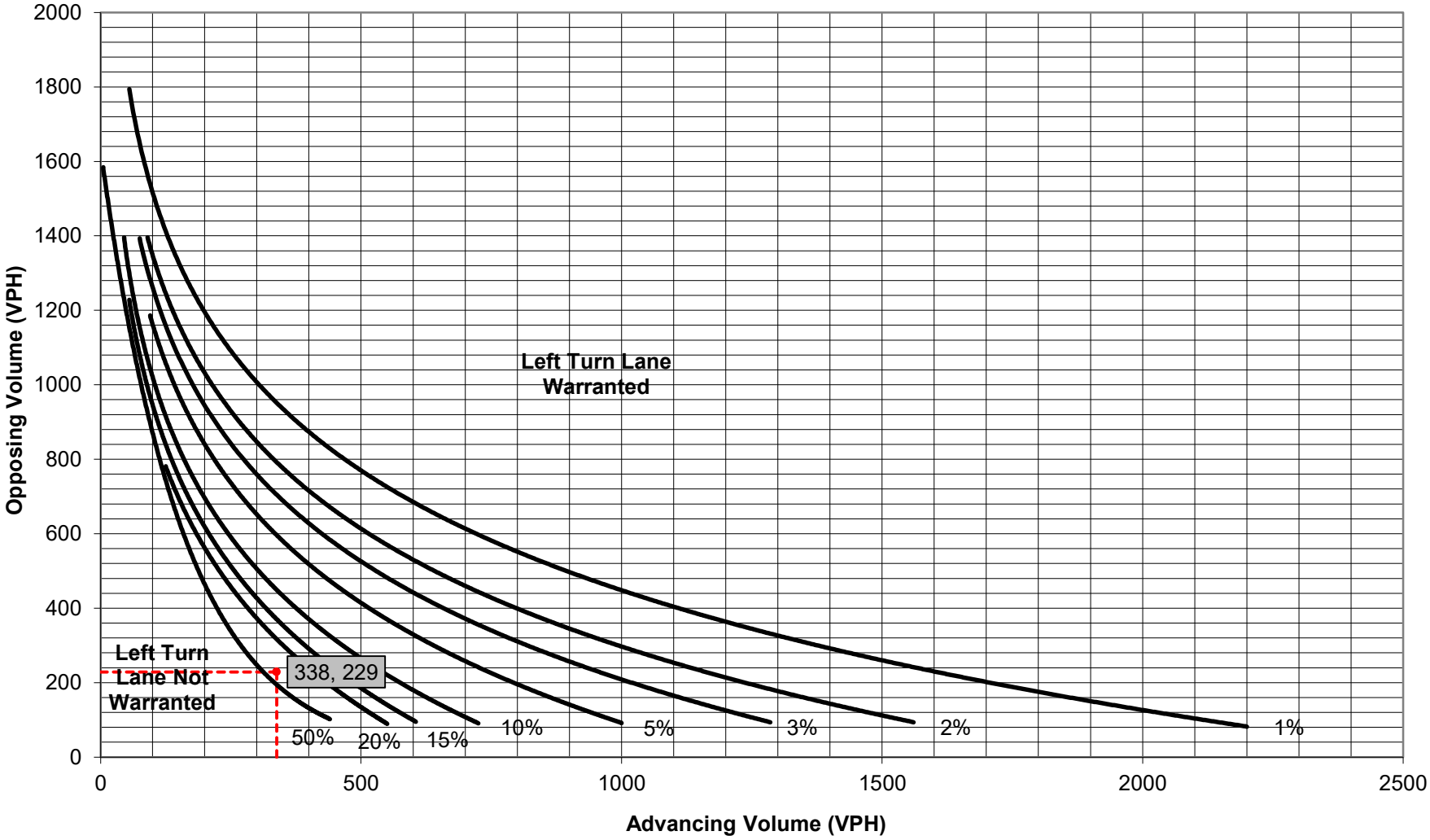
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	30	11.0%	N/A
	Through	-	303	0.0%	303
	Right	-	18	0.0%	18

Advancing Volume: 321
Right Turn Volume: 18

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

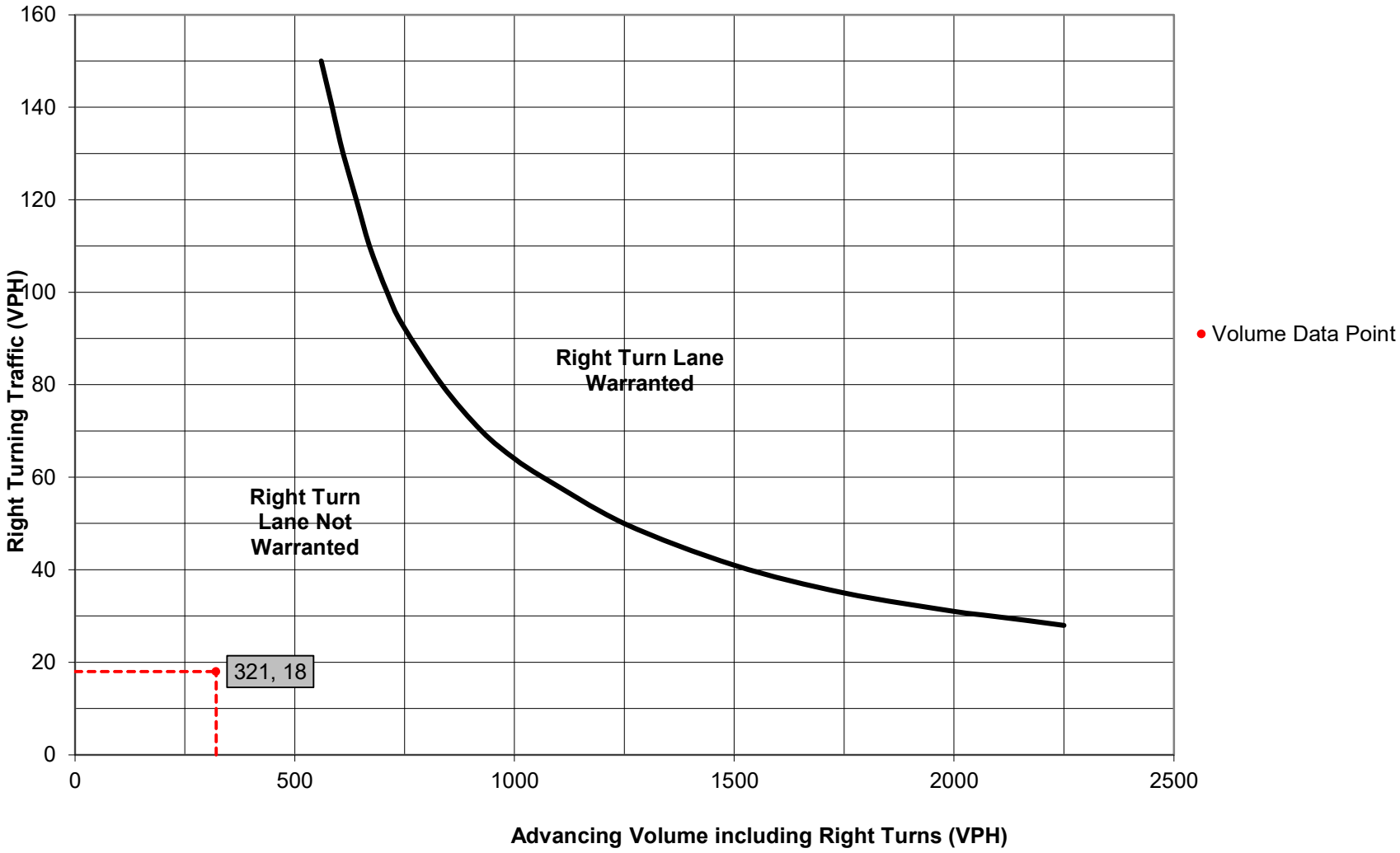
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	Yes	3	0.0%	3

Advancing Volume:	15
Opposing Volume:	7
Left Turn Volume:	5
% Left Turns in Advancing Volume:	33.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

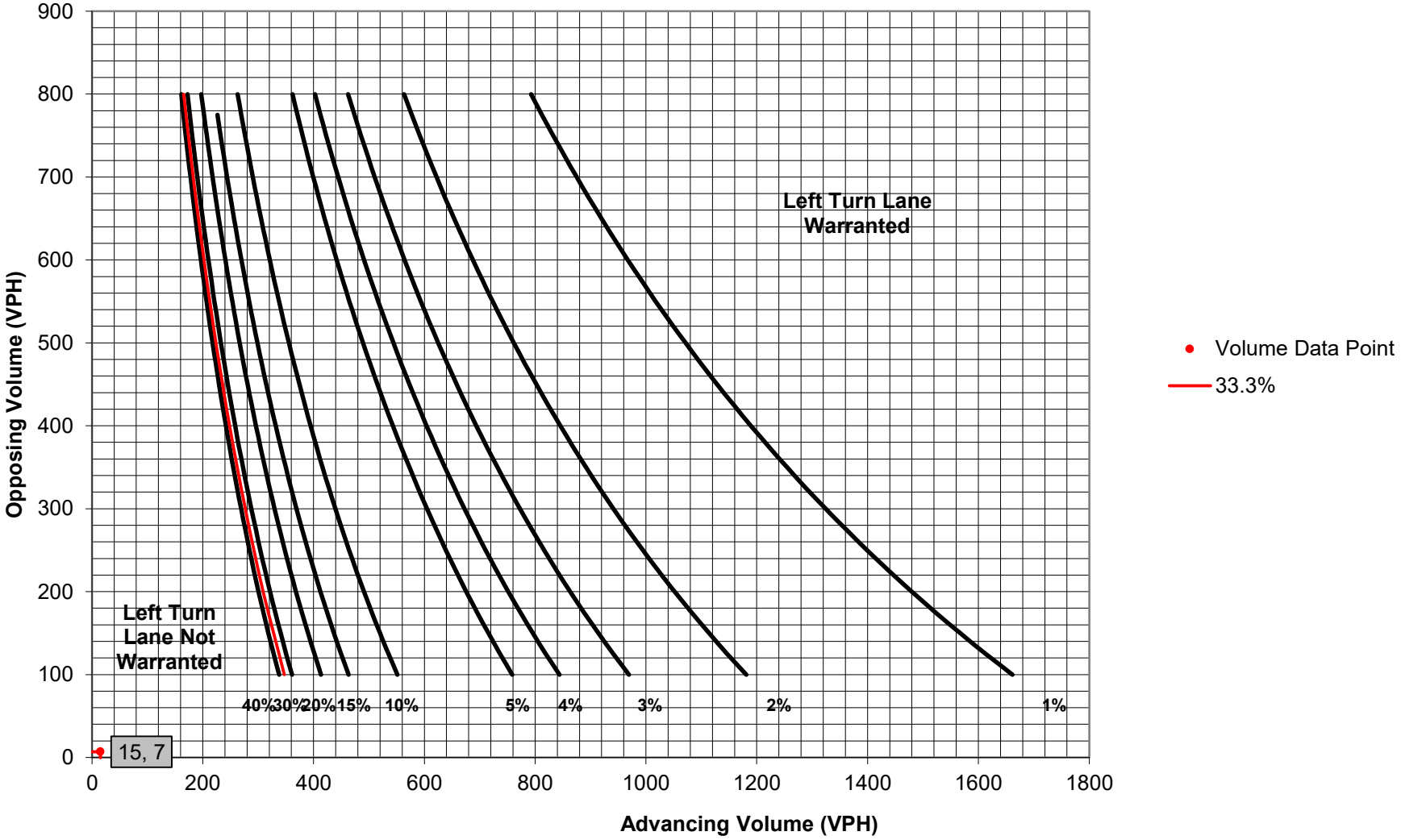
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	-	7	0.0%	7

Advancing Volume: 15
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

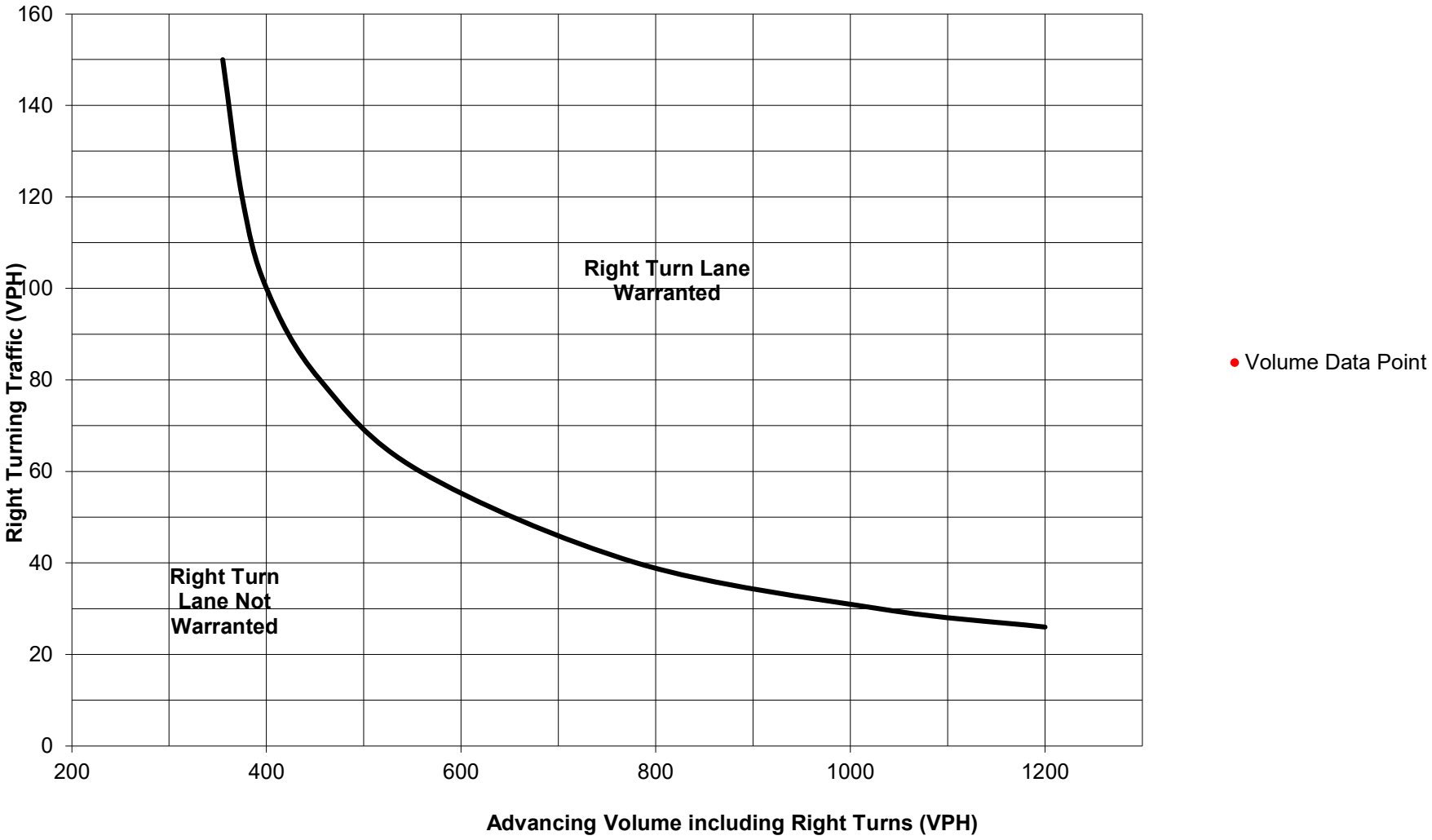
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	80	7.0%	89
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	4	50.0%	7
	Through	-	119	4.0%	127
	Right	Yes	6	0.0%	6

Advancing Volume: 92
Opposing Volume: 140
Left Turn Volume: 2
% Left Turns in Advancing Volume: 2.17%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

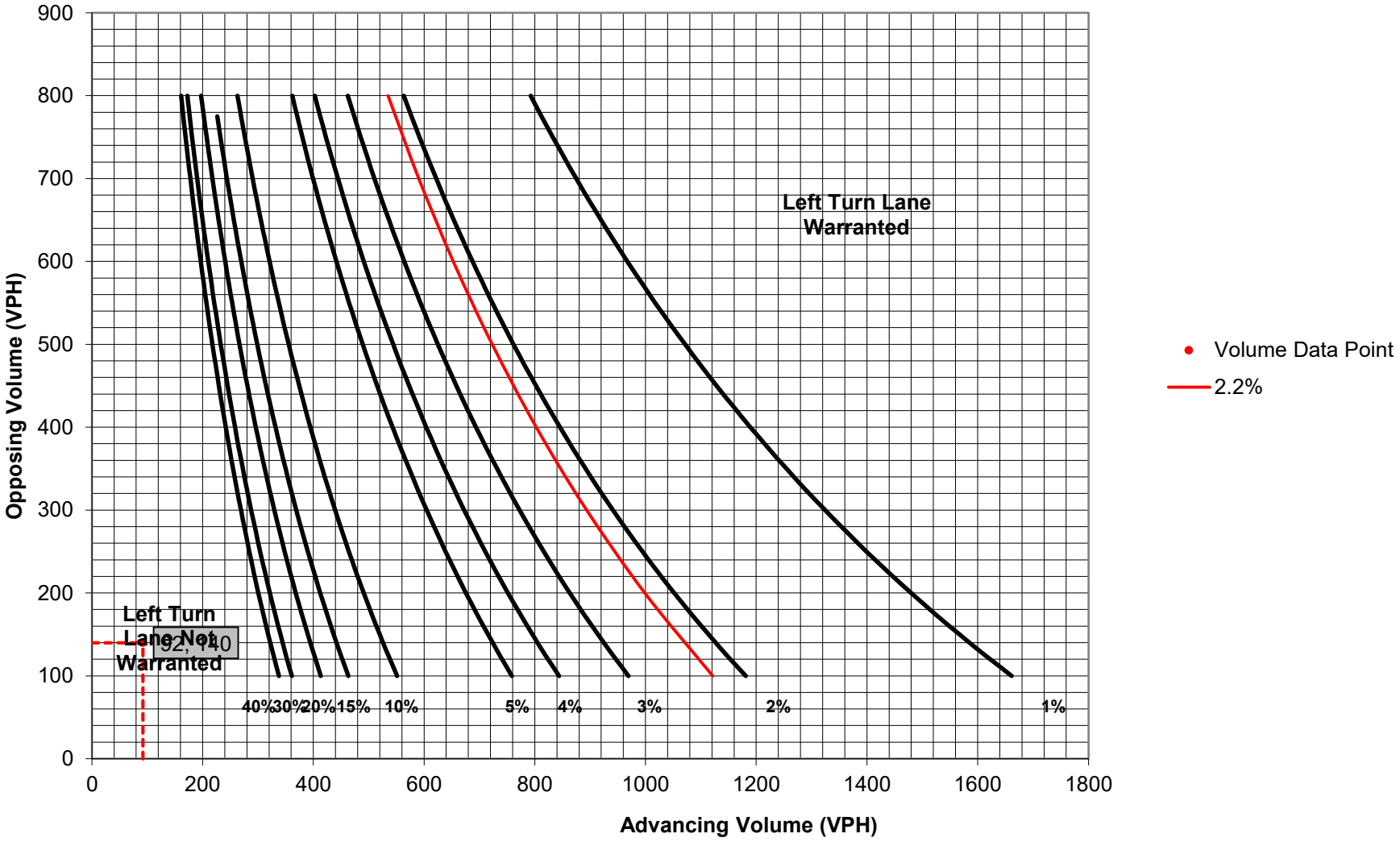
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	80	7.0%	89
	Right	-	1	0.0%	1

Advancing Volume: 92
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

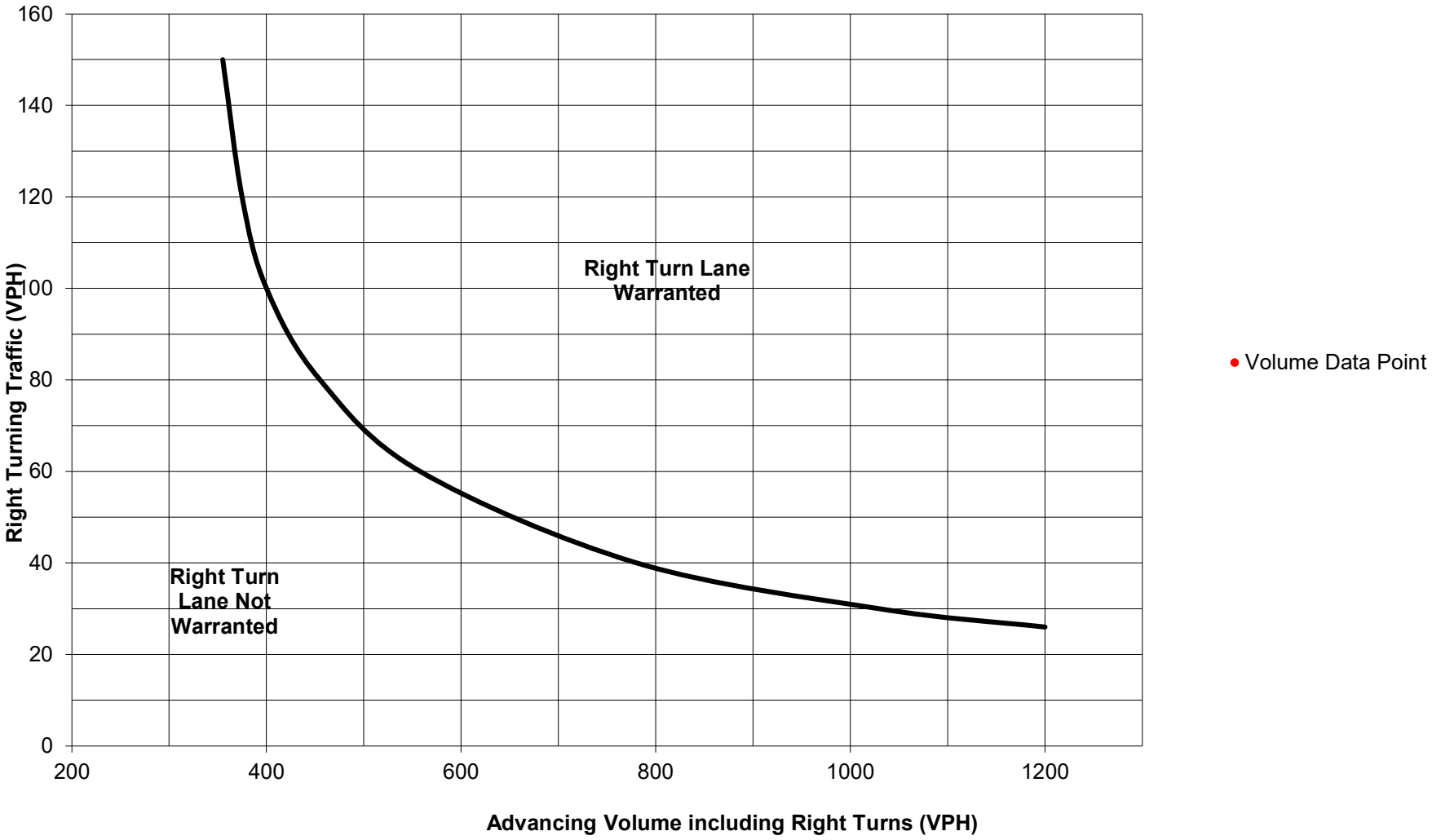
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	50.0%	7
	Through	-	119	4.0%	127
	Right	Yes	6	0.0%	6
Opposing	Left	Yes	2	0.0%	2
	Through	-	80	7.0%	89
	Right	Yes	1	0.0%	1

Advancing Volume:	140
Opposing Volume:	92
Left Turn Volume:	7
% Left Turns in Advancing Volume:	5.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

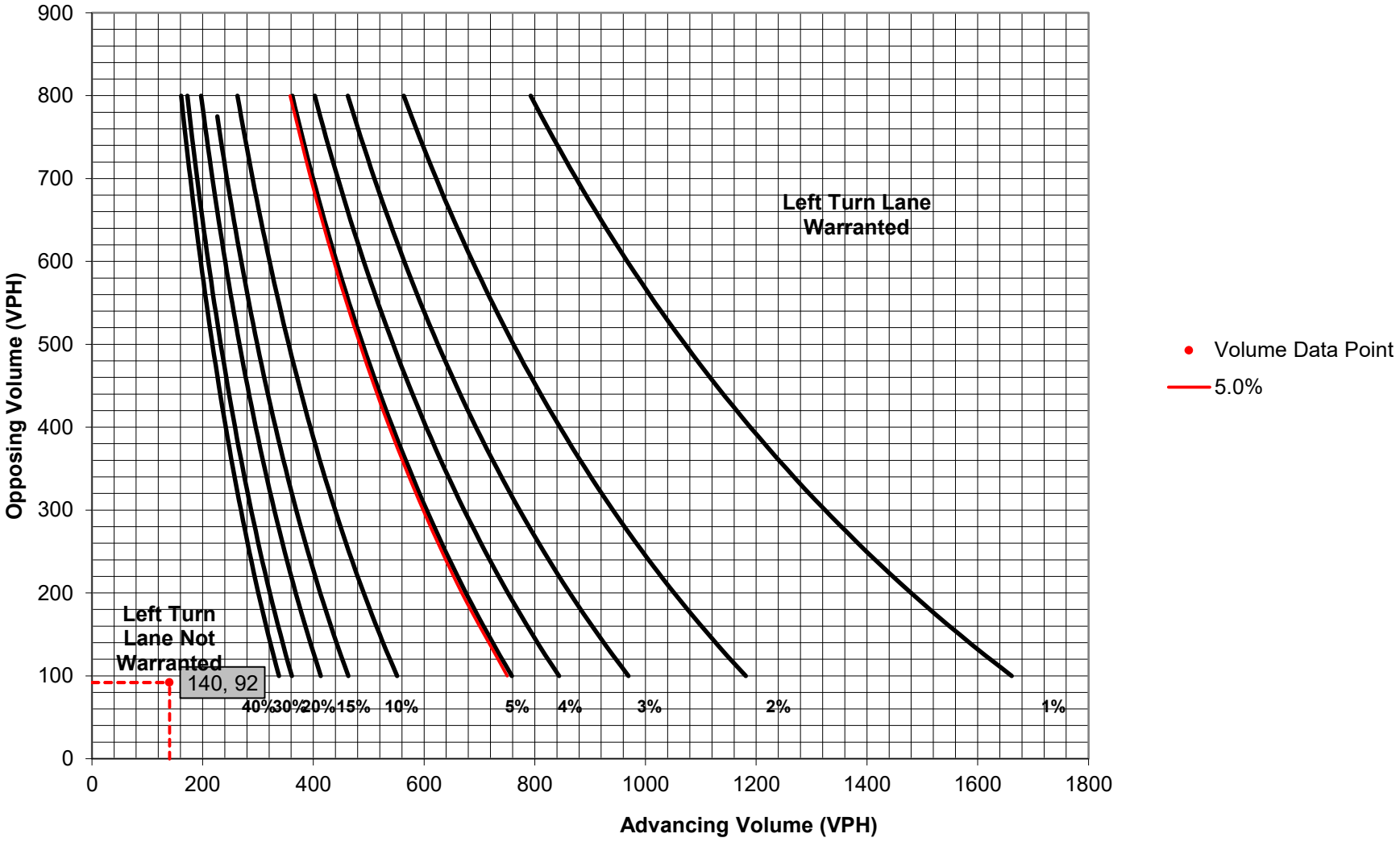
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	50.0%	7
	Through	-	119	4.0%	127
	Right	-	6	0.0%	6

Advancing Volume: 140
Right Turn Volume: 6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

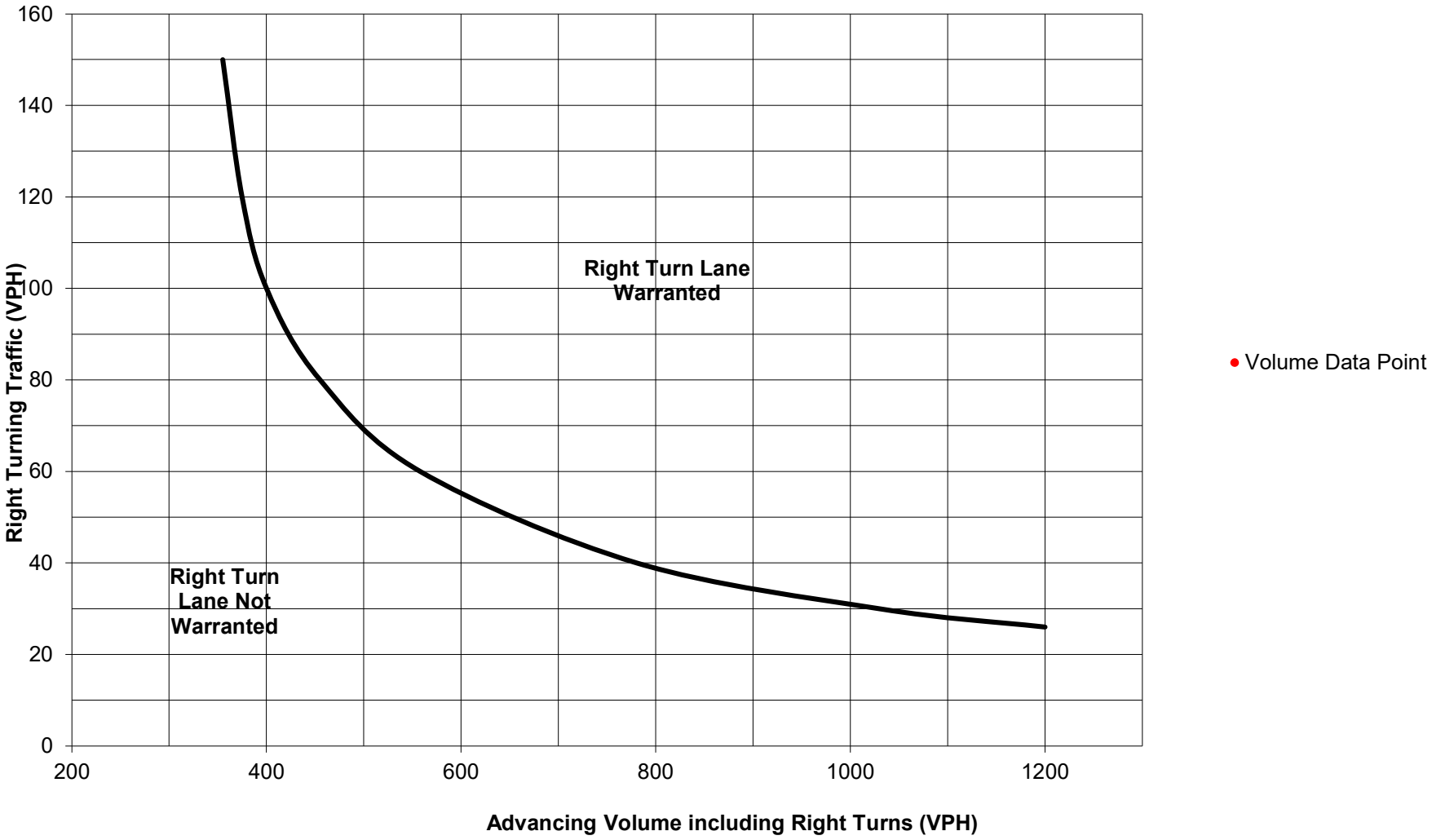
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	Yes	7	0.0%	7

Advancing Volume:	7
Opposing Volume:	15
Left Turn Volume:	2
% Left Turns in Advancing Volume:	28.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

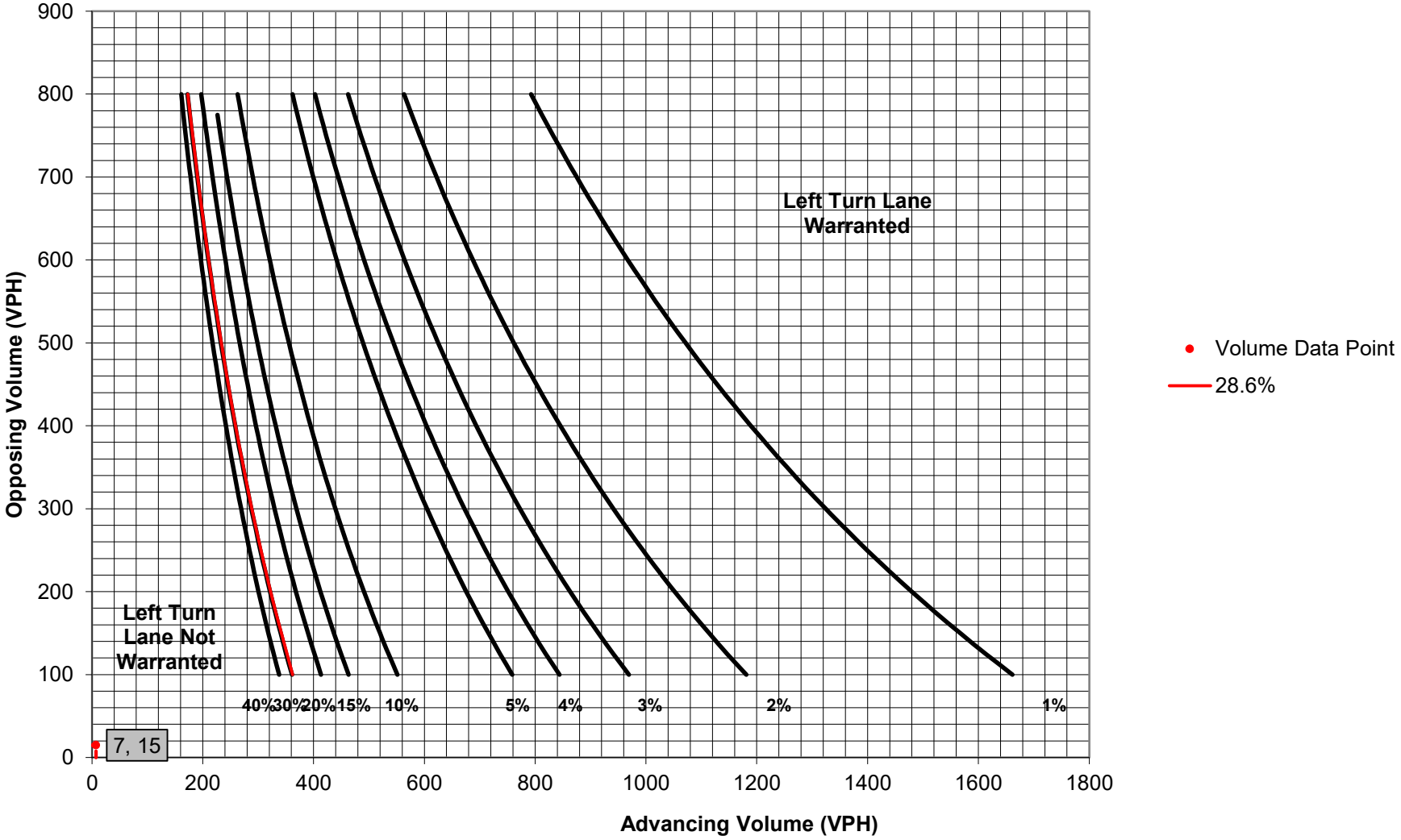
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	-	3	0.0%	3

Advancing Volume: 7
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

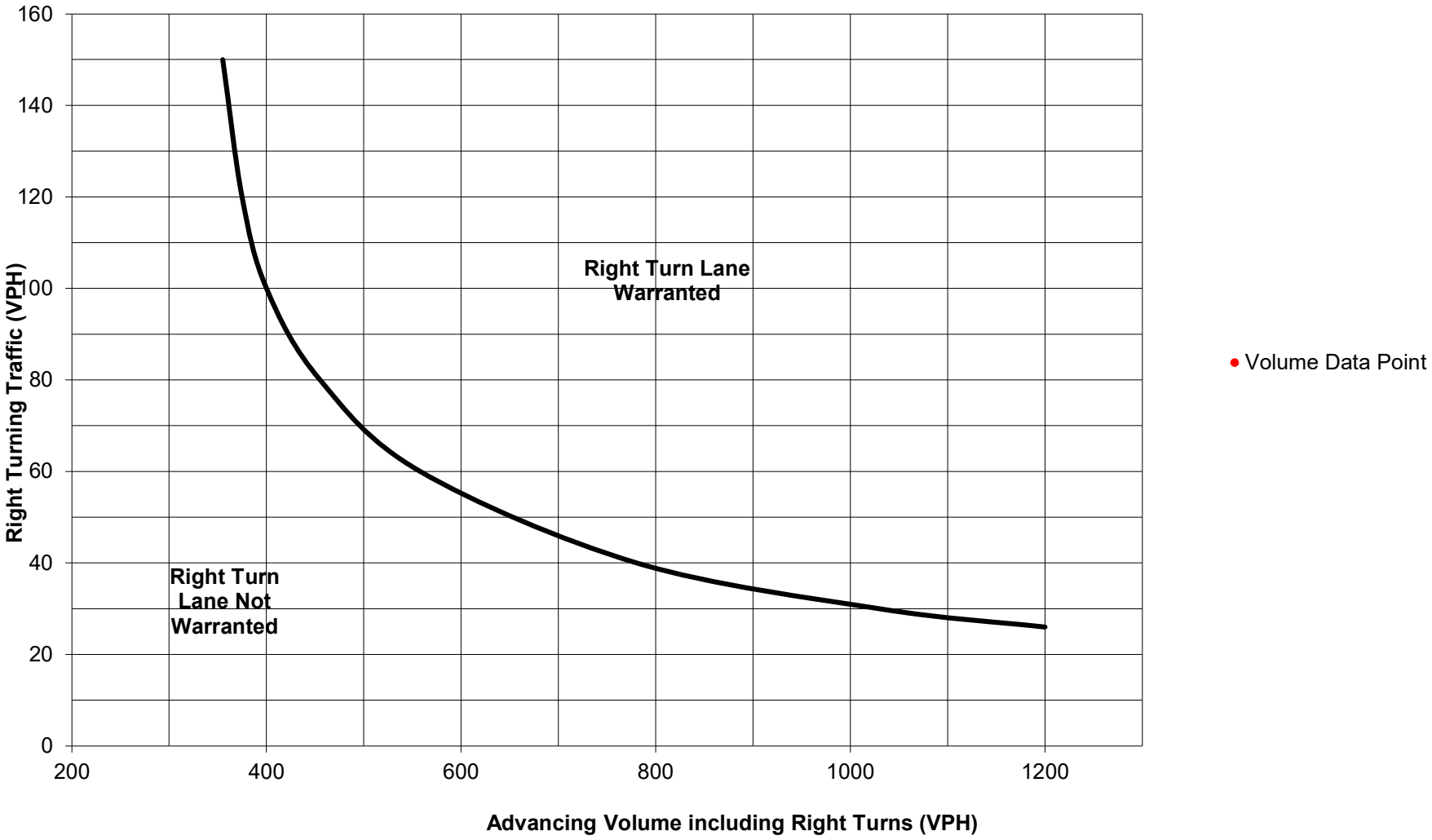
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	Yes	9	0.0%	9

Advancing Volume:	36
Opposing Volume:	26
Left Turn Volume:	24
% Left Turns in Advancing Volume:	66.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

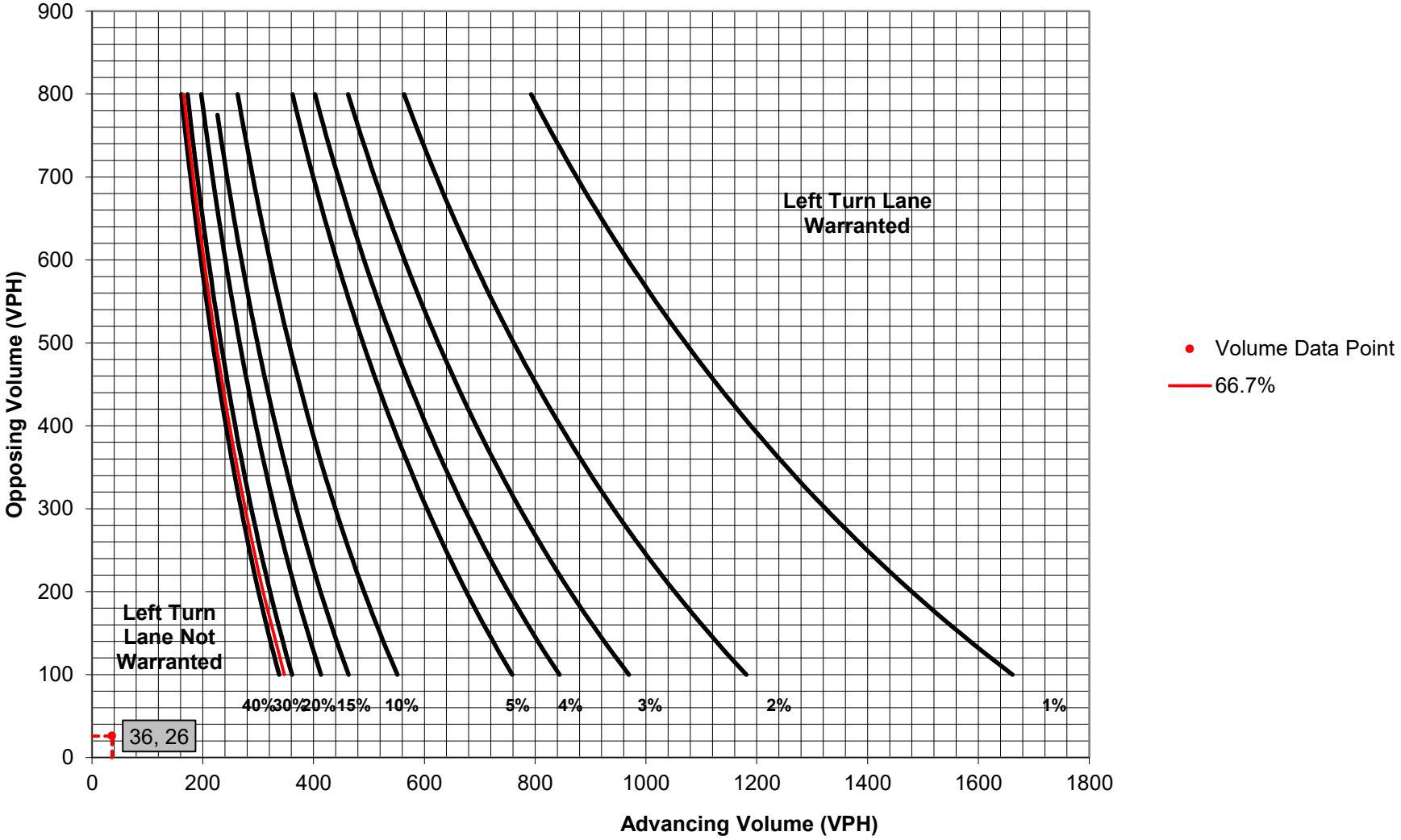
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	-	1	0.0%	1

Advancing Volume: 36
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

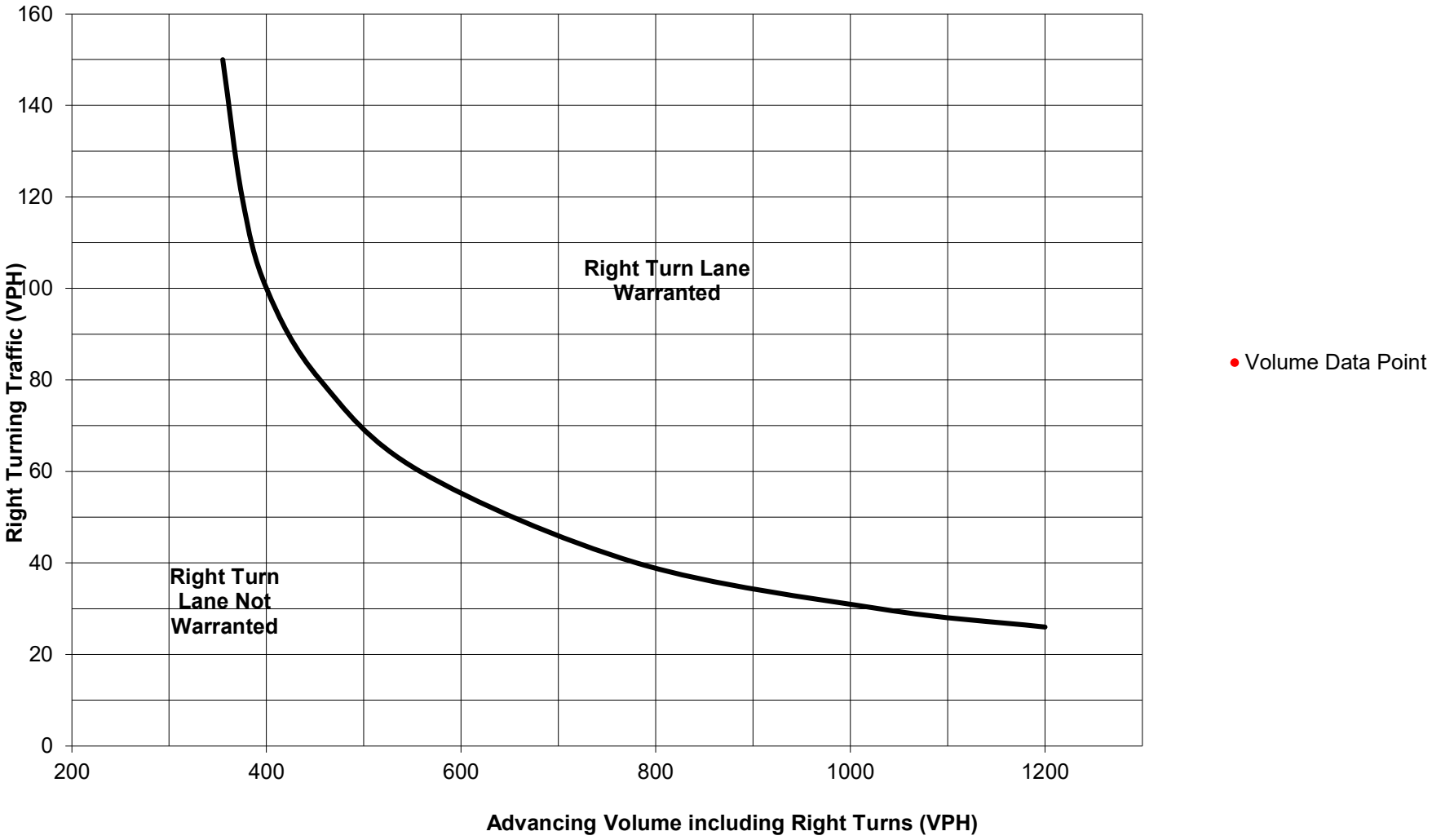
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	40	13.0%	48
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	7	0.0%	7
	Through	-	51	8.0%	58
	Right	Yes	23	5.0%	25

Advancing Volume:	51
Opposing Volume:	90
Left Turn Volume:	1
% Left Turns in Advancing Volume:	1.96%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

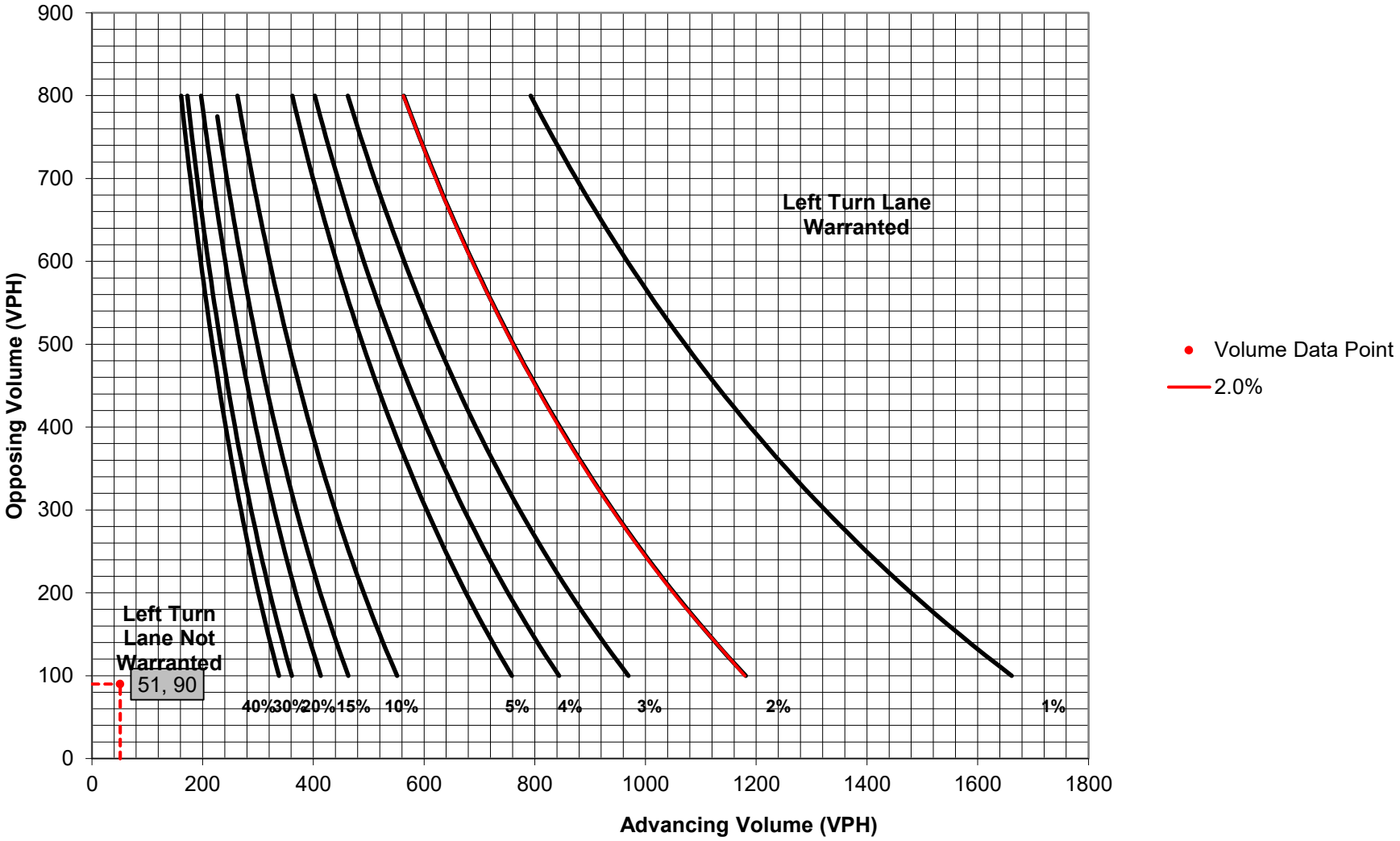
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	40	13.0%	48
	Right	-	2	0.0%	2

Advancing Volume: 51
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

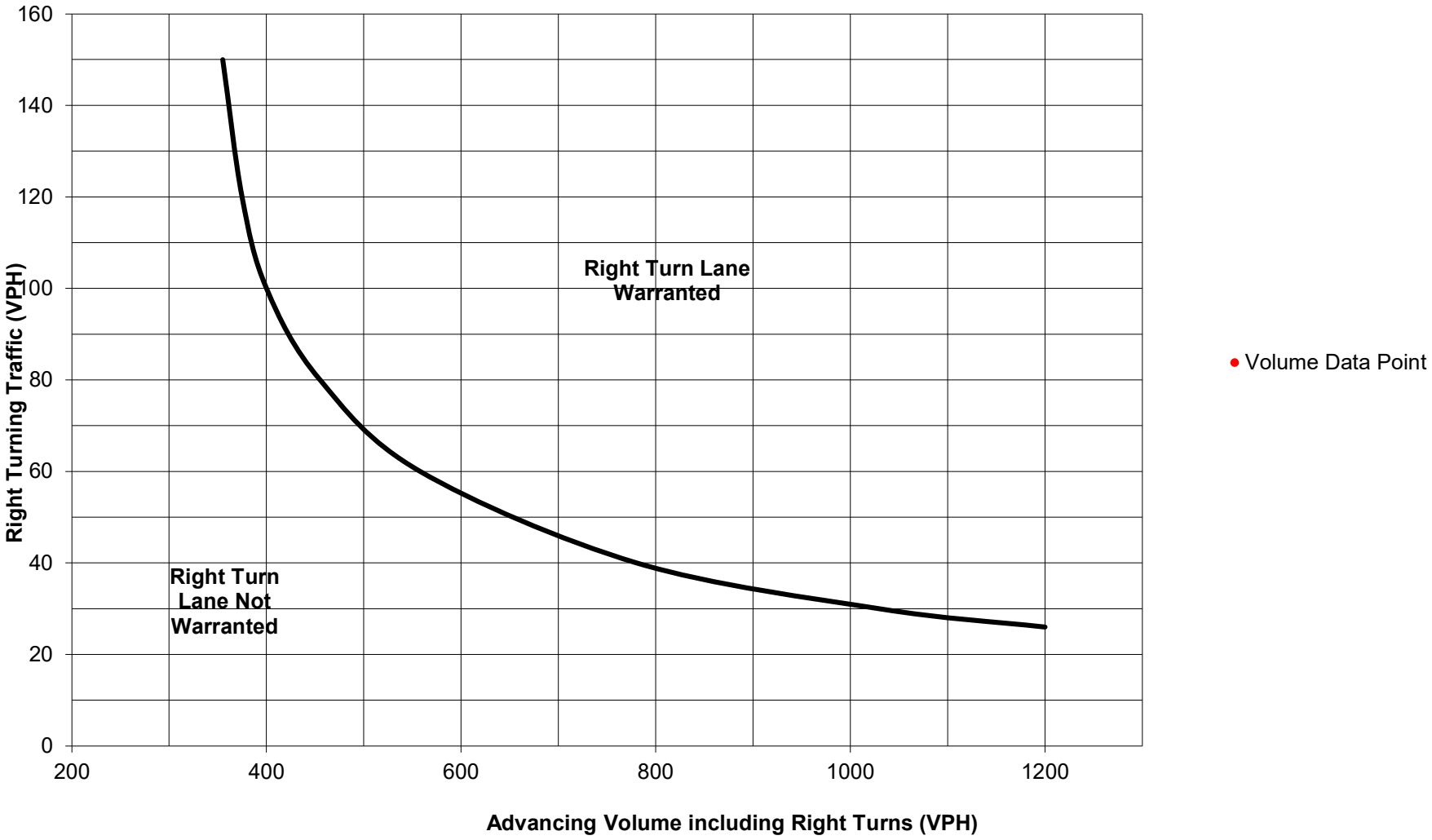
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	51	8.0%	58
	Right	Yes	23	5.0%	25
Opposing	Left	Yes	1	0.0%	1
	Through	-	40	13.0%	48
	Right	Yes	2	0.0%	2

Advancing Volume:	90
Opposing Volume:	51
Left Turn Volume:	7
% Left Turns in Advancing Volume:	7.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

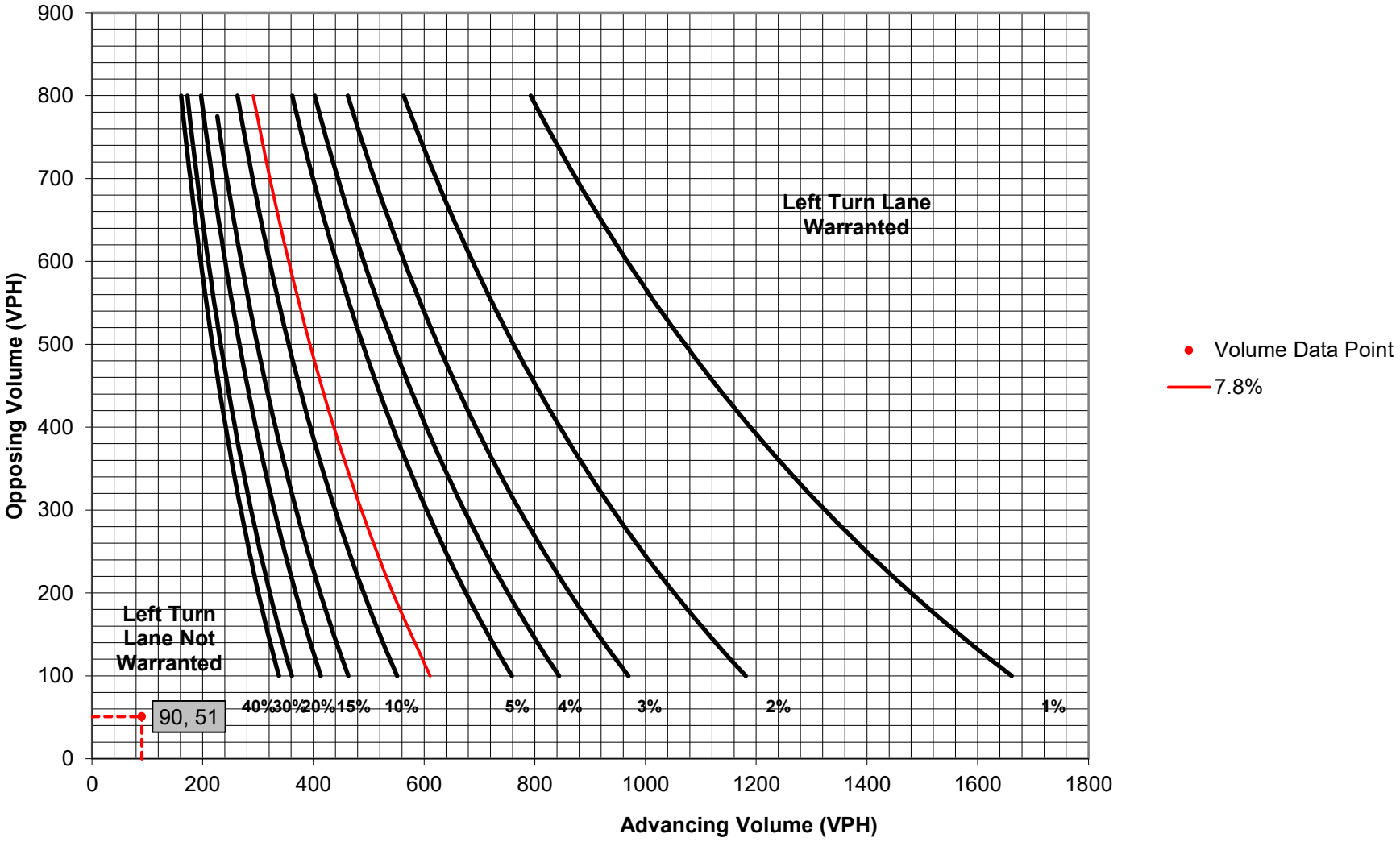
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	0.0%	7
	Through	-	51	8.0%	58
	Right	-	23	5.0%	25

Advancing Volume: 90
Right Turn Volume: 25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

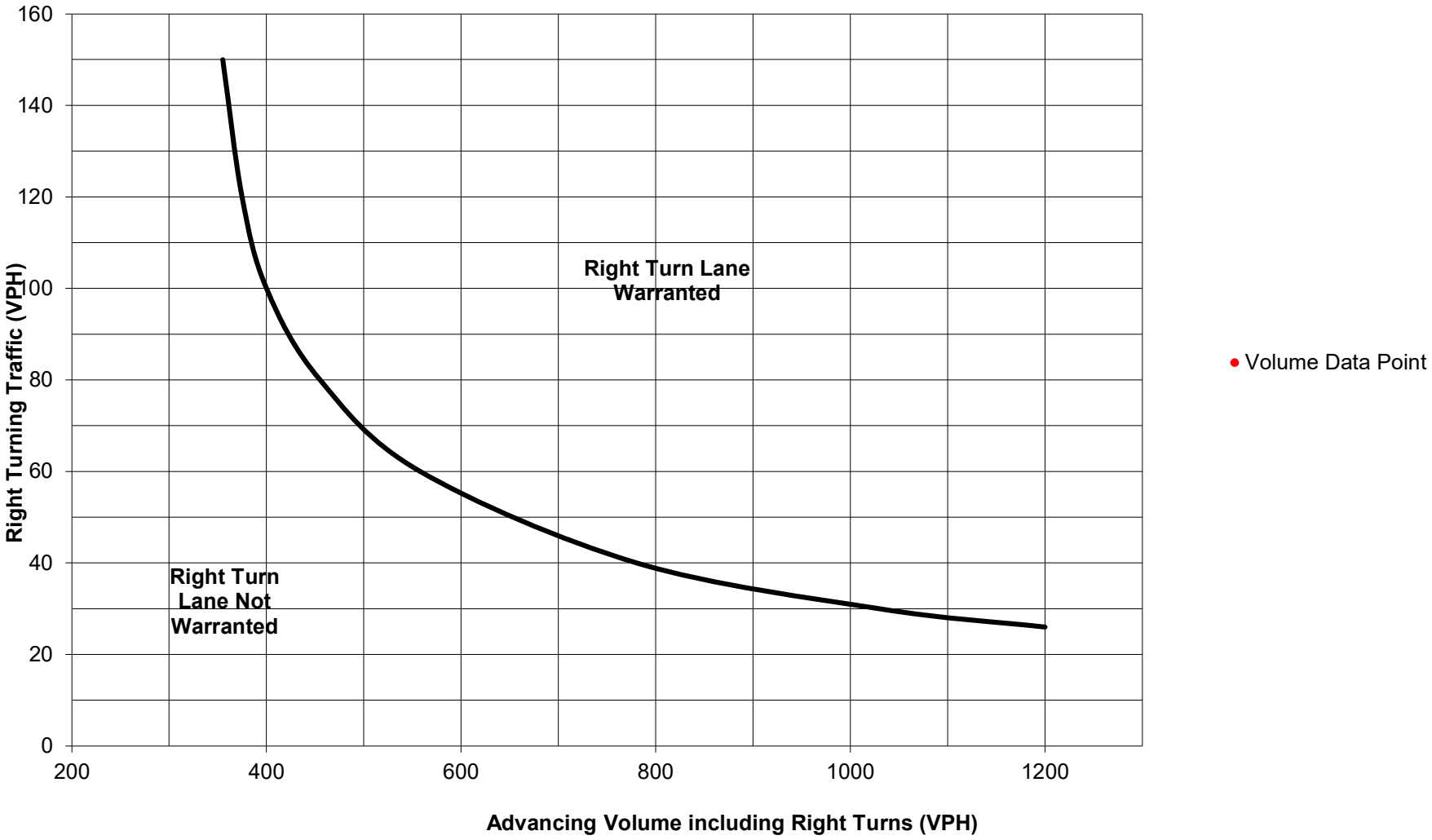
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1

Advancing Volume: 26
Opposing Volume: 36
Left Turn Volume: 4
% Left Turns in Advancing Volume: 15.38%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

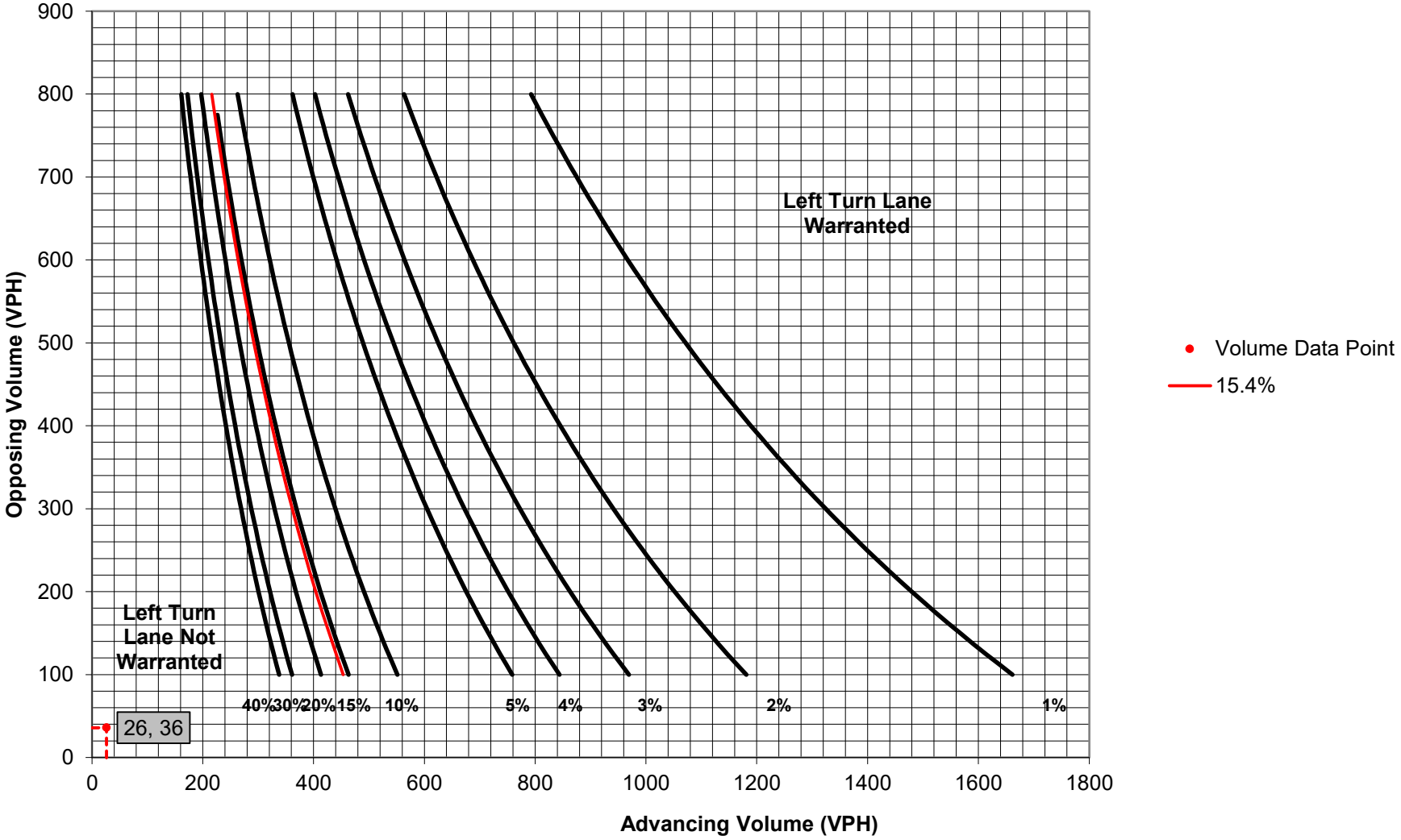
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	-	9	0.0%	9

Advancing Volume: 26
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

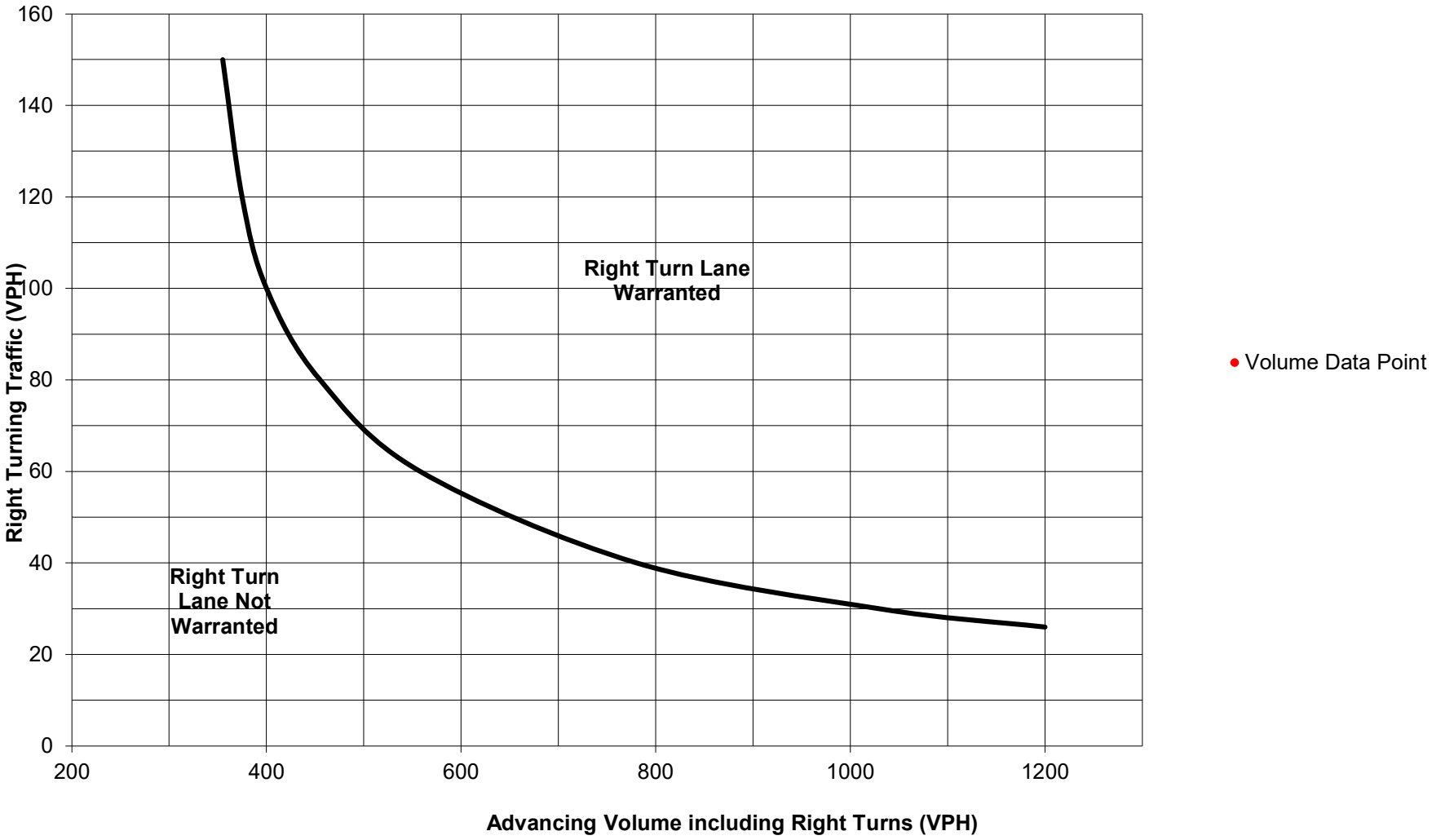
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	6	0.0%	6
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	31	0.0%	31
	Through	-	1	0.0%	1
	Right	Yes	9	0.0%	9

Advancing Volume:	8
Opposing Volume:	41
Left Turn Volume:	2
% Left Turns in Advancing Volume:	25.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

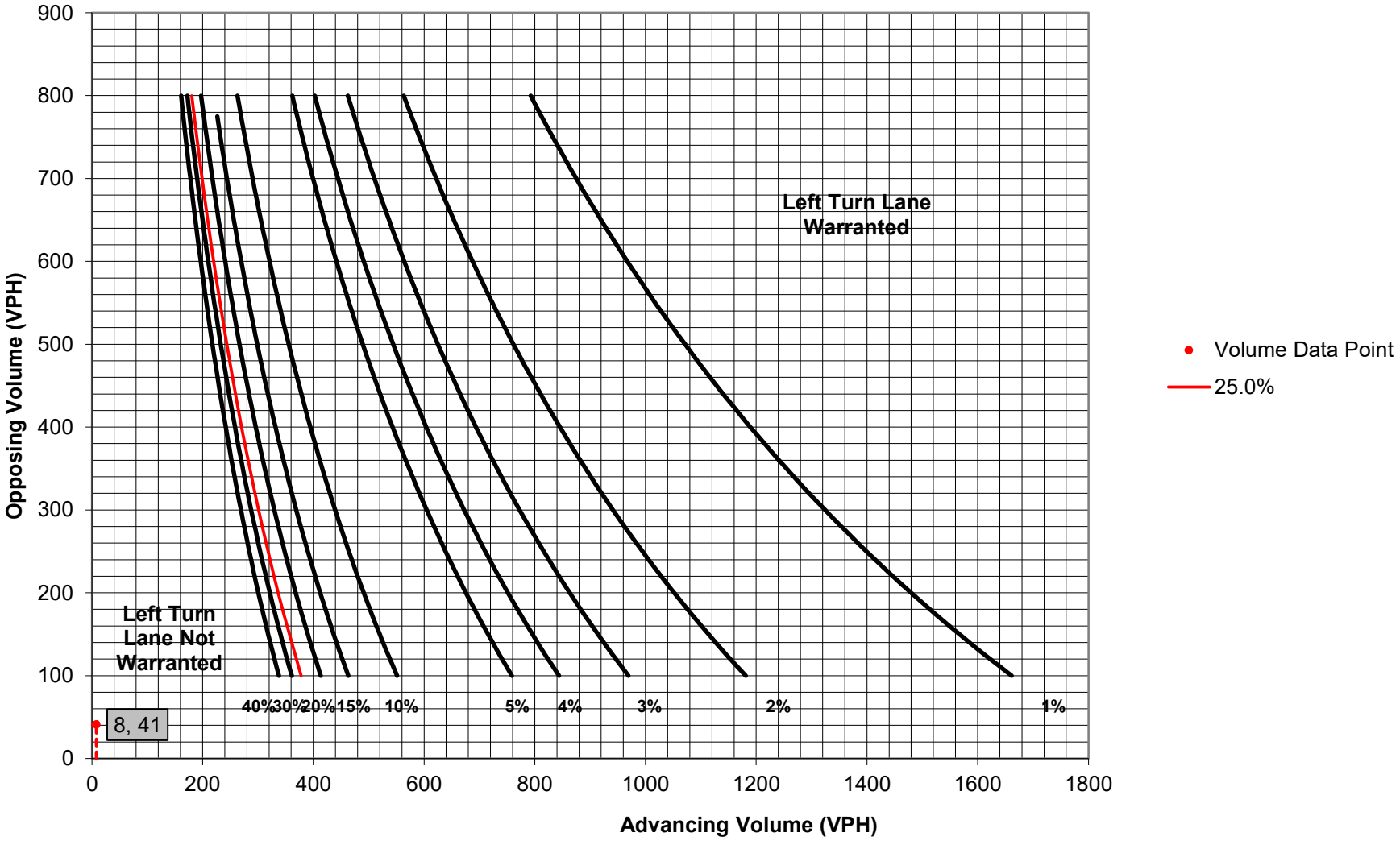
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	6	0.0%	6
	Right	-	0	0.0%	0

Advancing Volume: 8
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

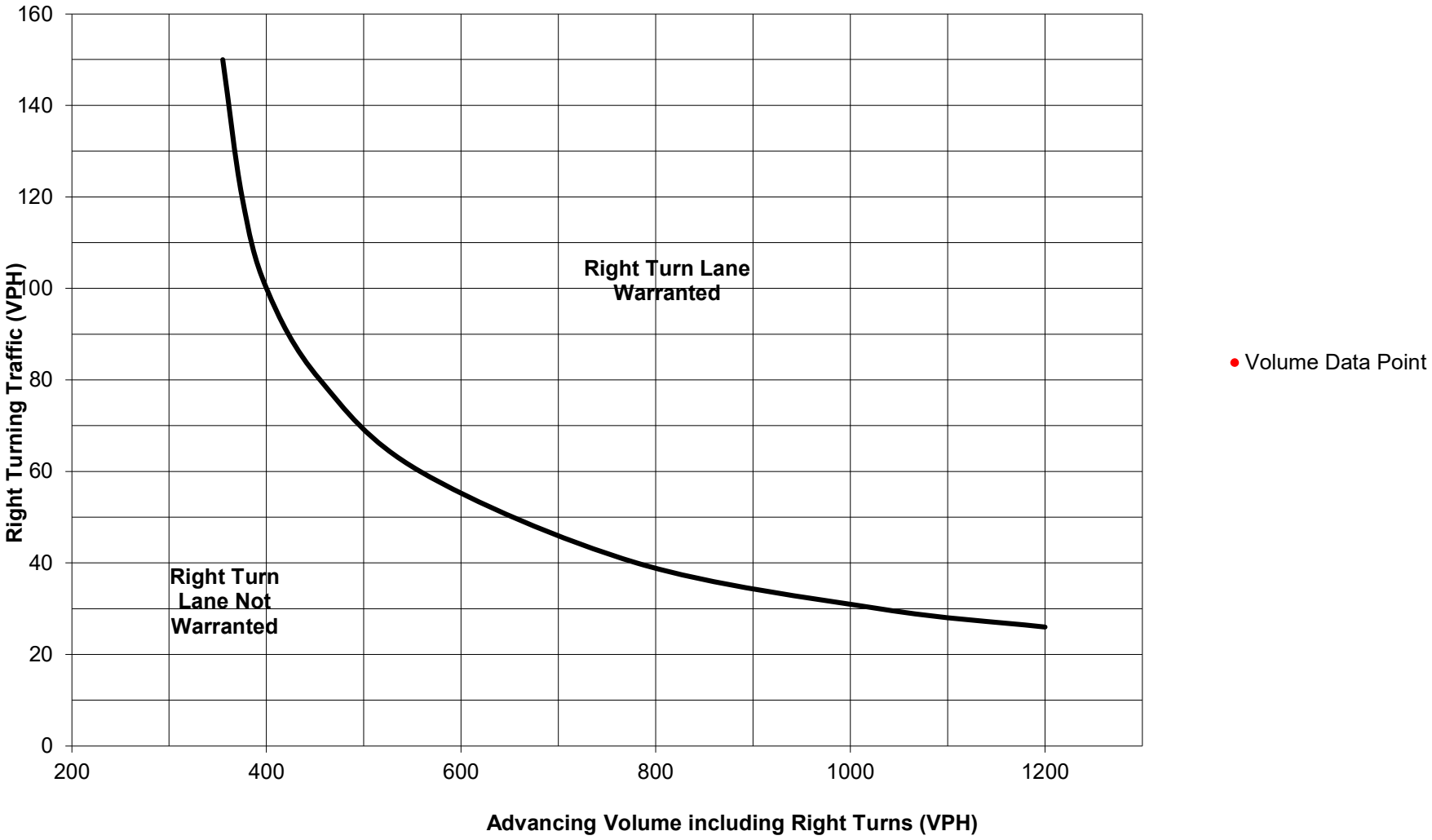
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	Yes	59	0.0%	59
Opposing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	Yes	1	0.0%	1

Advancing Volume: 127
Opposing Volume: 66
Left Turn Volume: 2
% Left Turns in Advancing Volume: 1.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

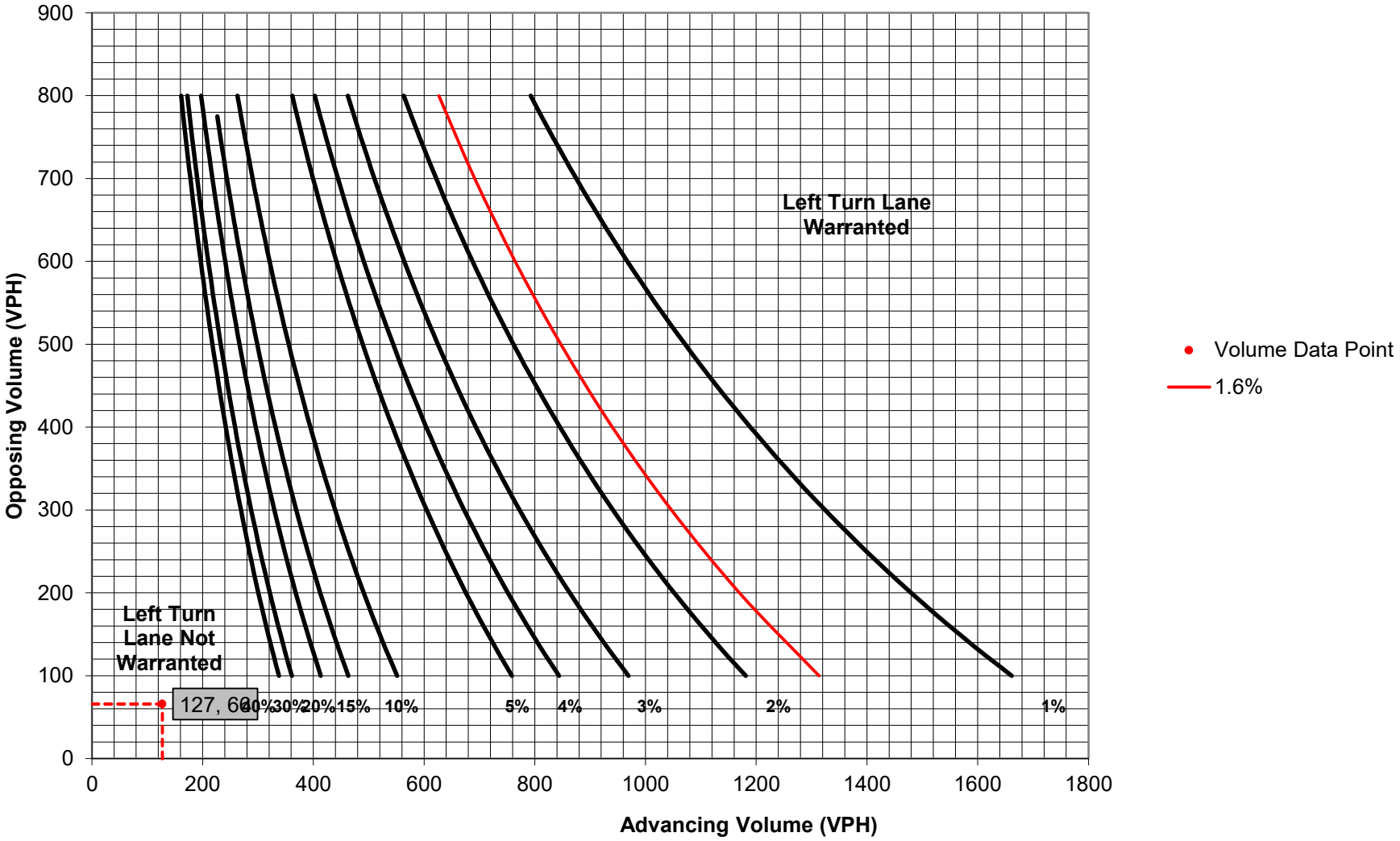
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	-	59	0.0%	59

Advancing Volume: 127
Right Turn Volume: 59

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	59
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

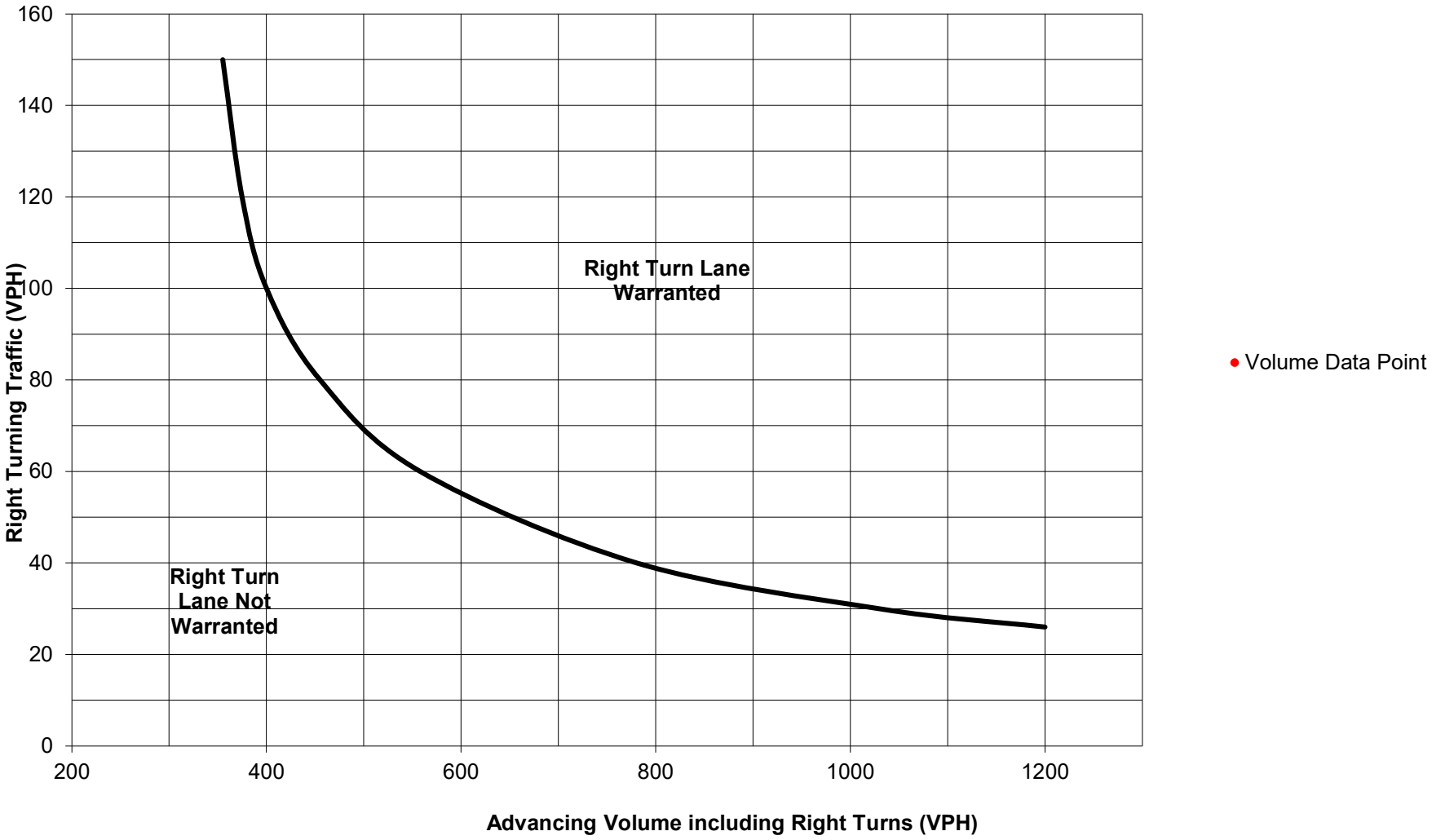
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	Yes	59	0.0%	59

Advancing Volume:	66
Opposing Volume:	127
Left Turn Volume:	4
% Left Turns in Advancing Volume:	6.06%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

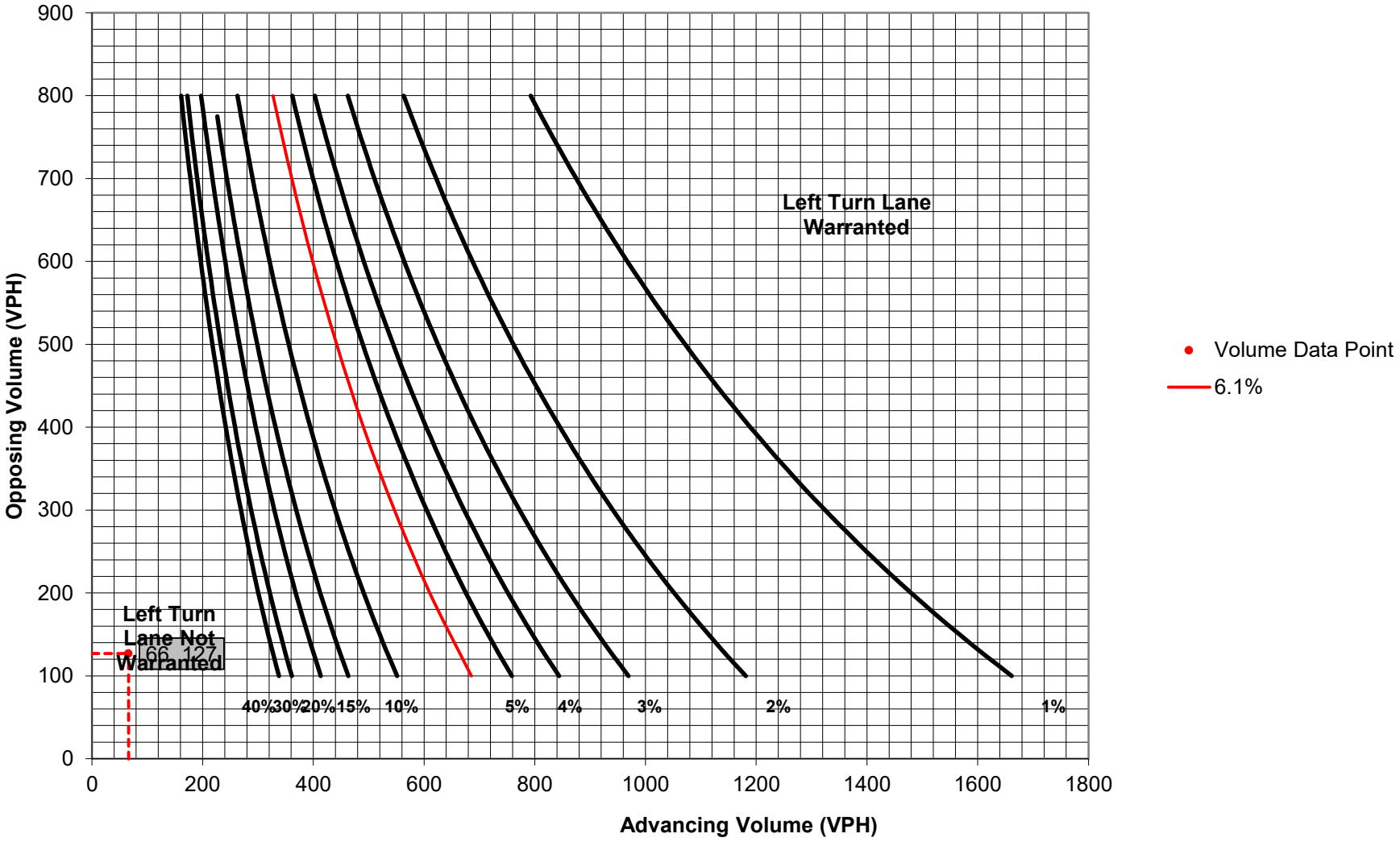
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	-	1	0.0%	1

Advancing Volume: 66
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

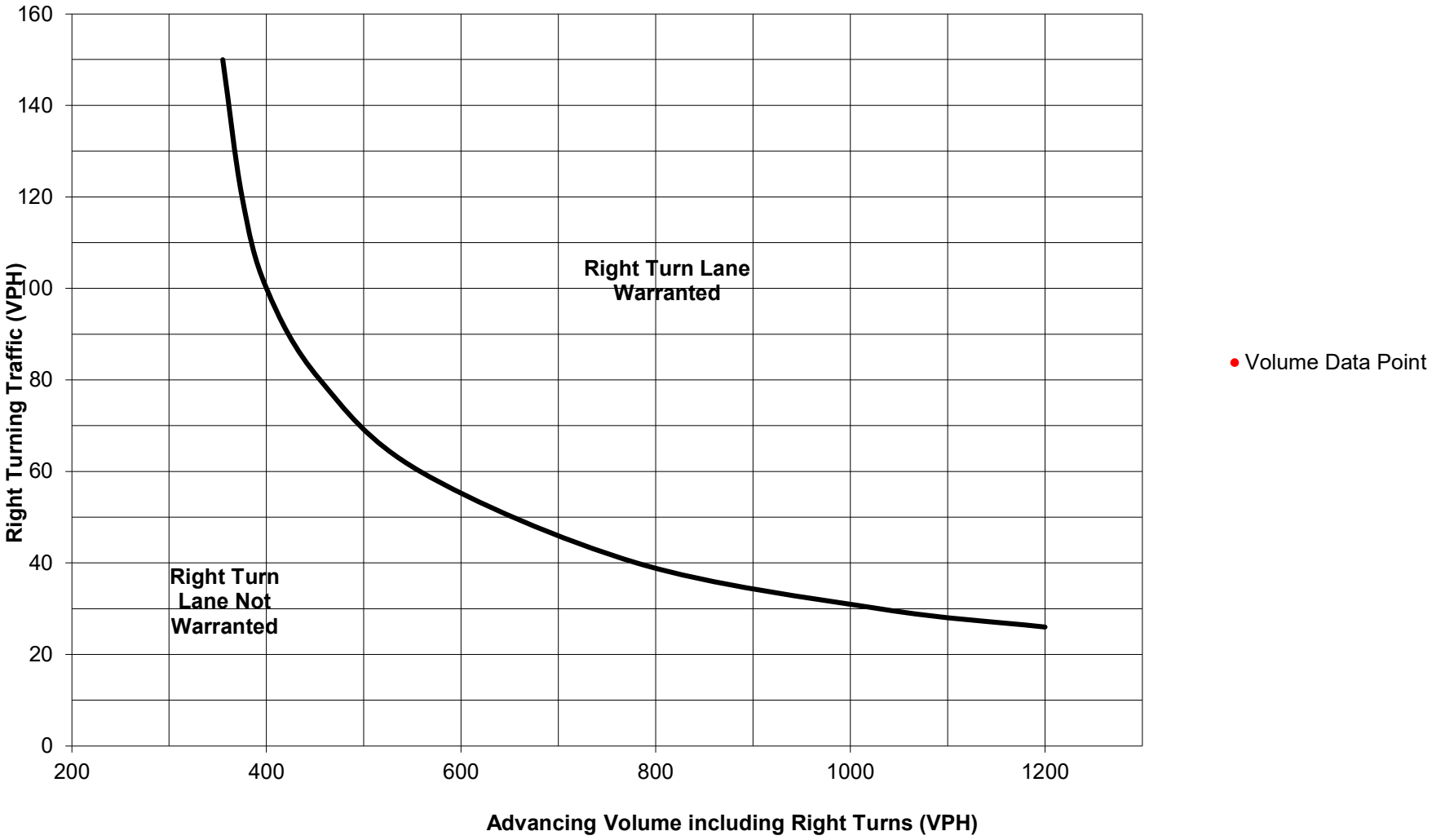
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	0.0%	31
	Through	-	1	0.0%	1
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	2	0.0%	2
	Through	-	6	0.0%	6
	Right	Yes	0	0.0%	0

Advancing Volume:	41
Opposing Volume:	8
Left Turn Volume:	31
% Left Turns in Advancing Volume:	75.61%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

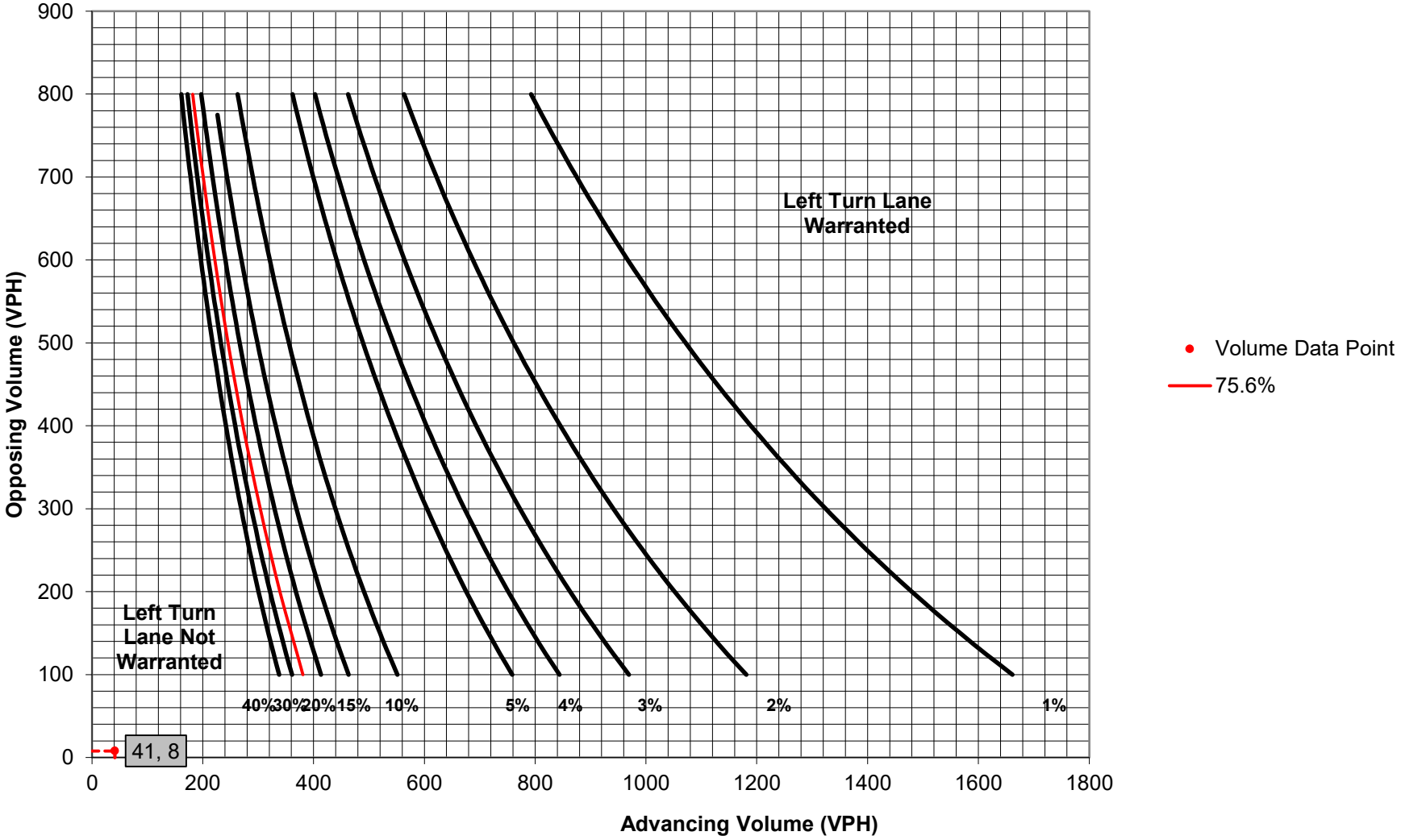
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	0.0%	31
	Through	-	1	0.0%	1
	Right	-	9	0.0%	9

Advancing Volume: 41
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

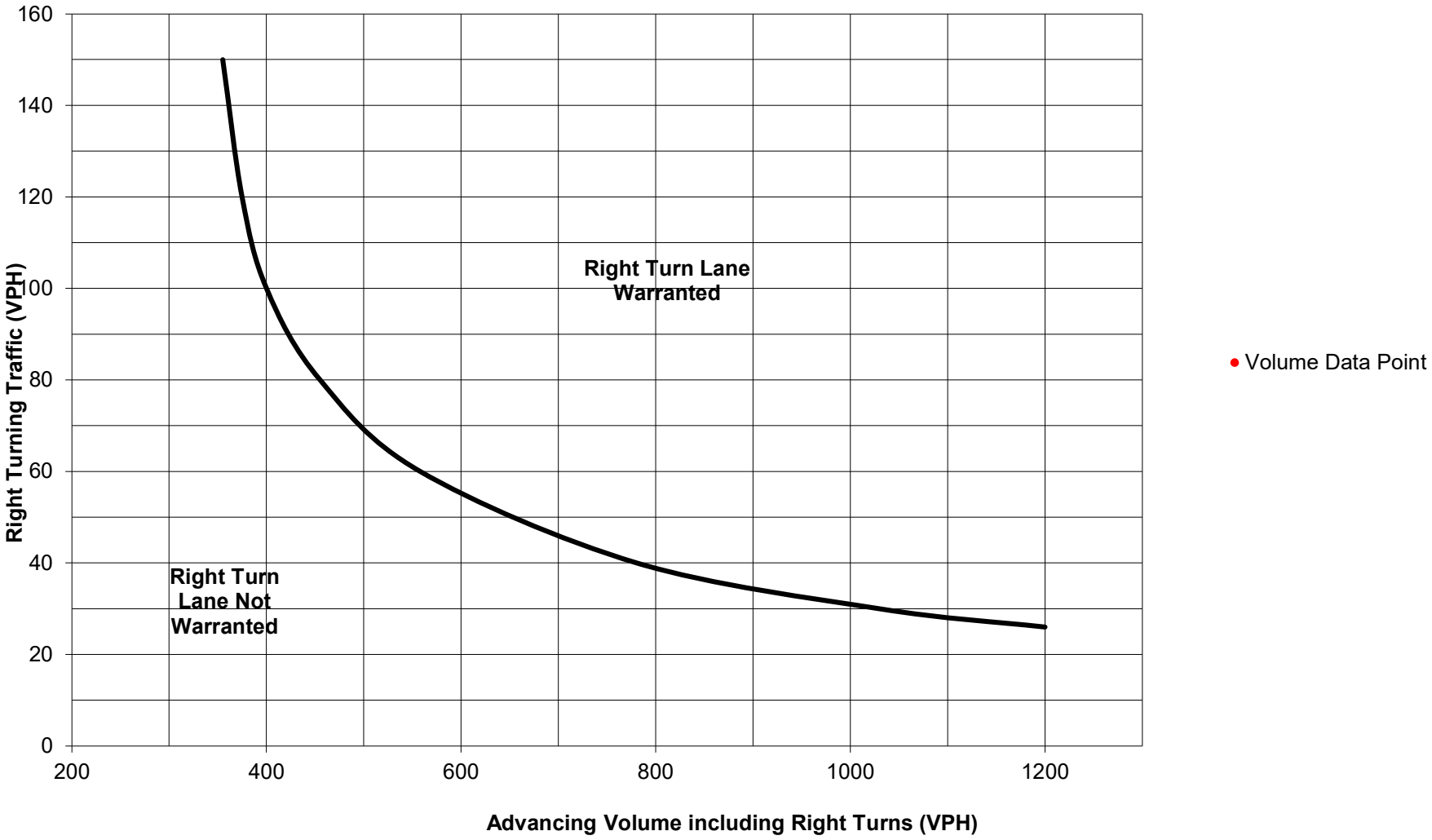
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8

Advancing Volume:	19
Opposing Volume:	24
Left Turn Volume:	9
% Left Turns in Advancing Volume:	47.37%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

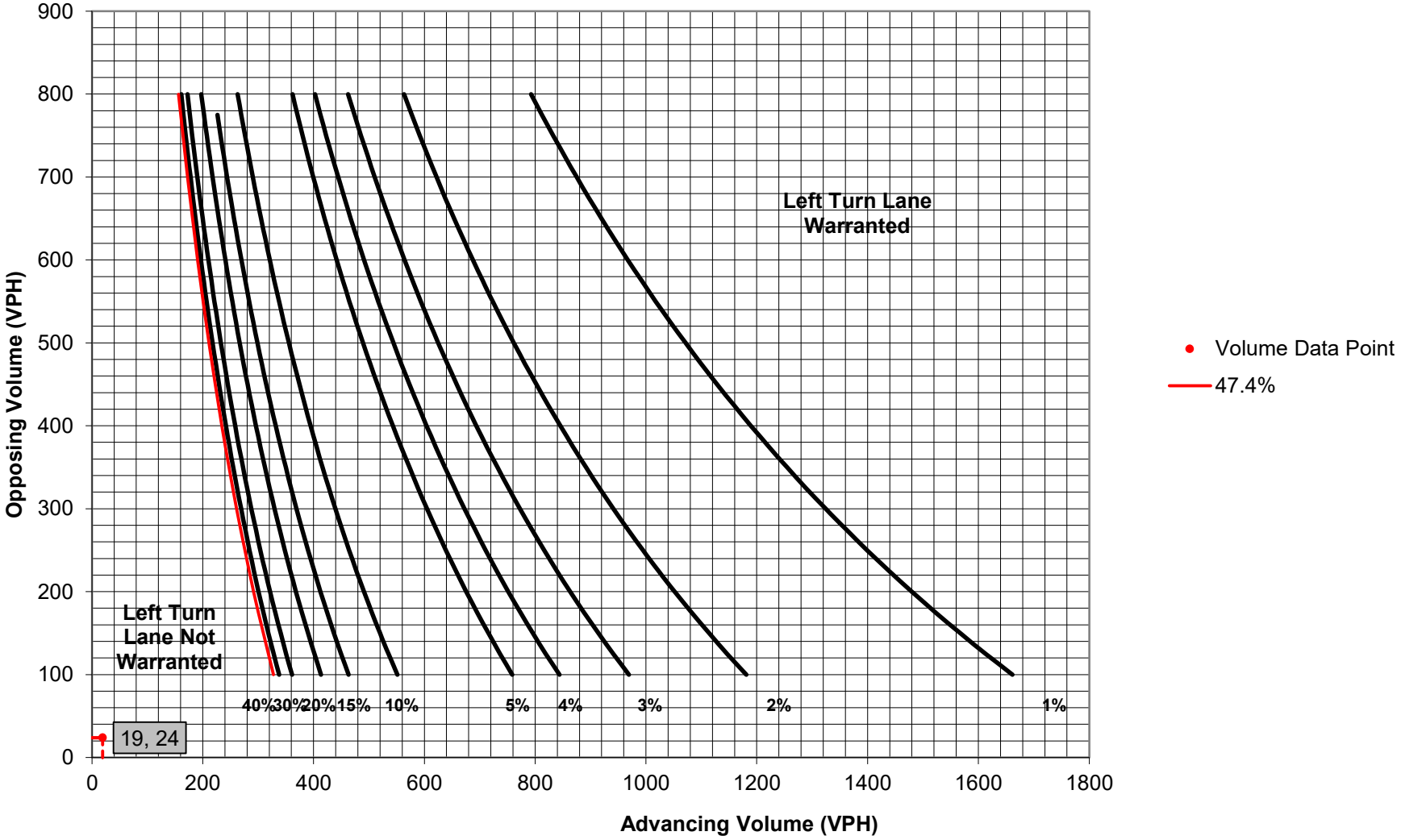
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	-	2	0.0%	2

Advancing Volume: 19
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

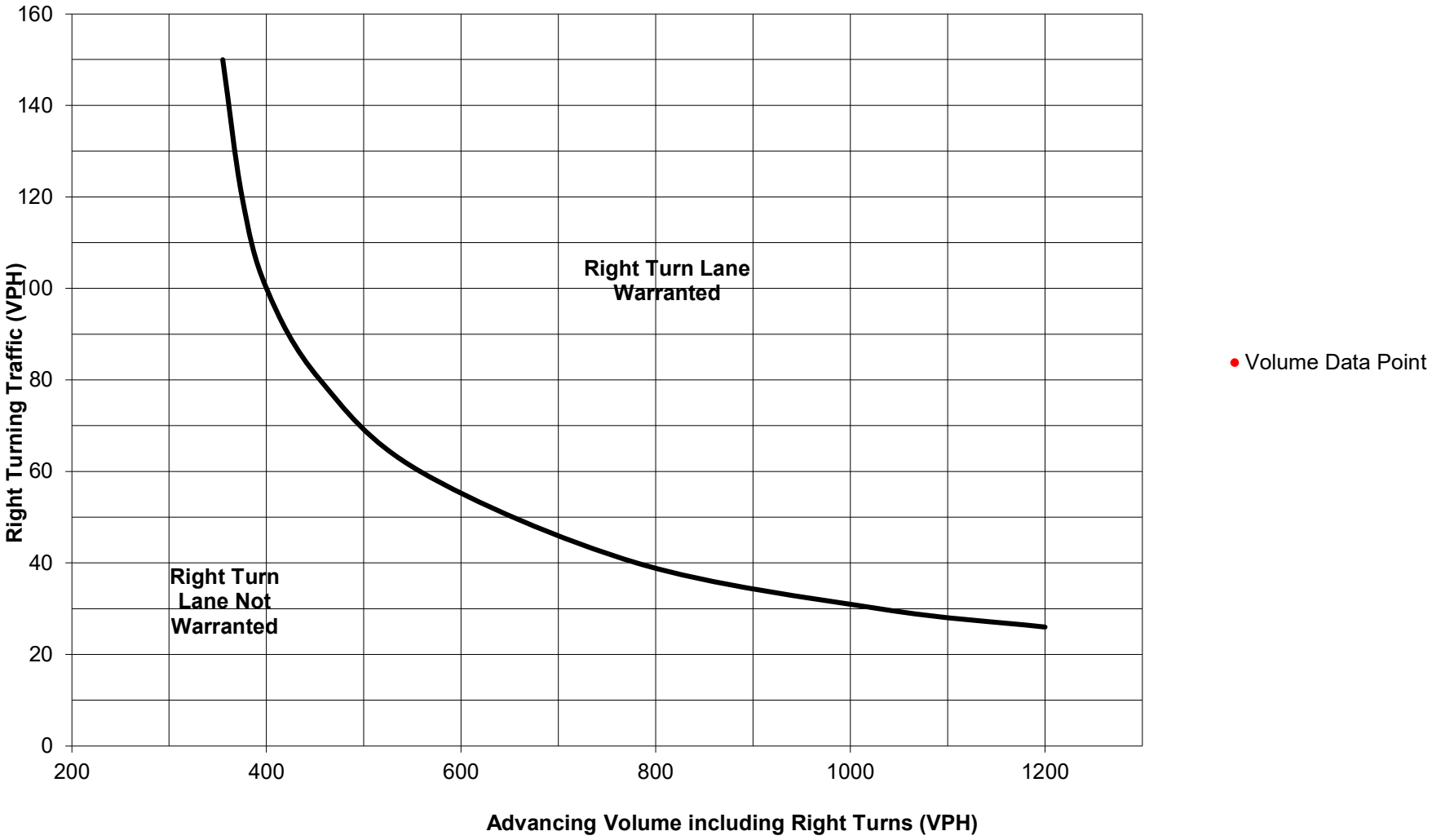
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1		1
	Through	-	23	27.0%	33
	Right	Yes	14		14
Opposing	Left	Yes	4		4
	Through	-	35	9.0%	40
	Right	Yes	14	2.0%	15

Advancing Volume:	48
Opposing Volume:	59
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.08%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	48	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

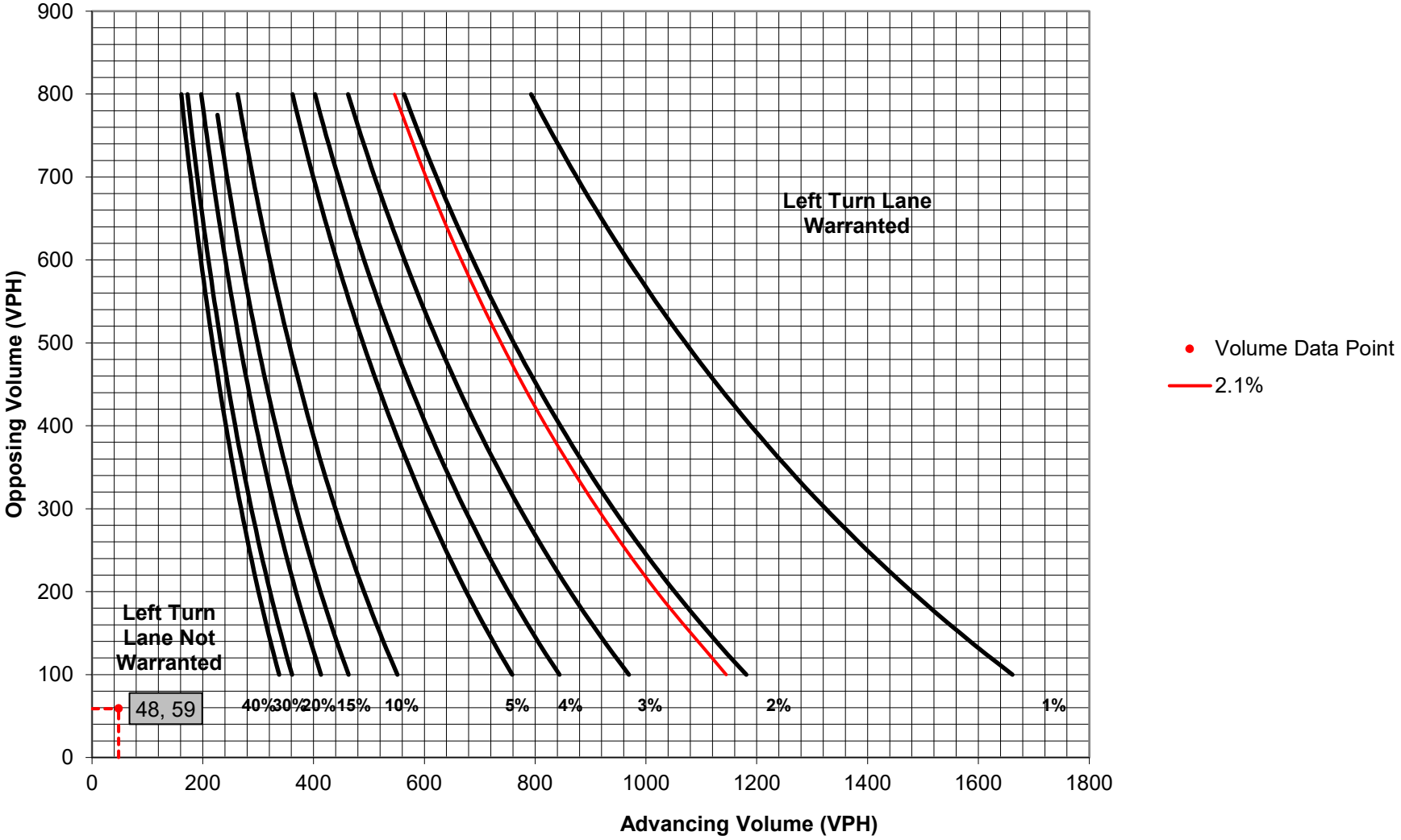
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	23	27.0%	33
	Right	-	14	0.0%	14

Advancing Volume: 48
Right Turn Volume: 14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

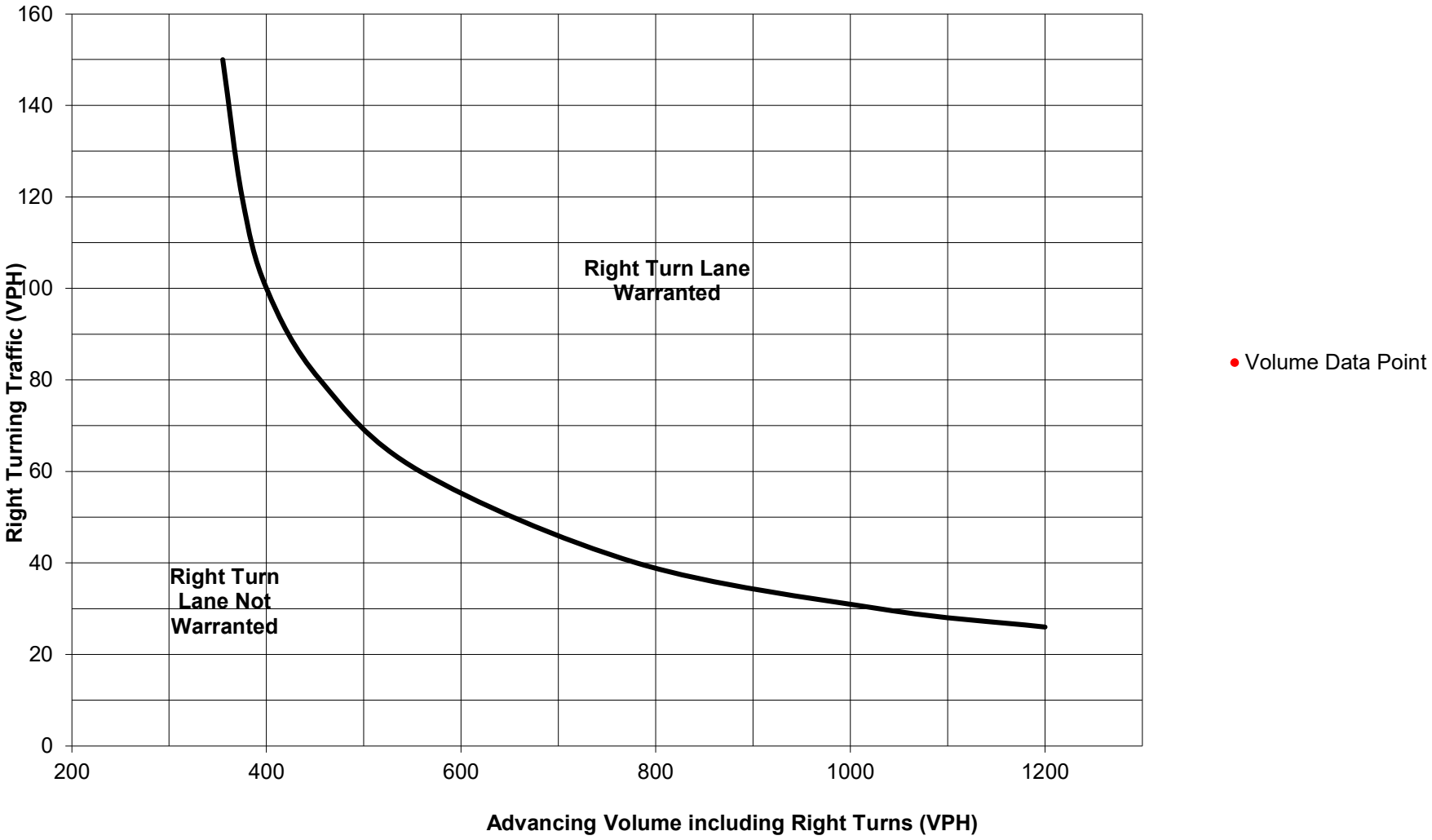
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	36	9.0%	41
	Right	Yes	15	0.0%	15
Opposing	Left	Yes	1	0.0%	1
	Through	-	23	27.0%	33
	Right	Yes	14	0.0%	14

Advancing Volume: 60
Opposing Volume: 48
Left Turn Volume: 4
% Left Turns in Advancing Volume: 6.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

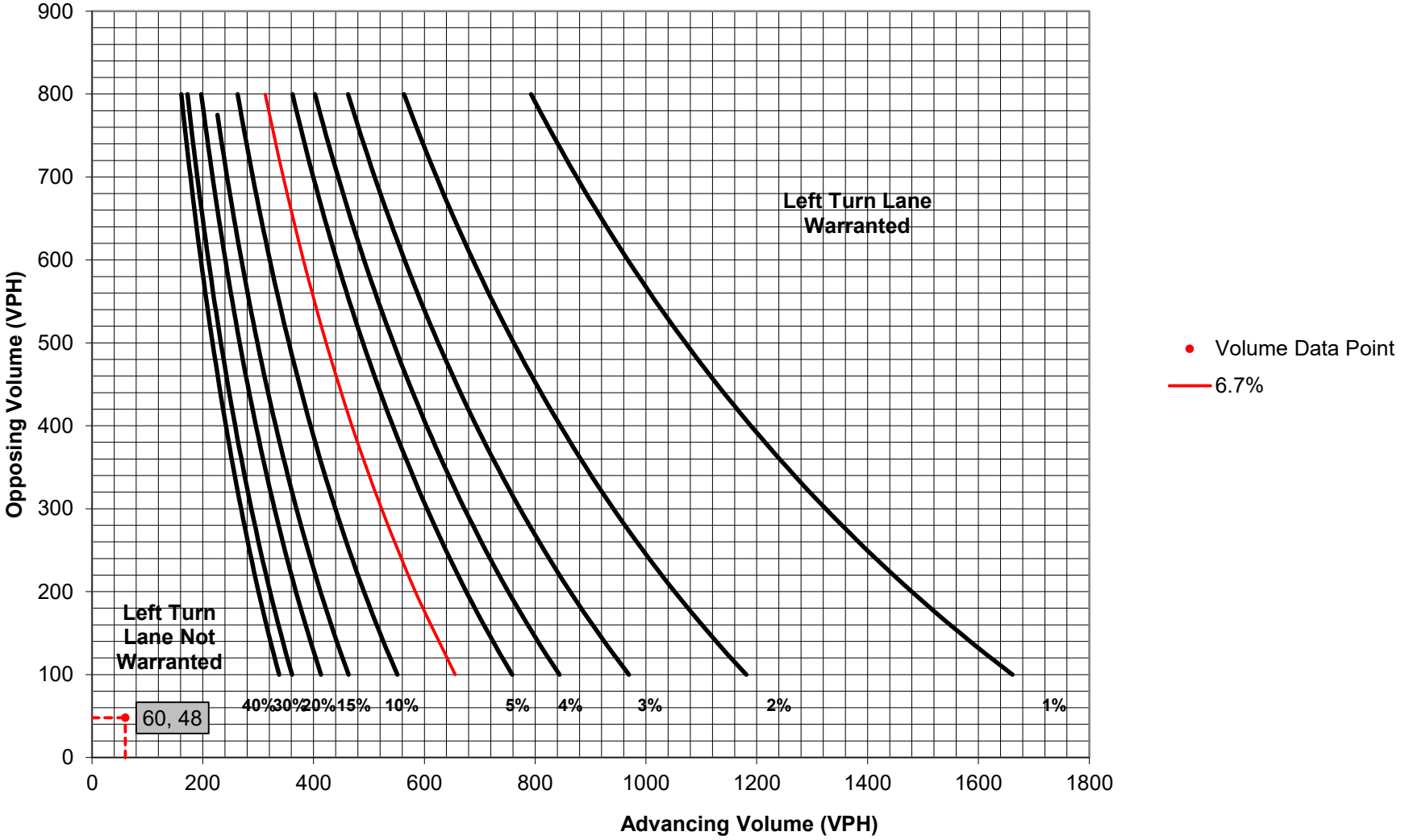
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Southbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	36	9.0%	41
	Right	-	15	0.0%	15

Advancing Volume: 60
Right Turn Volume: 15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

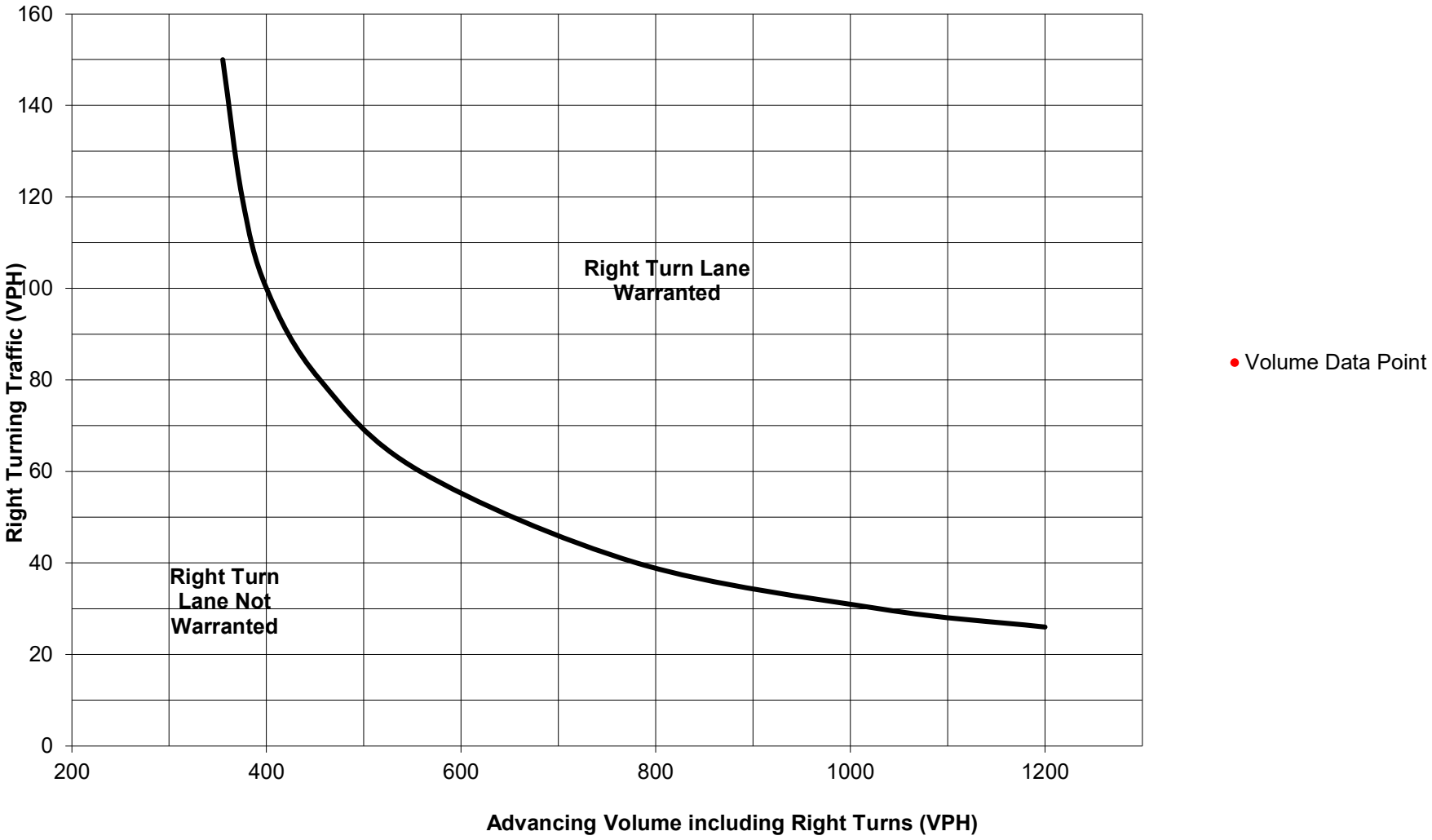
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	9	0.0%	9
	Through	-	8	0.0%	8
	Right	Yes	2	0.0%	2

Advancing Volume:	24
Opposing Volume:	19
Left Turn Volume:	12
% Left Turns in Advancing Volume:	50.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

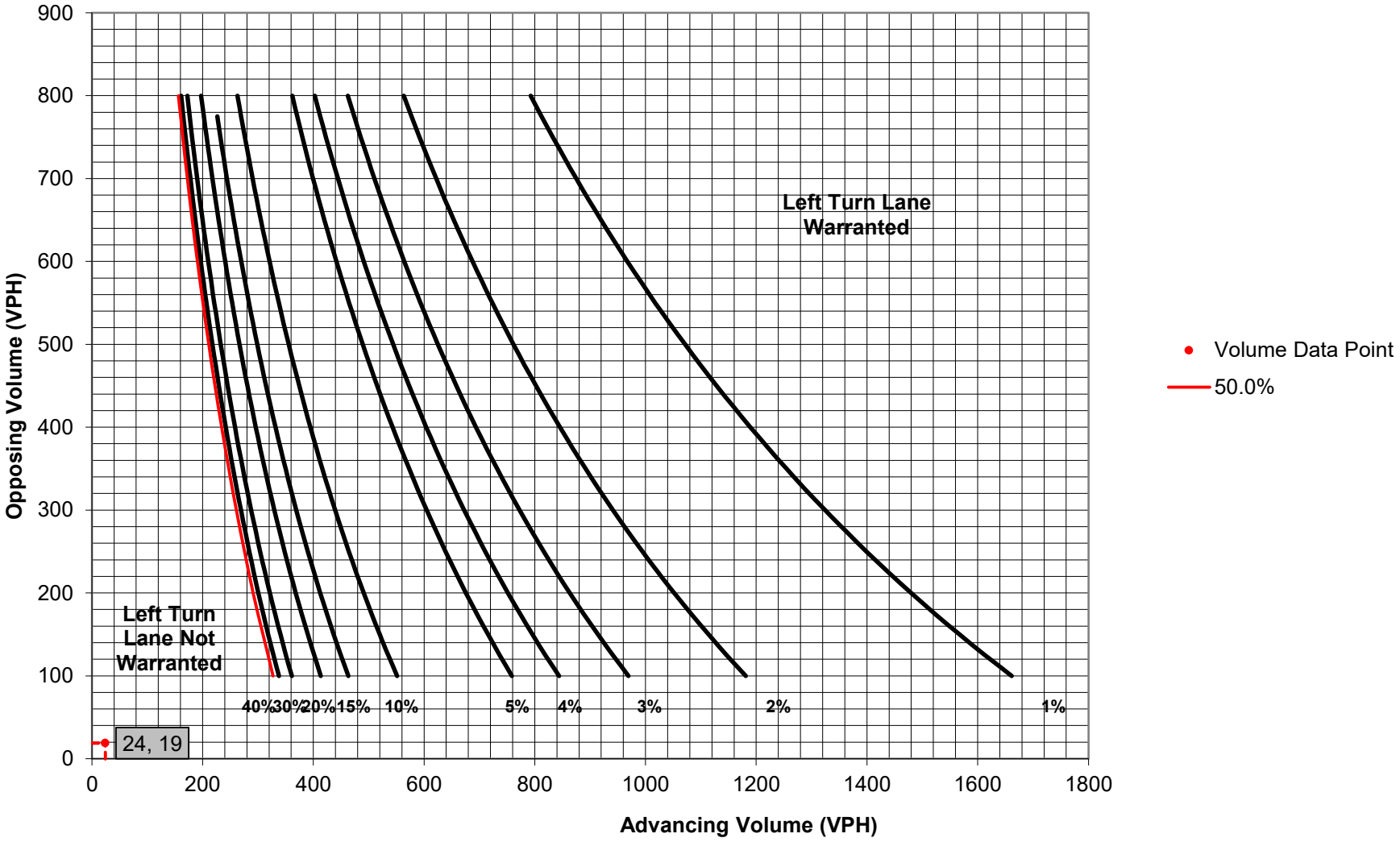
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	-	8	0.0%	8

Advancing Volume:	24
Right Turn Volume:	8

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

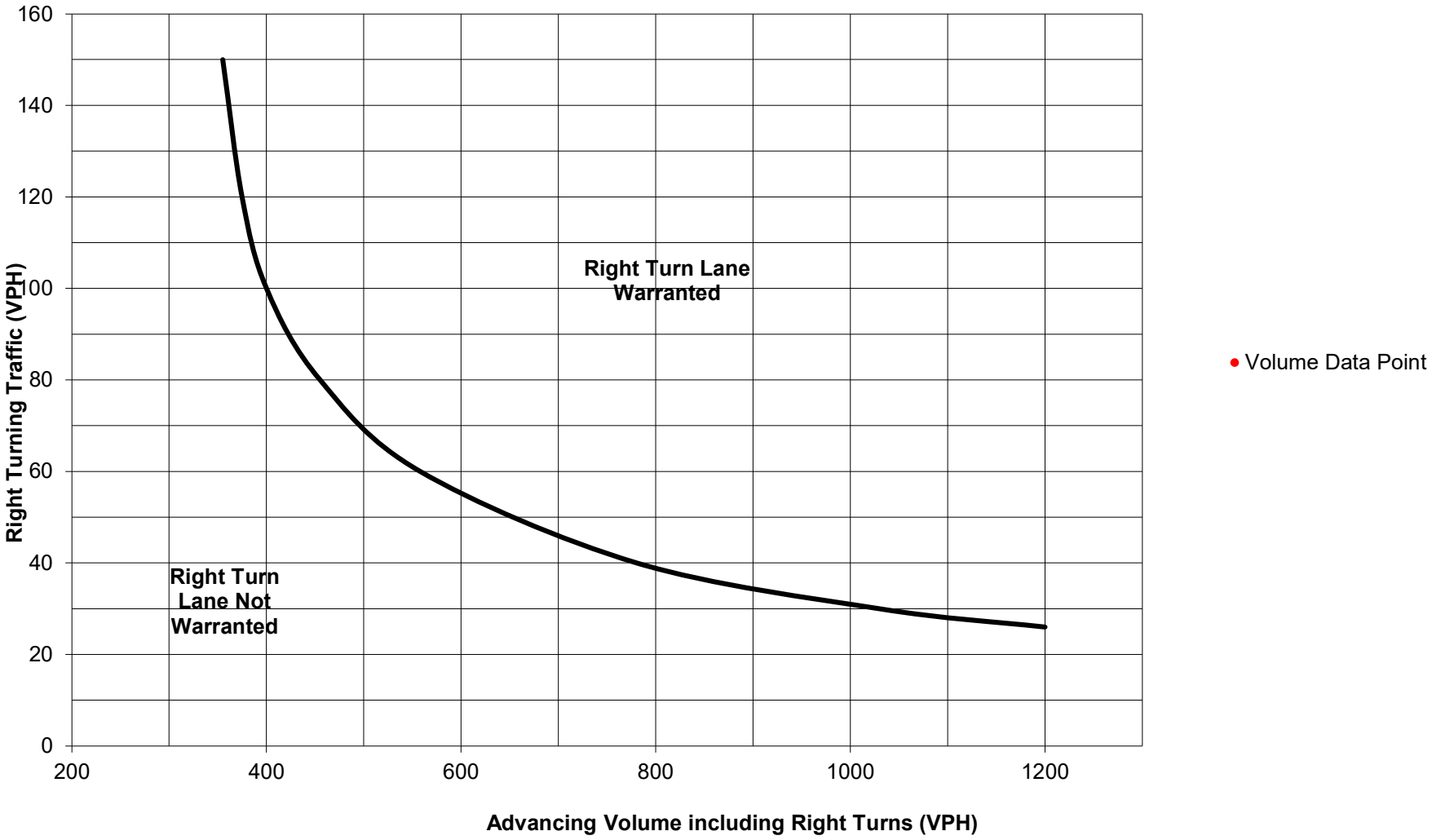
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	377	3.0%	394
	Right	-	6	0.0%	6

Advancing Volume:	400
Right Turn Volume:	6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

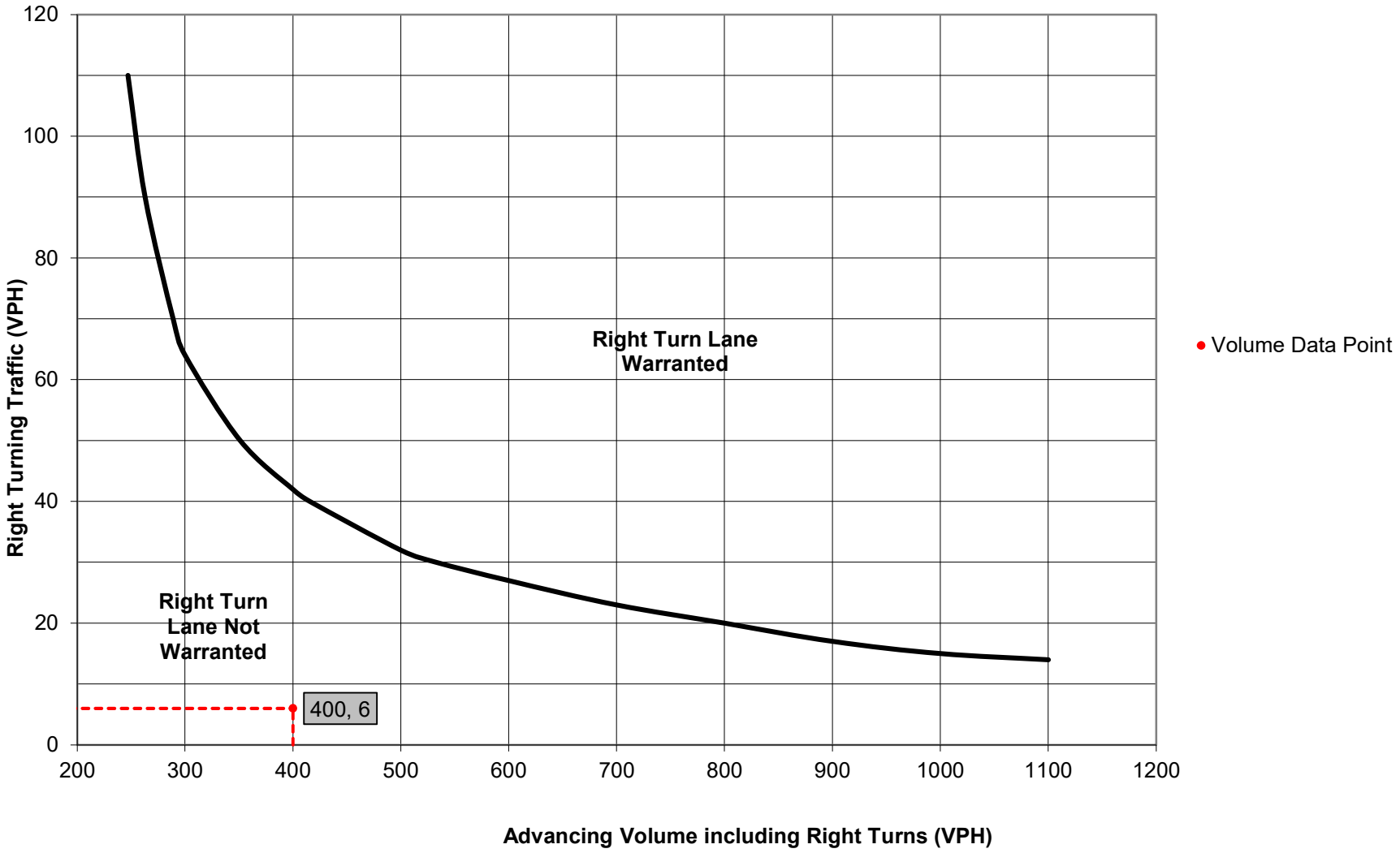
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	Yes	61	0.0%	61
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	67
Opposing Volume:	0
Left Turn Volume:	6
% Left Turns in Advancing Volume:	8.96%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

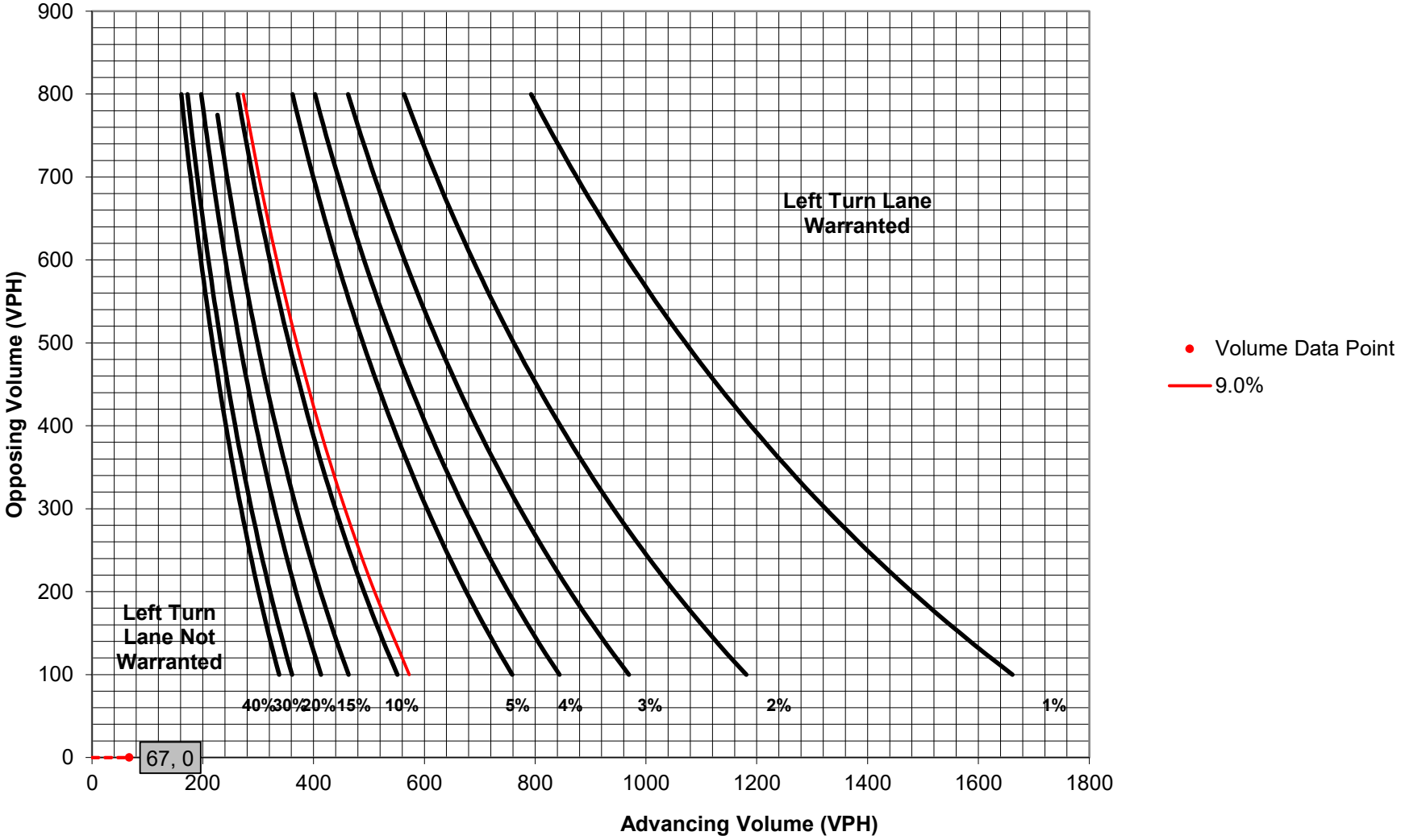
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	-	61	0.0%	61

Advancing Volume: 67
Right Turn Volume: 61

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	61
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

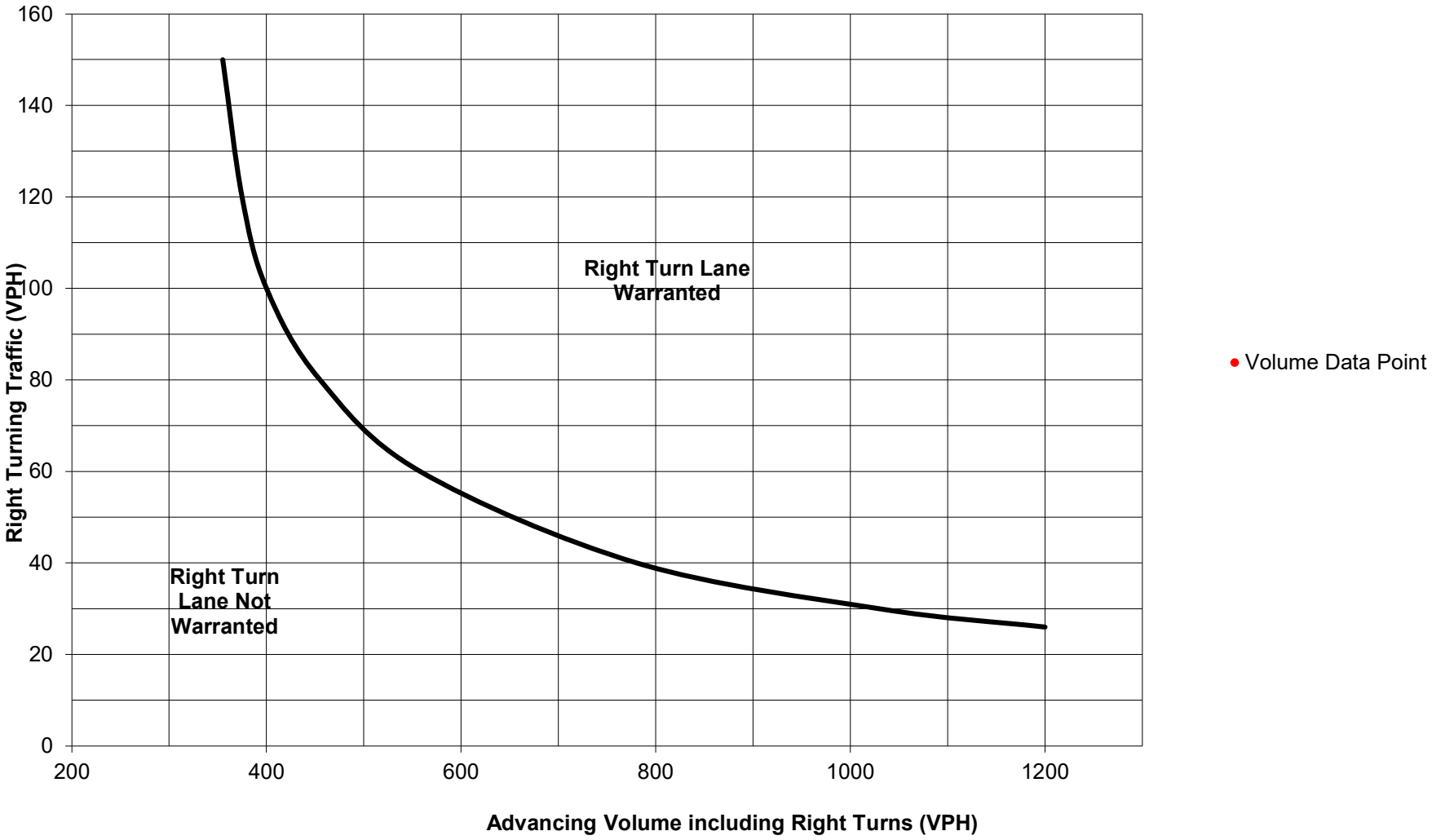
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	36	3.0%	38
	Through	-	389	1.0%	395
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	377	3.0%	394
	Right	Yes	6	0.0%	6

Advancing Volume:	433
Opposing Volume:	400
Left Turn Volume:	38
% Left Turns in Advancing Volume:	8.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

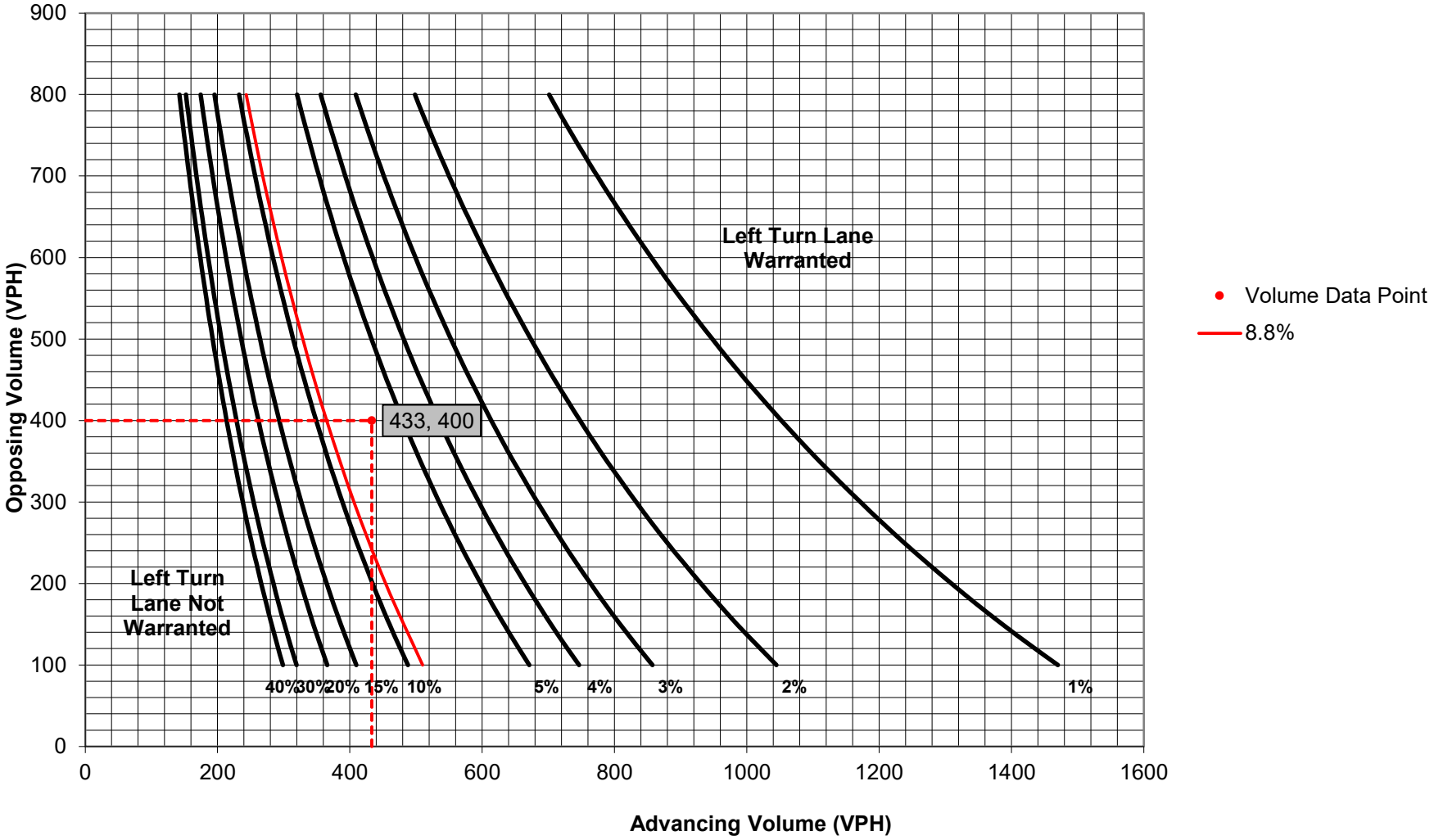
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	473	0.0%	473
	Right	-	17	0.0%	17

Advancing Volume: 490
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

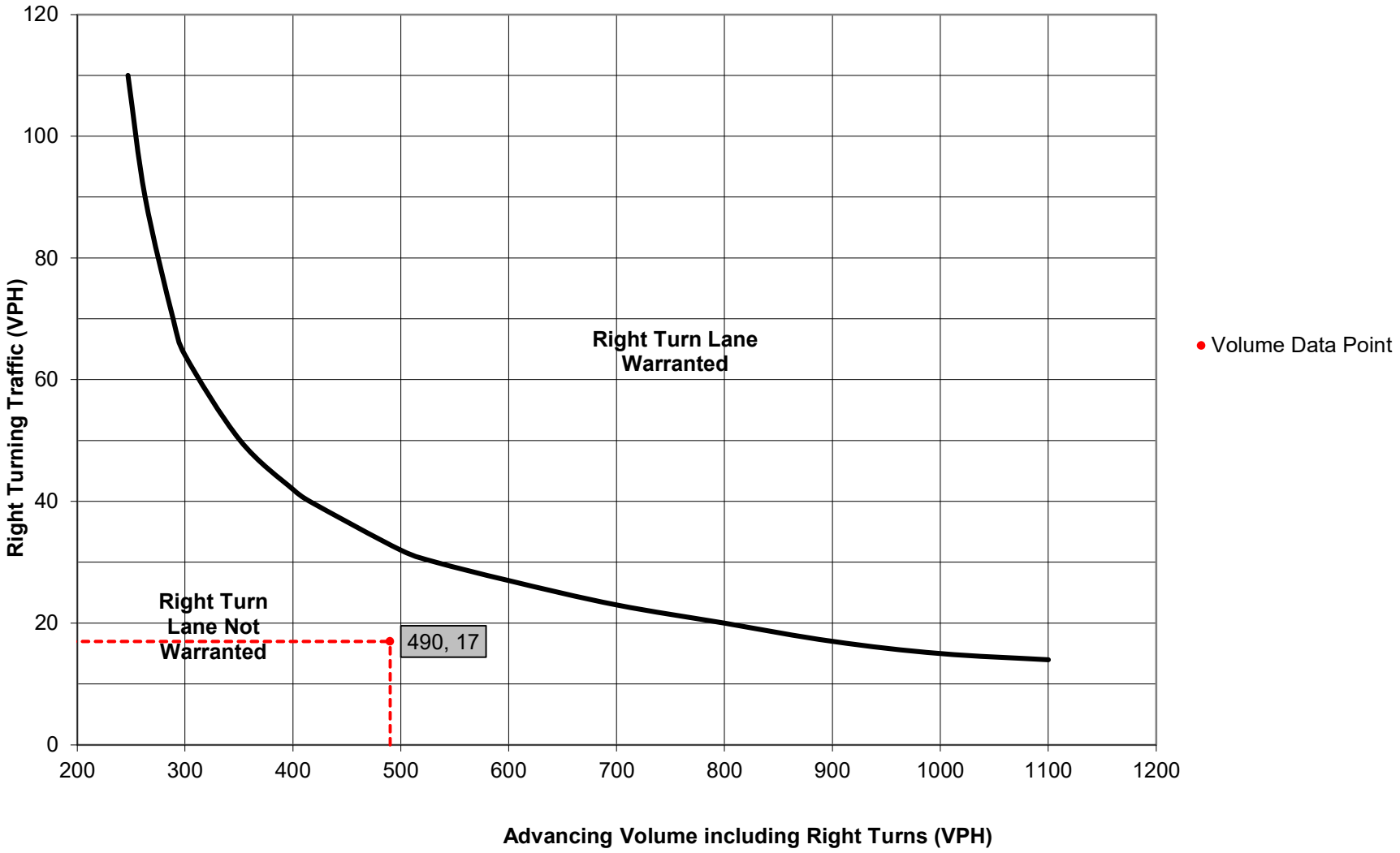
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	Yes	48	0.0%	48
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	49
Opposing Volume:	0
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.04%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

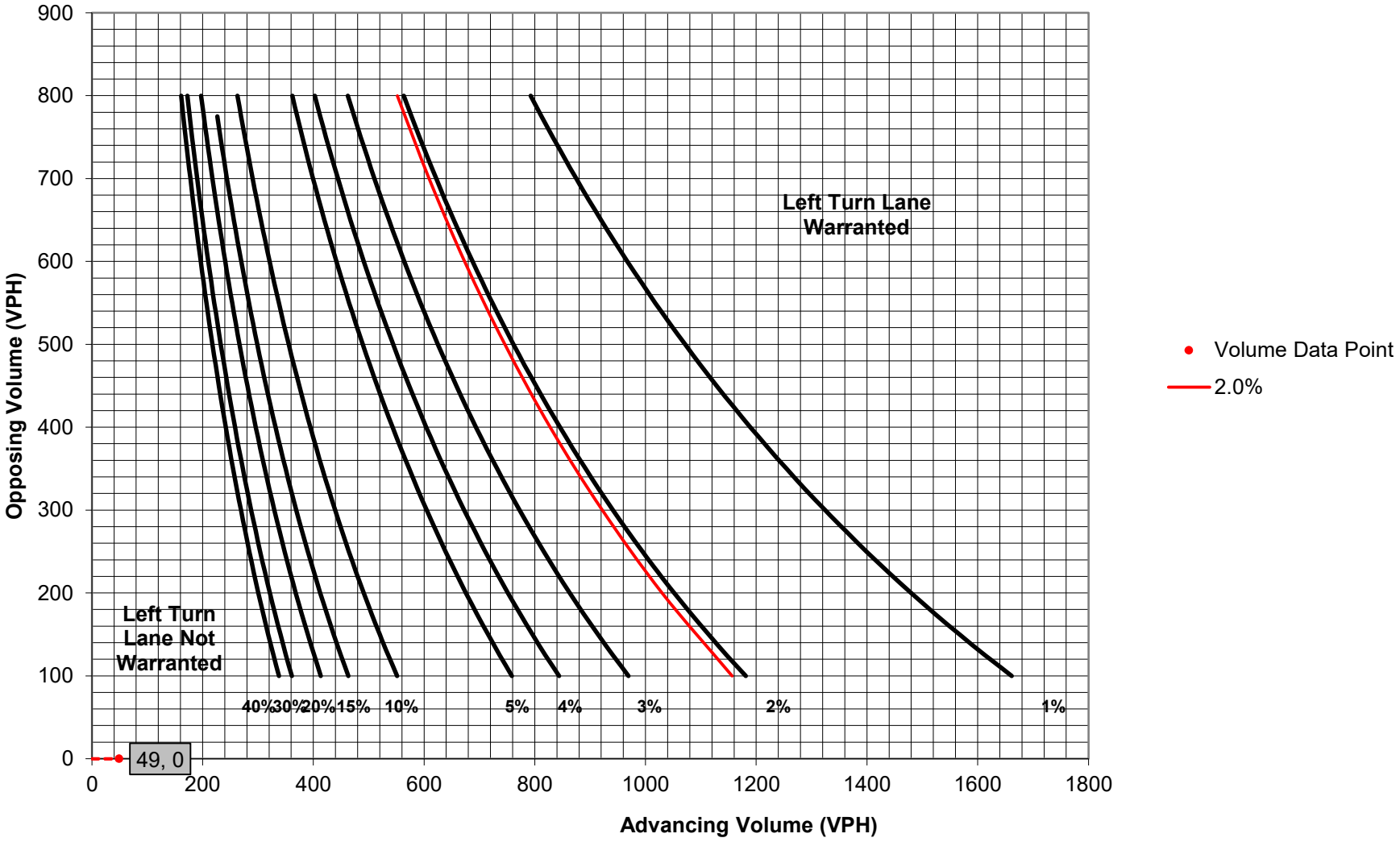
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	-	48	0.0%	48

Advancing Volume: 49
Right Turn Volume: 48

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	48
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

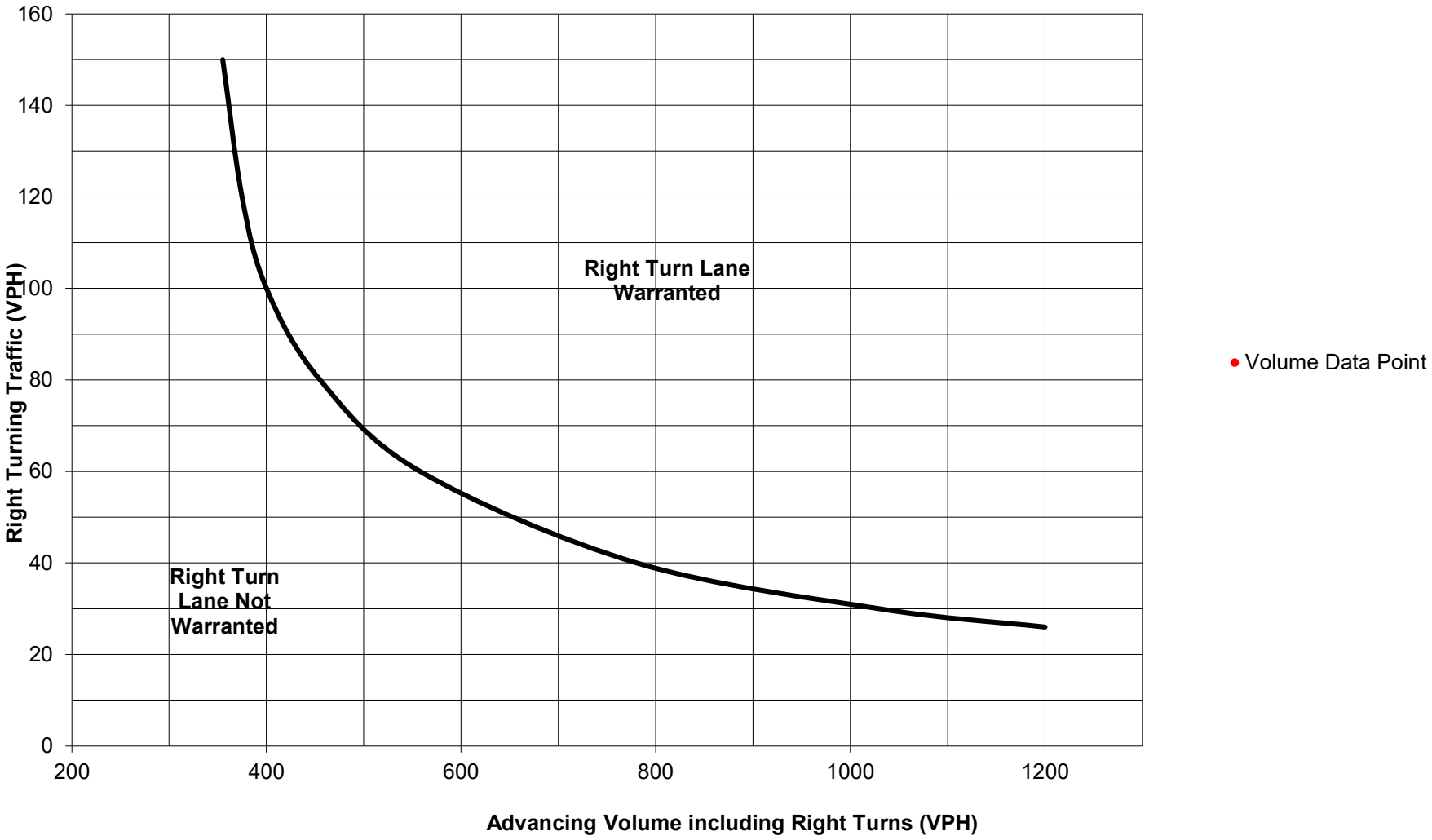
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (No Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	0.0%	53
	Through	-	511	1.0%	519
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	473	0.0%	473
	Right	Yes	17	0.0%	17

Advancing Volume:	572
Opposing Volume:	490
Left Turn Volume:	53
% Left Turns in Advancing Volume:	9.27%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	53
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

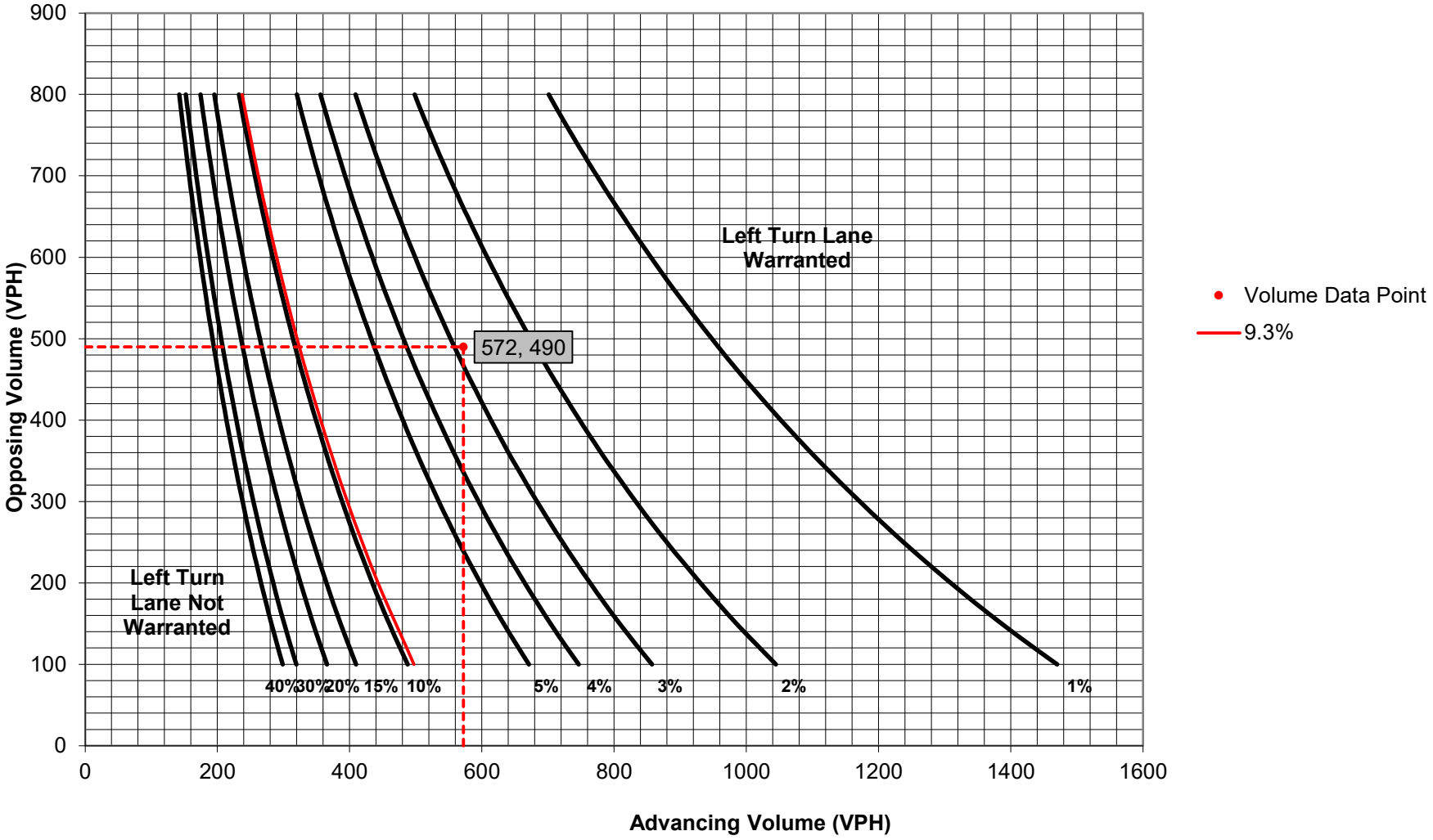
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



O.03 – 2037 Build Condition: Turn Lane Warrants

WEEKDAY

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	30	7.0%	34

Advancing Volume: 34
Right Turn Volume: 34

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	34
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

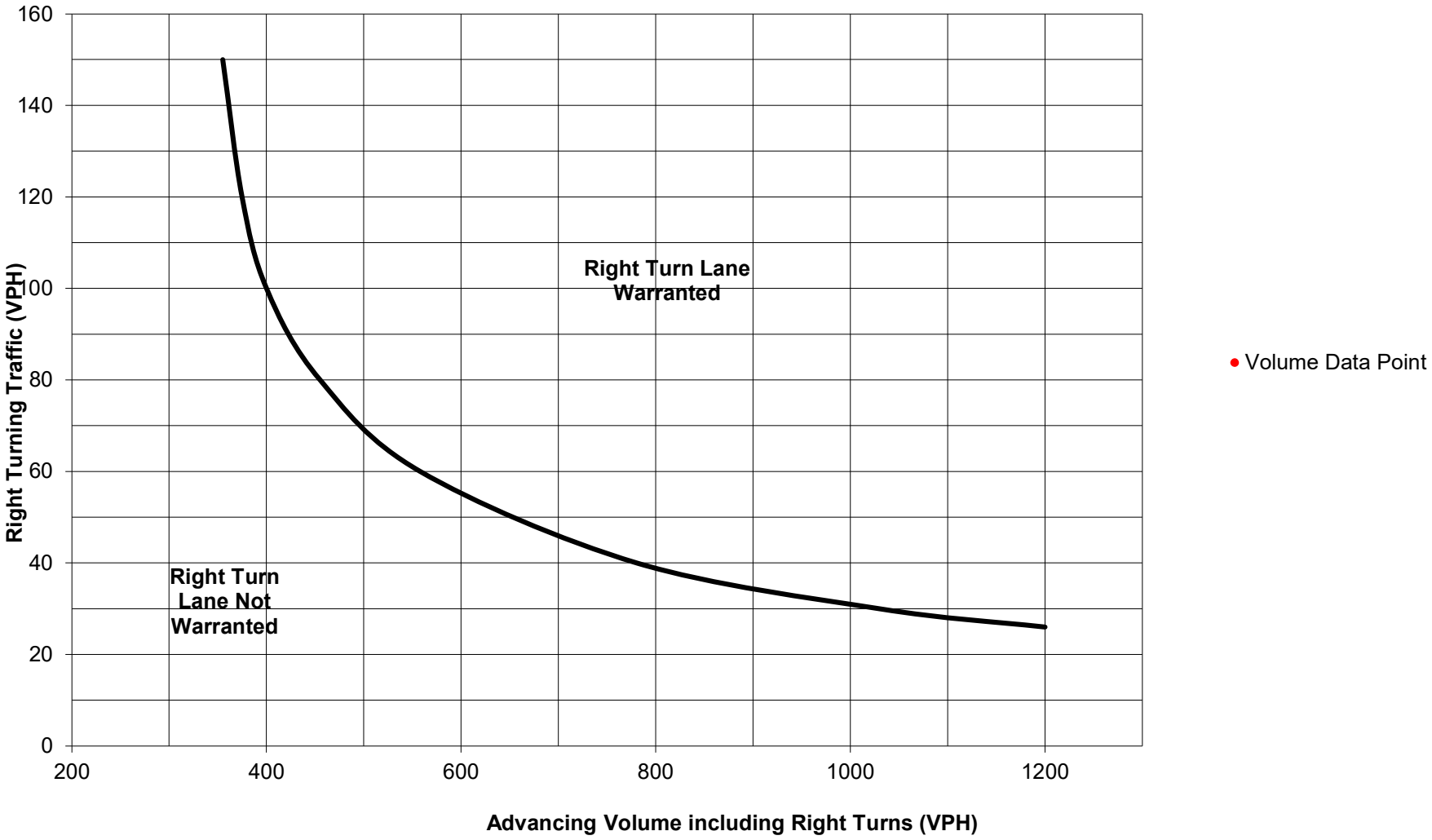
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	2.0%	55
	Through	-	0	0.0%	0
	Right	Yes	1	100.0%	3
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 58
Opposing Volume: 0
Left Turn Volume: 55
% Left Turns in Advancing Volume: 94.83%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	55
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

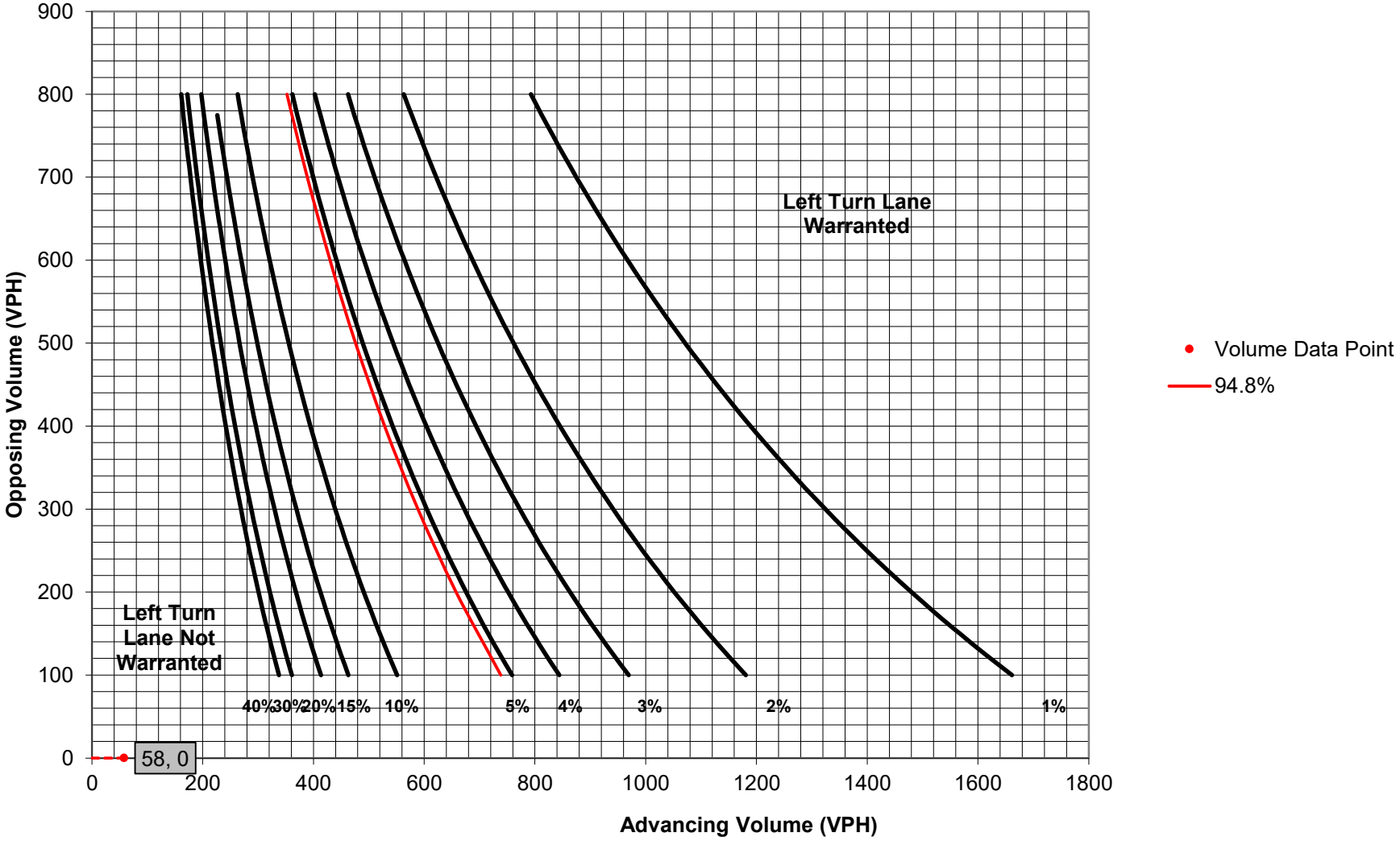
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	2.0%	55
	Through	-	0	0.0%	0
	Right	-	1	100.0%	3

Advancing Volume: 58
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

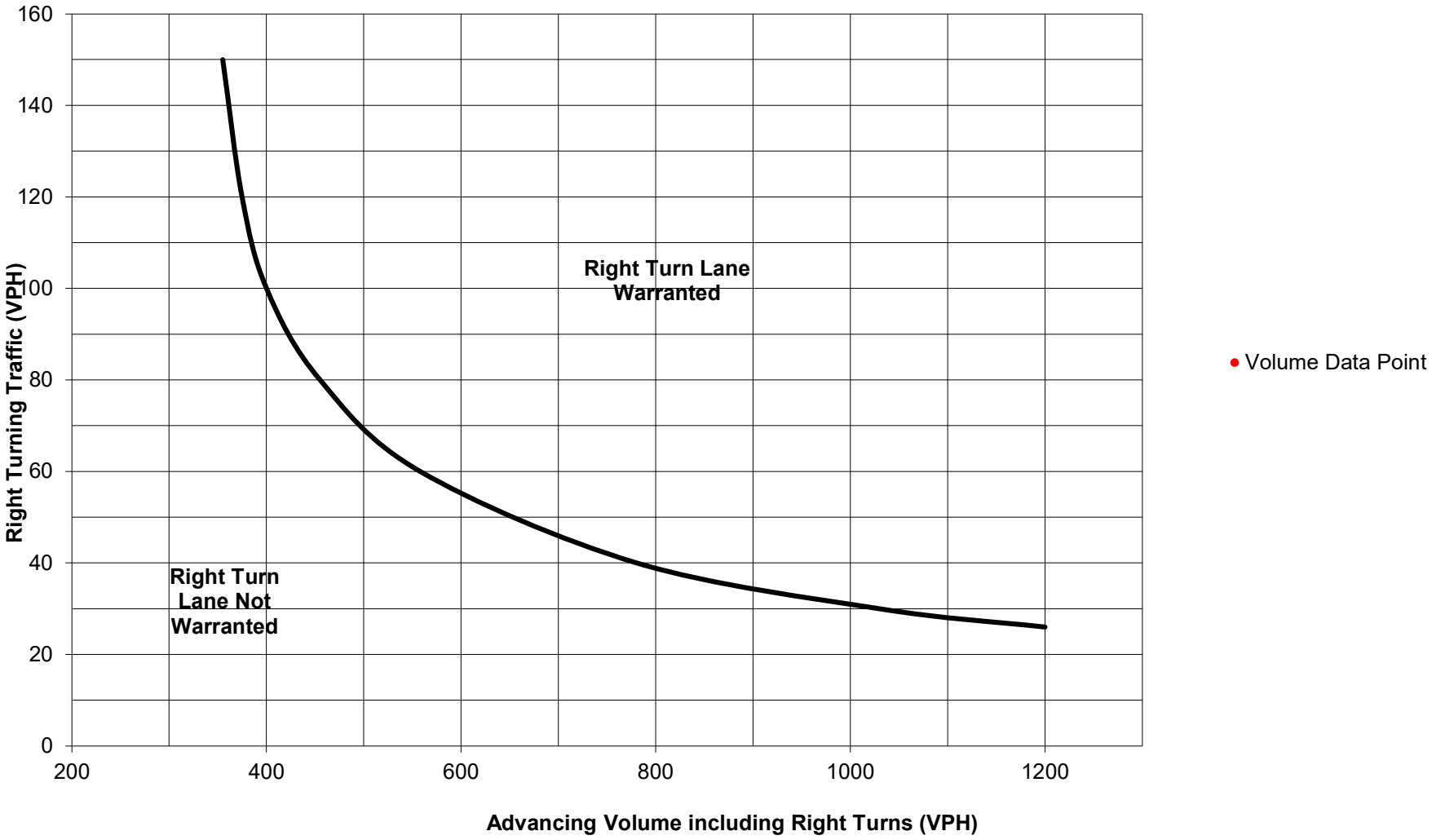
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	33.0%	5
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	30	7.0%	N/A

Advancing Volume:	5
Opposing Volume:	0
Left Turn Volume:	5
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

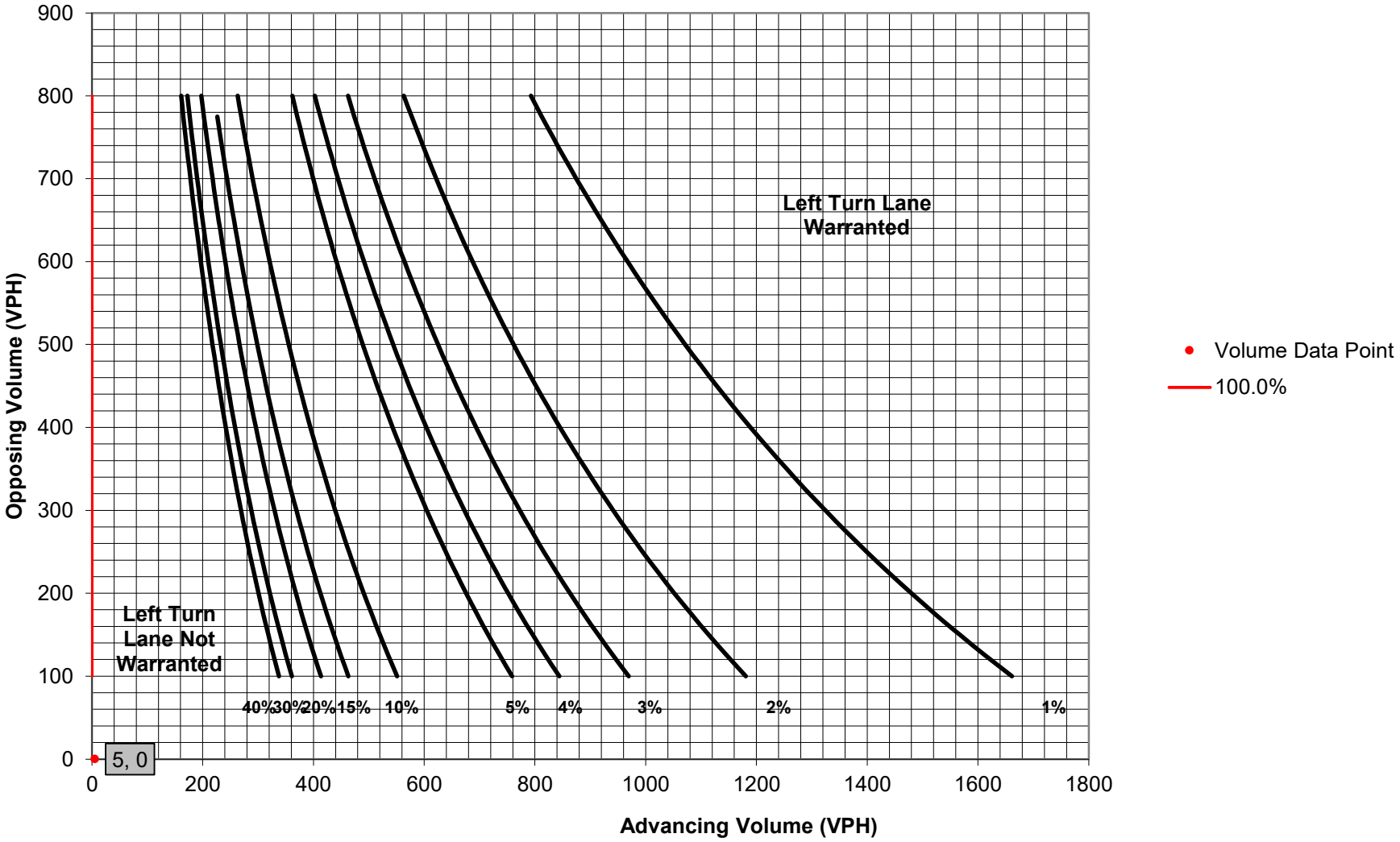
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	42	0.0%	42

Advancing Volume: 42
Right Turn Volume: 42

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

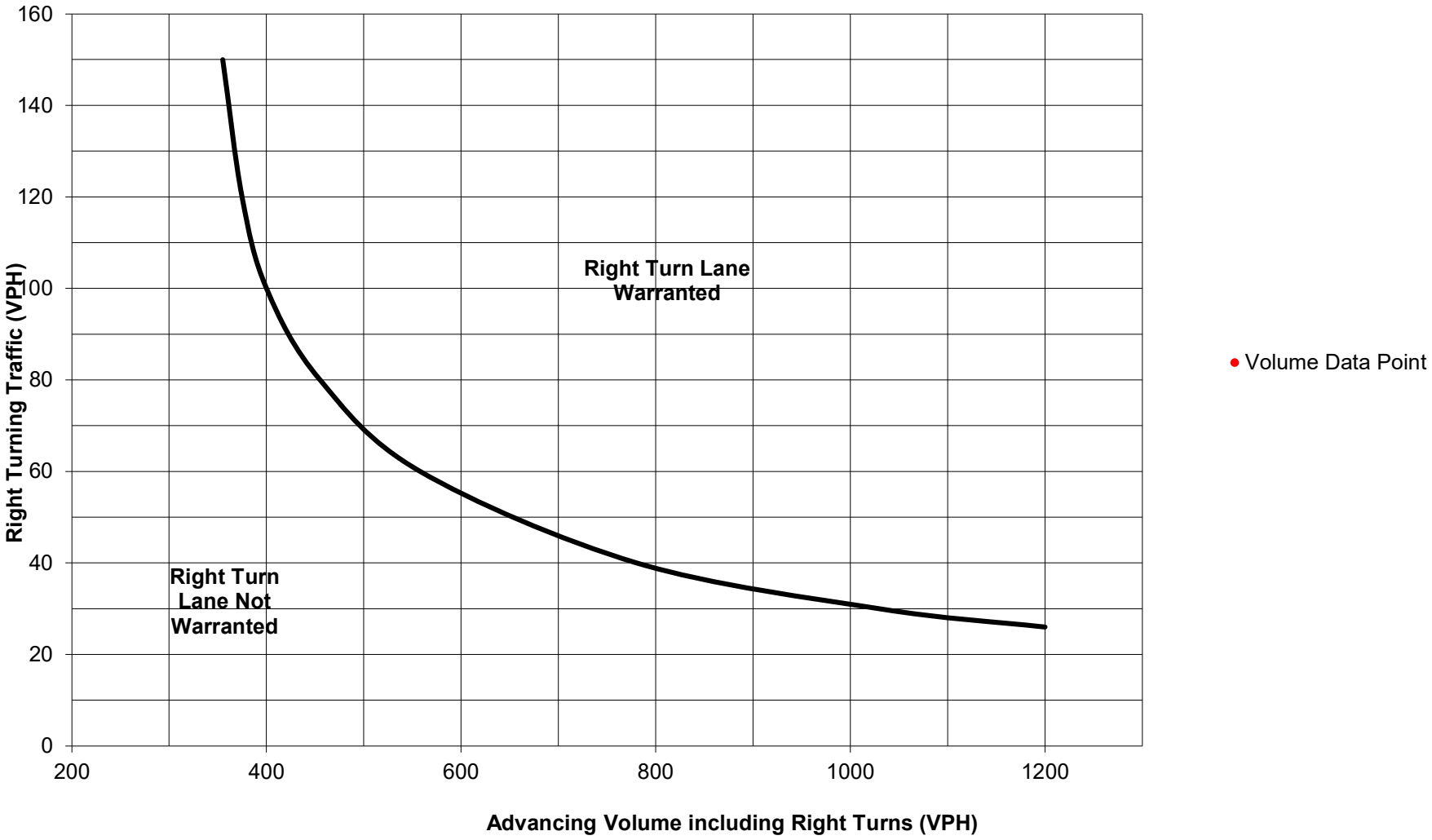
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	77	4.0%	82
	Through	-	0	0.0%	0
	Right	Yes	2	0.0%	2
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 84
Opposing Volume: 0
Left Turn Volume: 82
% Left Turns in Advancing Volume: 97.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	82
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

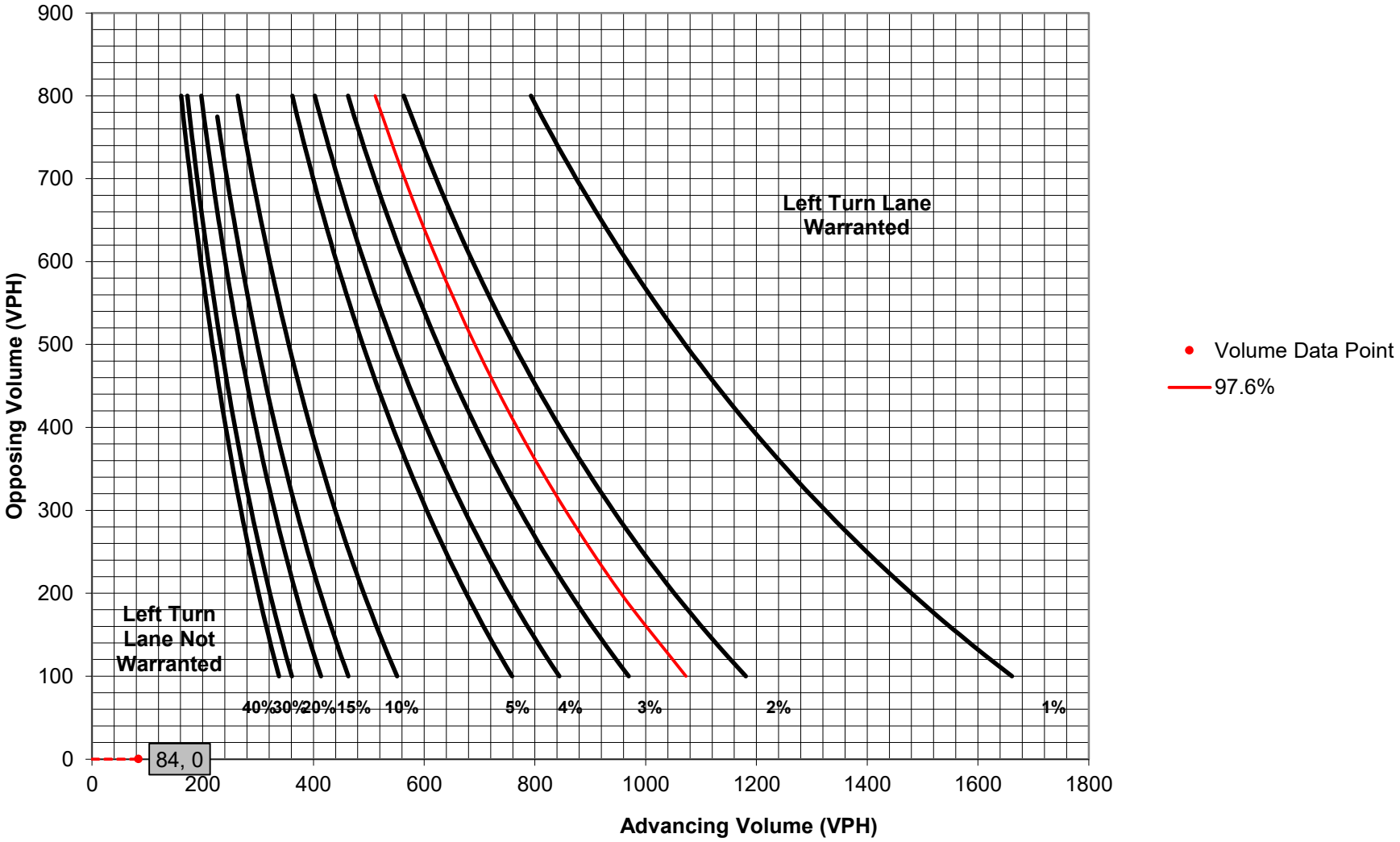
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	77	4.0%	82
	Through	-	0	0.0%	0
	Right	-	2	0.0%	2

Advancing Volume: 84
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

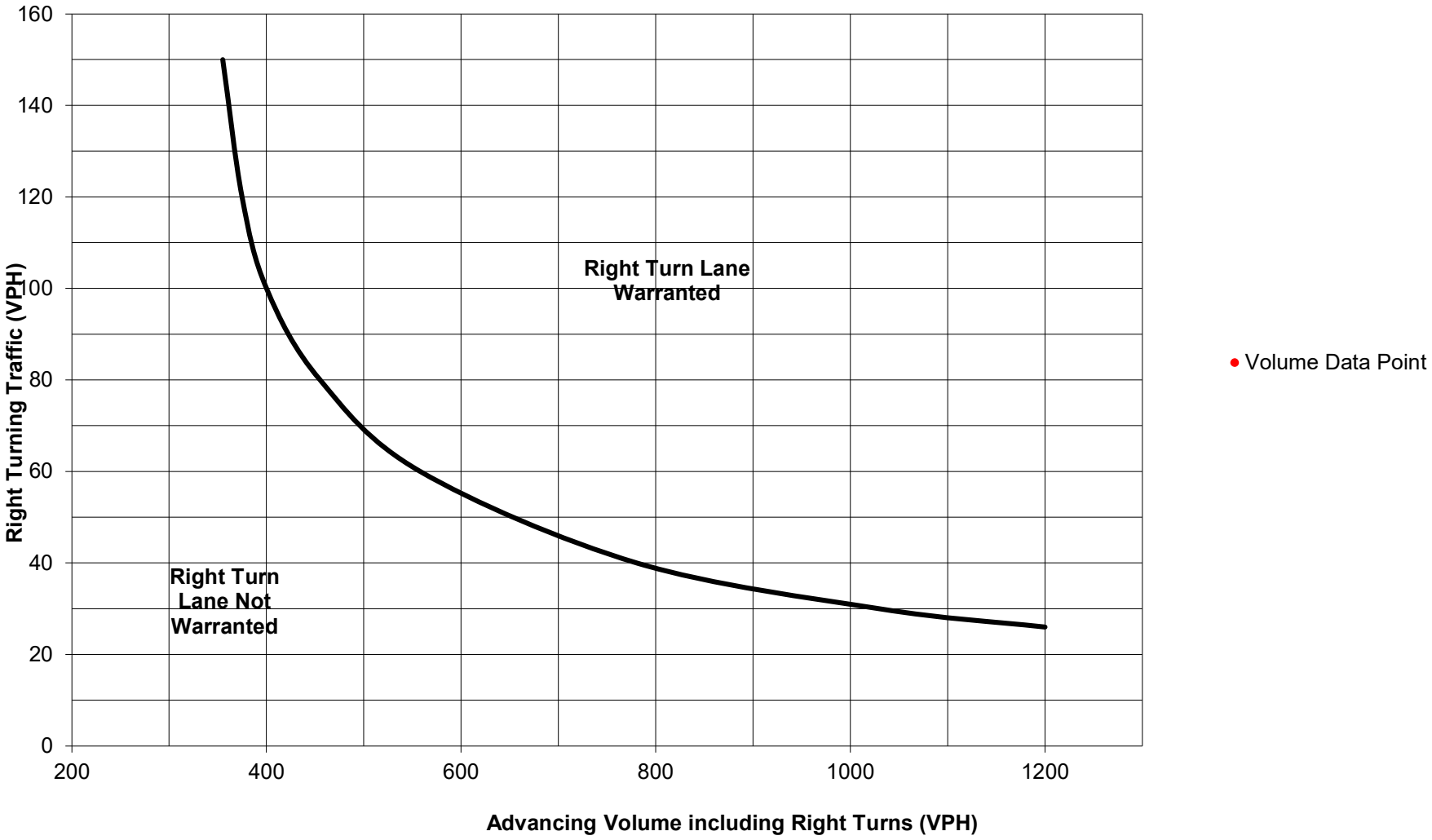
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	42	0.0%	N/A

Advancing Volume:	2
Opposing Volume:	0
Left Turn Volume:	2
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

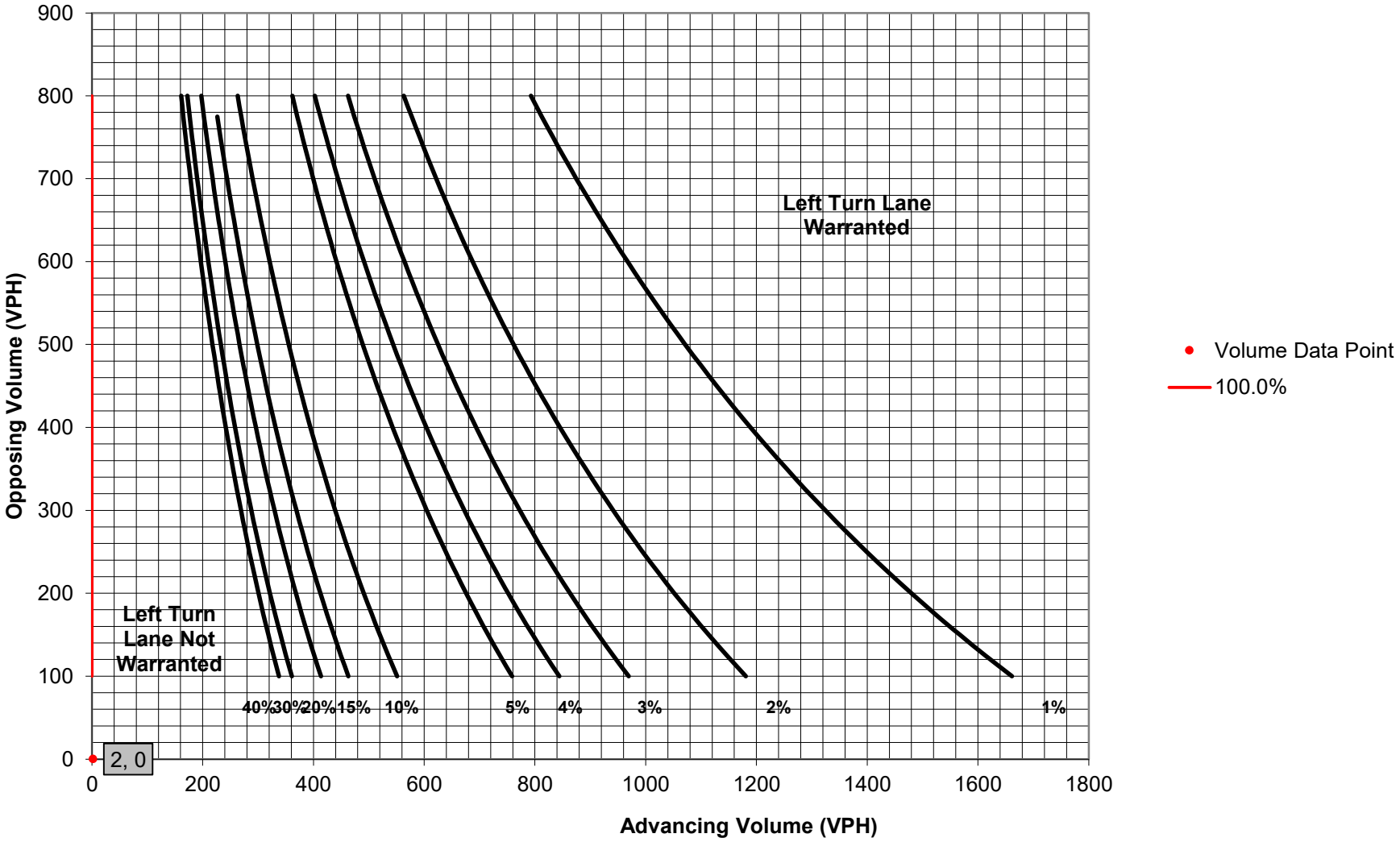
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	6	0.0%	N/A
	Through	-	140	2.0%	145
	Right	-	362	6.0%	395

Advancing Volume: 540
Right Turn Volume: 395

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	395
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: 7.0

PennDOT Publication 46, Exhibit 11-6

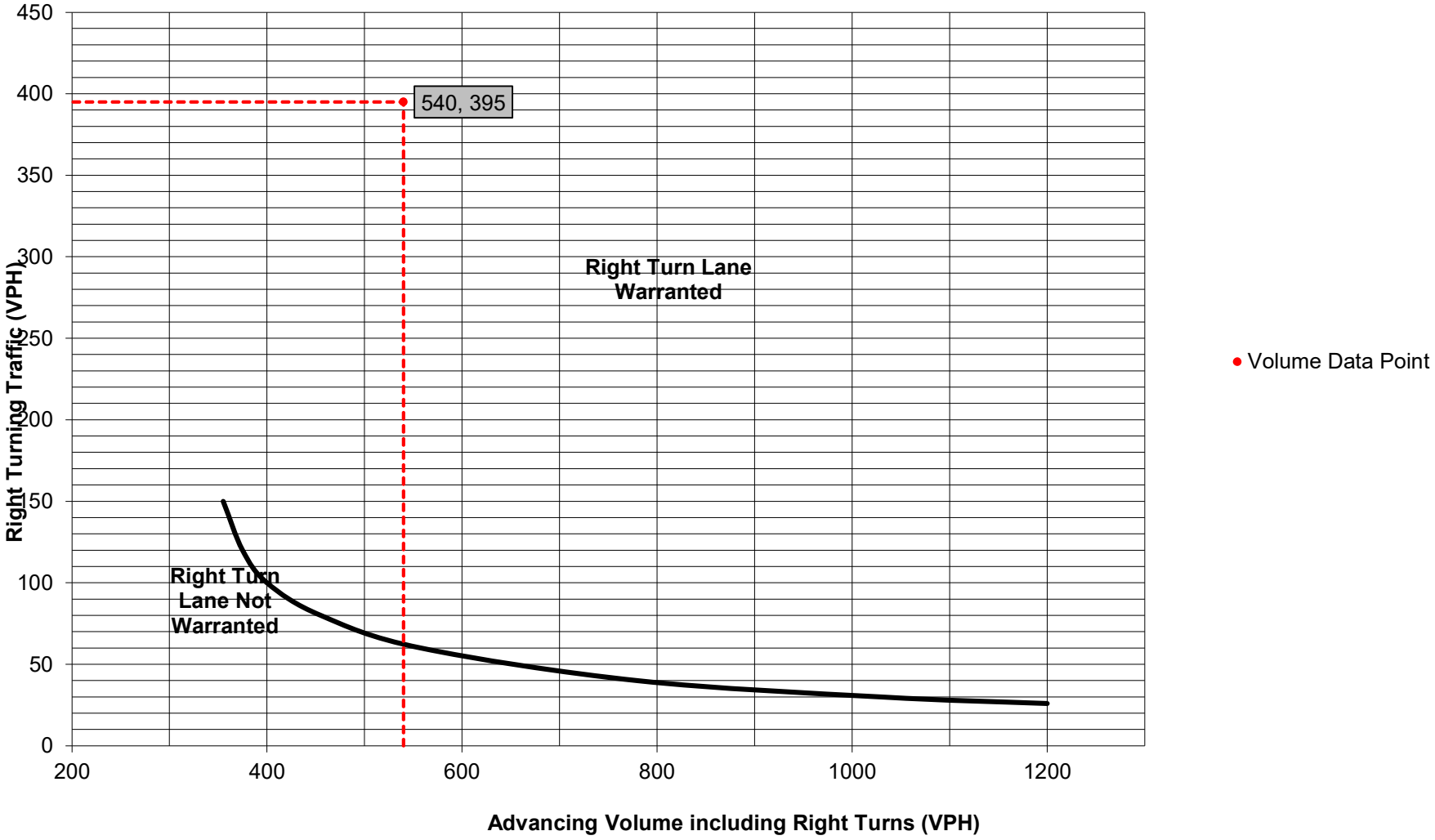
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	275	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	275	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	124	6.0%	136
	Through	-	0	0.0%	0
	Right	No	57	8.0%	N/A
Opposing	Left	No	8	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	13	8.0%	N/A

Advancing Volume:	136
Opposing Volume:	0
Left Turn Volume:	136
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	136
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

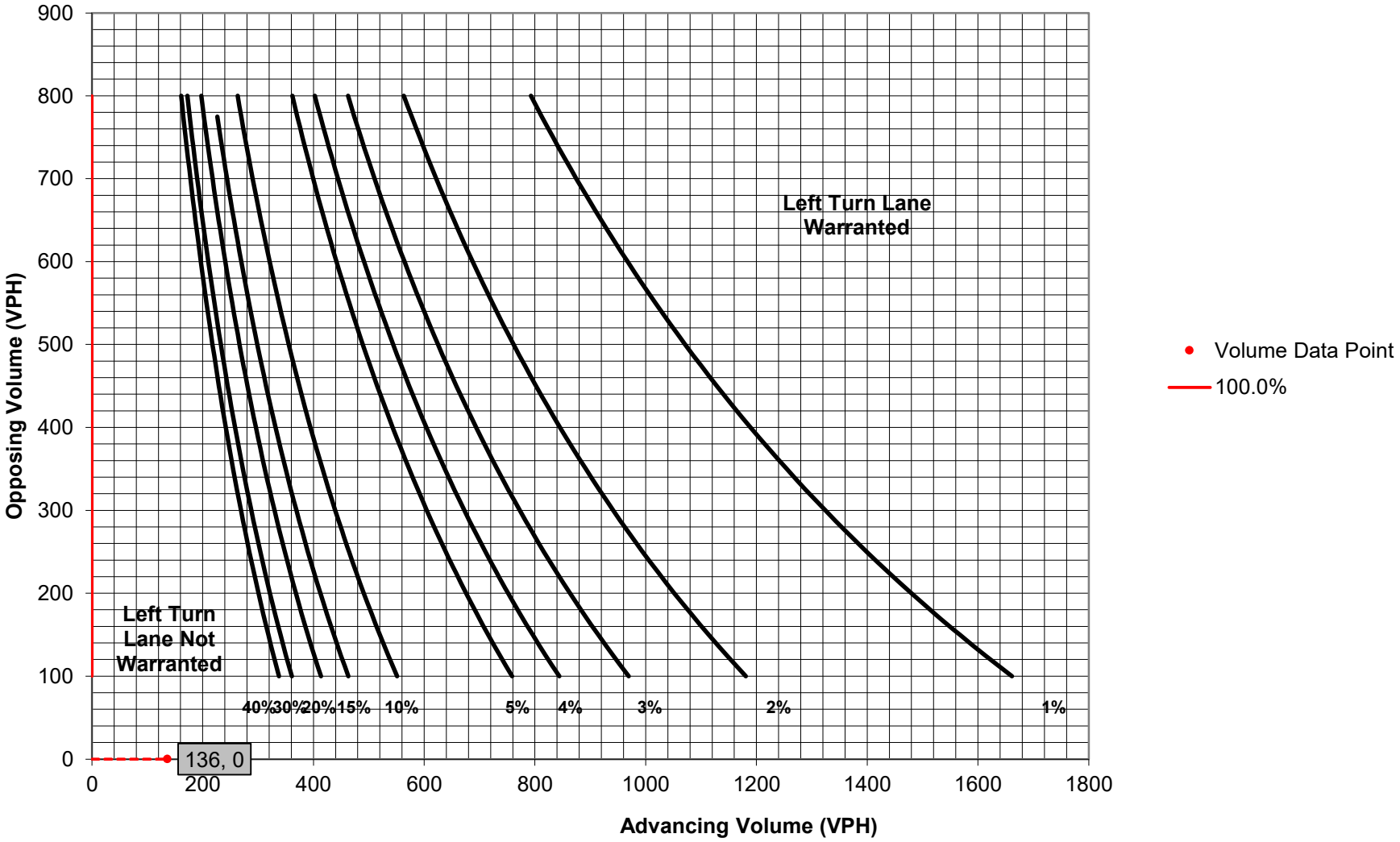
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	124	6.0%	N/A
	Through	-	0	0.0%	0
	Right	-	57	8.0%	64

Advancing Volume: 64
Right Turn Volume: 64

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	64
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

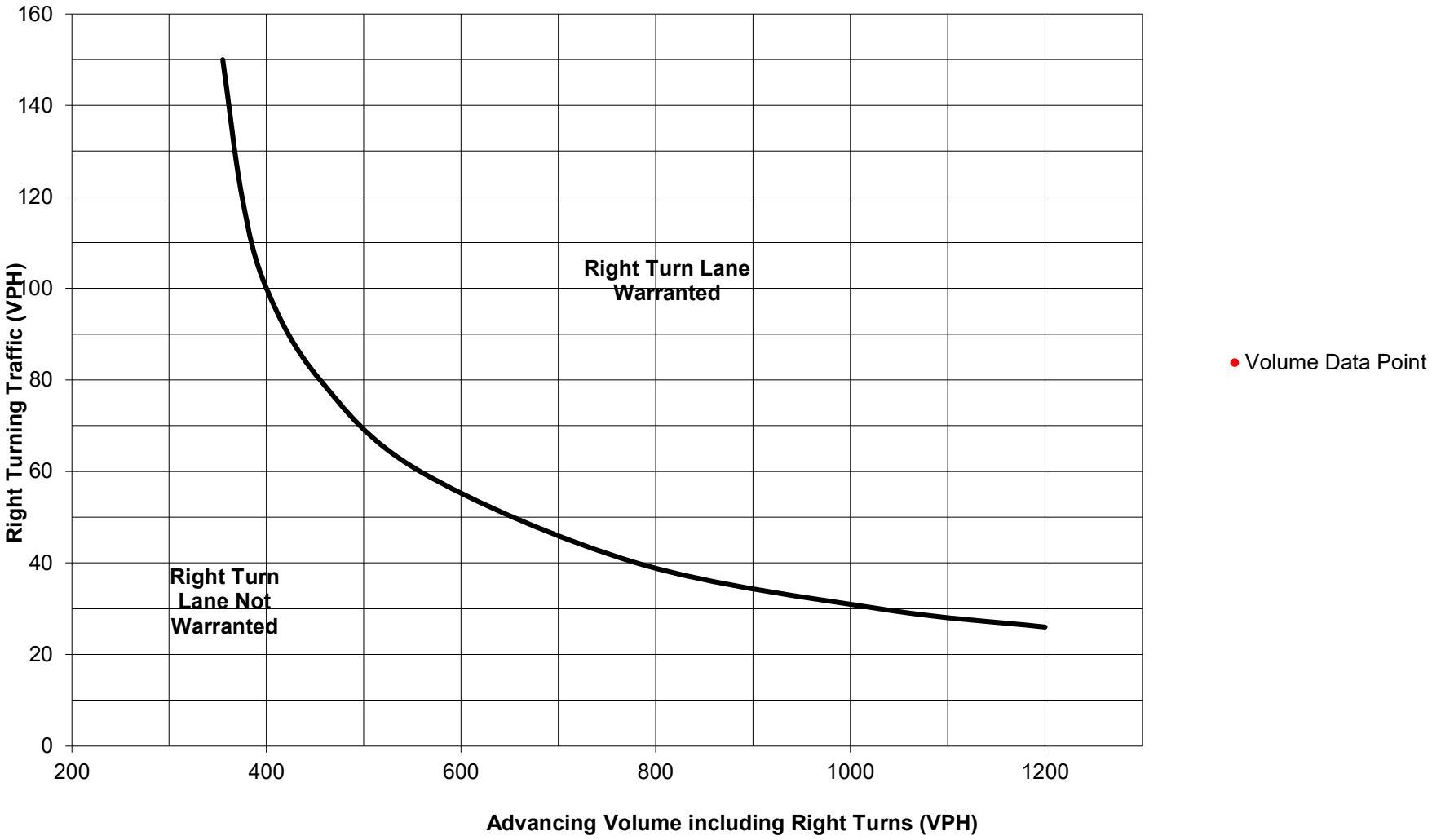
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	Yes	13	8.0%	15
Opposing	Left	No	124	6.0%	N/A
	Through	-	0	0.0%	0
	Right	No	57	8.0%	N/A

Advancing Volume:	23
Opposing Volume:	0
Left Turn Volume:	8
% Left Turns in Advancing Volume:	34.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

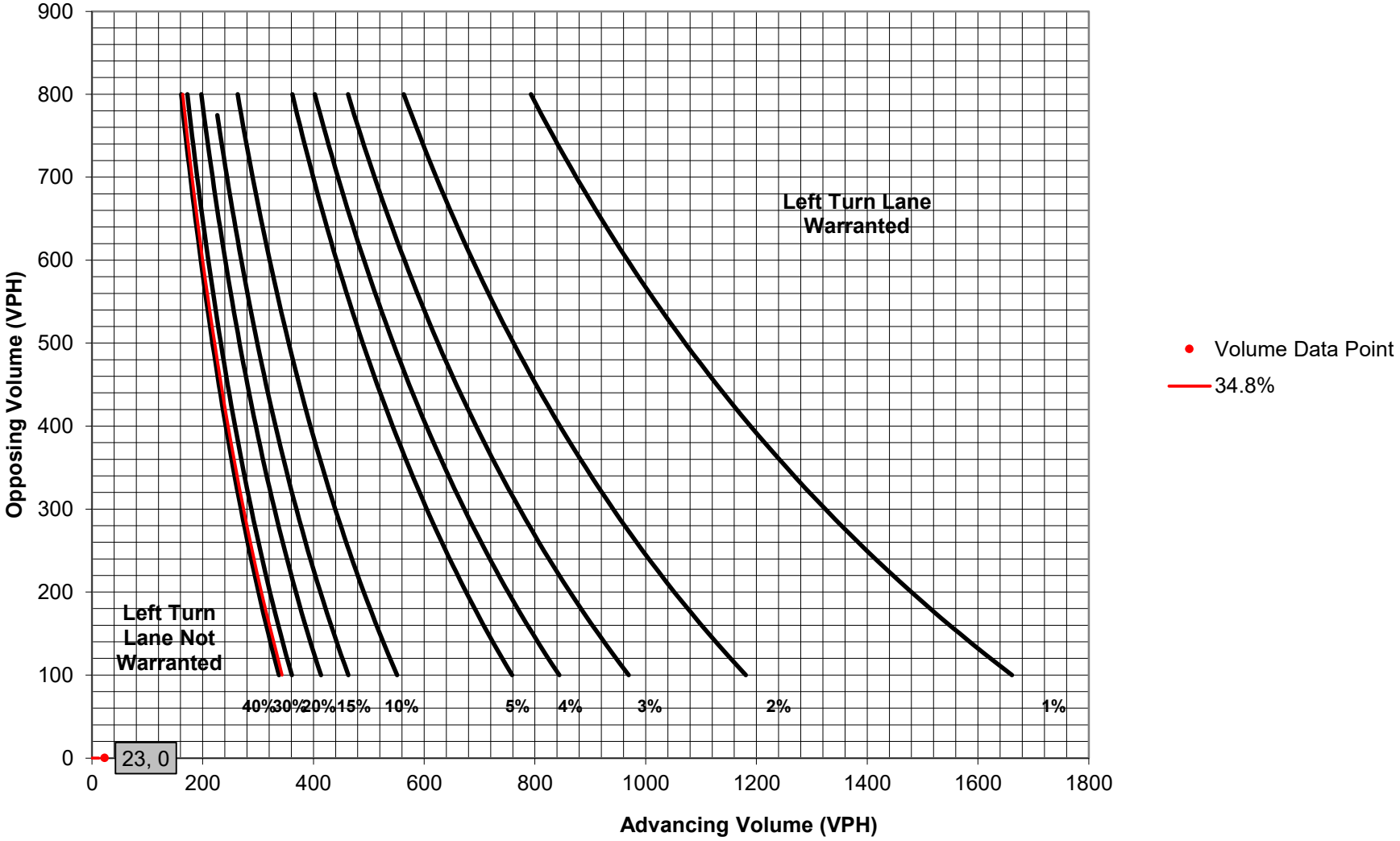
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	0	0.0%	0
	Right	-	13	8.0%	15

Advancing Volume: 23
Right Turn Volume: 15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

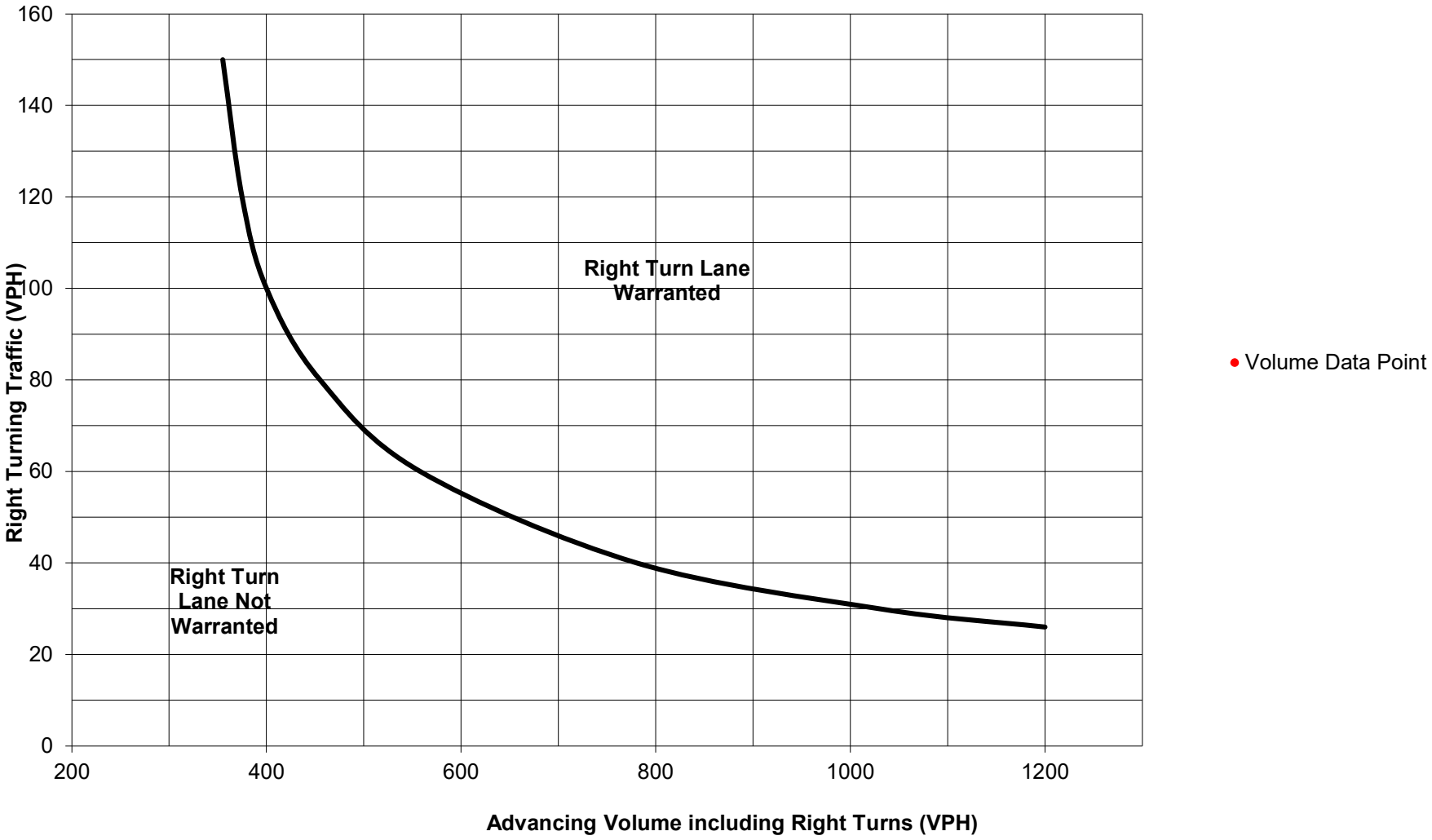
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	81	4.0%	86
	Through	-	84	3.0%	88
	Right	No	3	33.0%	N/A
Opposing	Left	No	6	0.0%	N/A
	Through	-	140	2.0%	145
	Right	No	362	6.0%	N/A

Advancing Volume:	174
Opposing Volume:	145
Left Turn Volume:	86
% Left Turns in Advancing Volume:	49.43%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	86
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

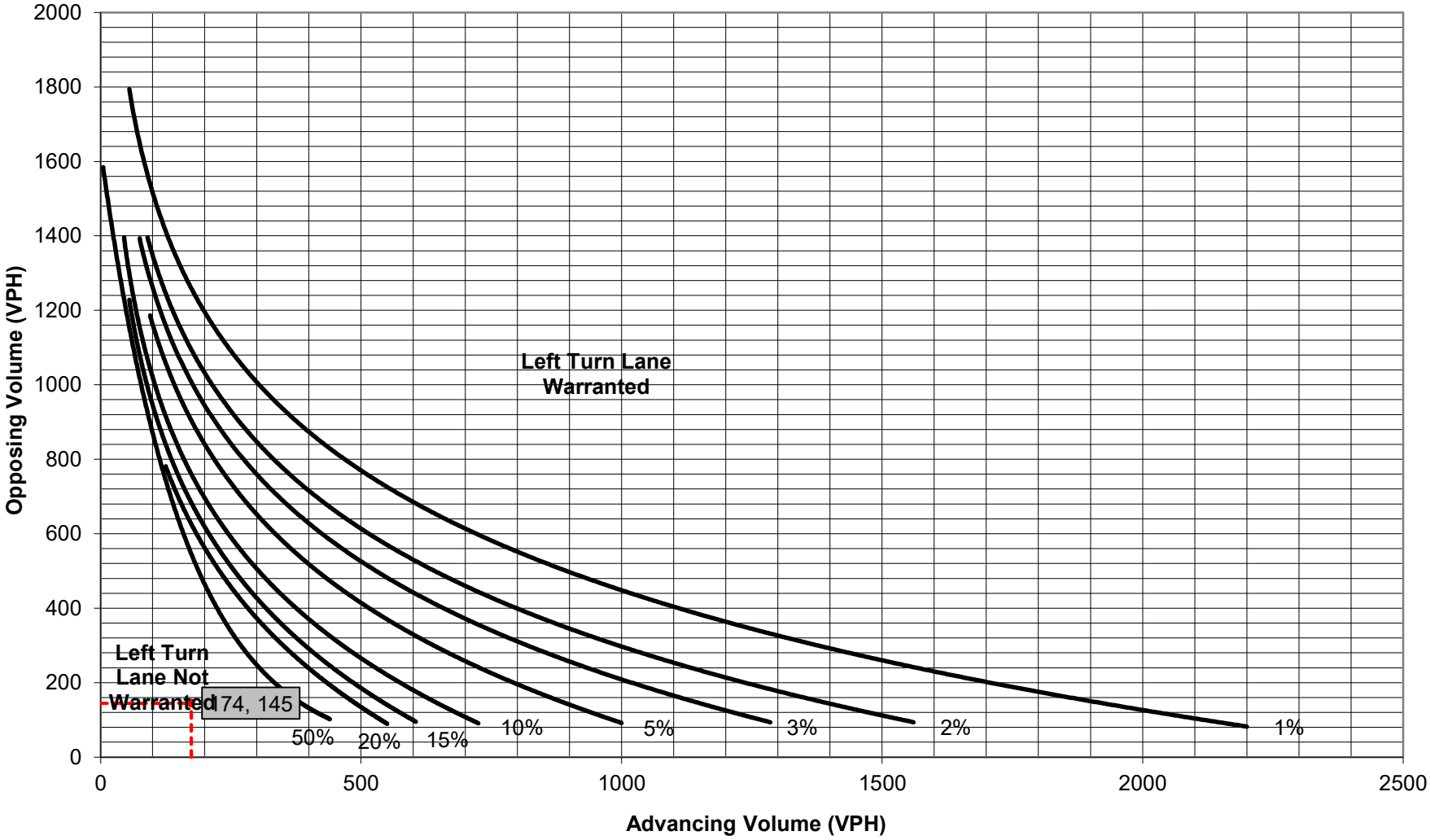
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	81	4.0%	N/A
	Through	-	84	3.0%	88
	Right	-	3	33.0%	5

Advancing Volume:	93
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

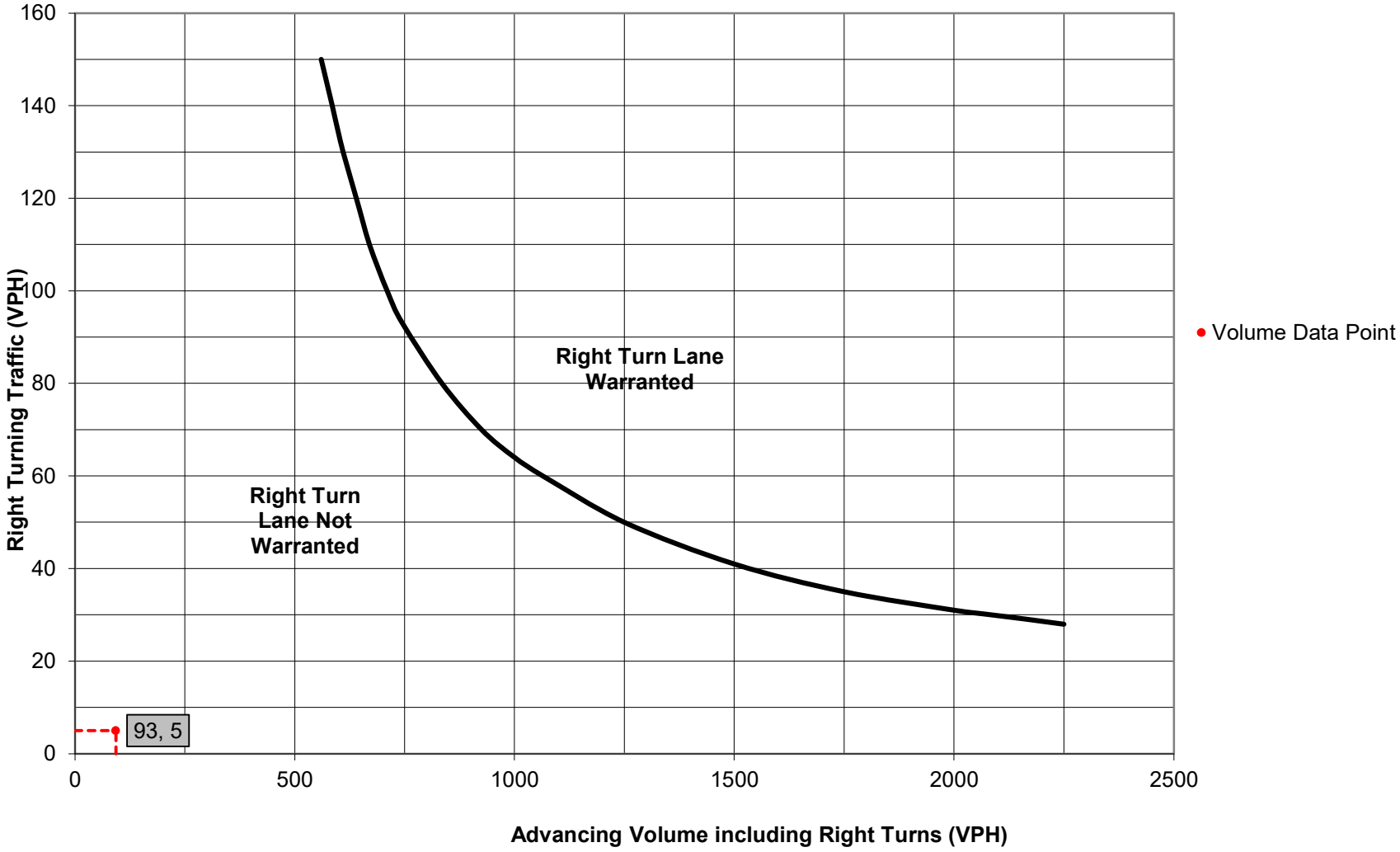
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	0.0%	14
	Through	-	284	2.0%	293
	Right	No	120	12.0%	N/A
Opposing	Left	No	37	6.0%	N/A
	Through	-	312	1.0%	317
	Right	Yes	46	0.0%	46

Advancing Volume:	307
Opposing Volume:	363
Left Turn Volume:	14
% Left Turns in Advancing Volume:	4.56%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

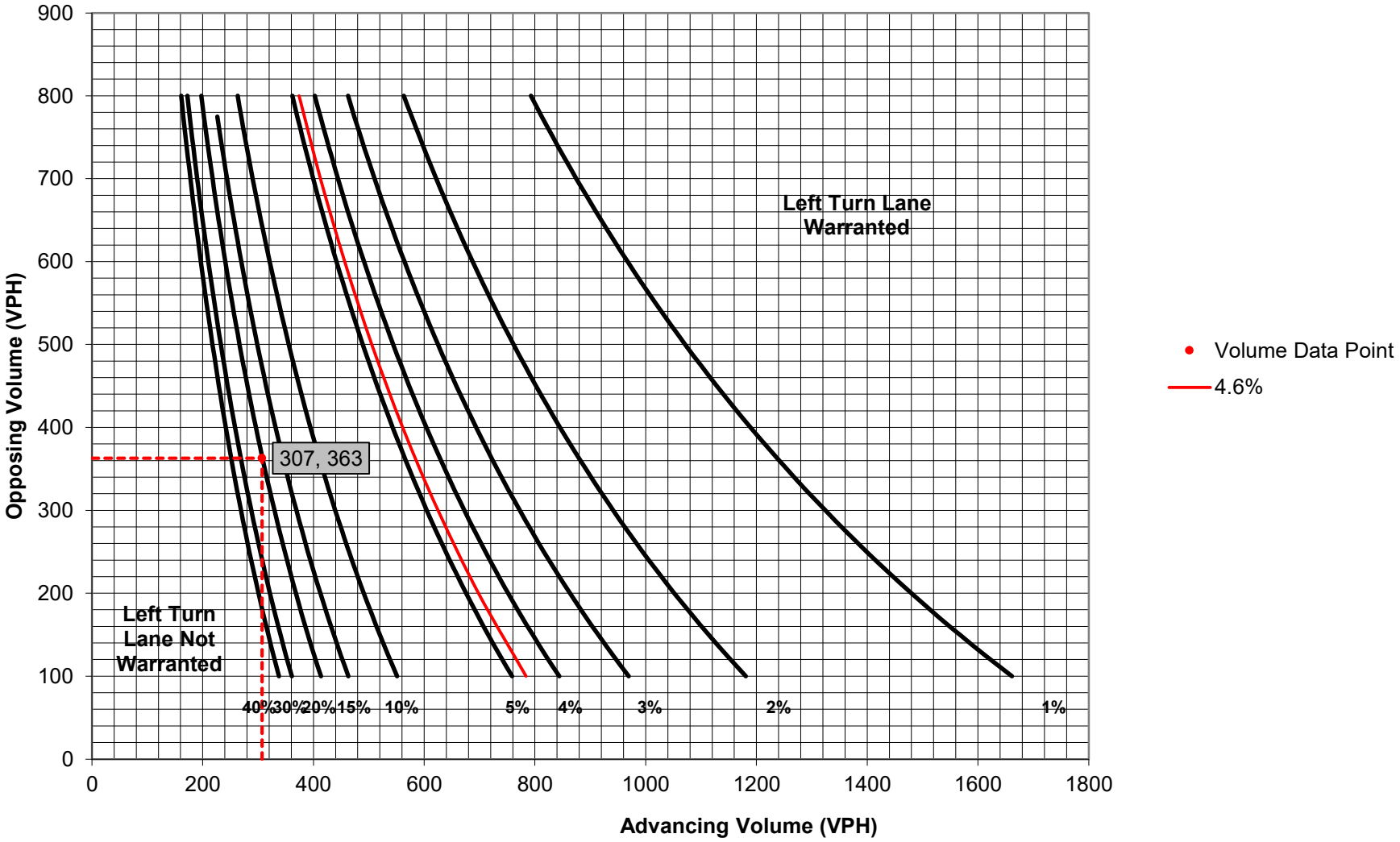
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	14	0.0%	N/A
	Through	-	284	2.0%	293
	Right	-	120	12.0%	142

Advancing Volume:	435
Right Turn Volume:	142

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	142
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

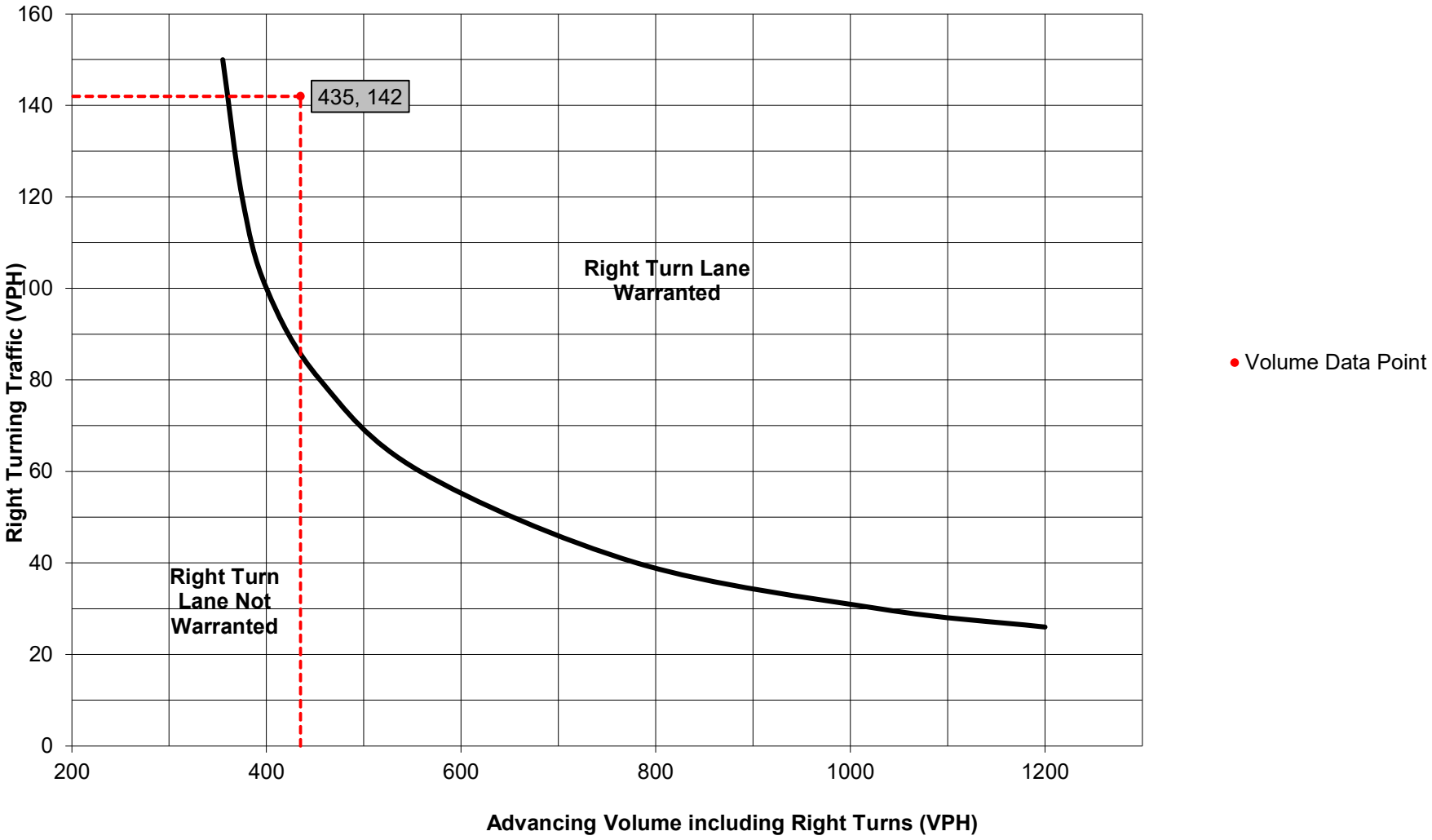
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	150	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	330	7.0%	365
	Through	-	1	0.0%	1
	Right	No	170	2.0%	N/A
Opposing	Left	No	27	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	32	0.0%	N/A

Advancing Volume:	366
Opposing Volume:	0
Left Turn Volume:	365
% Left Turns in Advancing Volume:	99.73%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	365
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

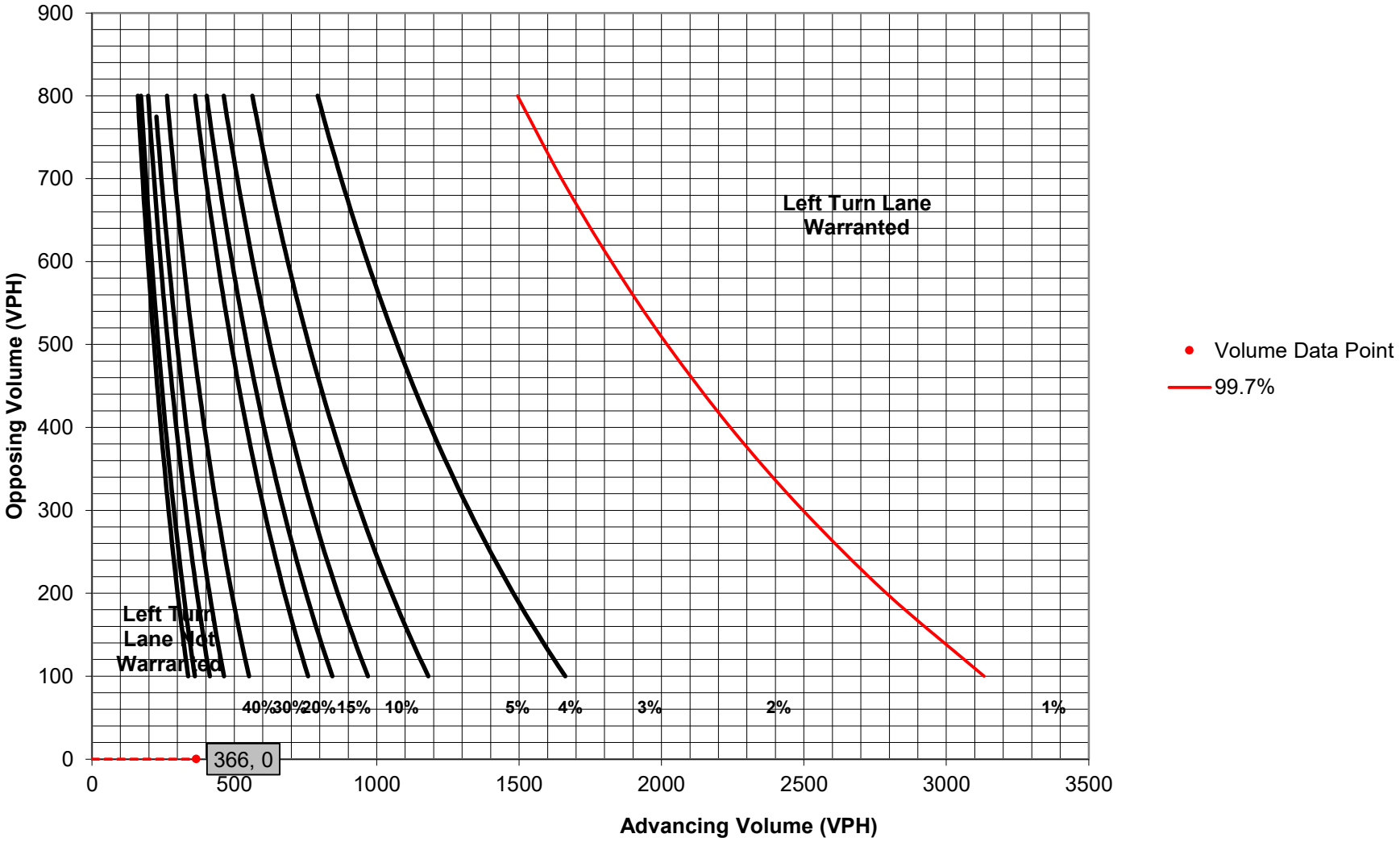
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	330	7.0%	N/A
	Through	-	1	0.0%	1
	Right	-	170	2.0%	176

Advancing Volume: 177
Right Turn Volume: 176

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	176
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

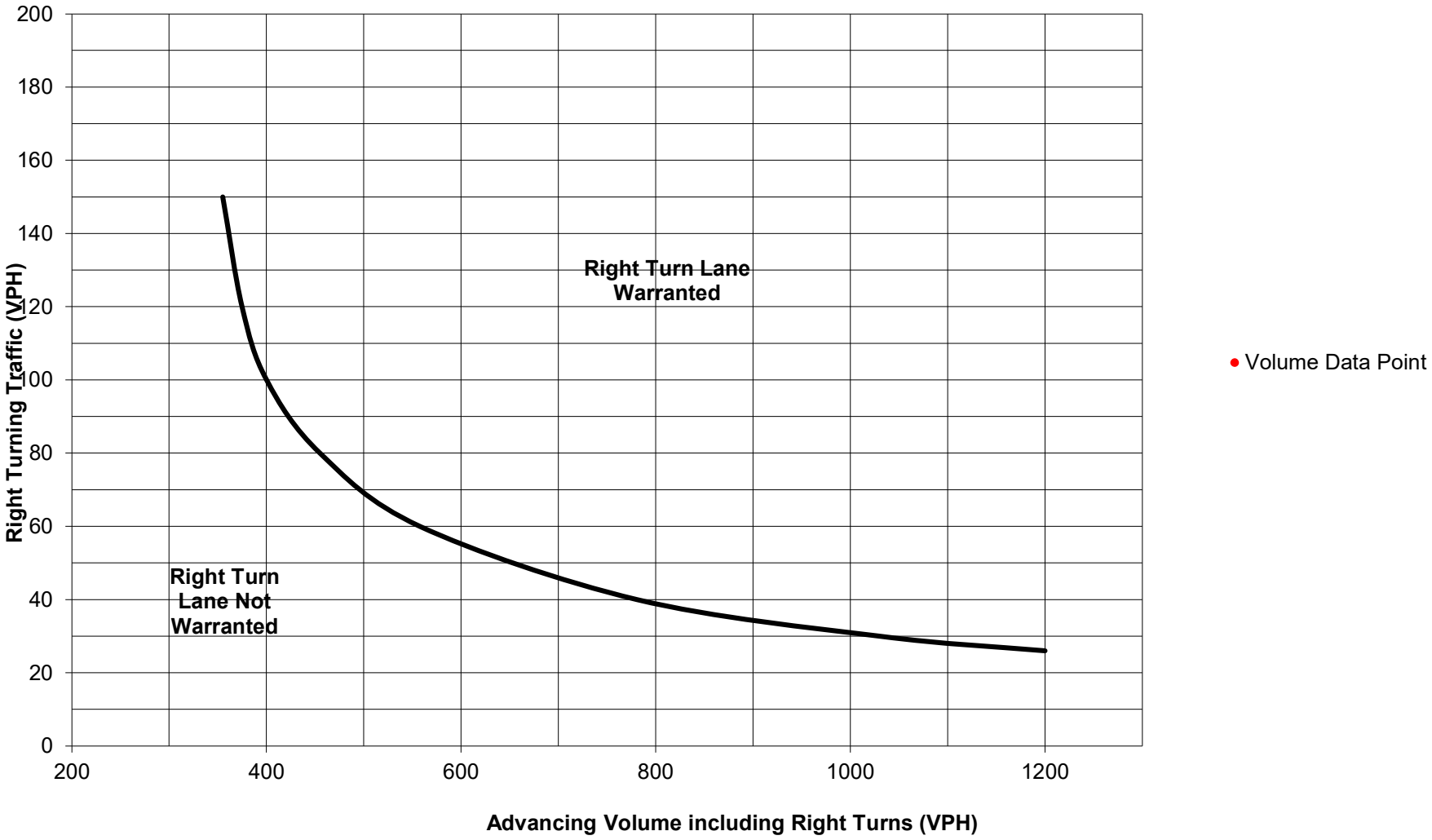
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	0.0%	27
	Through	-	0	0.0%	0
	Right	Yes	32	0.0%	32
Opposing	Left	No	330	7.0%	N/A
	Through	-	1	0.0%	1
	Right	No	170	2.0%	N/A

Advancing Volume:	59
Opposing Volume:	1
Left Turn Volume:	27
% Left Turns in Advancing Volume:	45.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	27
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

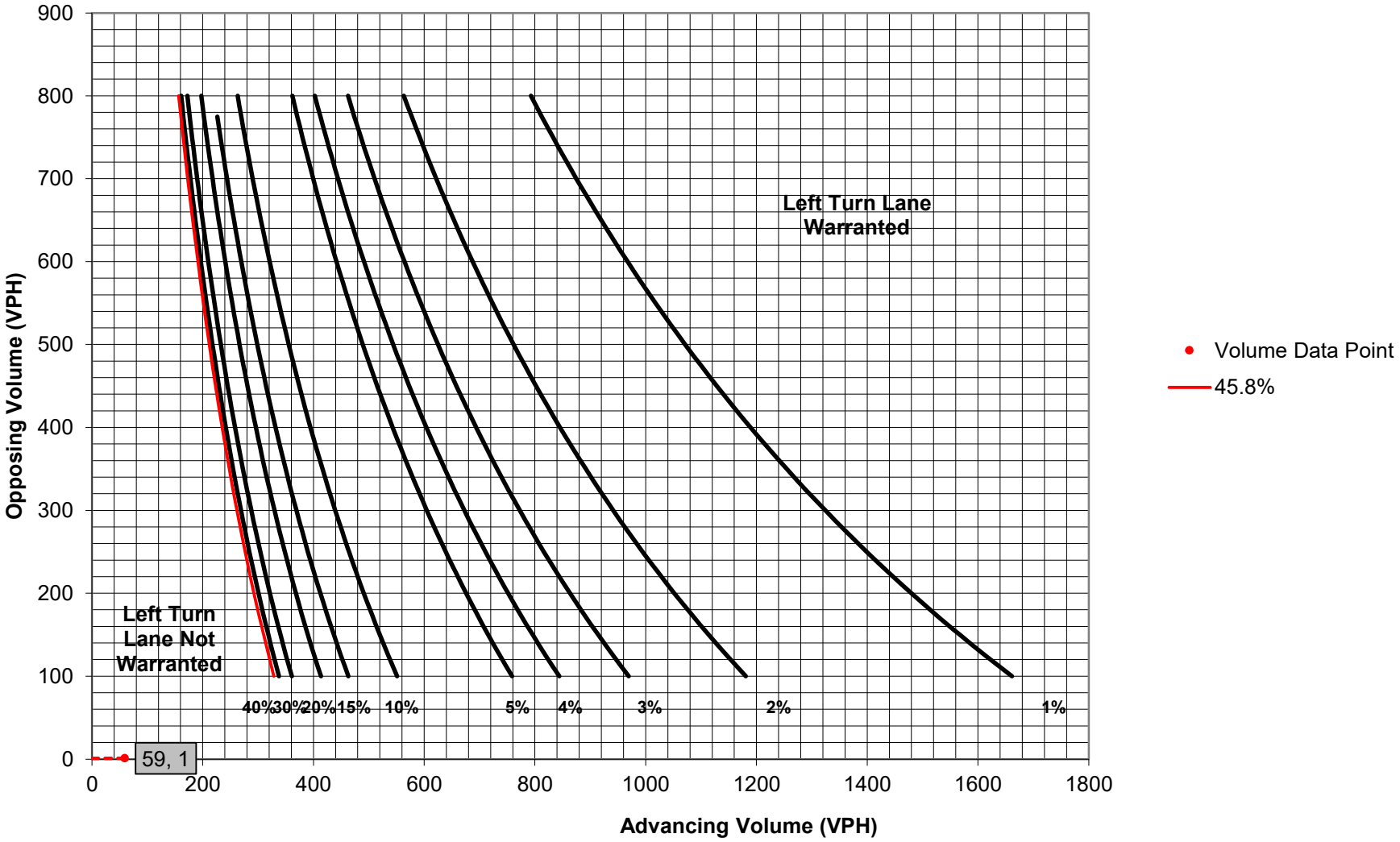
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	0.0%	27
	Through	-	0	0.0%	0
	Right	-	32	0.0%	32

Advancing Volume: 59
Right Turn Volume: 32

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

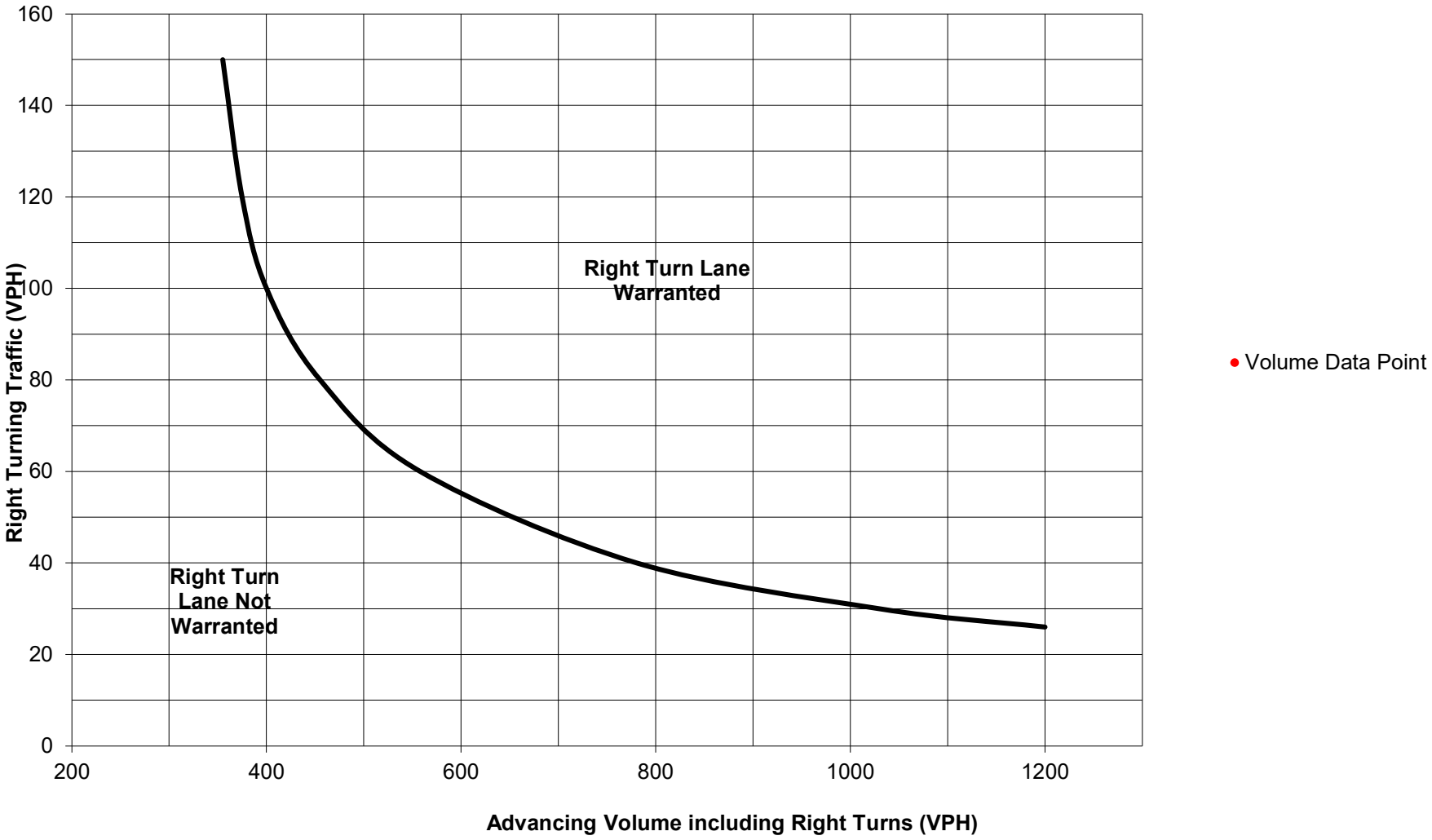
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	37	6.0%	41
	Through	-	312	1.0%	317
	Right	No	46	0.0%	N/A
Opposing	Left	No	14	0.0%	N/A
	Through	-	284	2.0%	293
	Right	No	120	12.0%	N/A

Advancing Volume:	358
Opposing Volume:	293
Left Turn Volume:	41
% Left Turns in Advancing Volume:	11.45%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

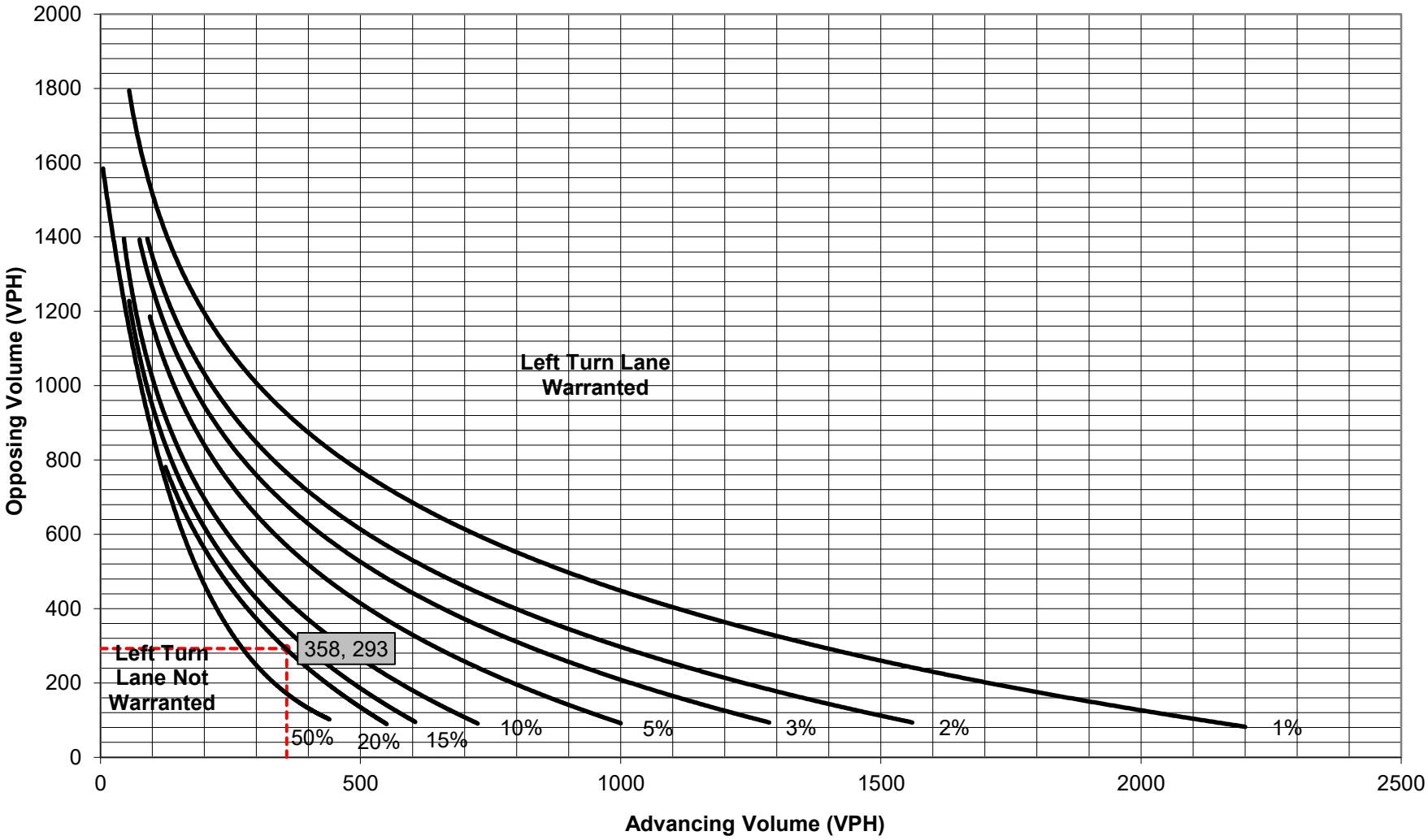
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	37	6.0%	N/A
	Through	-	312	1.0%	317
	Right	-	46	0.0%	46

Advancing Volume:	363
Right Turn Volume:	46

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	46
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	53

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

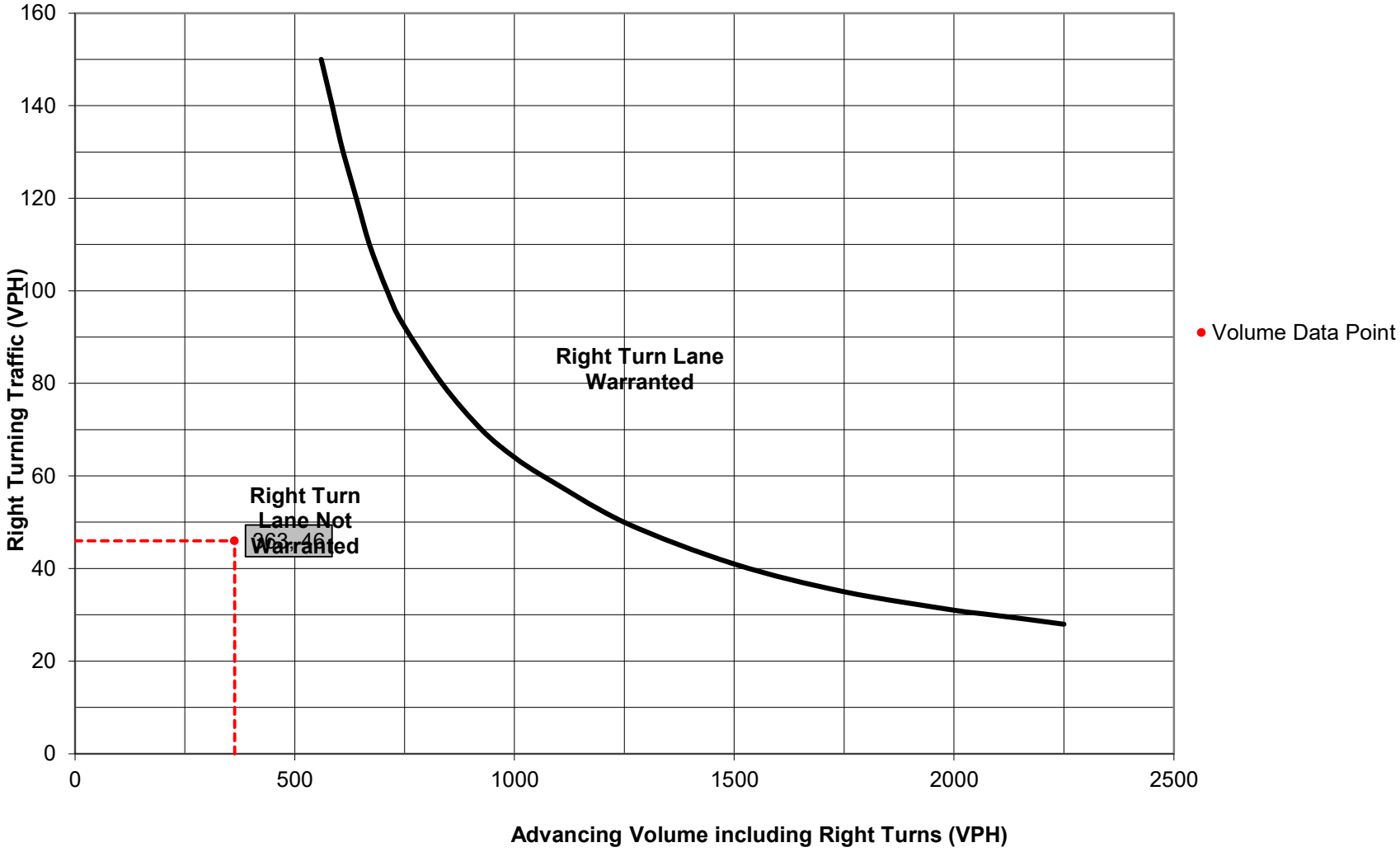
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd — Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4
Opposing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	15	14.0%	19

Advancing Volume: 29
Opposing Volume: 21
Left Turn Volume: 22
% Left Turns in Advancing Volume: 75.86%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

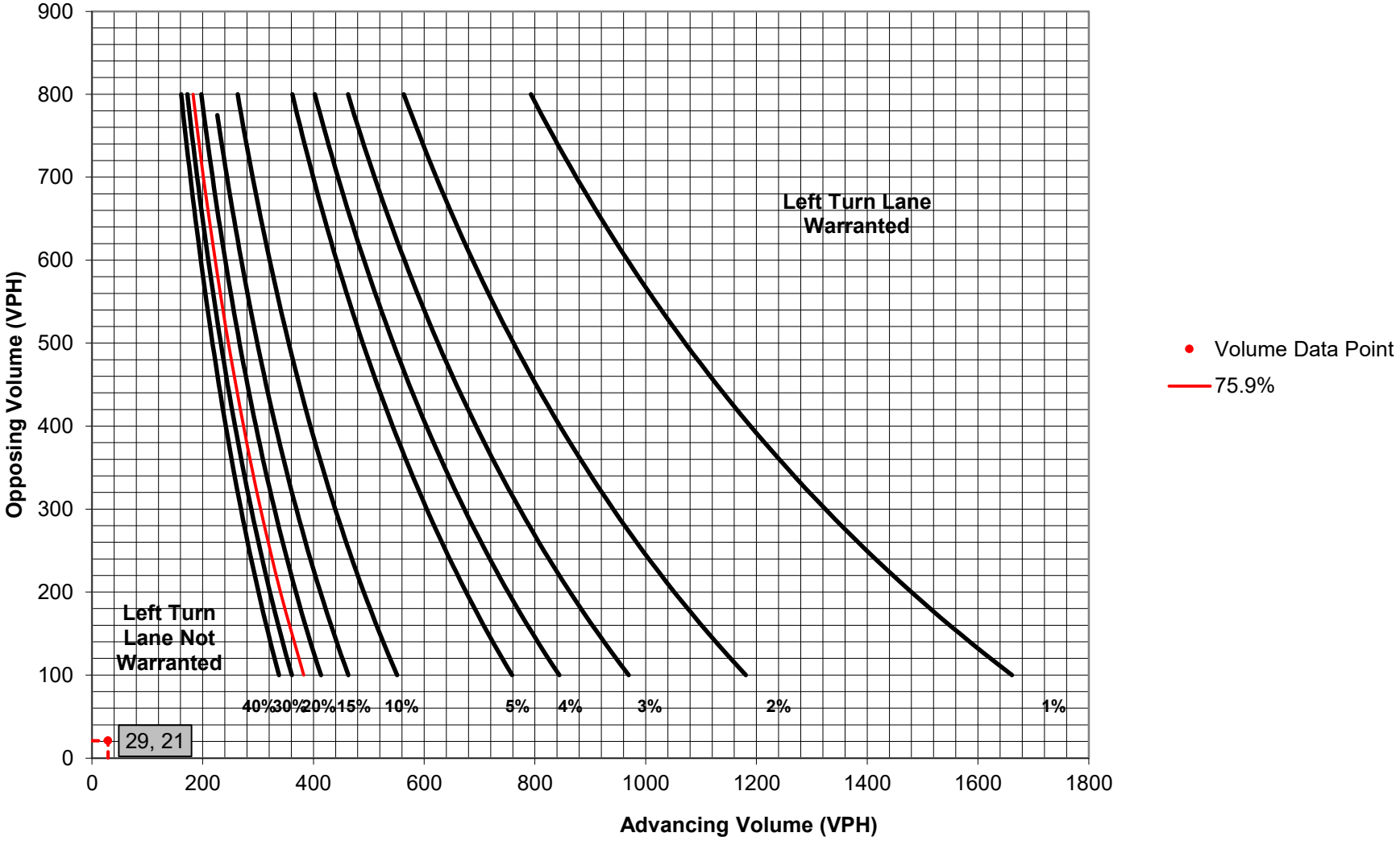
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	-	4	0.0%	4

Advancing Volume: 29
Right Turn Volume: 4

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

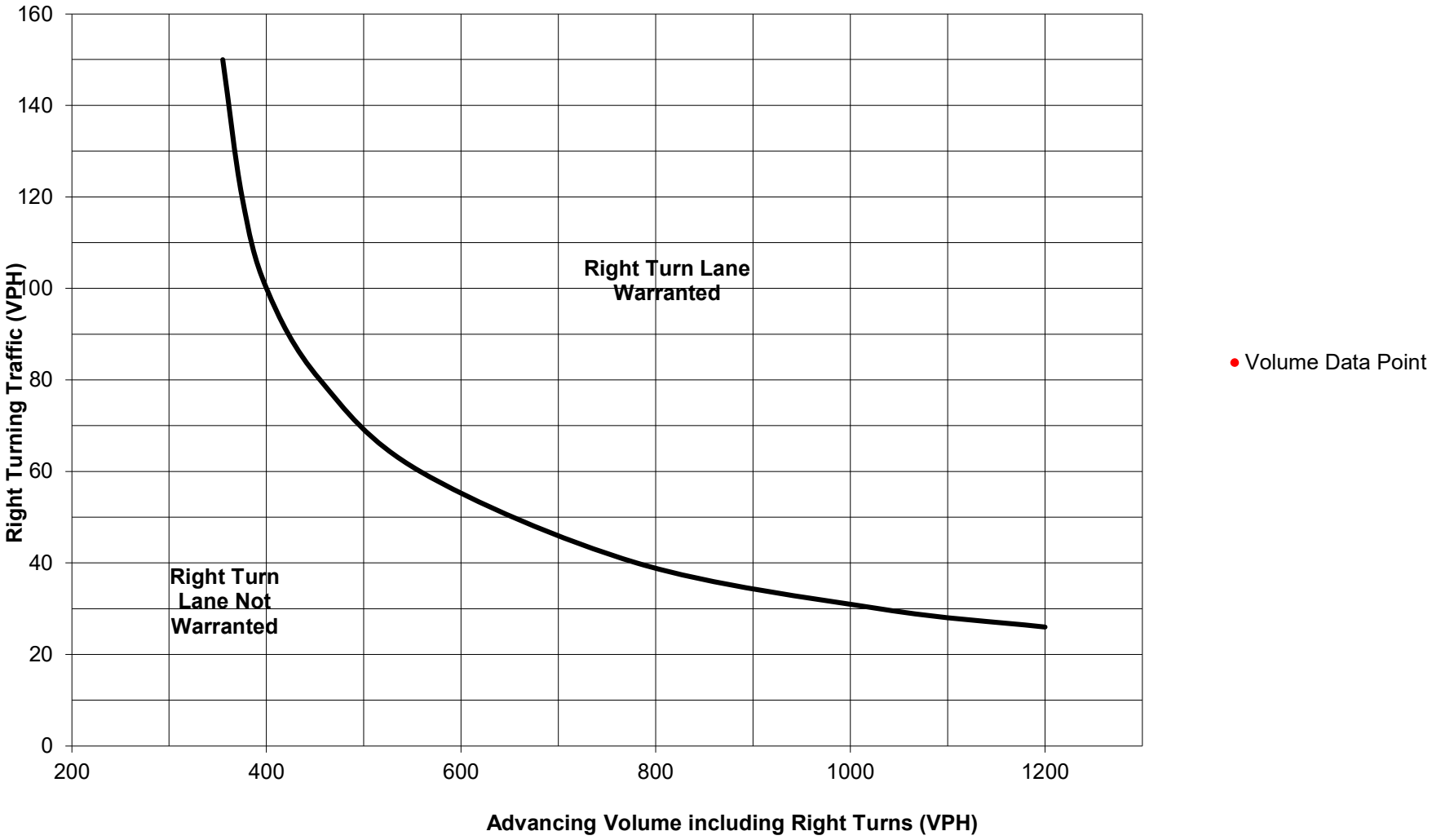
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	149	6.0%	163
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	27	5.0%	30
	Through	-	385	5.0%	414
	Right	Yes	20	11.0%	24

Advancing Volume:	166
Opposing Volume:	468
Left Turn Volume:	3
% Left Turns in Advancing Volume:	1.81%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

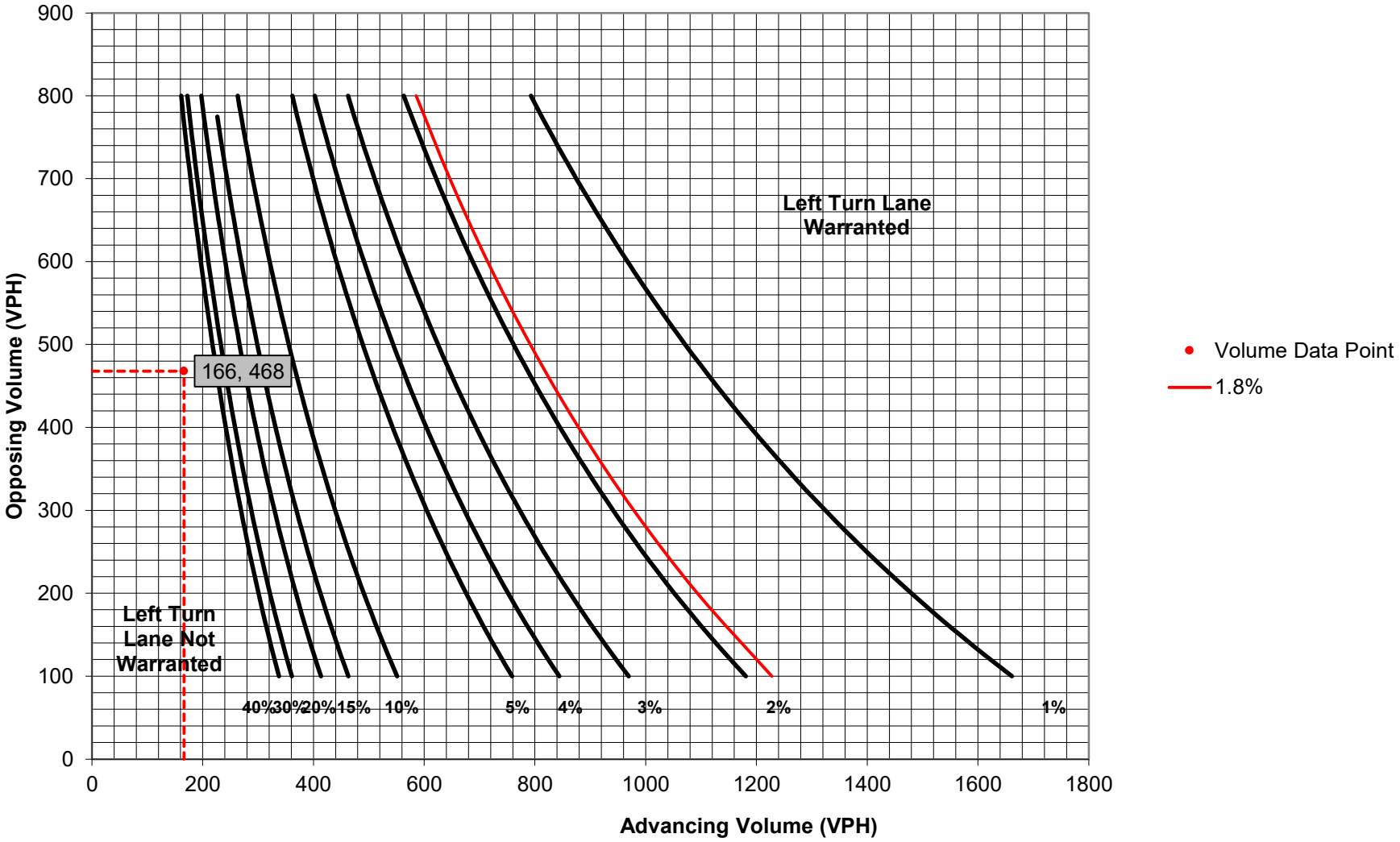
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	149	6.0%	163
	Right	-	0	0.0%	0

Advancing Volume: 166
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

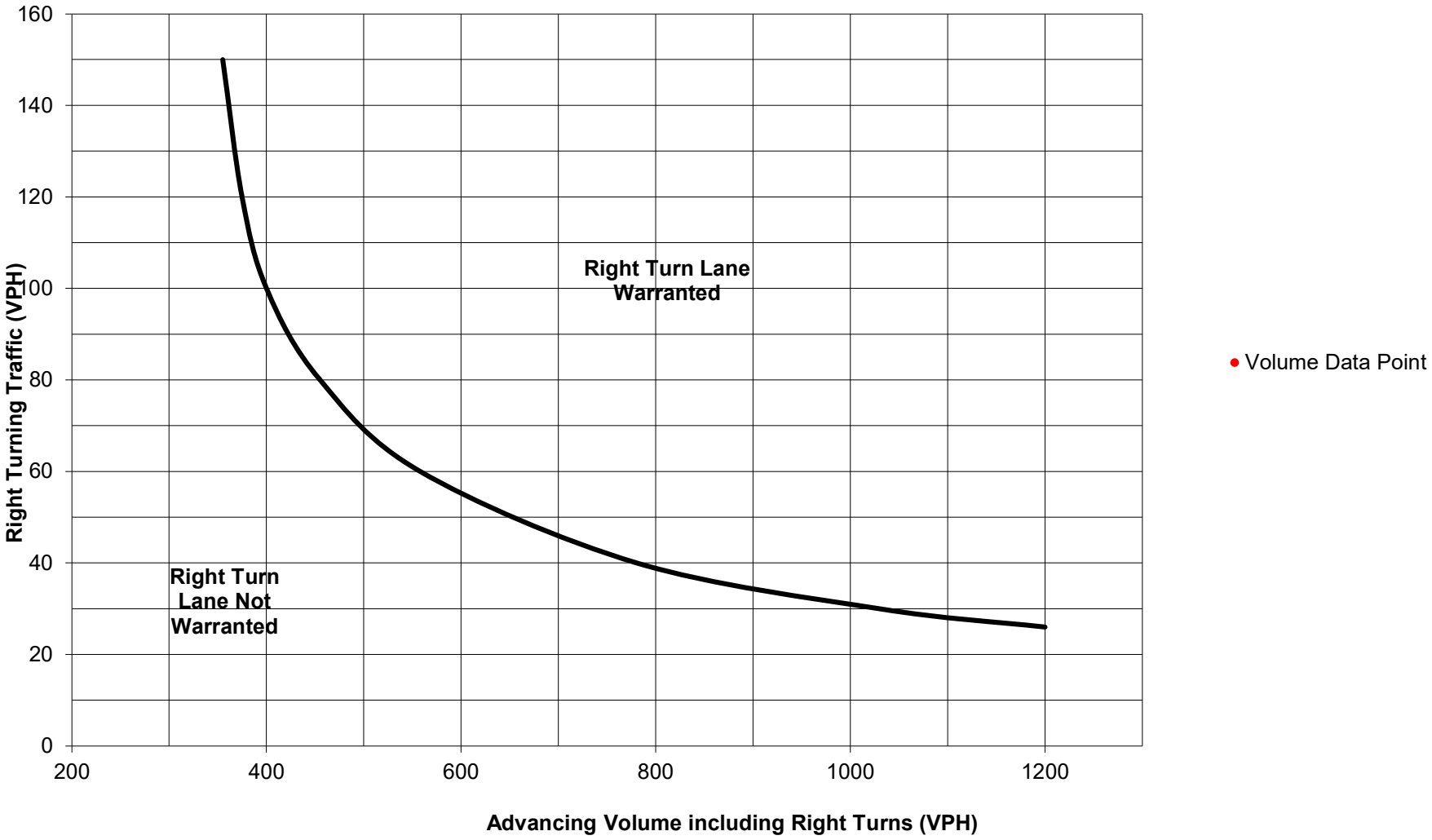
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	5.0%	30
	Through	-	385	5.0%	414
	Right	Yes	20	11.0%	24
Opposing	Left	Yes	3	0.0%	3
	Through	-	149	6.0%	163
	Right	Yes	0	0.0%	0

Advancing Volume: 468
Opposing Volume: 166
Left Turn Volume: 30
% Left Turns in Advancing Volume: 6.41%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	30
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

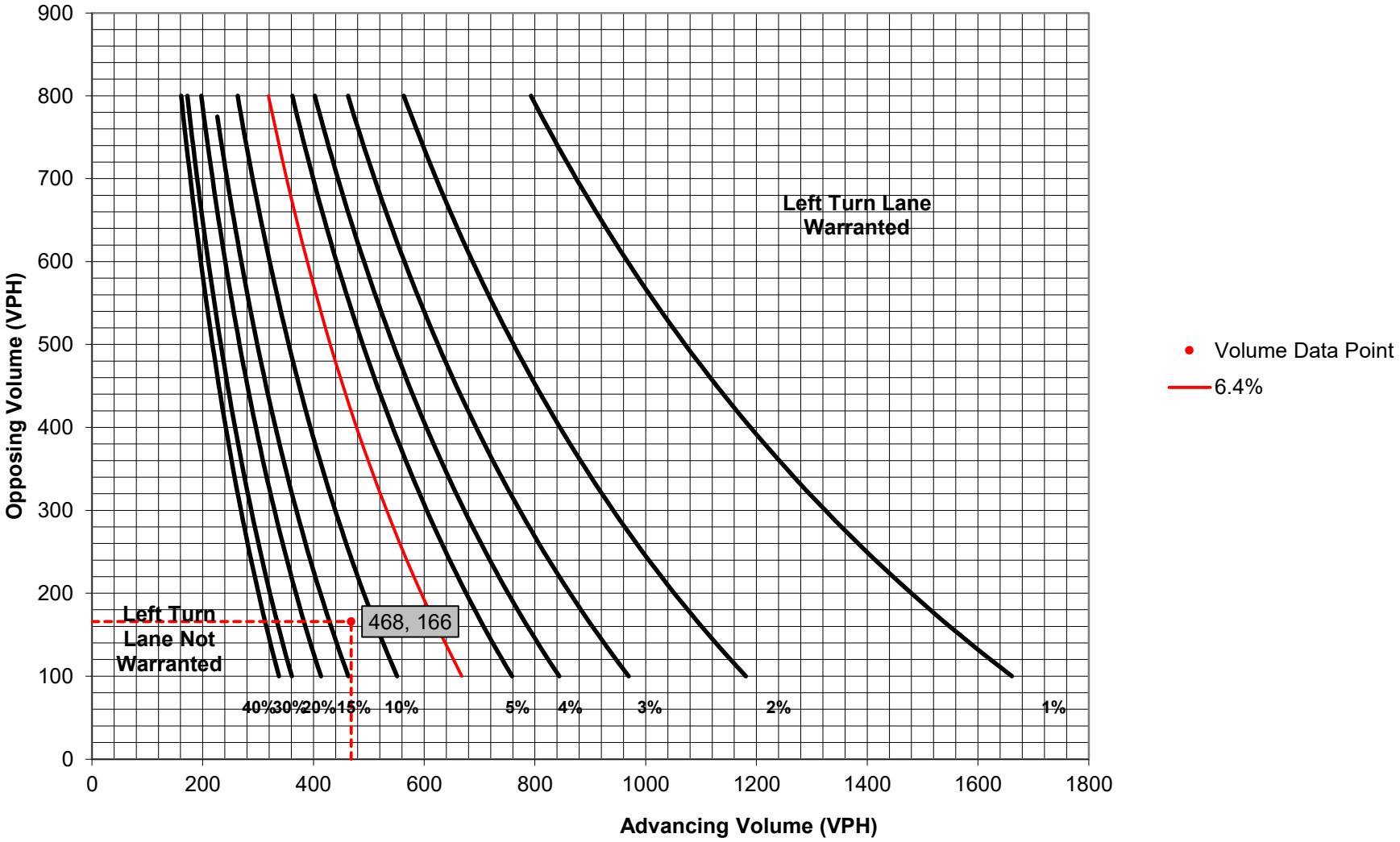
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	5.0%	30
	Through	-	385	5.0%	414
	Right	-	20	11.0%	24

Advancing Volume: 468
Right Turn Volume: 24

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

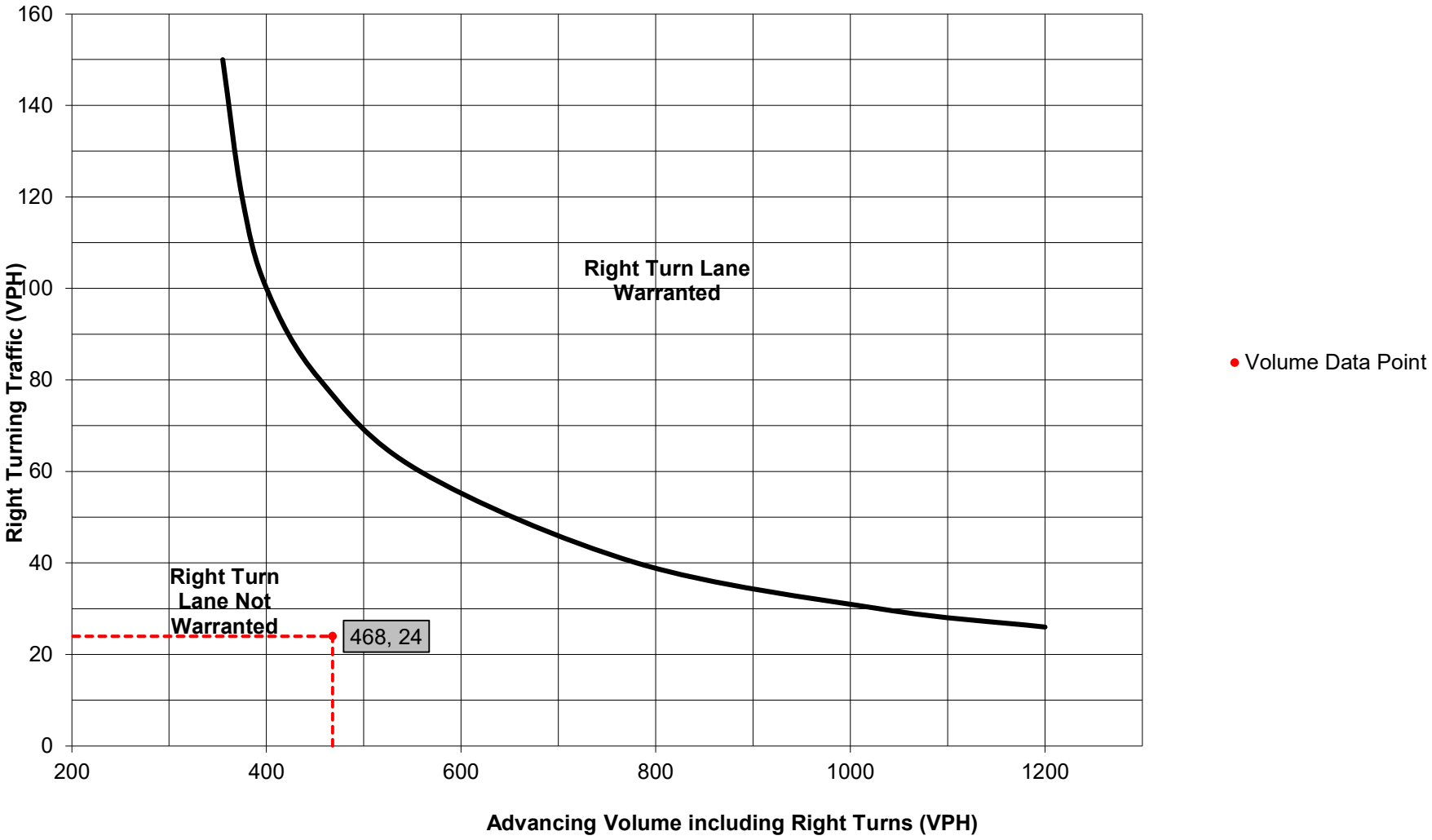
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	Yes	15	14.0%	19
Opposing	Left	Yes	20	5.0%	22
	Through	-	3	0.0%	3
	Right	Yes	4	0.0%	4

Advancing Volume: 21
Opposing Volume: 29
Left Turn Volume: 1
% Left Turns in Advancing Volume: 4.76%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

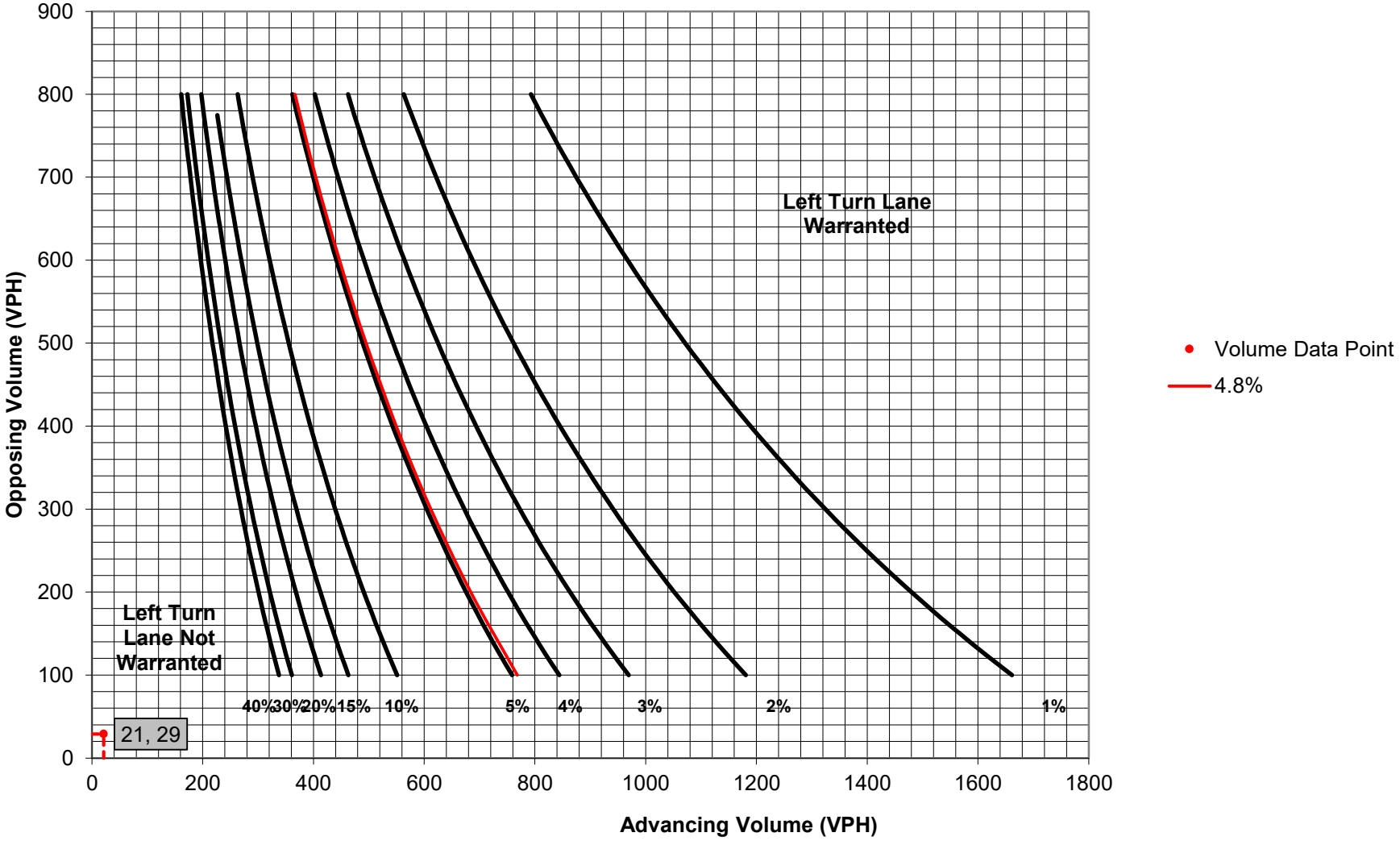
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	1	0.0%	1
	Right	-	15	14.0%	19

Advancing Volume: 21
Right Turn Volume: 19

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

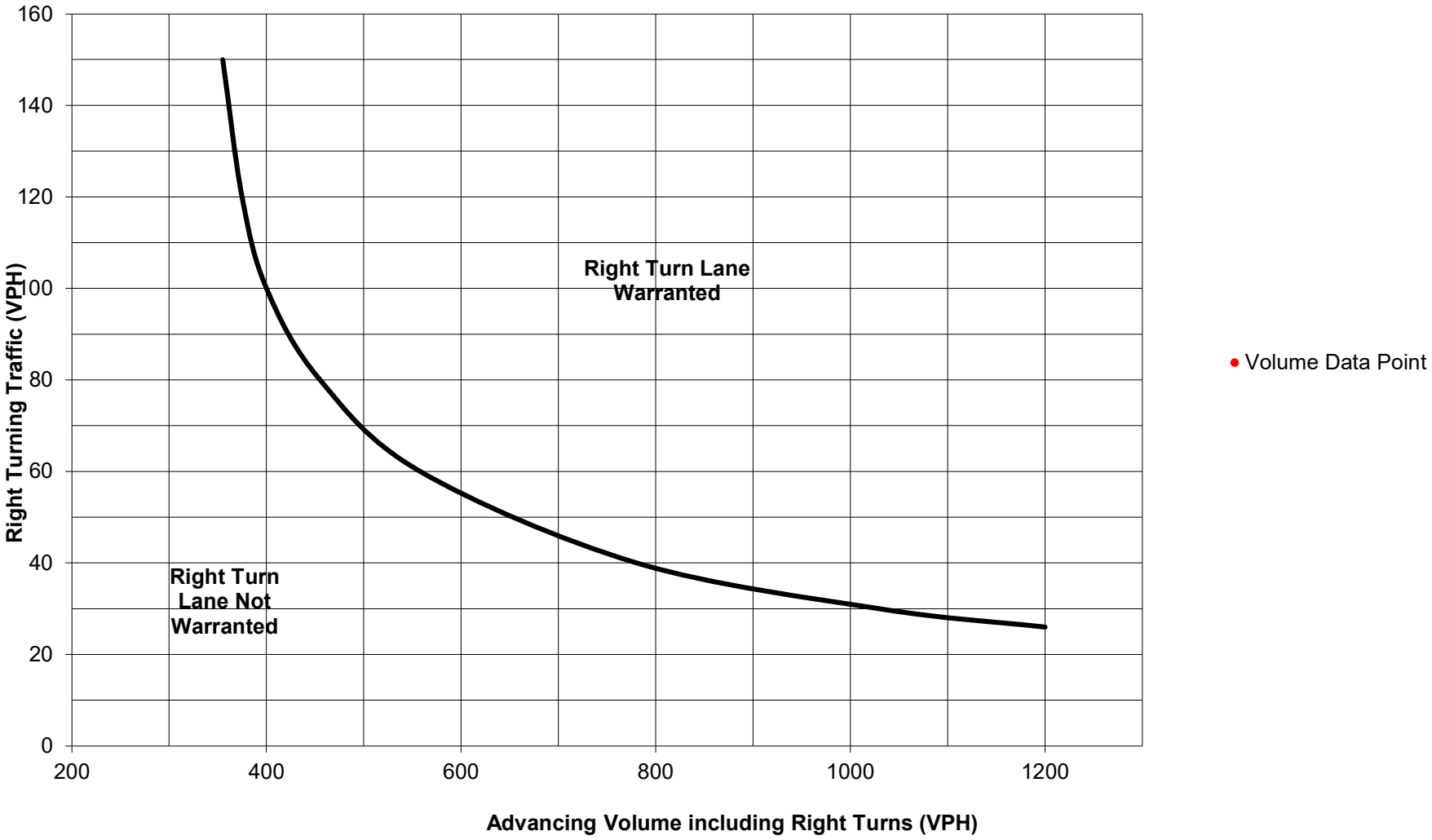
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd — Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	25	5.0%	27

Advancing Volume:	48
Opposing Volume:	36
Left Turn Volume:	35
% Left Turns in Advancing Volume:	72.92%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	35
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

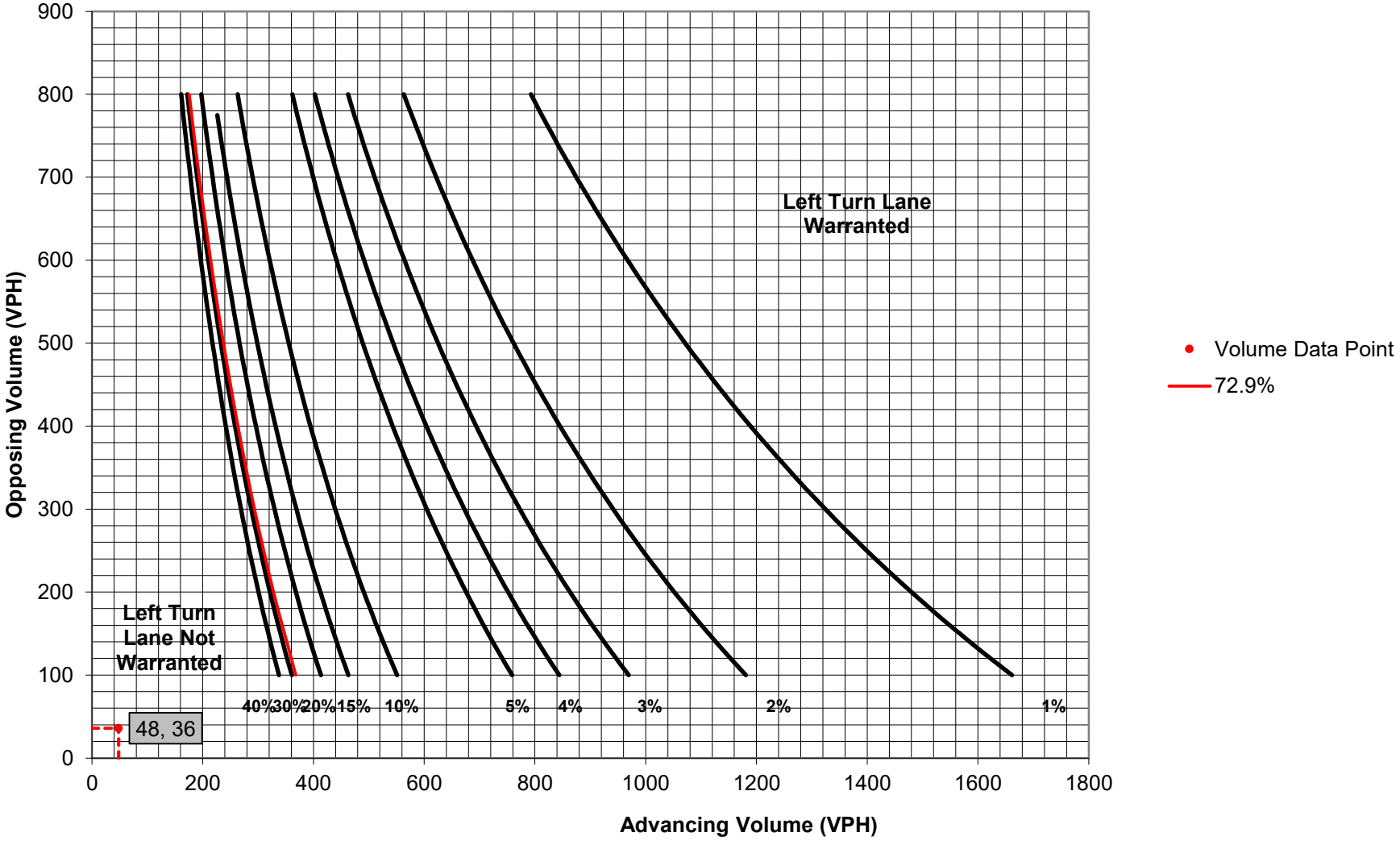
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd — Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	-	0	0.0%	0

Advancing Volume: 48
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

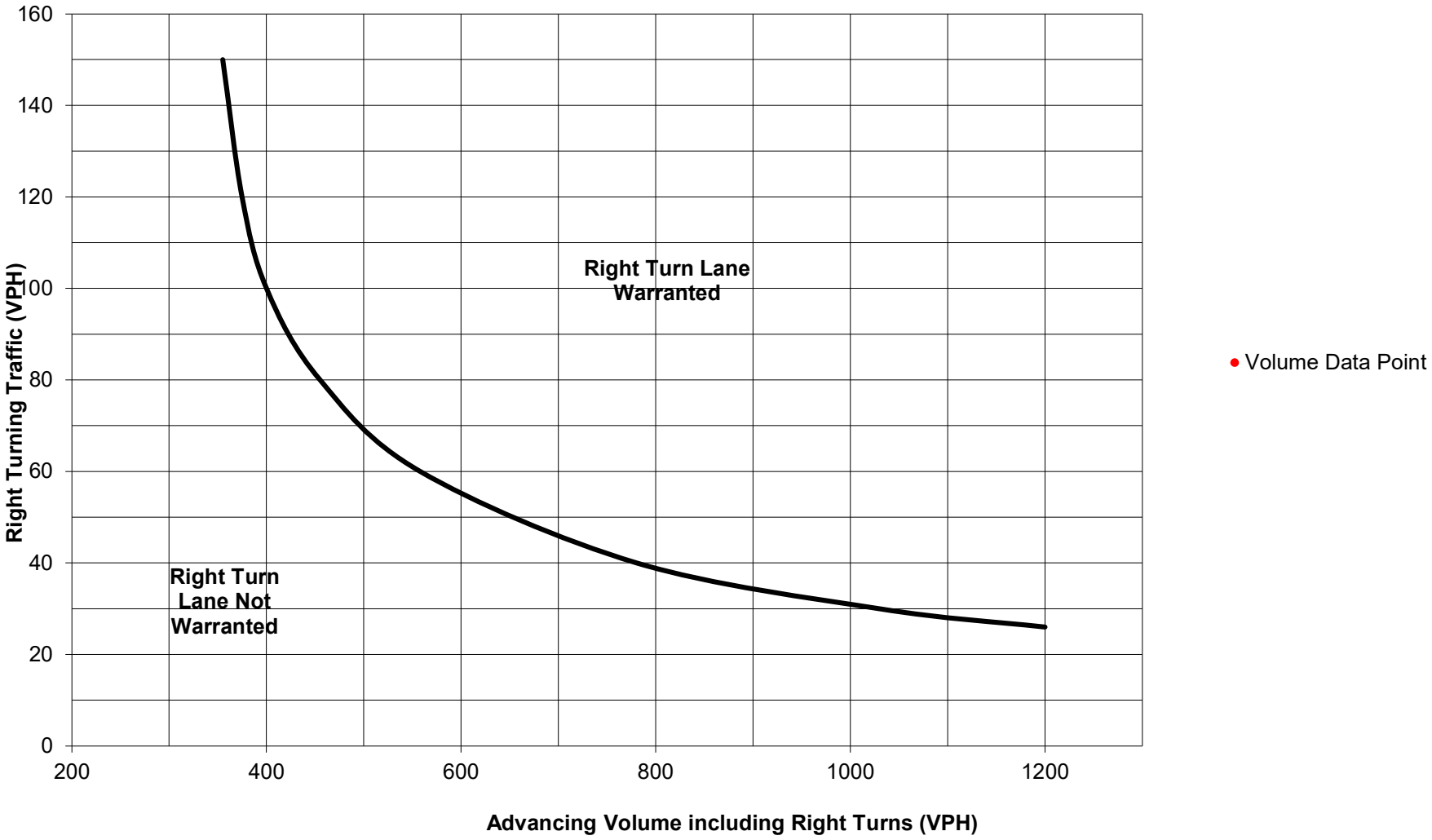
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	453	5.0%	487
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	27	12.0%	32
	Through	-	112	11.0%	131
	Right	Yes	15	7.0%	17

Advancing Volume:	499
Opposing Volume:	180
Left Turn Volume:	5
% Left Turns in Advancing Volume:	1.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

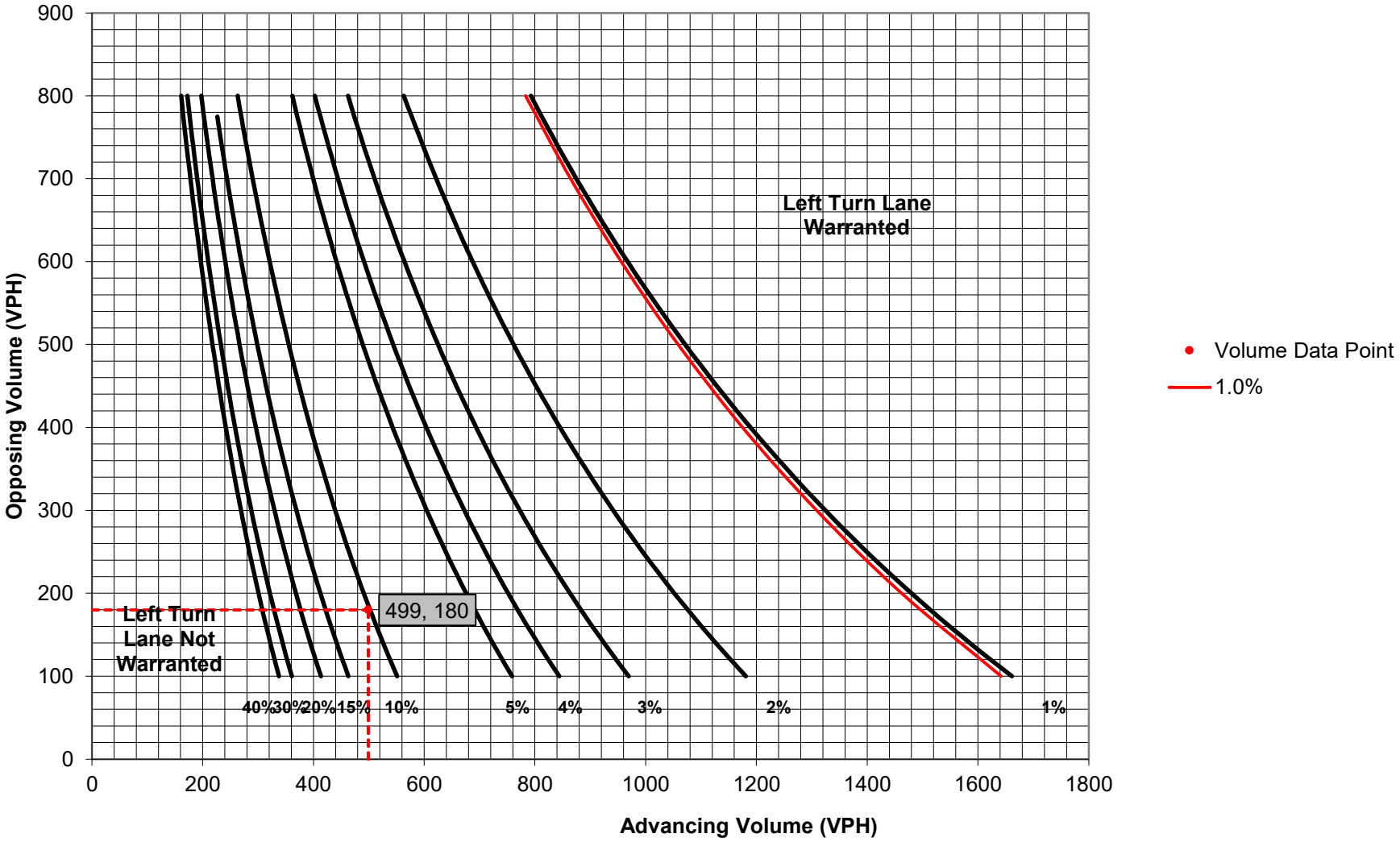
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	453	5.0%	487
	Right	-	7	0.0%	7

Advancing Volume: 499
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

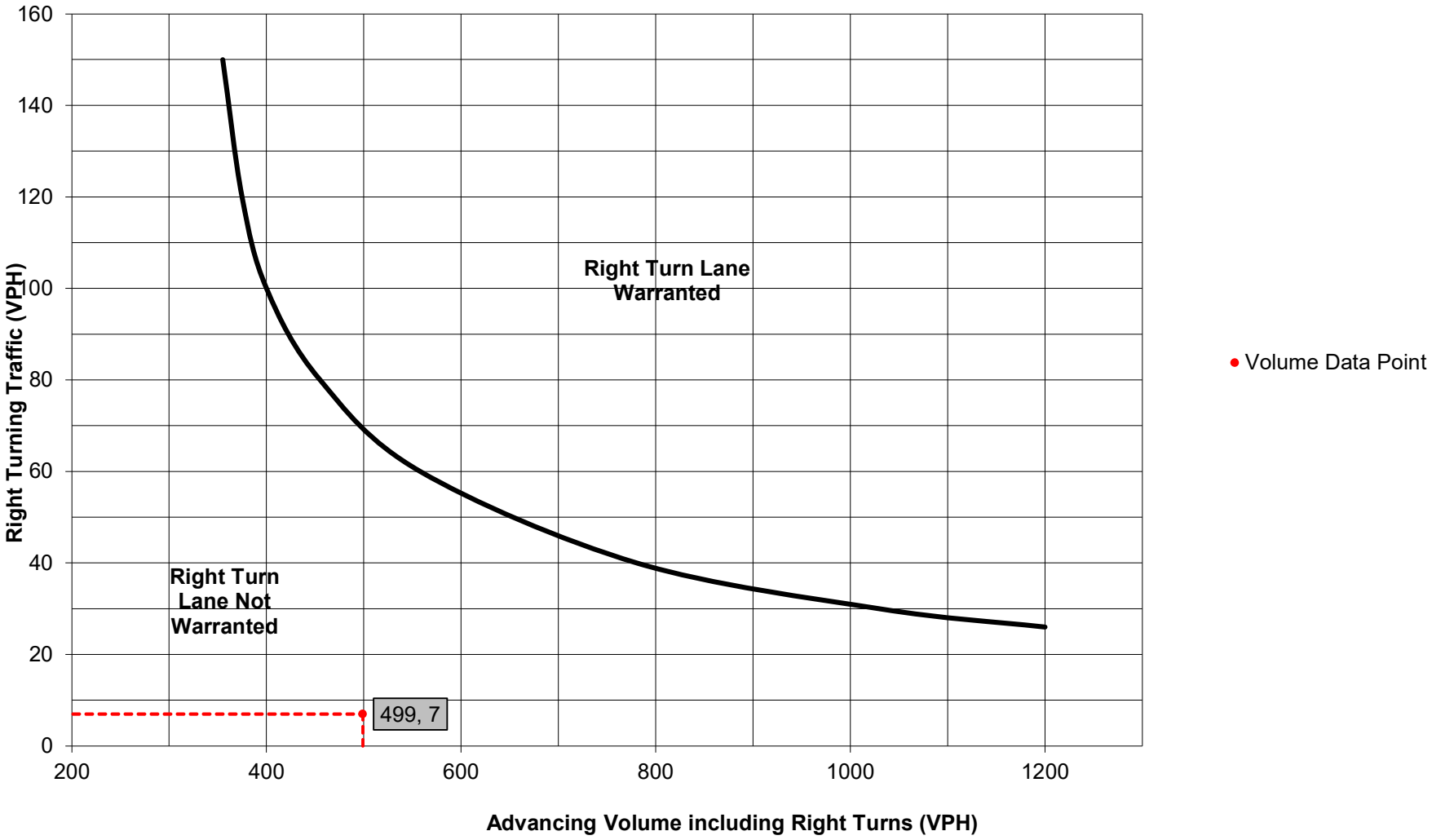
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	12.0%	32
	Through	-	112	11.0%	131
	Right	Yes	15	7.0%	17
Opposing	Left	Yes	5	0.0%	5
	Through	-	453	5.0%	487
	Right	Yes	7	0.0%	7

Advancing Volume:	180
Opposing Volume:	499
Left Turn Volume:	32
% Left Turns in Advancing Volume:	17.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

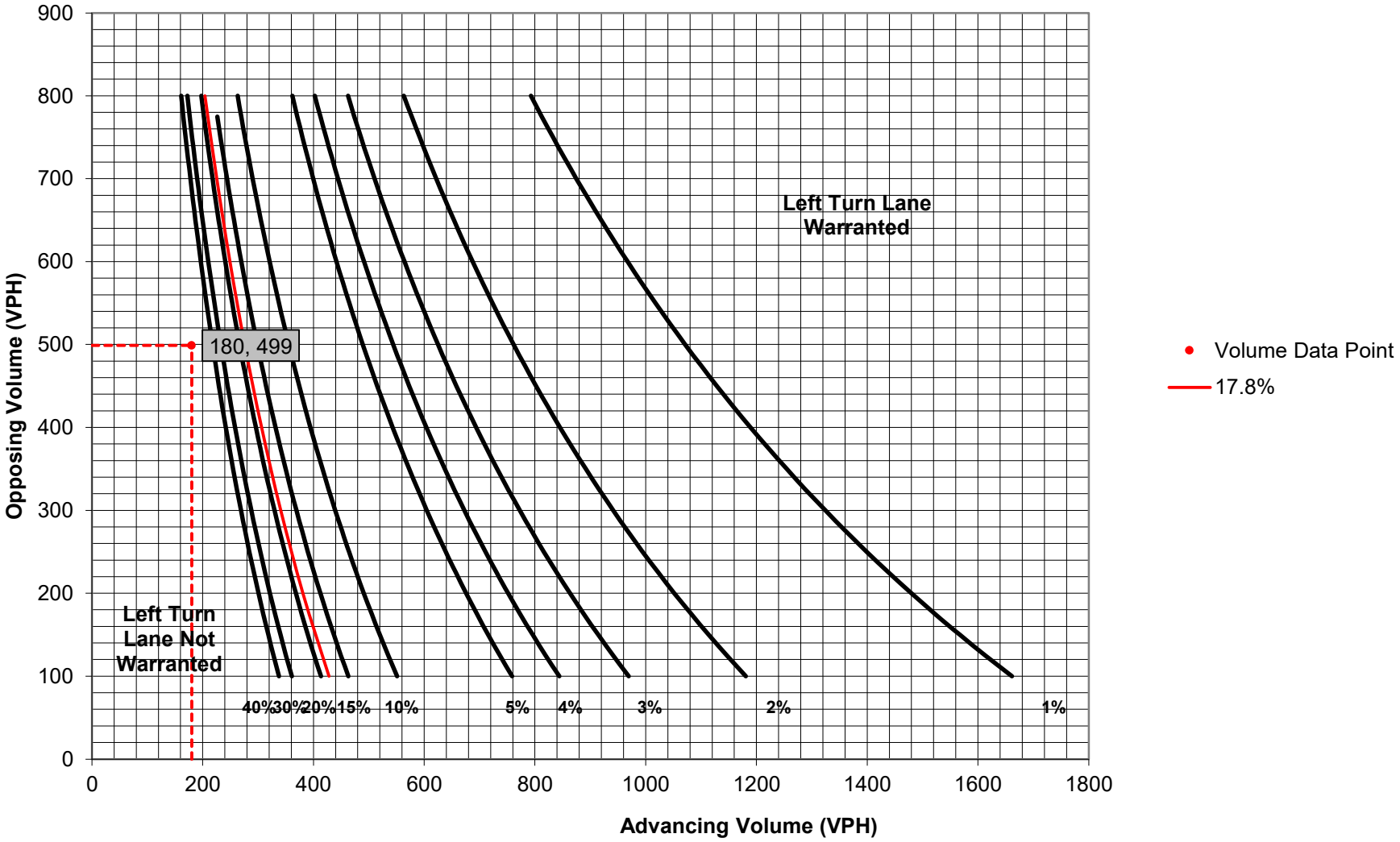
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	12.0%	32
	Through	-	112	11.0%	131
	Right	-	15	7.0%	17

Advancing Volume:	180
Right Turn Volume:	17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

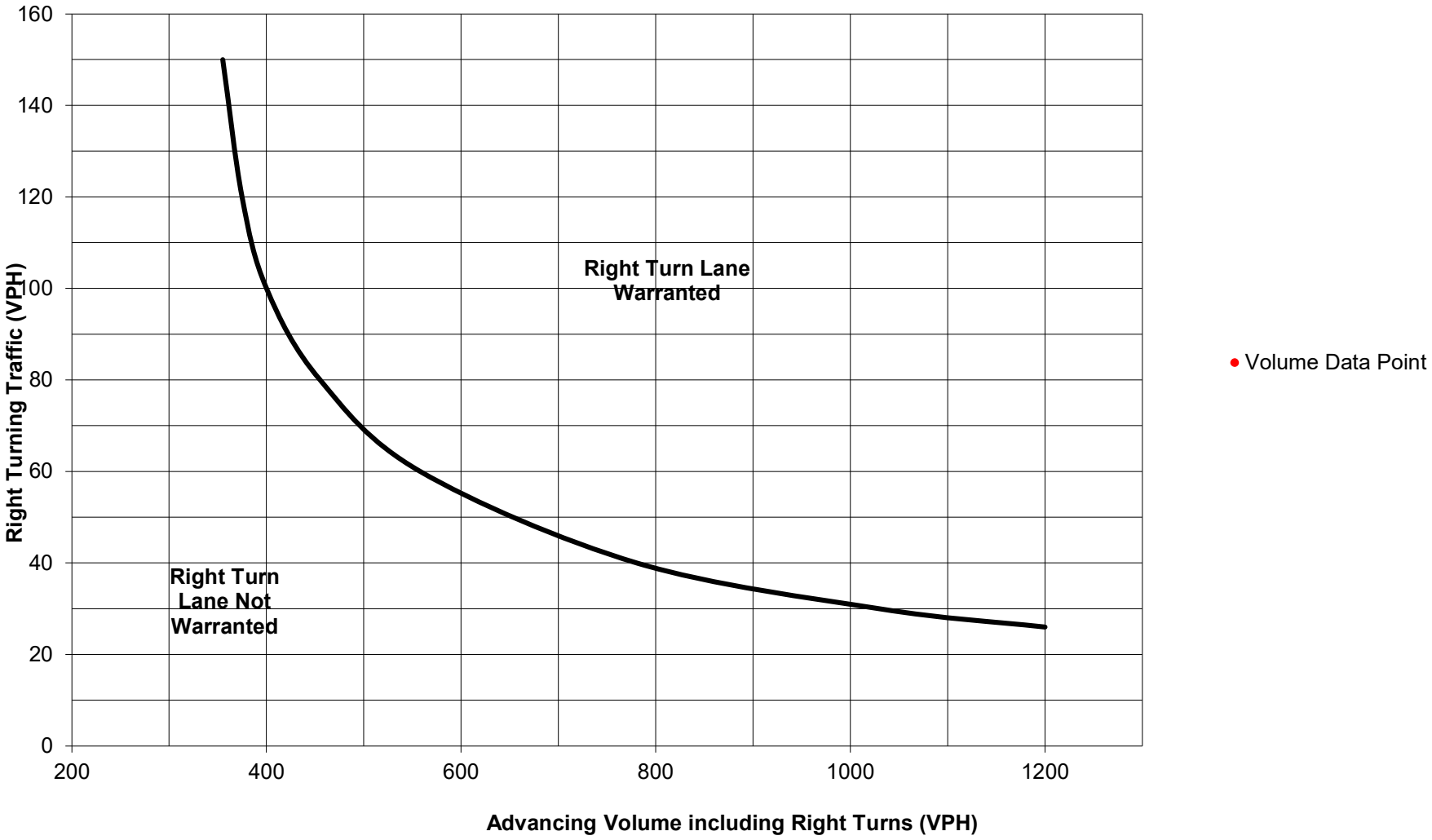
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	Yes	25	5.0%	27
Opposing	Left	Yes	33	3.0%	35
	Through	-	13	0.0%	13
	Right	Yes	0	0.0%	0

Advancing Volume:	36
Opposing Volume:	48
Left Turn Volume:	3
% Left Turns in Advancing Volume:	8.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

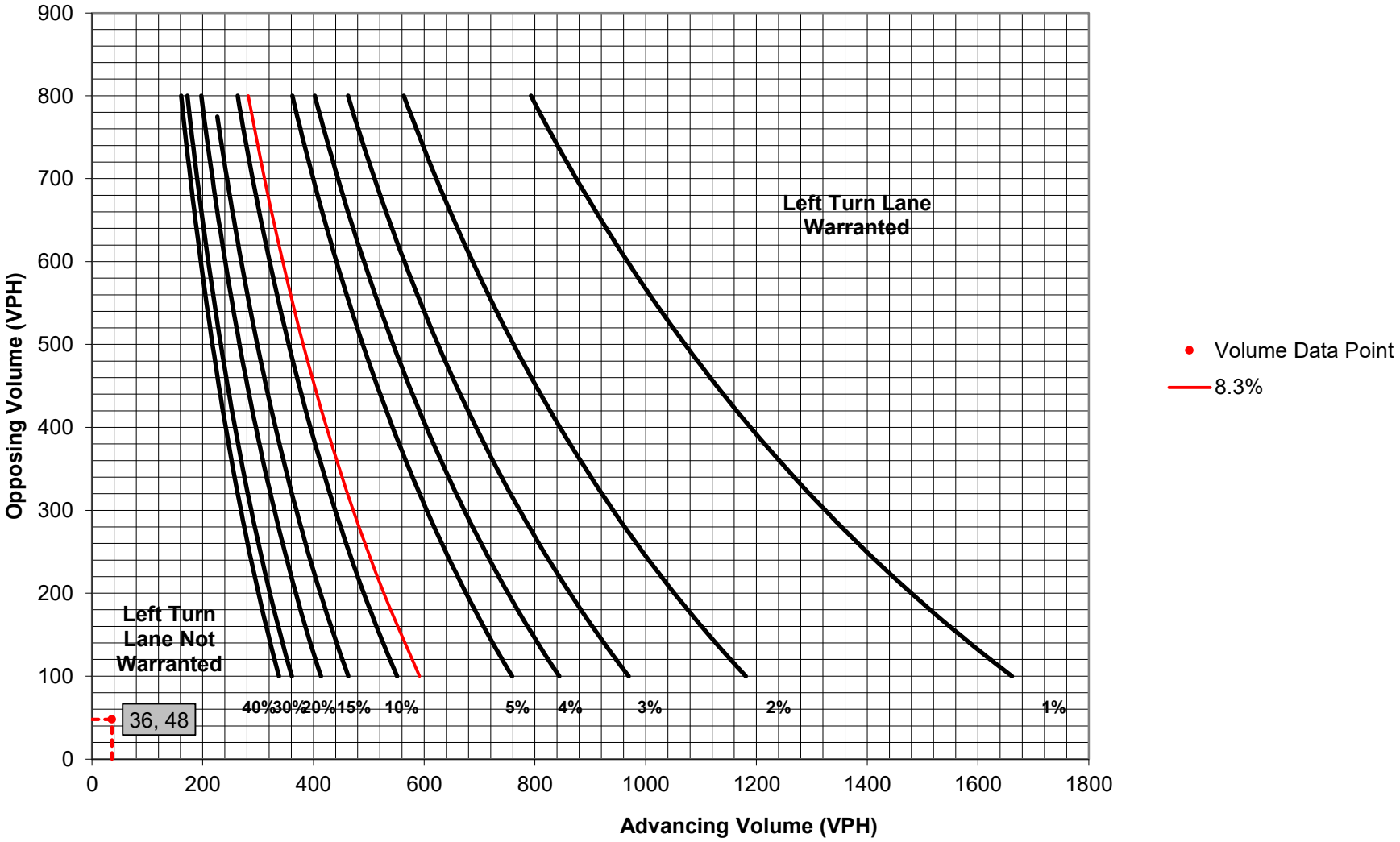
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	6	0.0%	6
	Right	-	25	5.0%	27

Advancing Volume: 36
Right Turn Volume: 27

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	27
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

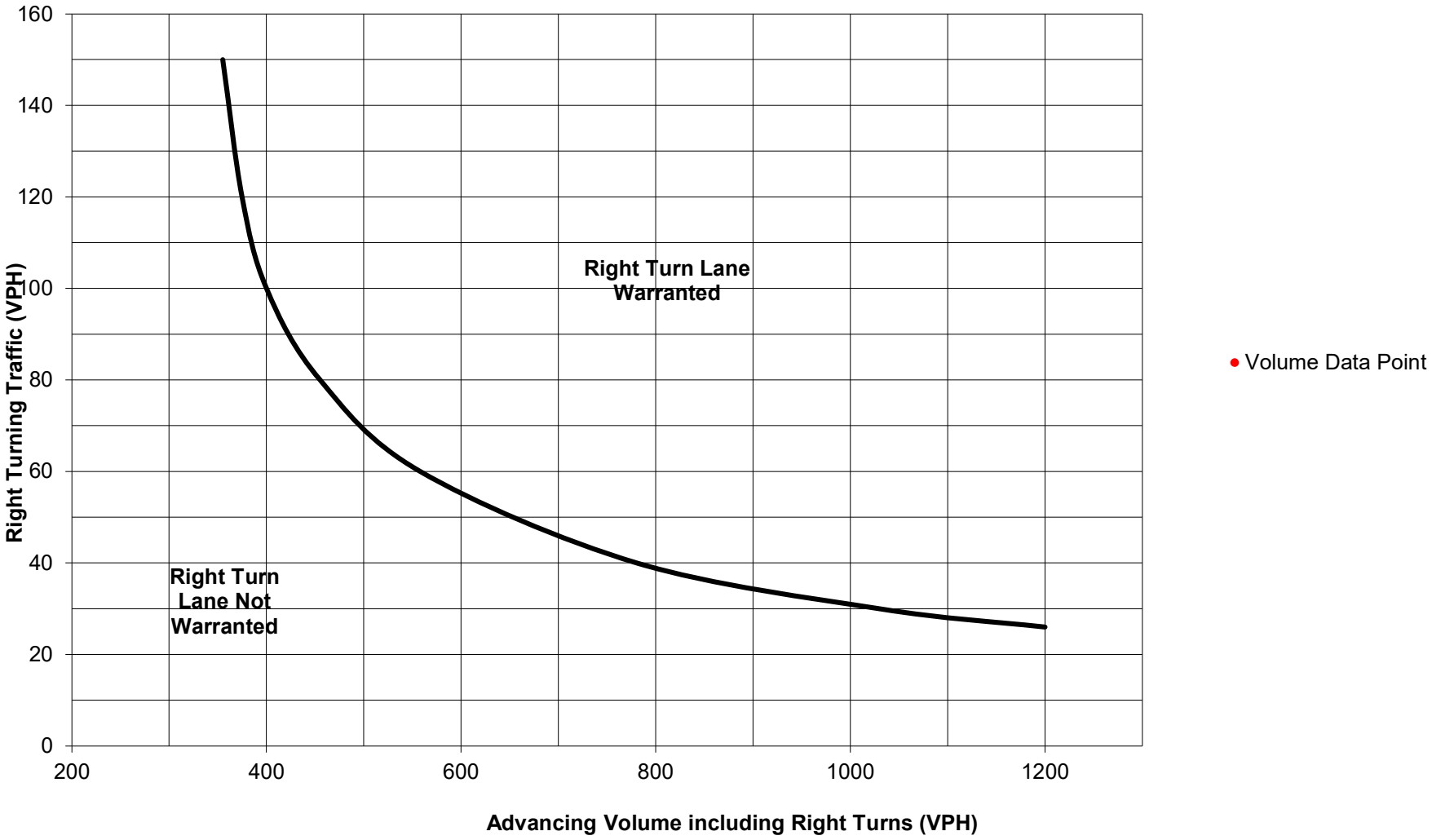
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	2.0%	37
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3
Opposing	Left	Yes	71	0.0%	71
	Through	-	2	2.0%	3
	Right	Yes	19	0.0%	19

Advancing Volume: 44
Opposing Volume: 93
Left Turn Volume: 37
% Left Turns in Advancing Volume: 84.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	37
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

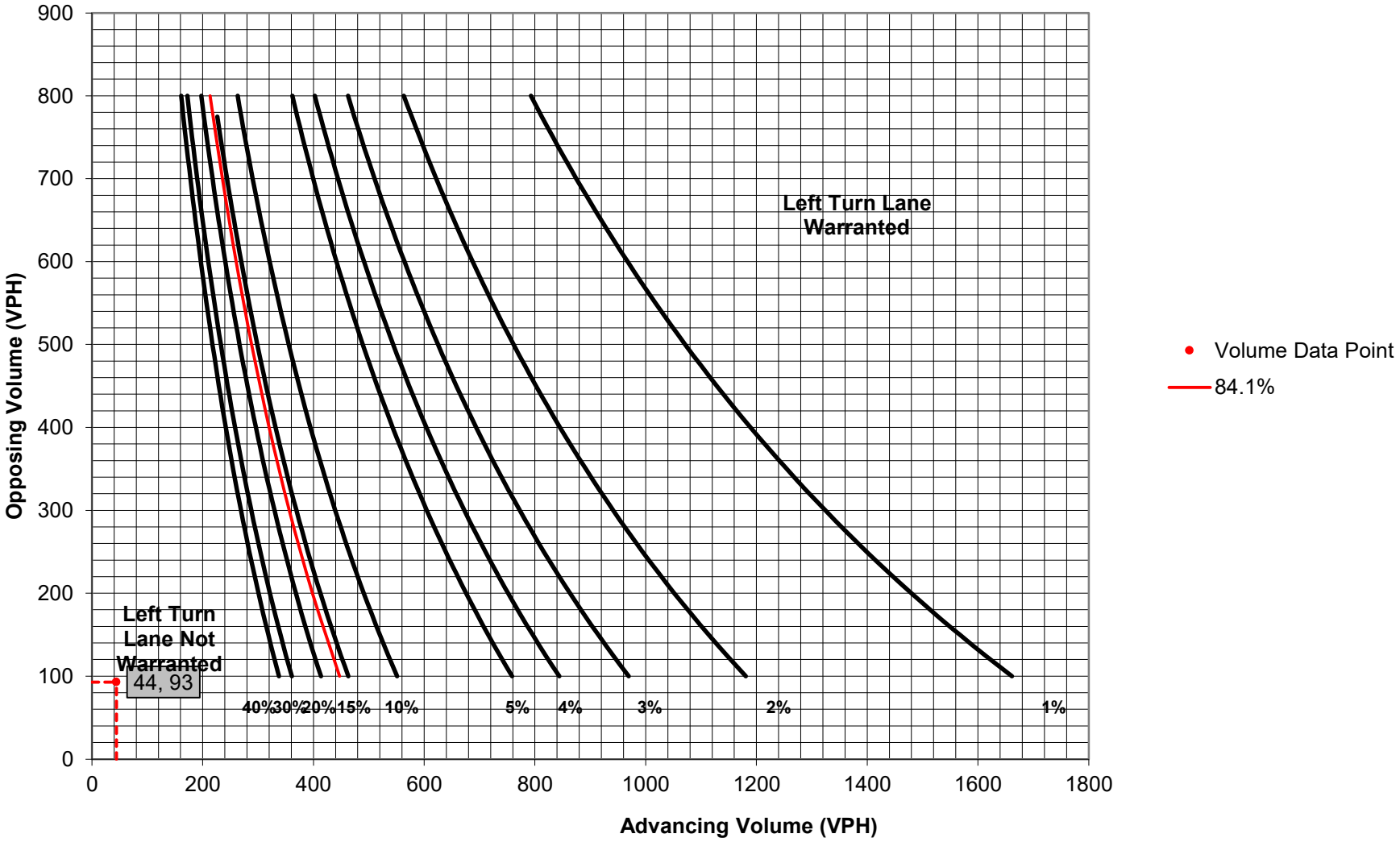
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd — Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	35	2.0%	37
	Through	-	4	0.0%	4
	Right	-	3	0.0%	3

Advancing Volume: 44
Right Turn Volume: 3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

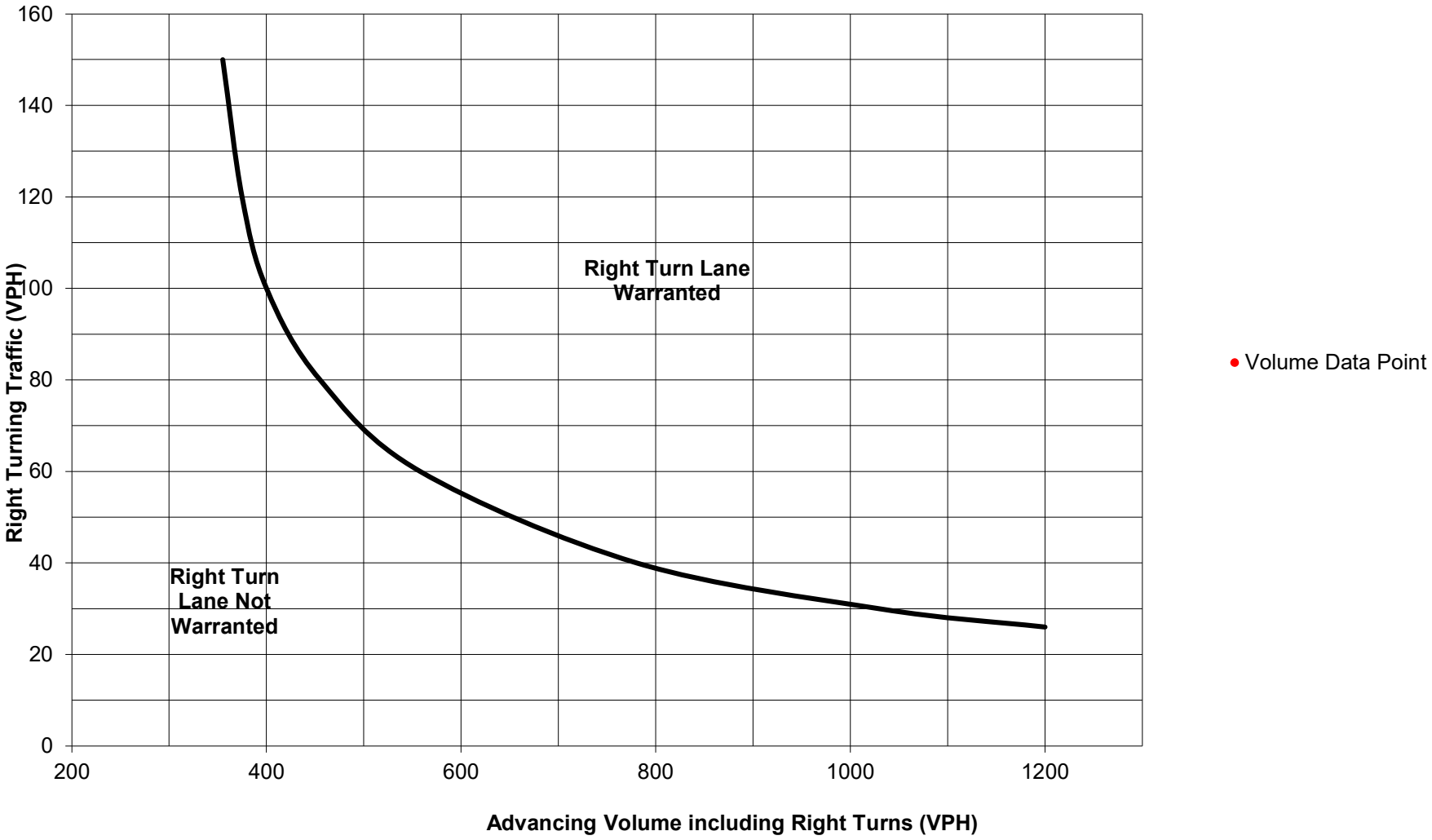
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	Yes	46	0.0%	46
Opposing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	Yes	81	2.0%	84

Advancing Volume:	121
Opposing Volume:	261
Left Turn Volume:	4
% Left Turns in Advancing Volume:	3.31%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

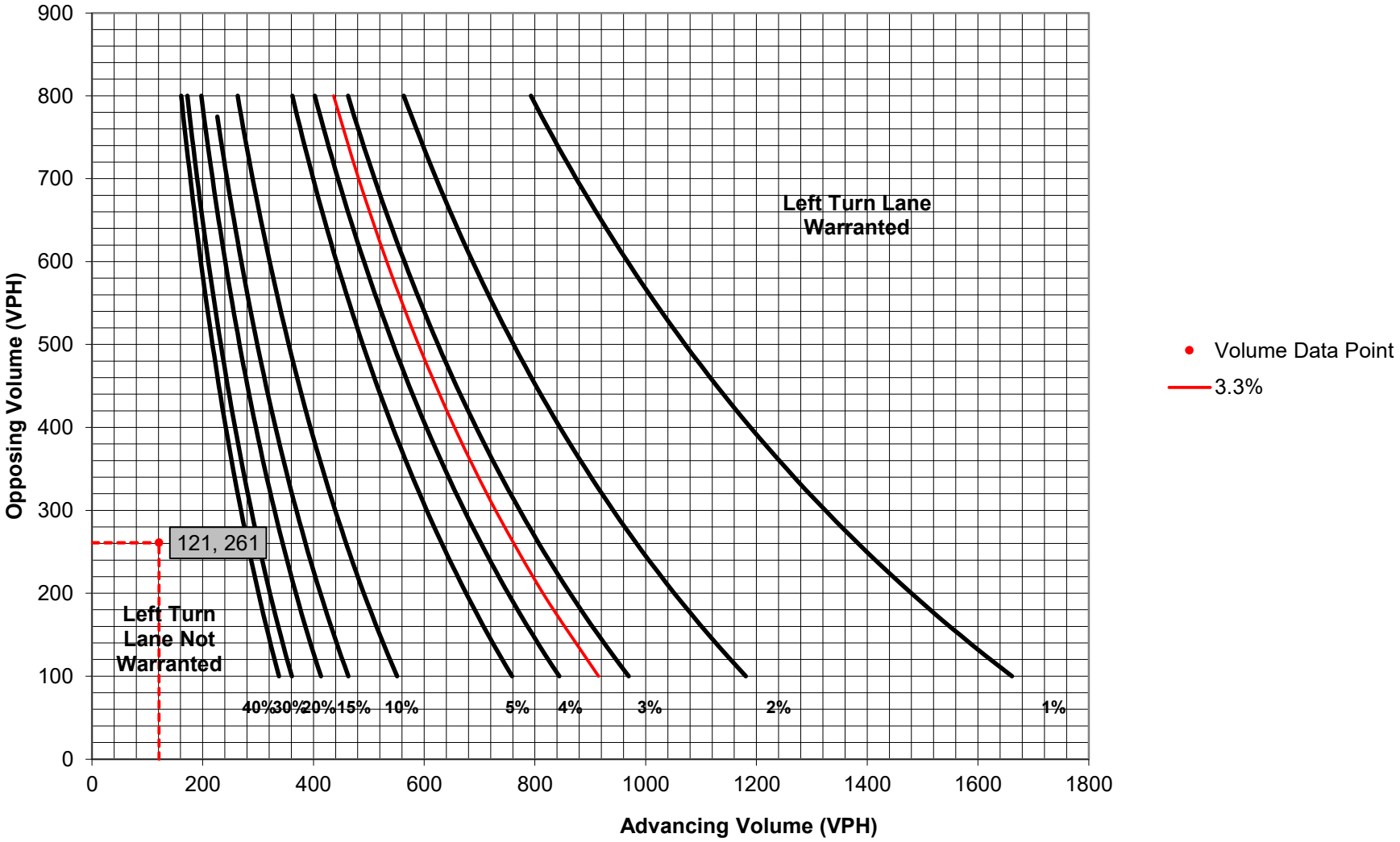
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	-	46	0.0%	46

Advancing Volume: 121
Right Turn Volume: 46

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	46
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

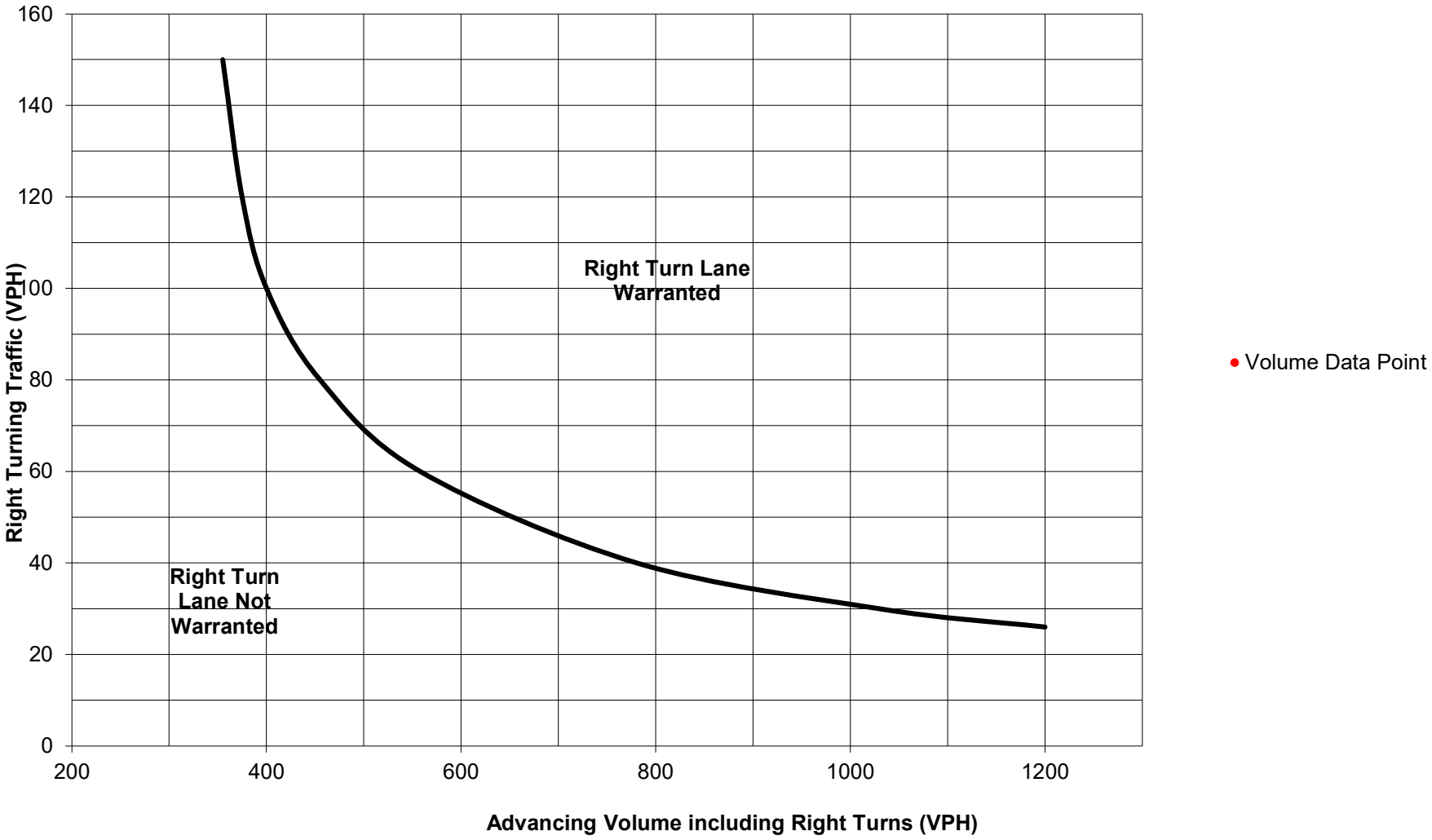
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	Yes	81	2.0%	84
Opposing	Left	Yes	2	50.0%	4
	Through	-	63	8.0%	71
	Right	Yes	46	0.0%	46

Advancing Volume:	261
Opposing Volume:	121
Left Turn Volume:	5
% Left Turns in Advancing Volume:	1.92%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

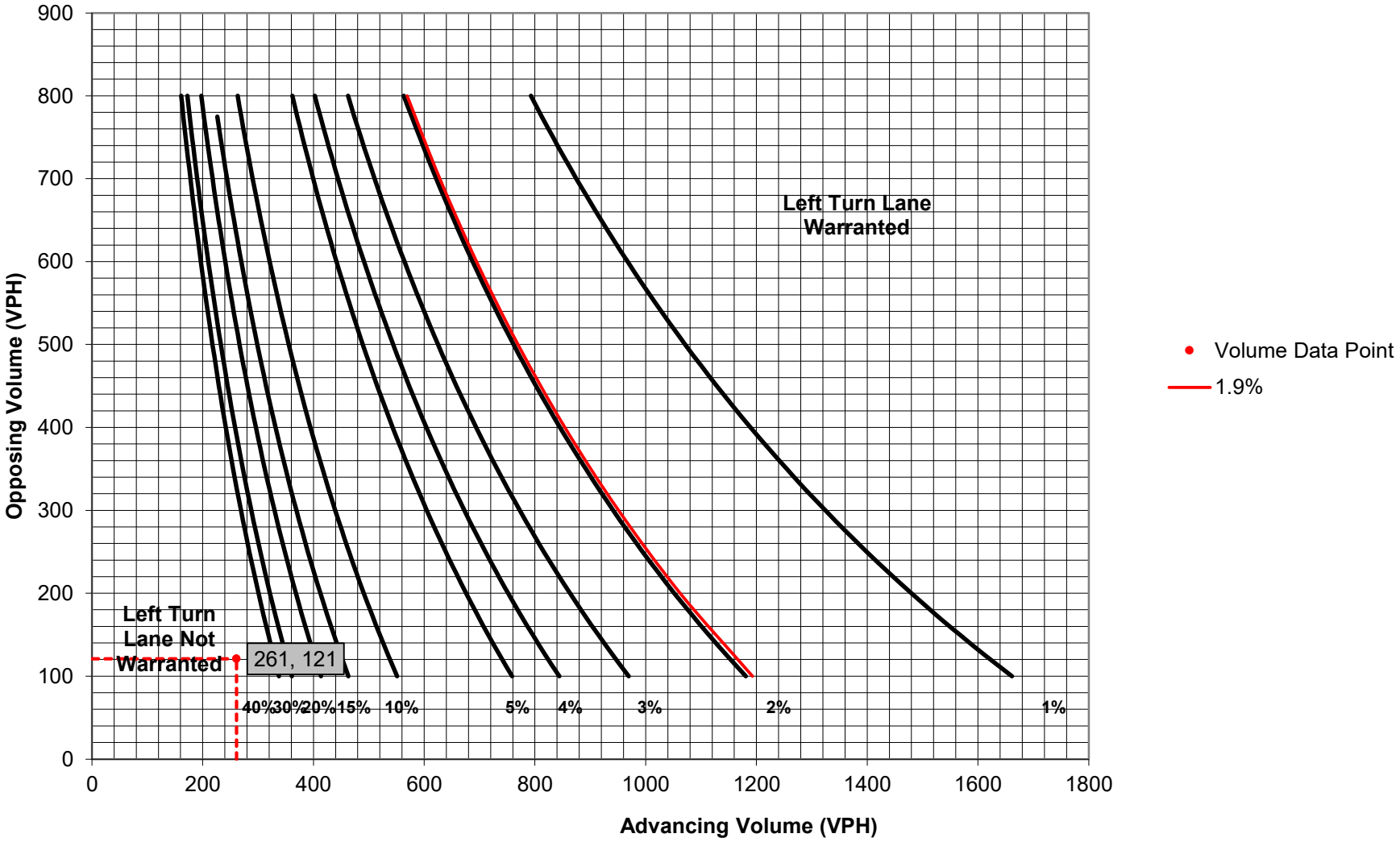
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	157	6.0%	172
	Right	-	81	2.0%	84

Advancing Volume: 261
Right Turn Volume: 84

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	84
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

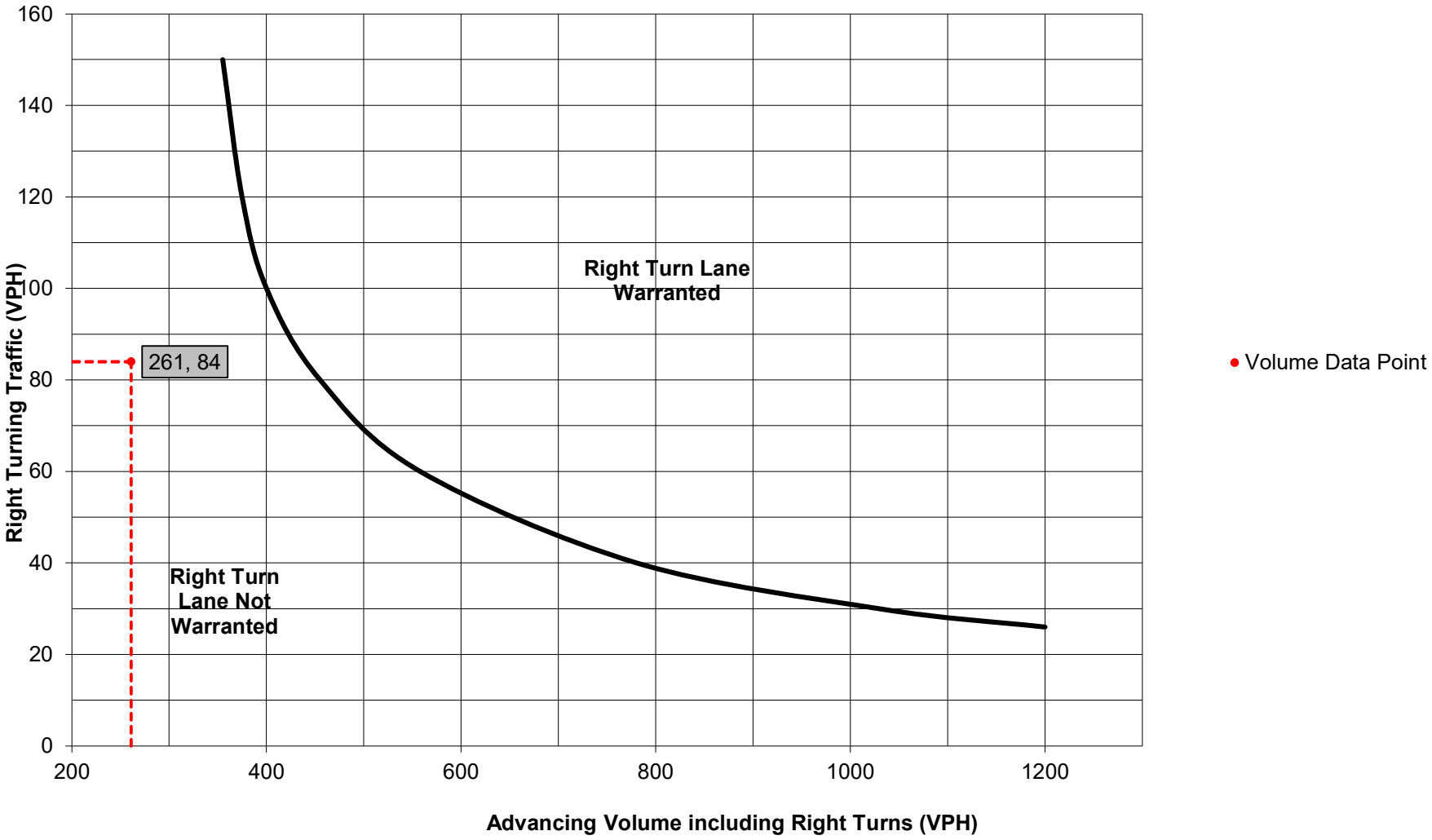
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	71	0.0%	71
	Through	-	2	2.0%	3
	Right	Yes	19	0.0%	19
Opposing	Left	Yes	35	2.0%	37
	Through	-	4	0.0%	4
	Right	Yes	3	0.0%	3

Advancing Volume:	93
Opposing Volume:	44
Left Turn Volume:	71
% Left Turns in Advancing Volume:	76.34%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	71
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

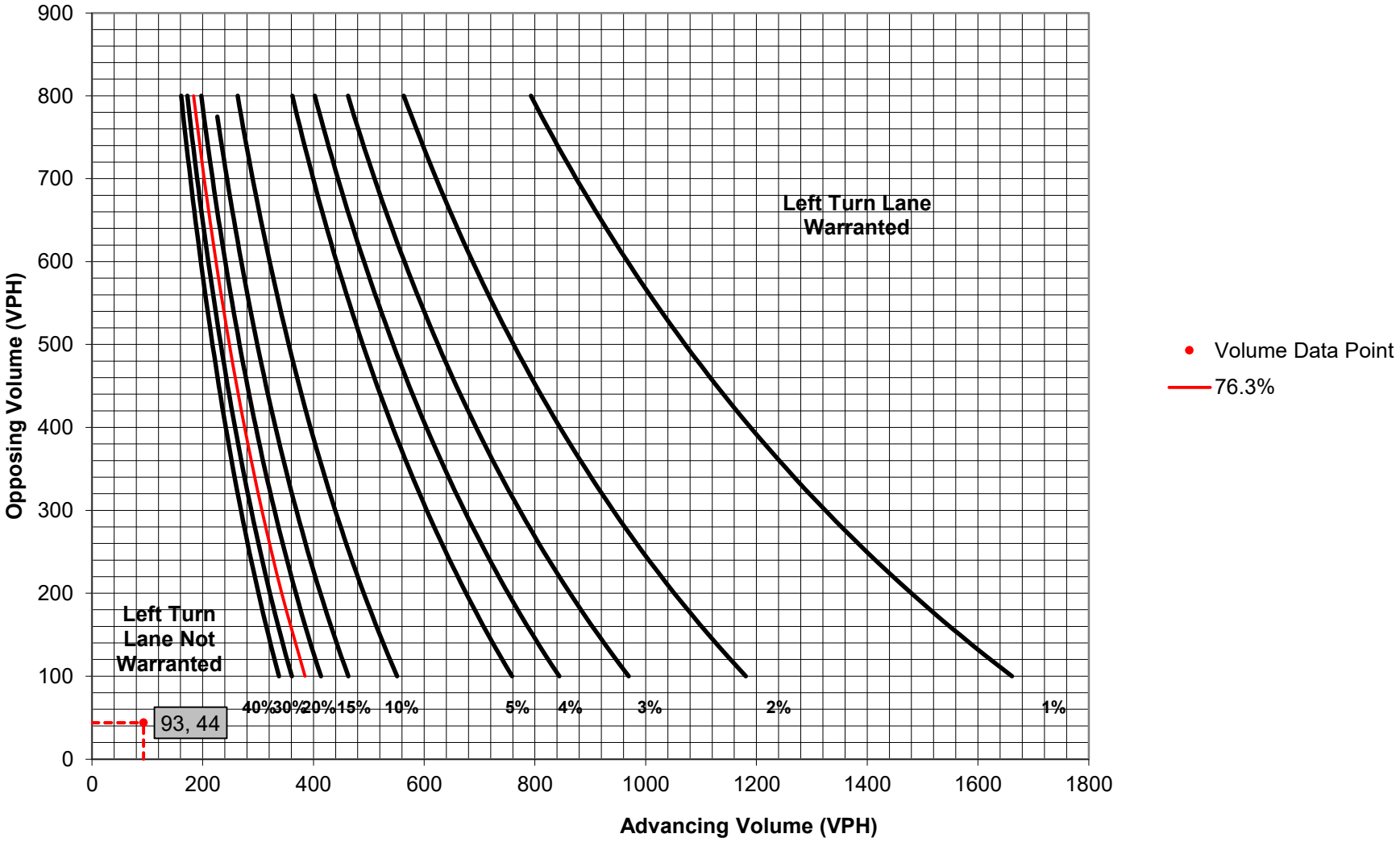
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	71	0.0%	71
	Through	-	2	2.0%	3
	Right	-	19	0.0%	19

Advancing Volume: 93
Right Turn Volume: 19

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

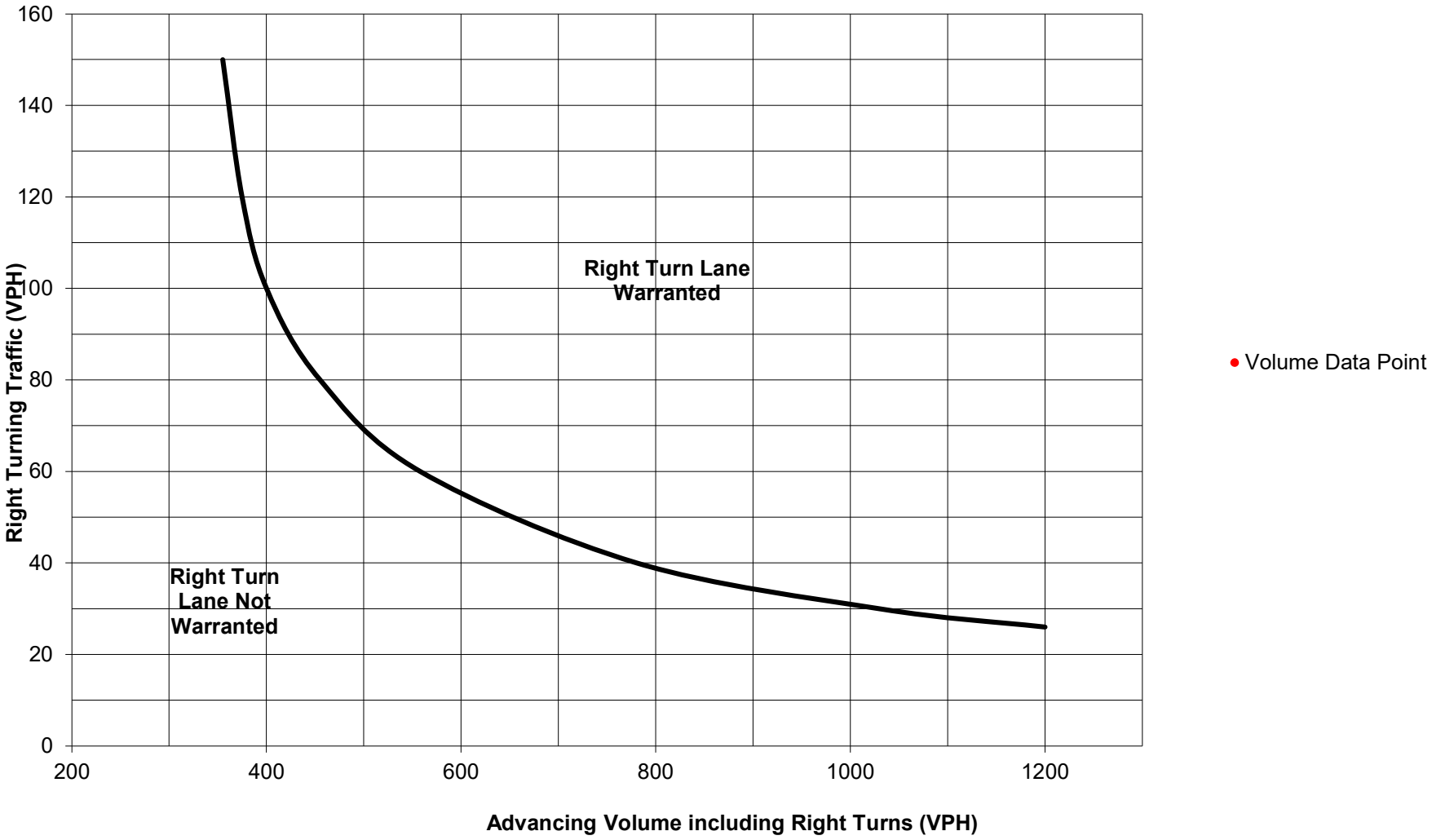
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	73
	Through	-	6	2.0%	7
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0

Advancing Volume:	81
Opposing Volume:	29
Left Turn Volume:	73
% Left Turns in Advancing Volume:	90.12%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	73
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

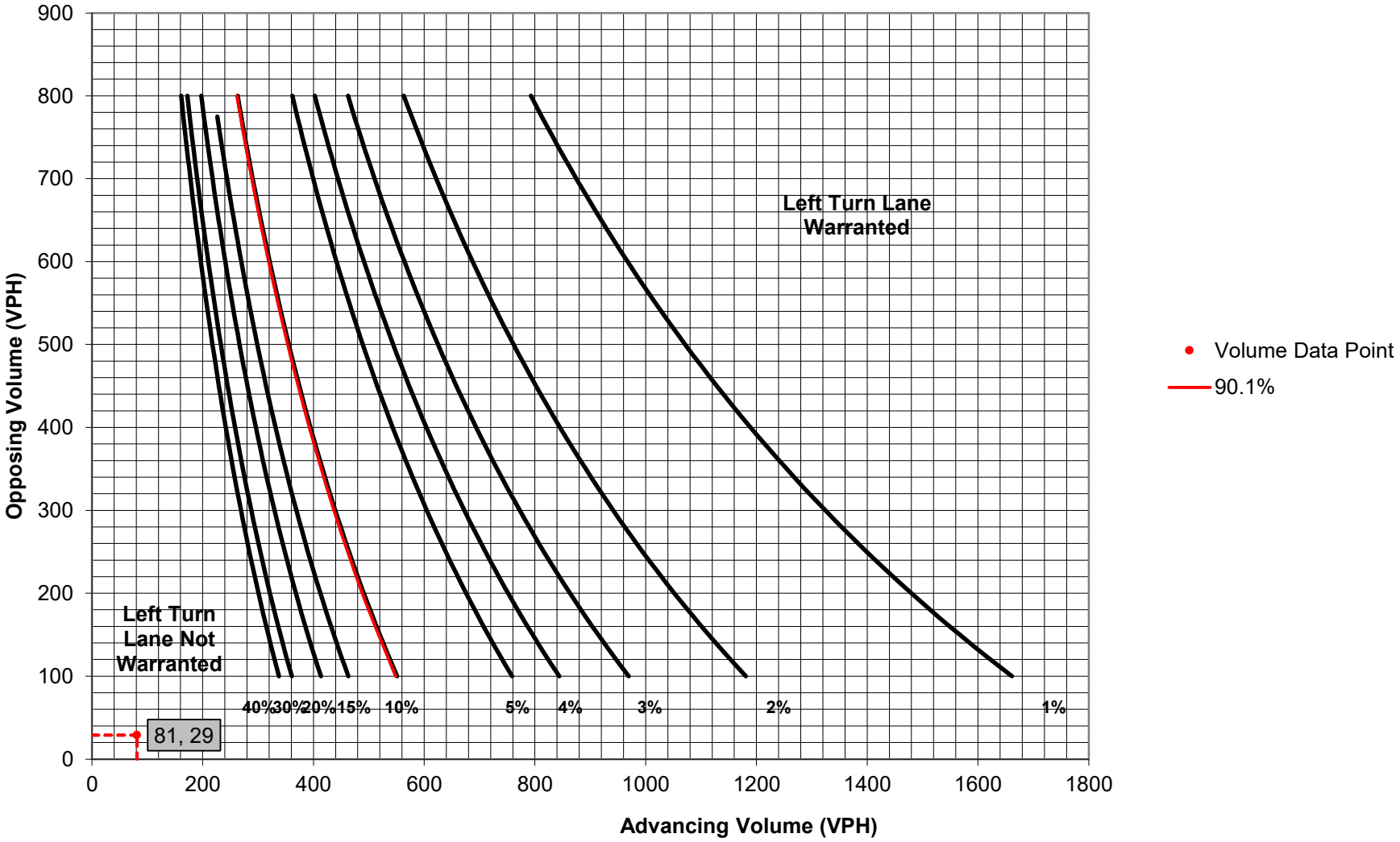
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	70	2.0%	73
	Through	-	6	2.0%	7
	Right	-	1	0.0%	1

Advancing Volume: 81
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

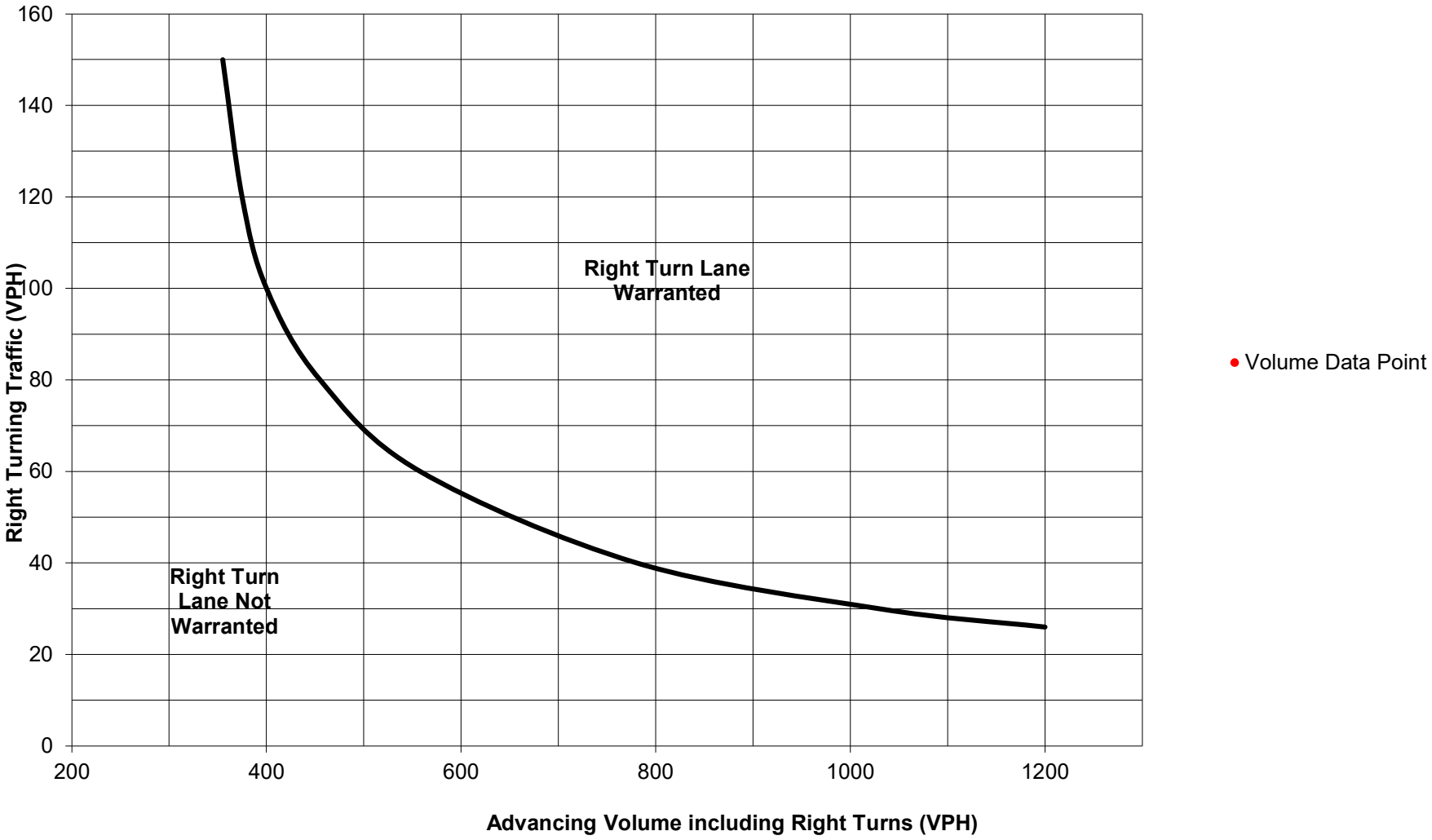
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	Yes	43	0.0%	43
Opposing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	Yes	43	2.0%	45

Advancing Volume: 152
Opposing Volume: 94
Left Turn Volume: 0
% Left Turns in Advancing Volume: 0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 0
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

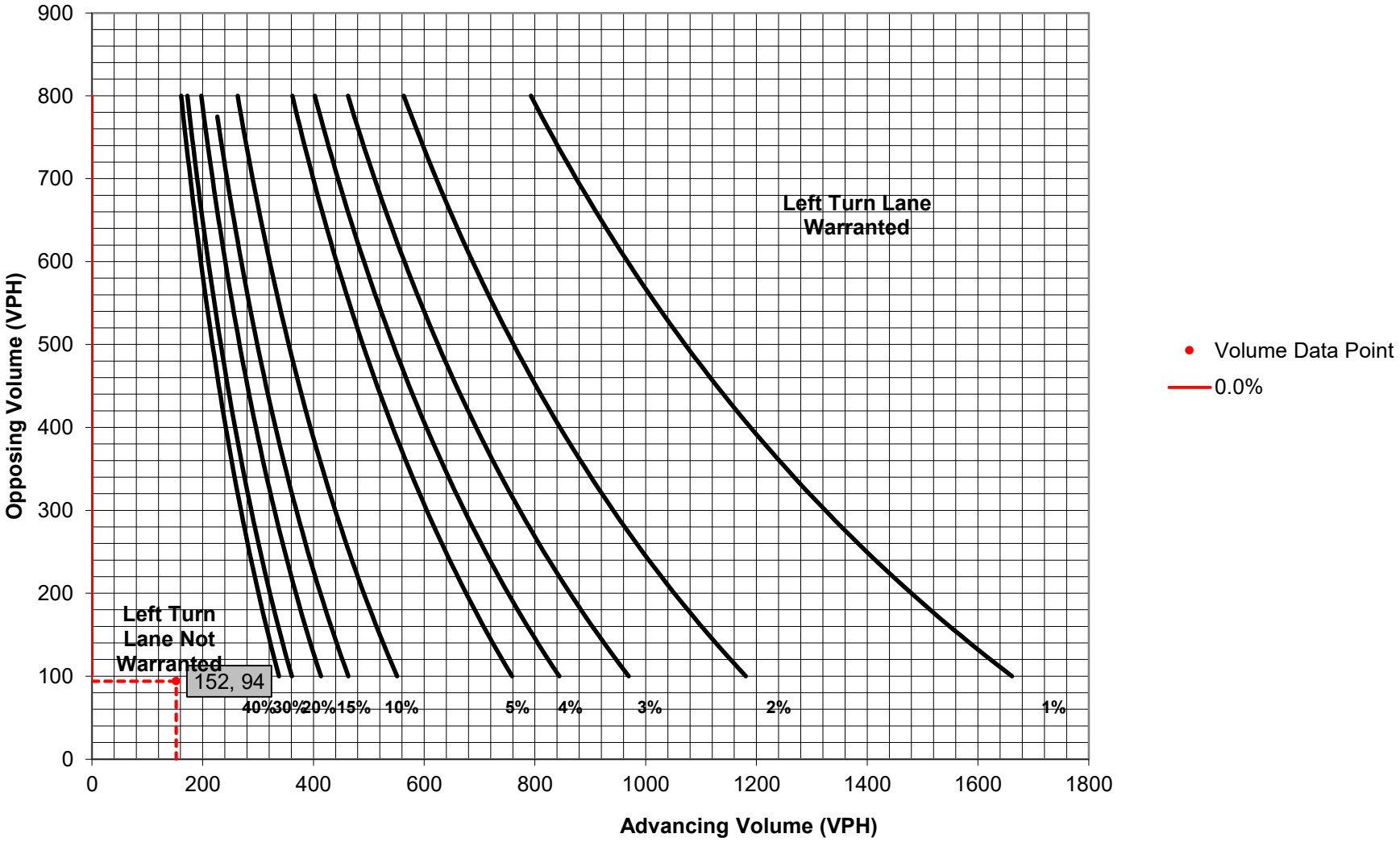
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	-	43	0.0%	43

Advancing Volume: 152
Right Turn Volume: 43

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	43
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

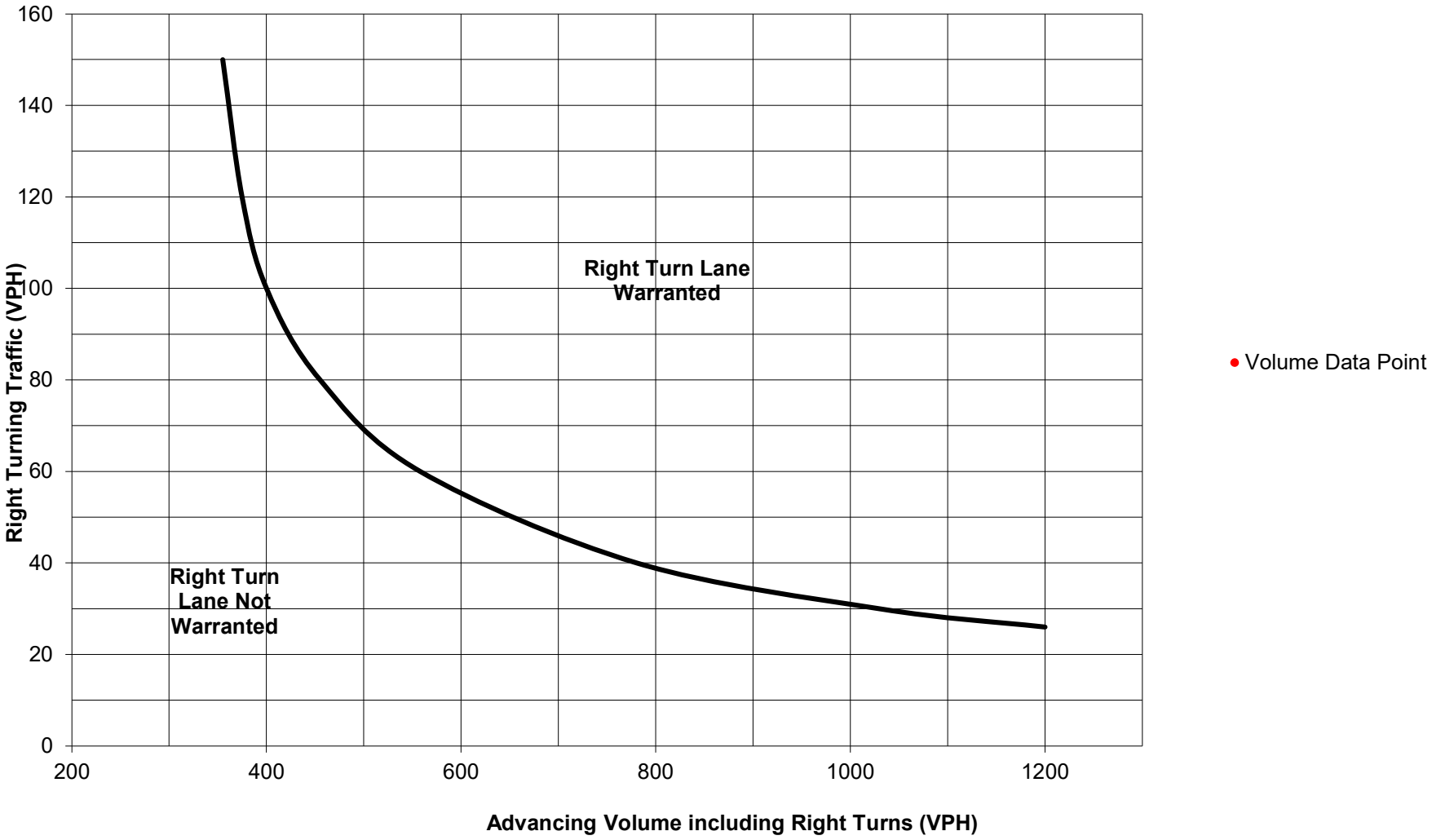
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	Yes	43	2.0%	45
Opposing	Left	Yes	0	0.0%	0
	Through	-	94	10.0%	109
	Right	Yes	43	0.0%	43

Advancing Volume:	94
Opposing Volume:	152
Left Turn Volume:	9
% Left Turns in Advancing Volume:	9.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

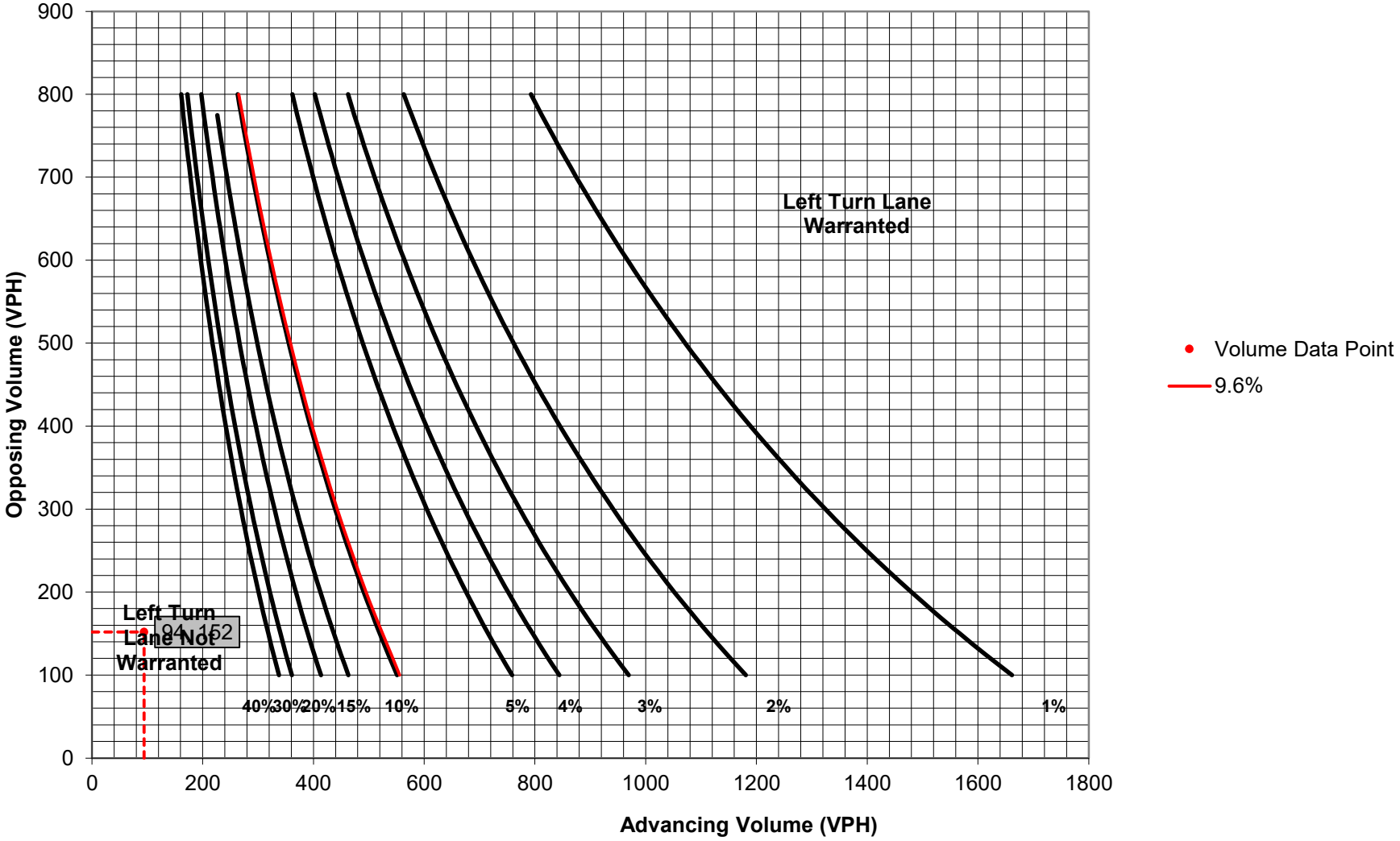
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	0.0%	9
	Through	-	25	38.0%	40
	Right	-	43	2.0%	45

Advancing Volume:	94
Right Turn Volume:	45

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

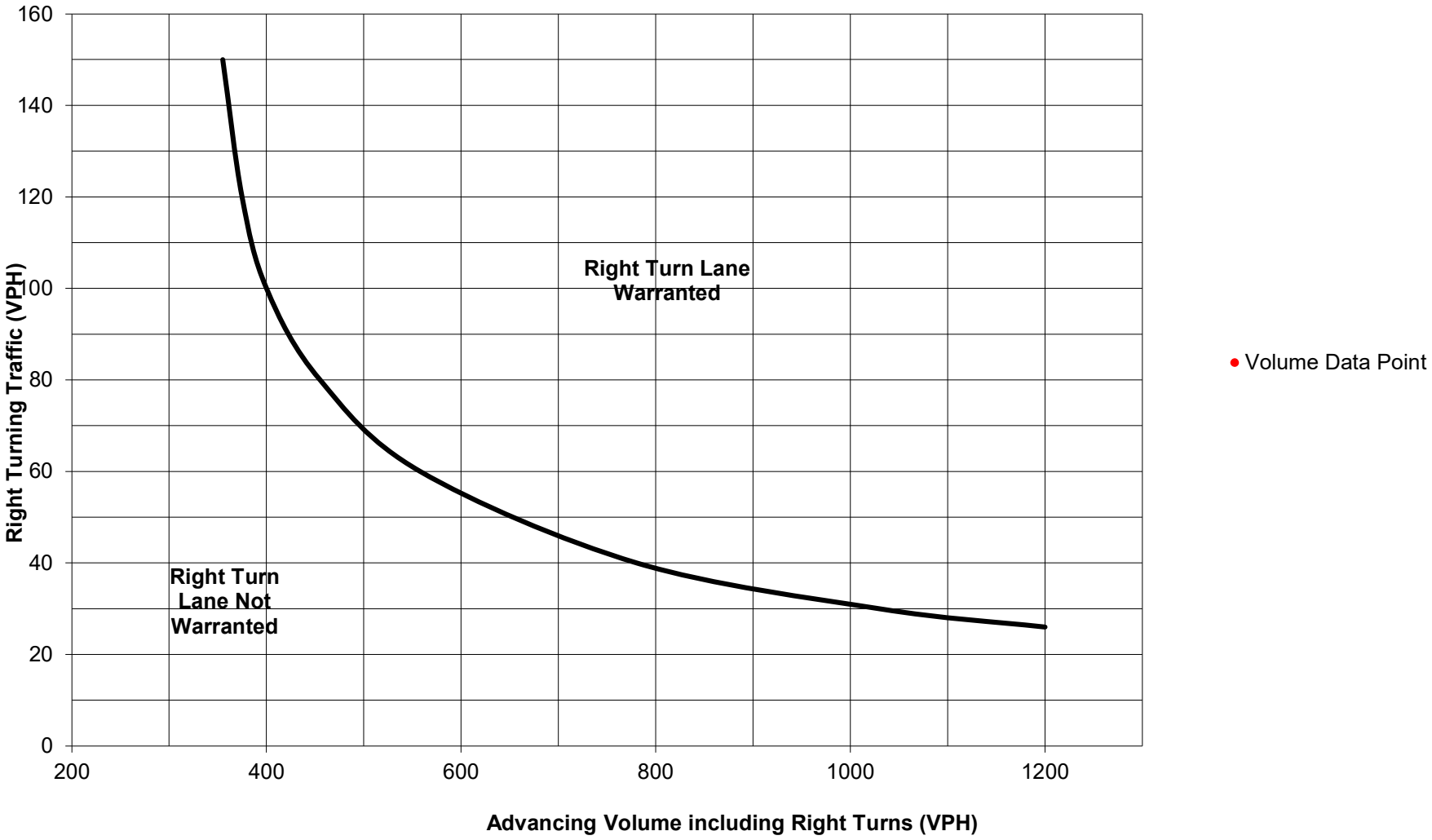
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	70	2.0%	73
	Through	-	6	2.0%	7
	Right	Yes	1	0.0%	1

Advancing Volume:	29
Opposing Volume:	81
Left Turn Volume:	17
% Left Turns in Advancing Volume:	58.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

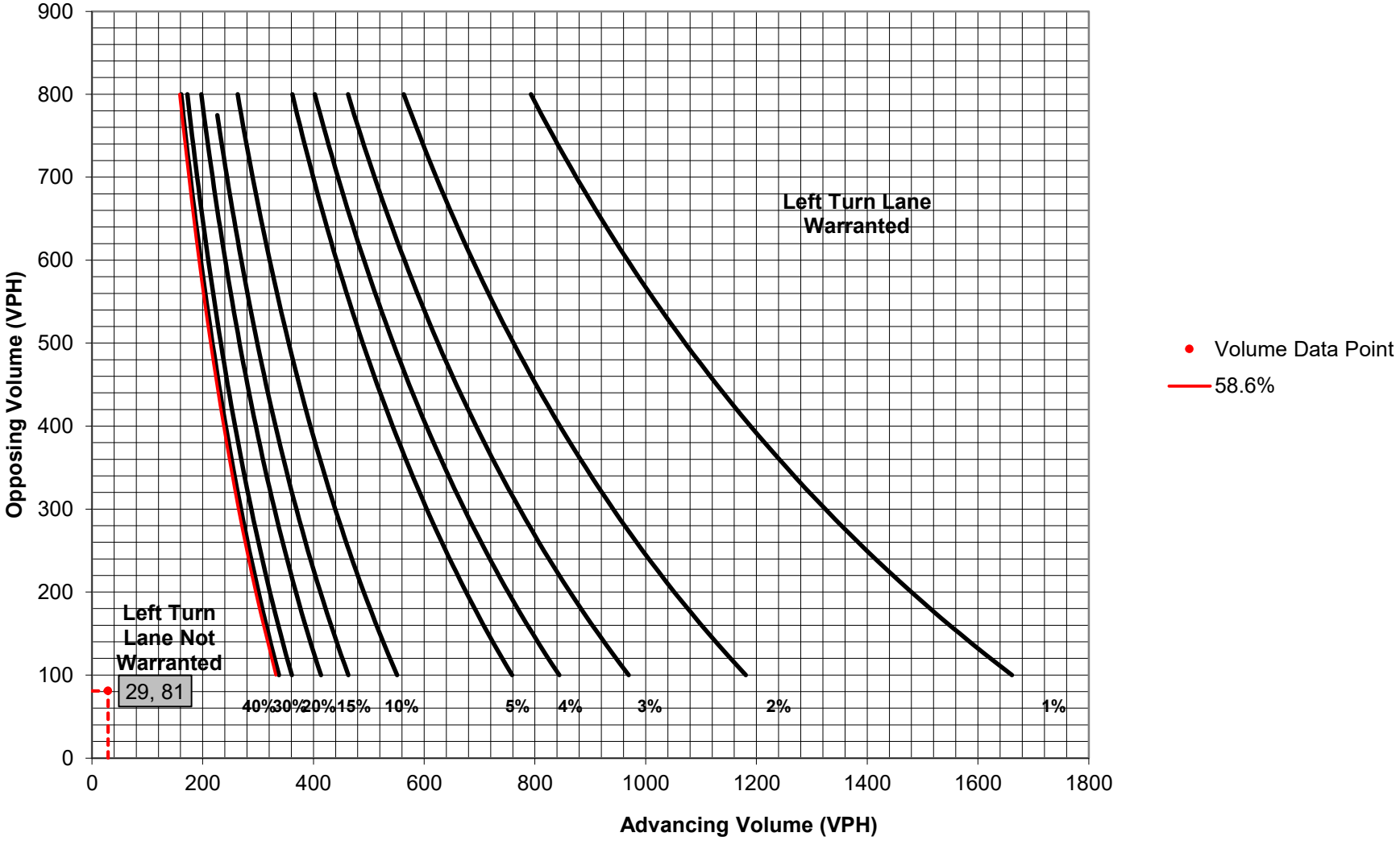
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	0.0%	17
	Through	-	12	0.0%	12
	Right	-	0	0.0%	0

Advancing Volume: 29
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

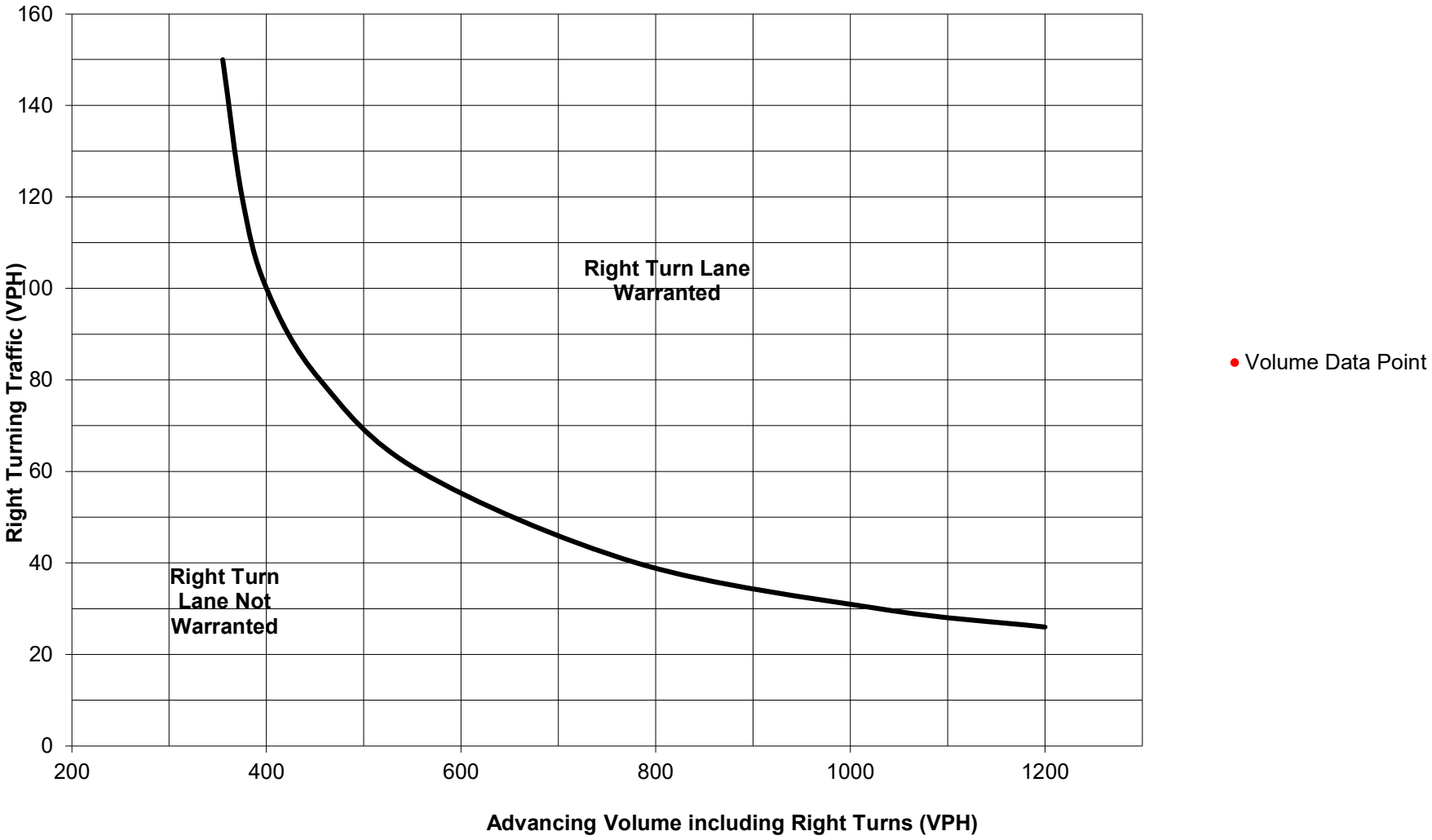
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	331	5.0%	356
	Right	-	5	0.0%	5

Advancing Volume: 361
Right Turn Volume: 5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

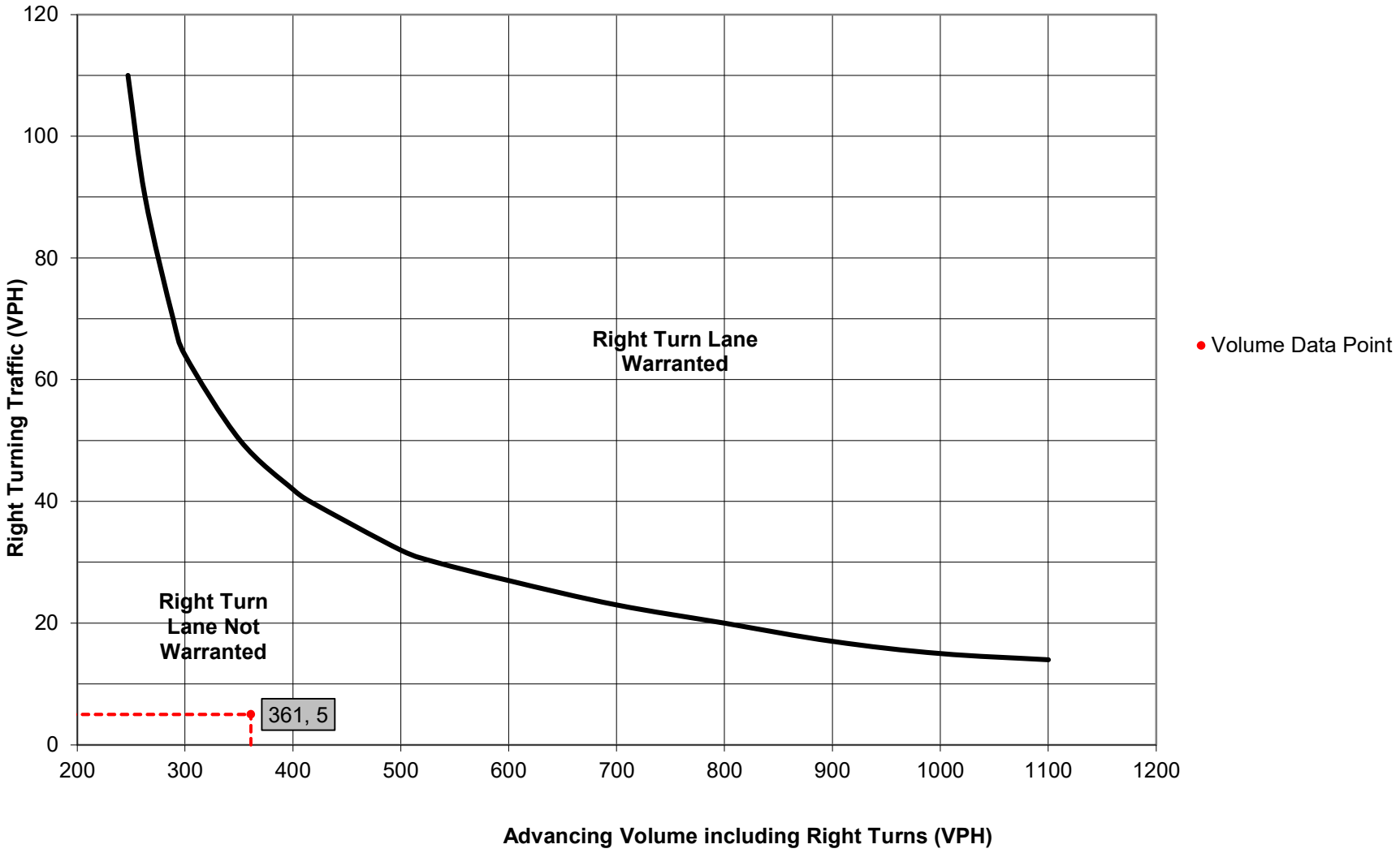
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	40	3.0%	42
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume: 46
Opposing Volume: 0
Left Turn Volume: 4
% Left Turns in Advancing Volume: 8.70%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

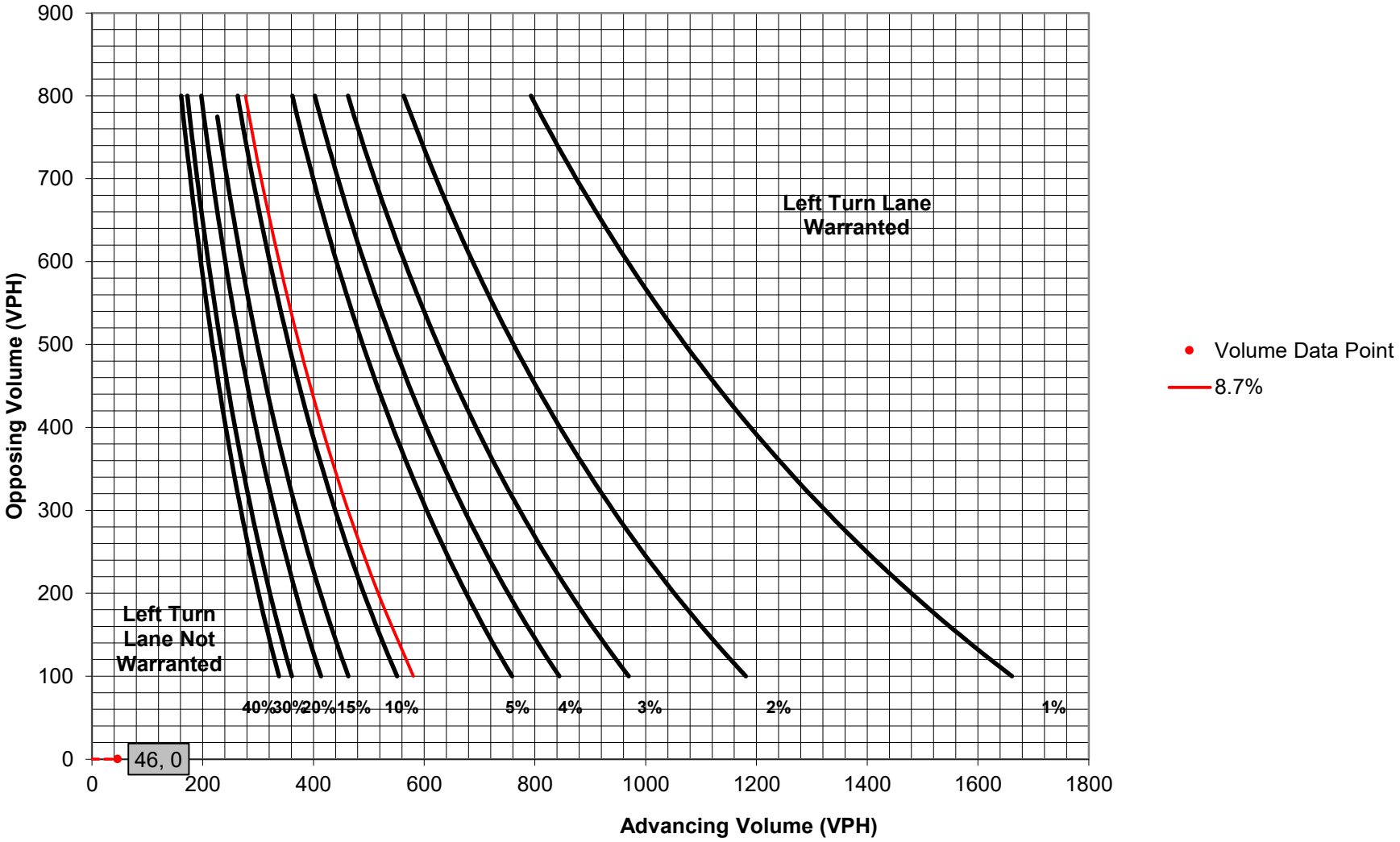
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	40	3.0%	42

Advancing Volume: 46
Right Turn Volume: 42

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

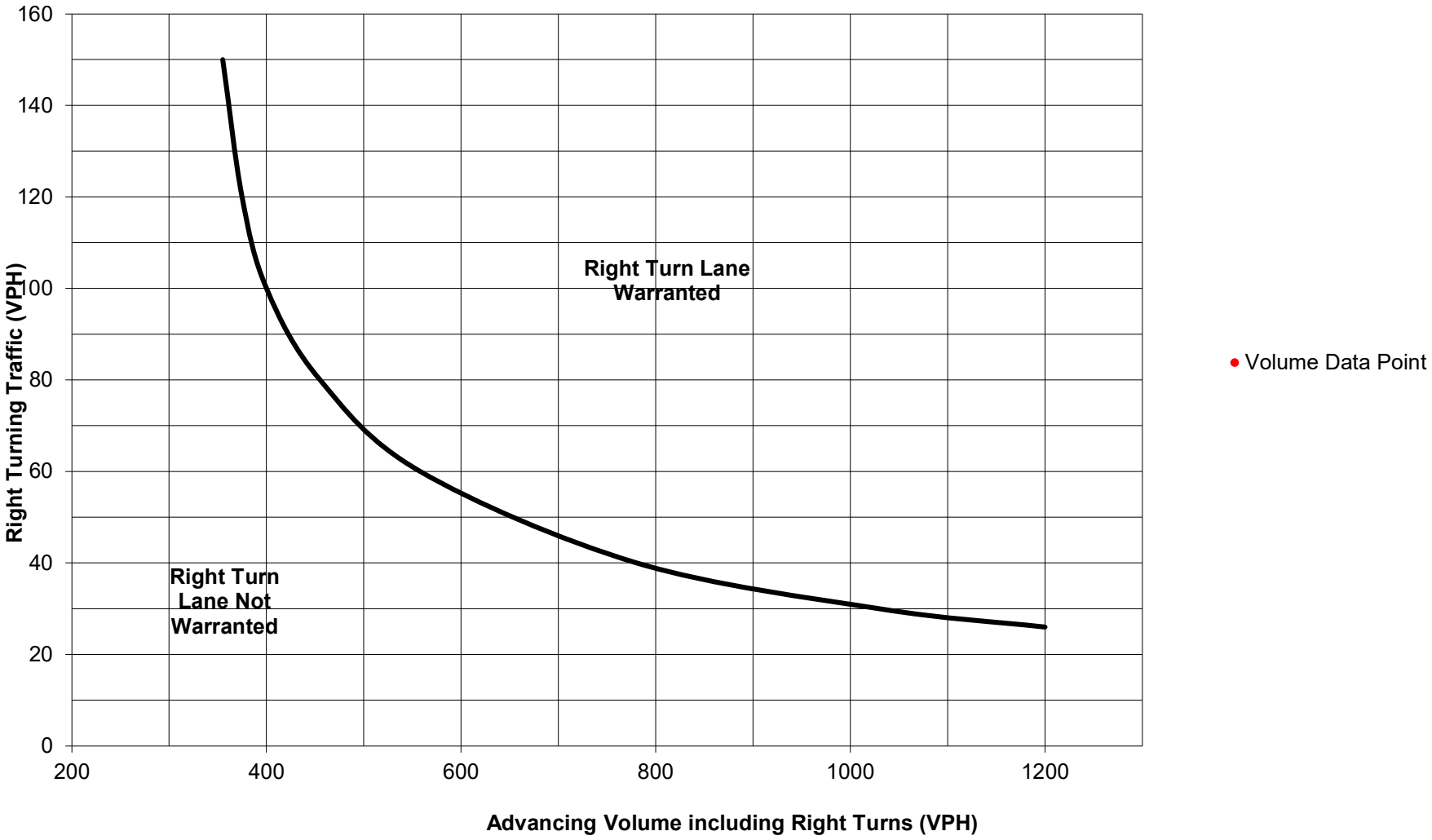
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	26	0.0%	26
	Through	-	339	4.0%	360
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	331	5.0%	356
	Right	Yes	5	0.0%	5

Advancing Volume:	386
Opposing Volume:	361
Left Turn Volume:	26
% Left Turns in Advancing Volume:	6.74%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

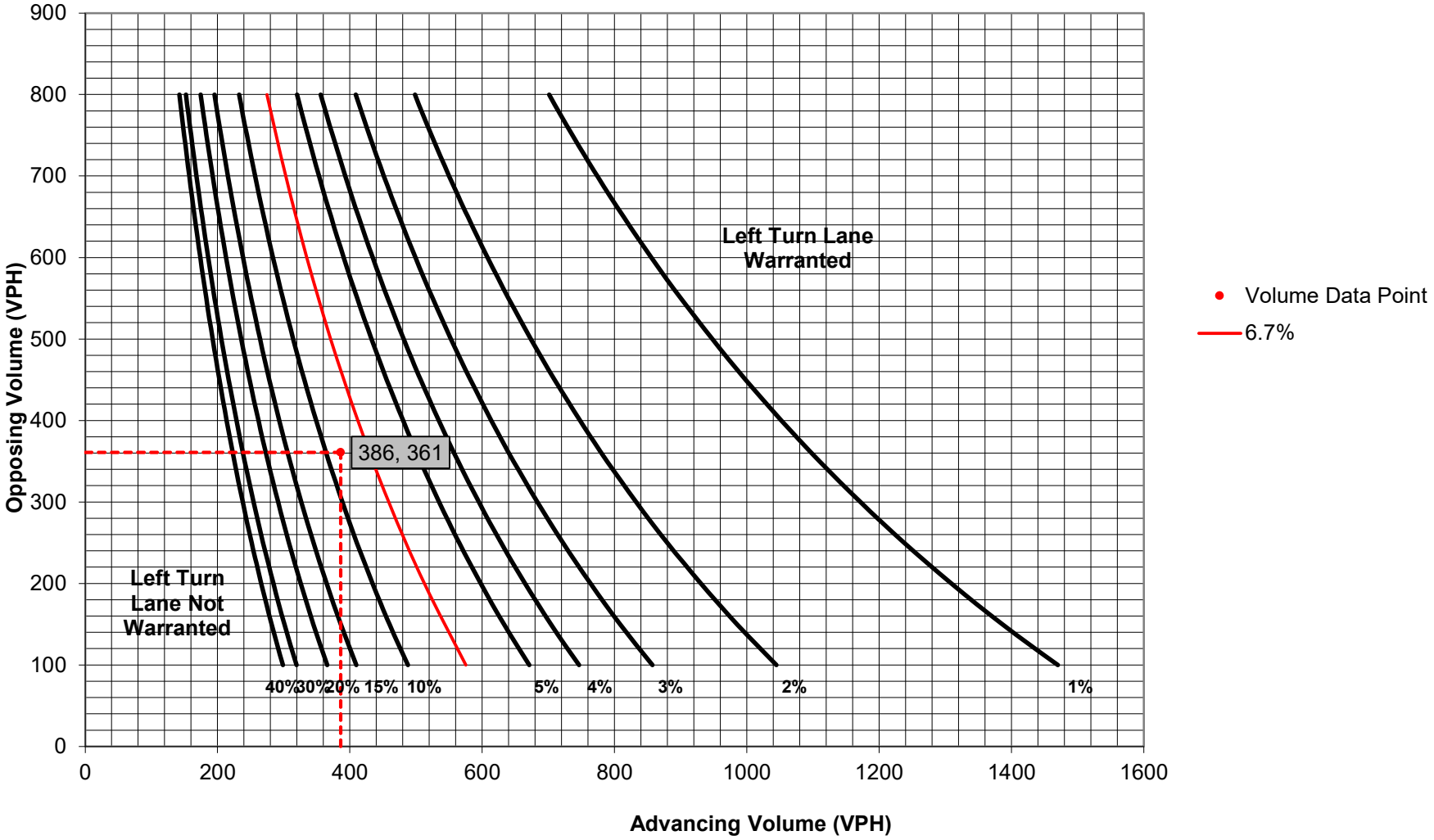
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	518	2.0%	534
	Right	-	11	0.0%	11

Advancing Volume: 545
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

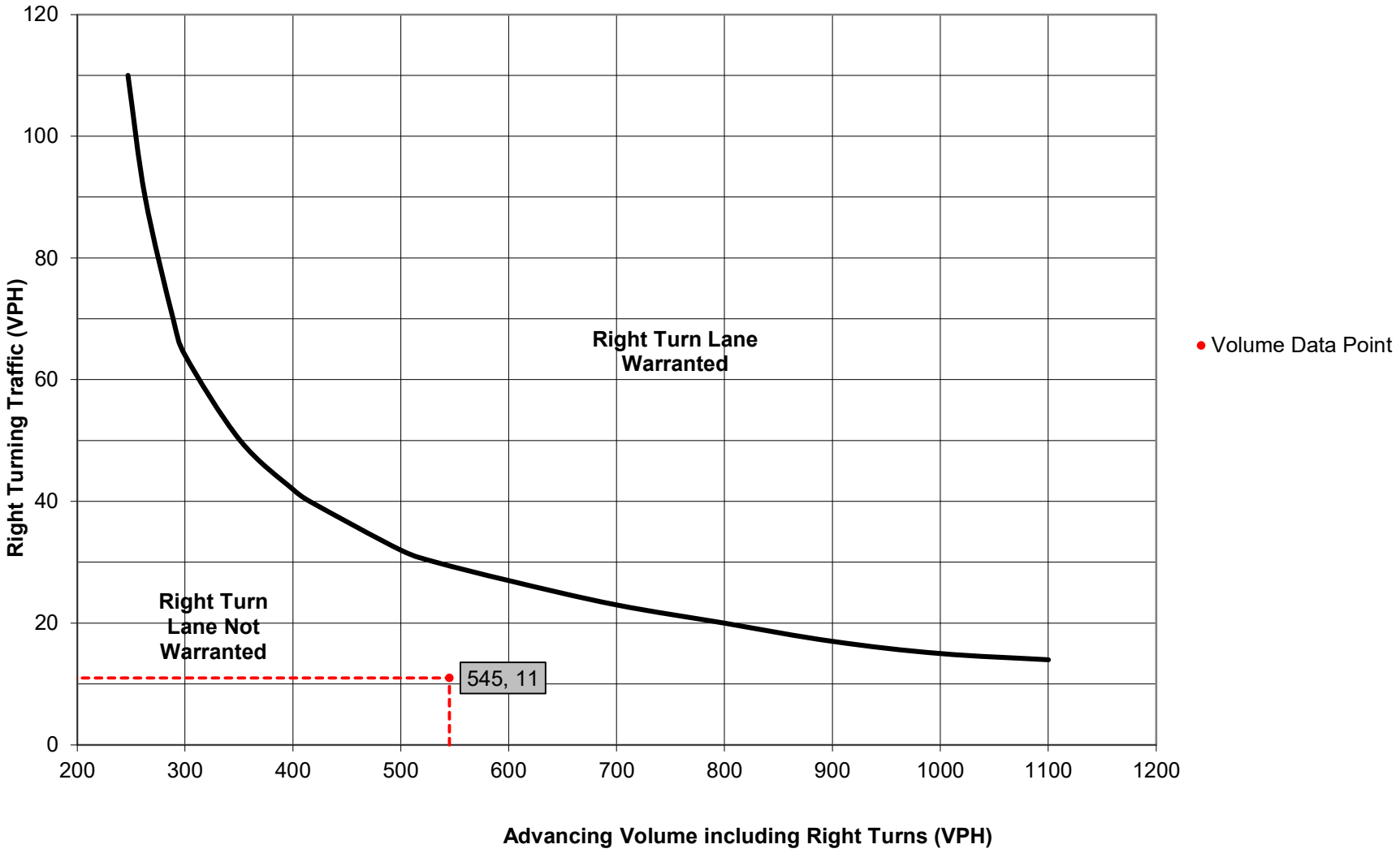
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	Yes	69	6.0%	76
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	80
Opposing Volume:	0
Left Turn Volume:	4
% Left Turns in Advancing Volume:	5.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

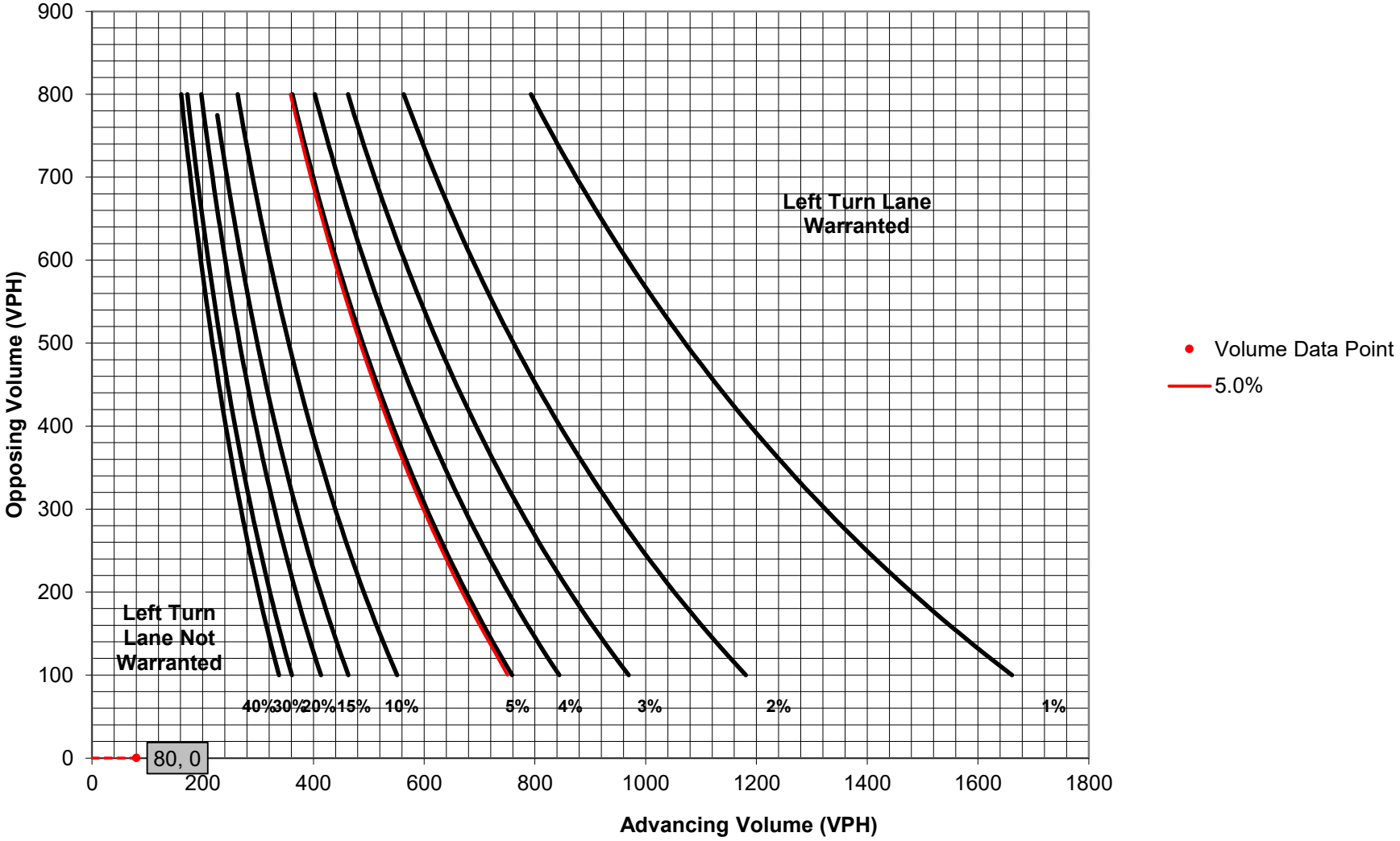
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	0	0.0%	0
	Right	-	69	6.0%	76

Advancing Volume: 80
Right Turn Volume: 76

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	76
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

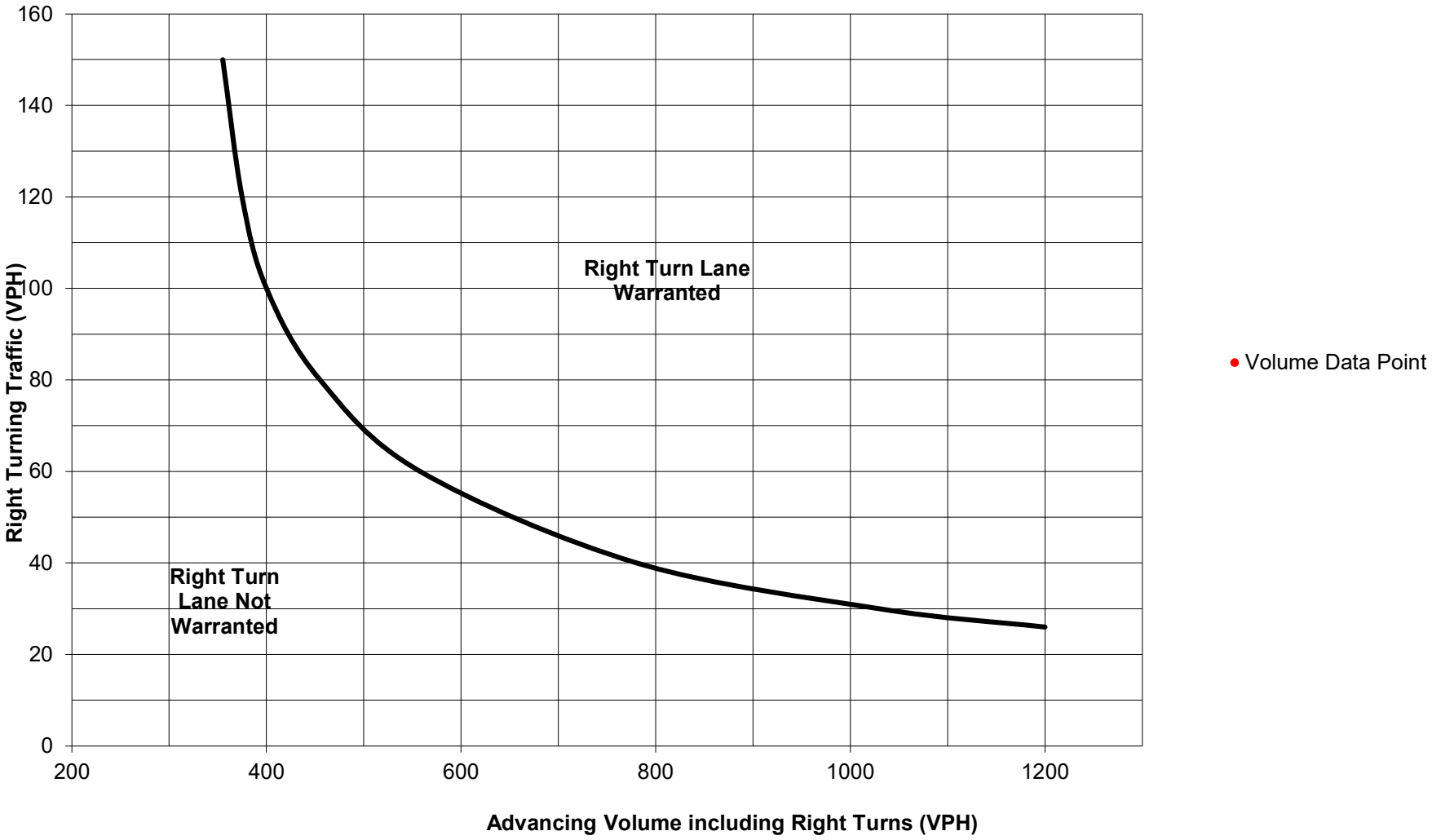
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	38	0.0%	38
	Through	-	554	2.0%	571
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	518	2.0%	534
	Right	Yes	11	0.0%	11

Advancing Volume:	609
Opposing Volume:	545
Left Turn Volume:	38
% Left Turns in Advancing Volume:	6.24%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

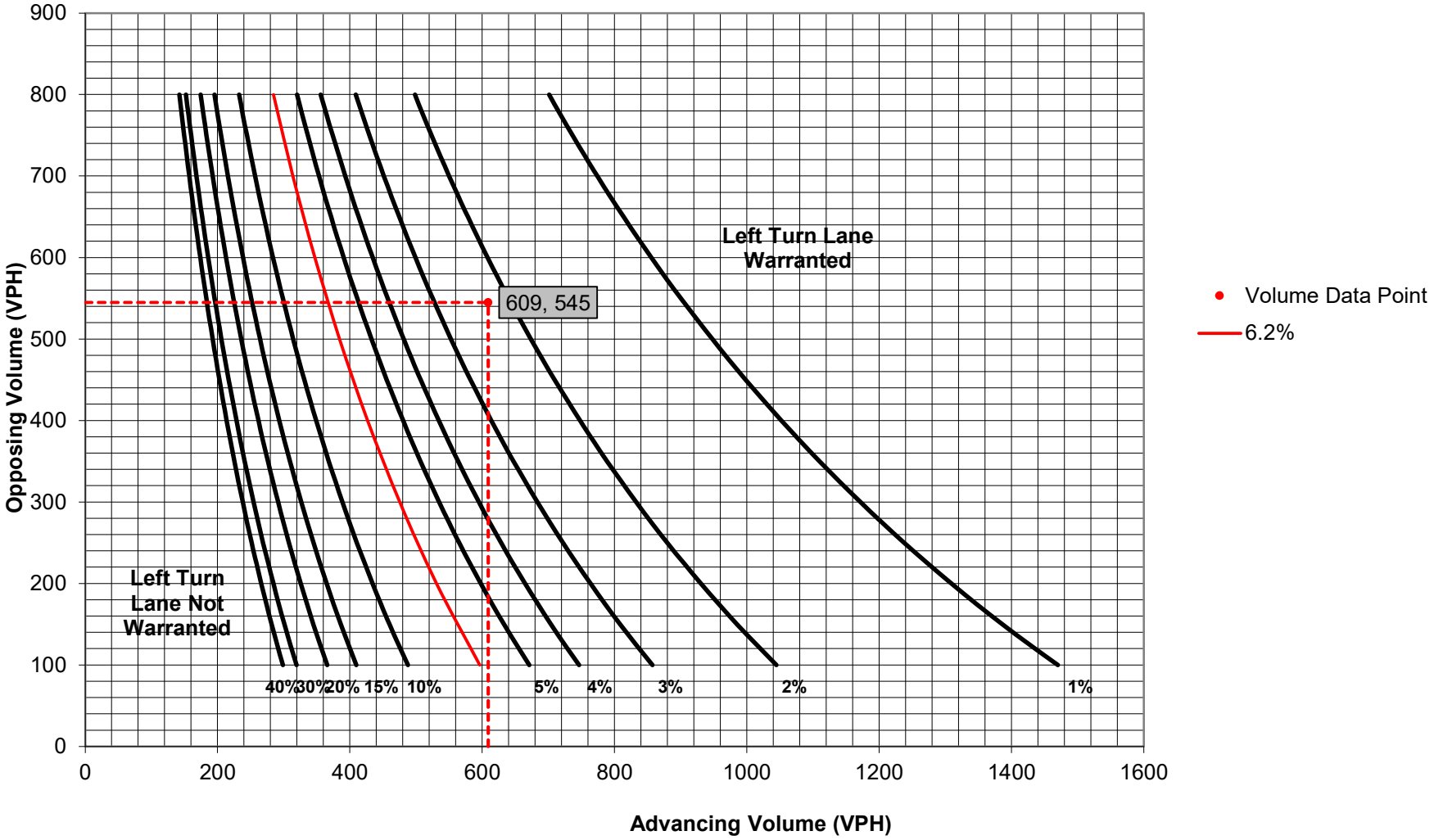
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	17	0.0%	17
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	7	14.0%	9
	Right	Yes	82	2.0%	85

Advancing Volume:	17
Opposing Volume:	94
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

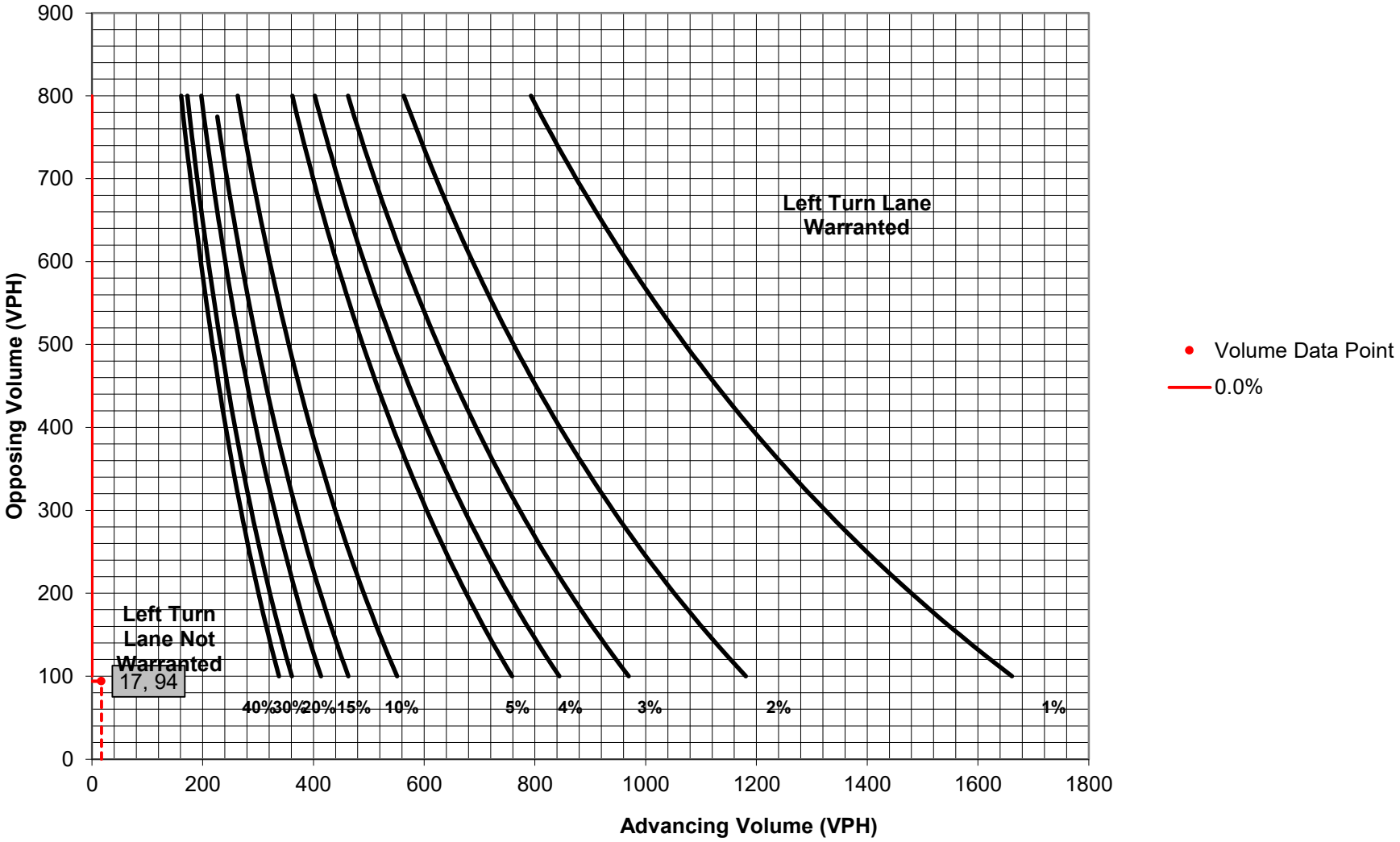
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	2.0%	29
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	29
Opposing Volume:	0
Left Turn Volume:	29
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	29
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

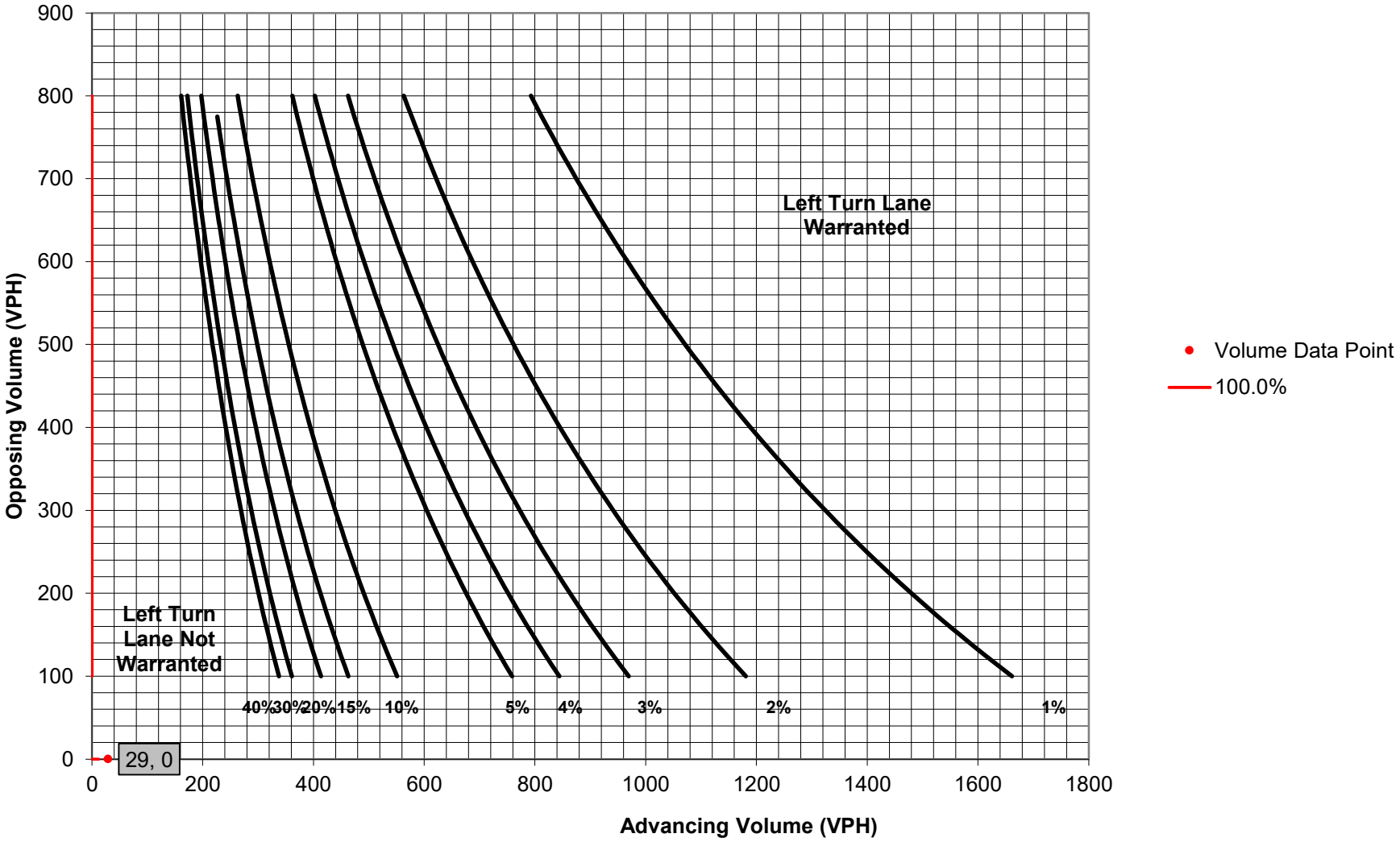
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	2.0%	29
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 29
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

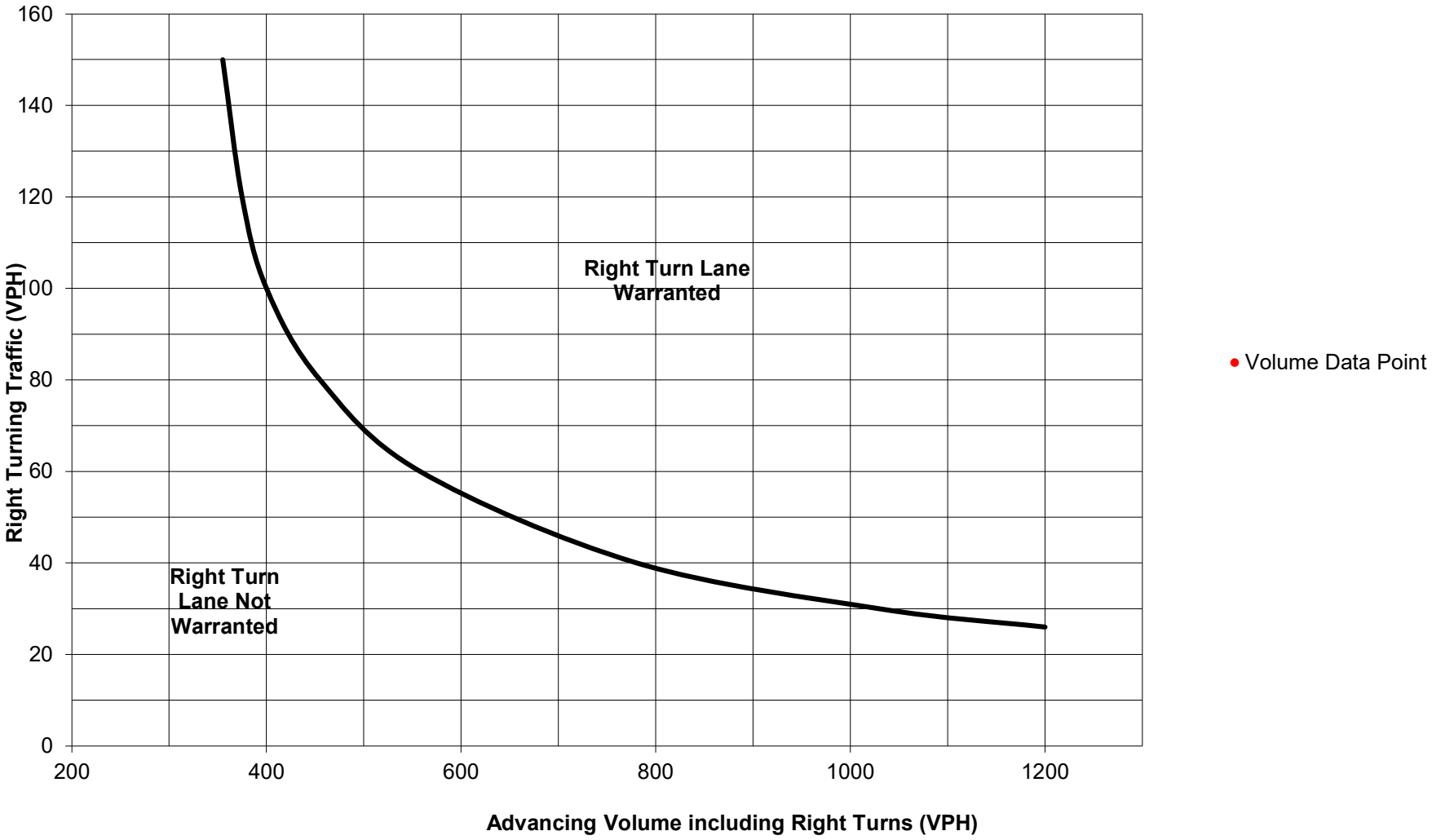
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	7	14.0%	9
	Right	-	82	2.0%	85

Advancing Volume: 94
Right Turn Volume: 85

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	85
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

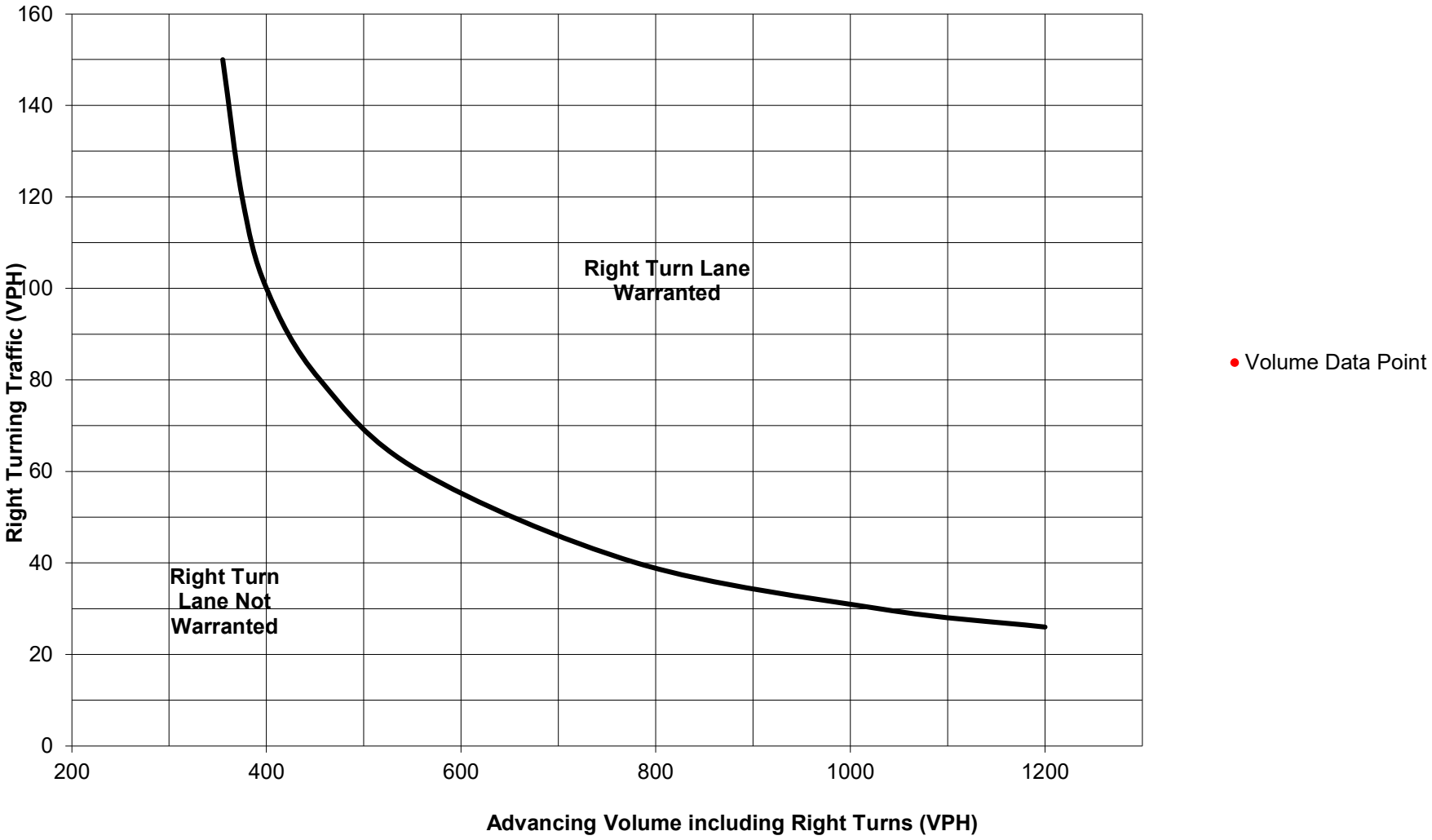
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	23	0.0%	23
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	23	0.0%	23
	Right	Yes	34	2.0%	36

Advancing Volume:	23
Opposing Volume:	59
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

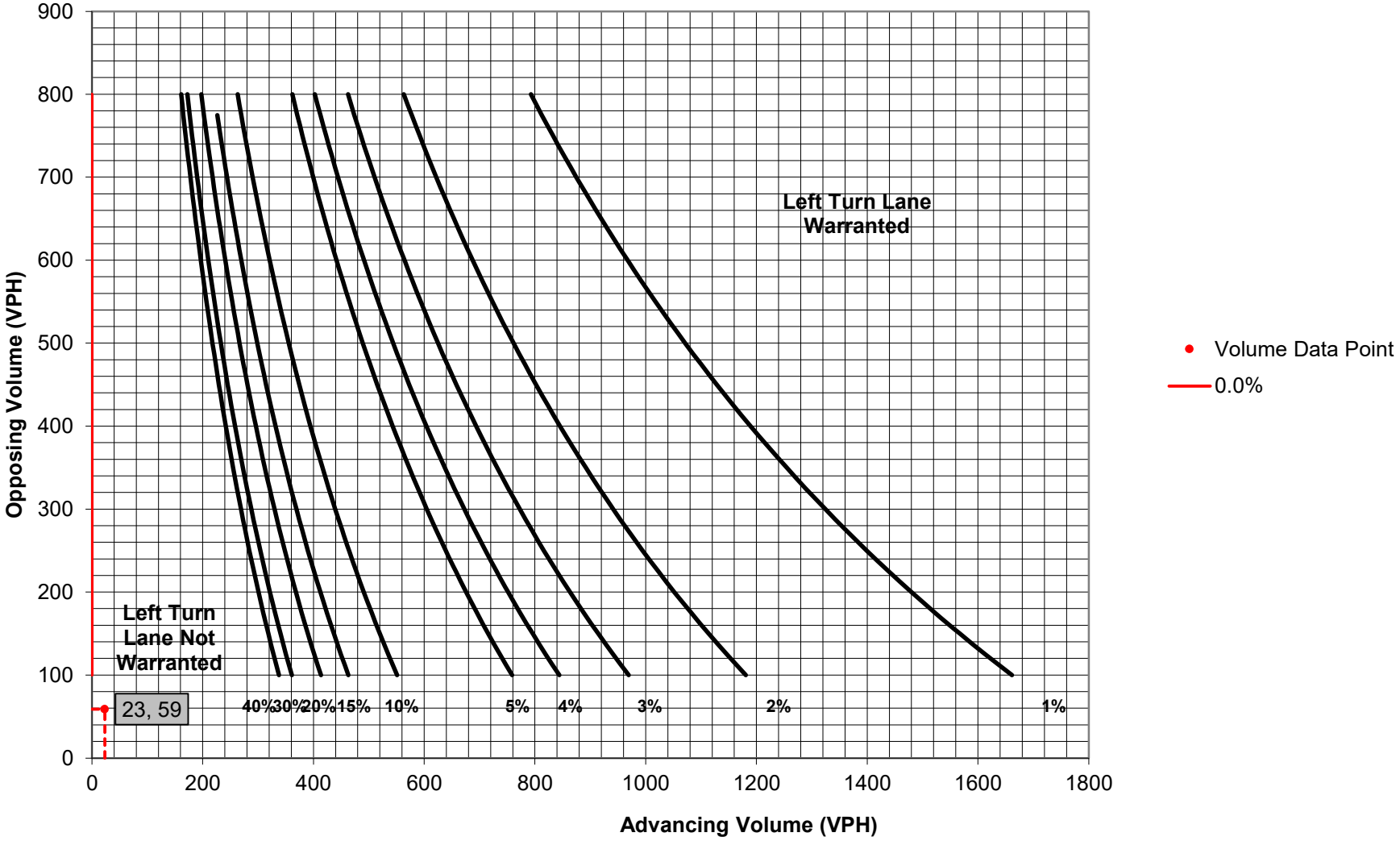
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	64	2.0%	66
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	66
Opposing Volume:	0
Left Turn Volume:	66
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	66
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

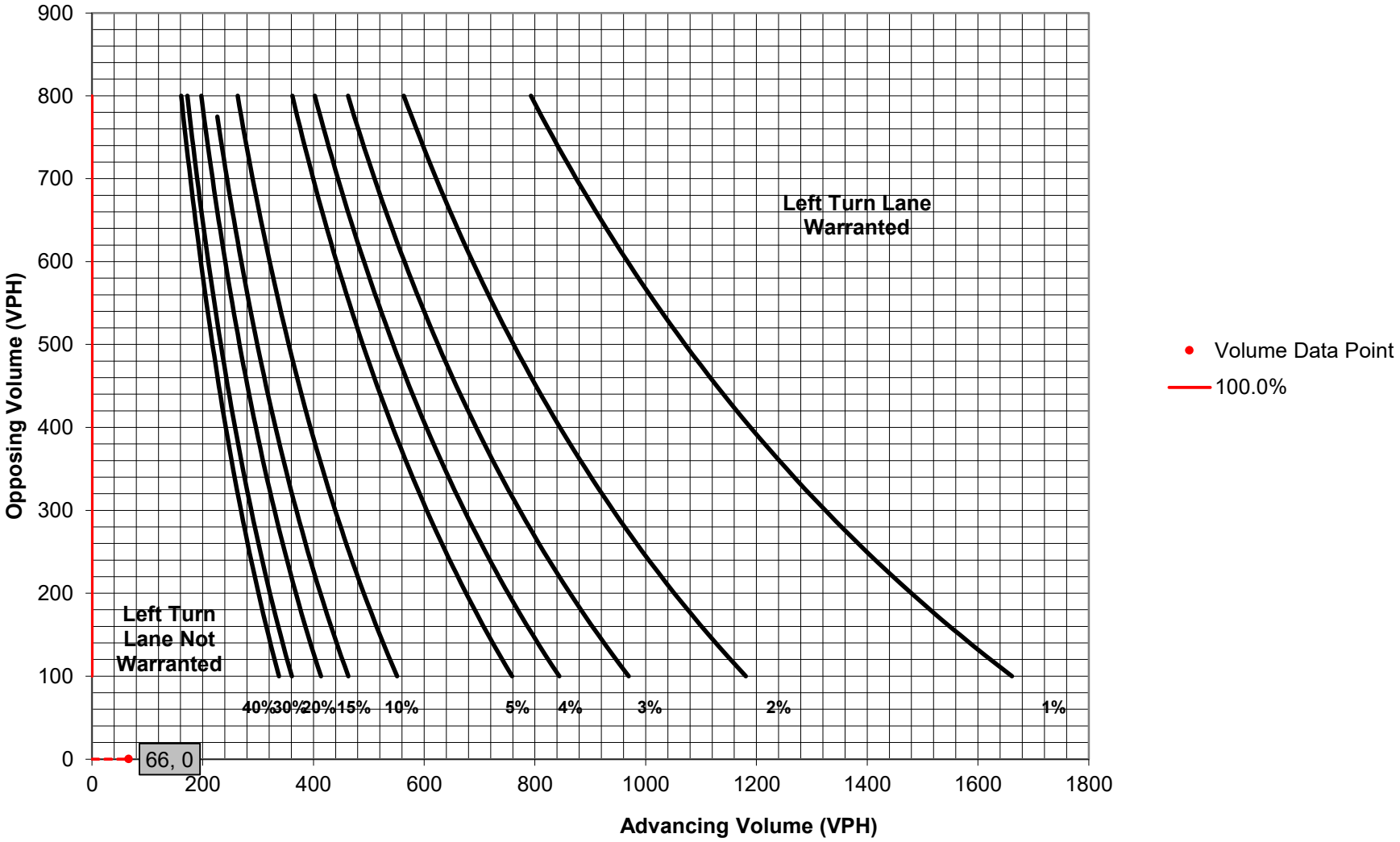
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	64	2.0%	66
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 66
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

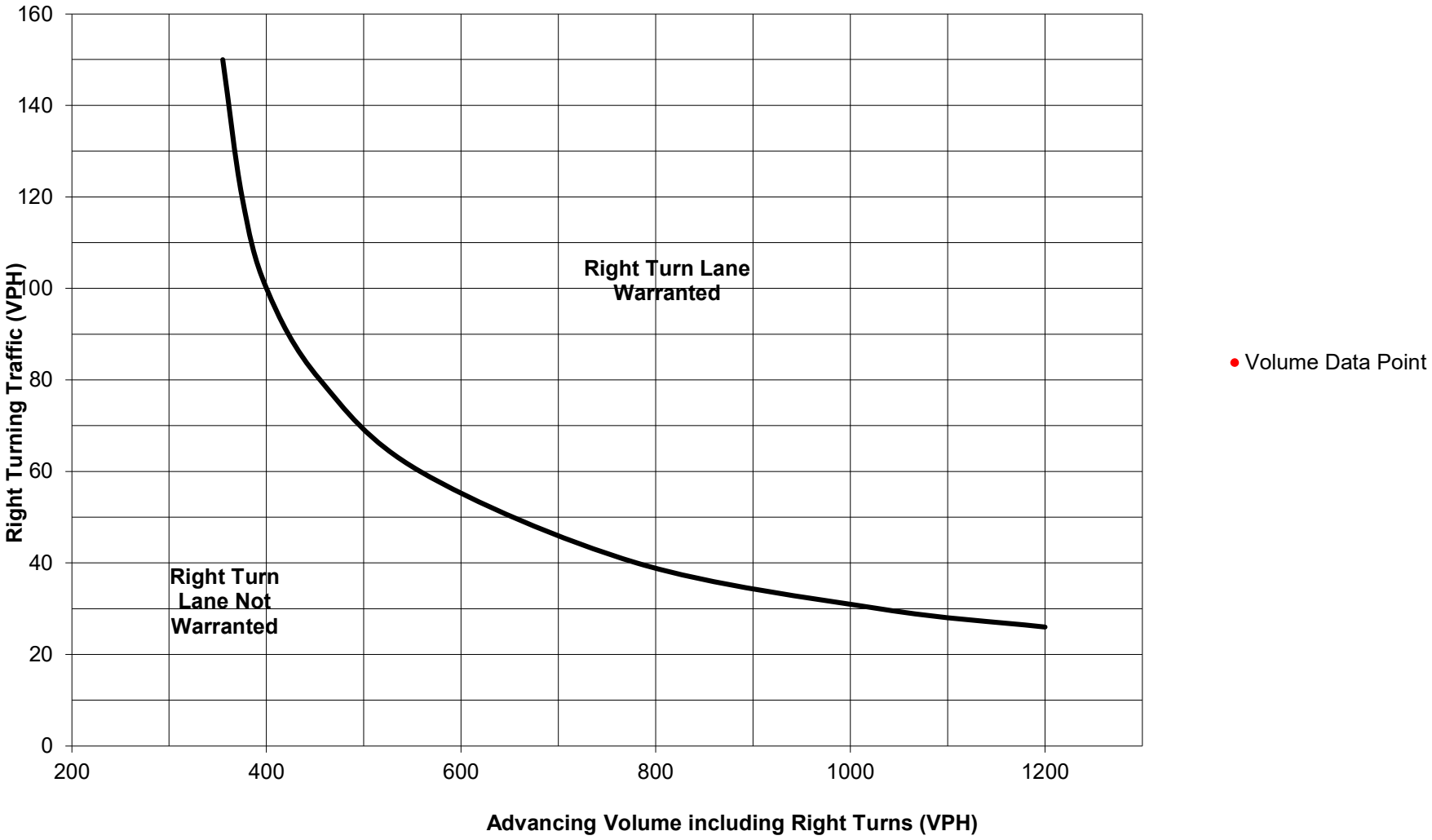
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	23	0.0%	23
	Right	-	34	2.0%	36

Advancing Volume:	59
Right Turn Volume:	36

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

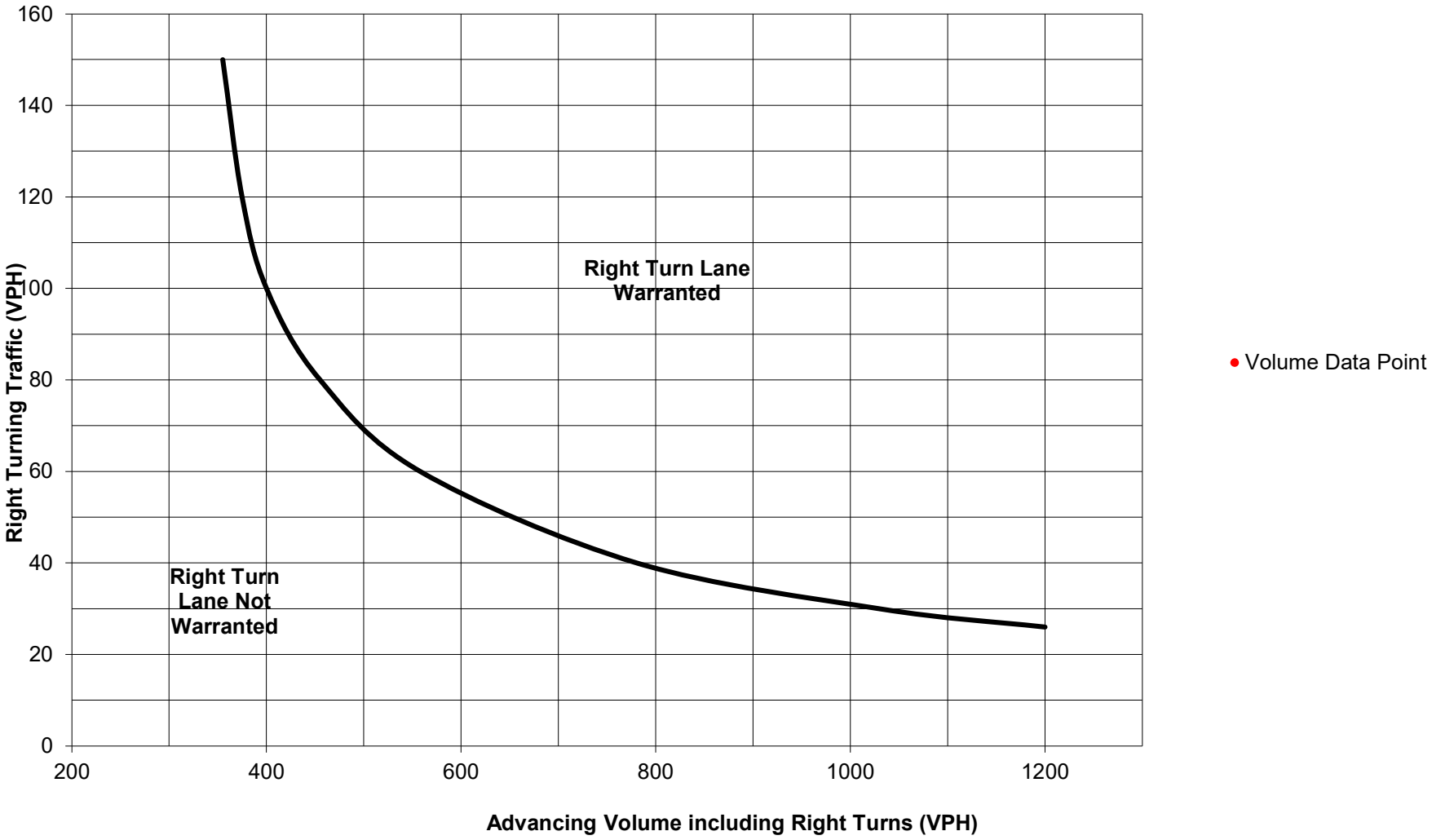
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	26	16.0%	33
	Right	-	21	2.0%	22

Advancing Volume: 55
Right Turn Volume: 22

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

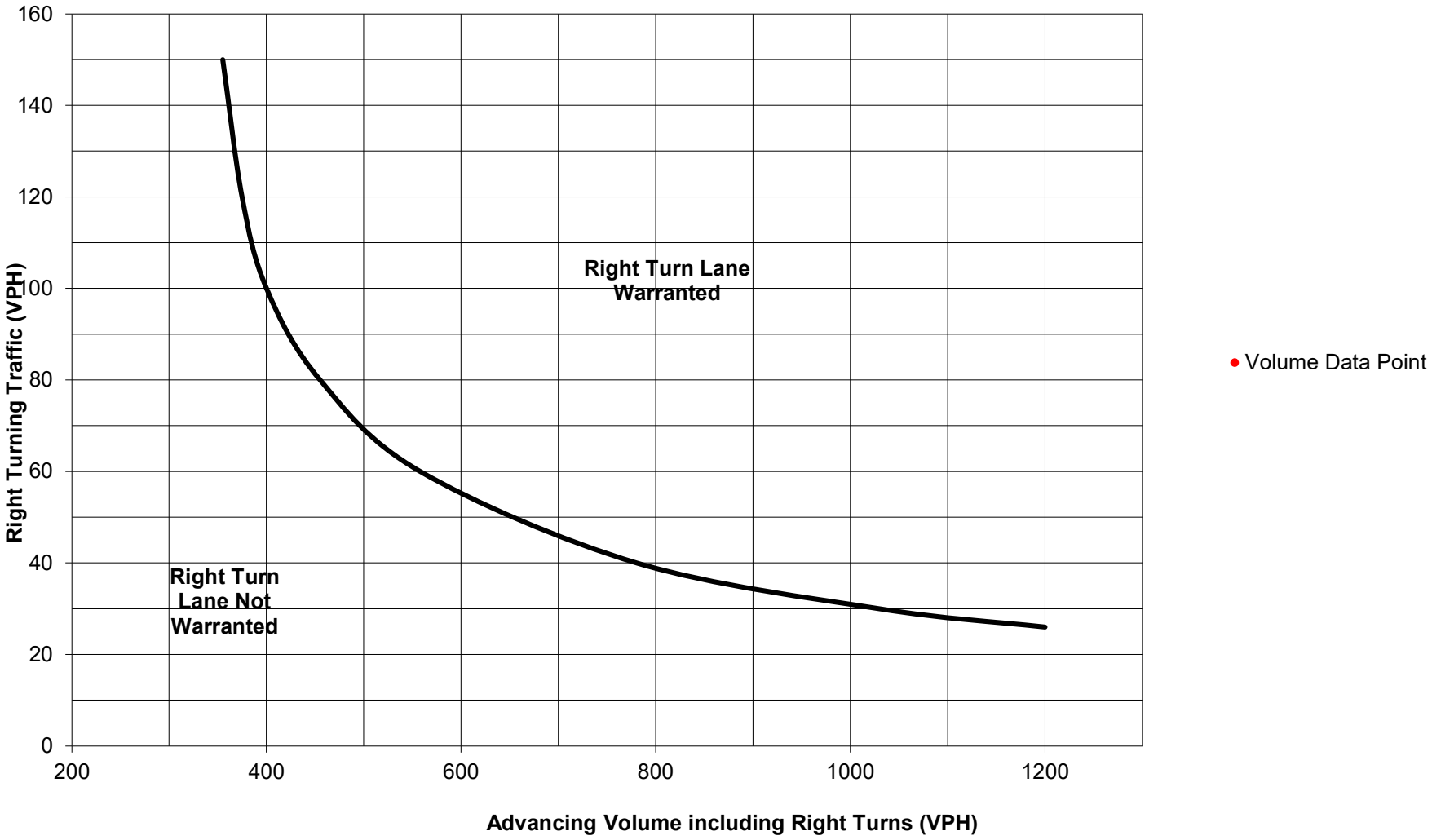
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	2.0%	8
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	8
Opposing Volume:	0
Left Turn Volume:	8
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

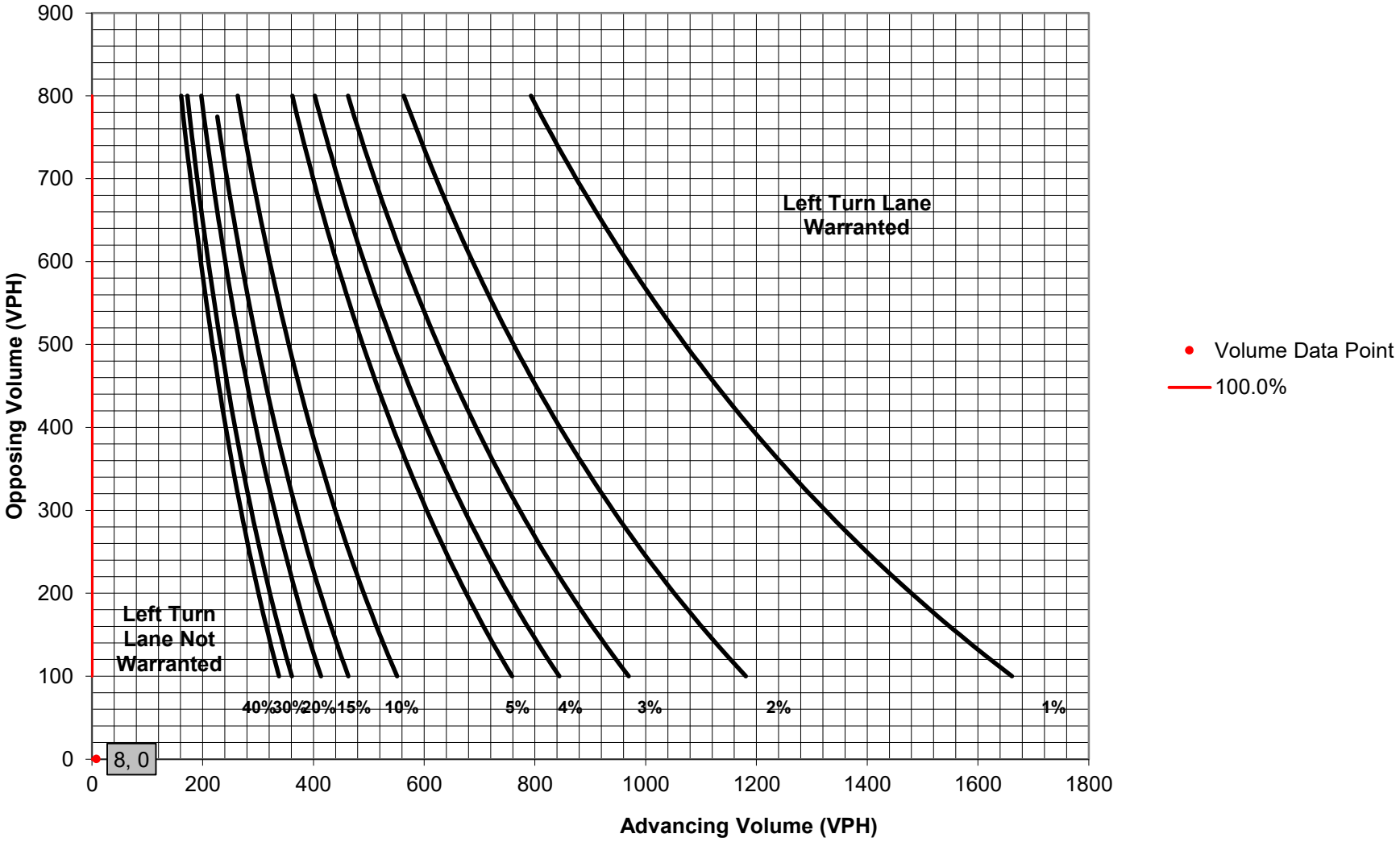
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	2.0%	8
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 8
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

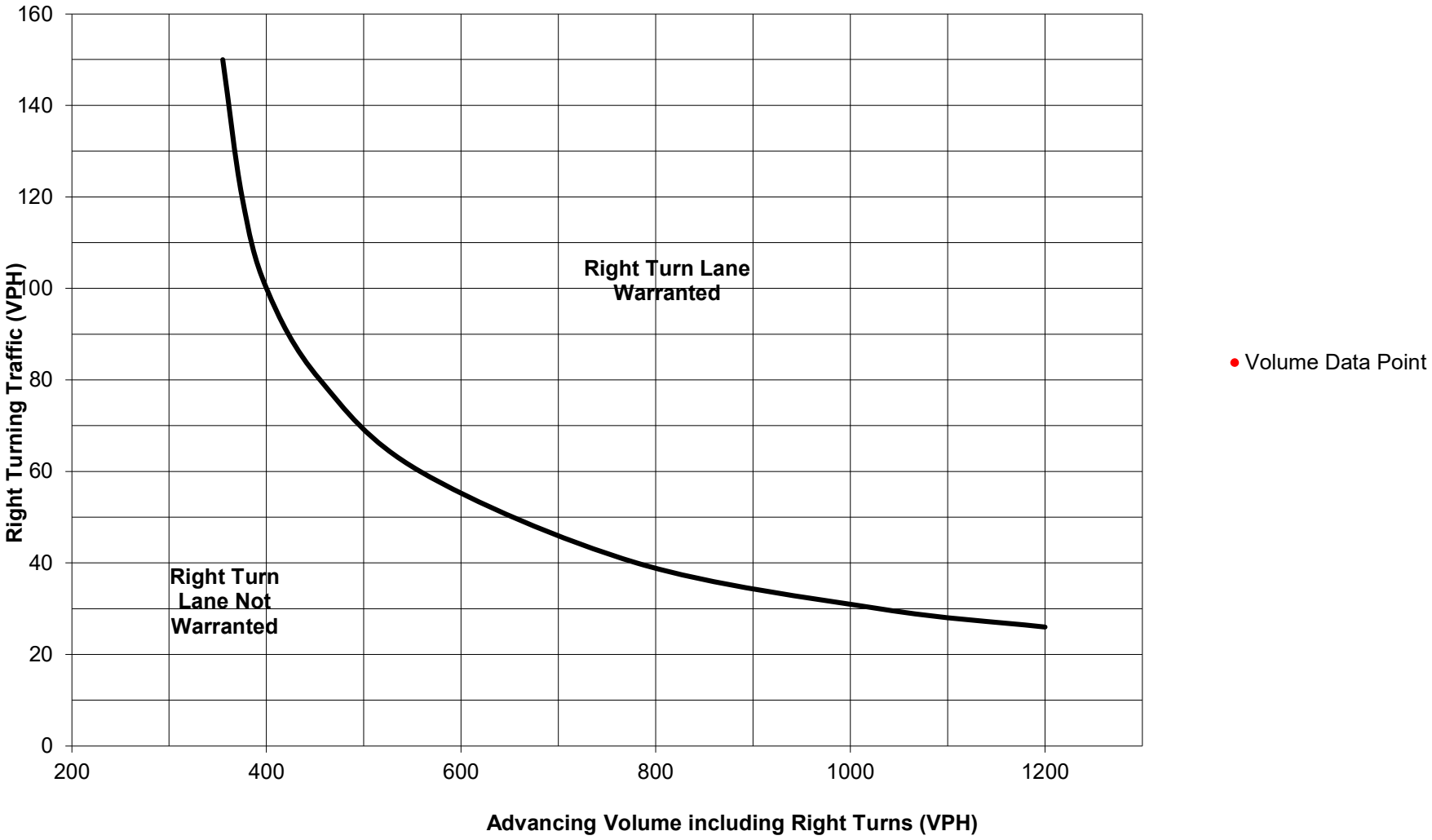
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	12	9.0%	14
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	26	16.0%	33
	Right	Yes	21	2.0%	22

Advancing Volume:	14
Opposing Volume:	55
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

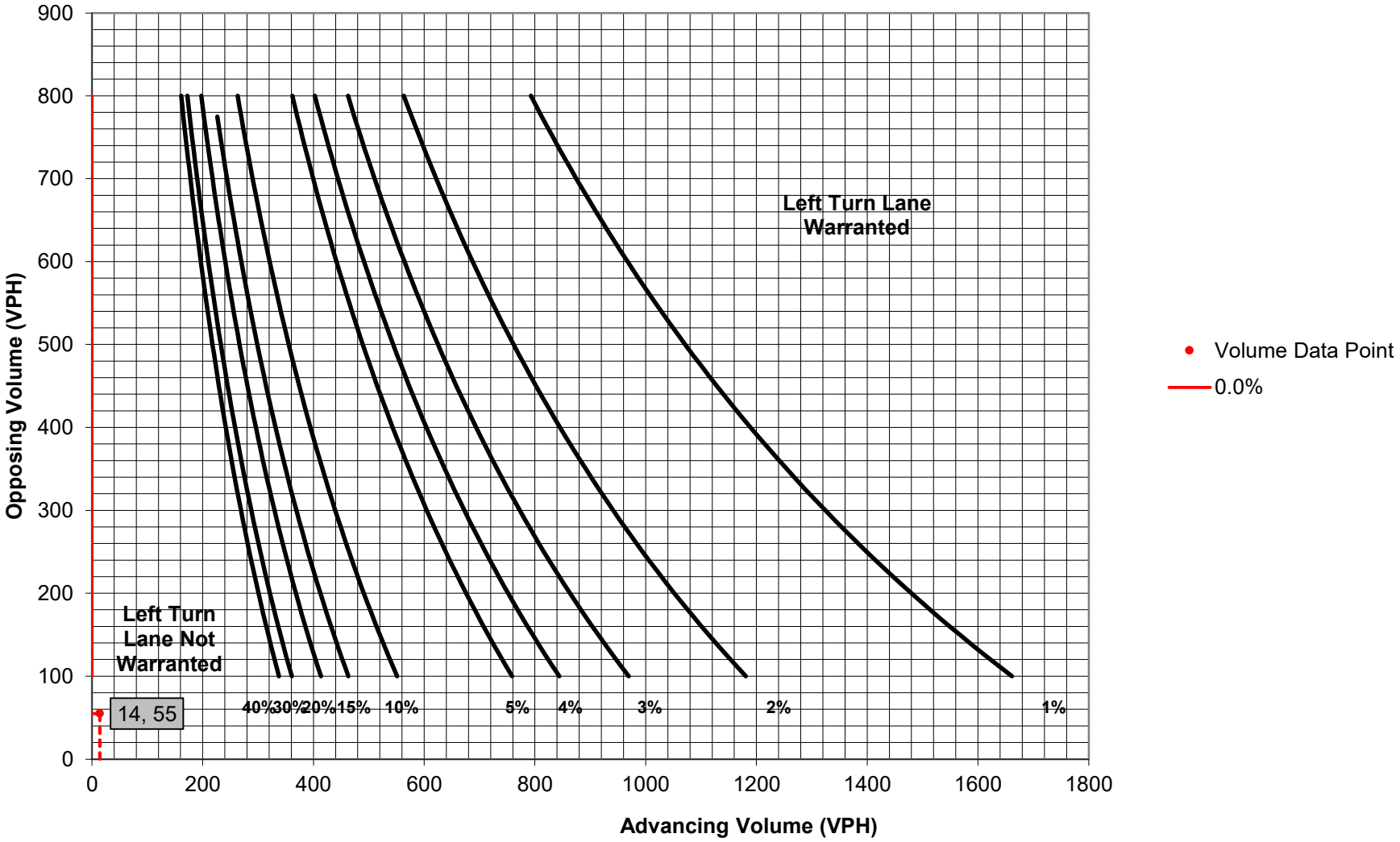
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	39	8.0%	44
	Right	-	9	2.0%	10

Advancing Volume: 54
Right Turn Volume: 10

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

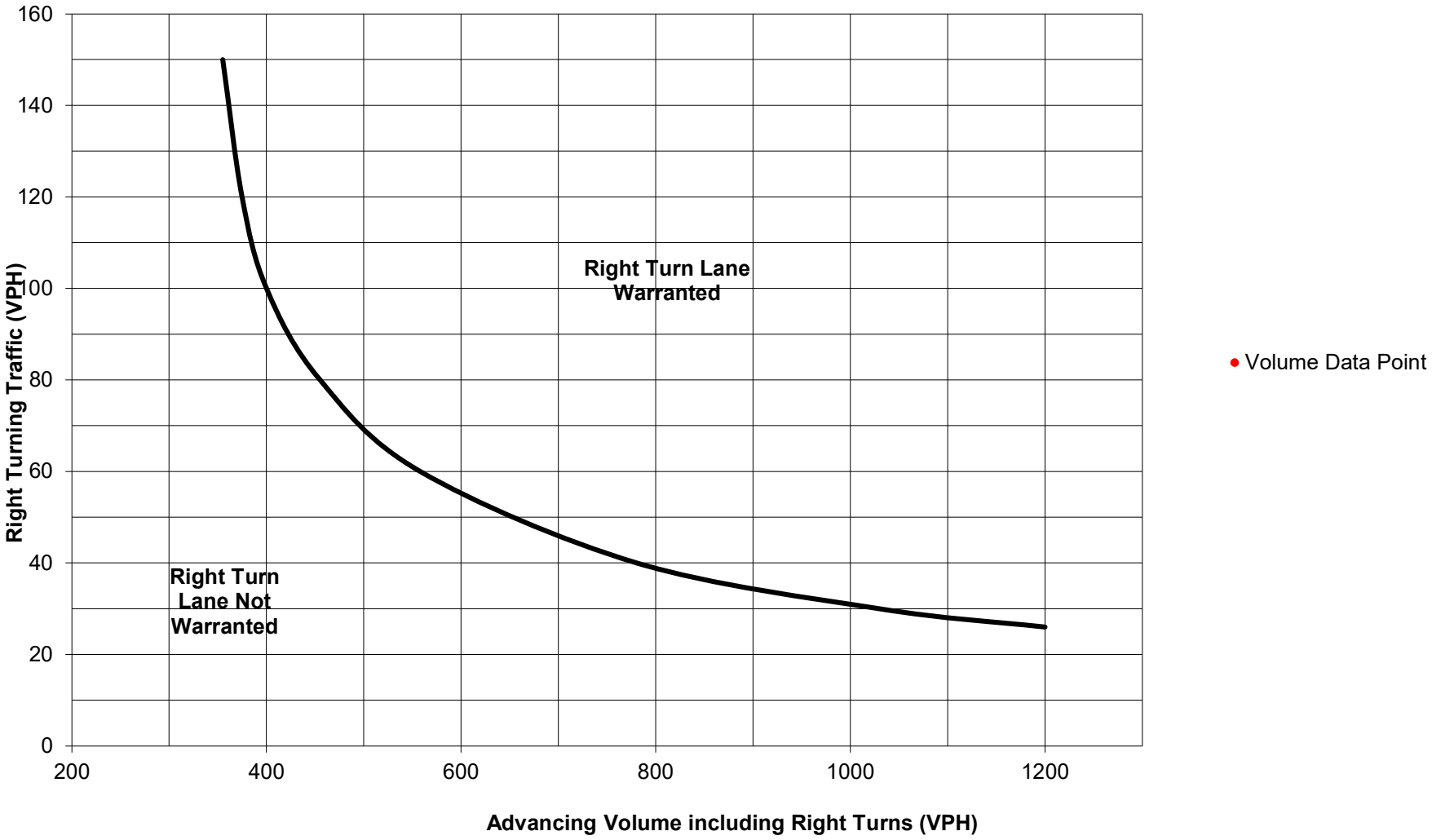
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	17
Opposing Volume:	0
Left Turn Volume:	17
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

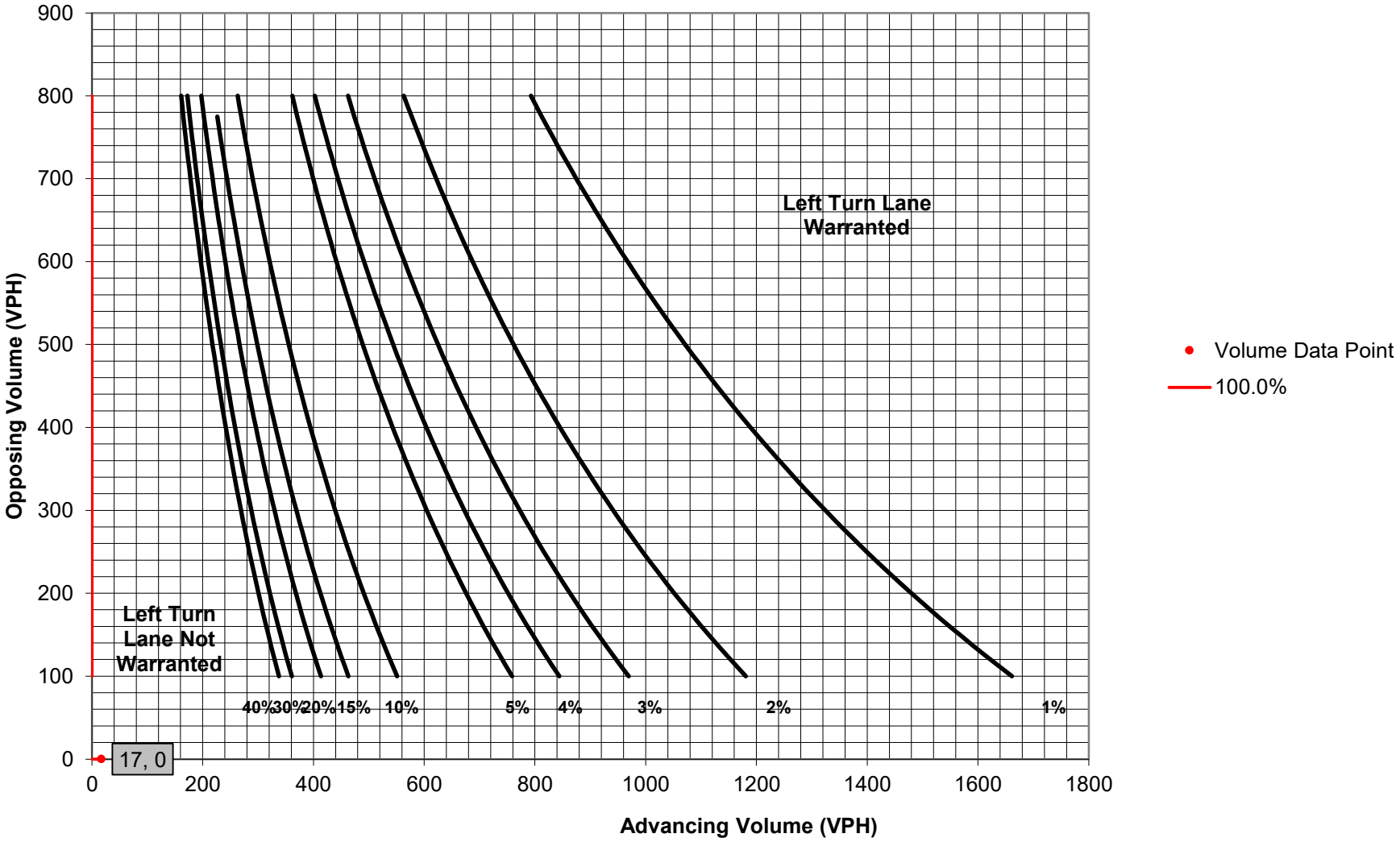
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 17
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

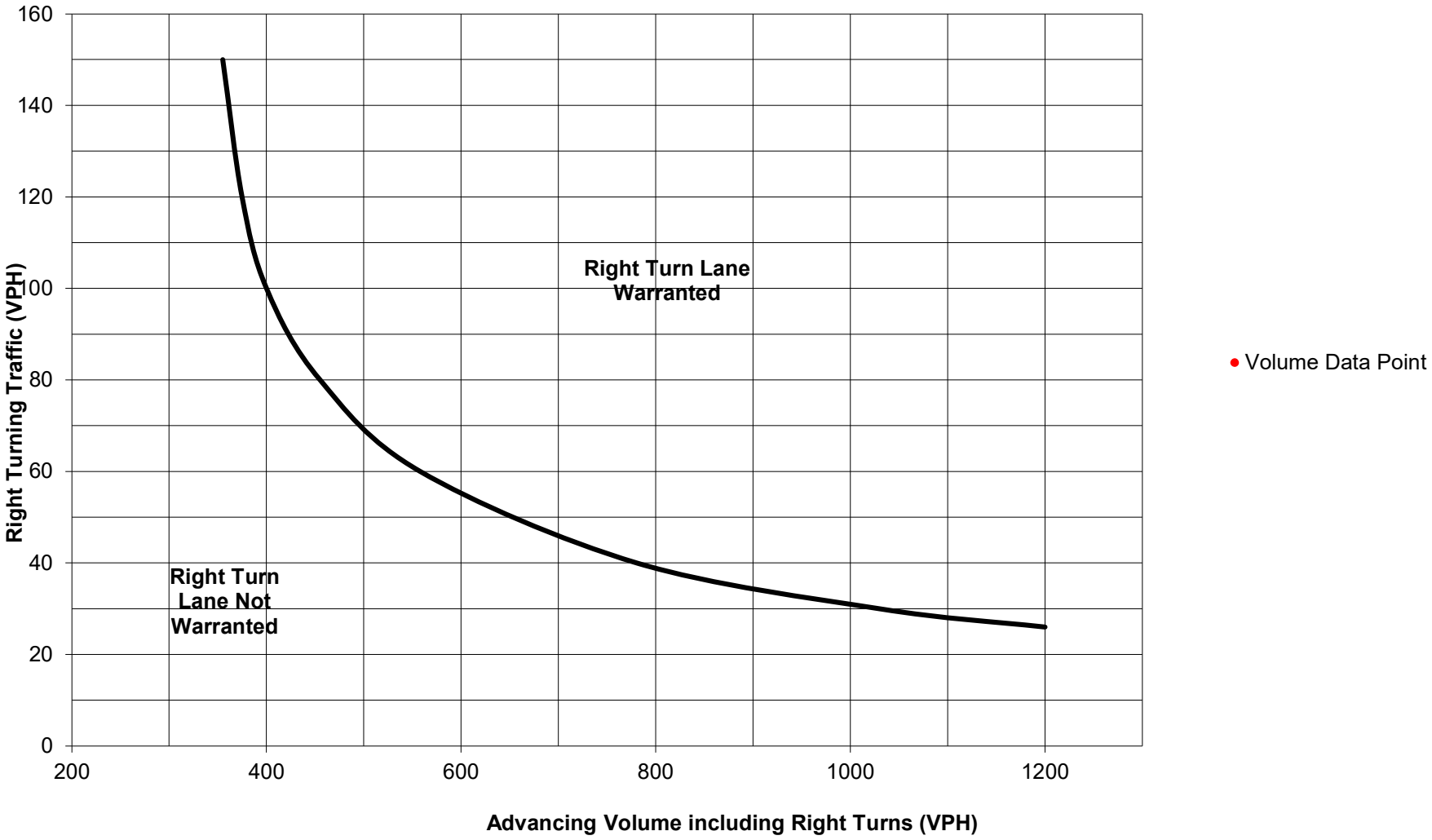
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekday	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	24	4.0%	26
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	39	8.0%	44
	Right	Yes	9	2.0%	10

Advancing Volume: 26
Opposing Volume: 54
Left Turn Volume: 0
% Left Turns in Advancing Volume: 0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

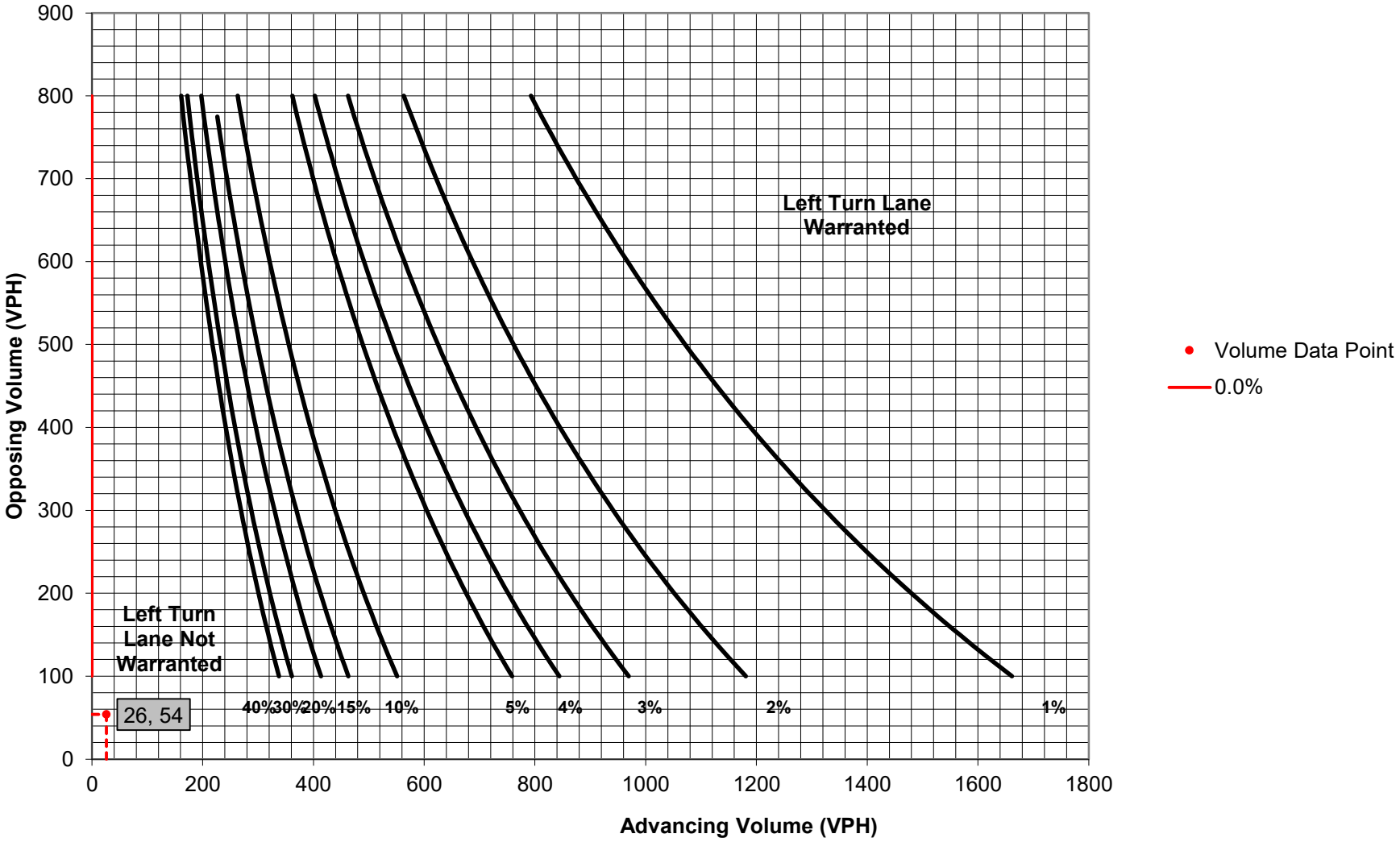
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



WEEKEND

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	37	6.0%	41
	Through	-	0	0.0%	0
	Right	Yes	1	0.0%	1
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	42
Opposing Volume:	0
Left Turn Volume:	41
% Left Turns in Advancing Volume:	97.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

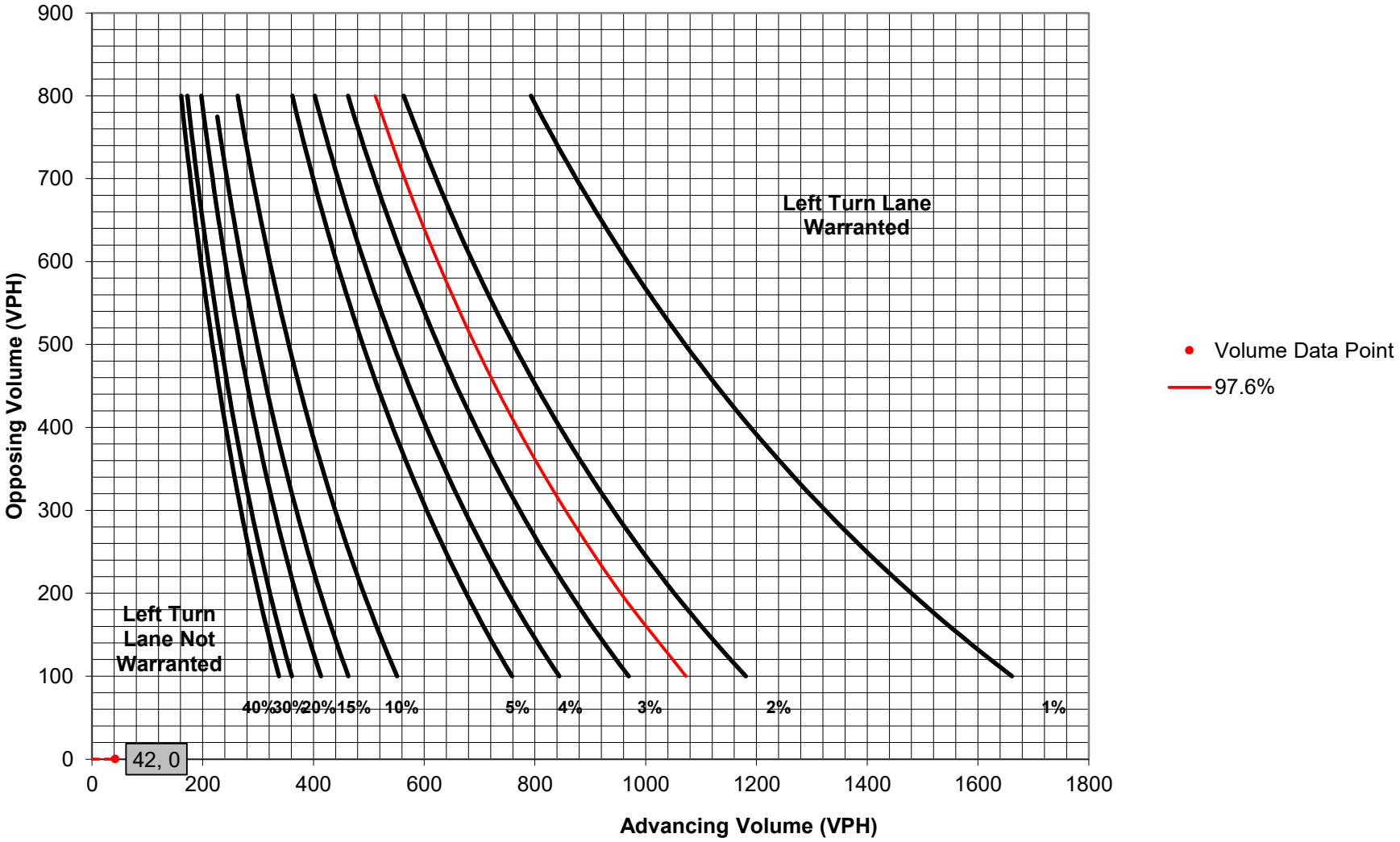
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	37	6.0%	41
	Through	-	0	0.0%	0
	Right	-	1	0.0%	1

Advancing Volume: 42
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

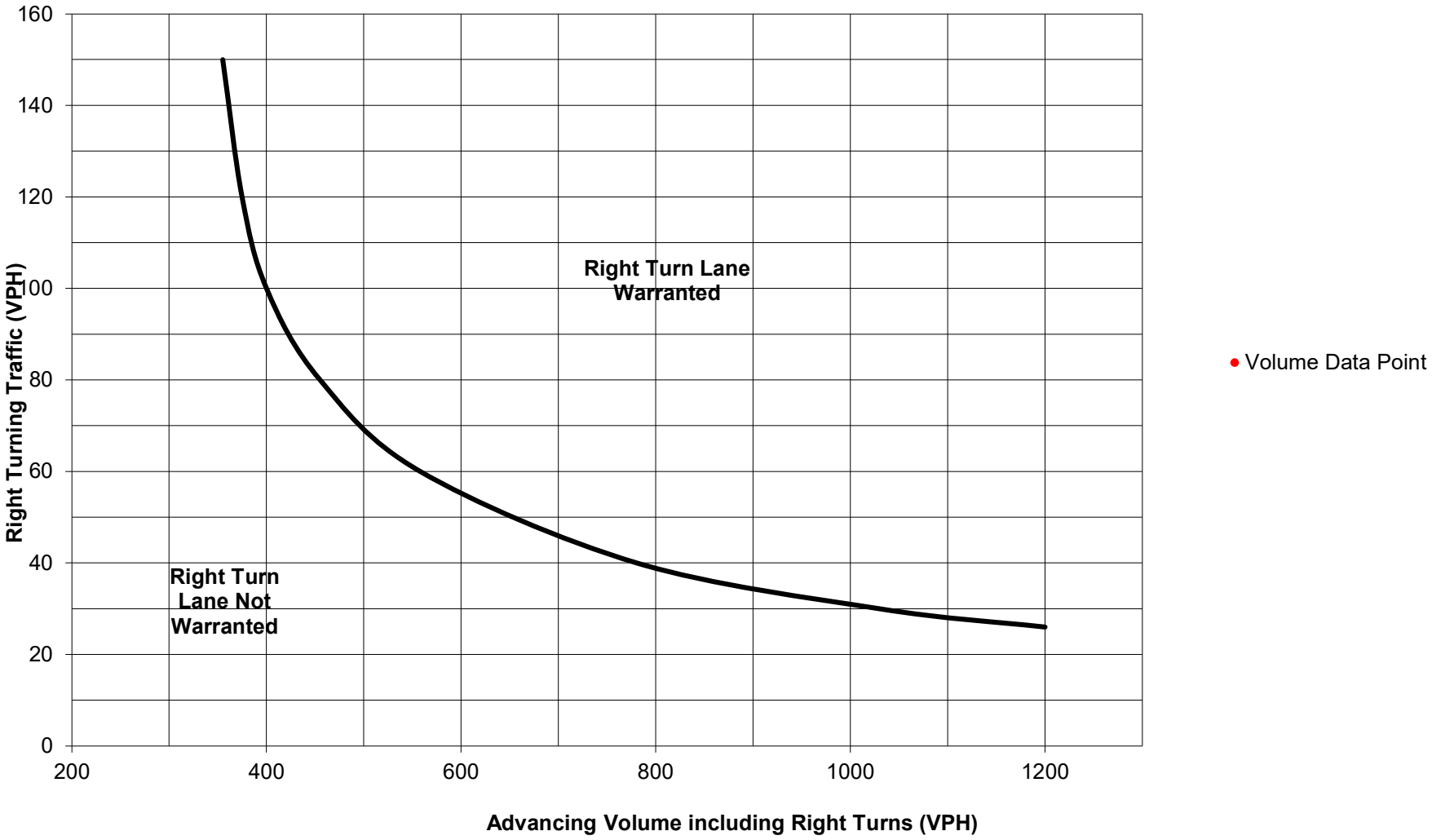
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	39	5.0%	N/A

Advancing Volume:	1
Opposing Volume:	0
Left Turn Volume:	1
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

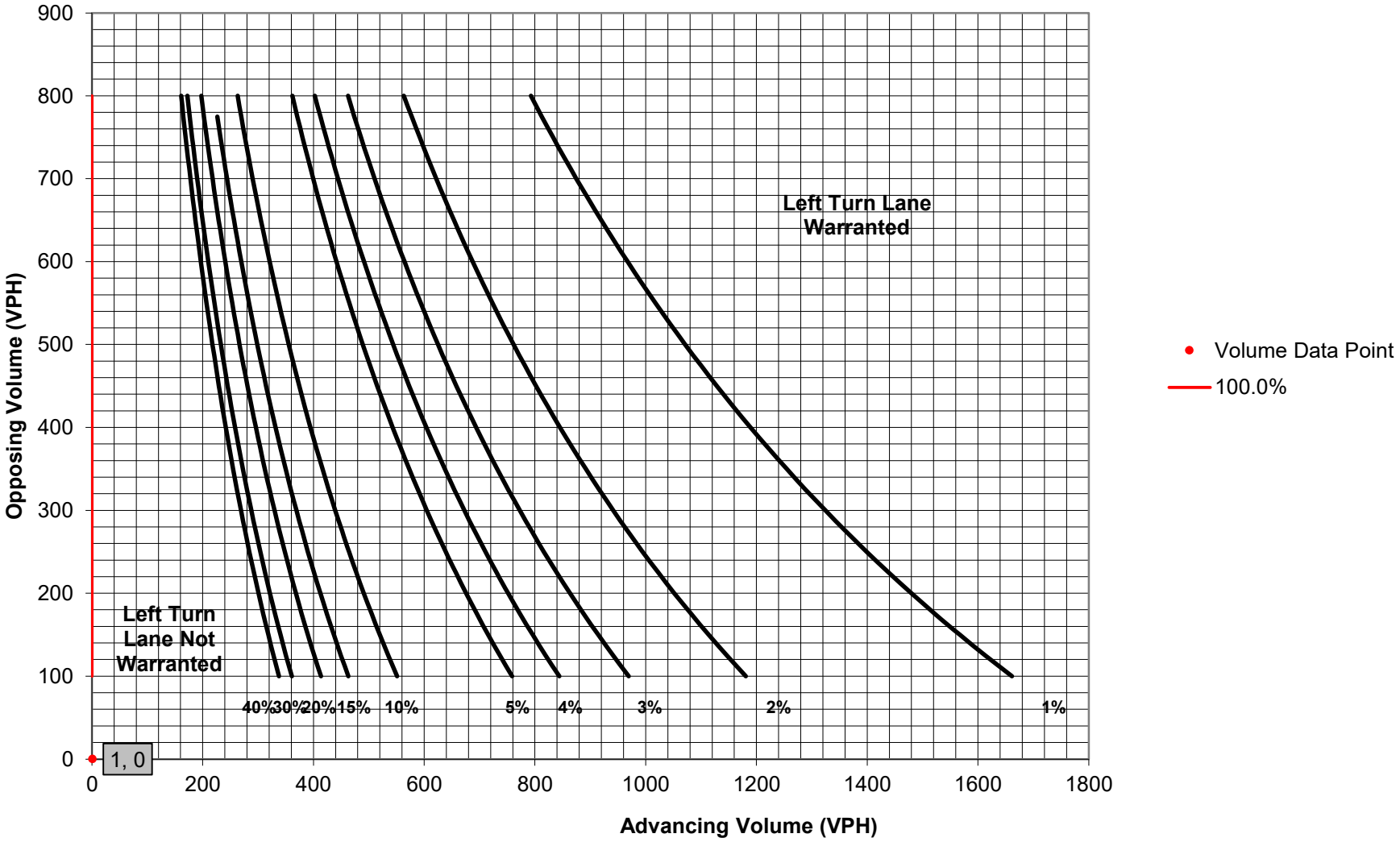
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	-	53	2.0%	55

Advancing Volume: 55
Right Turn Volume: 55

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	55
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

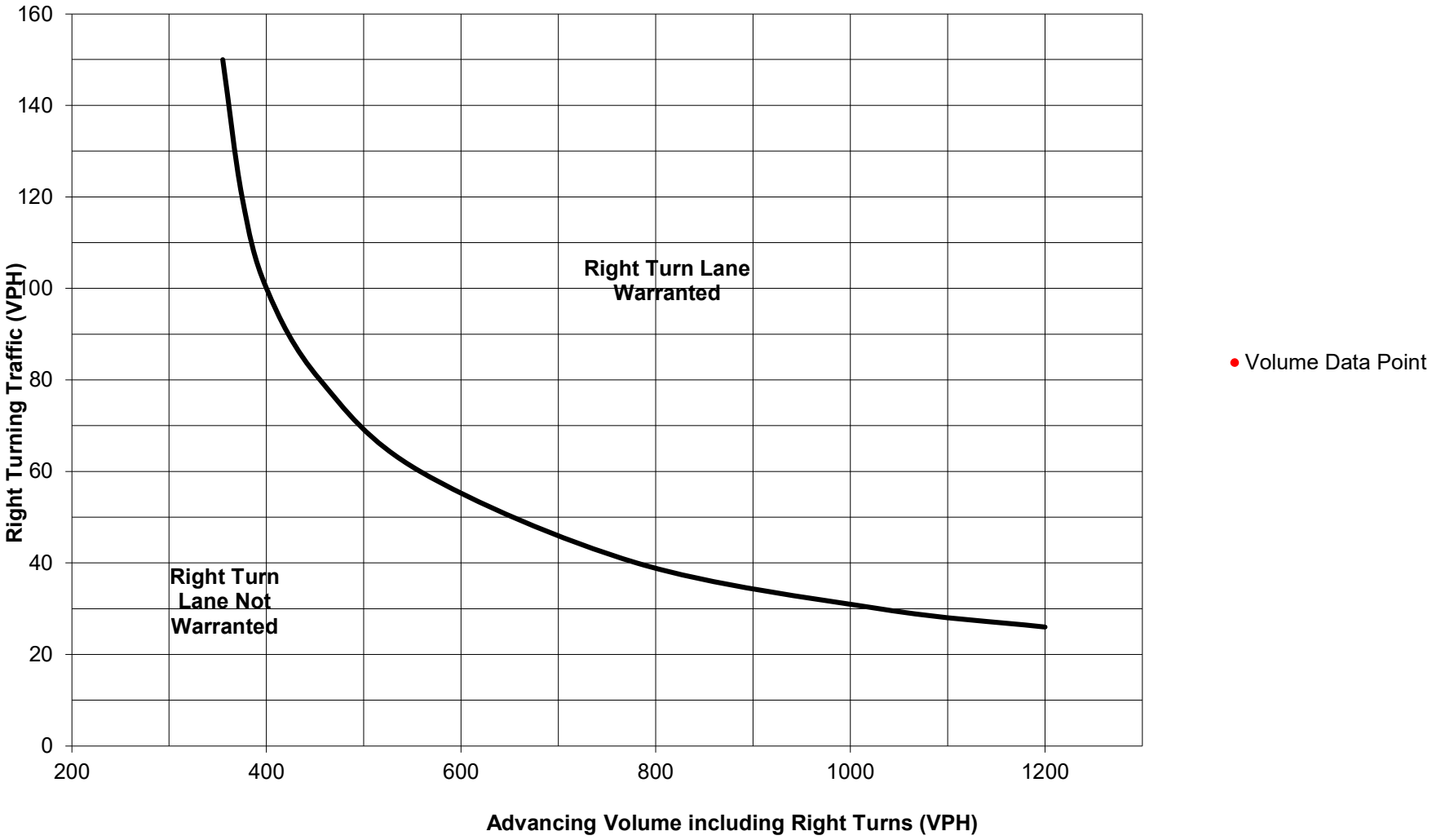
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	0.0%	57
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	57
Opposing Volume:	0
Left Turn Volume:	57
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	57
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

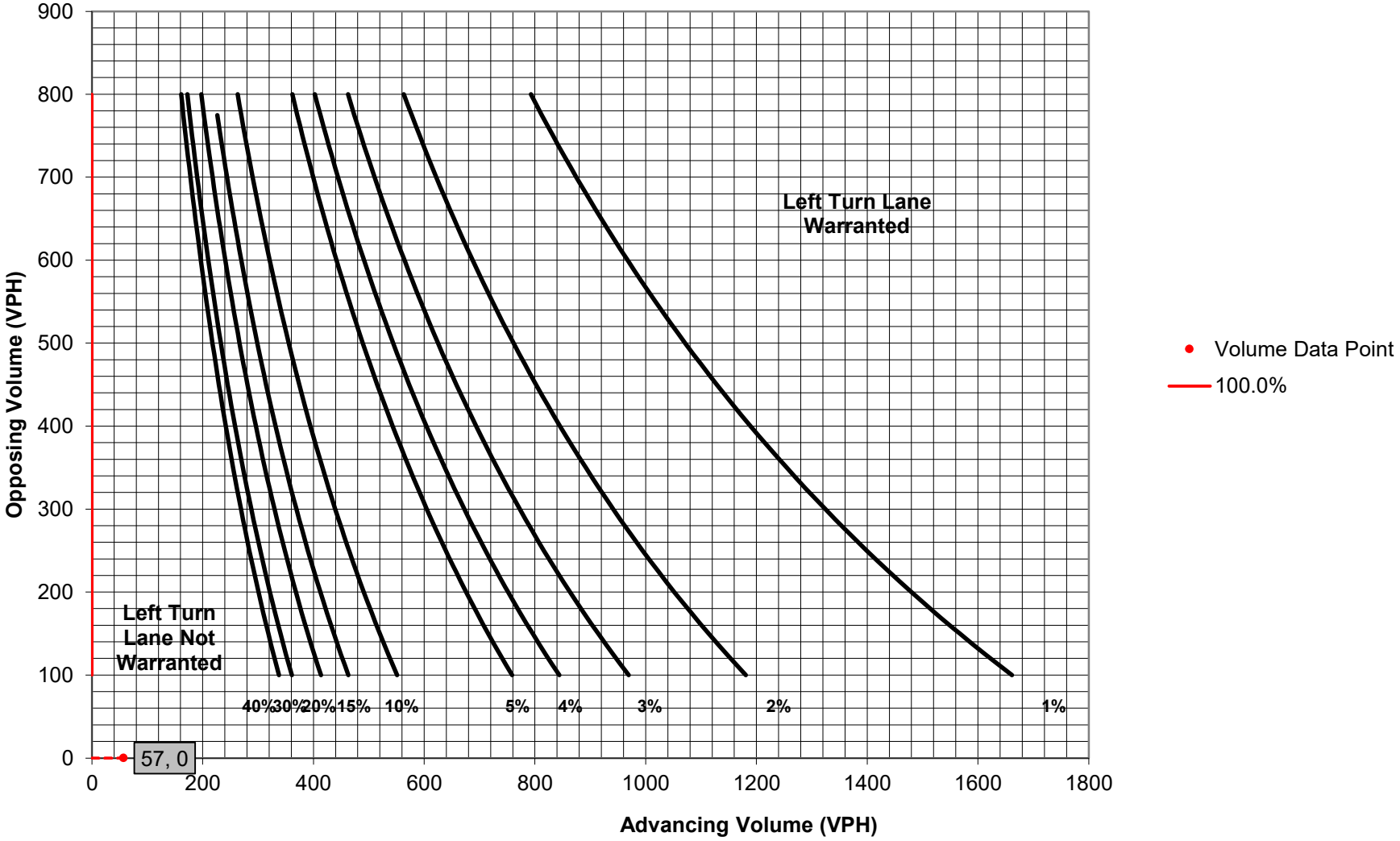
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	57	0.0%	57
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 57
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

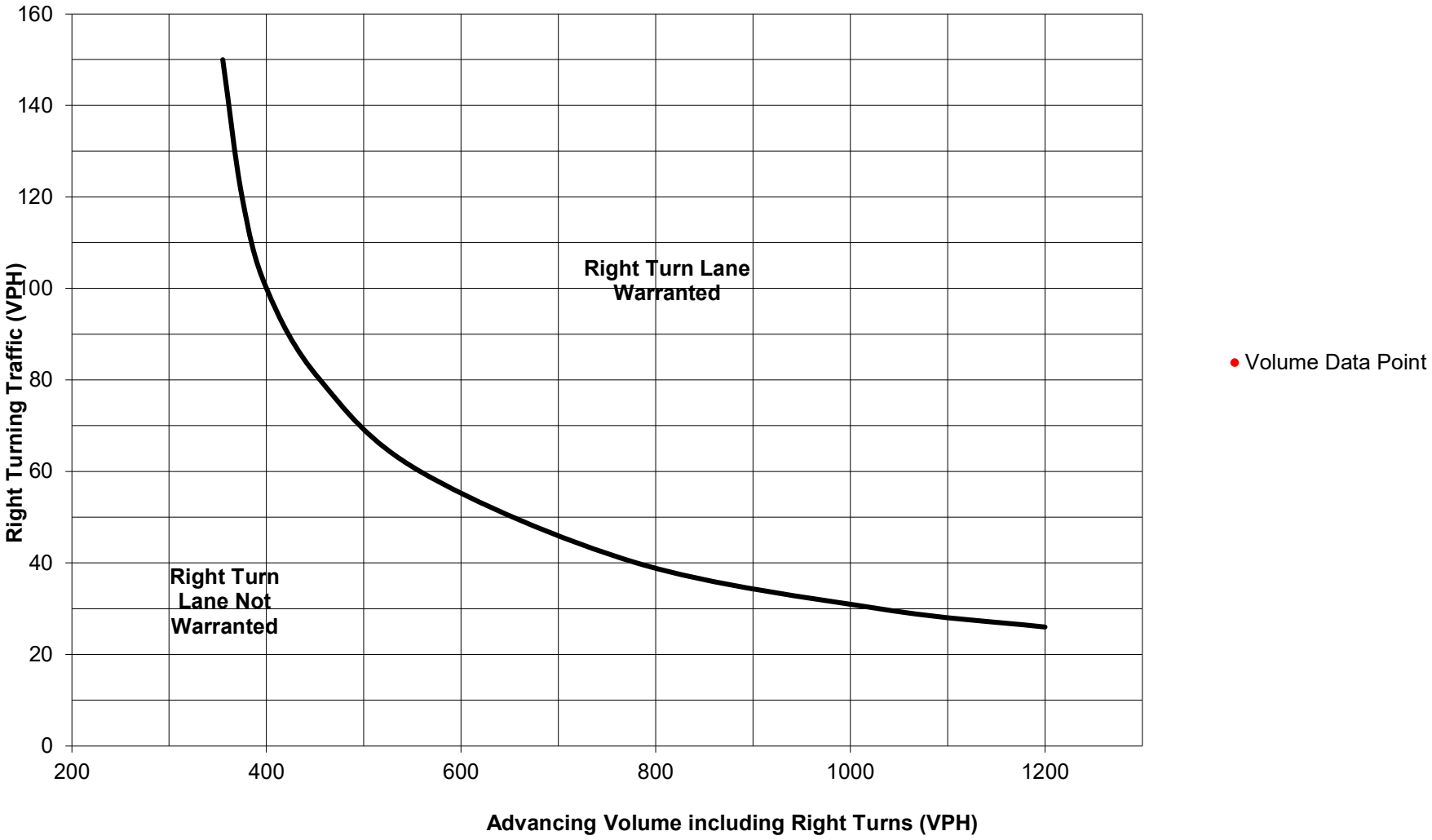
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Hwy 522 S & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	53	2.0%	N/A

Advancing Volume:	0
Opposing Volume:	0
Left Turn Volume:	0
% Left Turns in Advancing Volume:	#DIV/0!

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

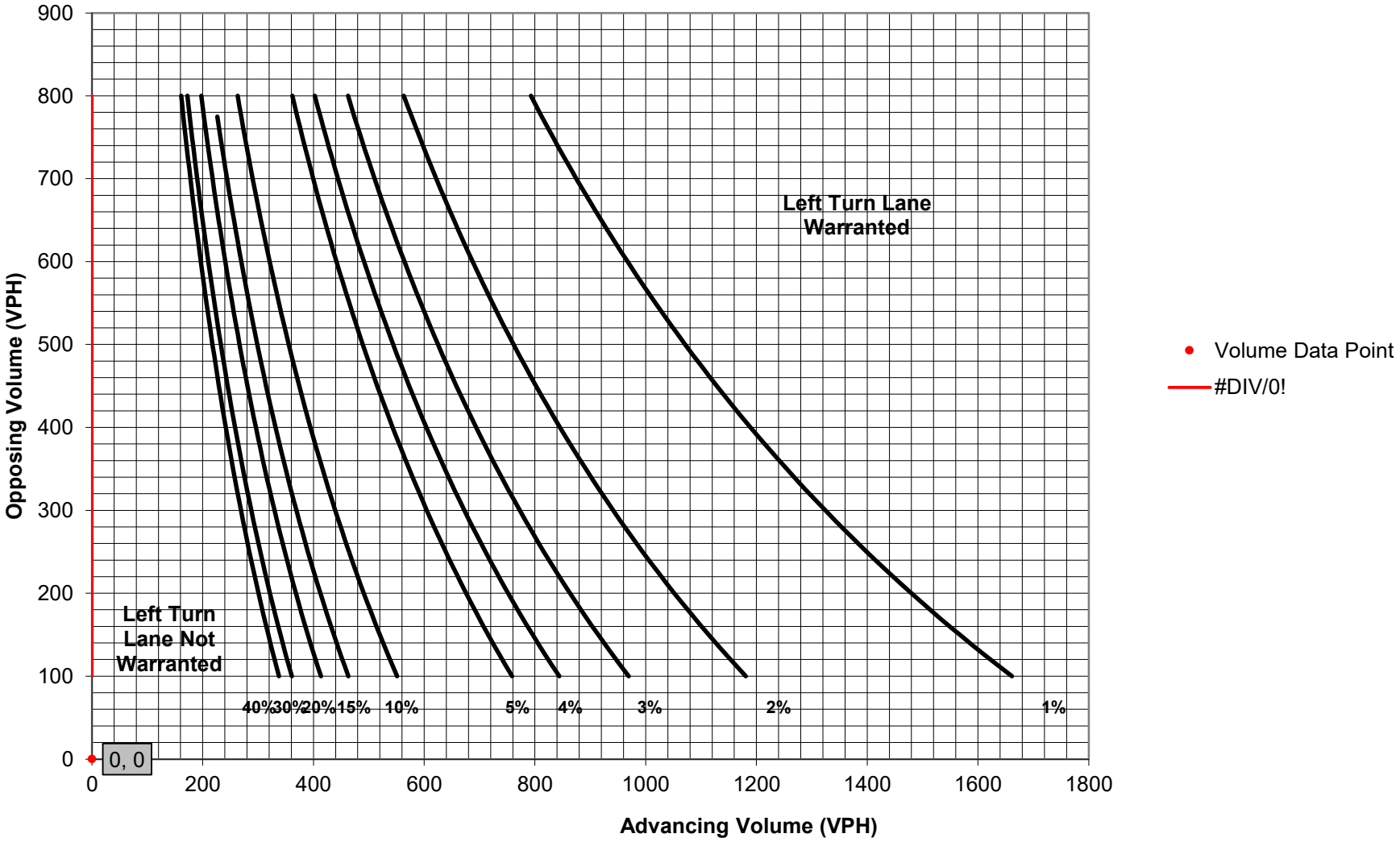
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	15	0.0%	N/A
	Through	-	201	0.0%	201
	Right	-	137	2.0%	142

Advancing Volume:	343
Right Turn Volume:	142

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	142
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

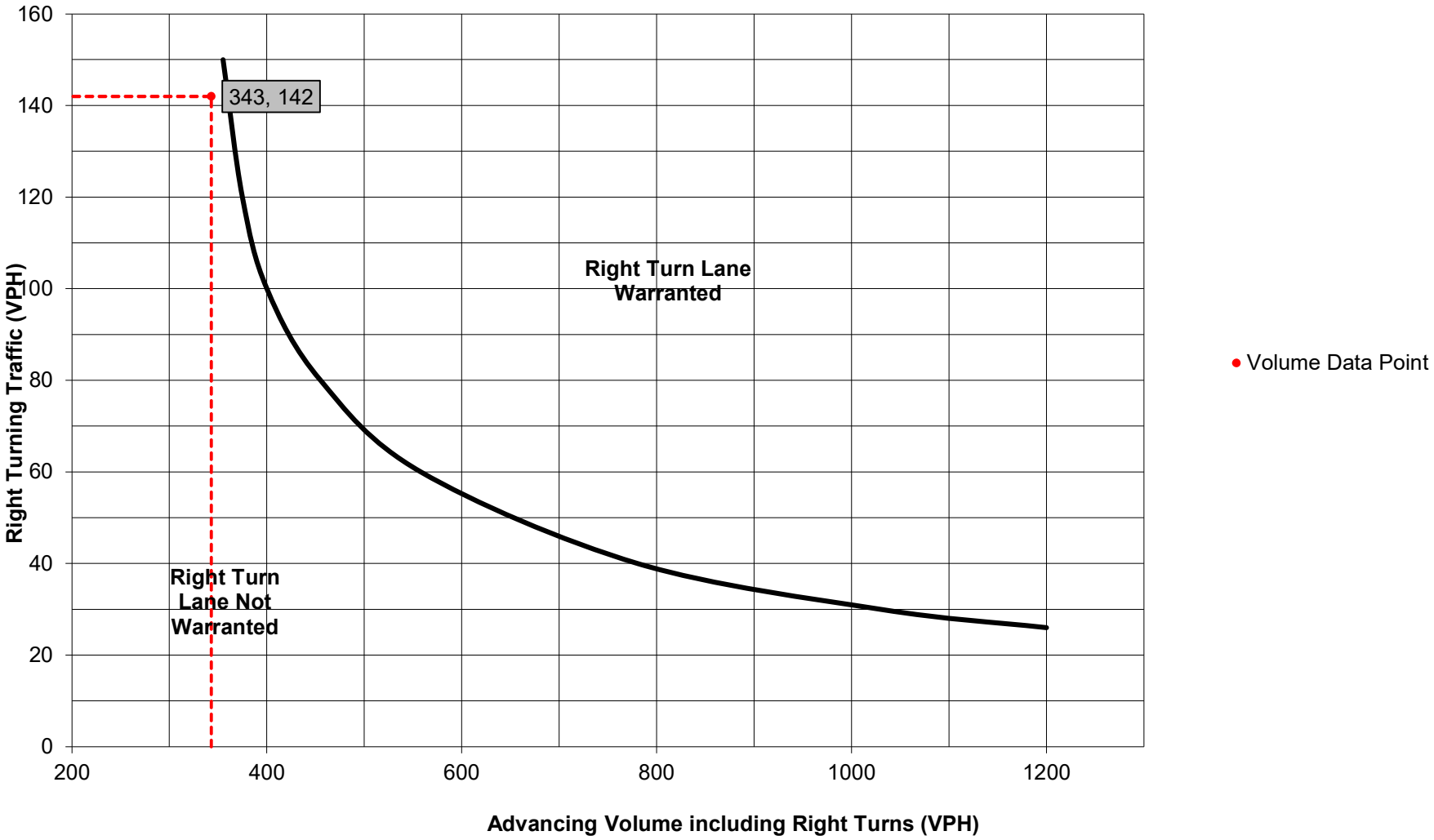
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	69	13.0%	83
	Through	-	0	0.0%	0
	Right	No	49	9.0%	N/A
Opposing	Left	No	25	4.0%	N/A
	Through	-	0	0.0%	0
	Right	No	15	7.0%	N/A

Advancing Volume:	83
Opposing Volume:	0
Left Turn Volume:	83
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	83
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

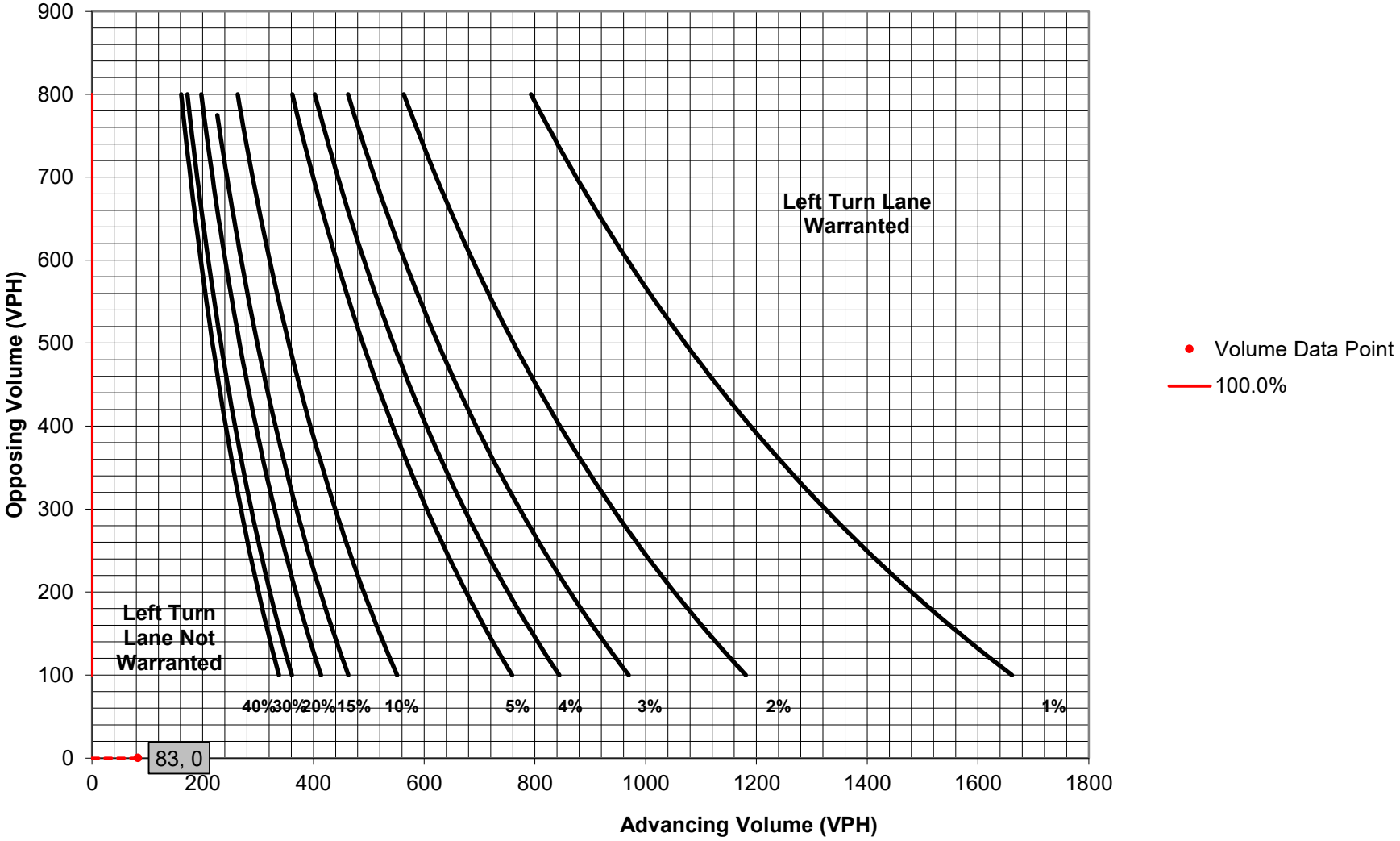
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	69	13.0%	N/A
	Through	-	0	0.0%	0
	Right	-	49	9.0%	56

Advancing Volume: 56
Right Turn Volume: 56

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	56
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

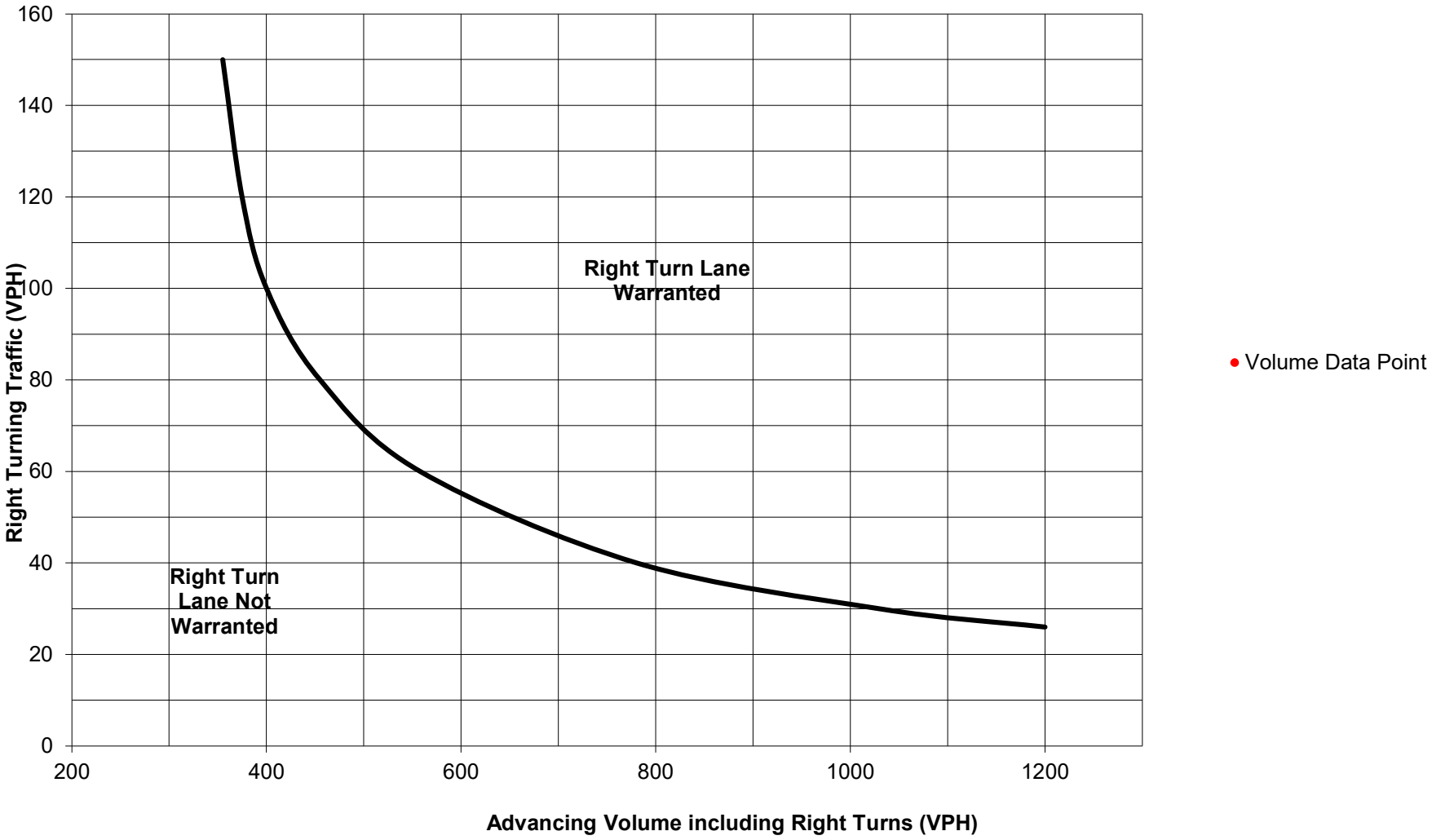
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	27
	Through	-	0	0.0%	0
	Right	Yes	15	7.0%	17
Opposing	Left	No	69	13.0%	N/A
	Through	-	0	0.0%	0
	Right	No	49	9.0%	N/A

Advancing Volume:	44
Opposing Volume:	0
Left Turn Volume:	27
% Left Turns in Advancing Volume:	61.36%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	27
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

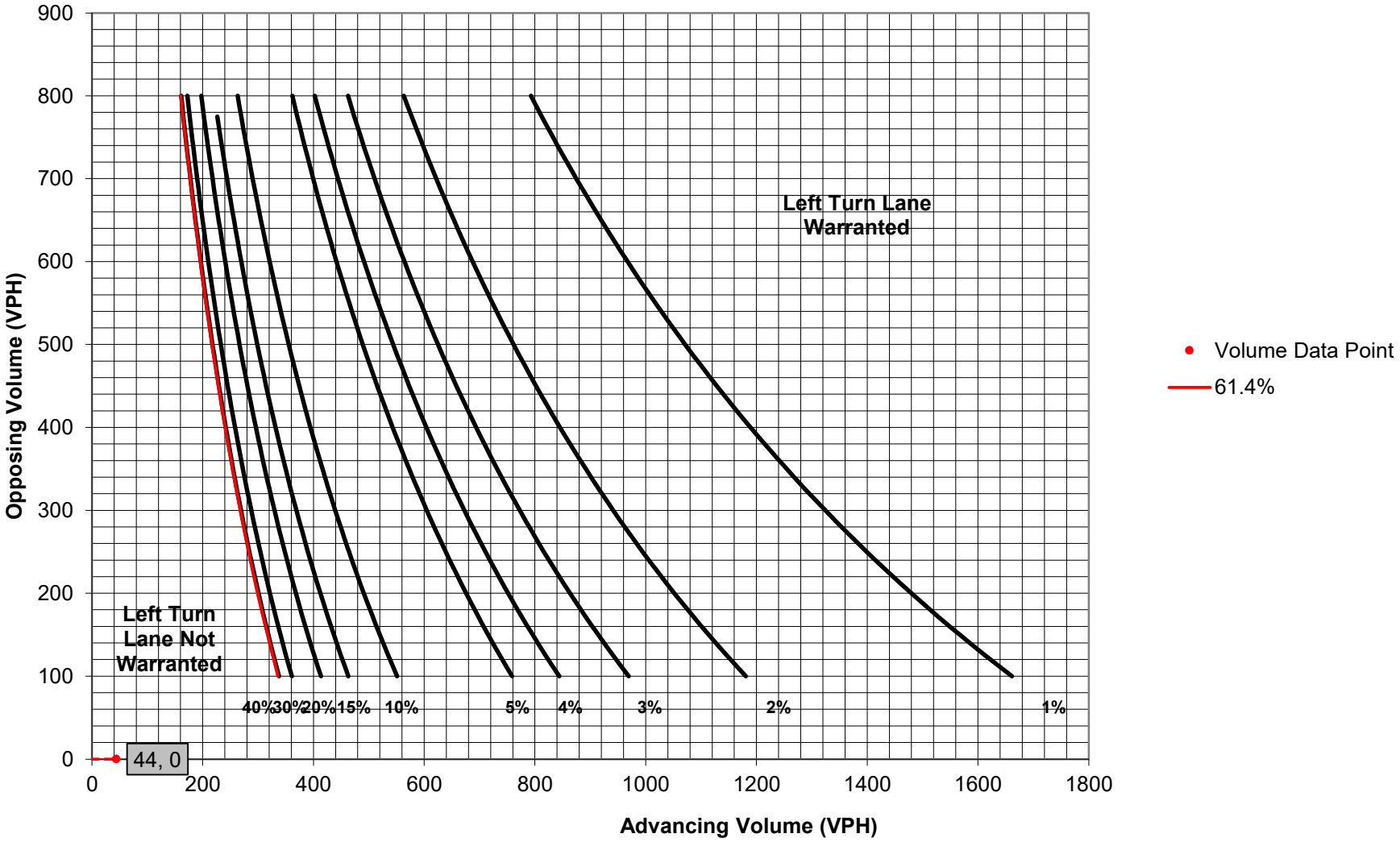
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	4.0%	27
	Through	-	0	0.0%	0
	Right	-	15	7.0%	17

Advancing Volume: 44
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

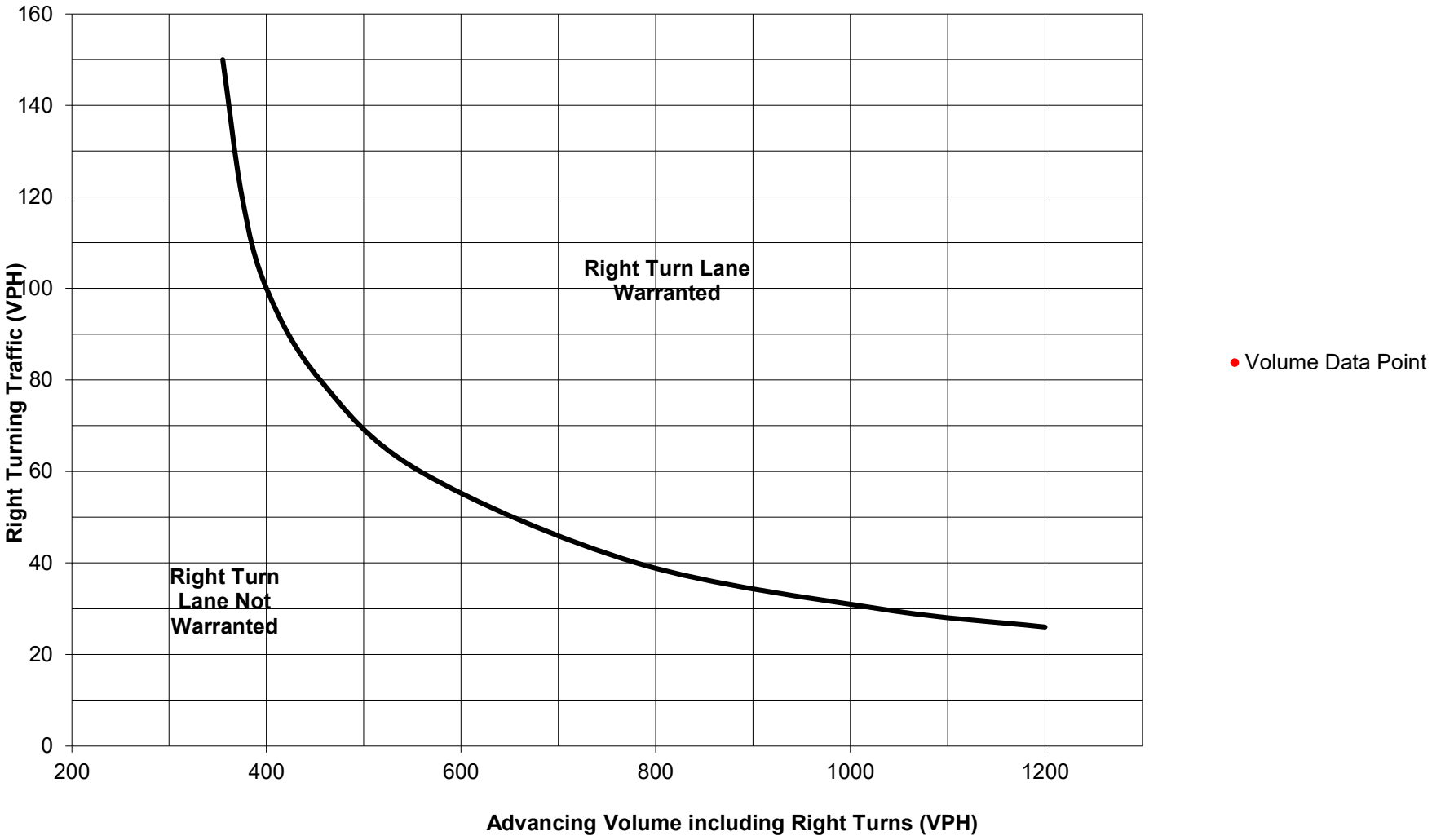
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	36	9.0%	41
	Through	-	214	0.0%	214
	Right	No	24	0.0%	N/A
Opposing	Left	No	15	0.0%	N/A
	Through	-	201	0.0%	201
	Right	No	137	2.0%	N/A

Advancing Volume:	255
Opposing Volume:	201
Left Turn Volume:	41
% Left Turns in Advancing Volume:	16.08%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

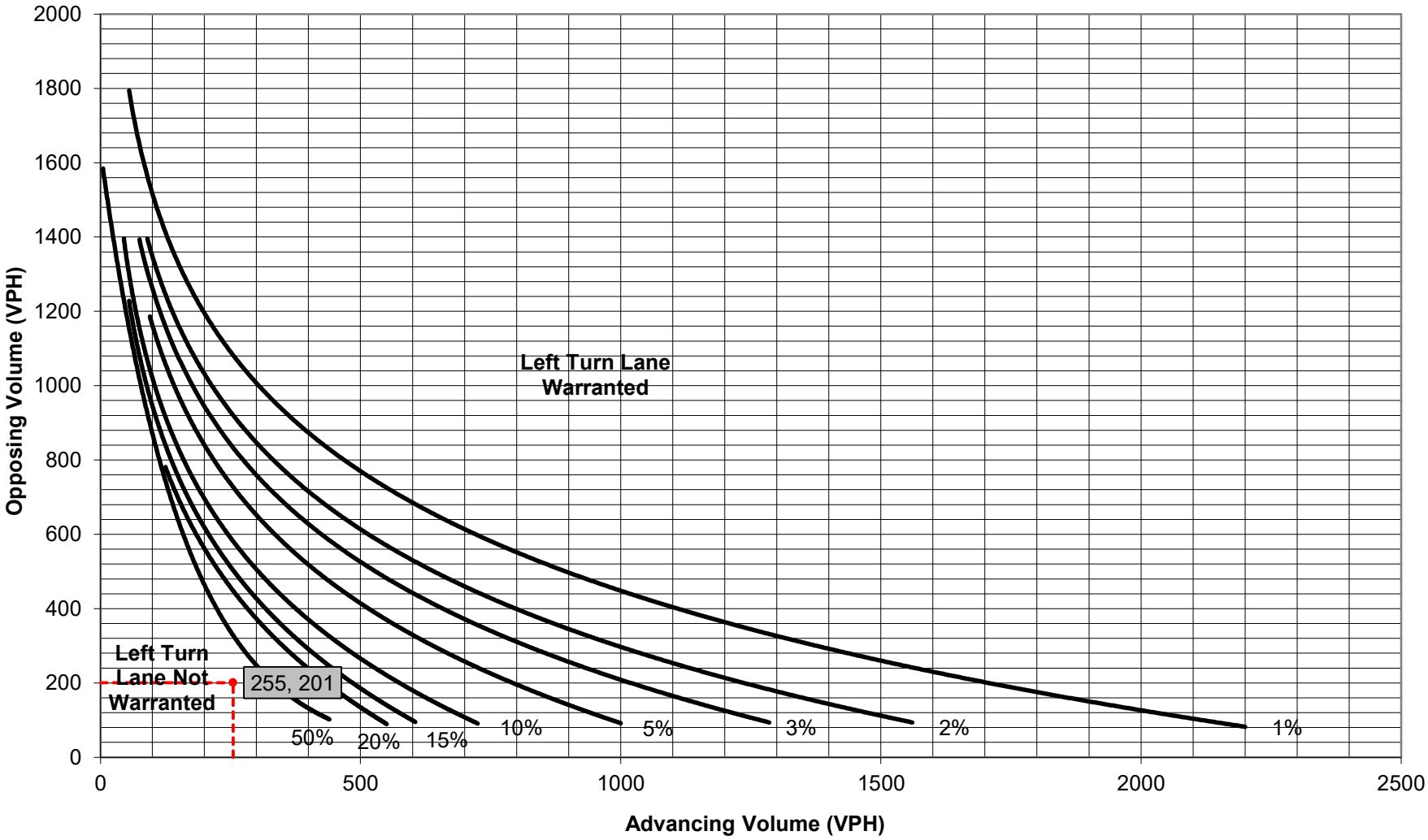
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	36	9.0%	N/A
	Through	-	214	0.0%	214
	Right	-	24	0.0%	24

Advancing Volume: 238
Right Turn Volume: 24

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

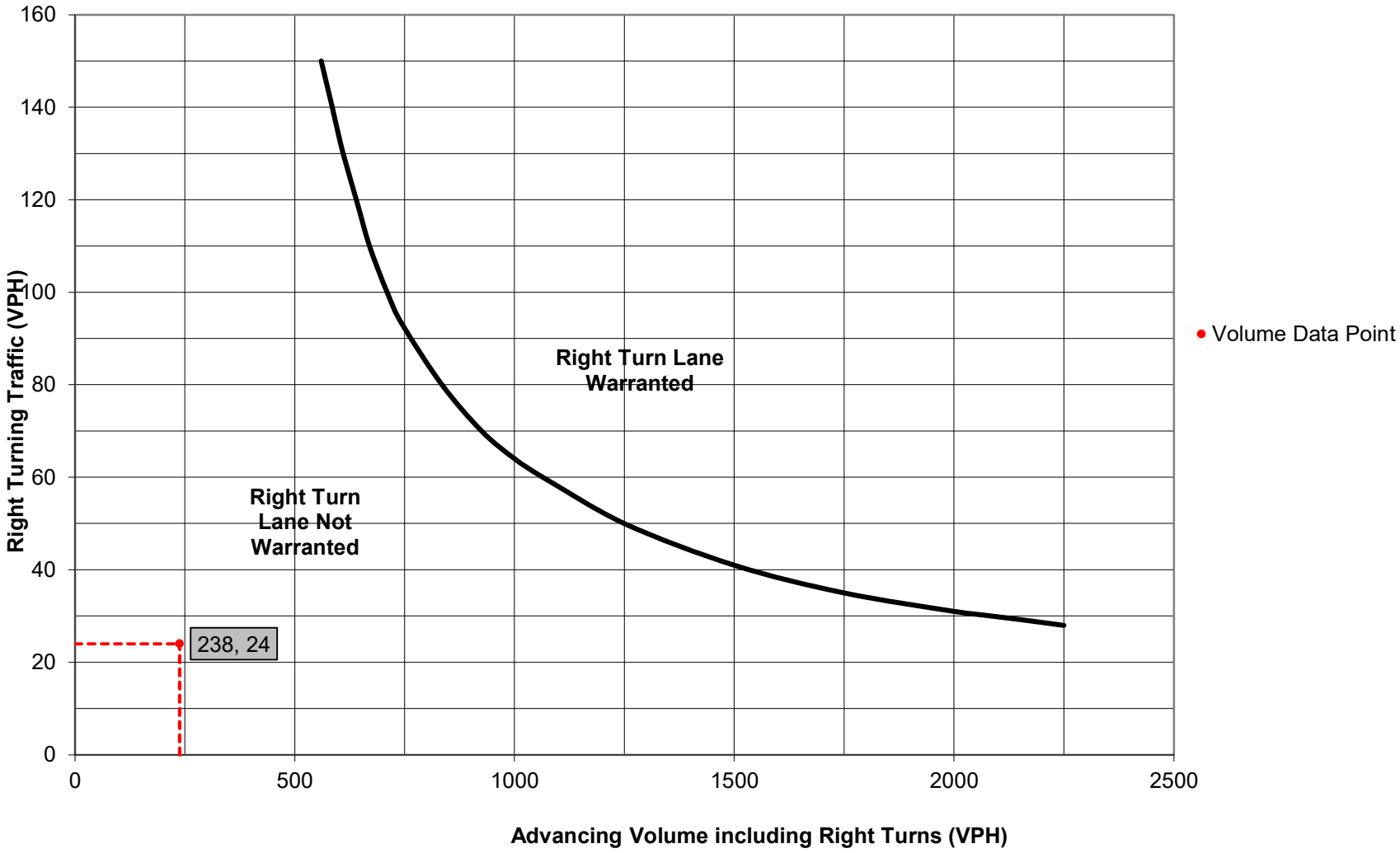
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	17	6.0%	19
	Through	-	229	0.0%	229
	Right	No	102	3.0%	N/A
Opposing	Left	No	33	10.0%	N/A
	Through	-	303	0.0%	303
	Right	Yes	18	0.0%	18

Advancing Volume:	248
Opposing Volume:	321
Left Turn Volume:	19
% Left Turns in Advancing Volume:	7.66%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

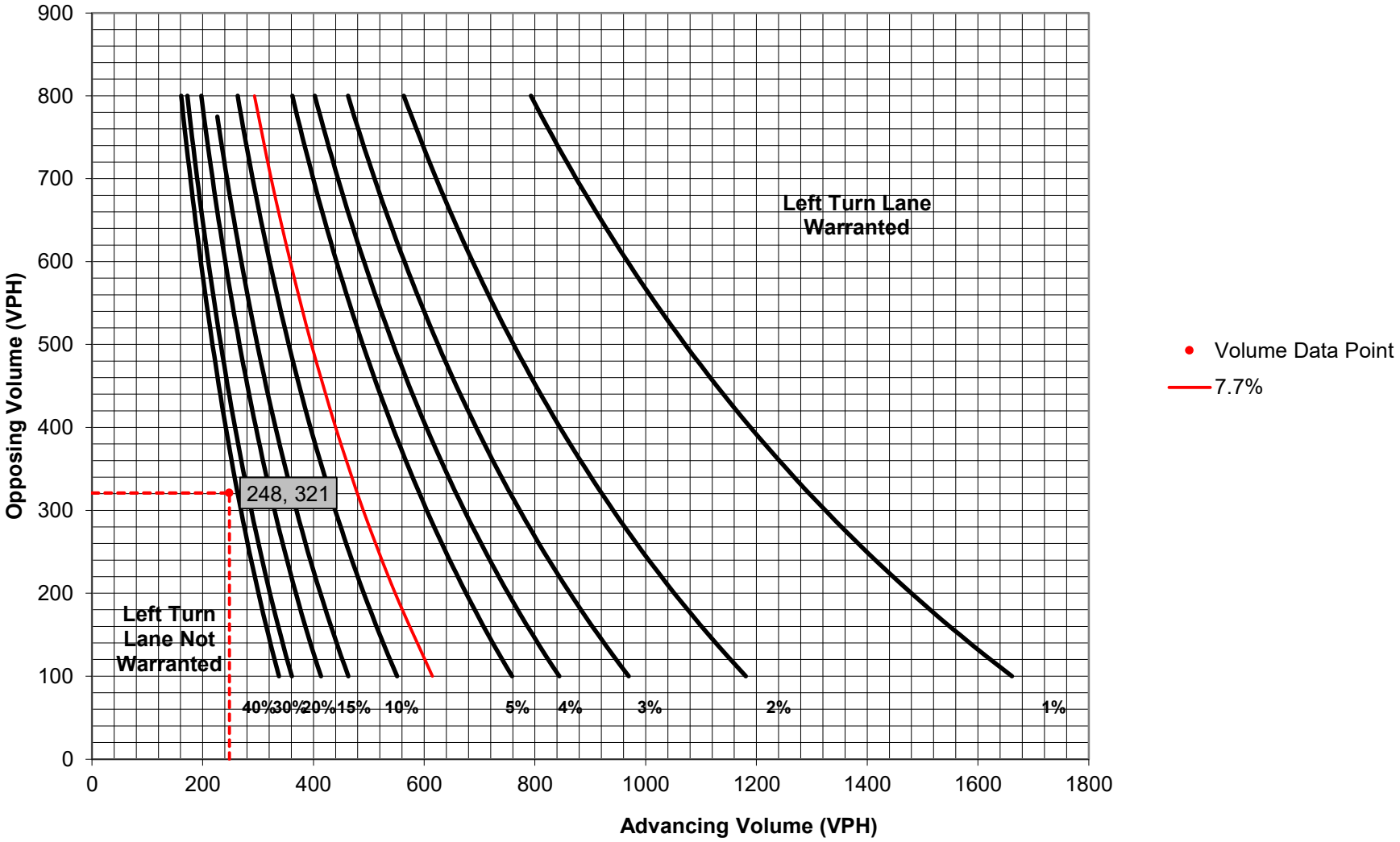
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd — Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	17	6.0%	N/A
	Through	-	229	0.0%	229
	Right	-	102	3.0%	107

Advancing Volume:	336
Right Turn Volume:	107

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	107
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

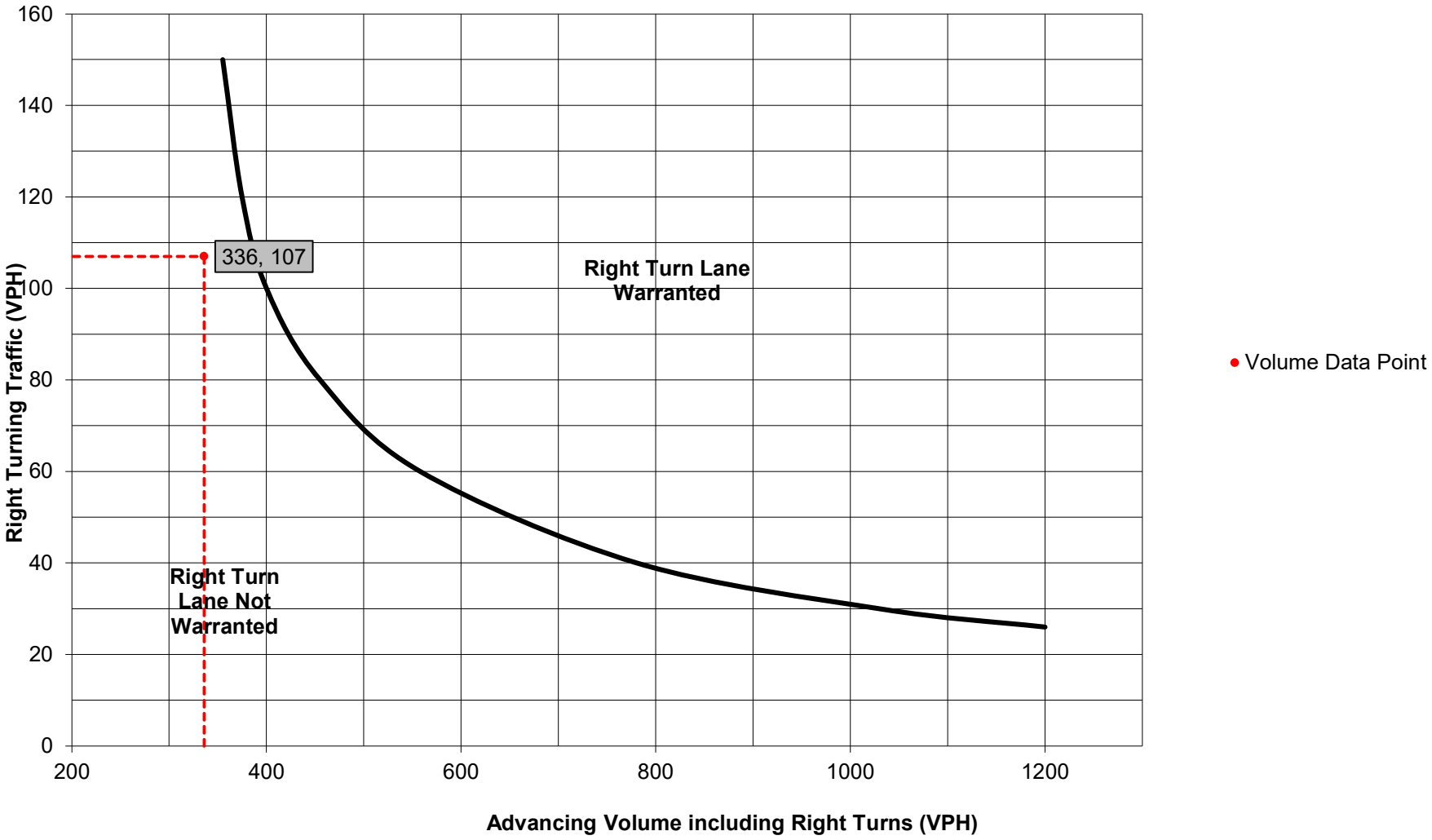
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	114	5.0%	123
	Through	-	1	0.0%	1
	Right	No	33	6.0%	N/A
Opposing	Left	No	21	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	26	0.0%	N/A

Advancing Volume:	124
Opposing Volume:	0
Left Turn Volume:	123
% Left Turns in Advancing Volume:	99.19%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	123
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

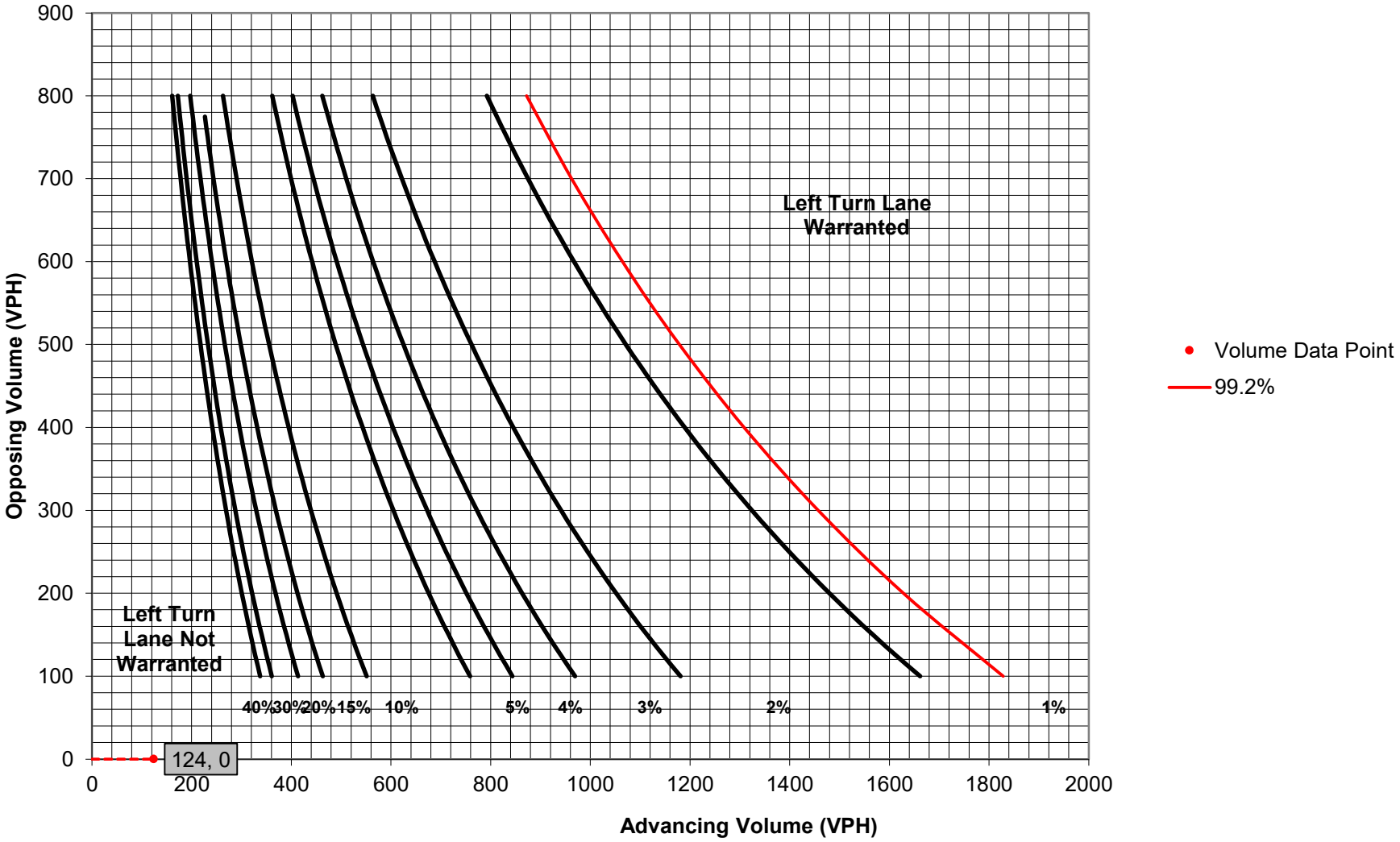
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	114	5.0%	N/A
	Through	-	1	0.0%	1
	Right	-	33	6.0%	36

Advancing Volume: 37
Right Turn Volume: 36

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

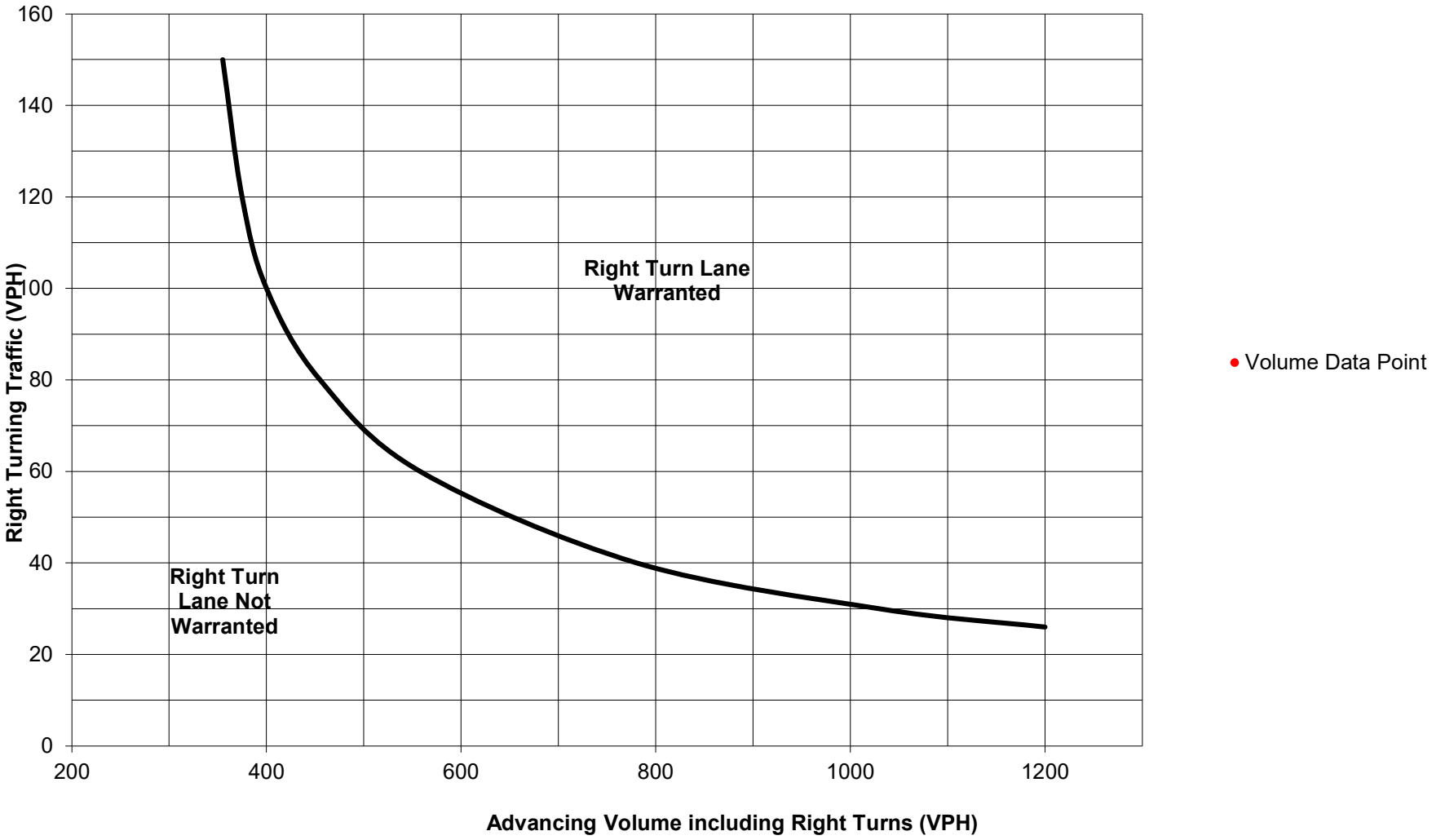
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	0.0%	21
	Through	-	0	0.0%	0
	Right	-	26	0.0%	26

Advancing Volume: 47
Right Turn Volume: 26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

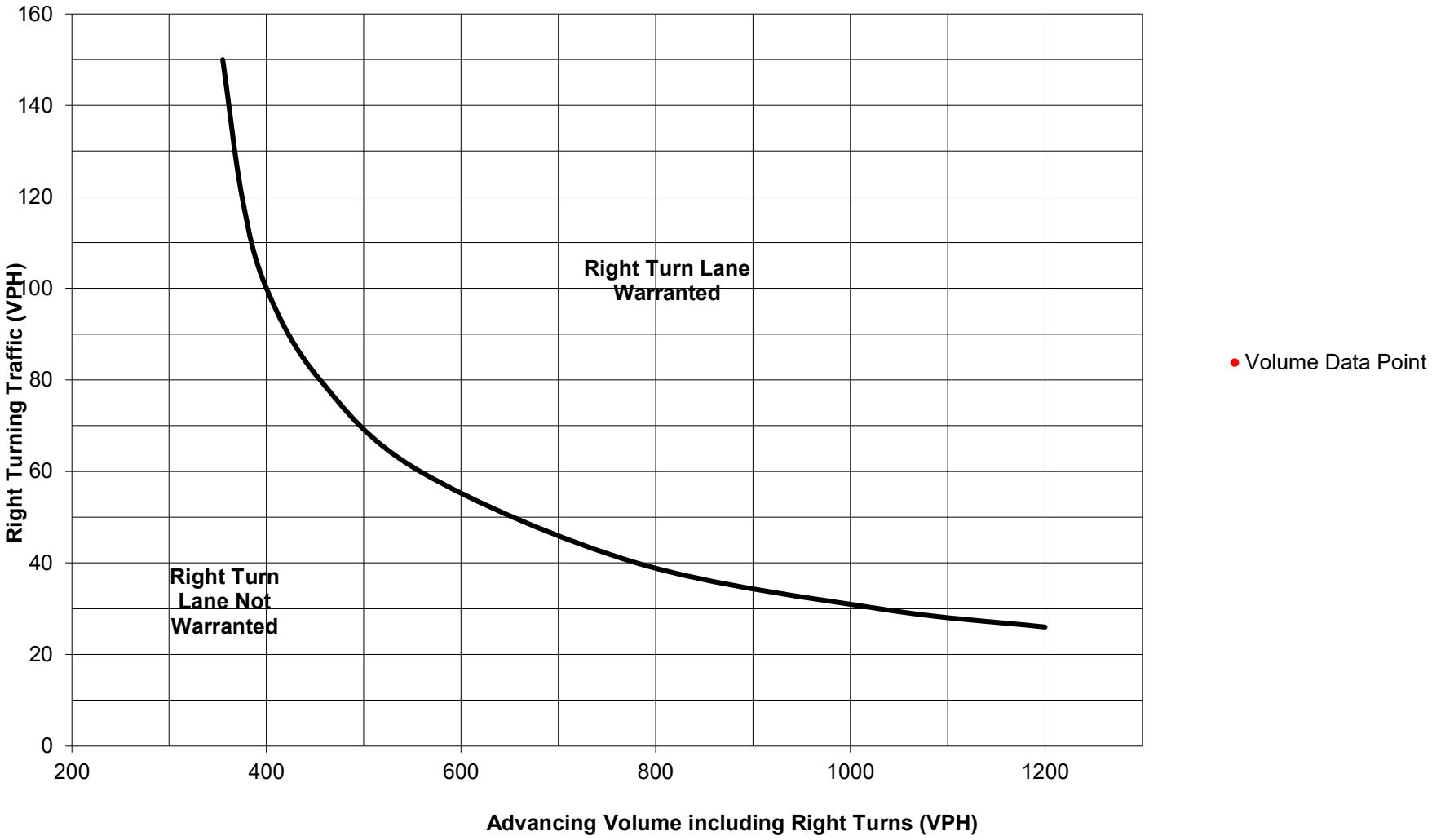
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	21	0.0%	21
	Through	-	0	0.0%	0
	Right	-	26	0.0%	26

Advancing Volume: 47
Right Turn Volume: 26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

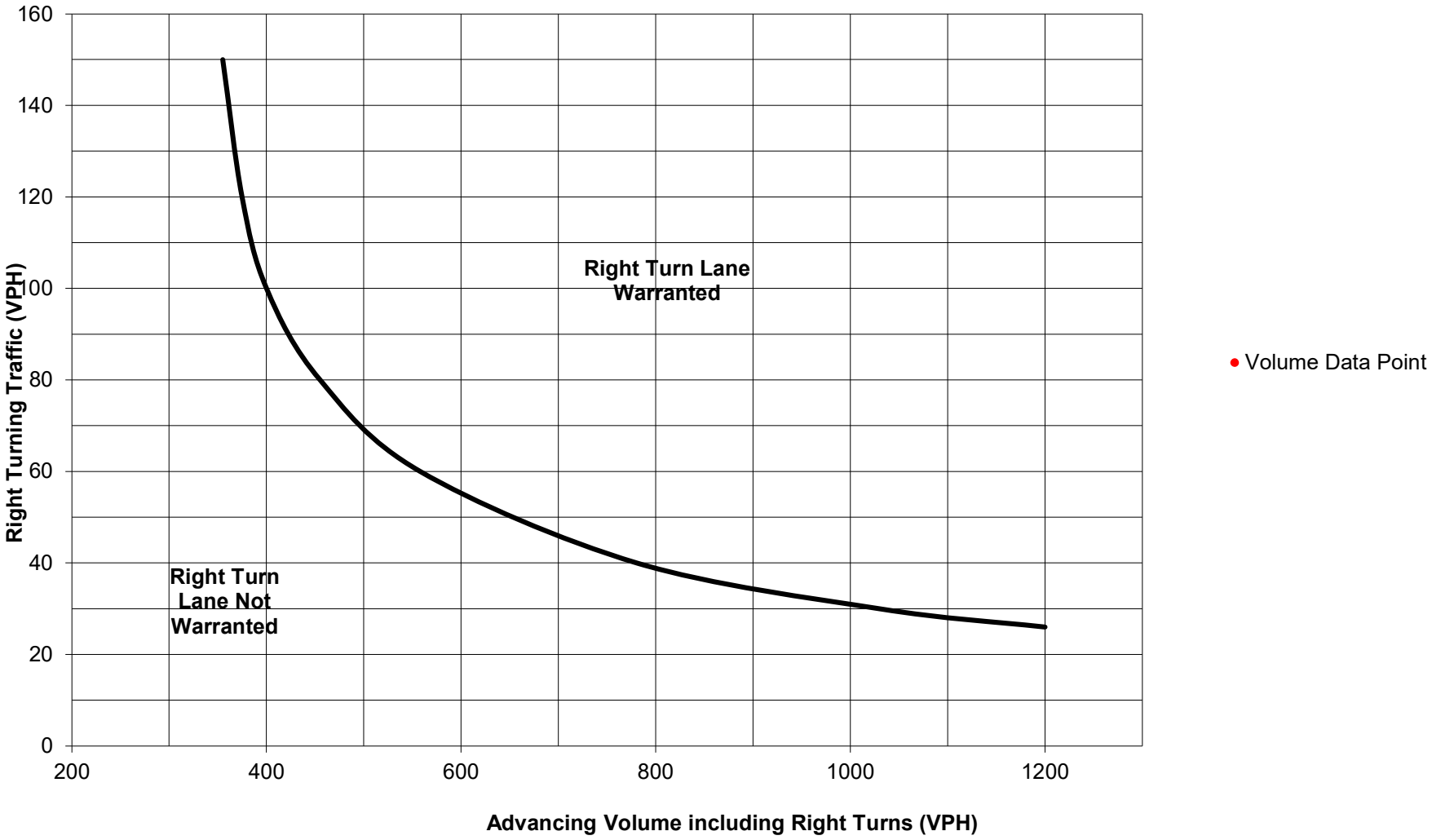
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	33	10.0%	38
	Through	-	303	0.0%	303
	Right	No	18	0.0%	N/A
Opposing	Left	No	17	6.0%	N/A
	Through	-	229	0.0%	229
	Right	No	102	3.0%	N/A

Advancing Volume:	341
Opposing Volume:	229
Left Turn Volume:	38
% Left Turns in Advancing Volume:	11.14%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 8

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

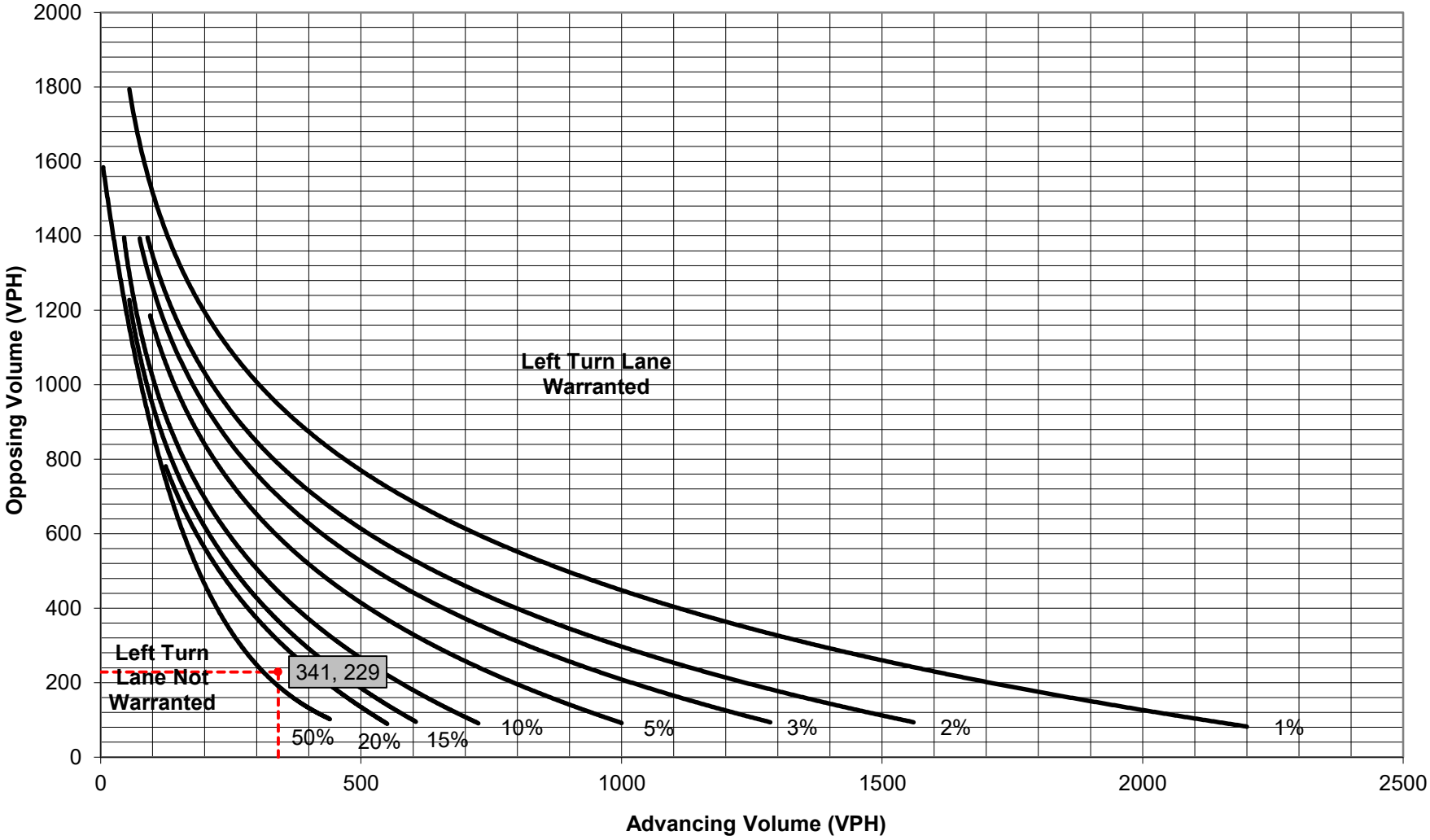
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 8. Warrant for left turn lanes on four-lane, divided highways (unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Industrial Park Rd / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	30		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	33	10.0%	N/A
	Through	-	303	0.0%	303
	Right	-	18	0.0%	18

Advancing Volume: 321
Right Turn Volume: 18

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 11
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	43

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

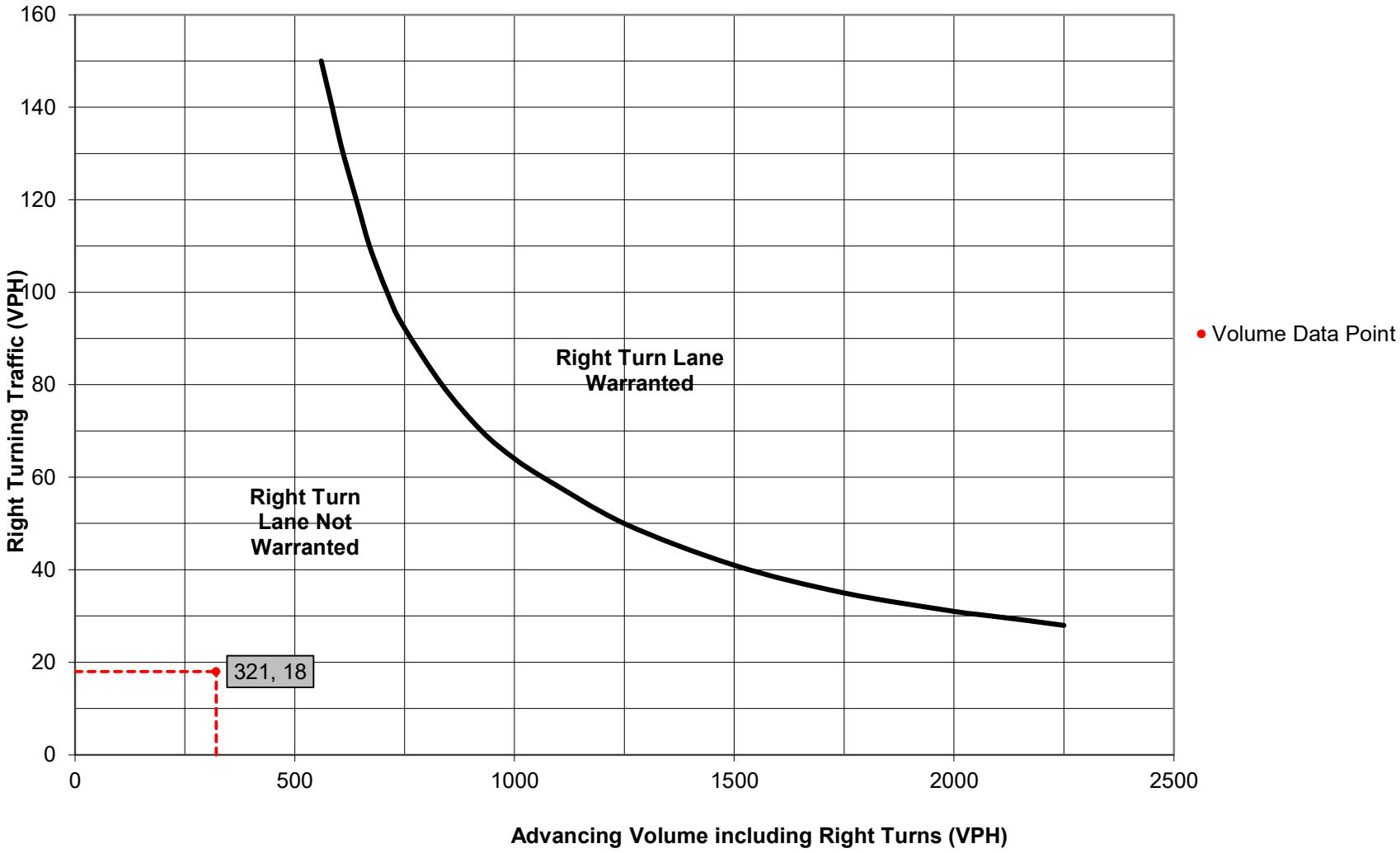
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 11. Warrant for right turn lanes on four-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	Yes	7	0.0%	7
Opposing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	Yes	10	2.0%	11

Advancing Volume:	15
Opposing Volume:	15
Left Turn Volume:	5
% Left Turns in Advancing Volume:	33.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

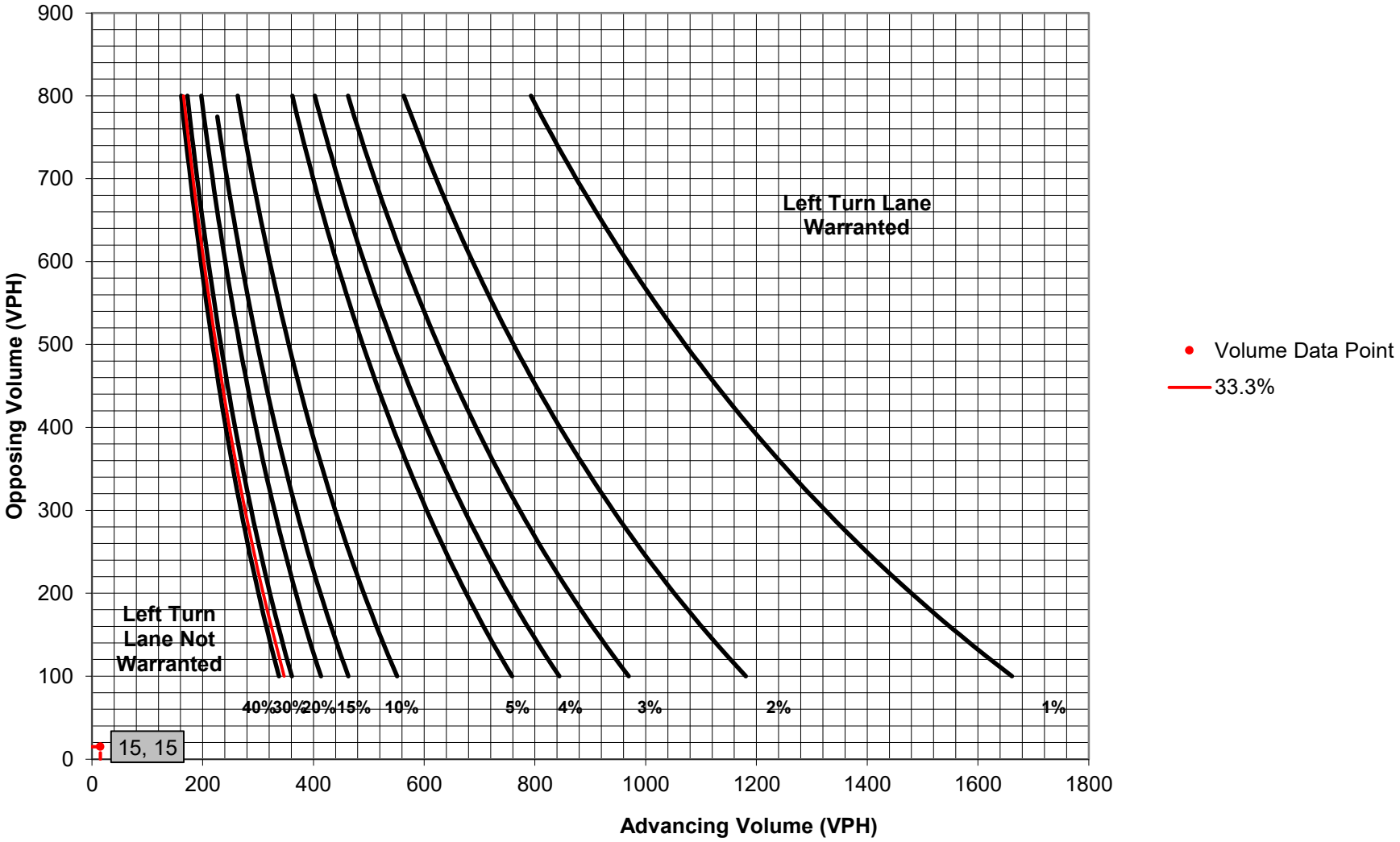
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	-	7	0.0%	7

Advancing Volume: 15
Right Turn Volume: 7

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

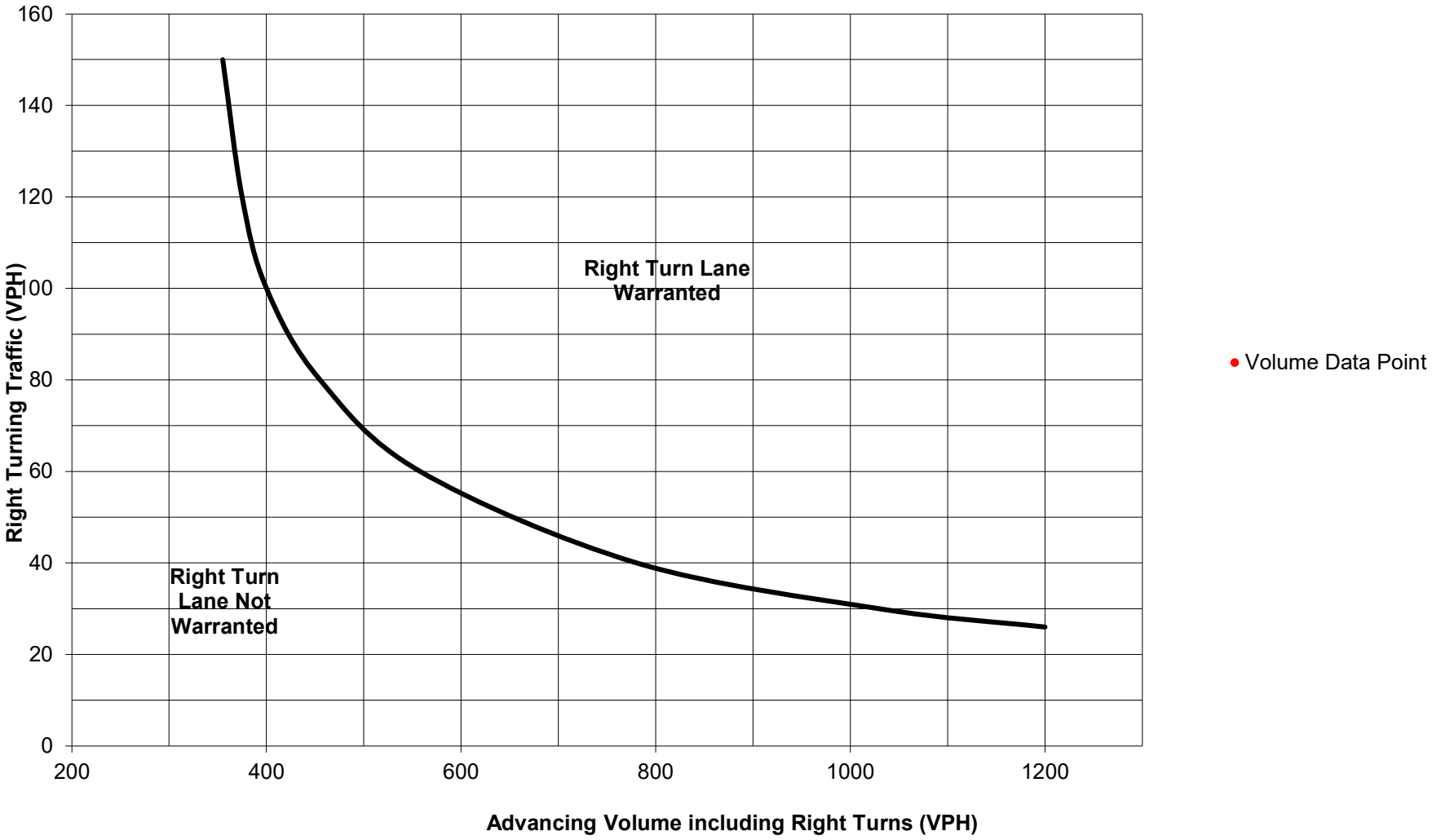
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	108	6.0%	118
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	25	10.0%	29
	Through	-	200	3.0%	209
	Right	Yes	6	0.0%	6

Advancing Volume:	121
Opposing Volume:	244
Left Turn Volume:	2
% Left Turns in Advancing Volume:	1.65%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

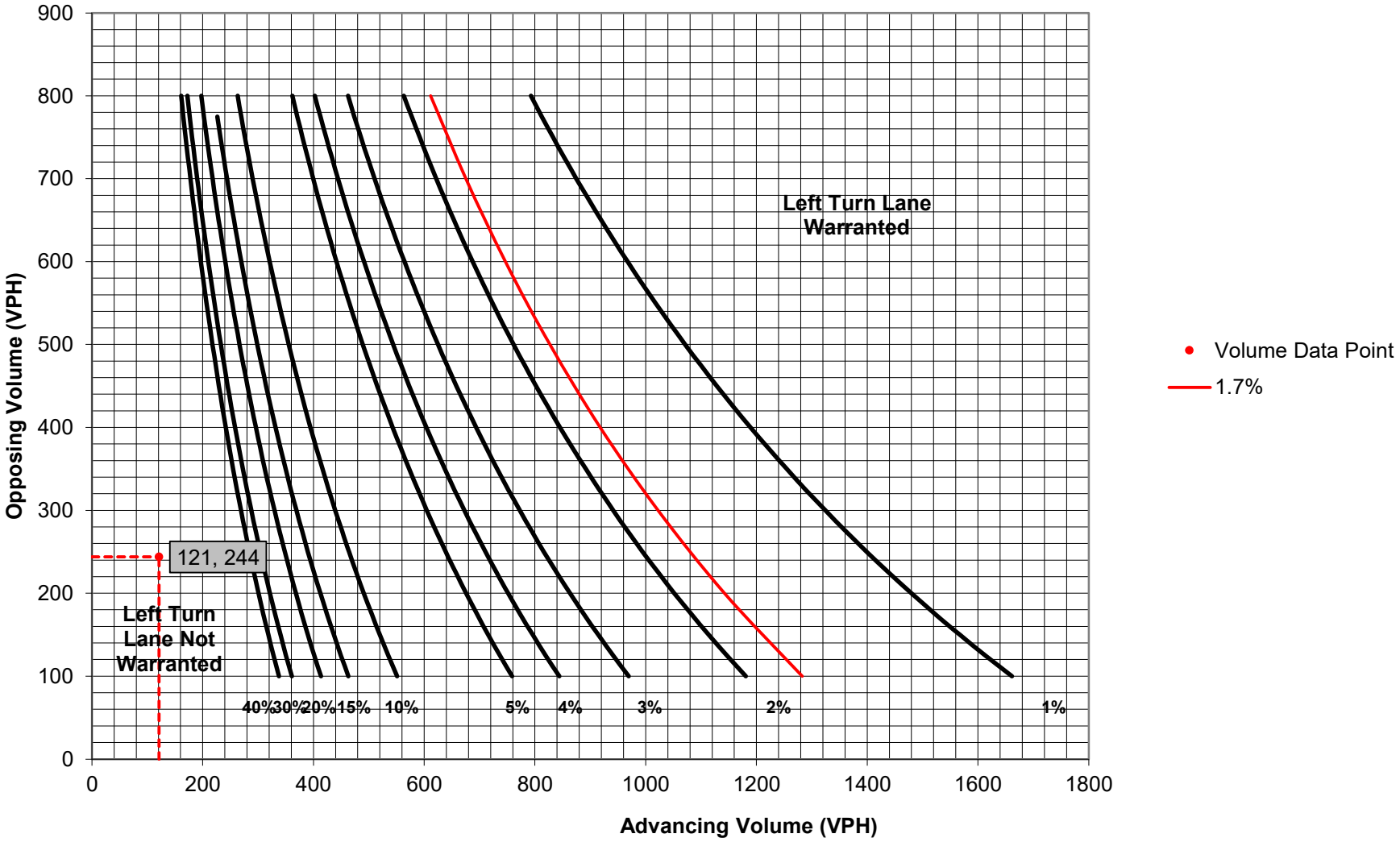
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	108	6.0%	118
	Right	-	1	0.0%	1

Advancing Volume: 121
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

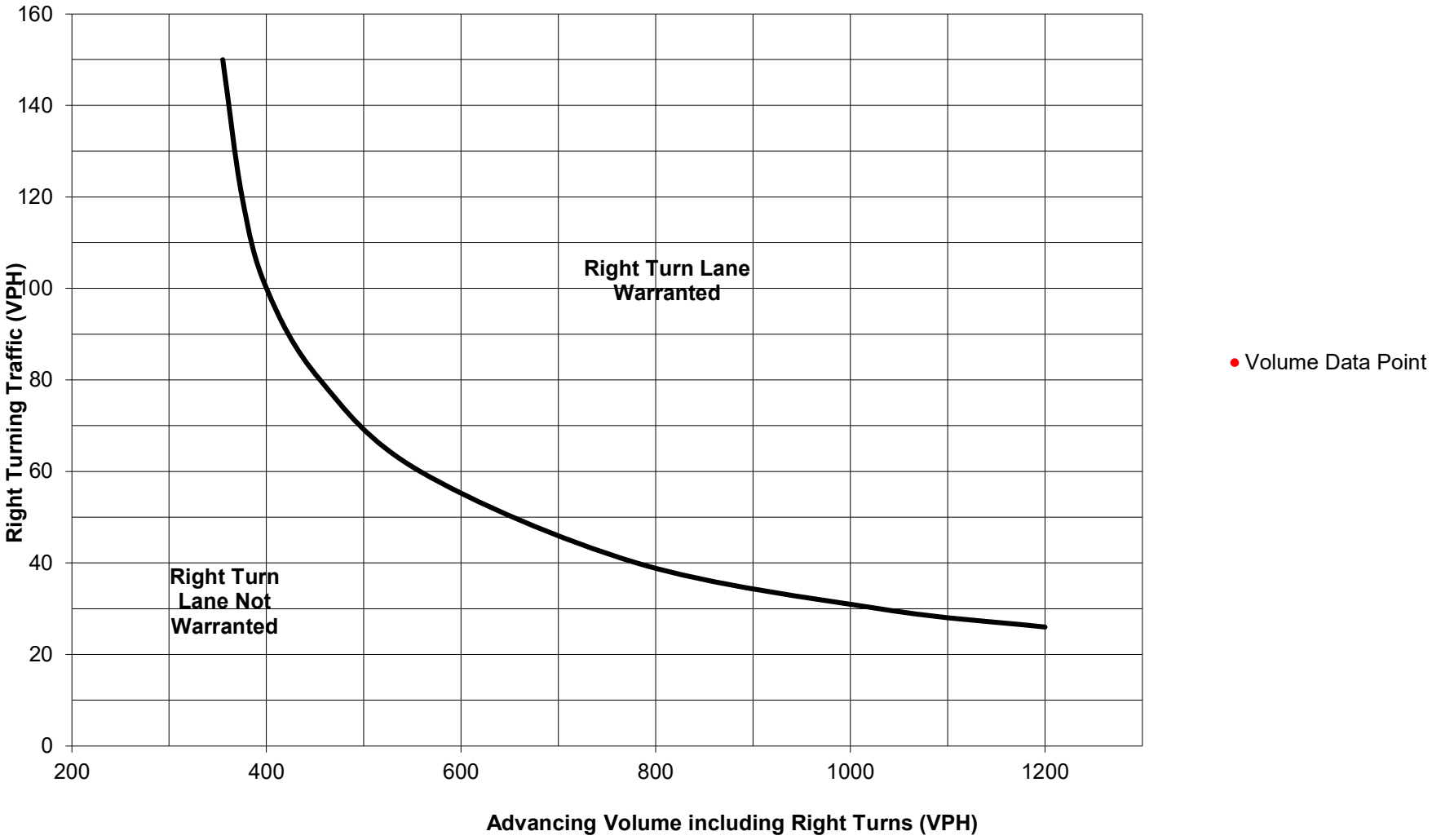
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	10.0%	29
	Through	-	200	3.0%	209
	Right	Yes	6	0.0%	6
Opposing	Left	Yes	2	0.0%	2
	Through	-	108	6.0%	118
	Right	Yes	1	0.0%	1

Advancing Volume:	244
Opposing Volume:	121
Left Turn Volume:	29
% Left Turns in Advancing Volume:	11.89%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	29
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

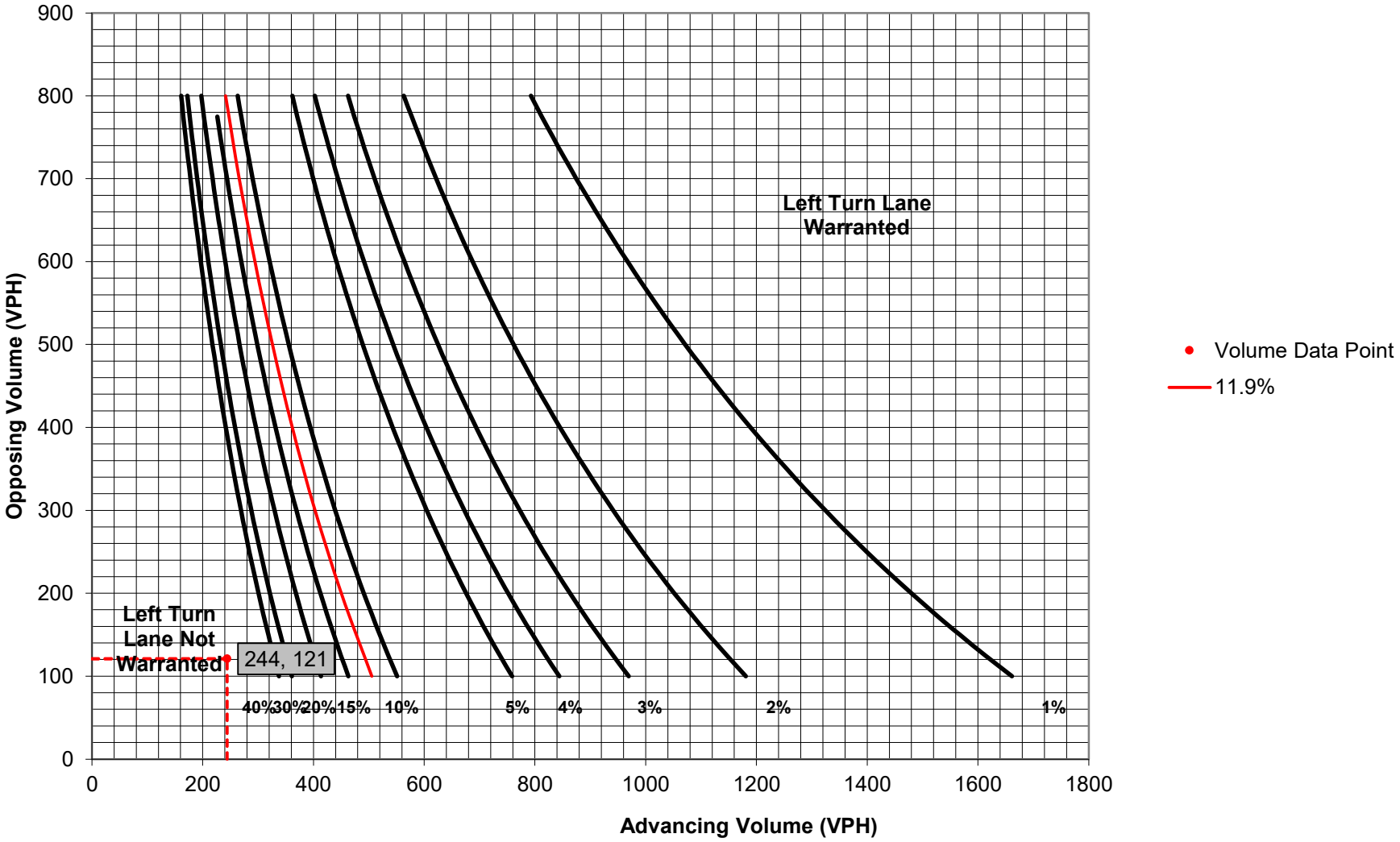
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	25	10.0%	29
	Through	-	200	3.0%	209
	Right	-	6	0.0%	6

Advancing Volume: 244
Right Turn Volume: 6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

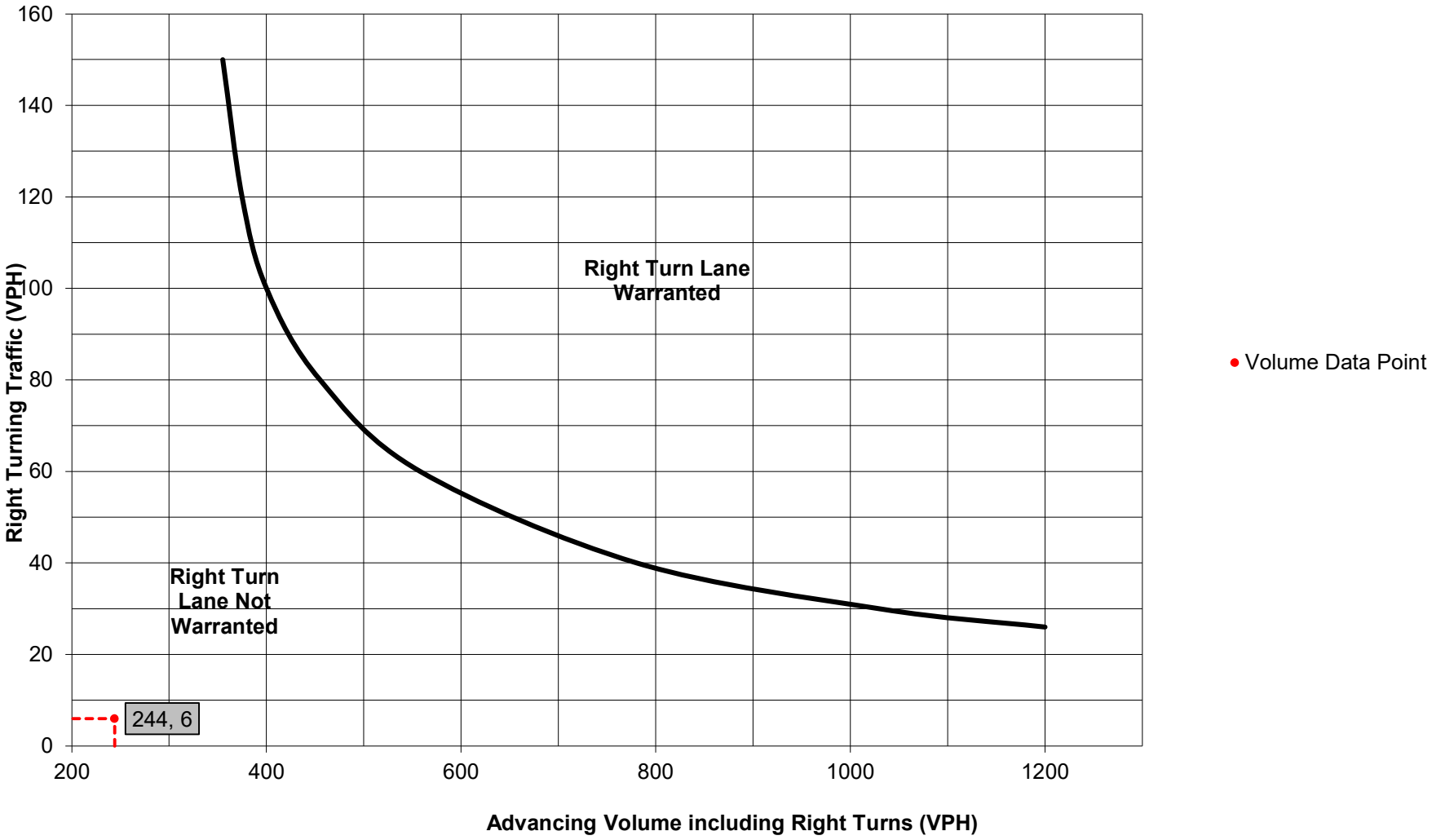
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	Yes	10	2.0%	11
Opposing	Left	Yes	5	0.0%	5
	Through	-	3	0.0%	3
	Right	Yes	7	0.0%	7

Advancing Volume:	15
Opposing Volume:	15
Left Turn Volume:	2
% Left Turns in Advancing Volume:	13.33%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

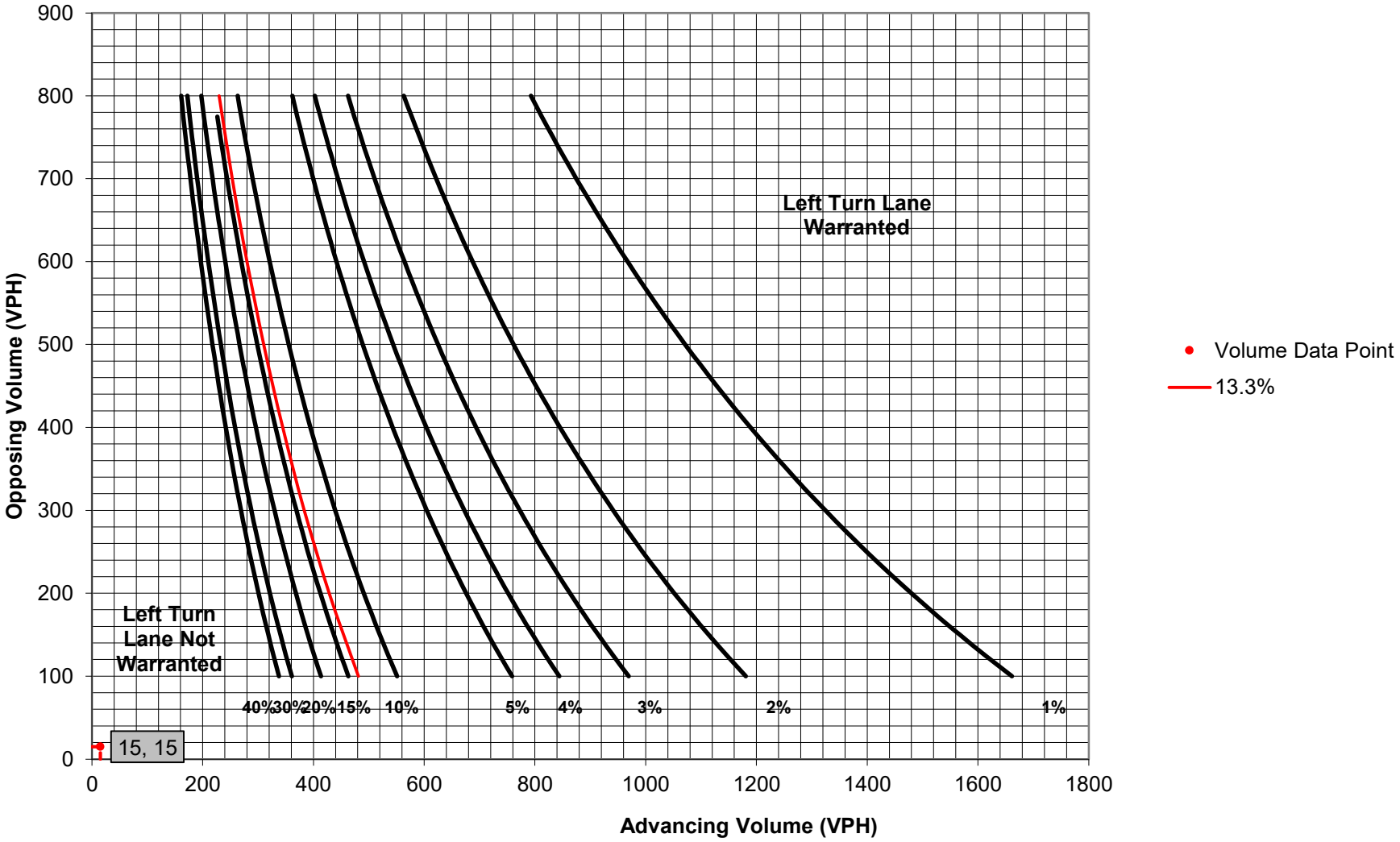
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	2	0.0%	2
	Right	-	10	2.0%	11

Advancing Volume: 15
Right Turn Volume: 11

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

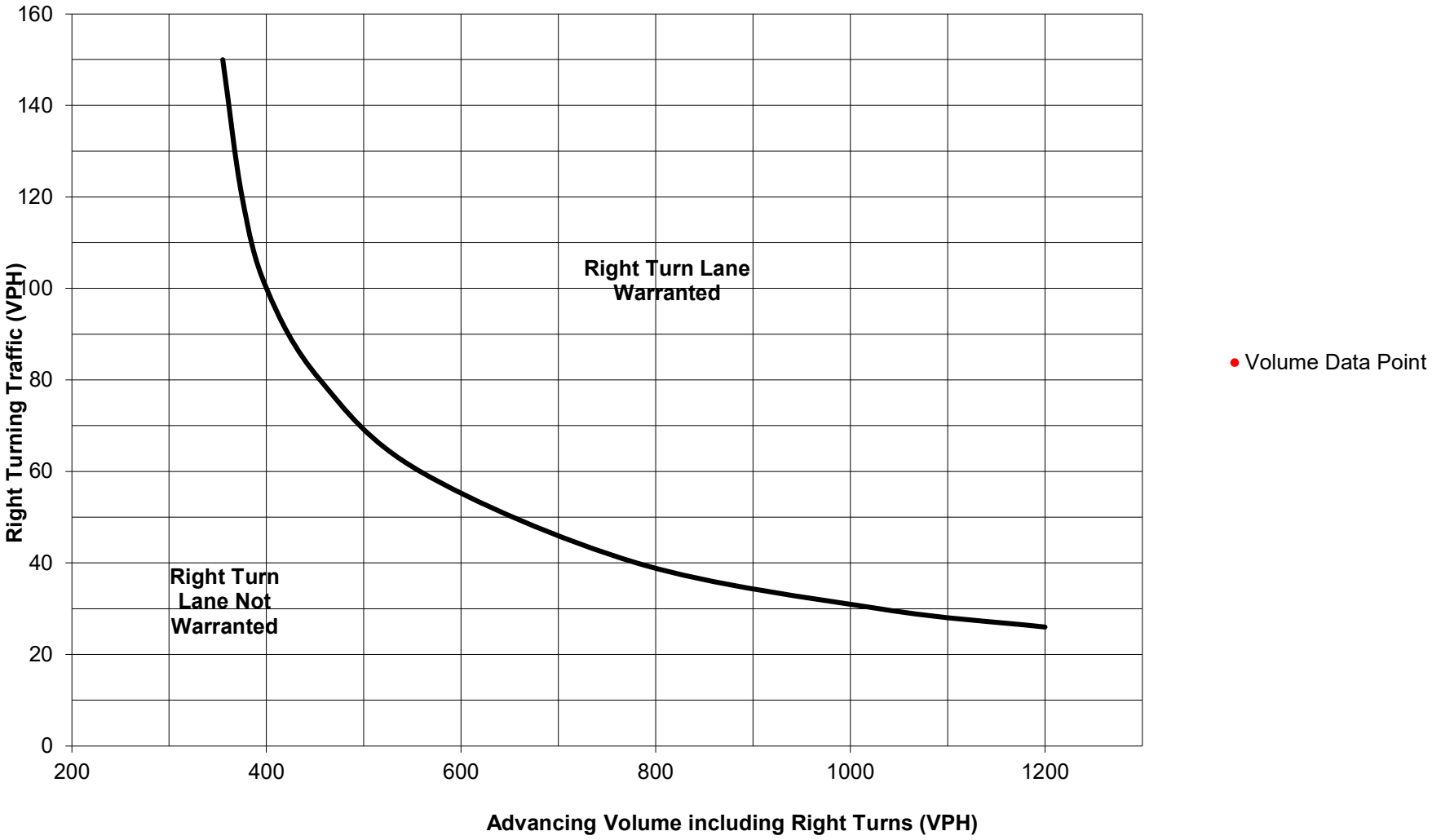
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1
Opposing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	Yes	25	2.0%	26

Advancing Volume:	36
Opposing Volume:	43
Left Turn Volume:	24
% Left Turns in Advancing Volume:	66.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	24
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

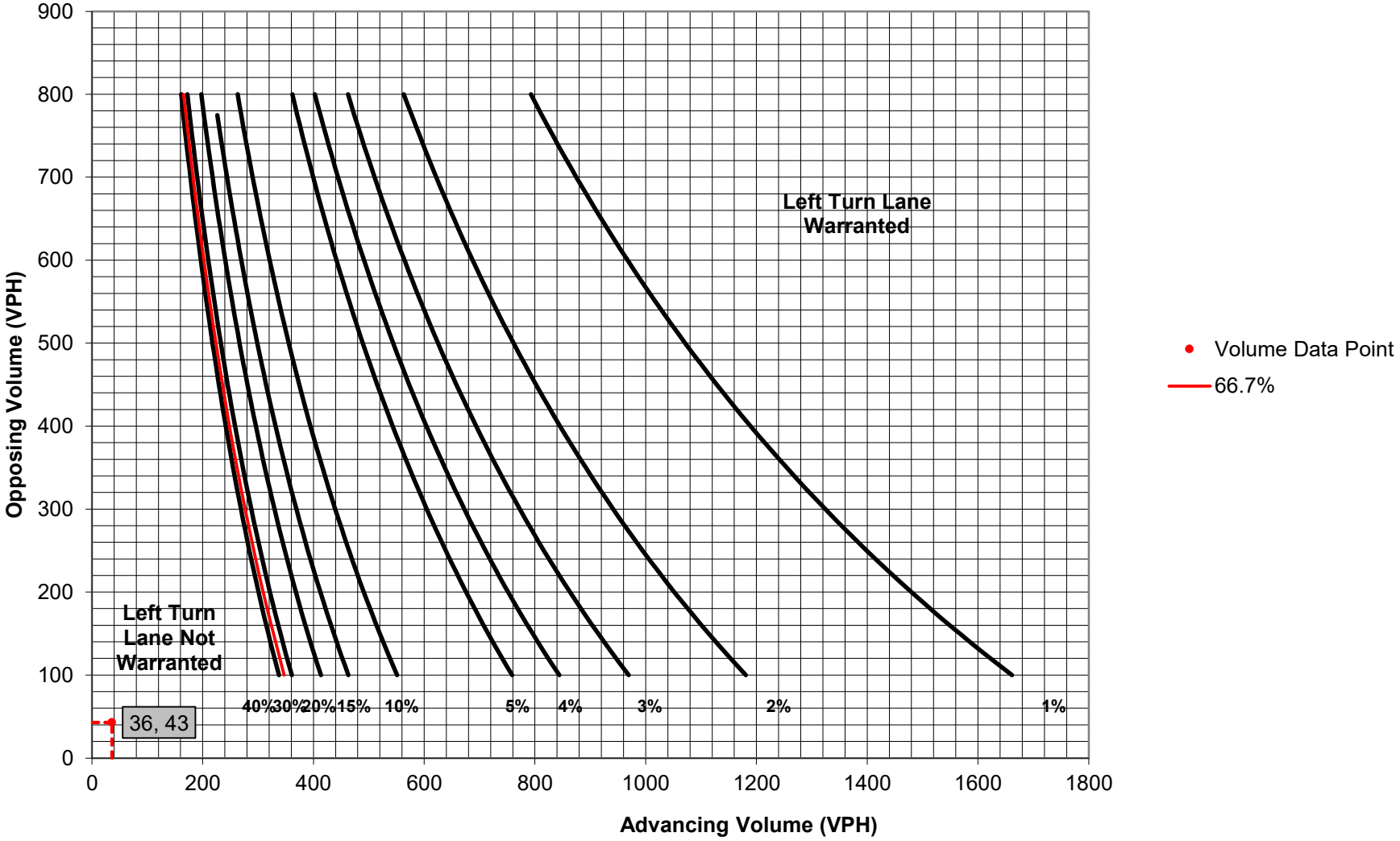
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	-	1	0.0%	1

Advancing Volume: 36
Right Turn Volume: 1

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

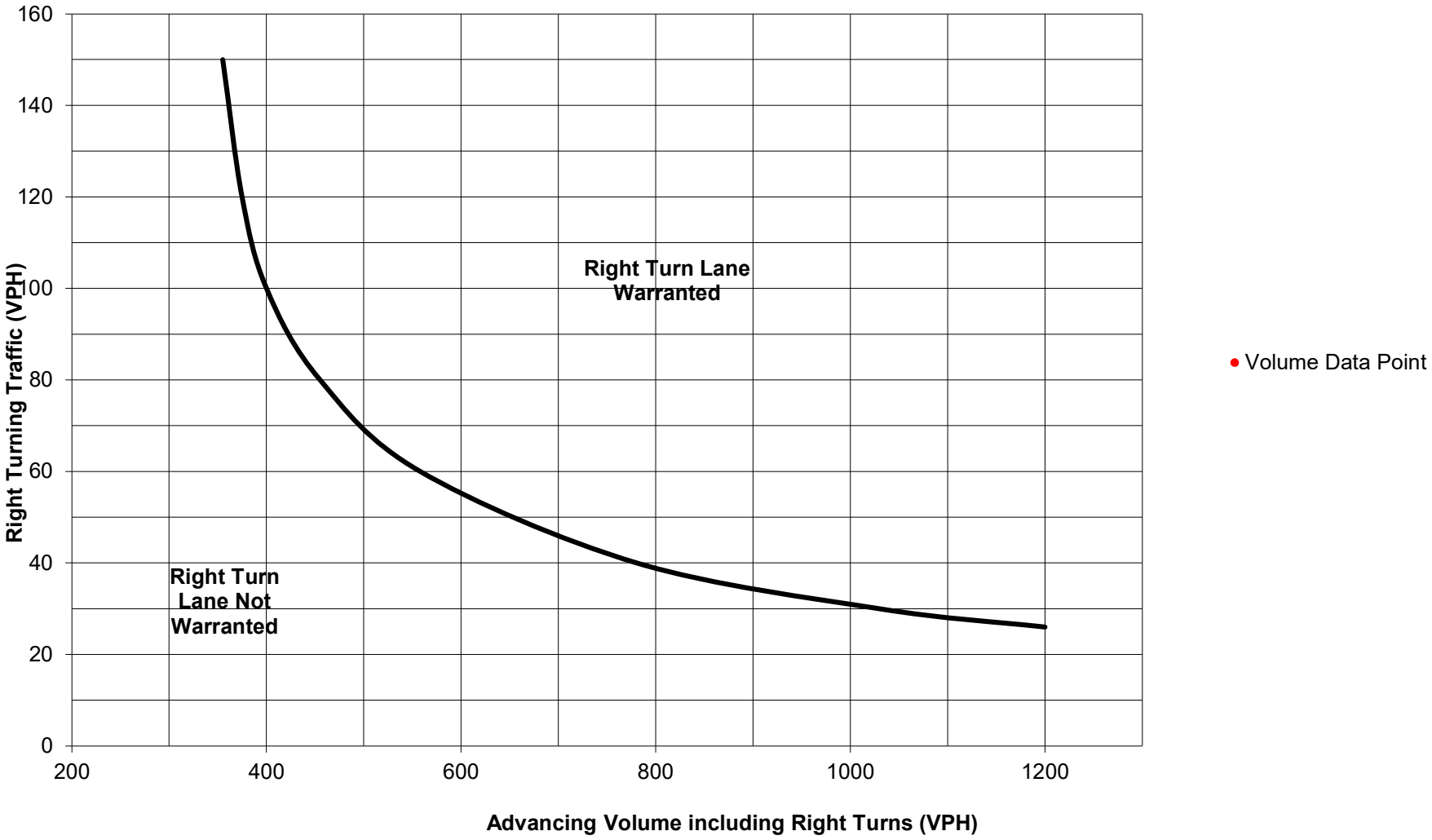
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	103	6.0%	113
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	16	2.0%	17
	Through	-	85	6.0%	93
	Right	Yes	23	5.0%	25

Advancing Volume: 116
Opposing Volume: 135
Left Turn Volume: 1
% Left Turns in Advancing Volume: 0.86%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

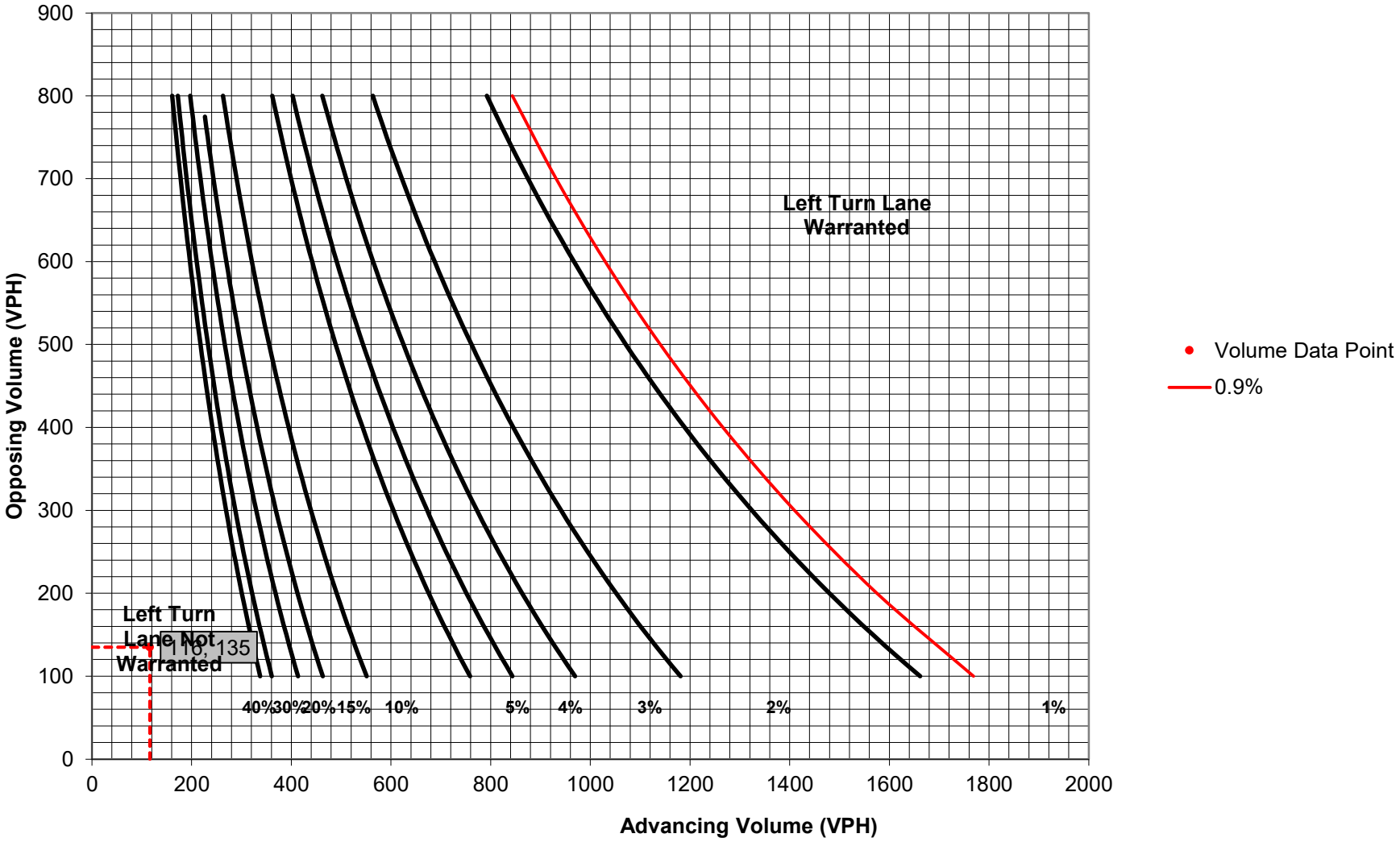
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	103	6.0%	113
	Right	-	2	0.0%	2

Advancing Volume: 116
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

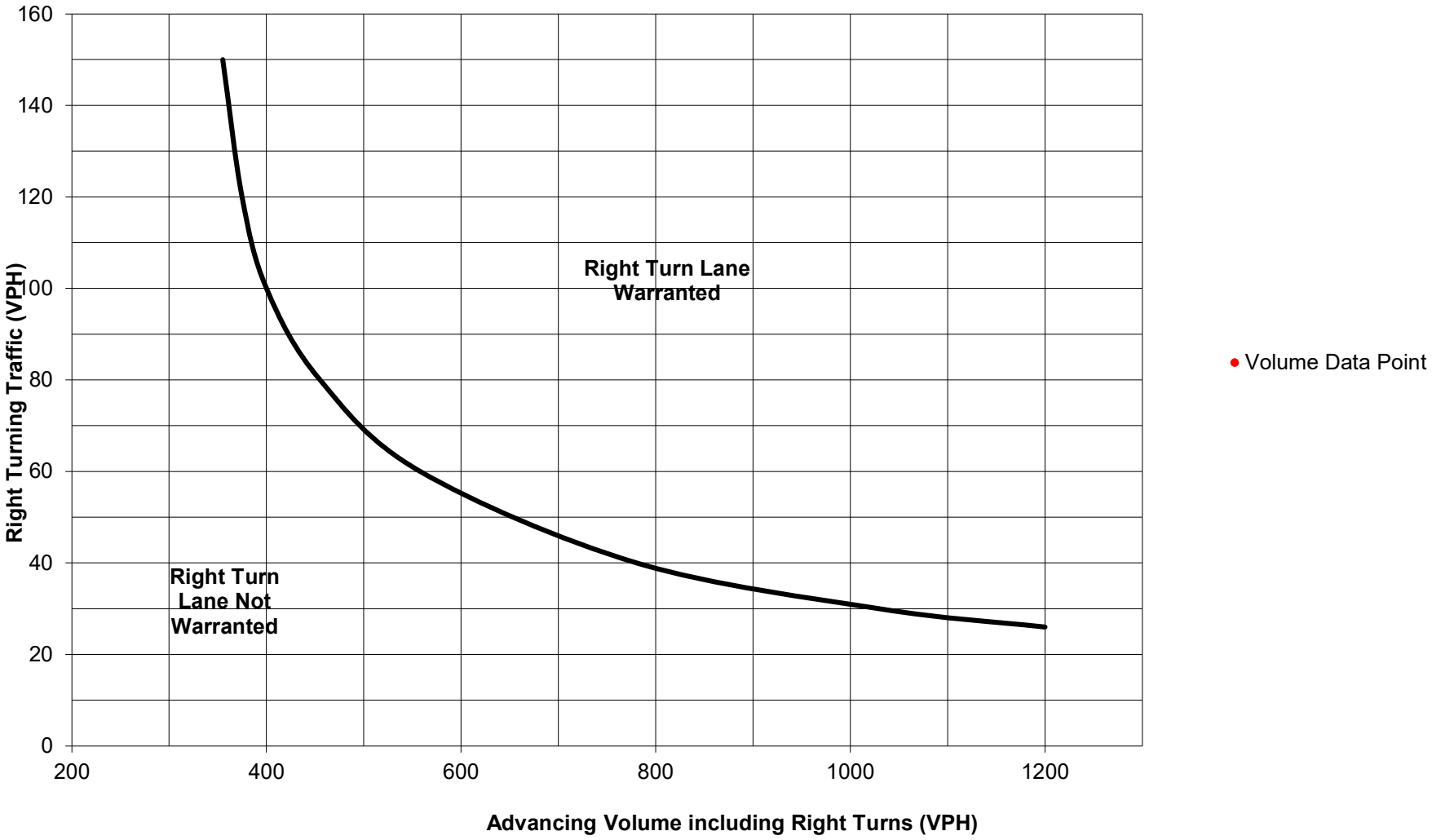
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	85	6.0%	93
	Right	Yes	23	5.0%	25
Opposing	Left	Yes	1	0.0%	1
	Through	-	103	6.0%	113
	Right	Yes	2	0.0%	2

Advancing Volume:	135
Opposing Volume:	116
Left Turn Volume:	17
% Left Turns in Advancing Volume:	12.59%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

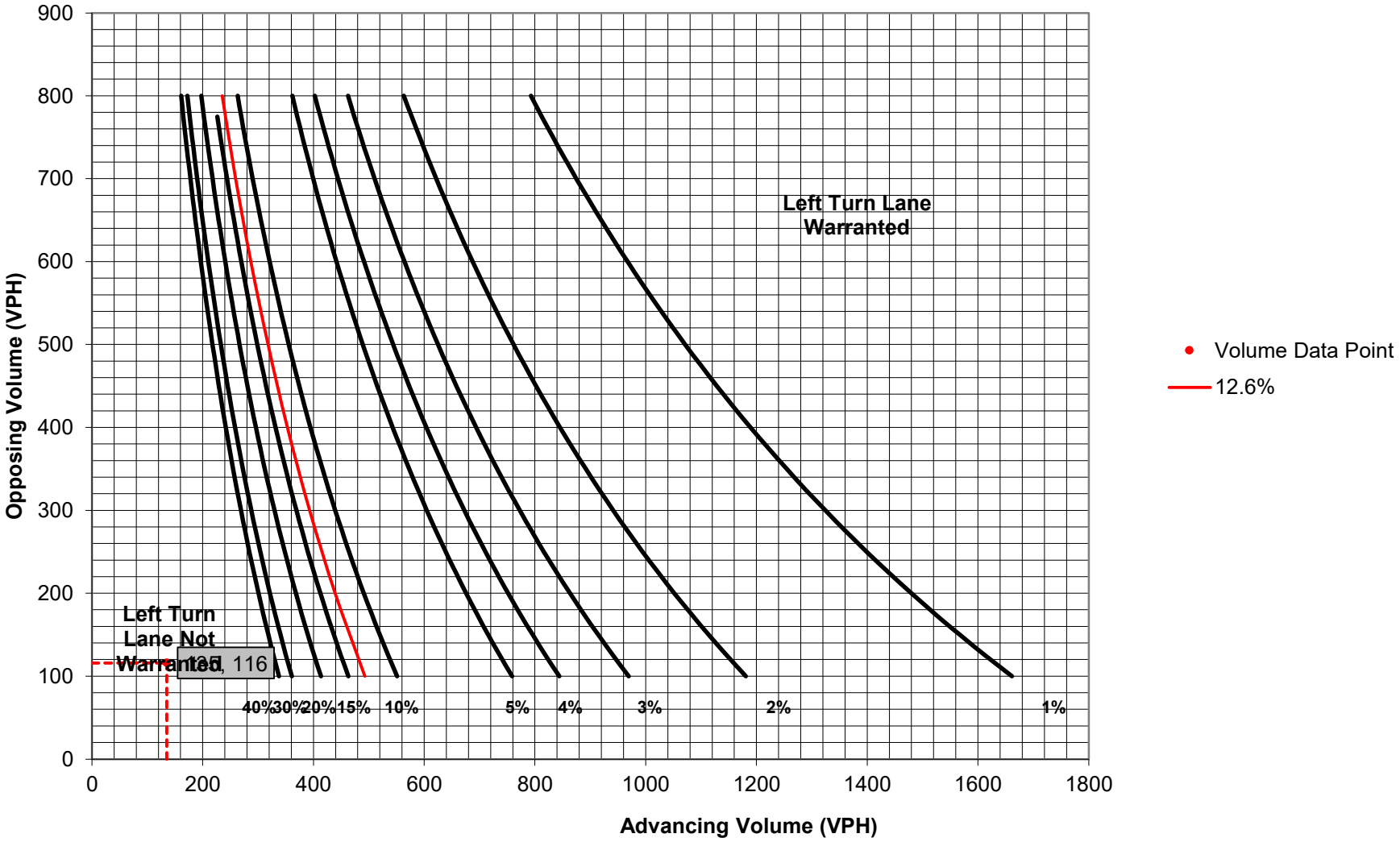
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	85	6.0%	93
	Right	-	23	5.0%	25

Advancing Volume: 135
Right Turn Volume: 25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

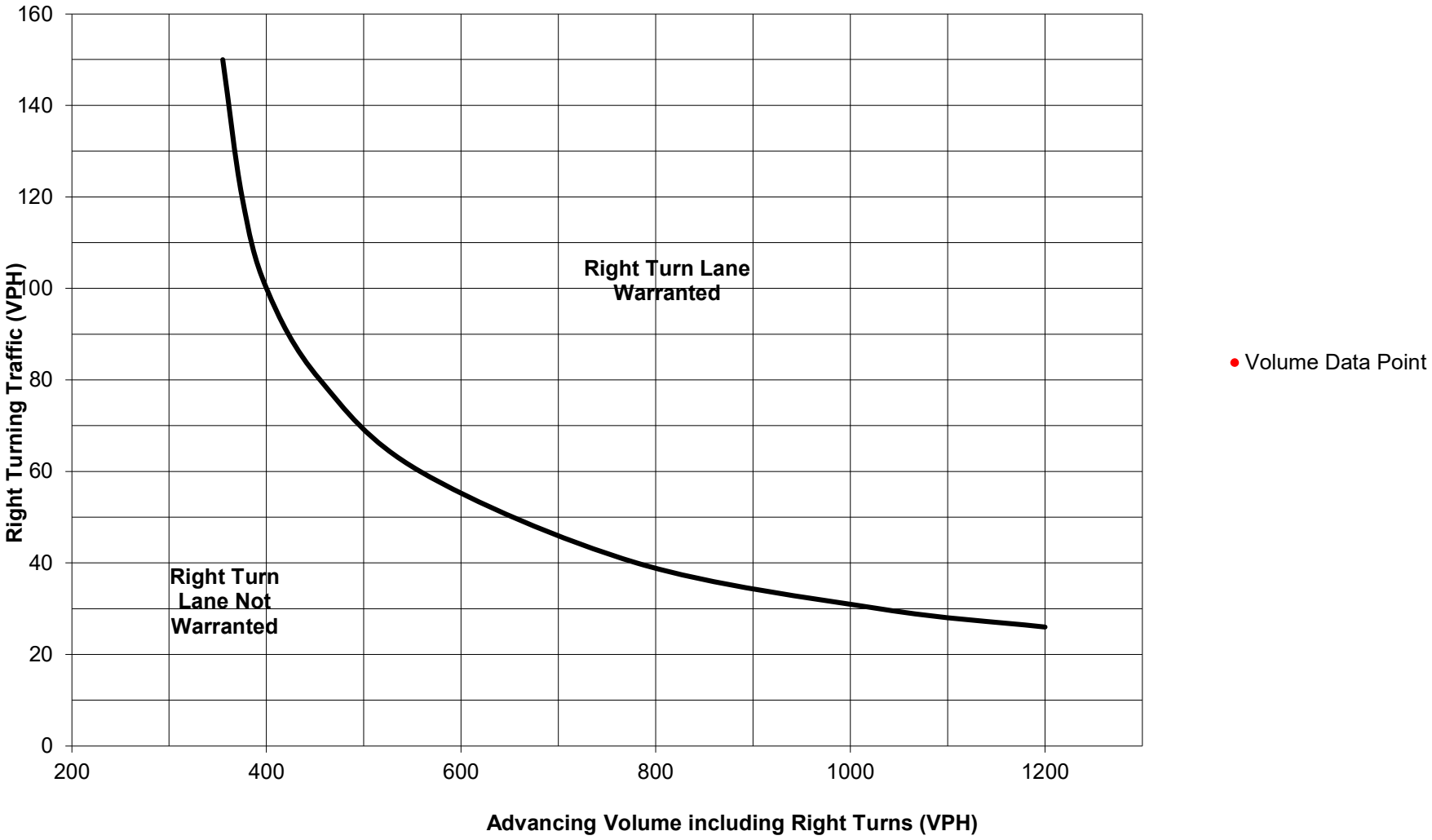
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	Yes	25	2.0%	26
Opposing	Left	Yes	24	0.0%	24
	Through	-	9	11.0%	11
	Right	Yes	1	0.0%	1

Advancing Volume:	43
Opposing Volume:	36
Left Turn Volume:	4
% Left Turns in Advancing Volume:	9.30%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

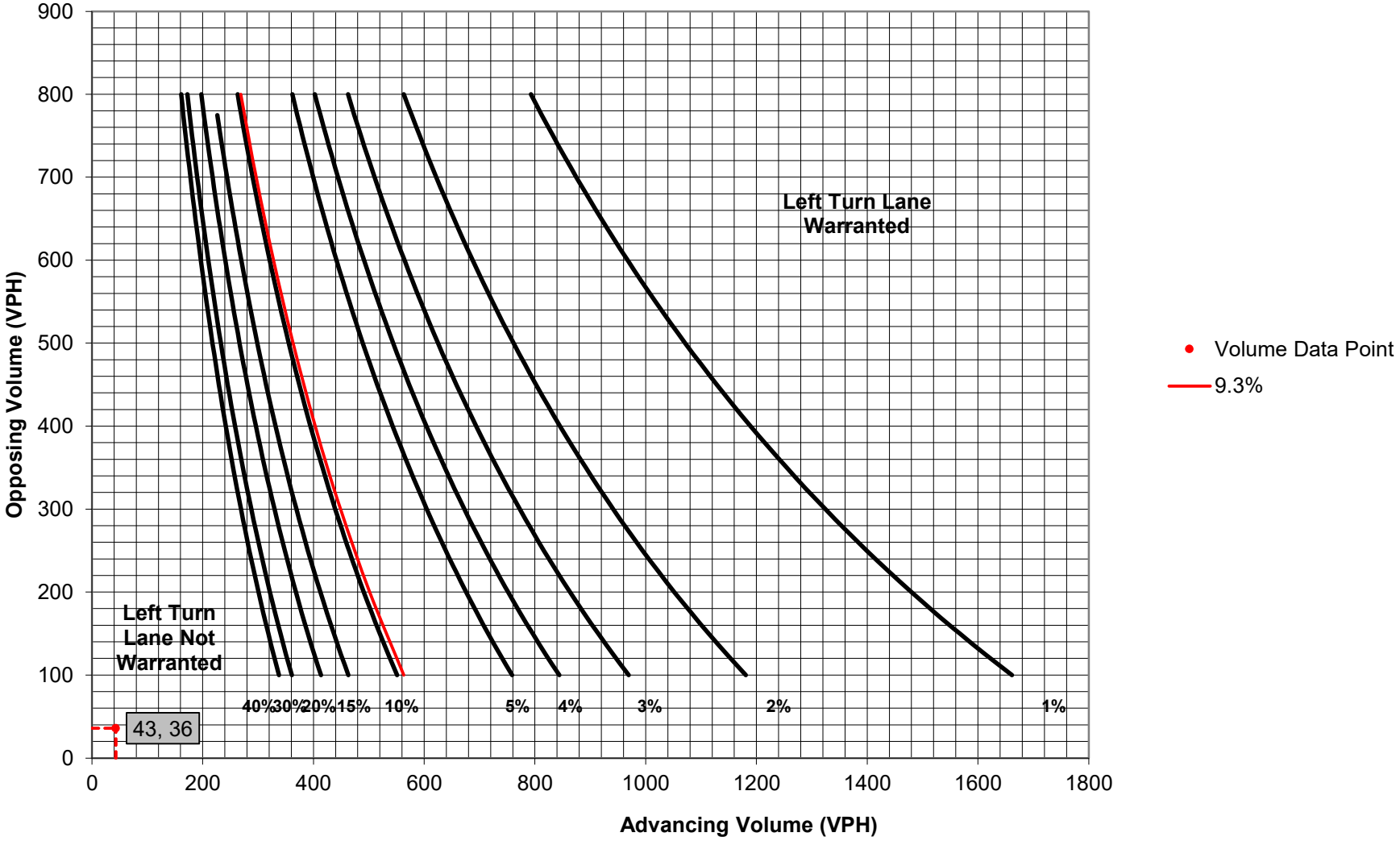
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Middle Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	13	0.0%	13
	Right	-	25	2.0%	26

Advancing Volume: 43
Right Turn Volume: 26

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	26
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

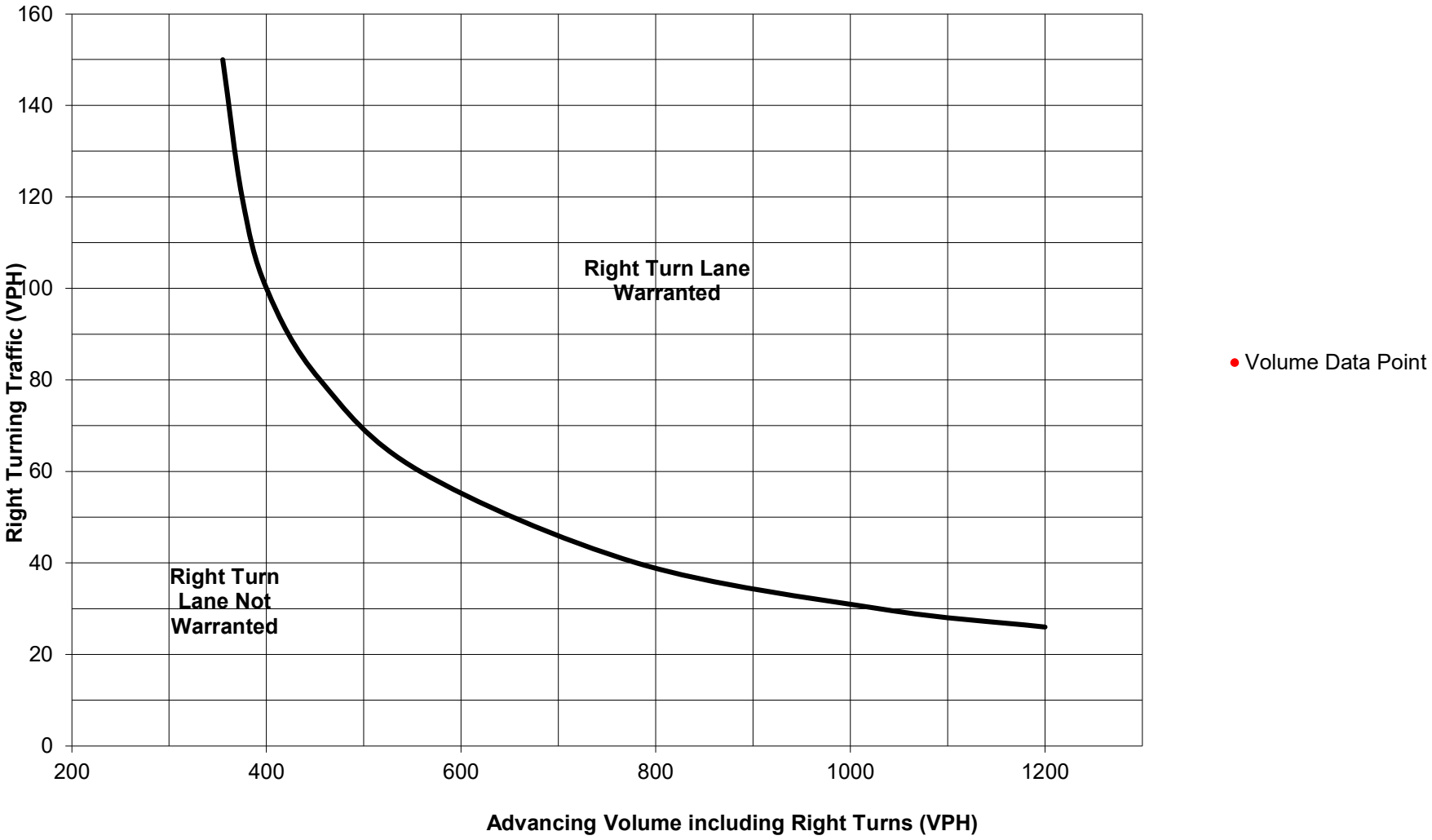
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	31
	Through	-	6	0.0%	6
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	31	0.0%	31
	Through	-	2	2.0%	3
	Right	Yes	9	0.0%	9

Advancing Volume:	37
Opposing Volume:	43
Left Turn Volume:	31
% Left Turns in Advancing Volume:	83.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

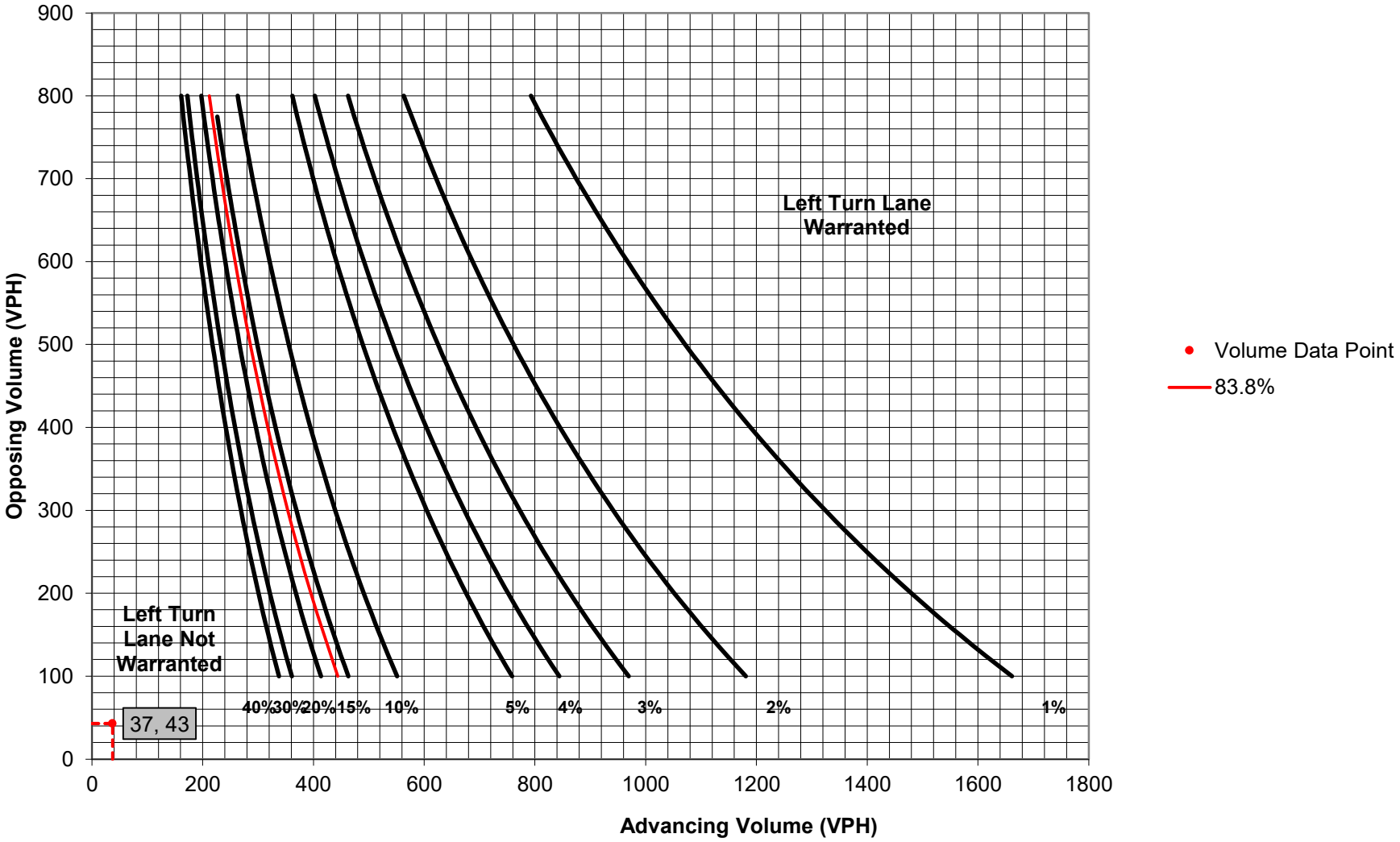
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	31
	Through	-	6	0.0%	6
	Right	-	0	0.0%	0

Advancing Volume: 37
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

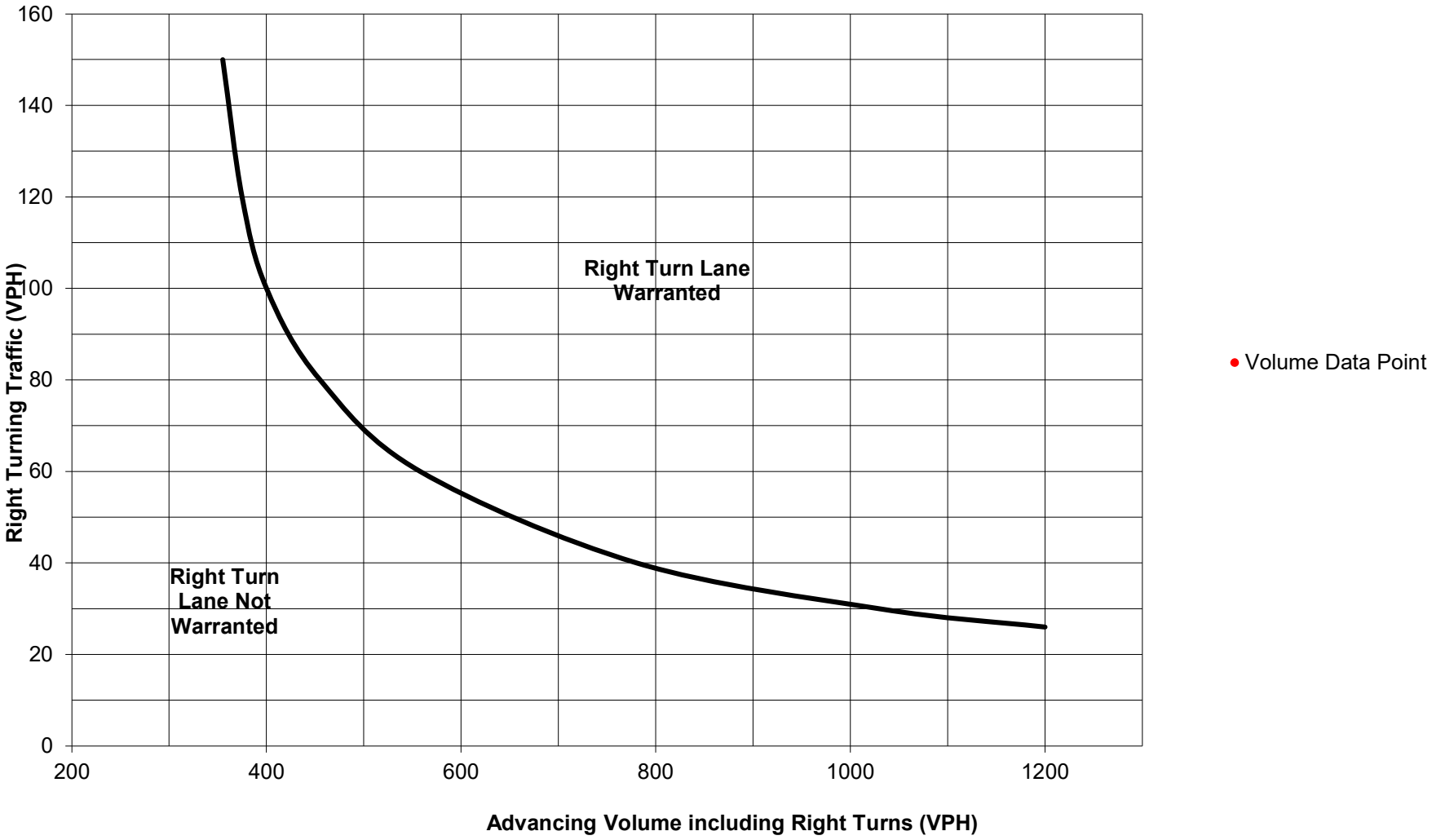
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	Yes	59	0.0%	59
Opposing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	Yes	82	2.0%	85

Advancing Volume: 127
Opposing Volume: 150
Left Turn Volume: 2
% Left Turns in Advancing Volume: 1.57%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume: N/A
Right Turn Volume: N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1
Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

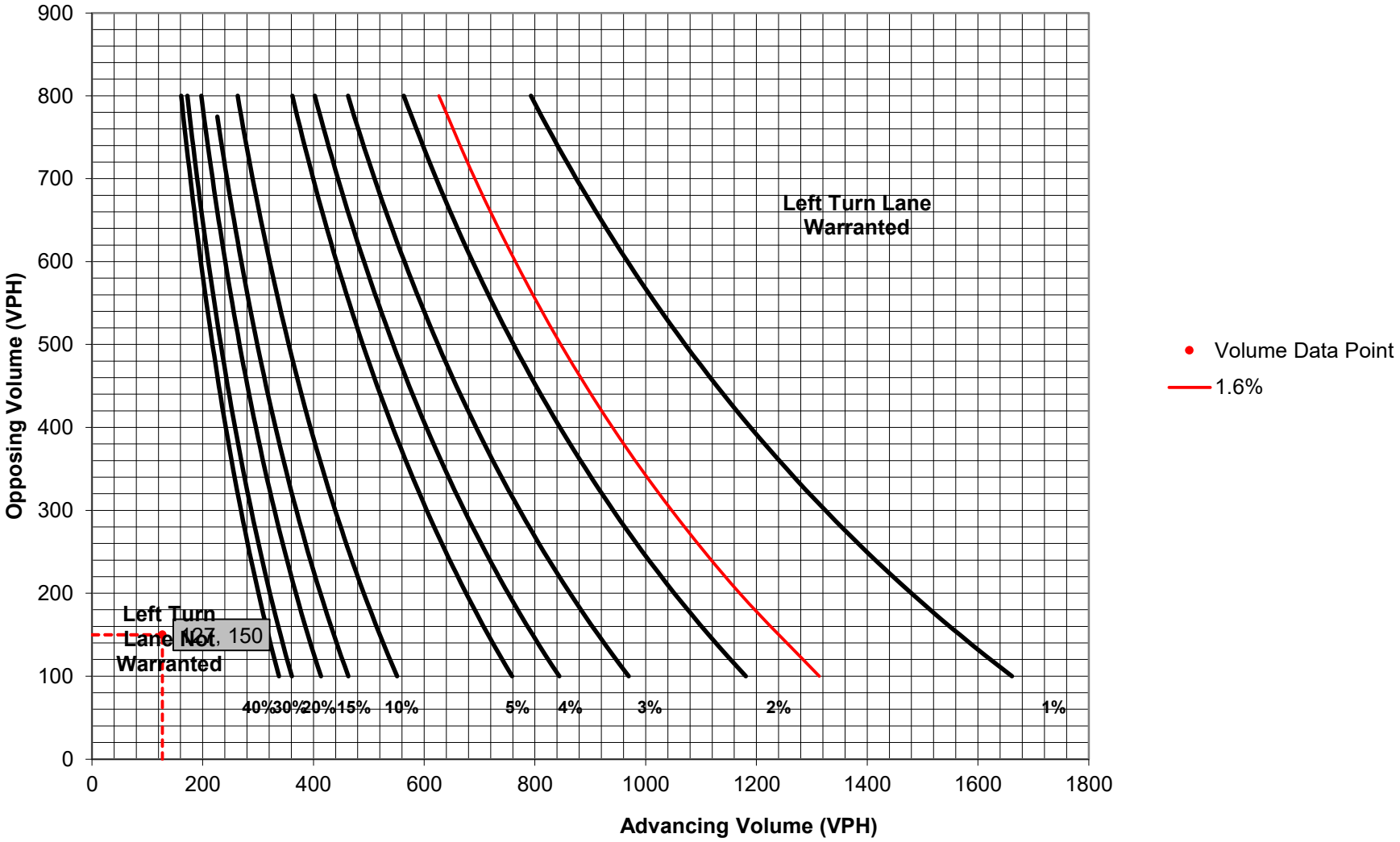
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	-	59	0.0%	59

Advancing Volume: 127
Right Turn Volume: 59

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control: Unsignalized
Design Hour Volume of Turning Lane: 59
Cycles Per Hour (Assumed): 60
Cycles Per Hour (If Known):

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

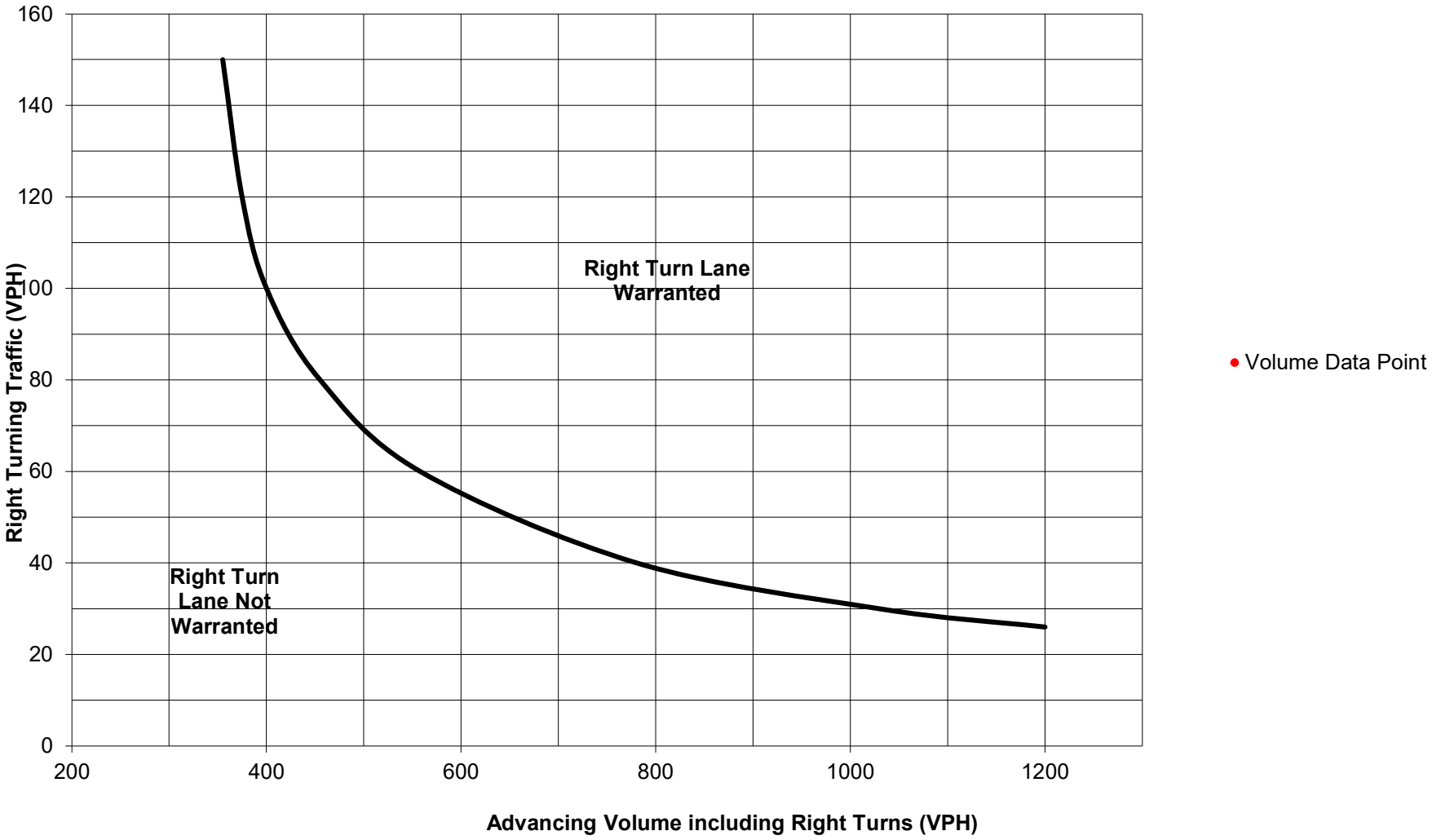
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A: N/A Feet
Condition B: N/A Feet
Condition C: N/A Feet
Required Right Turn Lane Storage Length: N/A Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	Yes	82	2.0%	85
Opposing	Left	Yes	2	0.0%	2
	Through	-	61	5.0%	66
	Right	Yes	59	0.0%	59

Advancing Volume:	150
Opposing Volume:	127
Left Turn Volume:	4
% Left Turns in Advancing Volume:	2.67%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

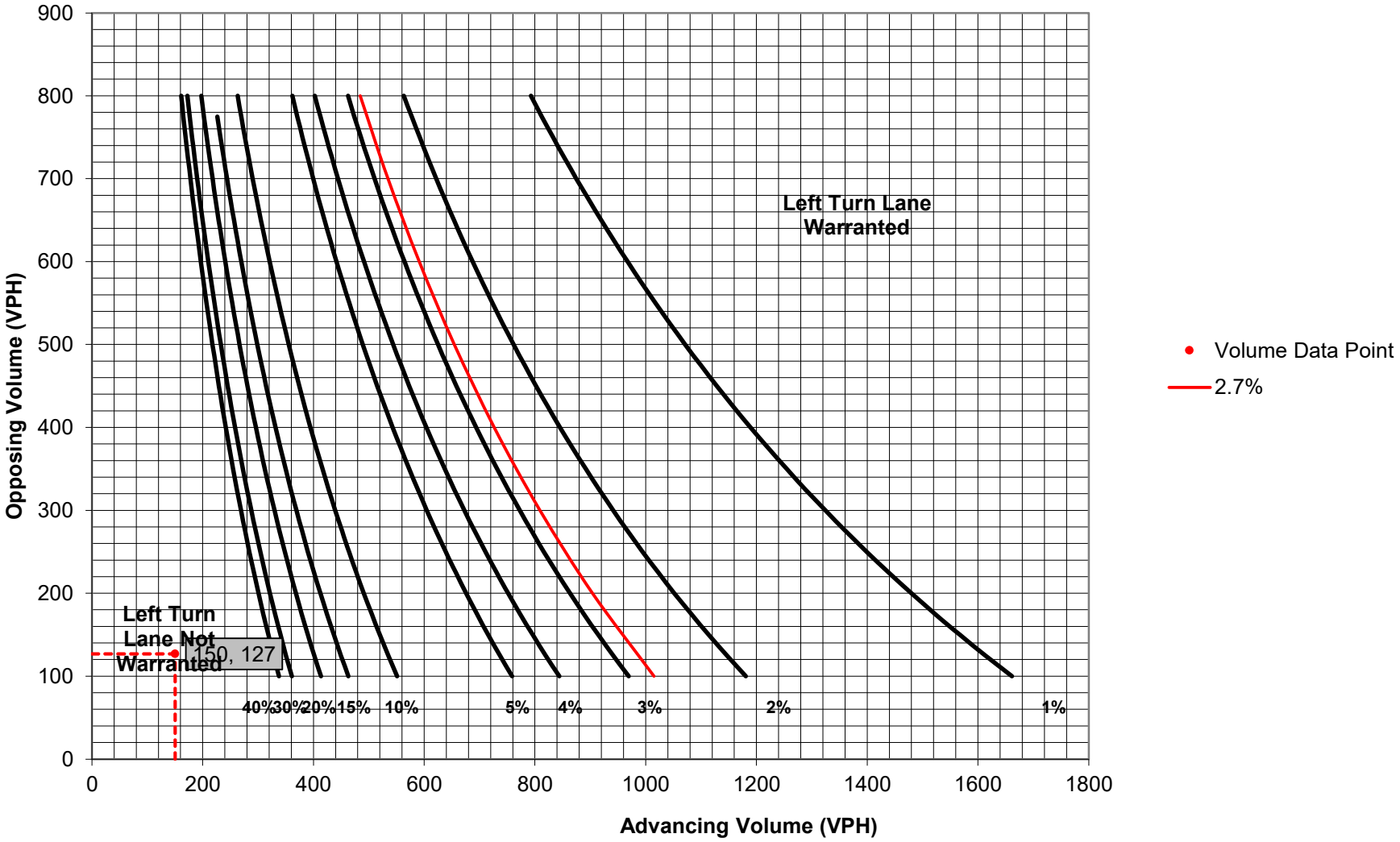
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	54	8.0%	61
	Right	-	82	2.0%	85

Advancing Volume: 150
Right Turn Volume: 85

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	85
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

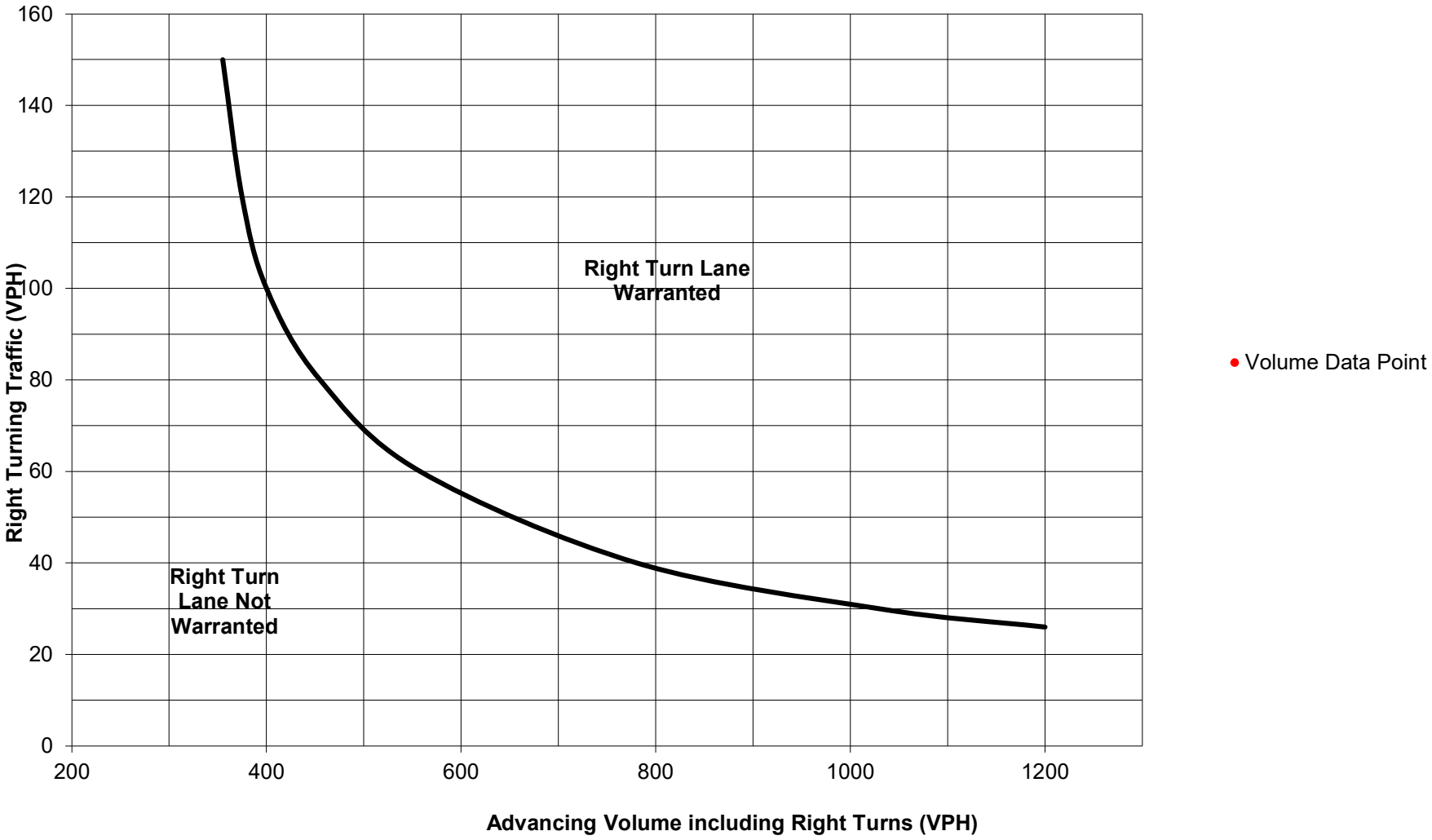
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	0.0%	31
	Through	-	2	2.0%	3
	Right	Yes	9	0.0%	9
Opposing	Left	Yes	30	2.0%	31
	Through	-	6	0.0%	6
	Right	Yes	0	0.0%	0

Advancing Volume:	43
Opposing Volume:	37
Left Turn Volume:	31
% Left Turns in Advancing Volume:	72.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

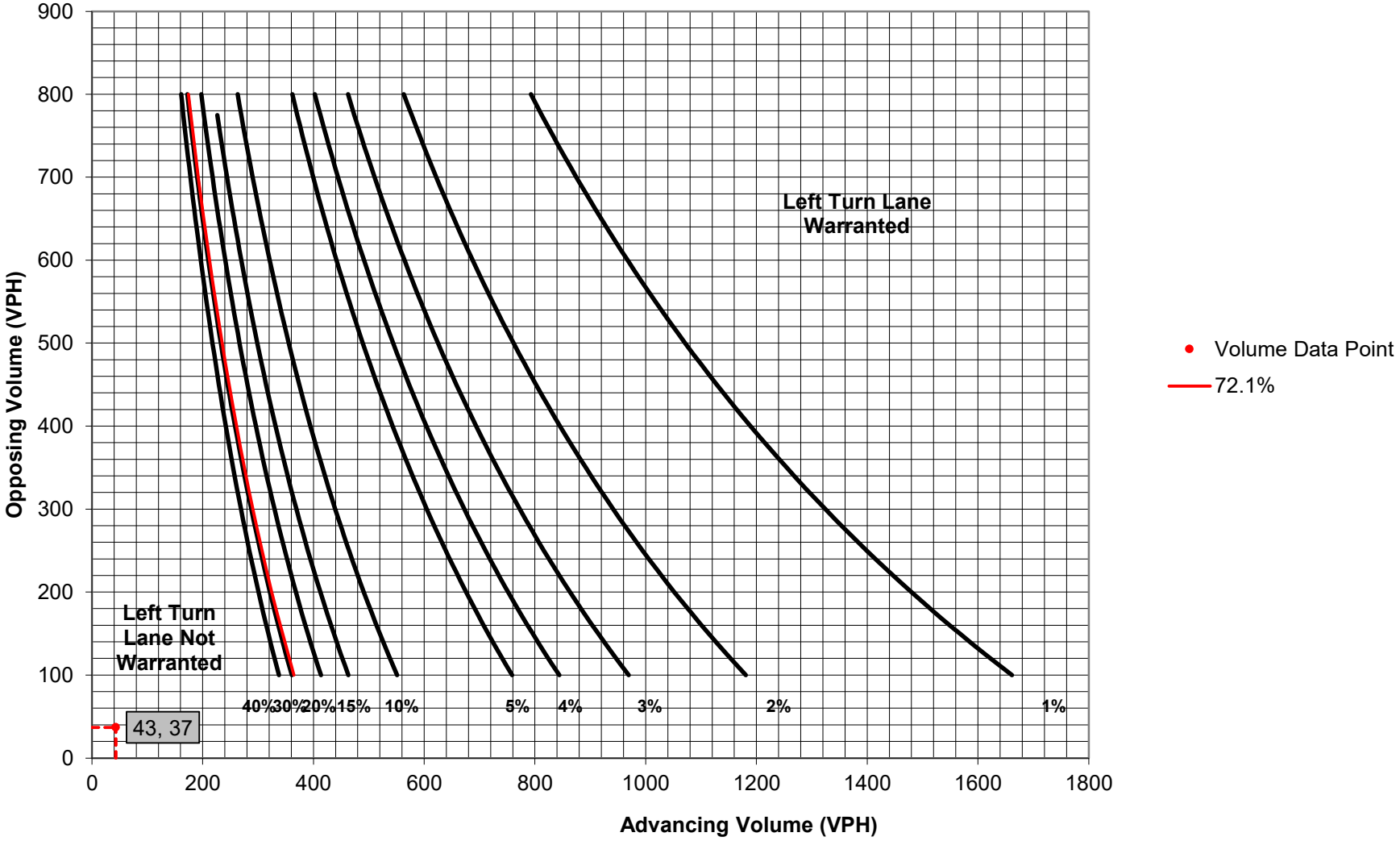
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	0.0%	31
	Through	-	2	2.0%	3
	Right	-	9	0.0%	9

Advancing Volume: 43
Right Turn Volume: 9

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	9
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

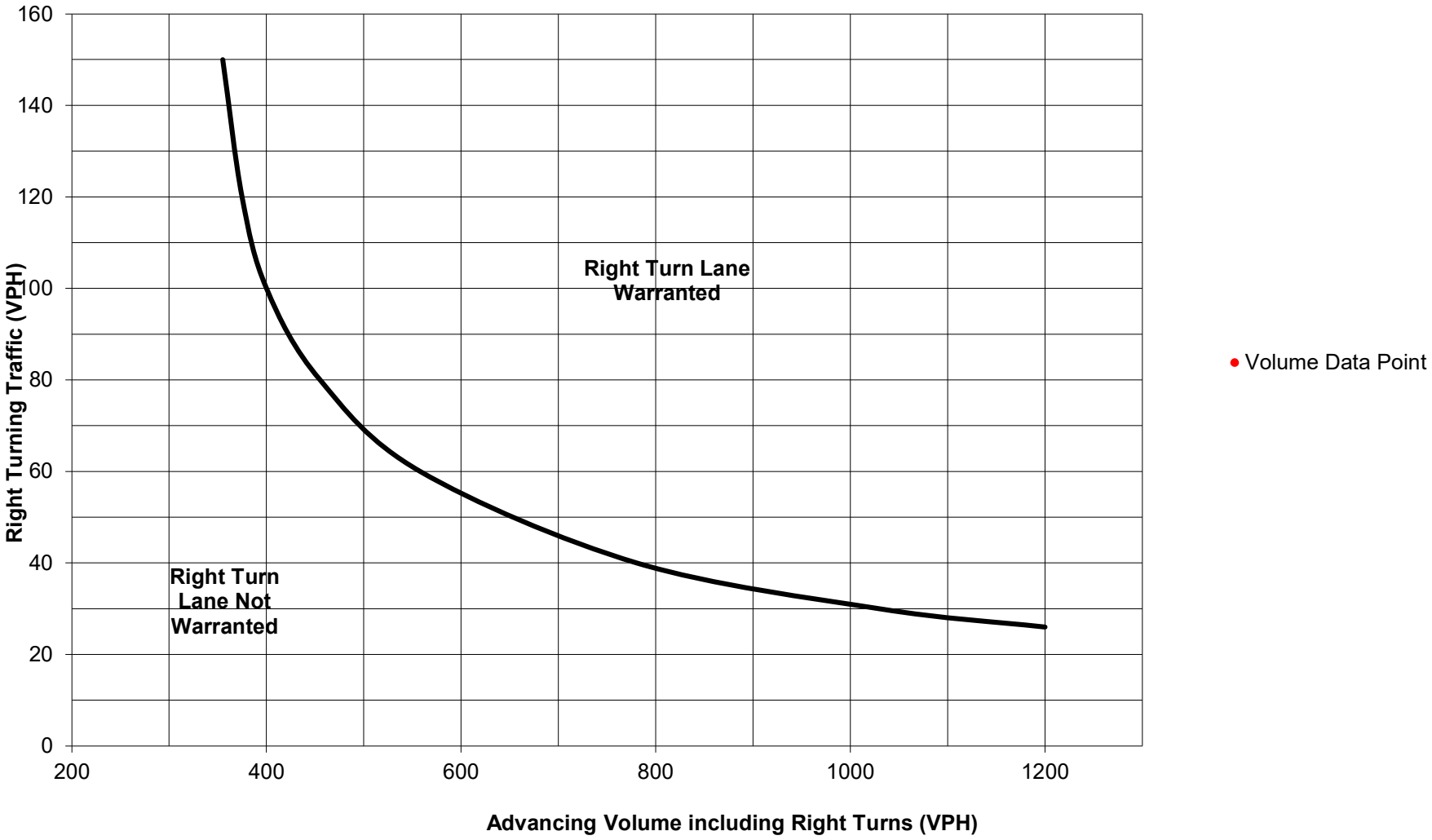
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	72	2.0%	75
	Through	-	9	2.0%	10
	Right	Yes	2	0.0%	2
Opposing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8

Advancing Volume:	87
Opposing Volume:	24
Left Turn Volume:	75
% Left Turns in Advancing Volume:	86.21%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	75
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

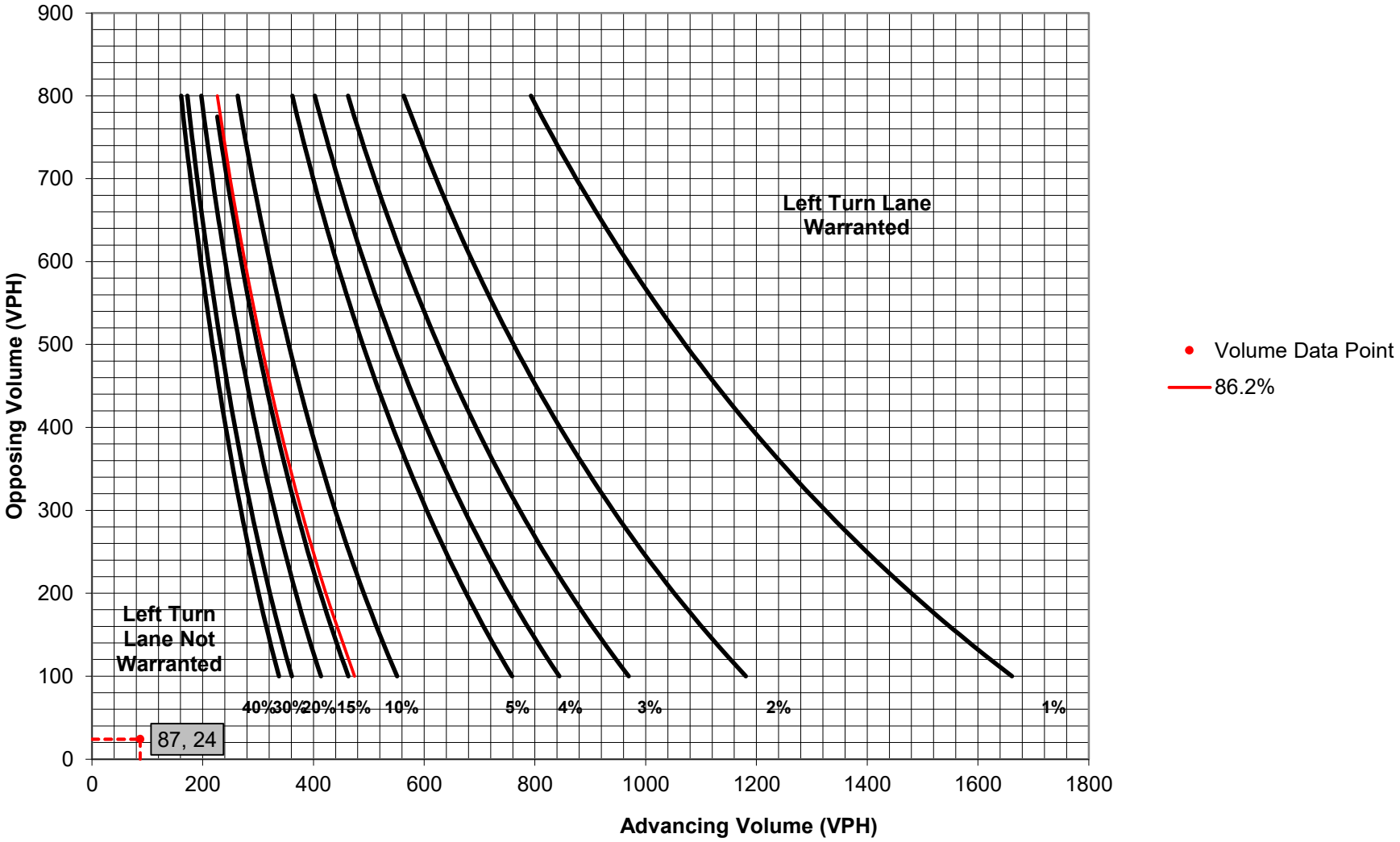
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	72	2.0%	75
	Through	-	9	2.0%	10
	Right	-	2	0.0%	2

Advancing Volume: 87
Right Turn Volume: 2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

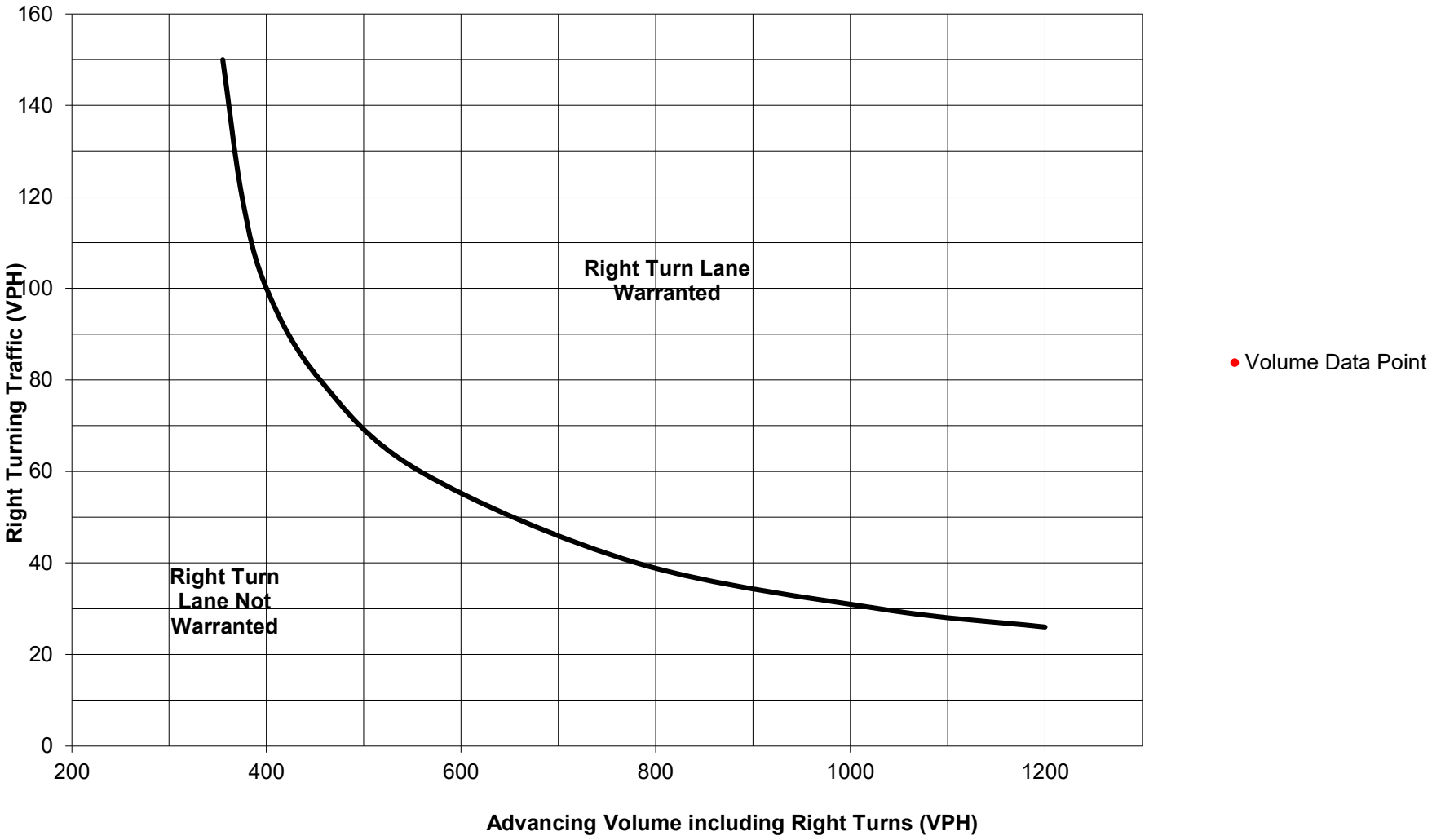
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	23	27.0%	33
	Right	Yes	14	0.0%	14
Opposing	Left	Yes	4	0.0%	4
	Through	-	36	9.0%	41
	Right	Yes	49	2.0%	51

Advancing Volume:	48
Opposing Volume:	96
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.08%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

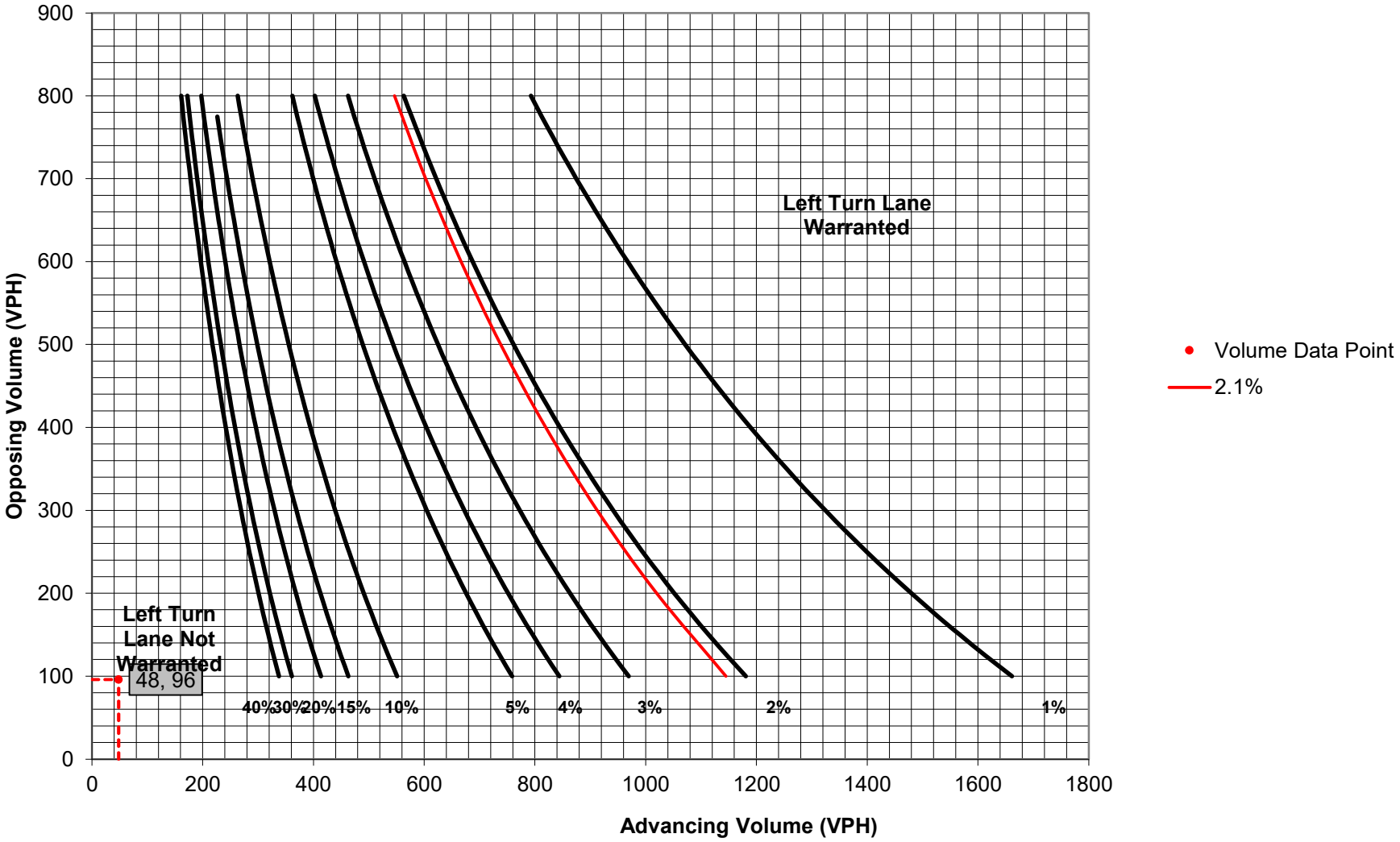
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	23	27.0%	33
	Right	-	14	0.0%	14

Advancing Volume:	48
Right Turn Volume:	14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

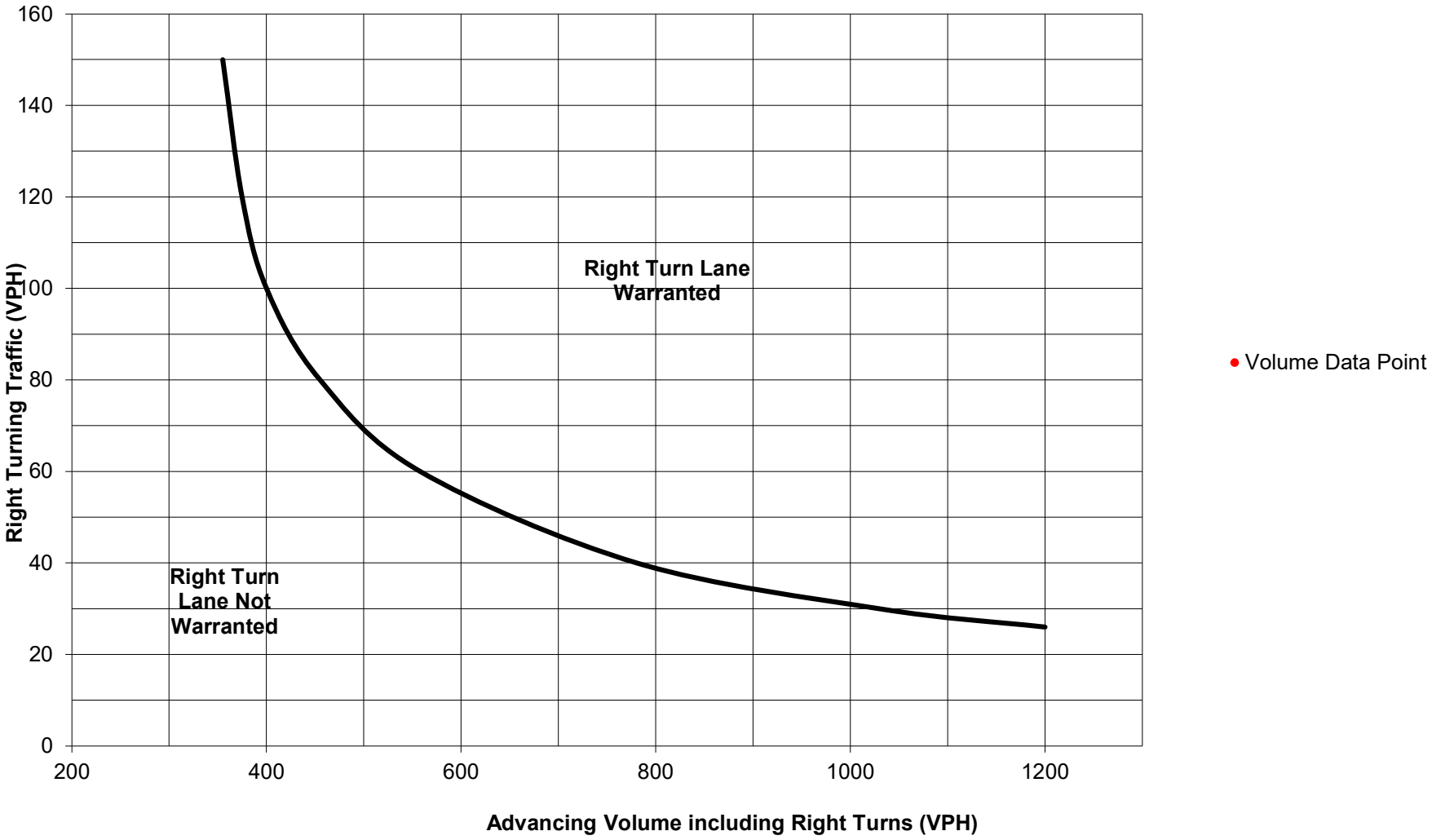
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	36	9.0%	41
	Right	Yes	49	2.0%	51
Opposing	Left	Yes	1	0.0%	1
	Through	-	23	27.0%	33
	Right	Yes	14	0.0%	14

Advancing Volume:	96
Opposing Volume:	48
Left Turn Volume:	4
% Left Turns in Advancing Volume:	4.17%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

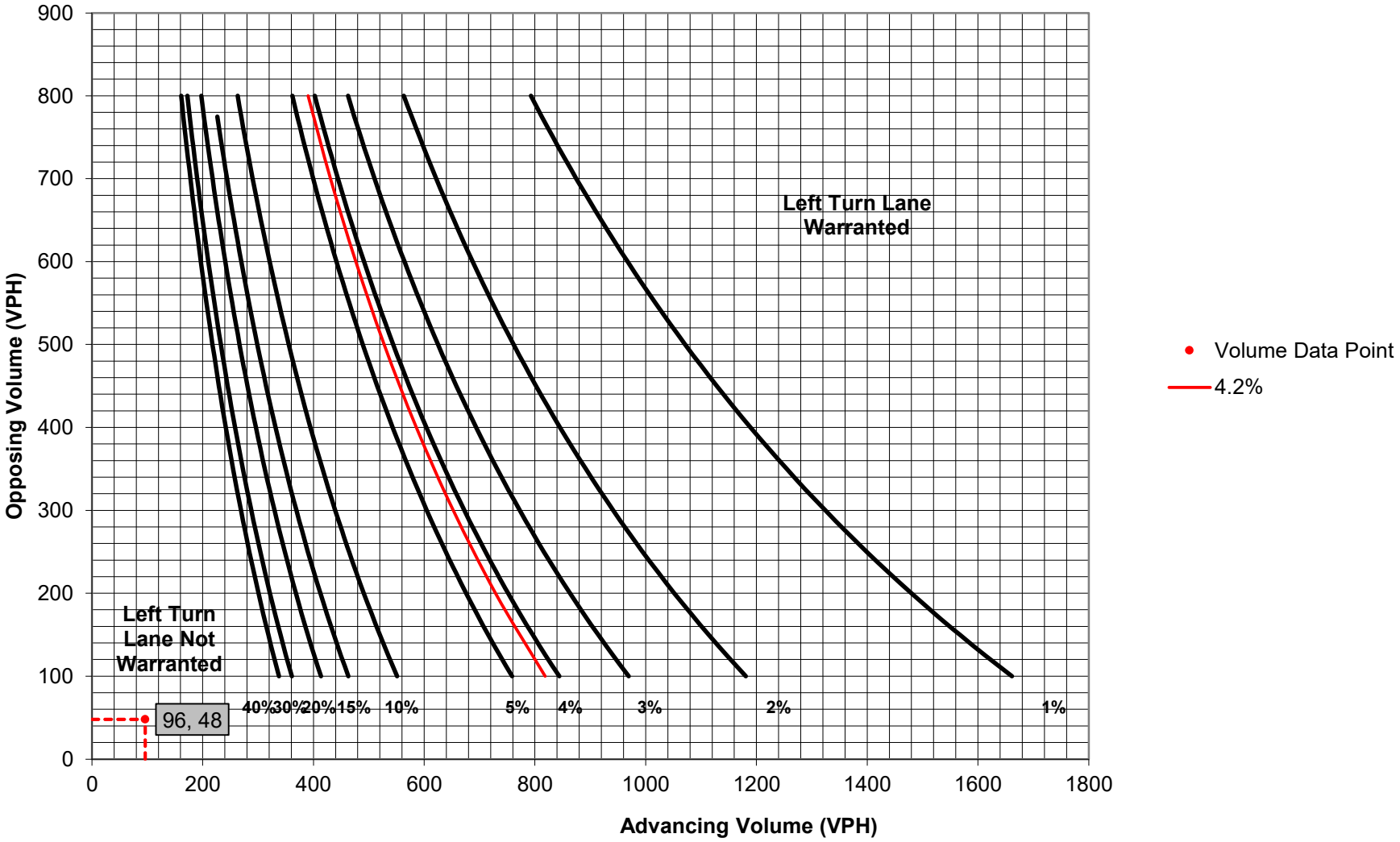
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	0.0%	4
	Through	-	36	9.0%	41
	Right	-	49	2.0%	51

Advancing Volume:	96
Right Turn Volume:	51

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	51
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

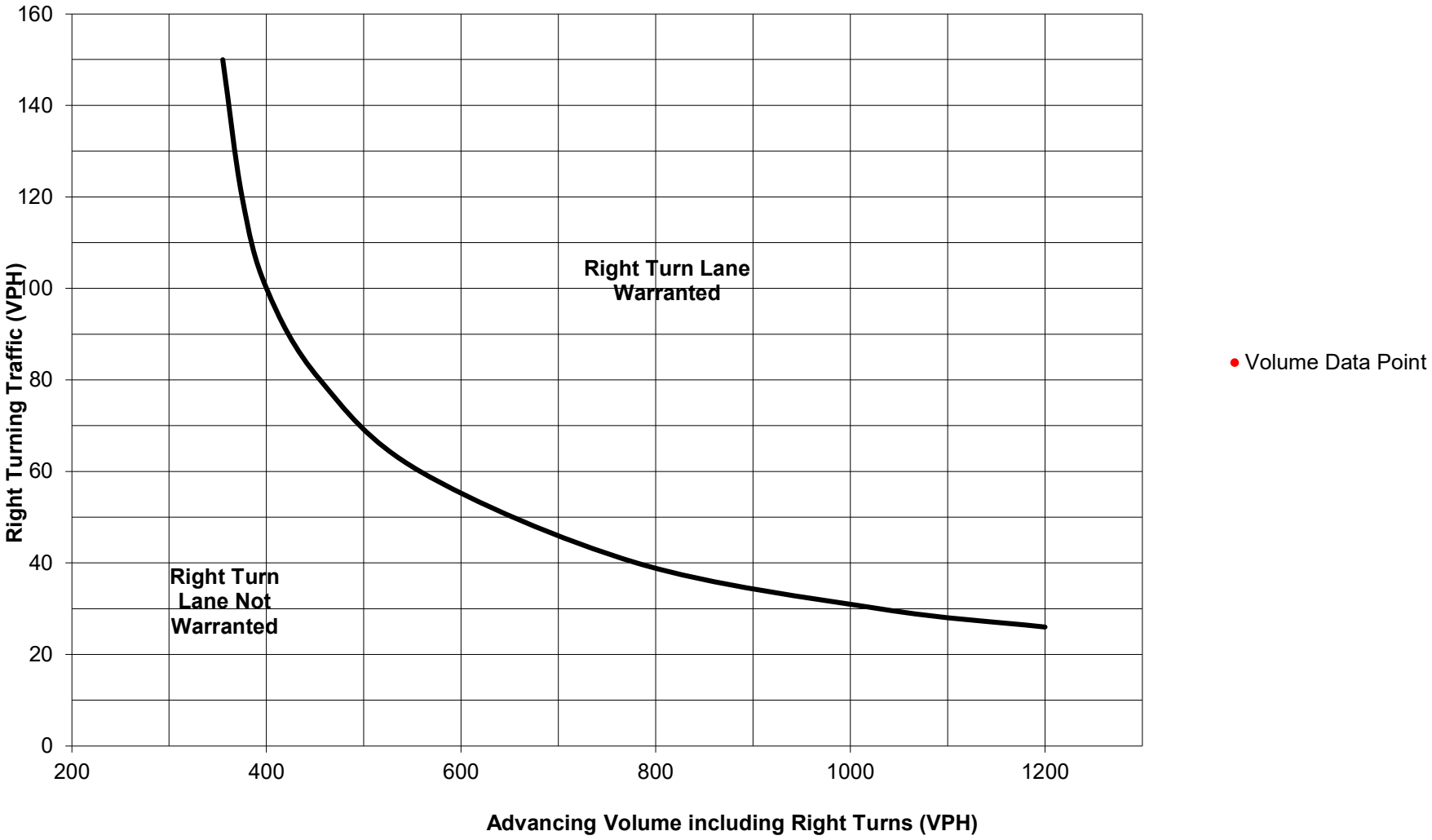
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	Yes	8	0.0%	8
Opposing	Left	Yes	72	2.0%	75
	Through	-	9	2.0%	10
	Right	Yes	2	0.0%	2

Advancing Volume:	24
Opposing Volume:	87
Left Turn Volume:	12
% Left Turns in Advancing Volume:	50.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: No

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

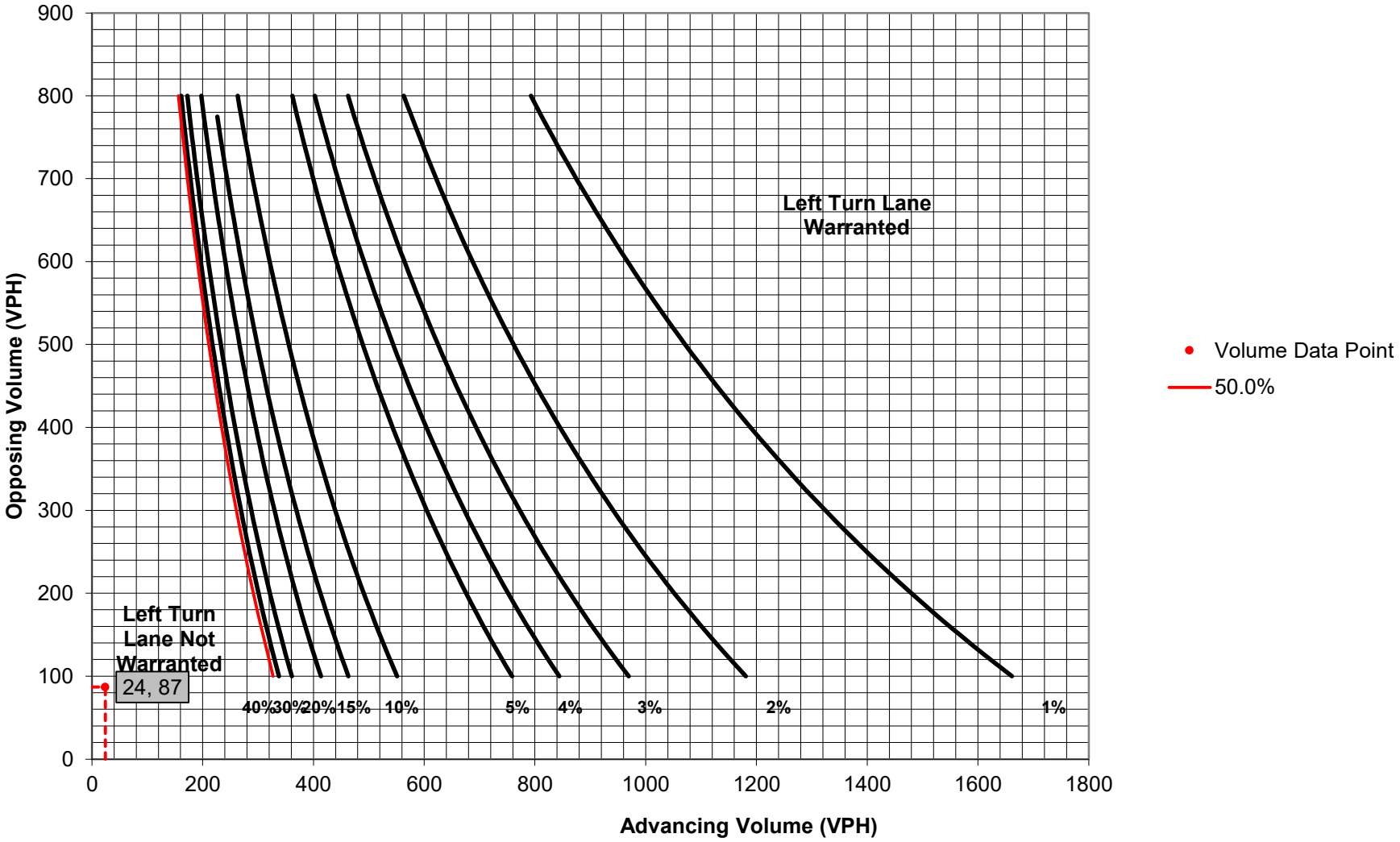
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Industrial Park Rd & Loop Rd
Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	4	0.0%	4
	Right	-	8	0.0%	8

Advancing Volume:	24
Right Turn Volume:	8

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

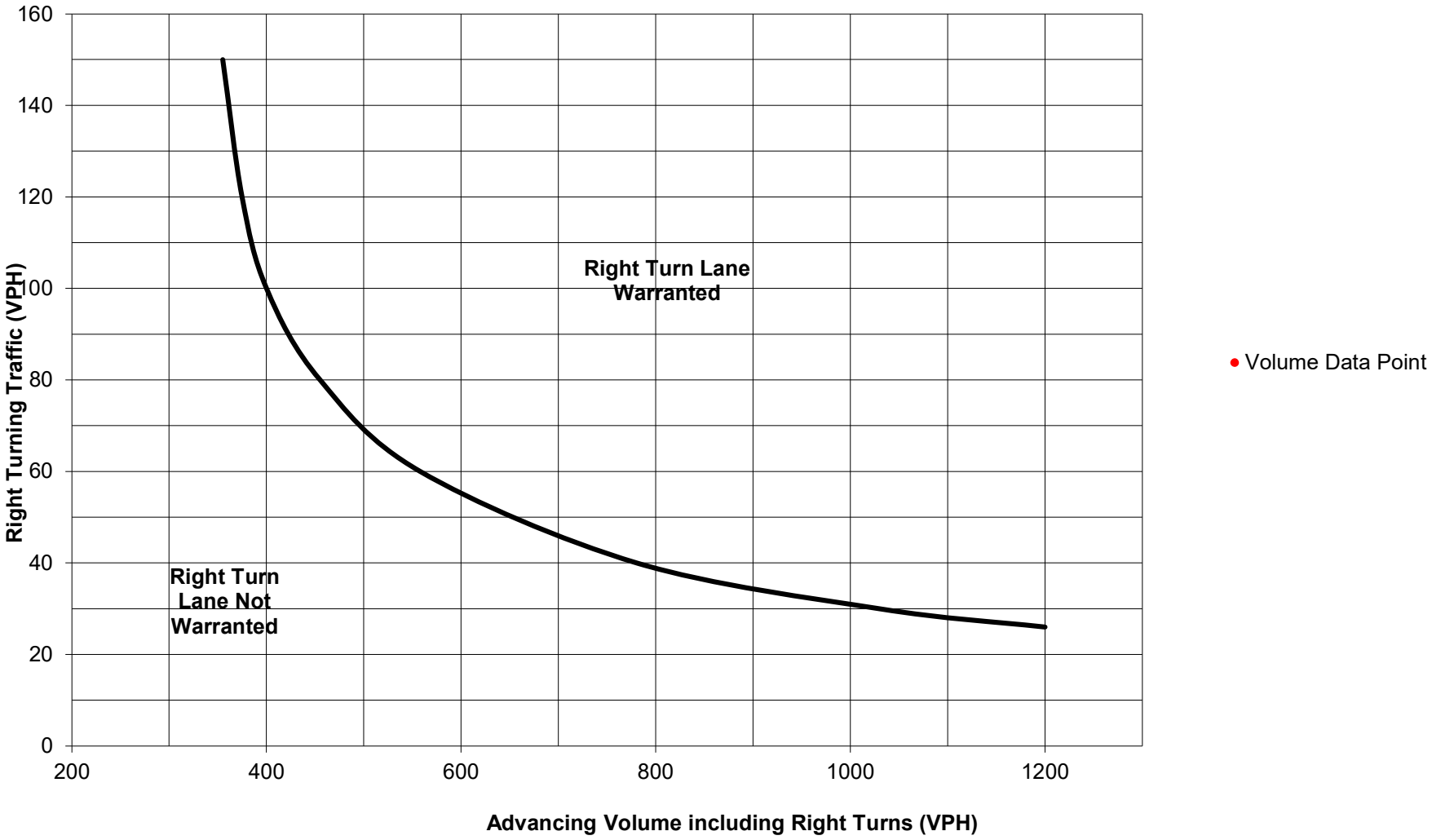
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	379	3.0%	397
	Right	-	6	0.0%	6

Advancing Volume: 403
Right Turn Volume: 6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

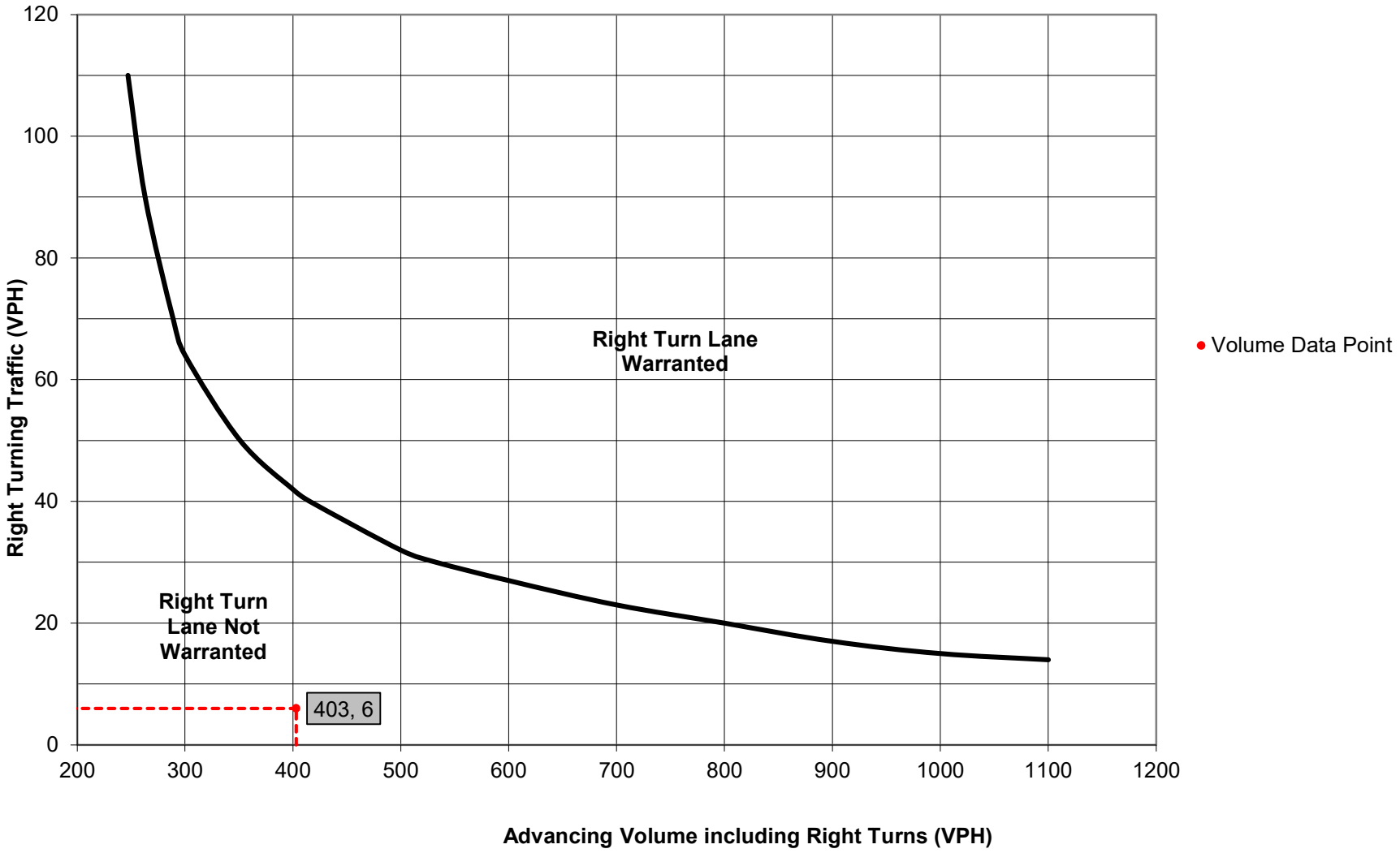
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	Yes	61	0.0%	61
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	67
Opposing Volume:	0
Left Turn Volume:	6
% Left Turns in Advancing Volume:	8.96%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

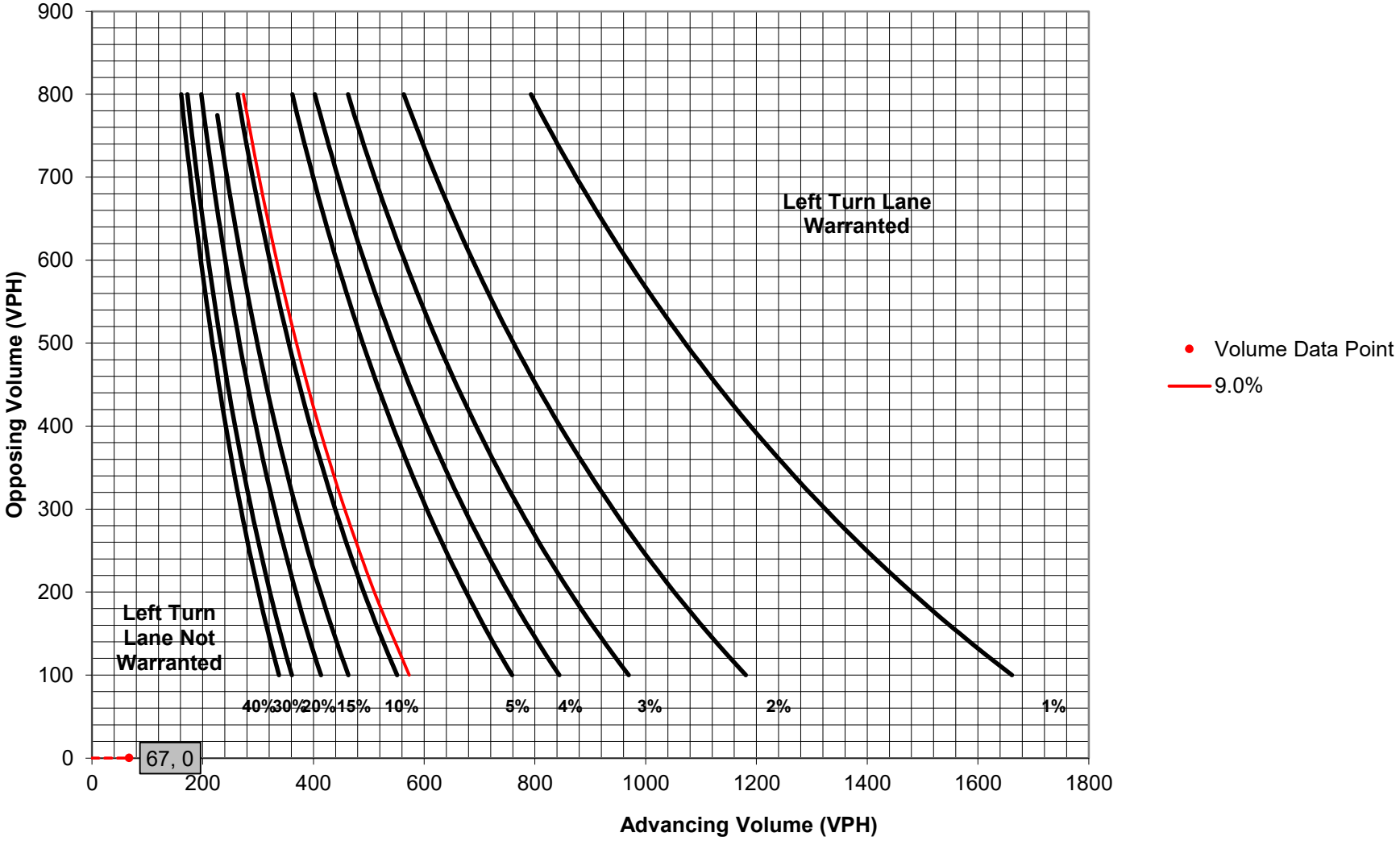
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd — Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	6	0.0%	6
	Through	-	0	0.0%	0
	Right	-	61	0.0%	61

Advancing Volume: 67
Right Turn Volume: 61

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	61
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

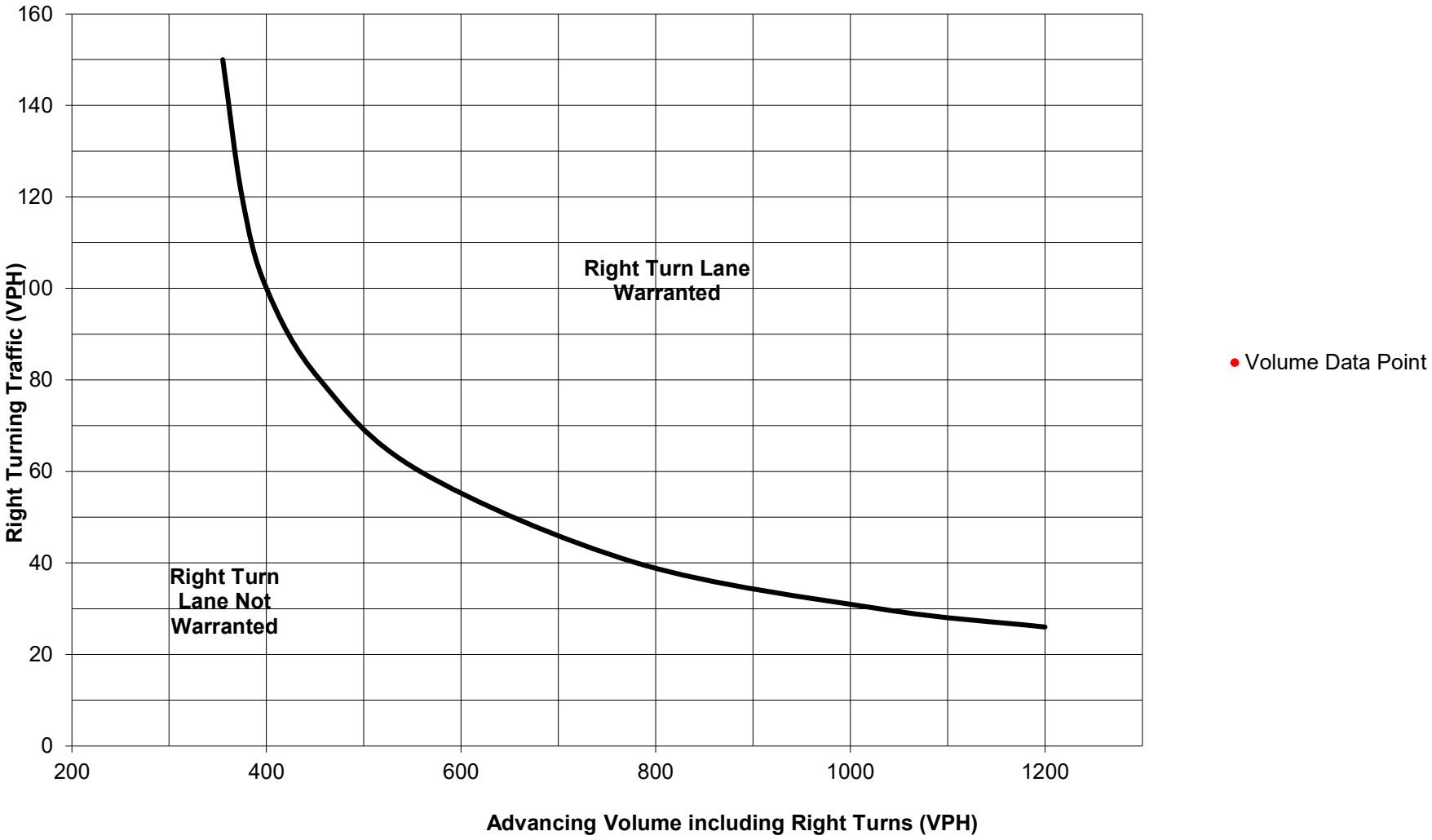
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	36	3.0%	38
	Through	-	395	2.0%	407
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	379	3.0%	397
	Right	Yes	6	0.0%	6

Advancing Volume:	445
Opposing Volume:	403
Left Turn Volume:	38
% Left Turns in Advancing Volume:	8.54%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

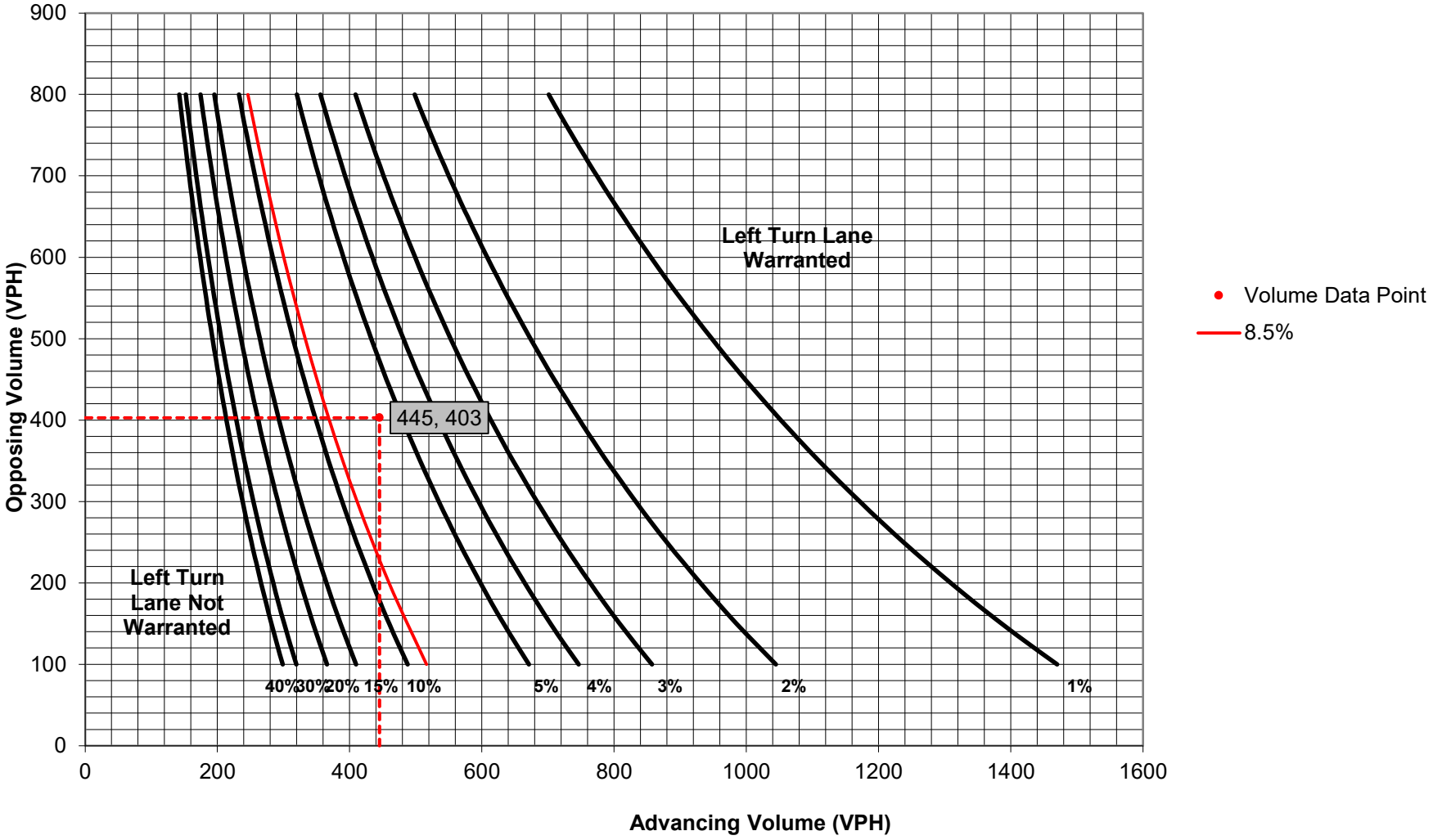
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	478	2.0%	493
	Right	-	17	0.0%	17

Advancing Volume: 510
Right Turn Volume: 17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

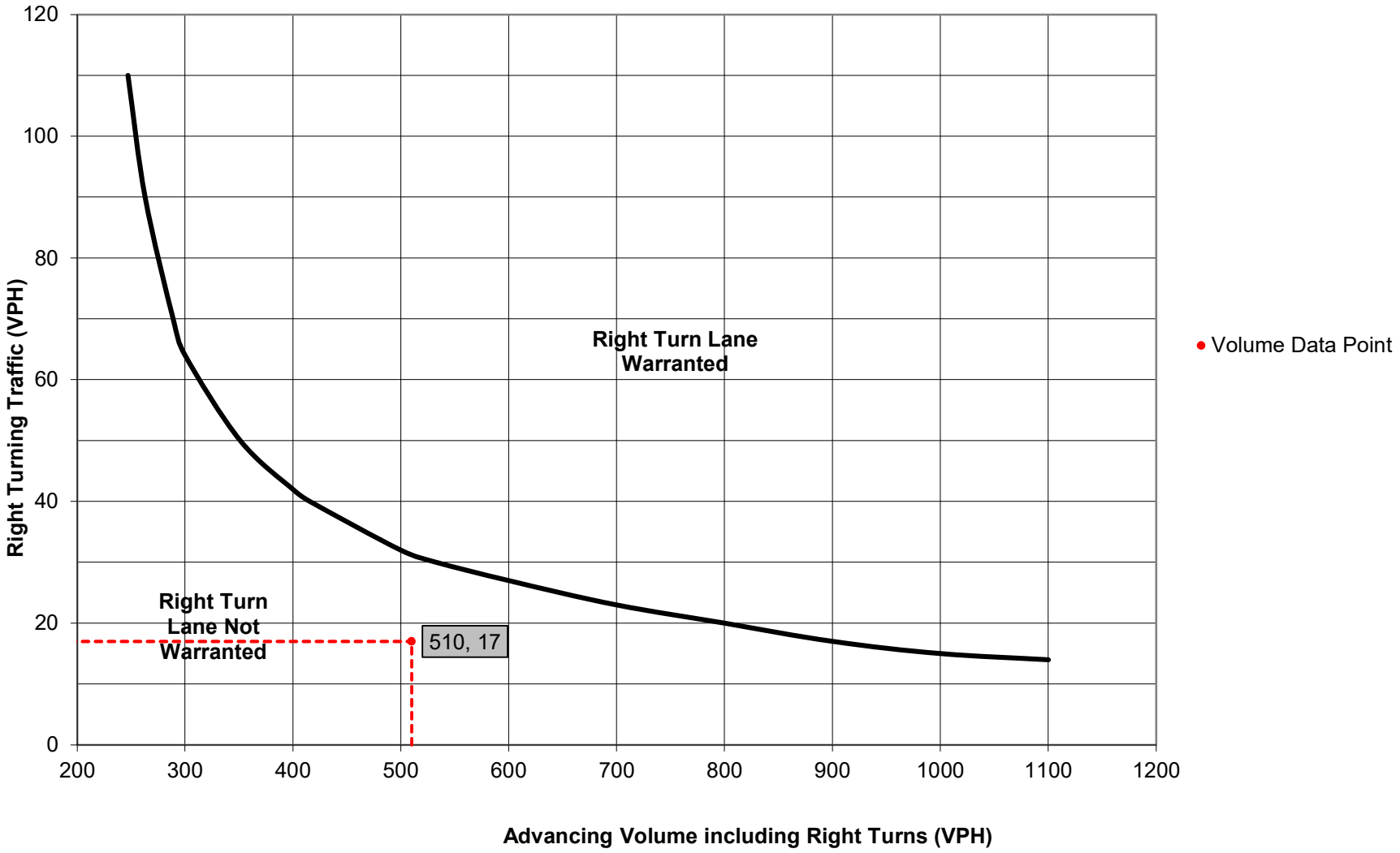
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	Yes	48	0.0%	48
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	49
Opposing Volume:	0
Left Turn Volume:	1
% Left Turns in Advancing Volume:	2.04%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	1
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

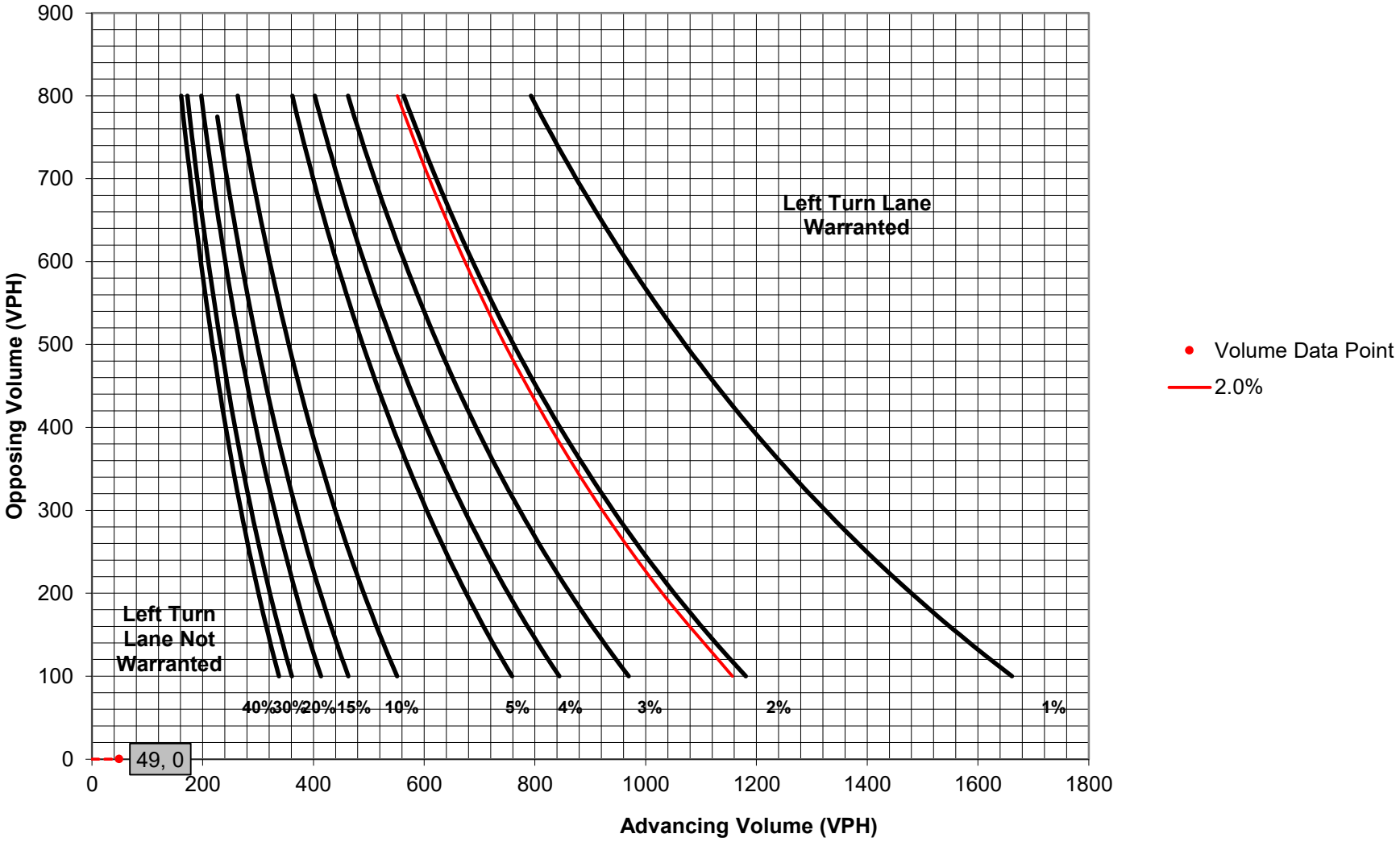
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	1	0.0%	1
	Through	-	0	0.0%	0
	Right	-	48	0.0%	48

Advancing Volume: 49
Right Turn Volume: 48

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	48
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

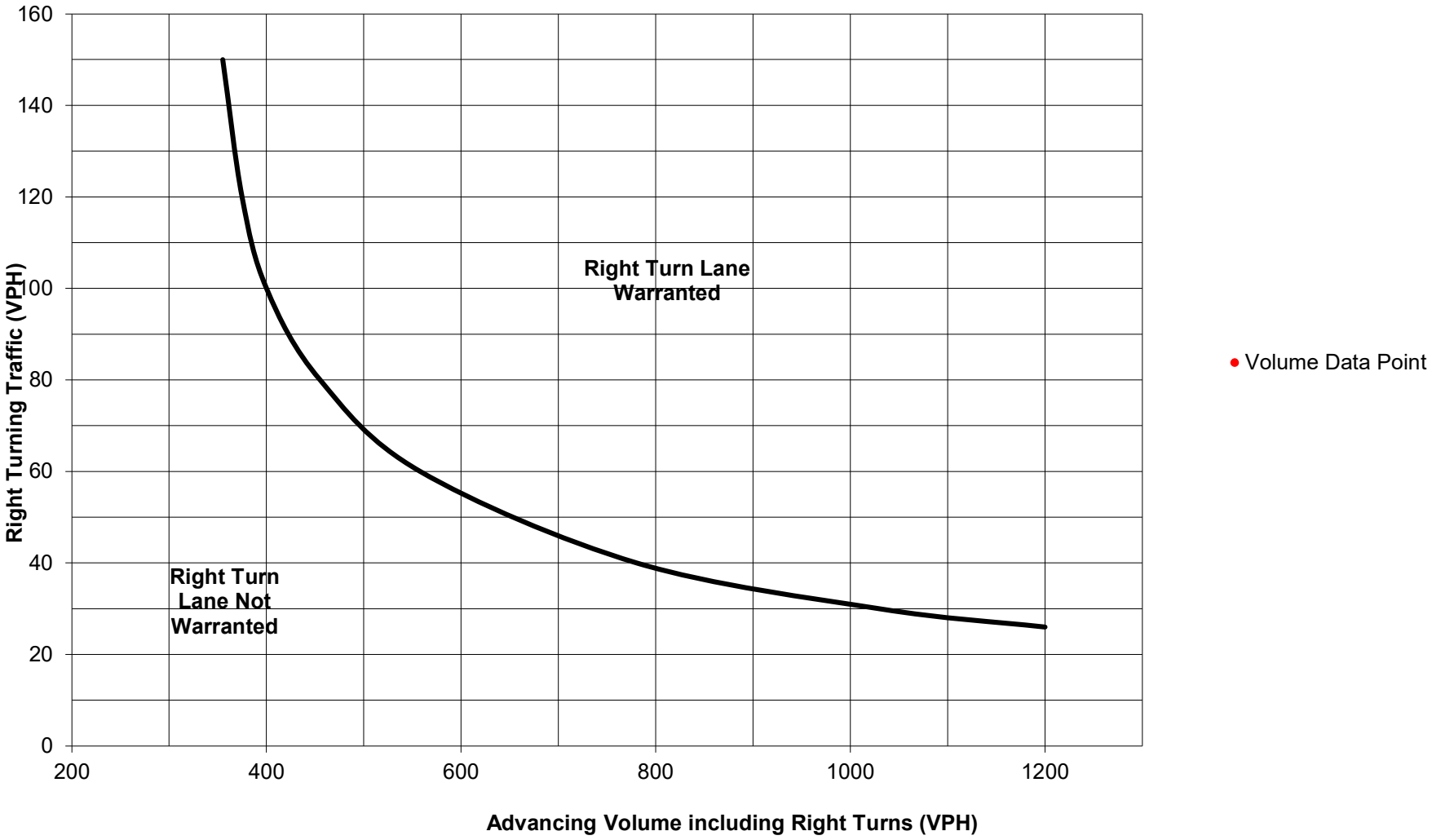
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Business 22 & Loop Rd / Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	53	0.0%	53
	Through	-	514	2.0%	530
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	478	2.0%	493
	Right	Yes	17	0.0%	17

Advancing Volume:	583
Opposing Volume:	510
Left Turn Volume:	53
% Left Turns in Advancing Volume:	9.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 3

Warrant Met?: Yes

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	53
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

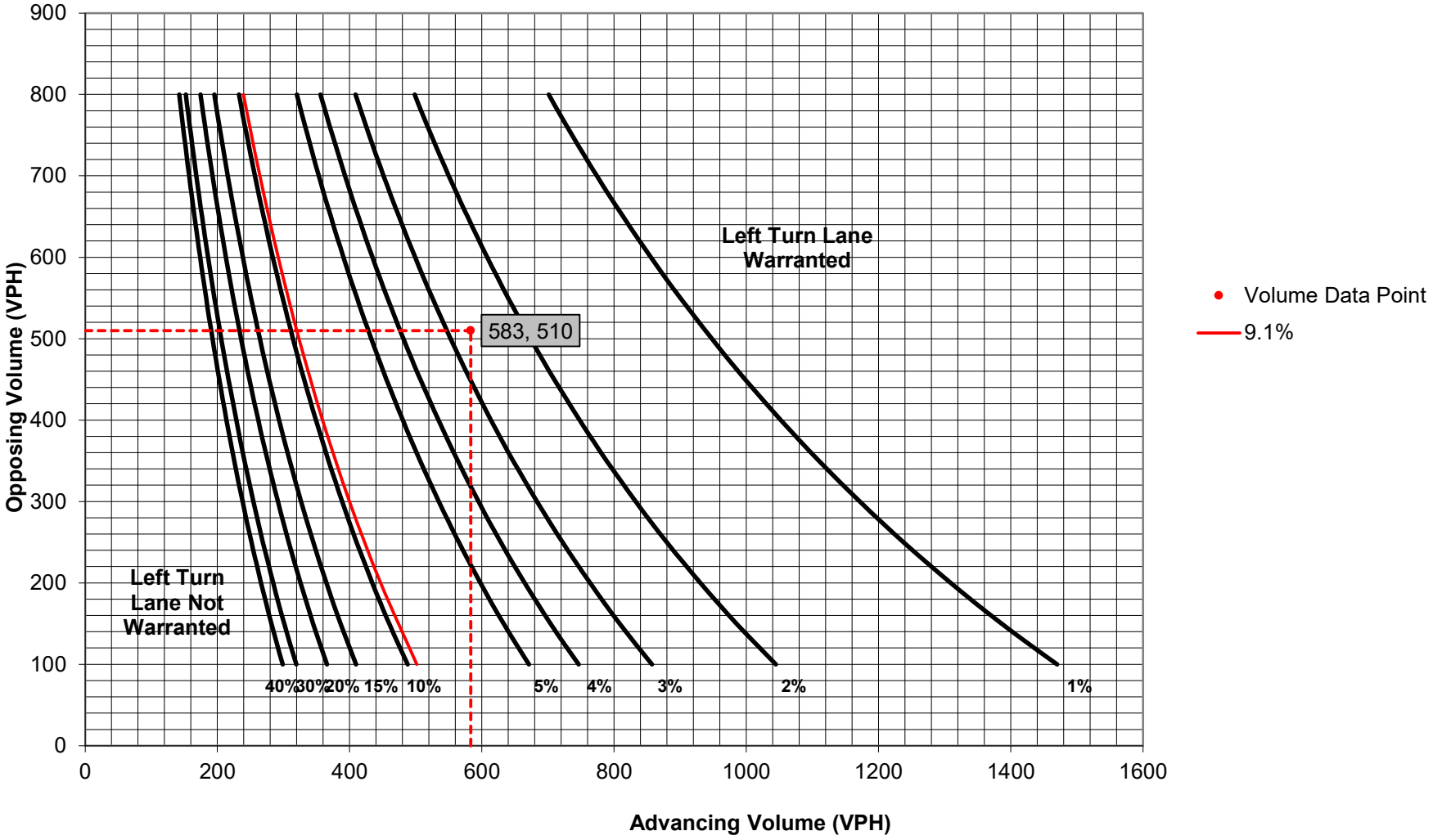
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	125	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	20	0.0%	20
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	13	0.0%	13
	Right	Yes	82	2.0%	85

Advancing Volume:	20
Opposing Volume:	98
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

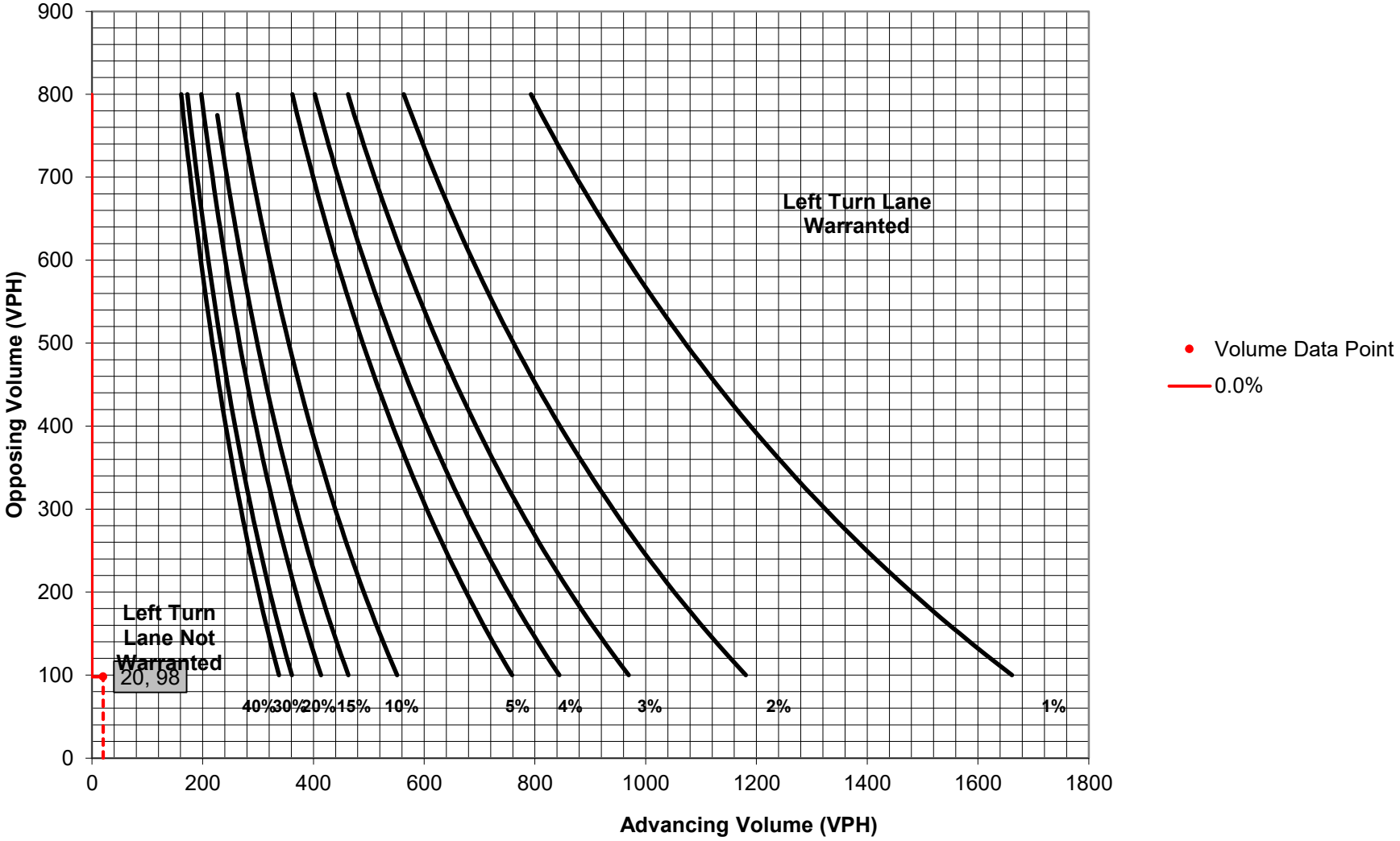
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	2.0%	29
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	29
Opposing Volume:	0
Left Turn Volume:	29
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	29
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

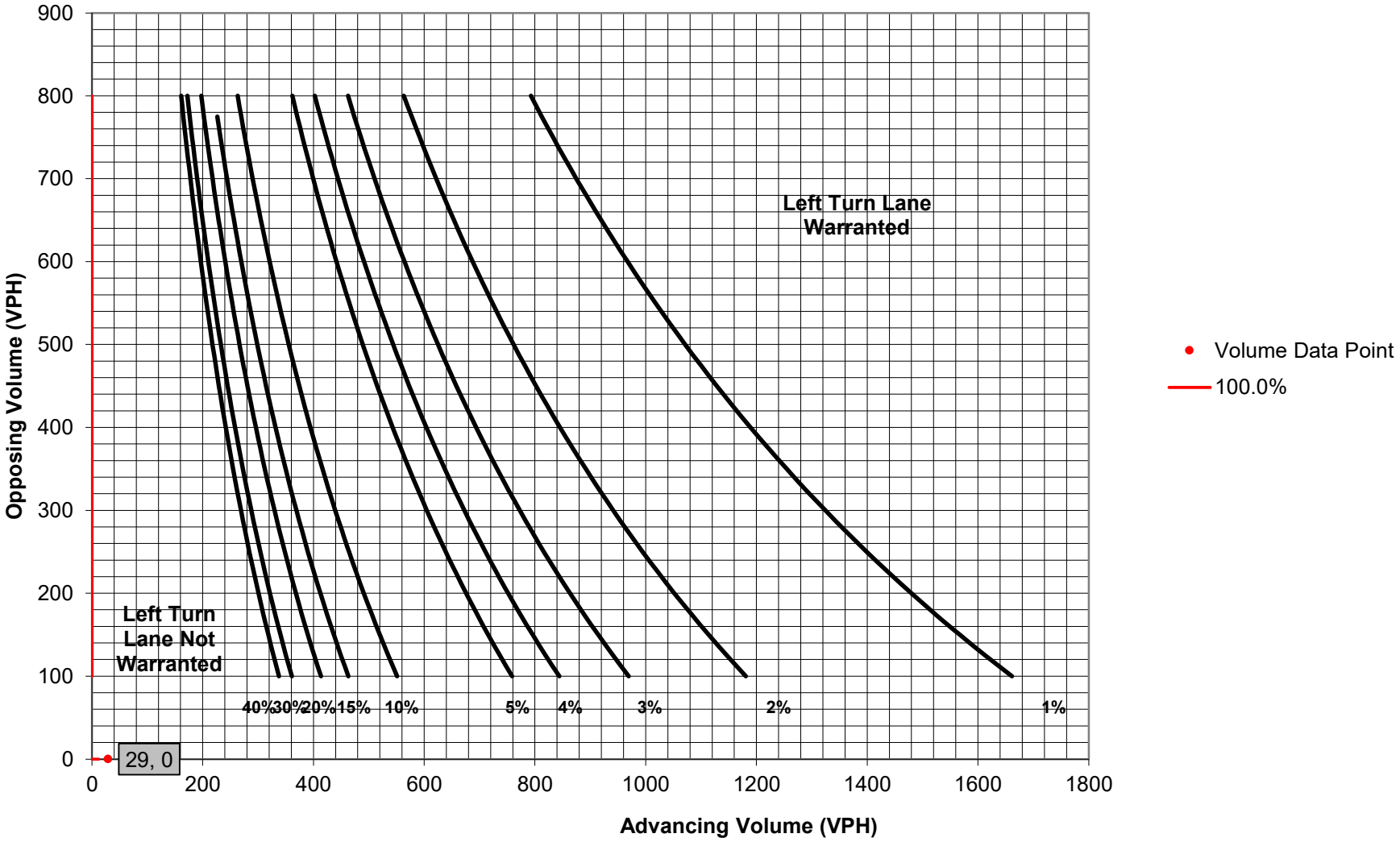
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	28	2.0%	29
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 29
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

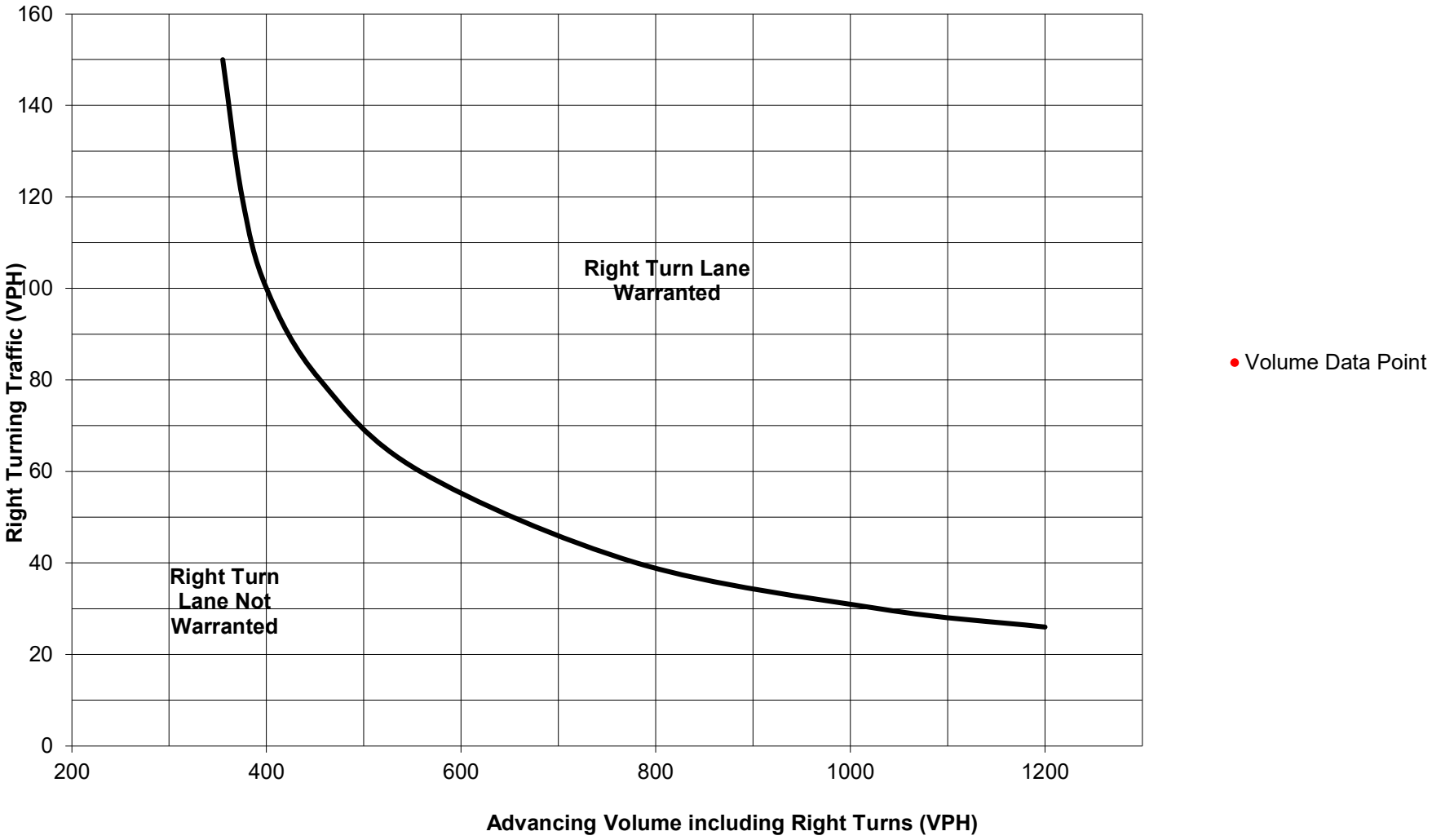
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	13	0.0%	13
	Right	-	82	2.0%	85

Advancing Volume: 98
Right Turn Volume: 85

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	85
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

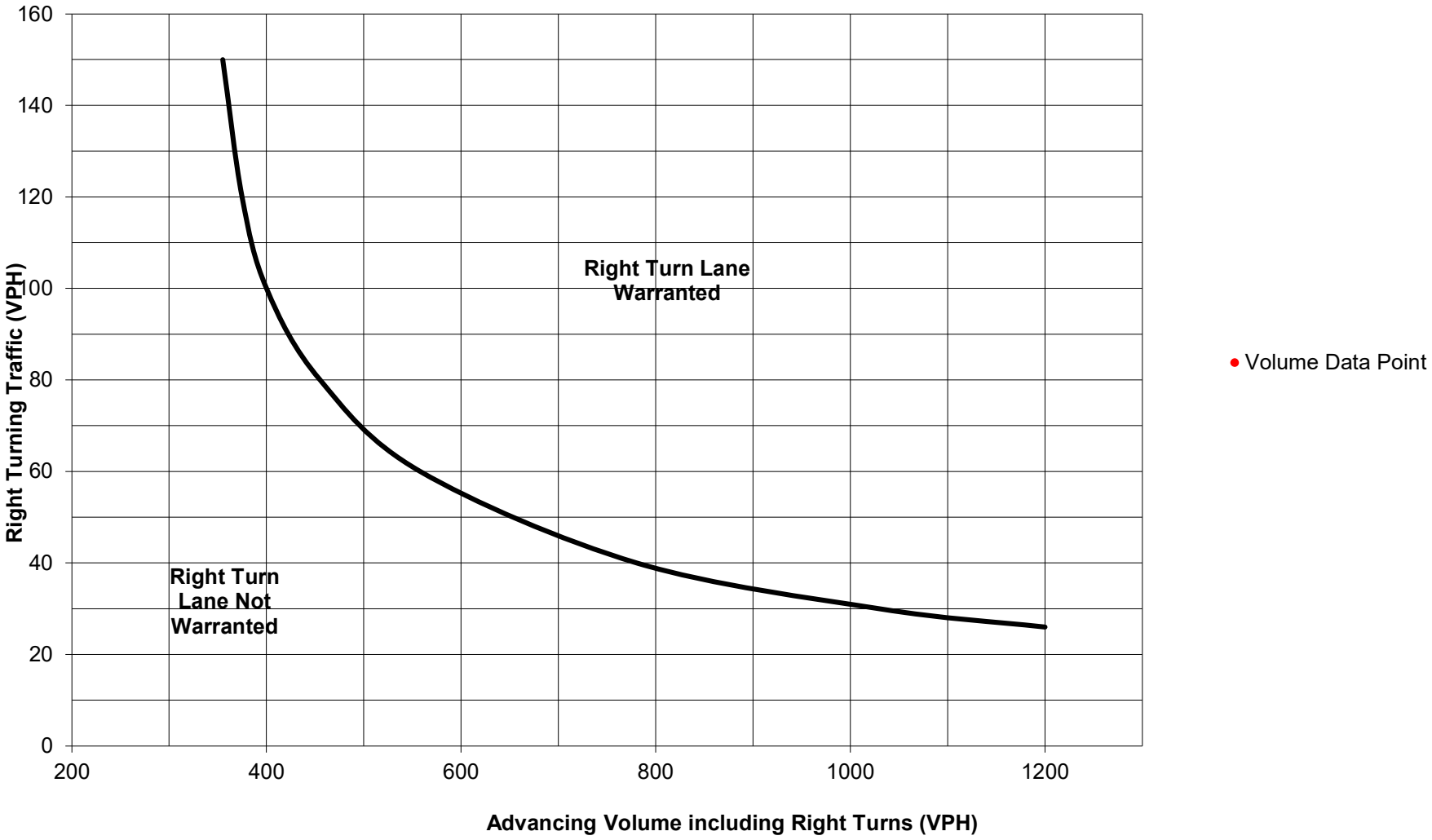
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Eastbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	20	0.0%	20
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	20	0.0%	20
	Right	Yes	34	2.0%	36

Advancing Volume:	20
Opposing Volume:	56
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

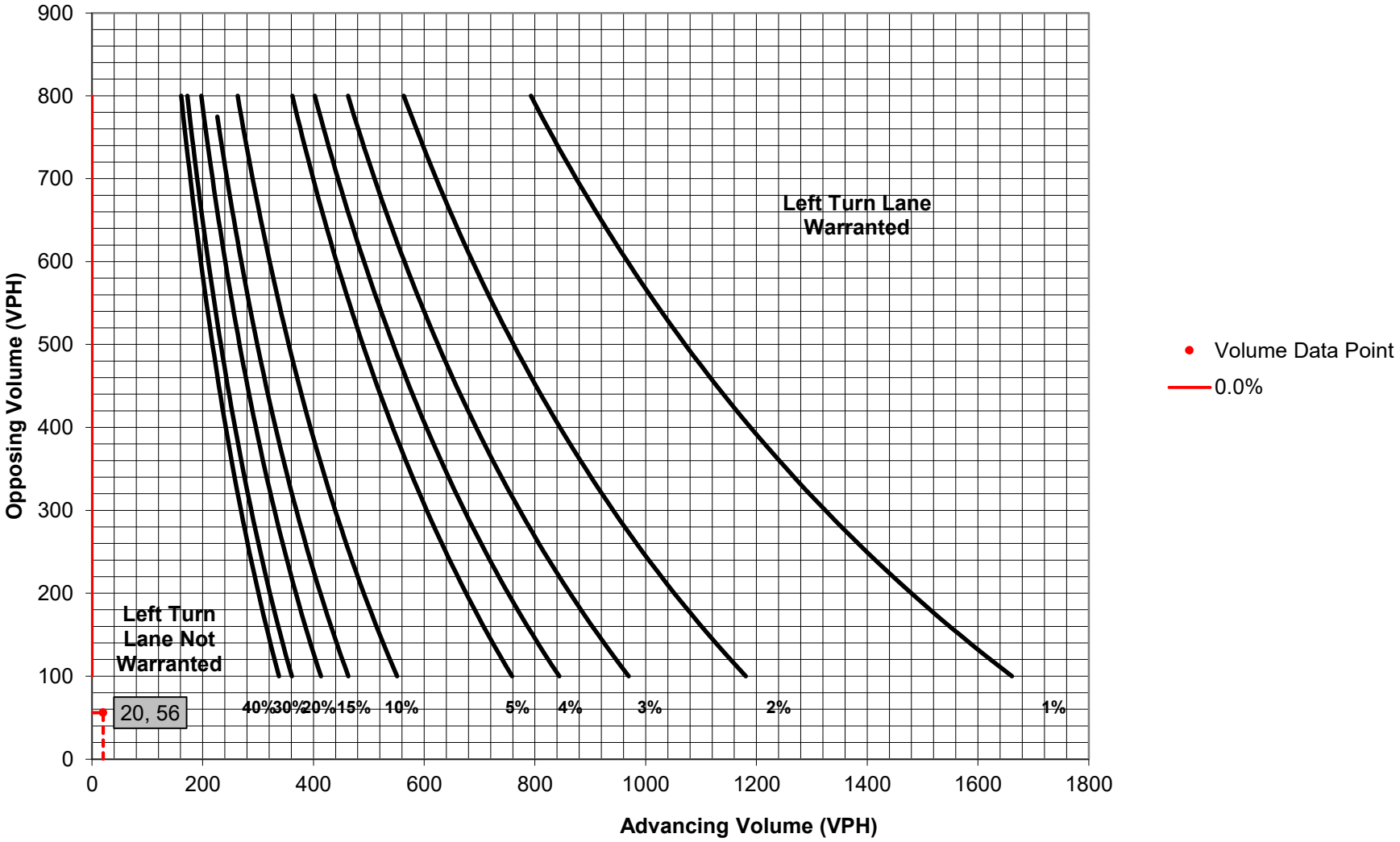
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	64	2.0%	66
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	66
Opposing Volume:	0
Left Turn Volume:	66
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	66
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

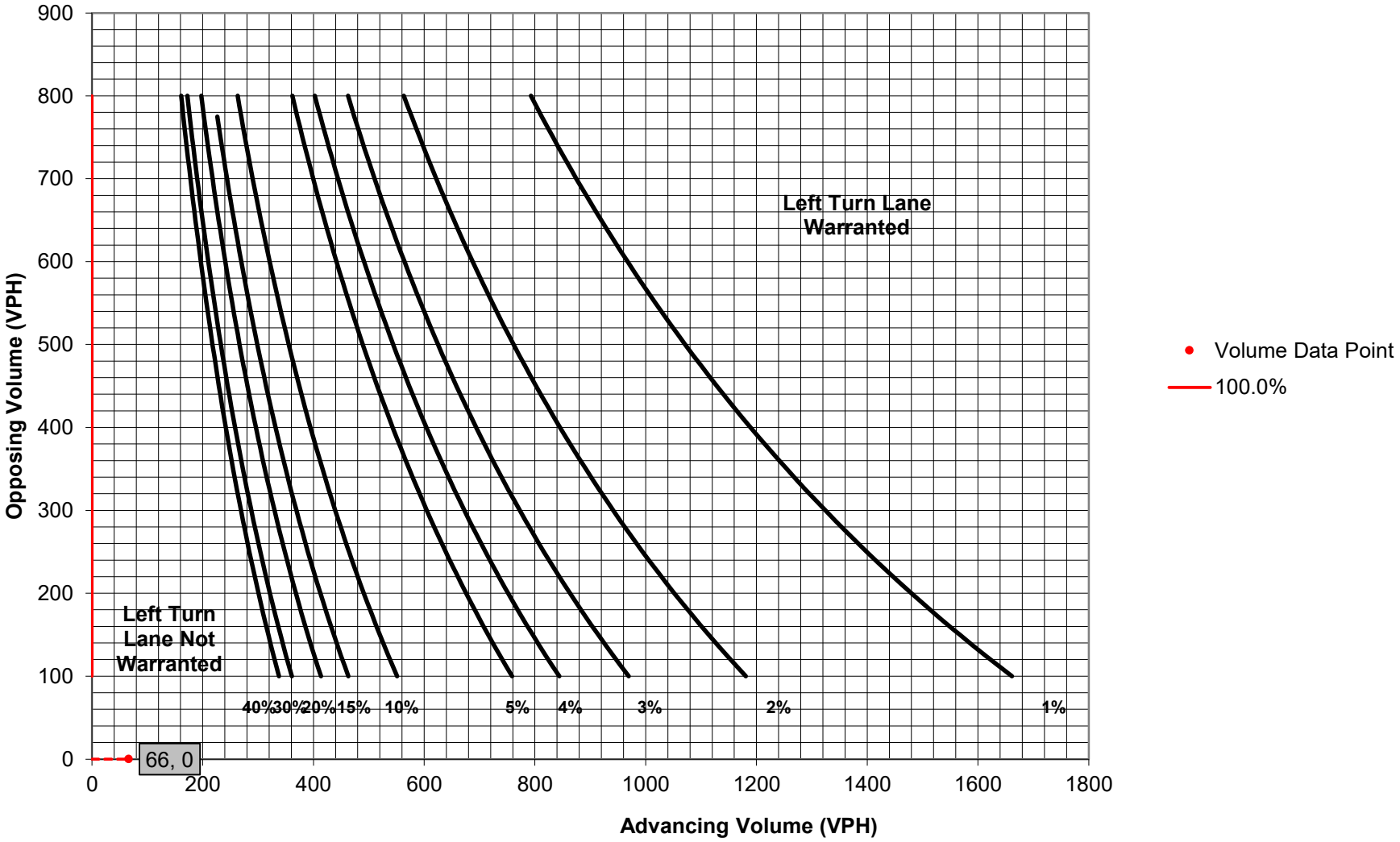
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Southbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	64	2.0%	66
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 66
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

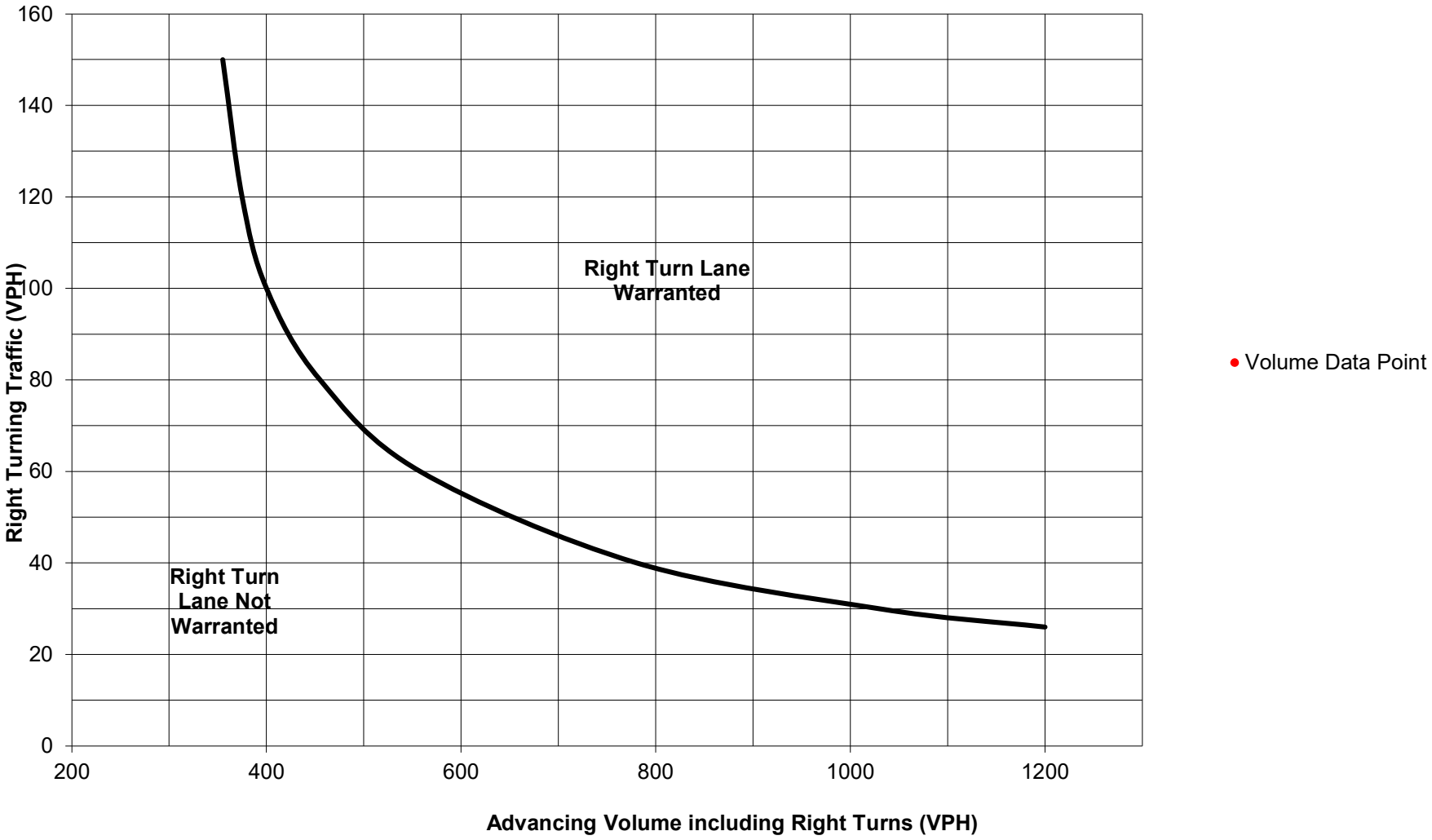
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Loop Rd & Eastern Site Access / Westbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	20	0.0%	20
	Right	-	34	2.0%	36

Advancing Volume:	56
Right Turn Volume:	36

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

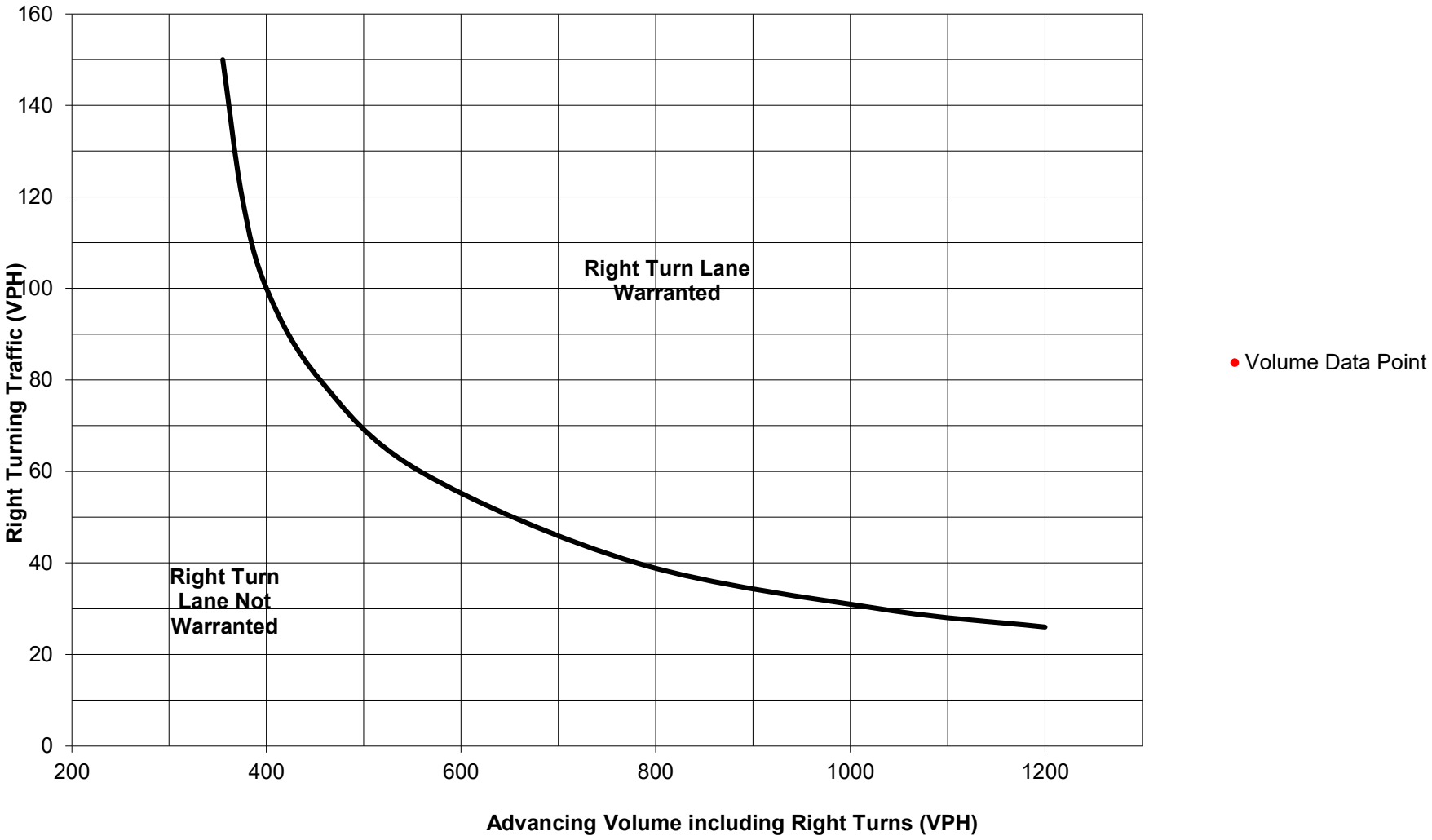
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	22	0.0%	22
	Right	-	21	2.0%	22

Advancing Volume: 44
Right Turn Volume: 22

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

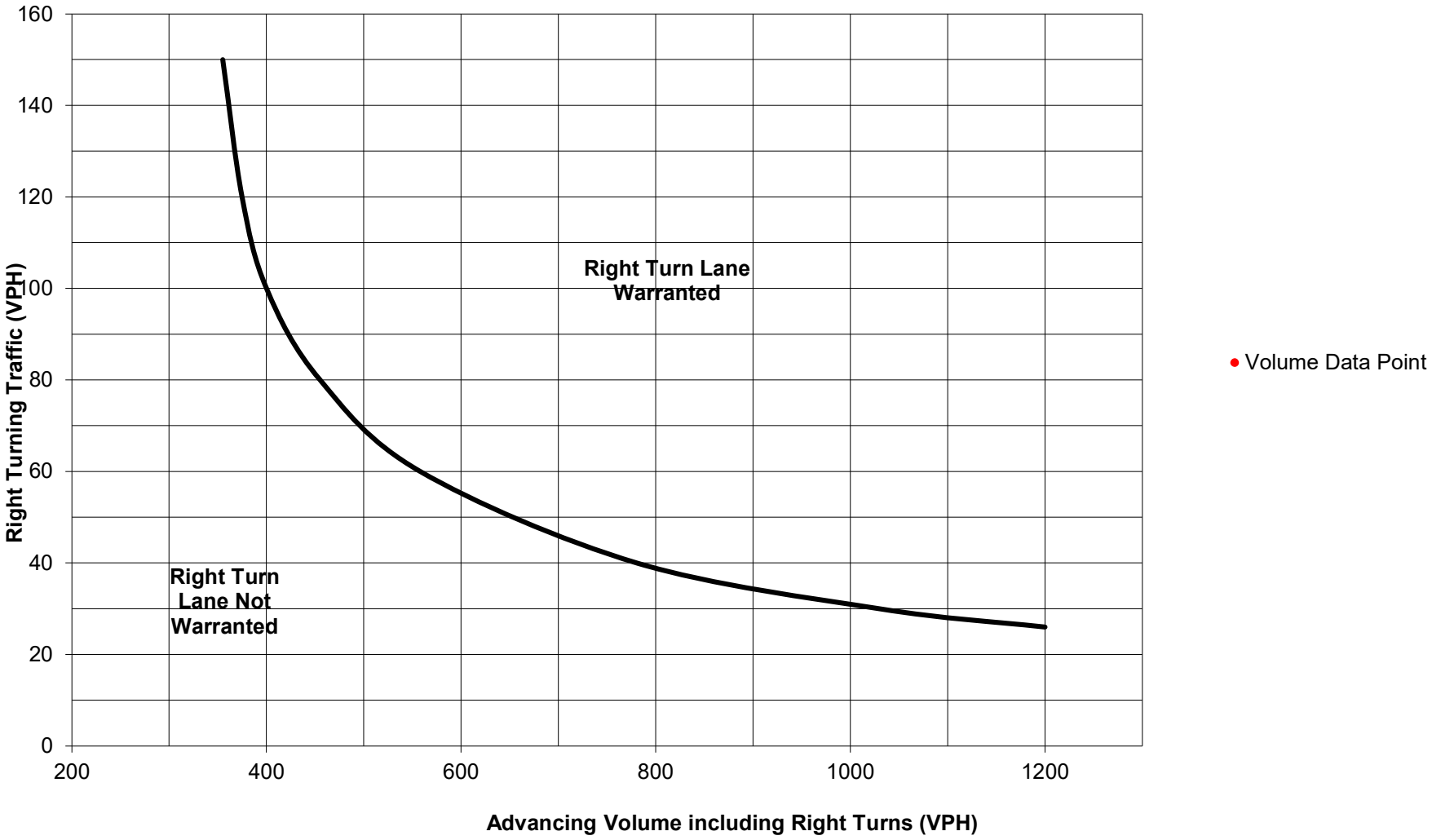
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	2.0%	8
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	8
Opposing Volume:	0
Left Turn Volume:	8
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

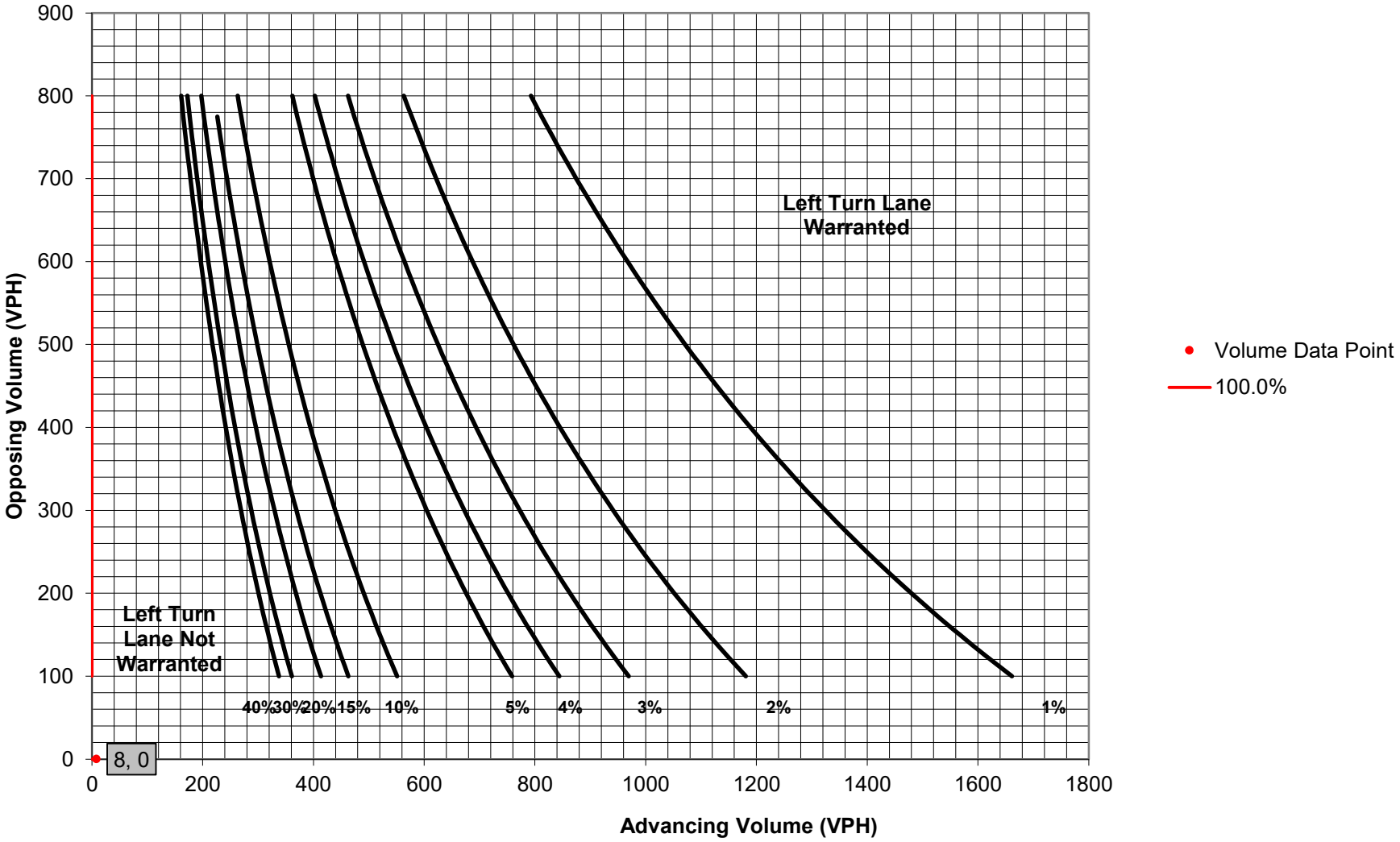
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	7	2.0%	8
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 8
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

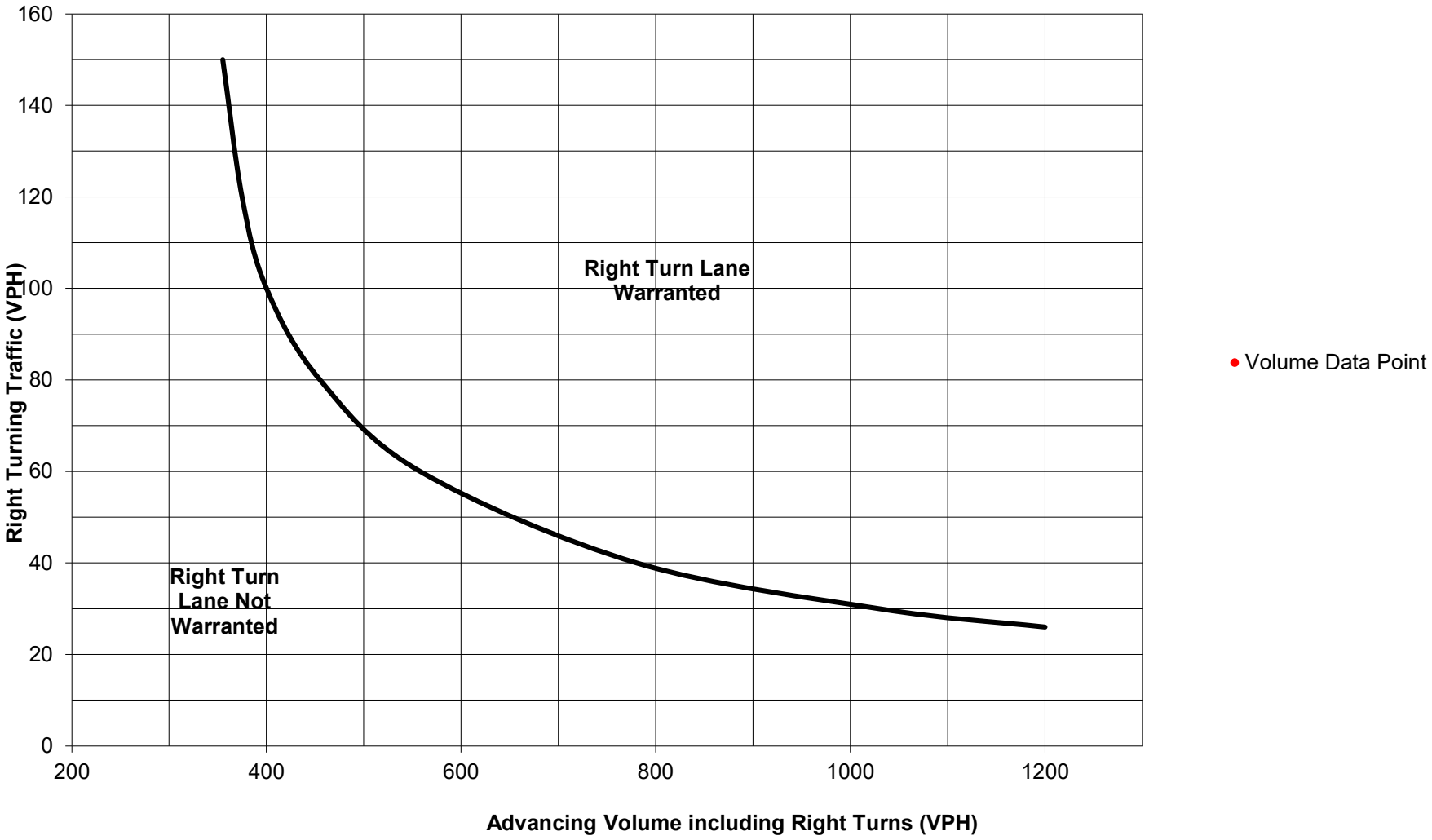
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	21	15.0%	26
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	22	0.0%	22
	Right	Yes	21	2.0%	22

Advancing Volume:	26
Opposing Volume:	44
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

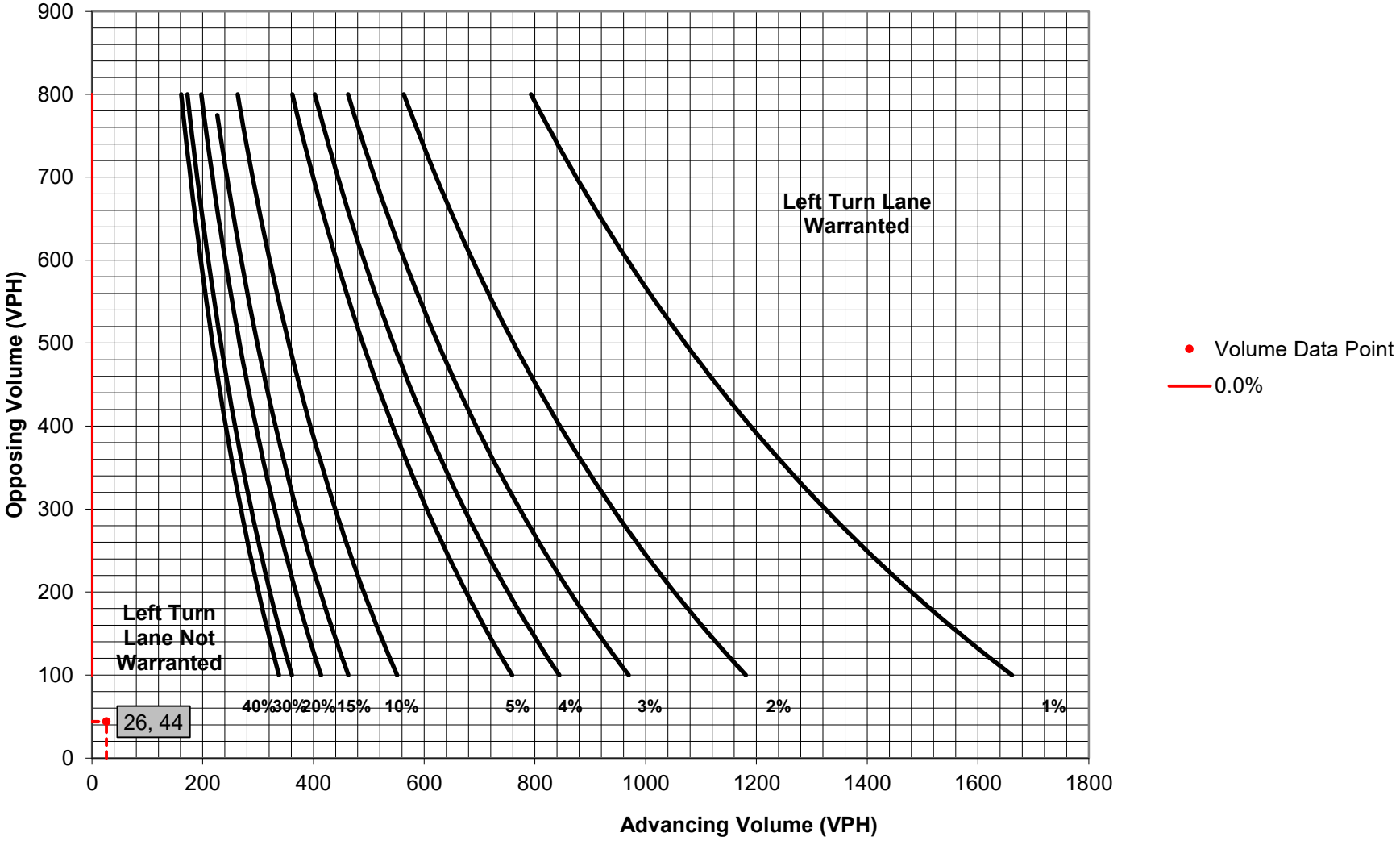
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Eastbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	24	0.0%	24
	Right	-	9	2.0%	10

Advancing Volume:	34
Right Turn Volume:	10

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

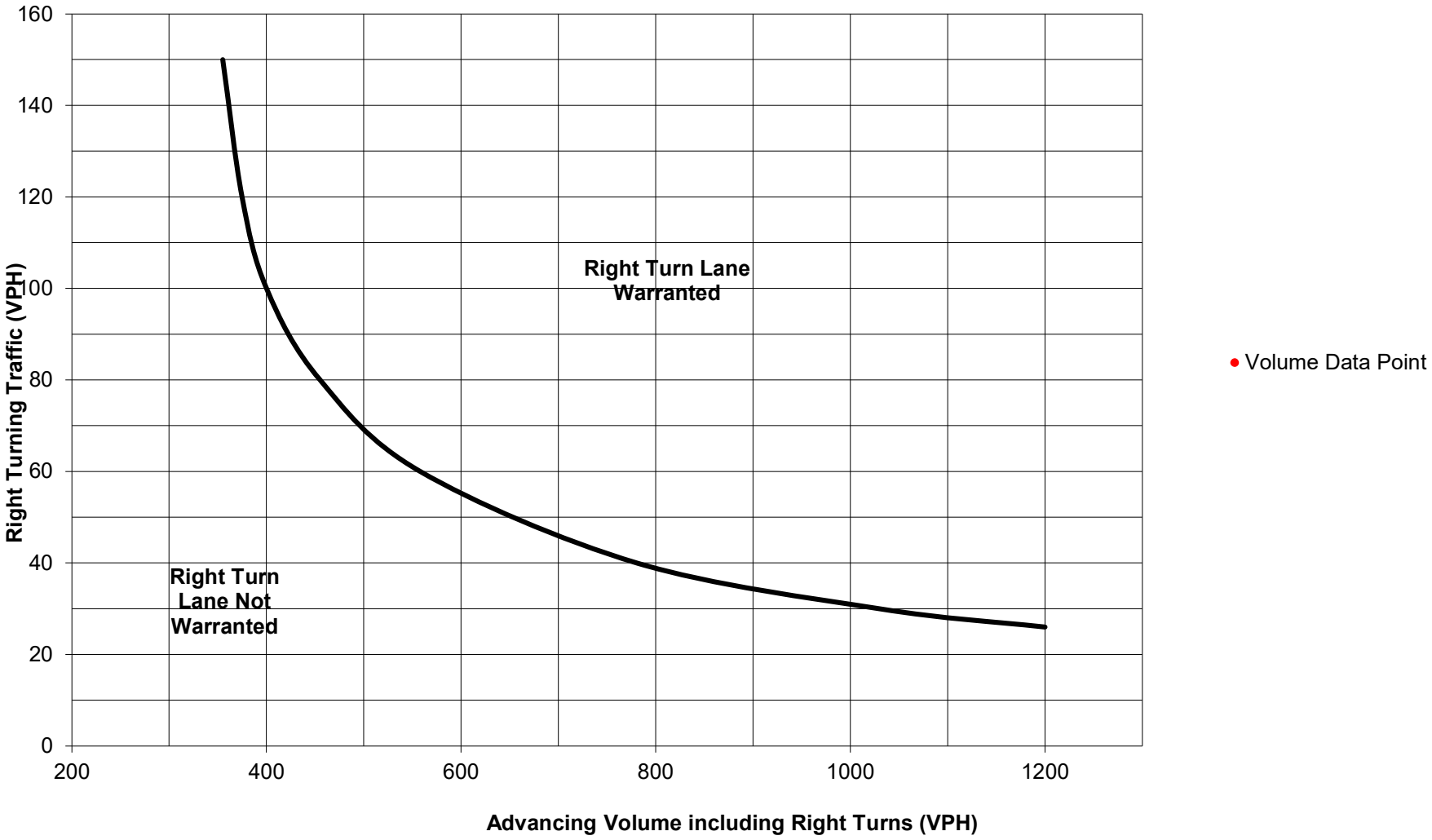
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	0	0.0%	0
	Right	Yes	0	0.0%	0
Opposing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	0
	Right	No	0	0.0%	N/A

Advancing Volume:	17
Opposing Volume:	0
Left Turn Volume:	17
% Left Turns in Advancing Volume:	100.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

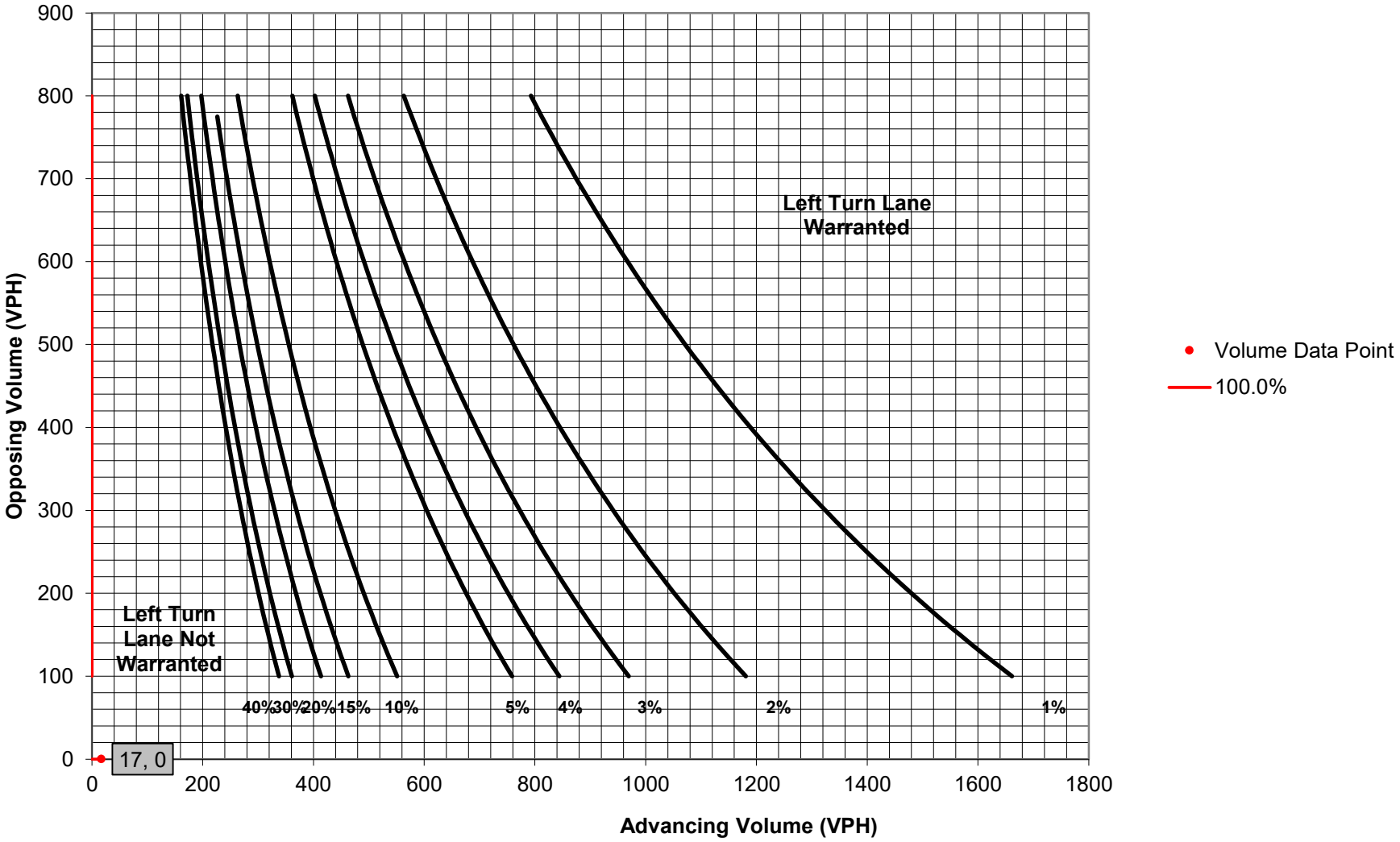
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access / Northbound Right Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	15	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	No			N/A
	Through	-			N/A
	Right	No			N/A

Advancing Volume: N/A
Opposing Volume: N/A
Left Turn Volume: N/A
% Left Turns in Advancing Volume: N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	16	2.0%	17
	Through	-	0	0.0%	0
	Right	-	0	0.0%	0

Advancing Volume: 17
Right Turn Volume: 0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A
Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9
Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

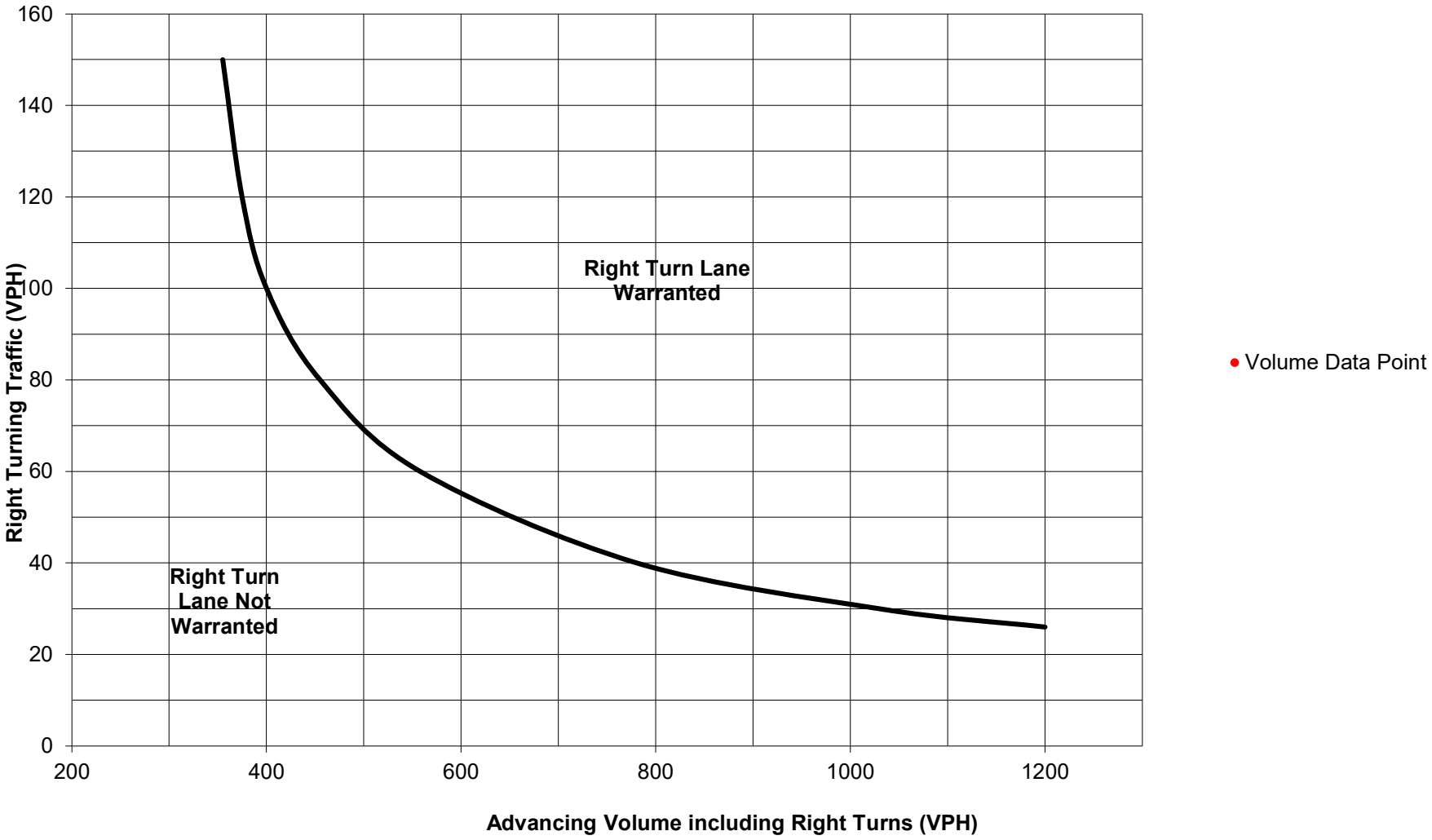
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Granville Township	**Analysis Date:**	6/22/2026
County:	MIFFLIN	**Conducted By:**	JBS
PennDOT Engineering District:	District 2	**Checked By:**	HRZ
		Agency/Company Name:	LIVIC Civil, LLC

Intersection & Approach Description: Middle Rd & Western Site Access
Westbound Left Turn

Analysis Period:	2037 (Build) - Weekend	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35	**Type of Analysis**	
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	27	4.0%	29
	Right	No	0	0.0%	N/A
Opposing	Left	No	0	0.0%	N/A
	Through	-	24	0.0%	24
	Right	Yes	9	2.0%	10

Advancing Volume:	29
Opposing Volume:	34
Left Turn Volume:	0
% Left Turns in Advancing Volume:	0.00%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 1

Warrant Met?: #DIV/0!

Right Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: #DIV/0!

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

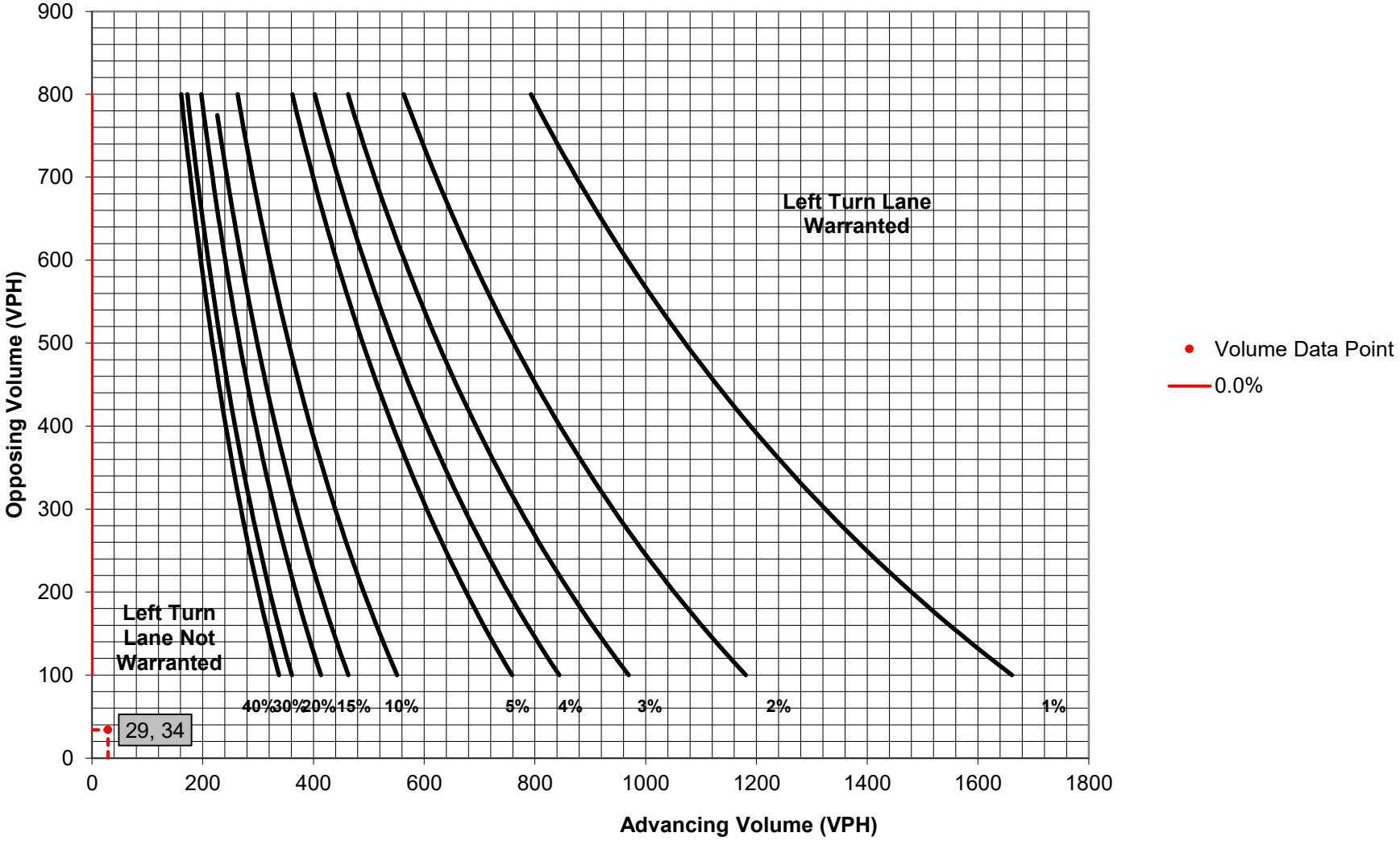
Left Turn Lane Storage Length, Condition A:	#DIV/0!	Feet
Condition B:	#DIV/0!	Feet
Condition C:	#DIV/0!	Feet
Required Left Turn Lane Storage Length:	#DIV/0!	Feet

Additional Findings: #DIV/0!

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Appendix P - Traffic Signal Permit Plans

TE-964 (1-05)

PENNDOT

TRAFFIC SIGNAL PERMIT

Permit No. 27-19

Sheet 1 of 2

In accordance with the Vehicle Code, the Secretary of Transportation hereby approves the installation and operation of a traffic signal at the intersection of S.R. 3002 and Industrial Park Road

in the Township of Granville, County of Mifflin

This permit is issued to, and accepted by the Township of Granville hereinafter known as the Permittee, as follows.

This installation shall be in accordance with the Vehicle Code and the Regulations for traffic signs, signals and markings of the Department of Transportation, and shall conform to the following requirements and those contained on the attached sheets.

Type of Controller Volume Density

Type of Signal Mounting Overhead

Hours of Operation as "Stop" and "Go" When not operating as flashing.

Hours of Operation as Flashing As indicated on attached diagram.

Controller Operation Controller to provide the phasing, timing and signal display as indicated on the attached diagram.

All work performed by the Permittee in the erection of the traffic signals shall be under and subject to the direction of the Secretary of Transportation or his authorized representatives. The said Permittee shall use due diligence in the execution of the work authorized under this permit and shall not obstruct or endanger travel along said road. All operations must be conducted so as to permit safe and reasonable free travel at all times over the road within the limits of the work herein permitted.

The Permittee covenants and agrees to fully indemnify and save harmless the Department of Transportation and assume all liability for damages or injury, occurring to any person, persons or property through or in consequence of any act or omission of anyone working on the construction, or from faulty maintenance or operation of such traffic signal.

The Secretary of Transportation, by law, reserves the right to revoke and annul this permit in the Permittee shall at any time willfully or negligently fail to comply with the conditions contained in this permit, or, upon changes in traffic conditions, fail to make any changes in the construction or operation of this signal, or to remove it, when so ordered by the Secretary of Transportation: or if this installation is not in operation within twenty-four (24) months of the receipt of this permit. The Permittee shall maintain the signal in a safe condition at all times. The Permittee shall not make any change in the construction or operation of this traffic signal without prior written approval of the Secretary of Transportation.

This permit cancels and supersedes all previous permits issued for this location upon completion of the installation specified herein.

DATE ISSUED: May 30, 2002
REVISED: December 29, 2006
REVISED: October 23, 2009

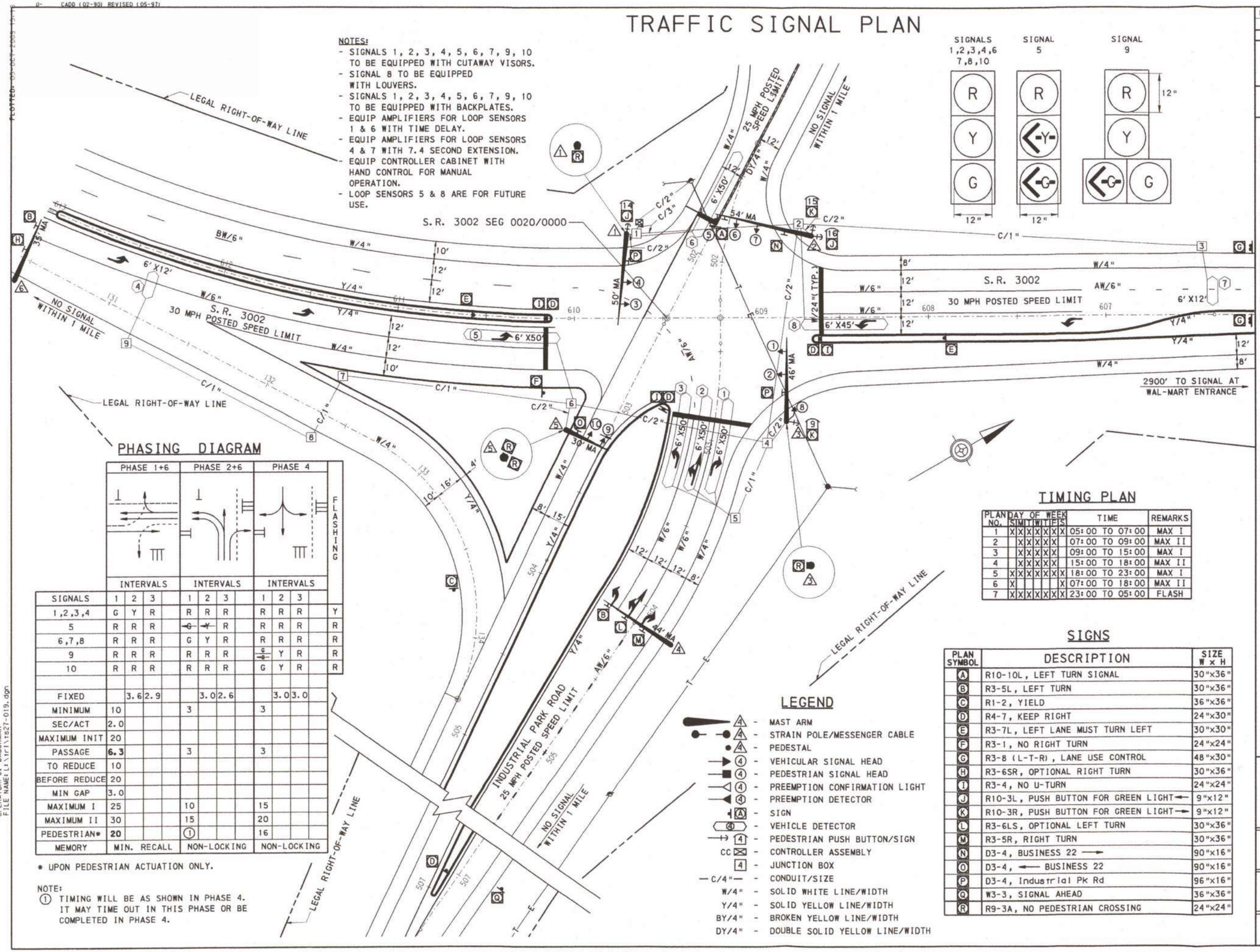
APPROVED Allen D. Biehler, P.E.
SECRETARY OF TRANSPORTATION

BY Michael A. Bagley P.E.
for DISTRICT ENGINEER

0- CADD (02-90) REVISED (05-97)

TRAFFIC SIGNAL PLAN

NOTES:
- SIGNALS 1, 2, 3, 4, 5, 6, 7, 9, 10 TO BE EQUIPPED WITH CUTAWAY VISORS.
- SIGNAL 8 TO BE EQUIPPED WITH LOUVERS.
- SIGNALS 1, 2, 3, 4, 5, 6, 7, 9, 10 TO BE EQUIPPED WITH BACKPLATES.
- EQUIP AMPLIFIERS FOR LOOP SENSORS 1 & 6 WITH TIME DELAY.
- EQUIP AMPLIFIERS FOR LOOP SENSORS 4 & 7 WITH 7.4 SECOND EXTENSION.
- EQUIP CONTROLLER CABINET WITH HAND CONTROL FOR MANUAL OPERATION.
- LOOP SENSORS 5 & 8 ARE FOR FUTURE USE.



PHASING DIAGRAM

SIGNALS	INTERVALS 1	2	3	INTERVALS 1	2	3	INTERVALS 1	2	3	FLASHING
1,2,3,4	G	Y	R	R	R	R	R	R	R	Y
5	R	R	R	~~G~~	~~Y~~	R	R	R	R	R
6,7,8	R	R	R	G	Y	R	R	R	R	R
9	R	R	R	R	R	R	~~G~~	Y	R	R
10	R	R	R	R	R	R	G	Y	R	R
FIXED		3.6	2.9		3.0	2.6		3.0	3.0	
MINIMUM	10			3			3			
SEC/ACT	2.0									
MAXIMUM INIT	20									
PASSAGE	**6.3**			3			3			
TO REDUCE	10									
BEFORE REDUCE	20									
MIN GAP	3.0									
MAXIMUM I	25			10			15			
MAXIMUM II	30			15			20			
PEDESTRIAN*	**20**			①			16			
MEMORY	MIN. RECALL			NON-LOCKING			NON-LOCKING			

* UPON PEDESTRIAN ACTUATION ONLY.

NOTE:
① TIMING WILL BE AS SHOWN IN PHASE 4. IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 4.

TIMING PLAN

PLAN NO.	DAY OF WEEK S	M	T	W	T	F	S	TIME	REMARKS
1	X	X	X	X	X	X	X	05:00 TO 07:00	MAX I
2		X	X	X	X	X		07:00 TO 09:00	MAX II
3		X	X	X	X	X		09:00 TO 15:00	MAX I
4		X	X	X	X	X		15:00 TO 18:00	MAX II
5	X	X	X	X	X	X	X	18:00 TO 23:00	MAX I
6	X						X	07:00 TO 18:00	MAX II
7	X	X	X	X	X	X	X	23:00 TO 05:00	FLASH

SIGNS

PLAN SYMBOL	DESCRIPTION	SIZE W x H
A	R10-10L, LEFT TURN SIGNAL	30"x36"
B	R3-5L, LEFT TURN	30"x36"
C	R1-2, YIELD	36"x36"
D	R4-7, KEEP RIGHT	24"x30"
E	R3-7L, LEFT LANE MUST TURN LEFT	30"x30"
F	R3-1, NO RIGHT TURN	24"x24"
G	R3-8 (L-T-R), LANE USE CONTROL	48"x30"
H	R3-6SR, OPTIONAL RIGHT TURN	30"x36"
I	R3-4, NO U-TURN	24"x24"
J	R10-3L, PUSH BUTTON FOR GREEN LIGHT ←	9"x12"
K	R10-3R, PUSH BUTTON FOR GREEN LIGHT →	9"x12"
L	R3-6LS, OPTIONAL LEFT TURN	30"x36"
M	R3-5R, RIGHT TURN	30"x36"
N	D3-4, BUSINESS 22 →	90"x16"
O	D3-4, ← BUSINESS 22	90"x16"
P	D3-4, Industrial Pk Rd	96"x16"
Q	W3-3, SIGNAL AHEAD	36"x36"
R	R9-3A, NO PEDESTRIAN CROSSING	24"x24"

LEGEND

- MAST ARM
- STRAIN POLE/MESSENGER CABLE
- PEDESTAL
- VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- PREEMPTION CONFIRMATION LIGHT
- PREEMPTION DETECTOR
- SIGN
- VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON/SIGN
- CC CONTROLLER ASSEMBLY
- JUNCTION BOX
- C/4" CONDUIT/SIZE
- W/4" SOLID WHITE LINE/WIDTH
- Y/4" SOLID YELLOW LINE/WIDTH
- BY/4" BROKEN YELLOW LINE/WIDTH
- DY/4" DOUBLE SOLID YELLOW LINE/WIDTH

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
2-0	MIFFLIN			OF
	GRANVILLE TOWNSHIP			

PERMIT NO. 27-19 SHEET 2 OF 2

DATE ISSUED 5/30/02 DATE REVISED 12/29/06

GENERAL NOTES

INSTALL, OPERATE AND MAINTAIN THIS TRAFFIC SIGNAL IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES,

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE,

THE PERMITTEE INSTALLS AND MAINTAINS ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING WHICH ARE CONSIDERED AS PART OF THE PERMIT, UNLESS OTHERWISE INDICATED. THE DEPARTMENT MAINTAINS THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS.

INSTALL POST MOUNTED SIGNALS WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. ALSO, INSTALL SUPPORT POLES FOR OVERHEAD SIGNALS WITH A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

INSTALL SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY WITH THE BOTTOMS NOT LESS THAN 15 NOR MORE THAN 19 FEET ABOVE THE ROADWAY.

INSTALL POST MOUNTED SIGNAL HEADS WITH BOTTOMS NOT LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

INSTALL SIGNALS WITH A MINIMUM HORIZONTAL DISTANCE OF 8 FEET BETWEEN THE HEADS AS MEASURED AT RIGHT ANGLES TO THE APPROACH.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF PA. ACT 287 OF 1994 AS AMENDED BY ACT 187 OF 1996, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PLACE PAVEMENT MARKINGS IN ACCORDANCE WITH TC-8600 PAVEMENT MARKING STANDARDS.

COUNTY: MIFFLIN

MUNICIPALITY: GRANVILLE TOWNSHIP

INTERSECTION: SR 3002 AND INDUSTRIAL PARK RD

REVIEWED: Lisa J. Smisher — MUNICIPAL OFFICIAL — 10/21/09 DATE

RECOMMENDED: Michael A. Barbo, P.E. — DISTRICT TRAFFIC ENGINEER — 10/23/09 DATE

SCALE: 0' 25' 50' 75'

PLOTTED: 05-OCT-2009 15:11
OPERATOR: J. BAUGHMAN
FILE NAME: L:\TRFLTS27-019.dgn